

# Amateur Radio

Volume 79  
Numbers 1 & 2  
January/February 2011  
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# Amateur Radio

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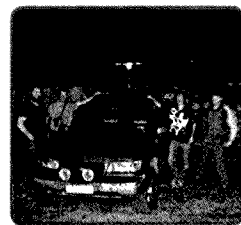
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*Our Cover:  
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fox hunt team,  
who won the  
Melbourne  
December fox  
hunt event, which  
was covered by  
the Norwegian  
production team from "The Golden Goal"  
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Photo by Robert Broomhead VK3DN.*

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## Contributions to Amateur Radio



Amateur Radio is a forum for  
WIA members' amateur radio  
experiments, experiences,  
opinions and news. Manuscripts  
with drawings and/or photos are  
welcome and will be considered  
for publication. Articles attached to  
email are especially welcome. The

WIA cannot be responsible for loss or damage to any material.  
Information on house style is available from the Editor.

### Back Issues

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The opinions expressed in this publication do not necessarily reflect  
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# Editorial

Peter Freeman VK3PF

## Happy New Year

Welcome to 2011 – we have finally ended the first decade of the century.

With the New Year comes the next round of field day/hamfest events. I try to attend such events when I have the time available, but travel adds significantly to that time.

I do plan to attend the Centre Victoria RadioFest in Kyneton, even if it requires six or more hours of driving. I find the personal interaction with fellow amateurs makes the travel all worthwhile. And who knows, you may find a new or second-hand item that catches your eye. Or you may wish to attend one of the presentations on offer. The Central Coast ARC event at Wyong also offers such talks to pass information to newcomers or old hands on aspects of our hobby. Alas, I am unlikely to make it to Wyong, as for me the teaching semester starts at 0900 on the following morning, making it a little too tight time wise.

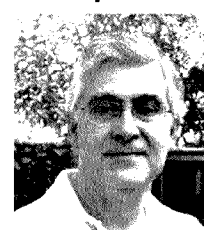
As I prepare this column, it is raining and another humid day. I expect the coming week will bring more of the same, as a system works its way down the east coast and interacts with troughs coming from the west. After a week of media attention on the floods in Queensland, especially around Rockhampton, the media are now giving saturation coverage (excuse the slight pun) of the events around Toowoomba, Ipswich and Brisbane. I am sure that all readers are thinking of those impacted and assisting in whatever way they can contribute. We certainly live in a continent which has weather extremes.

The downside of the warm, wet weather locally is to slow progress on the re-establishment of a radio shack at VK3PF. I have started to set up a room, with the radio gear on one side and the "study" on the other side. I have commenced the paperwork to gain the necessary permissions for erecting a tower and am considering my options of how to get the feedlines into the shack. The Nally tower support pole is at a local

engineering workshop to be refurbished prior to replanting and I have purchased new winches for the tower.

All of this means that I am unlikely to be participating in the Ross Hull Contest, other than perhaps using contacts from the Summer Field Day contest. I will need to decide the manner of my participation in the Field Day – probably on a hilltop somewhere, perhaps for only a few hours? But first I will need to check the microwave transverters and find all the portable equipment.

## A new production system for AR



On behalf of the Publications Committee, I welcome Sergio Fontana VK3SFG to *Amateur Radio*. Sergio has a long background in graphics design and has an

excellent skill set that will be put to work in the layout of each issue of this magazine.

Sergio has been busy over the last few weeks, becoming familiar with our requirements, establishing contact with the printer and mail house and starting to layout some of the articles for this issue.

Hopefully all will go as planned, and all involved will move to our new arrangements. Regular contributors will already be aware of the new schedule of deadlines. I do hope that everyone was paying attention during last year and remembers the new submission arrangements for all content, be it a regular column, an article or just an item for Hamads. If not, you can always check the left-hand column on page 1 of each issue.

This issue is a combined January and February issue, with 64 pages of information for you to read. Next month, we will be back to the standard 56 pages. Until then.

Cheers,

Peter VK3PF





# WIA comment

Michael Owen VK3KI

## Many Places, Many People, Common Themes

November and December 2010 were very special months.

I visited Darwin, Adelaide, the Gold Coast, Brisbane, Rockhampton and Perth.

In Adelaide, Rockhampton and Perth, I attended meetings of clubs. In Darwin (apart from working with Darwin Club President Spud Murphy to organise the next Annual Conference, as we are now calling the Annual General Meeting weekend), I really had the same sort of discussion as I had with the clubs.

Basically, the theme at each of these meetings was the same:

- what the WIA was doing,
- the Centenary year and VK100WIA,
- the next Annual Conference,
- the financial pressure on the WIA without even a CPI increase since the subscription rates were set in 2004,
- the WIA's representation and advocacy role, including preparation for WRC-12 with Dale Hughes first in Geneva and then in Hong Kong,
- the WIA's representations to ACMA in respect of amateur transmitter power limits and the 50 – 52 MHz band, the changes to the LCD,
- the National Field Day and what could we learn from the first Field Day,
- this magazine *Amateur Radio*, and my inevitable plea for new members.

In addition, I was able to meet with many members of the various advisory committees, and hear their views and discuss their roles, particularly important as we try to put a new emphasis on their role by Mai Brooks, the WIA Manager, becoming their point of communication.

No, I do not want to turn this into some sort of minute of all of those meetings. What I want to do is to synthesise my overall impression of what came from those meetings.

One thing that struck was the very real support of the WIA by some clubs – the Rockhampton and District Amateur Radio Club asked me to present on their behalf a special medal that they had struck for members of the club who had been WIA members for 25 years. I was presented with a very handsome medal that had been produced by the Ipswich and District Amateur Radio Club, marking the WIA's Centenary year.

In Perth I presented the Jim Rumble Award for outstanding contribution to amateur radio in Western Australia by Heath Walder and Monique Faulkner – an award that had since 1977 been presented by the old WIA Western Australia Division, became a responsibility of the restructured national WIA and was revived by Christine Bastin and WIA Director Bob Bristow.

Wherever I went there was a general acceptance of the WIA's advocacy role, particularly at the ITU/APT/IARU level. The WIA's role was seen as important, and (as long as I didn't try to go into too much detail) an important reason for membership.

Another matter discussed at all these meetings was the National Field Day. Some common views emerged. Let's have it earlier, let's use things like IRLP so we can get reliable communications, and let's be better at communicating our message to people who know nothing about amateur radio.

One thing that really encouraged me was this: the support for the next AGM in Darwin on 27, 28 and 29 May 2011. That support by the Darwin club was probably the real reason why the Board chose Darwin.

But the support for going to Darwin by many people across the country was really encouraging. (I just hope that is translated into early registrations, as we will not be able to hold bookings as easily as we have in the past).

A gratifying issue was this magazine. It was seen as very valuable, and a number of clubs thought that they should contribute more about their own activities.

But of course, this is a case of success producing its own problems. Yes, everyone wanted the technical articles (though different people wanted the articles at different levels), everyone wanted up to date news and information, as well as their own club news. Why not just add more pages? Oh, cost. Obviously we need to cut down, but not any of the things we value.

What the WIA should spend its money on emerged in a number of different ways. More repeaters was one suggestion. Subsidising very small, otherwise non viable clubs was another.

Once people accepted (if they did) that the WIA did not have unlimited funds, deciding what to save money on was a bit hard.

Another message that was delivered in a number of contexts was that people will accept delays and understand that much of what we all do is done on a voluntary basis, and we just cannot be too demanding. But people will not accept just hearing nothing. They want to know what is happening.

If they have sent an email or letter to the office or to an individual, they want a response.

If they have sent an item for the magazine, perhaps about a club activity, they don't want it just not published, they want it acknowledged, and better, explained why it wasn't published.

Continued on page 4

## National Field Day 2011

WIA Director Philip Adams VK3JNI has announced details for the 2011 WIA National Field Day, with the event to be held on Sunday 17 April 2011.

Many operators participating in the 2010 event requested a change away from the October date. The suggestion to have the event close to IARU World Amateur Radio Day, April 18, seemed to provide a newsworthy story. The IARU have announced that the theme for the 2011 World Amateur Radio Day will be "Amateur Radio: The first technology-based social network", which the WIA has adopted as the theme for the 2011 WIA National Field Day.

Rules and guidelines will be announced shortly.

## ITU-R SG5 Meetings in Geneva

Dale Hughes VK1DSH attended the Study Group 5 (SG5) of the International Telecommunications Union meeting in Geneva, 8 to 18 November 2010. He represented the Wireless Institute of Australia as part of an eight person Australian delegation. Other delegates were from various government agencies, broadcasters, and spectrum engineers.

SG5 deals with fixed and mobile communications services including the amateur radio service.

Among the agenda items covered at the meeting was WRC-12 Agenda Item 1.23 "Allocation of about 15 kHz in parts of the band 415-525.6 kHz to the amateur service on a secondary basis". WP5.1 undertakes the necessary engineering studies to demonstrate the compatibility of

amateur transmissions with other primary users in the frequency range.

During the meetings a number of other issues that may affect amateur radio operations were also monitored.

## WA Club Meeting

The first meeting since the restructure of the WIA of its affiliated clubs in Western Australia was held in Perth on Saturday 18 December 2010.

Representatives of the WA Repeater Group, Hills Amateur Radio Group, the West Australian VHF Group, the Scout Communications Team, Ham College, WICEN West Australia and Northern Corridor Radio Group met with members of the WIA Western Australia Advisory Committee, WIA Director Bob Bristow VK6POP and WIA President Michael Owen VK3KI.

The WIA President outlined the current matters engaging the WIA, and raised a number of issues for discussion.

Each group then reported on its current activities and concerns, responding to some of the issues raised and a constructive discussion followed.

Michael Owen said that the meeting had been very useful, and that he hoped it would become a regular event, as it had become in South Australia and Queensland.

## VK6RK New Awards Manager

WIA President Michael Owen VK3KI announced on 18 December 2010 at a meeting of WA clubs that the WIA Board had appointed Keith Bainbridge VK6RK a member of the WIA Awards Committee. The Board had acted on the advice of Chris Piatt VK5CP, the WIA Director responsible for Awards.

The current WIA Awards Manager Eddie de Young VK4AN had advised the Board that he would not seek reappointment, and the Board has also appointed Keith as WIA Awards Manager. In accepting the resignation of Eddie, the WIA Board formally recorded its gratitude for his contribution to the WIA.

## WIA Jim Rumble WA Amateur of the Year Award Presented

The Wireless Institute of Australia Western Australia Division created the Amateur of the Year Award in 1977. In 2000 the Award was renamed the Jim Rumble Amateur of the Year Award, in honour of VK6RU, a former President of the Division and the VK6 QSL Manager for an incredible 61 years.

With the restructure of the WIA in 2004 the national WIA took over the Award, to continue to recognise the Western Australian amateur making an outstanding contribution to amateur radio.

WIA Director Bob Bristow VK6POP, encouraged by Christine Bastin VK6ZLZ, resurrected the award. On Sunday 19 December 2010, at an informal barbeque in Kings Park, Perth, the Jim Rumble Award was presented by WIA President Michael Owen VK3KI to Heath Walder VK6TWO and Monique Faulkner VK6FMON.

Heath and Monique organised the collaboration of the various WA amateur radio groups to conduct the very successful Super Springtime promotion of amateur radio to the public in September and October 2010.

## WIA comment

Continued from page 3

If a club has lodged an application for a repeater or beacon licence, or the variation of such a licence, they don't want it all to just disappear; they want to know what is happening.

That message was very clear.

And so we have been talking about systems in the office to ensure adequate follow up.

Against this, many people went

out of their way to acknowledge the people they saw as making a special contribution to the WIA. That included the WIA office staff, always friendly, and things happened, the contribution of Peter Wolfenden, and his historical articles, Peter Freeman as Editor. Another matter regularly the subject of favourable comment was the Media Kit.

I hope that in writing this Comment I have been able to convey to the many people who contributed to these meetings how valuable it all was, and how much I really appreciated their valuable input.

For me, to participate in all those meetings in all those places was a great privilege.



## Top End WIA Annual Conference

Details are now online for the next WIA Annual Conference, the annual weekend in May where the WIA AGM and Open Forum are held in conjunction with a range of activities of interest to members and their partners. Darwin has been selected as the venue for the 2011 conference. The weekend commences Friday evening 27 May and runs through till Sunday evening, 29 May.

The weekend program includes a sunset dinner at the popular Darwin Trailer Boat Club, a tour of Litchfield Park incorporating a BBQ lunch, the WIA Annual General Meeting and Open Forum, a Symposium titled Technology for the Bush which will

include the Centre for Appropriate Technology and the annual WIA Dinner. The weekend will be capped off with a Sunday evening visit to the Mindil Beach Sunset Market which is being arranged by members of the Darwin Amateur radio club.

A special accommodation rate incorporating breakfast for two is available from the Travelodge Mirambeena Resort in Darwin, the host site for the weekend activities.

Members are urged to register now and to book their accommodation with the Mirambeena Resort.

Look for menu item "WIA Annual Conference Darwin" under the "About the WIA" tab on the WIA home page.

## Hong Kong APG Meeting

In December 2010 the Asia Pacific Telecommunity, the APT, which is the regional telecommunication organisation that covers the ITU's Region 3, held another of the series of meetings intended to develop common positions among Region 3 administrations to the agenda items for the World Radiocommunication Conference to be held in Geneva in the early part of 2012, WRC-12.

A member of the Australian delegation, providing a specialist amateur contribution, was Dale Hughes VK1DSH, nominated and paid for by the WIA.



# Zone 29 Award

Keith Bainbridge VK6RK  
vk6rk@wia.org.au

The Zone 29 Award is offered by the Wireless Institute of Australia, to all licensed radio amateurs and SWLs throughout the world.

To qualify, the following conditions must be satisfied:

1. Establishment of two-way communication with any 25 (twenty-five) different amateur stations located in Zone 29. Only contacts made after 0800 UTC on 1 January 1980 are valid.
2. The total of 25 different stations may be obtained by operation on one or more of the authorised amateur bands, as applicable at the time of the claimed contact. Cross-band contacts will not be accepted.
3. Any type of emission as permitted by the local licensing authorities at the time of the claimed contact may be used. Cross-mode contacts will not be accepted.

4. Applications containing multi-band and multi-mode valid contacts will be accepted but the award will be issued with no endorsement.
5. Special endorsements, as listed hereunder, will be displayed on the Award certificate, where applicable, when all valid contacts fulfil the following conditions:
  - a Single Band Multi Mode
  - b Single Band All Phone
  - c Single Band All CW
  - d All Phone Multi Band
  - e All CW Multi Band
  - f All Digital Multi Band
  - g Multi Mode Multi Band
6. Short Wave Listener applications will be accepted and the Award certificate issued, with appropriate endorsements as applicable, when all conditions listed above are met.
7. QSL cards are not required as proof of valid contacts but the

application must show that log extracts have been examined and verified by two other radio amateurs or the Awards Manager of the applicant's IARU affiliated radio society.

A simple declaration that the applicant's station has conformed to all licensing regulations as related to his operation is mandatory.

8. The fee for the Award shall be \$10 (Aust) or 5 (five) IRCs for overseas stations.
9. Essential information required will include:  
Callsign of Station Worked /  
Heard, Band (MHz),  
Mode Used, Date / Time (UTC)

Standard-form application sheets are available.

Applications should be addressed to:

Award Manager, Zone 29 Award,  
P.O. Box 204, Bassendean  
Western Australia 6054



# A polarity protection circuit using a power FET

Dale Hughes VK1DSH

Some time ago, I had the unpleasant experience of applying reverse polarised power to a radio and then having to repair it. Since then, I usually install polarity protection in any equipment I make or buy so that mistake cannot be repeated. There are a number of commonly used ways to add polarity protection: a series or shunt diode, or a diode and relay that will supply power only when the supply is of the correct polarity. The components are inexpensive and virtually eliminate equipment damage if the supply is reverse-polarised.

Having recently acquired a new radio, I wanted to add polarity protection; but what is the best method? The simple series diode is effective, but it adds a small voltage drop, of 0.2 to 0.7 volts depending on the type of diode, that may be of concern depending on battery capacity. The diode-relay combination is also good and has been my preferred option, but it increases current consumption which is something I wanted to avoid in this case.

A very neat solution was found in an RSGB<sup>(1)</sup> publication that used an enhancement mode P-channel power FET to provide an effective polarity protection scheme. Figure 1 shows the schematic diagram; the power FET is used as a switch that will only pass current when the correct polarity voltage is applied. It might appear that the P type FET is connected in the wrong way with the drain electrode connected to the positive supply, however the drain-source 'channel' is essentially bi-directional and the only thing that matters is the polarity of the gate-source connection, and in this case the gate has to be more negative than the source for the device to fully conduct. This configuration is necessary so that the parasitic drain-source diode of the FET is of the correct polarity – otherwise the parasitic diode would pass current when the polarity was reversed and the protection scheme would be useless. Note that current will flow through the parasitic diode in this configuration, even if the gate is not connected, but the usual diode voltage drop will occur. Switching the FET on ensures a forward voltage drop of only a few millivolts.

The FET (Q1), a TO-220 device, has a current rating ( $I_D$ ) of 88 amps, a breakdown voltage rating ( $V_{DSS}$ ) of 55 volts and a very low 'on' resistance ( $R_{DS(on)} < 0.018$  ohms). This results in a very robust circuit that will tolerate short circuits without damage, adds negligible voltage drop and dissipates very little power – making it ideal for the protective application.

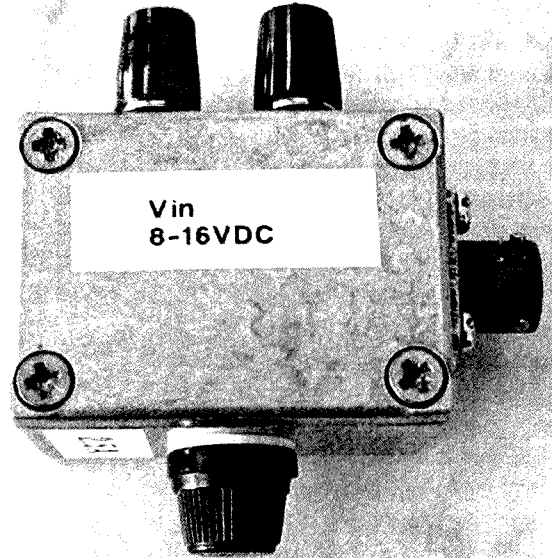


Photo 1: Shows a photo of the completed unit.

An optional Zener diode (D1), or other transient protection device, can be fitted to provide limited over-voltage protection. Such devices usually fail to a short circuit when subject to sustained over voltage; this will rupture the fuse and protect the attached load.

The unit was built into a small diecast box with terminals for the battery supply and a polarised connector for the radio supply – this reduces the possibility of accidentally bypassing the protection circuit. Photo 1 shows the completed unit.

Reference 1: *Technical Topics Scrapbook, 1990 to 1994, page 235. Pat Hawker G3VA. RSGB.*

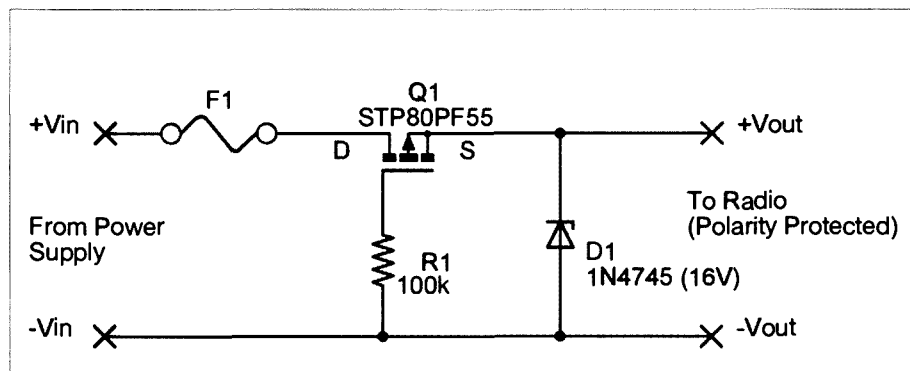


Figure 1: The schematic diagram of the polarity protection circuit.



# An introduction to antenna modelling

Ron Sanders VK2WB  
ron.kiama@gmail.com

If you are interested in seeing the characteristics of an antenna system, without actually building it, a modelling program such as EZNEC will provide enough information to allow you to decide whether it is suitable for your requirements. This is particularly true for a wire antenna, where space restrictions may prevent an ideal layout. I have chosen EZNEC as it is probably the easiest program to use.

This article is intended for beginners to amateur radio and will refer to the free demonstration version in sufficient detail to make a start with a simple antenna. The program divides antenna radiating elements into segments which are used to build a representation of the overall current distribution along the element. The more segments you use, the better the result. In the demonstration program some outputs are restricted to 20 total segments whereas the full (paid) version allows 500.

Some data has an asterisk (\*) in places to show results when using 100 segments.

A search on the internet with the word 'EZNEC' should get you to Roy Lewallen's (W7EL) homepage which has the latest version (currently EZWDemo50Inst.exe) for downloading.

The EZNEC main screen is shown below. On the File dropdown list select the file Bydipole.ez. This file uses units in feet (ex USA) and I have left it that way to simplify the following explanation. After you are familiar with using it you will probably want to change to metric units.

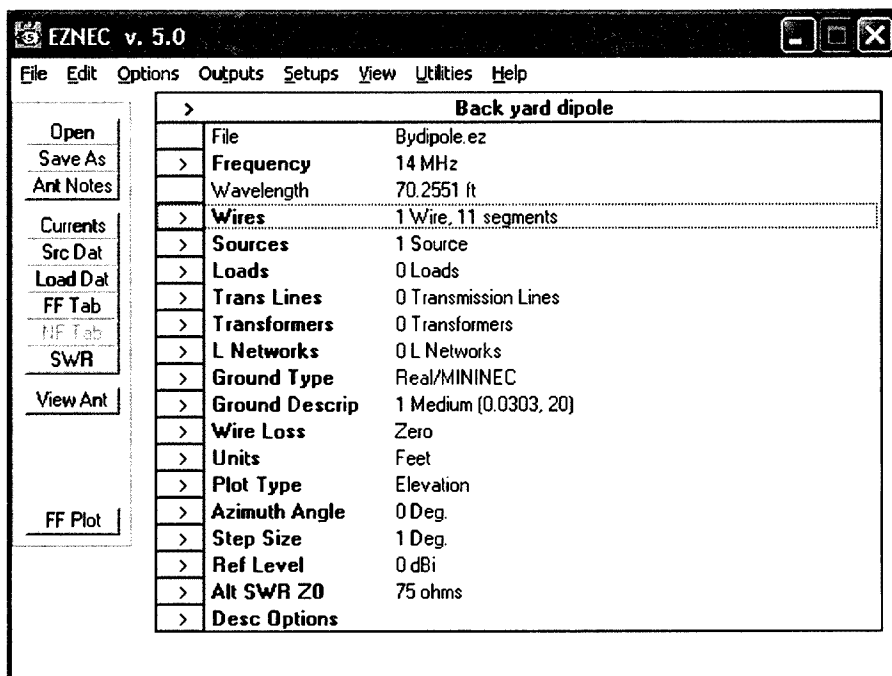


Figure 1: Main screen.

[Results are included in metric in the text. It is simple to change from imperial to metric units – simply click on Units from the main screen. Ed].

The main screen shows > pointing to each data item. By clicking on >, a separate screen appears which allows you to enter or alter data relating to that item. The buttons listed down the left hand side carry out operations and display the results.

The screen shown is for a dipole with the following characteristics: **Frequency** - 14 MHz, which consists of **Wires** -1 wire, 11 segments, **Sources** -1, **Ground Type/Description** – Real, 1, **Wire Loss** – Zero, **Units** - Feet, **Plot Type** - Elevation, **Azimuth Angle** - 0 Deg, **Step Size** - 1 Deg, **Ref Level** - 0 dBi, **Alt SWR Zo** - 75 ohms.

Let us look at some of the data screens.

## Wires

In EZNEC all straight elements are referred to as Wires even though they may be tubes – as in a beam. The dimensions of each wire can be specified in various units and the physical location of each end is given by 3-dimensional (x, y, z) co-ordinates. If you have an antenna with a bend you would specify 2 wires with Wire 1 End 2 joined to Wire 2 End 1. For now we will only use the example provided.

This shows a 33.43 ft [12.29 m], #12 AWG [2 mm] wire, 30 ft [9.14 m] above ground made up of 11 segments.

No.	End 1			Conn	End 2			Diameter (in)	Segs
	X (ft)	Y (ft)	Z (ft)		X (ft)	Y (ft)	Z (ft)		
1	0	0	30		0	33.43	30	#12	11
*									

Figure 2: Wires screen.

## Sources

A source consists of a voltage or current source located along a wire.

Sources							
No.	Specified Pos.	Actual Pos.	Amplitude	Phase	Type		
	Wire #	% From E1	% From E1	Seg	(V, A)	(deg)	
1	1	50	50	6	1	0	1

Figure 3: Sources (I) screen.

This is a current source (Type I) located in the middle (50%) of Wire1 and has an amplitude of 1A at 0 deg.

The remaining data screens provide choices for each parameter and are self explanatory.

## Some of the output screens

### View Antenna

This display shows the 3-dimensional layout of the antenna as described above. The options panel on the left allows manipulation of the plot and by hovering over the wire or segments additional data is displayed.

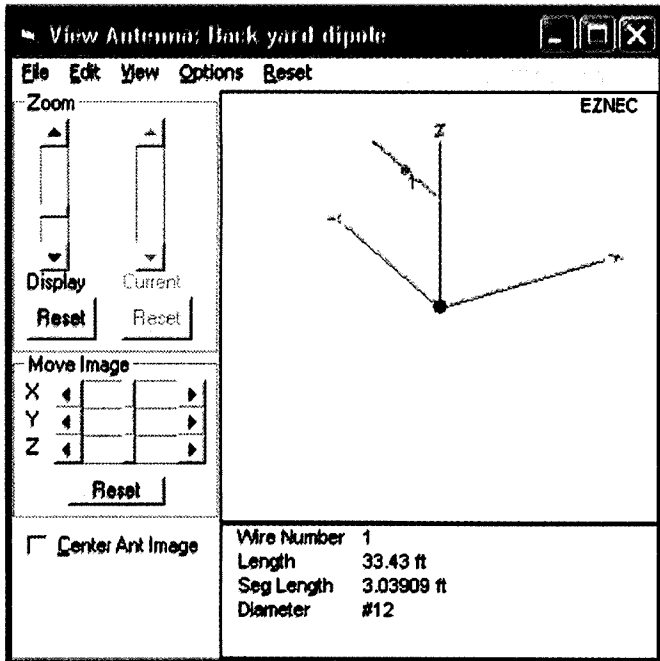


Figure 4: View antenna screen.

## Currents

Shows the Connections, Current and Phase for each segment along the wire. Note that the current source is as specified for segment 6 (centre of wire), 1 A at 0 deg and the current decreases symmetrically as you move towards the ends (\* segments 1 and 11 = 0.02171 A at -4.74 deg).

Wire No.	Segment	Conn	Magnitude (A.)	Phase (Deg.)
1	1	Open	.15571	-4.11
2	2		.42759	-3.50
3	3		.65667	-2.81
4	4		.83515	-2.00
5	5		.953	-0.99
6	6		1	0.00
7	7		.953	-0.99
8	8		.83515	-2.00
9	9		.65667	-2.81
10	10		.42759	-3.50
11	11	Open	.15571	-4.11

Figure 5: Currents screen.

## Src Dat (Sources Data)

The Source Data shows that the Impedance of the antenna at the source is 79.16 - j45.07 ohms (\* 78.63 - j44.08 ohms). [Where j =  $\sqrt{-1}$  and is used to quantify the reactive component of impedance. Ed]. With a 1 A source the power into the wire would be 79.16 watts. The SWR is shown for 50 ohms and the Alt SWR Zo of 75 ohms. Notice that SWR is better for a 75 ohm system, so we will use it from here on.

Figure 6: Source Data screen.

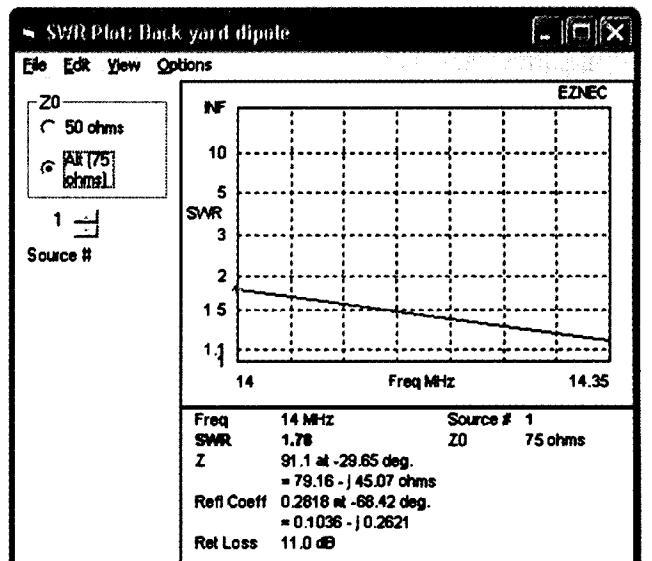


Figure 7: SWR screen.

## SWR

In the initial dialog for SWR, I sweep from 14 to 14.35 MHz in steps of 0.05 MHz, and plot for a  $Z_0 = 75$  ohms. From the plot it appears that the SWR is getting better at the higher frequency, so we can assume that the wire is too short for the 20 metre band.

By lengthening the antenna (Wire 1) to 34 ft [10.36 m] and running SWR again we can see that the SWR is now lowest near the centre of the 20 metre band – right where we want it.

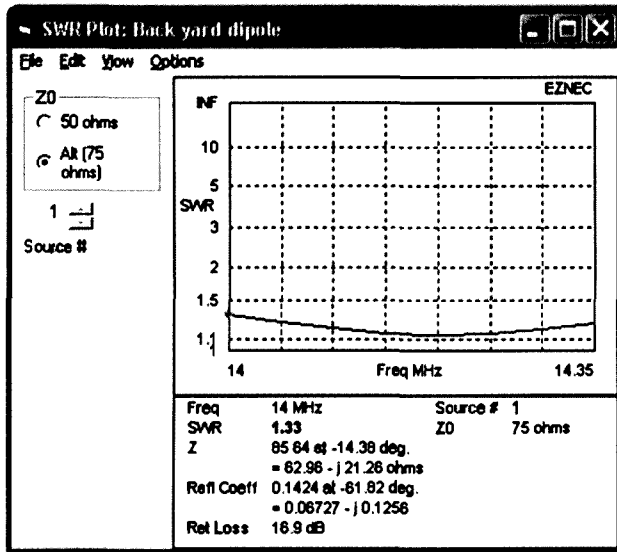


Figure 8: SWR screen for the back yard dipole.

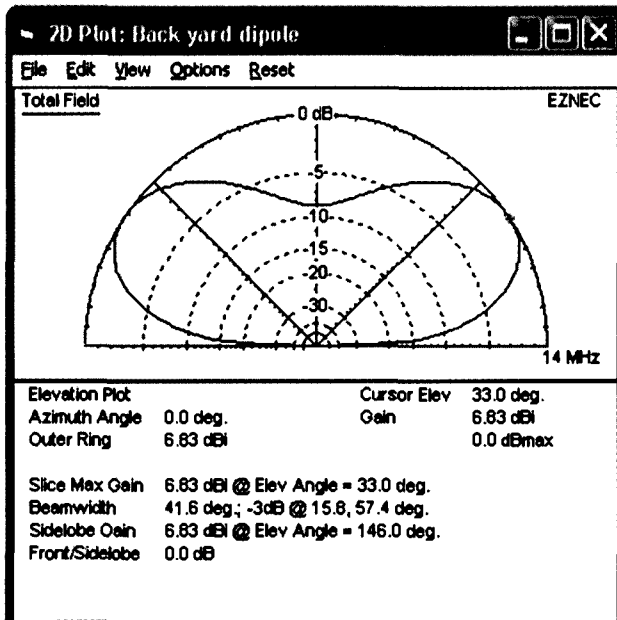


Figure 9: FF plot elevation.

## FF Plot (Far Field Plot)

The **Plot Type** is selected as Elevation at an **Azimuth Angle 0 deg**. The **Ref Level** is specified on the main page as 0 dBi, so the plot shows the maximum radiation (gain) to be 6.83 dBi @ 33.0 and 146 deg Elevation.

Now select **Plot Type** as Azimuth at **Elevation Angle 33 deg**, which was the elevation for maximum gain in the previous plot. This shows that maximum gain occurs at 0 and 180 deg and is 6.83 dBi, and minimum gain occurs off the ends and is 7.89dB below maximum.

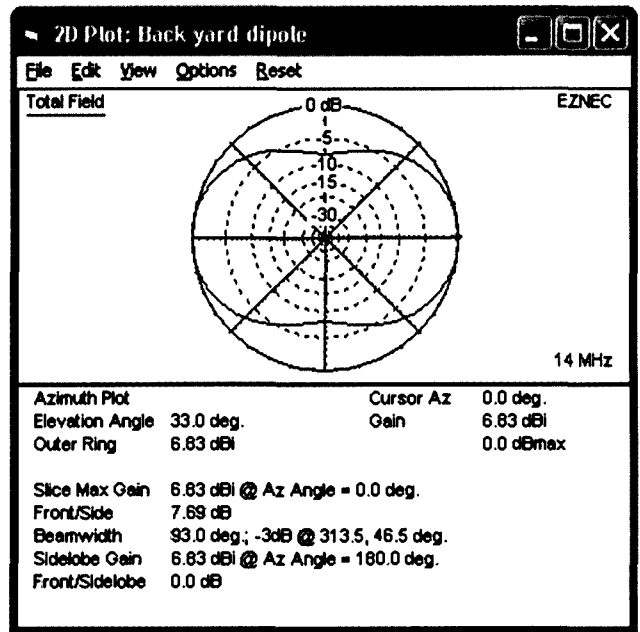


Figure 10: FF plot azimuth.

## Adding a Transmission Line

A real antenna must have a feeder to connect the transceiver to the feedpoint. The **Trans Line** screen allows you to place the connection point on the wire, enter the length (40 ft) [14.58 m],  $Z_0$  (75 ohms), and **Velocity Factor** (0.7) and **Loss** for the particular cable selected. Since the 75 ohm feeder has replaced the source, we have to re-locate the source to the far end of the transmission line. The new location is named V1, denoting a "virtual" location with respect to Wire 1. These new screens are shown below.

In EZNEC a transmission line connection is shown as a **T** in a square box. This replaces the **Source**, which is now moved to its new location, shown as **V1** at the end of the transmission line. These changes are now shown in **View Ant** below.

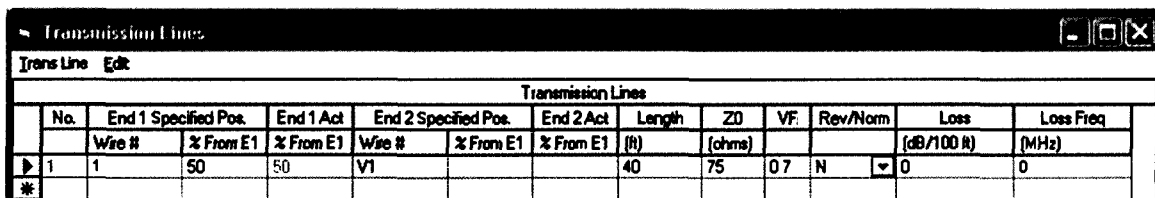


Figure 11: Transmission lines screen.

Sources							
No.	Specified Pos.		Actual Pos.		Amplitude	Phase	Type
	Wire #	% From E1	% From E1	Seg	(V, A)	(deg)	
1	1/1			1		0	1
*							

Figure 12: Sources screen (2).

### Additional Input Data

EZNEC allows you to add extra elements, matching networks, stubs and transformers to make a complete antenna system. The Help menu in the program shows how to add these more complex operations, and should be the reference for all operations.

### Conclusions

After the transceiver, the antenna is the most important item in the amateur station.

For this reason I hope some of the new licence holders will find this article interesting, as it combines computer use with the design of a real antenna.

Finally, do not forget, you *cannot* make contacts via a simulated antenna – you actually have to build it and get on the air.

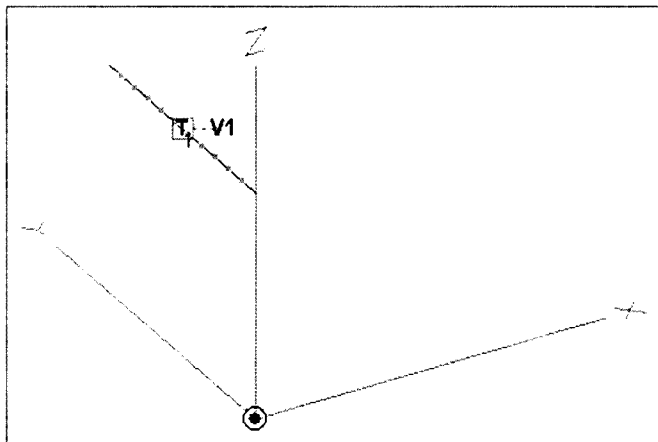


Figure 13: View antenna screen (2).

### Notes

The author wishes to thank EZNEC author Roy Lewallen W7EL for his permission to feature EZNEC® in this article.

*(A production issue delayed publication of this article in the December issue. Ed.)*

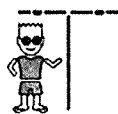


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## Miena Hamfest 2010

What a fantastic day this was. Hosted by the Central Highland Amateur Radio Club of Tasmania (CHARCT), the day saw over 150 people attend. There were some great raffle and door prizes donated by our wonderful sponsors who included: TTS Systems (Dave and Chloe), TET Emtron (Mark), P.K. Antennas (Peter) and Active Electronics. There were many stands of pre-loved equipment including a stand manned by John VK1CL all the way from VK1. A big thank you to Marilyn VK7FMAZ and her band of merry caterers in the kitchen and the crew on the BBQs, and a big thank you to Dave VK7OB and all the members of the CHARCT who always put on a great day.

The last few months have seen many visitors to VK7 and one notable OS amateur was Johnny Tan 9M8DB, who the author met for coffee. Johnny is from Sarawak in Malaysia and was attending his daughter's graduation in Hobart. Johnny is active on the SEANET (14.320 at 1200 GMT).

Scott VK7HSE let me know that he has upgraded the Southern APRS IGate to now serve as a Tier2 service. The Tier2 identifier is T2TAS (formally VK7HSE-JS).



Miena Hamfest – REAST Stand showing DATV and HPSDR (Photo: VK7FTCL).



Miena Hamfest – Central Highlands of Tasmania (Photo: VK7FTCL).

Status page can be viewed at <http://tasmania.aprs2.net:14501/> or <http://150.101.108.109:14501/> (if DNS doesn't resolve) and the site location map can be viewed at [http://f5vag.nerim.net/php/map\\_t2.php?server=T2TAS](http://f5vag.nerim.net/php/map_t2.php?server=T2TAS)

## Northern Tasmania Amateur Radio Club

The NTARC Christmas BBQ saw about twenty people venture to Myrtle Park and even visitors from the NW in Max VK7KY and Shirley VK7HSC, who donated a beautiful hand-made wooden fruit bowl and cake stand, which will be raffled off at the AGM in February. The fishing was good with Barry VK7BE catching four fish for the evening! A quick reminder to NTARC members that membership fees are now due. We also congratulate Hayden who has upgraded to an advanced licence and is now VK7HA.

## Cradle Coast Amateur Radio Club

Please note that 2011 starts with the New Year Dinner at the Bass and Flinders Motel in Ulverstone on February 5. Please let President David VK7EX know if you will be attending.

## North West Tasmanian Amateur TeleVision Group

The SSTV Gateway on VK7RTV has been upgraded and is now running the SlowScan TV.net application. The gateway has been moved to the MS.Net framework and will be evaluated over the next few months. It can be accessed on 145.625 MHz for local SSTV users.

## WICEN Tasmania (South)

Roger VK7ARN let me know that the end of year 2010 WICEN lunch was well attended with thirty WICEN South members and guests attending. It was great to see so many XYLS, Geoff VK7GW and XYL Jenny from NE VK7, REAST representatives with XYLS and committee members of the Southern Tasmanian Endurance Riders.

During the lunch, Ossie Owens, President of the Southern Tasmanian Endurance Riders presented WICEN Chairman Chris Webb VK7FCDW with a certificate of Appreciation awarded to WICEN for commitment and dedication to supporting equine endurance riding, through the provision of radio communications for safety and rider tracking.

### Radio and Electronics Association of Southern Tasmania

The REAST 2010 end of year celebration saw about 30 people

enjoy BBQs, in both the afternoon and evening sessions. We welcomed Leigh VK7FLAR one of our recently successful Foundation licence holders – congratulations. We also congratulated the following upgrades: Scott VK7HVK, Tony VK7VKT, Roger VK7HT and Roger VK7ALA.

REAST members will be receiving their membership reminders in the mail in the near future. 2011 callbooks have arrived and are available from Clayton VK7ZCR at the Caltex Service Station, corner Main Road & Amy Street Moonah.



## OTY Coaxial cables

Reading the article about separating coaxial cables from Hank VK5JAZ, I was reminded of things taught to me when I learnt about amateur radio.

As a young boy, I used to separate the braid using a sharp-pointed tool.

Around 1960, a tradesman taught me that the appropriate tool was either a file-card or a stiff wire brush. The time needed is decimated, as is the damage to the cable.

I am surprised to read, 50 years later, that this lesson is still not taught.

**Duncan Eales VK3LQ**



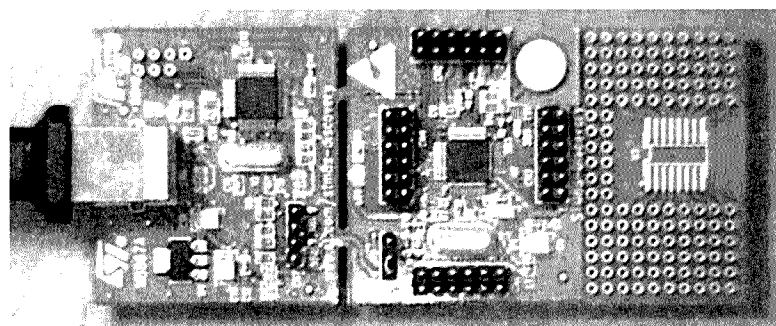
## Cheap as chips

*Nigel Andrews VK4FNA*

There is no doubt that in our modern world of amateur radio a microprocessor or microcontroller of some sort is incorporated in most of the electronics we use. More and more we see homebrew designs utilising microcontrollers, ranging from simple tasks such as programming a PLL, adding a digital display or using an encoder to select frequencies to more complicated designs using DSP and advanced data communication.

Recently I came across a development board which uses a ST microcontroller in their STM8S discovery board. What attracted me was the price; all up, with controller (STM8S105C6 – see [www.st.com/mcu/devicedocs-STM8S105C6-113.html](http://www.st.com/mcu/devicedocs-STM8S105C6-113.html)) and USB interface it only cost a shade above \$11.00 and included free delivery if ordered online (v – PN 177-525101).

This development board allows you to connect just about anything to it such as an LCD display, to measure voltages, generate sound



*Photo 1: The STM8S development board.*

and program PLLs – it is quite a powerful little micro that clubs could use in their next project. The board is supported by a full programming environment and can be downloaded on the ST website along with free C compilers which will compile programs up to 16 kB in size (the free version) – enough to drive most small projects.

The only drawback, as with all microcontrollers, is the need to know and understand programming and whilst not impossible for most it simply is not for everyone.

Downloading firmware is quite easy as the software is free and the board uses a USB port to do this. It also came pre-programmed with a flashing LED program with touchpad control which you can modify and make do other things.

Not everyone's cup of tea but if you have a friendly programmer nearby it can make a great addition to that next project and maybe help others learn a bit more about the world of microcontrollers.



# JOTA weekend October 2010

Eddie Tomes VK4TJE

As part of JOTA 2010 the Scout Leader of the Birkdale Scout Troop, Ian Perkins VK4YIP conducted the investiture of two Cubs into the Scout patrol, by radio.

Ian took a handheld radio and strolled off into the leafy grounds of Karingal Scout Camp while the patrol were still taking part in the JOTA event, ably assisted by the Bayside District Amateur Radio Society, who have been providing JOTA assistance for over 25 years at Karingal Scout Camp, Mt Cotton, Kindilan Guide Camp, Redland Bay and at the 1st Bay Island Guides. Then, a radio call was received on the VHF set in the shack. The assisting leader called the patrol to order and the investiture took place as the last radio activity for the weekend. Ian explained that he liked to make the movement from Cubs to Scouts a special occasion.



Photo 1: VK4WST holding the microphone.

The Scout leader from the Birkdale troop was Ian Perkins VK4YIP, and the radio operators for the weekend were Tom VK4TY, Victor VK4WST, Mark VK4FMWR, James VK4HJB, Darrell VK4HDC and Eddie VK4TJE. HF, VHF and UHF radios, a HF receiver, two linked Morse keys and some construction were provided. The Scouts did their part by being an attentive, eager and very pleasant group with whom to be associated, and we look forward to many more events with them.

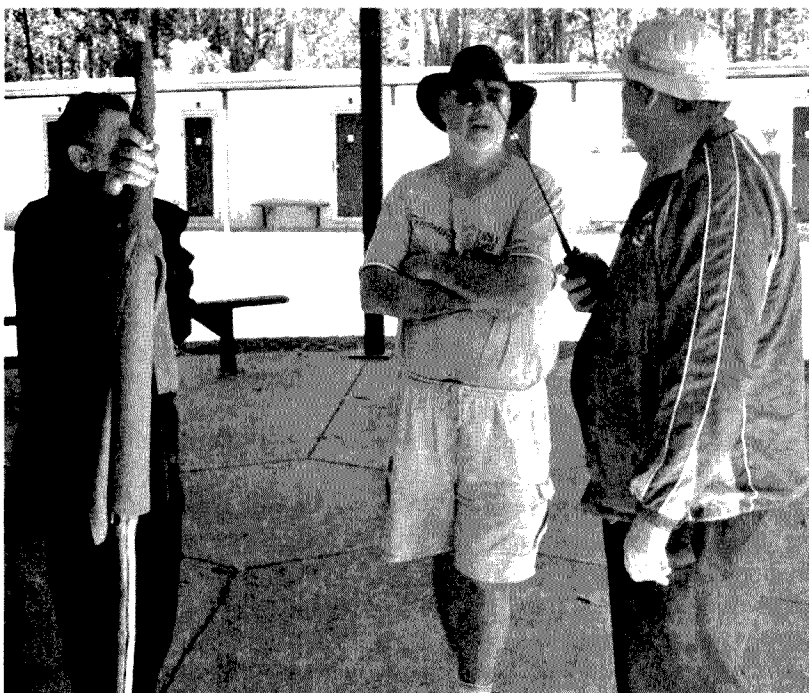


Photo 2: The induction.

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Look forward to hearing from you

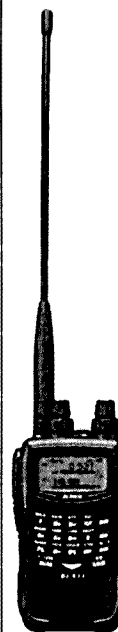


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# Contesting for beginners

Alan Shannon VK4SN

Contesting grew out of other amateur radio activities in the 1920s and 1930s. As transoceanic communications with amateur radio became more common, competitions were formed to challenge stations to make as many contacts as possible with amateur radio stations in other countries. Contests were also formed to provide opportunities for amateur radio operators to practice their message handling skills, used for routine or emergency communications across long distances. Over time, the number and variety of radio contests has increased, and many amateur radio operators today pursue the sport as their primary amateur radio activity. Reference: Wikipedia.

Many newcomers have populated the contest bands since the introduction of the Foundation Licence. It is excellent to hear more calls and increase the fun of contesting.

The international contests normally run over a 24 or 48 hour period. Starting on a Saturday and finishing the following Monday is a very long time to sit on a radio. Some operators stay up overnight and put in a grand effort, but over a 48 hour period, many will find that multi operator is a better choice for them. I, for one, like my sleep!

A good place to start is short, single band, single operator contests. There are many local VK contests that run for one or six hours. One hour contests are normally referred to as sprints.

If you are not really confident to kick off on your own, then I am sure any contesting amateur you ask will let you drop in and let you watch and get some useful operating tips. Any contest group would welcome you. Join them for a weekend and more than likely you would get a go on the radio and guidance would be forthcoming, even if you did not ask. Most Aussie contests are fairly casual, and you can just call or

answer calls at your leisure to get into the swing of things.

Simply contact as many stations as possible during that period of operation. A list of VK contests, including dates and times, and some rules are found on the [www.wia.org.au](http://www.wia.org.au) website. There are a few short VK contests for P29, VK and ZL stations. 80 metres is commonly used and the VK/Trans-Tasman contest even includes a 160 metre category. Other contests include all bands, except for the WARC bands, and run over a Saturday and/or Sunday.

Before making your first QSO, there are certain things you must do. Well, you do not have to, but prior planning prevents poor performance. And if it is your first time, it is good practice to have a system check over.

1. Select the contest you would like to enter and read and understand the rules.
2. Check your radio for operation. You may have lent your ATU to someone and forgotten to get it back.
3. Check the antenna is resonant on the frequency of operation.
4. Decide whether to use a logging program or manually write the log.
5. If you are using a computer for logging, make sure you have the latest version of software as last minute rule changes or point scoring may have been updated in the software.
6. Check the logger program serial connection to the radio is working if you want automatic frequency and mode logging.
7. Check the rules for start time and have a bottle of water nearby to keep the vocal cords lubricated.
8. If you have decided to hand write the log, draw up a log sheet with information already known to save time during logging. The consecutive serial number that you give out can be written in. Most signal reports are 59.

No-one seems to care that you may be 57. 59 is easier and normally pre-entered in logging software. Cater for 80 to 100 contacts if you are going in a sprint/one hour contest.

A contester may wish to hand log and enter details in the logging software at a later time. If you are not familiar or quick with a keyboard or the software, then this is for you. Typing directly into logging software is for those confident on a keyboard and with the software in use. Most loggers allow post entry of contacts.

Most contests include an exchange of RS(T) and a sequential number starting at 001.

A typical exchange may take the following format.

1. CQ contest this is VK4SN
2. VK4SN this is VK4FJ
3. VK4FJ you are 59003 QSL? (VK4FJ is VK4SN's third contact)
4. Roger QSL 003, you are 59004 QSL? (VK4SN is VK4FJ's fourth contact)
5. Thank you. CQ contest de VK4SN
6. And so on...

If you are really serious and want a quick exchange, the exchange might go like.

1. CQ contest VK4SN
2. VK4FJ
3. VK4FJ 59001
4. Thank you 59003
5. CQ contest VK4SN
6. And so on

## Logging software

There are many logging software programs around to try. SD LOGGER by Paul O'Kane EI5DI <http://www.ei5di.com/> is one, W3KM Logger by Dave Mascaro <http://mysite.verizon.net/dmascaro1/> another.

In my opinion, VKCL Logger is the only option for VK contests. Refer to the following website to download the program (<http://web.aanet.com.au/~mnds/>). N1MM and Writelog are well known and proven loggers for the international contests. I have a preference for N1MM, probably because the look and feel suits me and it is easy to setup. It is certainly complex but is a well written masterpiece, in my opinion.



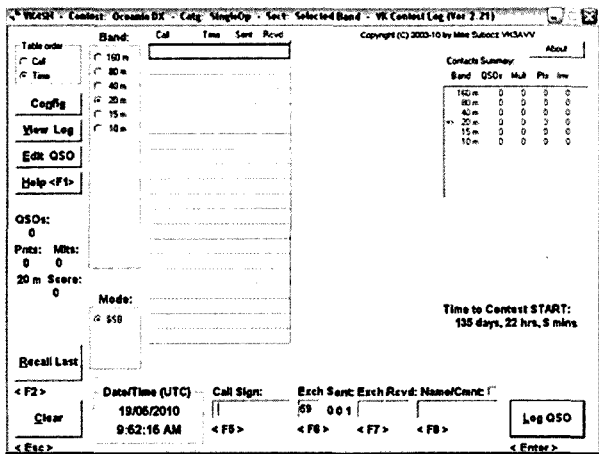


Figure 1: A screen shot from the VKCL logger program.

So, you have selected a VK contest, and VKCL as your logging program. Once the contest is selected from the setup window this screen appears in VKCL Logger. The big white area is the 'logbook' and along the bottom are the entry windows. Remembering the call example above, when you hear the stations call sign it is typed into the call sign box. You then press Enter to take you into the received exchange box, where you type the number given. Pressing Enter again logs the contact and clears the entry boxes ready for the next entry. After the contest, click on 'View Log' and save the log book to a file. This file is then sent to the relevant email address as an attachment. This information is found in the rules of the contest sheet. Remember that there is a help icon in the program window which will explain how to use the logger. I have merely given a brief description here.

Notice the version number in the title bar. V2.19. Always check the website to see if there is a later version. If there is, download and install over the top of the existing one.

## Operating principles

So far we have looked at the basics and given a general idea on the format of contesting and are assuming the equipment used for the contest is your shack as it is now.

Let us look at the finer details for smooth operation of the contest. Imagine you are sitting there with a hand microphone, pencil and paper or, worse still, a keyboard instead of paper. Try holding a microphone

in one hand and trying to type, one fingered, or write on a piece of paper that wants to run around the desk! Not a good way to start. Items that will help with contesting are a headset with microphone and a foot switch for PTT (Push to talk). Using VOX instead of a foot switch is fine as long as you are on your own. For multi operator stations VOX

is disastrous as the operator next to you is probably a screamer and will trigger the VOX on your radio. Using a headset and foot switch allows two free hands for accurate logging.

A computer headset microphone will not function on your radio due to impedance mismatch. Heil headsets are the preferred choice of contesters. Two types of microphone insert are available and a choice of three different headsets is available. These are not that cheap, especially the Pro-Set. Once again the top of the range is aimed at the professional contester, with noise attenuation of 40 dB keeping out the loud operator next to you and allowing good reception and concentration racking in the DX. The cheaper headsets are just perfect for single operator home stations.

## Antennas

For starters you are probably already set up for 80 metres. A horizontal antenna is best for VK contacts although a vertical will suffice, but is more aimed at DX work rather than local. A half wave dipole is probably the most common setup with the average ham but a full wave loop on 80 metres has more gain, if you can fit it in the back yard. These antennas have a high angle of radiation making them perfect for VK/ZL communications.

## Logging calls

As per the example above, calling CQ contest and logging an exchange seems easy enough. What happens when two or more stations reply

to your call? You may not get a complete callsign due to stations on top of one another and you hear only the last letter of a call. Rather than call again, your reply could be 'station ending in Zulu - again'. Only the station whose call ends in Z will come back to you. This is a quick way to eliminate all the stations coming back to you again. Sometimes a call can be incorrectly logged, so it is a good idea to have a scrap pad next to you to make quick notes so as to fix the log after the contest.

A low signal station and/or effect from large static crashes are examples of hard to get calls. Many a request for the callsign or serial number may occur. Using correct phonetics is essential as that is what you will be listening for. So many stations make up their own phonetics making it hard to grasp a name. The only exception I have experienced is for overseas contacts, where the use of country names can be an advantage due to accent or pronunciation differences with the standard code. Repeating a call or number three times in succession will help.

## In Summary

Remember:

- Keep the contest date free.
- Read and understand the rules.
- Confirm your radio and antennas work on the intended band/s.
- Decide on the method of logging.
- Update your software if using a logging program.
- Headset is at the ready.
- Foot switch is connected or you are working VOX.
- How to log each call in the logger.
- How to save the log file.
- How to attach the log file to an email.
- Email the log to the contest manager even if you think it's not worth it. At least the log can be used as a check log.

Starting with VK contests is a good place to start and build up your confidence and operating skills. It is also a good way to become familiar with your radio, how your antenna performs, and propagation.

Hope to hear you on air.



## Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

### Spring Field Day

#### Take 1

Team VK3ALB/p again ventured out to Mt Leura, Camperdown, for the Spring VHF/UHF Field Day contest. The team consisted of Lou VK3ALB, Nik VK3BA, Peter VK3APW, Jenni VK3FJEN and Michael VK3FMIC. This time the team was greeted by fine weather after having survived less than ideal conditions on the last few events. They operated on all bands to 3 cm except 3.4 GHz and included 6 m for the first time. Highlights included S9 contacts into Mt Gambier on 5.7 GHz and 10 GHz, using Peter's new 10 GHz system (233 km). The team finally worked VK2KRR on 1296 MHz at a distance of 480 km. They also had the opportunity to contact Tim VK3JTM on his new 5.7 GHz system and Ken VK3AKK on his 5.7 GHz, in his "Rover" capacity. An enjoyable weekend was had by all and they are looking forward to the microwave challenge in 2011.

#### Take 2

The Lara UHF and Microwave Experimentors Group (LUMEG), as VK3UHF, was again active in the Barrabool Hills about 13 km west of Geelong; in grid square QF21cu. Those involved were Ken VK3NW, Charlie VK3NX, Chas VK3PY, and David VK3QM.

On this occasion the team operated all bands from 50 MHz through to 47 GHz, a total of 10 bands. This was the first time that 47 GHz had been used in a VK Contest. During this period the President of the GARC Dallas VK3DJ and Gerhard VK3HQ visited the group but did not participate in the actual operating.



Photo 2: Jenni VK3FJEN operating.



Photo 1: The Team ALB Caravan at Mt. Leura.

The overall perception was that participation appeared to be up for the Spring Field Day, especially on the microwave bands. It was particularly pleasing to work VK3YFL for his first ever contact on 10 GHz. They also worked VK3JTM, who has recently added 5.7 GHz capability to his station. LUMEG would like to express their thanks to VK7MO/p3 who also put in a large effort to activate QF30, and work from several other grid squares during the contest on 2

m, creating considerable interest for all participants. The team was very comfortable with their score.

The best DX achieved was VK2FABV on 2 m and VK1DA and VK7JG on 2 and 70. Apart from those there were no particular "stand out" contacts this field day, with the exception of 47 GHz where our longest contact was 30 km with 5 by 3 both ways with 150  $\mu$ W and 25 dB horn antenna at both ends.

The Photo below shows, from right to left, the 47 GHz, with horn antenna, and the dishes for 24 GHz (30 cm), 3.4 GHz (60 cm), 10 GHz, 5.7 GHz and 2.4 GHz (1.2 m).



Photo 3: Field Day set up showing the array of microwave dishes with the 47 GHz horn far right.

#### Take 3

Ken VK3AKK/p operated alone in a roving mode covering the four grid squares: QF11, QF12, QF21 and QF22; on 2 m, 3.4 GHz, 5.7 GHz, 24 GHz and 47 GHz.

Ken's operating window was from 0900 to 1200 on the Sunday morning, setting down for roughly 20 minutes at each of the four grid squares to make contacts. During that three hour period, he managed to score some 2,400 points. The plan at the next contest is to be active on all 10 bands.



Photo 4: Ken VK3AKK.

## Geelong Radio and Electronics Society (GRES)

Rod Green VK3AYQ

We at the GRES are fortunate enough to be able to start the new year off with a clean slate. This has been brought about by the huge effort put in by members during 2010.

Due to fund raising during the year mainly in the form of selling scrap metal, and sale of valves, our outdated radio equipment has now been updated. A new Icom IC-7000 transceiver has been purchased together with a new antenna tuning unit.

This new transceiver has been installed in a new console, and will not only be used at the club rooms, but it is envisaged to also make use of it on field days. To complement this new addition, a triband beam has been installed complete with rotator. For the lower HF bands a new G5RV antenna has been erected. We have also been lucky enough to obtain a new dual band 2 m/70 cm FM transceiver, and a dual band vertical antenna has been erected for this new rig.

A new APRS repeater was commissioned during the year, and a refurbishment of the WICEN repeater in our care is scheduled for early in the new year. Our computer laboratory has had a complete overhaul. This consisted of scrapping our slow out moded machines and replacing them with newer, faster, secondhand machines.

A new server has also been put into operation. The club web page has also undergone a facelift, and also includes a list of valves we have for sale.

So for anyone restoring either old mantle radios or boat anchor equipment, and cannot find a particular valve, it may just be listed for sale on our web page at vk3anr.org. Also at this website is a short history of our club, and our museum at the Old Geelong Gaol.

Visitors are always welcome to call in and see us. Club meetings are held each Thursday evening, commencing at 2000 hours local time. The address is 237A High St. Belmont, at the rear of the Belmont Community Youth Club.

The rooms are also open each Wednesday morning from about 9.30 am till noon. This is when our "older" members congregate to work on club projects and have a coffee and a chat. Our computer group meet on the 1st and 3rd Friday of each month.

This is a non structured self help group, where computer problems are solved. Visitors to Geelong are also reminded to call in and see our museum display at the Old Geelong Gaol. Admission to the gaol also includes entry to the museum and is open on weekends and school holidays.

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# VHF/UHF – An Expanding World

David Smith VK3HZ  
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## Weak Signal

Welcome back after the summer break.

Compared to last summer, this season started very slowly, possibly due in part to the odd weather we have been experiencing. Up and down the east coast, we have had LOTS of rain and the weather in Melbourne has been very mild, apart from a one-day scorcher on New Year's Eve.

All were waiting expectantly for another bumper year of Sporadic E, but there has only been a little activity on this front so far. I am writing this on January 4, so still lots to happen, I hope.

Back to November, on the evening of the 24th, a 3-day tropo opening formed from the east coast to ZL. On the VK side, VK4OZ, VK2DVZ, VK2ZT and VK2KOL were involved, while ZL3TY and ZL1IU held up the NZ side. No contacts were made above 2 m.

Early December was fairly quiet. On the evening of the 7th, VK2AH and VK2BCC worked across to ZL2OK on 2 m.

On December 19th, Nick ZL1IU had a busy time with what was most likely a Sporadic E opening. Between 0635 Z and 0730 Z, he worked VK2DVZ, VK2KOL, VK2BCC, VK2BLF, VK2TS, VK2MER, VK2DAG, VK2FAD, VK2ZTV, VK2PC, VK2ZT and VK2AMS – all on 2 m. Signals were reportedly quite strong at times, sometimes dropping out, so Sporadic E is strongly suspected.

On December 29, a more widespread Sporadic E opening formed between VK3/5 and VK4. FM stations from all over were pounding into Queensland. At about 0310 Z, VK3GHZ worked VK4OE and VK4OX. VK4OX also worked VK3DUT and VK7AC. At about 0535 Z, VK4KAY worked VK5AKK, VK5GF, VK5ZK, VK5BC/P and VK5LA. VK4BZP also worked VK5AKK and VK5ZK.

At about 0600 Z, it was the turn for Melbourne stations. John VK4FNQ was about the only opportunity and was S9+ for nearly an hour working many stations. Nick VK4FMAG on Magnetic Island also appeared briefly, working several VK3 stations. In the meantime, "nearer" VK4 continued to work into the Adelaide area. The opening continued until about 0830 Z.

On the morning of December 31, good tropo conditions were present up the southeast coast. Rex VK7MO worked Steve VK2ZT on 70 cm SSB.

On the evening of January 3, another Sporadic E opening occurred between VK2/1 and ZL. At 0510 Z, VK2ZT worked ZL1IU. Others also worked in the brief opening that only lasted 15 minutes or so. By 0845, the opening resumed but with the cloud shifted favouring a different path. VK2DO worked ZL3AAU and ZL3NW, then went mobile to work ZL3NW again and ZL3ADT. VK3DUT to ZL2TAL and VK2ZT to ZL4LV. VK1KW worked ZL3AAU, ZL3JT, ZL3ADT and ZL3NW. At 1005 Z, VK3EK worked ZL2TAL after which the propagation closed.

Throughout December, the VK6REP 2 m beacon has been heard from time to time in the Melbourne area. Unfortunately, there seems to be a shortage of active 2 m weak signal stations in the Esperance area and no contacts have been made. The Albany beacons are both currently off the air, so no indicators are available from that area. Derek VK6DZ to the west of Albany has recently become active and is trying a bit of digital mode operation which is good to see.

## Spring Field Day

Quite a few stations went out and braved the glorious conditions for the Field Day.

Peter VK3TPR reports on a somewhat challenging day:

*Had a great time on Arthur's Seat with Mike VK3KH. However, it got very windy about 4 pm, the sea breeze was close to a gale until about 7.30 pm. My dish and 10 GHz transverter blew over, over the guardrail and was heading down the slope.*

*When I climbed over and started picking it up, it looked OK except a piece of hardline was ripped from its SMA (regular problem for me) but I could not see the FT-817 anywhere! It had slid off in the dirt and long grass and appeared a bit dusty when I finally found it.*

*Managed to do a re-setup after a while when the wind dropped and with the tripod tethered to the wagon tailgate hinge and Michael's spare piece of coax managed to work VK3UHF and VK3ER although with the distortion problem on SSB both contacts were made on FM.*

*I also worked VK3HZ and VK3MQ at Johns Hill Reserve, so I am counting four contacts on 10GHz - five including Rex VK7MO's JT65 from QF30. It would have possibly been a couple more if the wind was not so strong. Michael had some initial cable/connector problems on 10 GHz trying to work Rex at QF30, so he did not set up at Arthur's Seat until after the wind dropped and I was working VK3UHF - he also worked VK3UHF on 10.*

*I worked Rex at QF30 at signals of -25 and -16, Rex told me later by email that it was knife edge refraction of up to 10 degrees to make the contact.*

*We had a pretty good contest overall, 2.4 GHz was quite productive and we logged a modest number on 2, 70 and 23 cm and a couple on 6 metres so we were happy except for the strong and cold wind. Everyone else we gather was basking in warm sun.*

*Bryon VK3YFL, pictured on next page, was operating his 10 GHz system for the first time from a*



Photo 1: Byron VK3YFL set up to operate 10 GHz.

location to the north of Melbourne, and managed a few good contacts with it.

Chas VK3PY joined the VK3UHF team for another enjoyable Field Day outing. He reports:

*What a fabulous event the Spring FD turned out to be for us. The weather, for once, was absolutely perfect. All our equipment worked as expected with no dramas, and we had a ball with the microwave bands. Who'd have ever thought we'd make well over 80 contacts on the microwave bands (2.4 to 47 GHz inclusive)?*

*A real buzz was seeing the VK3NX and VK3QM 47 GHz gear in action. Another highlight was being at the other end of Bryon VK3YFL's inaugural 10 GHz contact. More than 200 km on his first shot in anger, and his signal was huge.*

*Yet another pleasant surprise was working Rex VK7MO/P in QF30 (southern tip of Wilson's Promontory) on 10 GHz. Rex had announced his intention prior to the contest, but when we set up our station at the usual QTH on "our" hill we discovered the farmer had left a combine harvester strategically parked a couple of hundred metres away, in precisely Rex's direction. Hmmmm.... what to do? The most expedient solution was to take David VK3QM's "spare" 10 GHz system to a spot a little further south of the main station where it would have a clear view towards Wilson's Promontory. We needn't have bothered. When Rex came up he was a VERY big signal on both rigs. Maybe combine harvesters are transparent at 10 GHz!*

*I hope that participants elsewhere had as good a time.*

Andrew VK1DA/VK2UH was another to experience a few challenges during the Field Day. He writes:

*I think this FD may be a turning point for my field day efforts. First the site. Mt Ginini used to be virtually bald apart from grass, over a circle of about 100 m surrounding the compound fence. You could drive around to any part of the perimeter and decide on whatever corner you wanted to use. The North West corner was the favourite of Ed VK1VP, who I accompanied on quite a few field day efforts up there. That corner is now much less useful as the forest has grown taller and now you'd need a 10 m or higher mast to get above the tree tops for best microwave performance. The foliage is not being prevented from growing partly because ACT Forests have fenced the hilltop, preventing cars from accessing all but one side of the rectangular compound. So plenty of foliage is growing around the other three sides of the compound. Hence I only operate from the southern face of the compound, which is close to where the 146.95 repeater is located. To put distance between my antennas and the repeater, I usually set up about 30 metres from the compound. To the north east there is almost the same level of foliage as on the NW corner. Due north is the compound fence and even the top of my 6 m mast is only just clearing the compound fence. So my path to the Bathurst and Orange area is problematical. These all make for a less than ideal site for ordinary field stations like mine.*

*There are other much better local sites, like Mt Coree, which being mainly rock at the top probably won't have the foliage problem for a long time. But that is no longer practical to drive to with an ordinary passenger car like mine, you do need much more agile cars for those sites.*

*Second my gear. I arrived at the site and unpacked the antennas from the roof bars only to find that my 2 m Yagi no longer had a reflector element. I searched through my stuff but could not figure out a way of using other materials like*

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stiff coax, to replace the reflector (reflector later found in the grass at home, split in two pieces, apparently broken when I retrieved the antenna from its temporary storage location, overgrown with grass). So I operated the weekend without a reflector on the 2 m antenna. I got the impression that the forward gain and directivity were only slightly different from normal. The F/B ratio was shot. This is convenient in some ways as I was able to hear NW and SE almost as well, whether the antenna was pointed in either direction. The directivity of the antenna in the rear half of the pattern was quite different from normal. And for the first time in some years of operating there I got some serious interference from the gear in the compound, with a mixing product producing highly distorted fuzz, modulated slightly by 6950 repeater audio, at S9 on 144.190. This may have been partly due to lack of antenna directivity, or even due to corrosion in the antenna. Such things often occur in the presence of strong signals.

However looking at the antennas I have been using for FD work I do realise that the time may have come to replace them. There is considerable corrosion on the connectors (N sockets) and this is probably due partly to the antennas being stored outside for 51.5 weeks of the year, without caps on the connectors. The rear feed on the 432 MHz antenna is a rotten system because it means there is a lot of stress on the connector of the feedline. It's much better in my view to be able to tape or Velcro the feedline to the boom.

My 1296 antenna setup is also quite inferior to what it could be with only minor effort in either building or acquiring higher gain antennas and feeding them with better cable (currently CNT400). This weekend I did try to use two Yagis with a home made power splitter even though it had been measured and found to have a higher than desirable input VSWR. I thought this might not matter much with a 6 m length of CNT400, and in fact the IC-910 did indicate almost full output power

was being delivered, however the performance was quite a bit down on past years. I could not hear anything of the VK3RGL beacon on 1296. Though I worked Gavin 3HY it was with somewhat more difficulty than in the past, and a contact with 3ER, even with the splitter taken out of circuit and using a single yagi, took 20 or 30 minutes to complete (on CW - SSB was out of the question). And while VK1PWE near Batemans Bay was good strength on 144 and 432, he was undetectable on 1296 both with and without the second Yagi, and I knew he had worked up the coast to some Sydney area stations on that band. So was this caused by conditions or problems in my antenna? My impression was that conditions on the higher bands were quite depressed compared with past events. The Sydney beacons were not as strong as usual except on Saturday night and I heard nothing of the Mildura 2 m beacon.

I did hear more people than I worked but once again some of the problem is caused by continuous contacts being made on the so called "calling frequency" and it is simply not possible to make contacts with DX stations, let alone ask them to QSY, when you are competing with the mass of QRM caused by these contacts, which are between you and the DX. We need to stop operating in these contests as though we have been all allocated a single frequency to use. And yes I also made some contacts on 150, but there is no other choice when CO calls on other frequencies produce no replies, giving the impression that everyone is apparently queuing up on 150 as if it's an FM repeater (it's a band, not a channel).

I was pleased to have made contacts on 2.4, 3.4 and 10 GHz with Ted VK1BL, who went up to Mt Ainslie in Canberra to make it happen. Signals on 2.4 were very good, quite good on 10 GHz despite beaming through the trees and I was receiving well on 3.4 but in the reverse direction it was necessary to use CW to complete a contact. These contacts were made while Ted was using the usual dish feed on 2.4 and 3.4, but without the dish.

Thanks to Dale VK1DSH who lent me his 10 GHz station and to Ted VK1BL who lent me his "second" 3.4 GHz station for this event. And full marks to Dale for arriving back from Geneva via London on Sunday morning and getting on the air within 30 minutes to hand out some contest numbers. Amazing!

PeterVK3Q reports on the microwave activities of the VK3ER team :

Our conditions on Saturday afternoon didn't seem as good as for those stations nearer to the coast line, as further inland at "McLaughlin's" Lookout (which averages 120 km from the coast), we could not hear the Mt Gambier boys on any band with any decent signal.

It was interesting to monitor the four main beacons on 1296:

VK3RXX in Burwood was the usual 59+ (over a distance of 100 km),

VK3RLP at Langwarrin was 59 but a bit up and down,

VK3RGI at Mt Carrajung was a steady 57 all the time,

VK5RSE in the SE was inaudible until 8 am Sunday when it came up to S3 for an hour or so.

Strangely, late on the Saturday evening, conditions came up on 10 GHz and we had a fantastic QSO with Ralph VK3WRE with S9+ sigs over a distance of 220 km.

We had the feeling that there were not as many stations about over lengthy periods this time around, so fewer repeat QSOs.

Our score will probably be a little down on this time last year.

6 m was hopeless to interstate North, although we still managed 10 grid squares - no sporadic E at all.

It seems since the Spring Field Day was moved closer to the solstice, the Sporadic E has been scared off!

It was a disappointment to not work Ken 3AKK on Sunday morning, but it was abundantly clear that Ken needed more height to make it north to us on the higher bands, as the west end of the Brisbane Ranges, around Steiglitz, are just that little too high and wide in Ken's direction.

Nevertheless, it was a good weekend with good weather and a chance to blood a new operator in Steve VK3QW, in the



Photo 2: The VK3ER/p array of offset dishes for microwave operation.

ways of VHF/UHF propagation in VK3 (he being an ex VK6!)

A special thanks to Andrew VK1DA who persisted with 1296 CW on Sunday morning. Just at the critical time, one of the microswitches in the rotator control box decided not to work,

so the dish would not turn back and forth. Strangely, the bumpy ride back seems to have dislodged whatever was stopping the switch from working.

Photo 2 shows offset 700 mm dishes for 3, 5 and 10 GHz (top) with 3 watt DEMI transverters mounted on the foldout arms of the dishes. Special high-tech weather proofing of the transverters, courtesy of Glad.

Finally Colin VK5DK reports on the VK5SR group activities: The South East Radio Group were portable on our usual hilltop "The Bluff" (QF02GG) and conditions were only average, which is reflected in our score of contacts on all bands.

The wind was extremely strong on Saturday afternoon and evening causing our 1.2 m dish to blow over causing damage to the centre of the dish and damaging the short cable from the feed to the transverters. This dish was used for 2.4 GHz, 3.4 GHz and 5.7 GHz. We used a 1.8 m dish for 1.296 GHz which worked quite well and were able to work into Melbourne

(400 km) with reasonable signals.

Apart from these problems, Saturday evening was extremely cold and windy and as a result contacts were few and far between.

It would be nice to be able to work 10 grid squares from this location, but geographically it is a tall ask as we are situated where the only activity is to the east and a maximum of 5 grid squares only worked, with only VK5ZK worked in VK5.

There have been discussions between a few serious VHF/UHF/microwave operators about having the scoring system changed to distance-based rather than grid square based scoring, as the present system favours areas that are able to work grid squares in all directions. A scenario was discussed where an opening to ZL on 144 MHz produced a new grid square and a very good contact, if a second station was worked in that same grid square it is worth the same points as working an FM station 25 km away.

## The 160 metre Coffee Break Net

John Fisher VK3DQ/VK3ARK

Yesterday, after some delay, I was delighted to take up a long standing invitation to visit 'The Checkinmeister'. The Checkinmeister is Roy VK3ARY who runs Melbourne's 160 metre Coffee Break Net, which operates on 1843 kHz using amplitude modulation at 11 am Monday to Saturday. Roy is the net controller from Monday to Friday with other members of the net taking turns on Saturday.

Roy usually appears on 1843 kHz at about 1040 am and tunes up his system with the magic 'hellos', that is, using the word hello to check his modulation levels. After this 'Uncle Roy' calls for 'Checkins' for the net and normally about a dozen stations participate each day. The net runs for approximately one hour, and has been running for a number of years and become a Melbourne institution.

Roy operates a number of radios from his collection of superbly restored and home brew equipment, which includes a solid state class E transmitter designed by Drew Diamond VK3XU, who is a regular on the net offering helpful advice and tips. A number of participants use Drew's shortened top-loaded vertical, which is a simple solution for



Photo 1: 'Uncle Roy' calls for check-ins.

a restricted space antenna for 160 metres and makes it simple to have a 160 metre station in a small backyard. Both the Class E transmitter and the 160 metre antenna have been featured in past copies of AR.

The members of the 160 metre net hold an annual lunch and this year saw a large crowd in attendance. A number of people brought along their home brew gear for show and tell; however you do not need to have home brew gear

to join the net. Most commercial equipment will be okay but be aware that most modern equipment only provides about 25-30 watts output in AM mode, so a suitable amplifier, whilst not a requirement, is a help.

Also a number of country stations are able to join the net when conditions permit, including Luke VK3HJ from Benloch, near Lancefield, Eric VK3AX who is a regular from Emerald and a number of stations operating from portable locations from time to time.

So please consider popping up for a coffee break on 1843 kHz AM and be part of this Melbourne institution.



## New Microwave Records

Several new microwave records have recently been set:

13 cm EME record: VK3NX to CT1DMK, 17678.7 km (13 Dec 2010).

13 cm Digital Modes record: VK3KH to VK3XPD/5, 390.3 km (11 December 2010).

5.7 GHz Digital Modes record: VK3XPD/5 to VK3ZQB, 162.5 km (12 Dec 2010).

Congratulations to all involved.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.

## Digital DX Modes

*Rex Moncur. VK7MO*

### Almost new digital record

A "nearly well done" to Derek VK6DZ and Jim VK3II in almost completing a JT65 contact over a distance of 2497 km which would have been a new 2 metre national digital record. This was Derek's first attempt at JT65 and unfortunately he did not know the terrestrial reporting procedure as necessary to complete a QSO and claim the record. Nevertheless, Derek and Jim did exchange callsigns both ways a -8 and -15 dB. Derek's QTH is west of Albany with a not-too-good take-off and he was using only a 6-element beam and 10 watts. As you may expect, Jim has now given Derek some coaching, so be ready to work Derek on JT65 next time there is an opening to VK6.

### FSK441

Welcome to Robert VK4LDH and Dave VK4KSY who have been trying out FSK441 on 2 metres.

### JT65

Good to see Ross VK2DVZ is again active on JT65.

### ISCAT

The beta version WSJT9 includes a new mode called ISCAT, short for ion-scatter. It was designed primarily for six metres where it can take advantage of both the meteor pings (which are longer than on 2 metres) and the weak background ion-scatter signals. On a weak and continuous

ion-scatter or tropo-scatter signal, it works down to around -20 dB and on one or two second meteor pings it can work down to -9 dB. The program does averaging, so it does better with short messages where it can average a number of times. Tests show it also works well on 2 metres meteor scatter and while it is more sensitive than FSK441 which works to around +2 dB, it does not do as well as FSK441 on short pings of less than a second. Thus FSK441 still has the edge on 2 metres. ISCAT has been shown to also work well on 10 GHz aircraft-scatter due to its ability to cope with rapid Doppler shifts combined with reasonable sensitivity and the ability to decode the short bursts of a second or so that occur with what is believed to be specular reflections that come as "glints". You can adjust the Tx/Rx period to either 30 seconds or 15 seconds by clicking on the time period at the bottom of the WSJT screen. The 15 second period seems preferable for microwave aircraft scatter as this allows a contact to be completed in the short period that an aircraft is within the beamwidth of the antennas.

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

## The Magic Band – 6 m DX

*Brian Cleland VK5BC*

This summer's Es season was a little slow to start, about two weeks later than recent summers. It was patchy and variable late November early December with several dead days but the band really warmed up with excellent openings all around VK/ZL in late December early January.

14 November: opening from northern VK2 and southern VK4 to VK5 and VK3, Neville VK2YO worked Brian VK5BC and Garry VK5ZK and Brian worked Chris VK4HJ. Denis VK4ACE worked Kevin VK3WN and Mike VK3XL. JA1RJU reported hearing John VK4ZJB near Gympie calling CQ.

15 November: Brian VK4EK in Sapphire reported working several

northern VK7s including Joe VK7JG, Norm VK7AC, Frank VK7DX and Norm VK3DUT. Dennis VK4ACE also worked Kevin VK3WN in Ballarat and then Brian VK5BC, Colin VK5RO and Garry VK5ZK. Not to be left out of the action several far northern VK4s including David VK4ZDP, John VK4FNQ and Gary VK4ABW worked Willem DU7/PA0HIP. Joe VK8VTX in Darwin reported hearing the VK4RBP repeater and David VK4ZDP reported the Darwin VK8VF beacon.

Not much happened in the way of openings during the Spring Field Day contest except on Sunday morning 21 November: Hauke VK1HW worked Steve VK5AIM and Keith VK5OQ both portable near Kulpara in the Hummocks. The same day saw the first Es opening across the Tasman to South Island of NZ. Bob ZL3TY, Rod ZL3NW and Peter ZL4LV all worked into VK2 and 3.

24 November: Garry VK5ZK worked Chris VK4HJ.

The long anticipated 6 m activity from the ZL8X DXpedition occurred on 25 November and they had no sooner put their beacon on and they were heard and then worked on CW by Bob ZL1RS, good work Bob. The morning of the same day saw an opening from VK4 to VK5 with Brian VK5BC working Phil VK4FIL and Brian VK4DDC.

November 26 saw the first Es opening for the season to VK6 with Brian VK5BC and Mai VK5MH working several stations including Peter VK6KXW, Andy VK6OX, Kevin VK6AB, Igor VK6ZFG, John VK6JJ, Graham VK6RO and Barry VK6ZSB. The opening occurred mid afternoon and lasted for 1.5 hours with all signals S9+. Early evening the same day the VK8RAS beacon in Alice Springs was S9 into VK5 and Greg VK8GM was worked by Jeff VK5GF, Brian VK5BC and Garry VK5ZK. Great to hear activity from the Alice.

The first opening to New Caledonia was on 28 November when Pascal FK8IA worked several VK2s including Brad VK2QO, VK2GJC, Steve VK2ZT and John VK2FAD. The same day ZL2WHO worked several VK4s as far north as Gary VK4ABW near Townsville, south to Brian VK4DDC Gold Coast.



Early morning 8 December:

Victor made his first appearance this season into VK working several VK2, 3, 4, 5 and 7s. Victor was S9 in VK5. Next morning 9 December, the band again opened early to Victor E51CG from VK3, 5 and 7 but not quite as strong as previous day. Same day Pascal FK8IA and Remi FK8CP worked many VK2 and VK4 and then a little later VK5ZK, VK5BC and VK5GF. Great to see some activity from FK8 this season. The day also produced a very strong opening VK5 – VK2 with VK3 and 7 to VK5 contacts on backscatter and an opening from VK2 and VK4 to VK8 (Darwin) and VK6.

8 Dec also saw the first appearance from the ZL8X DXpedition in VK. They worked several VK2 and 4s, as well as Steve VK3ZAZ and Garry VK5ZK. Garry VK4ABW also worked them on 9 December.

12 December saw good openings from both the Darwin and Alice Spring areas. Richie VK8RR, Mark VK8MS and Stui VK8NSB in Darwin and Greg VK8GM in Alice Springs worked several VK2, 3 stations as well as Brian VK5BC, Jeff VK5GF and David VK5AYD in Coober Pedy. Greg VK8GM also worked Rick VK6XLR in Geraldton.

14 December: another interesting day because although there was not a lot of local Es, during the afternoon Willem DU7/PA0HIP worked several VK4s from Brisbane to as far north as Townsville, ZL3JT on SSB (Willem's first SSB contact to ZL) and Richie VK8RR and Mark VK8MS in Darwin. Richie and Mark also worked several JA stations.

Meanwhile Bob ZL1RS was experiencing some interesting propagation across the Pacific and submitted the following:  
*So far this season's significant DX for me has gone like this:*

07 Dec 04:52 to 05:40 - DU7/PA0HIP, DU1GM

08 Dec 05:39 - JH6VXP.

11 Dec 01:00 to 01:30 - K6QXY, K6QG heard only (also a trace of N5TSP)

14 Dec 01:20 - K6QXY heard only

15 Dec 04:59 - KG6DX (Guam)

16 Dec 04:09 - JA6YBR beacon heard

21 Dec 01:20 - K6QXY heard only,

AC4TO heard extremely weak

23 Dec 23:14 to 00:40 - OA4TT (weak, but consistent signal)

25 Dec 01:34 - N5JEH

02:30 - K6QXY

26 Dec 01:54 to 02:25 - N5JEH, N5TSP, AE5B, K5FLA, N5BLH, W5OZI

As you can see, the 01:00 to 01:30 UTC slot is very active here.

The equipment here is an IC-756pro + Acom1000 Amplifier and a pair of 6 element G0KSC LFA Yagis at 25 ft and 40 ft.

Rod ZL3NW has also worked K6QXY and the DUs, and Chris ZL2DX has heard K6QXY at much better RST than I have, but is limited by his location to QRP so was not heard in California. ZL3TY has also worked DU.

Good work Bob, just shows it does not have to be at the top of the sunspot cycle to experience some very interesting conditions and contacts on 6 m.

Willem DU7/PA0HIP has continued to work into VK most afternoons during December and it is great to have somebody so keen and looking for contacts into VK most days. It is remarkable how consistent is the path from the Philippines.

26 December also saw a good opening from VK6 to VK5. Remi FK8CP worked several VK6s including Andy VK6OX, Graham VK6SIX, Wally VK6YS and Peter VK6KXW and late in day Willem DU7/PA0HIP worked VK5BC, VK5KC and VK4BKP.

Rick VK6XLR reports the following:

*I finally made it outside VK on 6 m. On 1 December 2010, though a very brief opening, worked Willem DU7/PA0HIP.*

*A great New Years Day, with 20 contacts from 0422z-0905 Z. VKs 1,2,3,4 and 7. Also ZL1 and ZL2. Thanks to Kerry ZL2TRY for my first ZL.*

Well done Rick.

Steve VK6VZ reports:  
*I got started on Es again on 26/12/10*

at 0656 Z with a SSB contact with VK5ZK (Goolwa). This piqued my interest and on 29/12 recorded SSB QSOs with VK5PO (1117 Z), VK5BC/p (1157 Z) and VK5CZ (1223 Z). The following day promised much to the north with the VK6RSX beacon in Dampier booming in at S9 and CW contacts with VK4DB (0013 Z) and VK4ABW (0021 Z) in Townsville and SSB with VK6BHY (0415 Z) in Karratha, but the prop didn't extend much farther here. On 30/12/10 so far (at 0400 Z) it is back to listening to band noise again.

Using 100 W here with an Elecraft K3, with a Softrock SDR off the first IF and CW Skimmer/Rocky software as a bandscope, and a 5-element Cushcraft Yagi antenna at 23 metres. Good to see you active on 6 m again Steve.

The New Year saw some great conditions across all of VK and ZL. On 2 January, Kevin VK0KEV Macquarie Island was S9 into northern VK7 and was worked by Norm VK7AC and John VK7XX. Andrew VK3OE and John VK4ZJB also managed to complete contacts with Kevin. On 3 January, Chris VK5CP holidaying on Lord Howe Island worked many VK2, 3, 5 and 7s.

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



## National Field Day

17th April, 2011

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# Golden Goal fox hunt

Jack Bramham VK3WWW  
WIA/ARDF Coordinator



*The VK3TXO Foxhunt Team, who achieved first place on the night.*

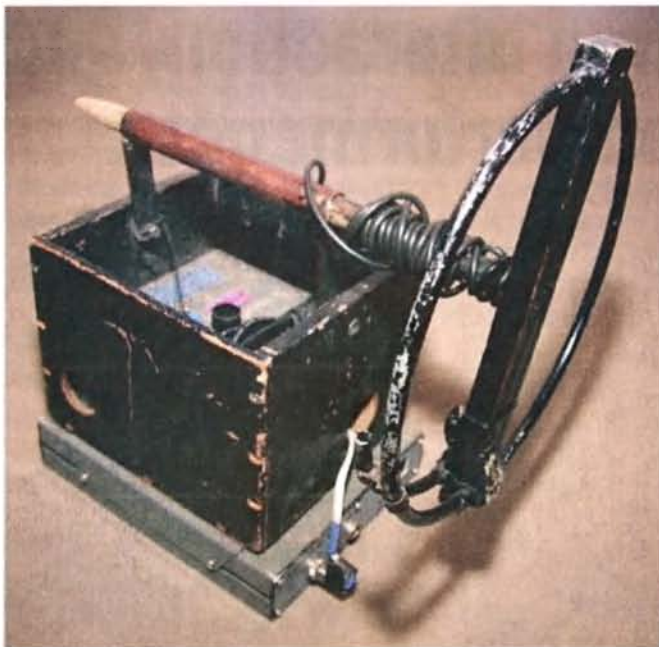
Some months ago I was checking my email and I received a forwarded message from one of the ARDF Group members regarding Foxhunting in VK2.

This message was from a Norwegian Television show called "The Golden Goal", which is part of the Rubicon TV Network out of Oslo. I explained to the enquirer that most of the regular ARDF and Foxhunting activities are in Melbourne and Victoria, but they still asked if I could find an event to attend in VK2. I then sent an email off to a club in VK2 that I knew had been active in the past in regular foxhunting.

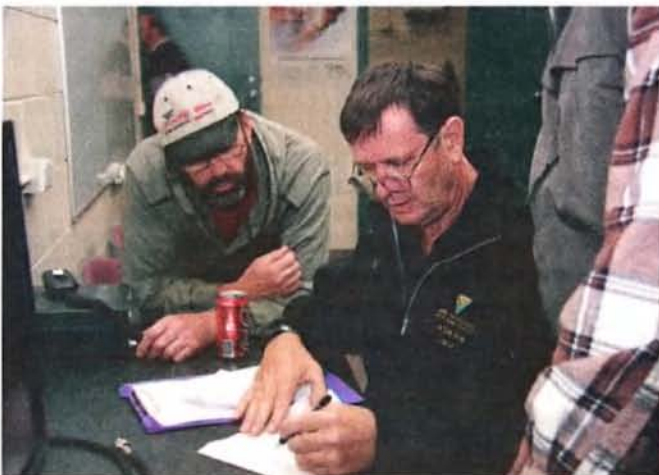
After a couple of weeks the Norwegian contact asked how the hunt was going, I explained that there was no reply from VK2 and suggested again that VK3 was where the most activity is located. They must have gone off and had a think about it and came back with the comment "we are now coming to Melbourne, can you arrange an event for us to attend". I gave them some options and they suggested that the foxhunt on December 10 suited them perfectly.

I then explained that an ARDF event would be far better than a vehicle based foxhunt and they thanked me for my suggestion but their decision was made. Worried that this may be a bit of a prank, I had Bruce VK3TJN, who was attending the World ARDF Championships in Croatia, speak to one of the Norwegian team members who confirmed that "The Golden Goal" is a high rating sports show and they like to show unusual sports or things that happen associated with sport. I expect the Norwegian sporting enthusiast enjoys watching all kinds of sports. In Melbourne over the last 20 years, we have had several occasions where television crews have attended our local foxhunt, so this is not a new thing for us.

Well, it is now Friday December 10 and I arrived at the start location in Carlton (an inner city suburb of Melbourne). It was only minutes before the first of the TV crew turned up. The crew consisted of Director Christopher Elvestad, presenters Johan Golden and Henrik Elvestad, Cameramen Rune Moe and Andreas Roe.



WIA 2 m FM FOX, including the Halo antenna.



Jack VK3WWW collating the scores for the night. Damian VK3KQ making sure that no mistakes are made.



Golden Goal Crew: L-R Cameraman Andreas Row, Director Christopher Elvestad, Host Henrik Elvestad, Host Johan Golden, Cameraman Rune Moe.

While teams were arriving, Greg VK3VT and I were interviewed and asked questions about ARDF, Foxhunting, ham radio in general and what to expect on the night. Presenters Henrik and Johan plus the two cameramen each joined a foxhunt team and the plan was for them to compete against each other. Christopher rode with the fox and was able to see the other side of the sport. Fox for the evening was myself with assistance from Mark Besley VK3BES and Kostas Mitropoulos. All of the hunt locations were to the east of Melbourne and the last hunt was in Heathmont.

After this hunt, teams proceeded to the EMDRC Clubrooms in Burwood for an end of year BBQ.

Here it was a chance for foxhunters to properly meet the TV crew. After the results for the night and some presentations, Greg VK3VT returned the TV crew to their city hotel where I guess they would have had a great sleep after all the activity.

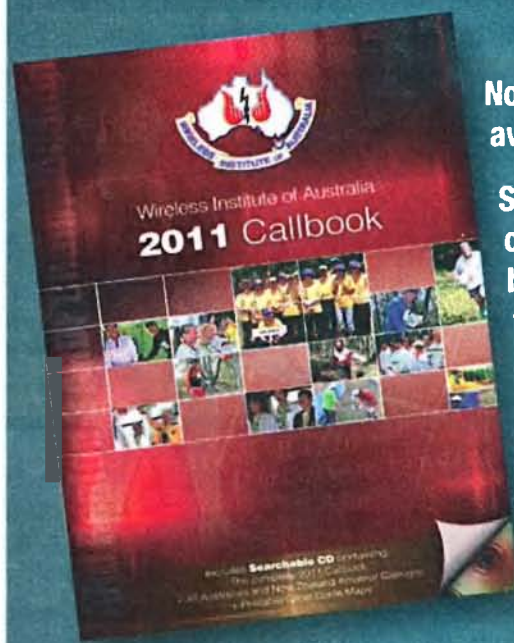
Golden Goal has a Facebook page here: <http://www.facebook.com/GoldenGoalTV2> showing a little bit of the Foxhunt start and some of the other VK activities. The TV Show webpage can be found here: <http://www.tv2underholding.no/goldengoal> - you may need to use the Google Translation plug-in.

I am sure the whole crew will be happy to be back in Norway and I must say it was a pleasure working with them over the last few months.

I am not sure when the Australian segments will go to air, but when this has happened I will receive a DVD of the show.



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# Unwanted mast/antenna interaction, and the potential effects on performance

Felix Scerri VK4FUQ



This is an issue that I consider very much underestimated in its possible negative impact on antenna performance, as I have finally found myself in recent times. In previous articles about my 20 metre Quad loop antenna, I have mentioned that my metal pipe mast holding up my antenna is about 10 metres high, essentially a half wavelength on 20 metres. As 10 metres is essentially a 'worse case situation' (a resonant half wavelength), I have frequently wondered if the loop performance has

been compromised by a metal pipe mast of this length and if so, what are possible ways around it? I did not set out to make a pipe mast of this particular length, but sadly things just turned out that way!

Very recently I had been giving the whole matter a great deal of thought and a solution was found through a rather unrelated matter, that of lightning protection! In the end I drove a five foot length of a copper plated steel electrician's earth stake into the ground near to the base of the metal pipe mast and electrically bonded the two together with a short length of braid material. After driving the earth stake into the ground it was determined through ohmmeter

Photo 1: The earth stake at the base of the 10 metre high pipe mast.



## FIELD DAY Sunday 27th February 2011 WYONG RACE COURSE

Admission Fees: Adult \$12 Free admission for under 17. Gates Open 6.30am.  
The Bistro will open at 8.00am for early arrivals.

### Attractions

Traders	Most major suppliers selling amateur radio and electronic equipment.*
Exhibitors	Representing amateur radio groups, clubs and emergency organisations.*
Flea Market	Boot sales, wheel and deal from 6.30am.
Other	Embroiderers' Guild NSW, WIRES and Central Coast Potters Society displays. Amateur radio examinations conducted by Brian Kelly (contact 0418 659 043).
Raffles	
Seminars	Listen to VHF local repeater 146.725MHz for directions and information.
Free Tea and Coffee	

### Dinner

To be held at Wyong Bowling Club on Saturday 26th February 2011 commencing at 6.00pm. Two course hot buffet, drinks at bar prices.  
Dinner bookings essential. Contact CCARC 02 4340 2500

Further Field Day information and regular updates on [www.fieldday.org.au](http://www.fieldday.org.au) email: [ccarc@ccarc.org.au](mailto:ccarc@ccarc.org.au)

\*The Trader/Exhibitor area will be closed to the public until 9.00am.

measurements that although 'in the ground' through an existing piece of water pipe cemented in the ground, no measurable electrical connection to earth was found at the mast, possibly exacerbating the coupling between the loop and mast as a 'floating' half wave element. This indeed seems to have been the case!

In the time since installation of the earth stake, 20 metre contacts have indicated a clear improvement in strength, sometimes dramatically by several S points, noted especially 'on transmit'. To be perfectly honest, an exact analysis of the interaction (and loss) mechanism involved is difficult to quantify, but purely on the basis of signal reports there is no doubt that things have definitely improved. A bit of a revelation actually.

Interestingly enough in my very old copy of the ARRL Antenna Book (1987 or 1988 edition), there is a very interesting table in Chapter 23 on 'guy wire' lengths to avoid in the various amateur radio bands (refer Figure 1) and the length of my

(electrically floating) metal pipe mast was right in the middle of the range to 'avoid' in the 20 metre amateur band. No, I am not surprised that there was undesirable interaction between the mast and loop antenna! Vertical polarisation of the loop would be the worst possible case, but horizontal loop polarisation is still not ideal, all things considered, given the proximity of the mast to the antenna. Even more interesting in this table is the statement that 'grounded' wires will exhibit resonance at odd multiples of a quarter wavelength, effectively, in my case anyway, shifting the resonance out of the 20 metre band, as I understand it anyway. This is certainly consistent with my own observations of improved performance.

Testing with both horizontal polarisation (bottom feed) and vertical polarisation (side feed) since the installation of the ground stake, although the general power line noise pick up is slightly less with vertical polarisation at this

QTH, the more traditional horizontal polarisation seems to be preferable. Some variable RF feedback issues have been noted with vertical polarisation, along with a slightly narrowed SWR bandwidth as well as an increased coupling to the mast in general, which is possibly expected regardless. No adverse issues at all have been detected with horizontal polarisation, feeding at the bottom.

Possibly a loop antenna is more badly affected by potential mast interaction as wire exists in all geographical directions and positions 'around the mast' despite defined loop polarisation than say, a dipole or similar antenna. Be that as it may be, I love my 20 metre Quad loop antenna to bits....and now it is even better. The possibility of antenna/mast interaction, especially with a one wavelength loop antenna as configured at this QTH (diamond configuration), is definitely a point to watch on your own antenna installation, and as an aside I now (hopefully) have better lightning protection too! Refer Photo 1.



Figure 1: Copied from the ARRL Antenna Book, the black bars on this chart indicate ungrounded guy wire lengths to avoid for the eight HF amateur bands. This chart is based on resonance within 10% of any frequency in the band. Grounded wires will exhibit resonance at odd multiples of a quarter wave length. The measurements can easily be converted to the metric system.

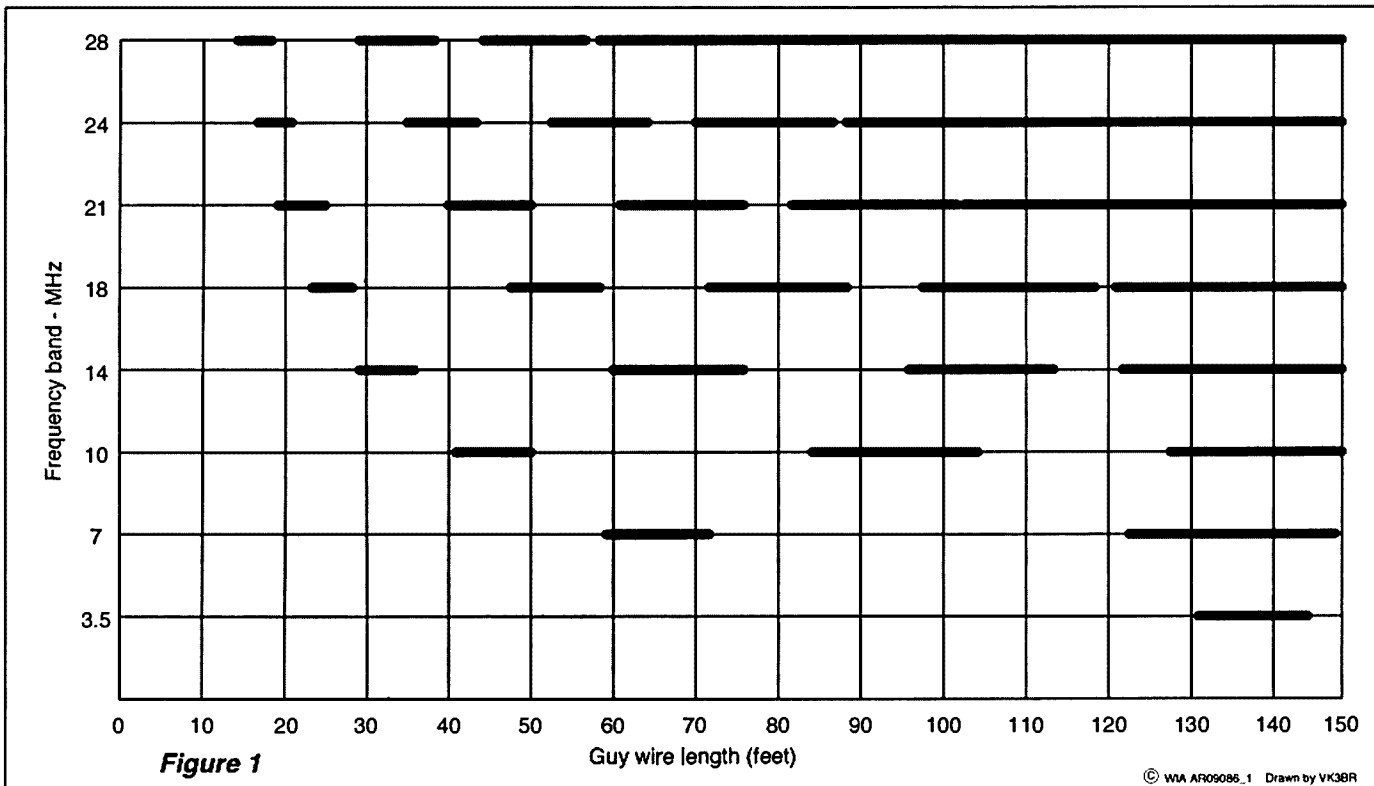


Figure 1

© WIA AR09086\_1 Drawn by VK3BR

# DX - News & Views

**John Bazley VK4OQ**  
[john.bazley@bigpond.com](mailto:john.bazley@bigpond.com)

A Happy New Year and let us hope that the rise in the Sunspot activity is here to stay for a few years, for it certainly has improved conditions particularly on 21 and 24 MHz. I personally will believe that it really has happened when we can regularly hear 28 MHz full of DX signals!

So what have we got to look forward to at the beginning of the New Year?

The two Jaceks (SP5EAQ and SP5DRH) will be active as T30AQ and T30RH respectively from **Tarawa** (OC-017), West Kiribati from March 1 to 17. T30RH will focus on 160 metres and 30 metres RTTY, with some activity also on 80 metres, while T30AQ will take care of the other bands (SSB only). They will try to have two stations with amplifiers operating at the same time. QSL via home calls, direct or bureau. Further information and log search at [www.sp5drh.com/t30/](http://www.sp5drh.com/t30/)

During this year's BERU Contest look for VP2MXF from Gingerbread Hill, **Montserrat**, that will be operated by Nigel G3TXF, while Richard G3RWL plans to be on **Barbados** He will be operating as 8P6DR with a K2 running 100 watts and wire antennas. QSL via G3RWL.

Jan DL7JAN will be QRV, possibly as J79AN, from **Dominica** (NA-101) from February 23 to March 6. He will be on CW, SSB and RTTY on 7 through 28 MHz, and possibly 80 metres. A special emphasis will be made for Asia. QSL via DL7JAN.

Laci HA0NAR is doing a tour through West Africa in January and February, with 6W **Senegal** and J5 **Guinea-Bissau** February 5 to 26. Look for 6W/HA0NAR and J5NAR. Also planned are side trips to AF-078 and AF-093, Senegal South Group and Guinea-Bissau Coastal Region Group, two "Islands on the Air" destinations. He plans to concentrate on 160, 80, 40 and 30, with 160 from J5 the biggest priority of all.

Peter HA3AUI is also in that region, 6W2SC **Senegal** and J5UAP from February 1 to March 31. He says the beaches are beautiful in **Guinea-Bissau**, where he will do some of his operating with his K3, Spiderbeam and verticals, 160-10, mostly CW and digital. QSL to HA3AUI direct. <http://cqafrika.net>

From February to September, P29CW will be reactivated by Allan VK2GR and Josette VK2FXGR as a spare time activity while continuing their volunteer medical aid and education work for Australian Doctors International, in the remote Western Province of **Papua New Guinea**; IOTA OC-034. Low power operation (100 W) from 80 m through 10 m is planned. Logs will be available on eQSL and QSO checking via <http://www.p29cw.blogspot.com> Direct QSL requests go to Tommy VK2IR.

**Antarctica**: Alex Turkeev RD1AV (ex-RV1ZC), is now en route to Vostok Antarctic Station, and will stay there in 2011 as R11ANC. He uses all bands on CW, SSB and digital modes. His QSL manager is RN1ON.

Christian TLOA is back home in France until January 20. He will then go back to **Central African Republic** for five weeks, and then again back to France for a three week break.

Seth SM0DXI will be active from **Dominica** from January 7 to March 17 as J79XBI operating on SSB only. QSL via LoTW.

VQ9LA leaves **Diego Garcia** January 24th. He plans "to operate as much as possible up to the last day." Larry says he will try to put in as much time as he can on low bands and RTTY before his departure. Logs will be updated on LoTW. You can also QSL via the bureau or direct to N0QM. "Cards sent to my Diego address may or may not be lost in the mail due to the post office mishandling of mail." After VQ9, Larry plans to live in the Philippines part of the year and the USA part of the year. He says all QSL cards after January will be handled when he makes it back to the States in May. Once his paperwork clears in the Philippines, he plans to operate with his Elecraft K2 rig, 40- 10 m CW and RTTY. He says, "Low band operations will not be possible the first year due to my small house. My call should be DU3/N0QM." QSL via N0QM and LoTW.

Mike V4/W1USN and Bob V4/AA1M will operate from **St. Kitts** (NA-104) February 12-24. They plan to be on SSB, CW and PSK31. QSL via the bureau or to their individual home calls.

Jacques 3B8/F6HMJ will be active from January 5 to February 21 EXCEPT January 11 to January 20, when he will be going to **Rodriguez** as 3B9/F6HMJ. He will be working all bands on CW/SSB and perhaps RTTY. QSL to home call.

OA4/PA3GFE in **Peru** will be on the air December 28 until January 28. Look for him mainly on CW and digital, 80-15M. QSL to his home call, direct or bureau.

Luc F5RAV will be back in **Somone**, as 6V7T from February 26 to March 7. He will be operating from the 6W7RV rent-a- shack including participation in the REF SSB and ARRL DX SSB Contests. QSL via F5RAV.

Will AA4NC is heading back to Placencia, **Belize** where he plans to be active from February 16-23, including the ARRL DX CW Contest as V31RR. Before and after the contest look for him on CW, SSB and RTTY. QSL direct to AI4U or via LoTW, but not via the bureau!

Peter DC0KK is now in **Sri Lanka** (AS-003) and expects to be QRV as 4S7KKG until March 13. He will be using wire antennas, a dipole and ground plane on the digital modes (RTTY, PSK and WSJT). He may also try to activate **Barberyn** (AS-171). QSL direct or via the bureau to DC0KK. He will respond to all requests after his return home to Germany in March.

The F5PFP expedition leaves Ushuaia, Tierra del Fuego, Argentina, February 11 on their 45-day voyage,

visiting and operating from rare Antarctic stations and Islands. One non-ham tourist has cancelled his plans, opening up a place on the expedition, either as a tourist or ham operator. Contact F5PFP for more info on this adventure. Here is the itinerary, though without dates, for the sailing yacht L'île d'Elle.

Base E-Stonington Island AN-001 - VP8

Base Y-Horseshoe Island AN-001 - VP8

Base W-Detaille Island AN-001 - VP8

Port Circoncision, Petermann Island AN-006 - FT5Y

Maldonado station, Greenwich Island AN-010 - HC

Yelcho station, Doumer Island AN-012 - CE9

Mushroom island, Alexander Islands group AN-018

Pierre ZS8M on Marlon Island reports in his monthly newsletter that he is finding severe electronic interference. He has identified the fire alarm system and the air handling units as the main culprits. "Once switched on, they cause severe broadband interference, preventing successful HF operations, even on commercial frequencies," he says. He has relocated to the old radio room in the old base for the time being and will operate there whenever he can avoid the interference. He has been away from home for eight months now, with five months left to go on Marion, until late April. Pierre is feeling like time is running out for all the operating he had hoped to do. He has completed his mast and it is at 15 m tall now. He says, "The Radiant Broadgun dipole provides 2 to 30 MHz and is a truly efficient all-in-one antenna." He is feeding all the antennas with half-inch low-loss coax. He expects a bit better setup sometime in the near future. The SteppIR vertical is still not installed; Pierre has been too busy.

Hermann FK/DL2NUD and Stefan FK/DL9GRE plan to go to Vanuatu operating February 1-16 as YJ/DL2NUD or perhaps YJ9HP.

Members of the Provins ARC are planning a major DXpedition to Cameroon, T.J., from February 10 to 20. Application has been made for the callsign TJ3C. An international team of operators led by Frank F4AJQ

includes Seb F5UFX, Michel FM5CD, Bob N6OX, Bill N2WB, Eric ON7RN, Gabriele I2VGW, Alain F6ENO, Jean-Luc F6BIV, Michel F5EOT, John F5VHQ, F2JD Gerard, Yan F1NGP, Mathieu F5PED and Henri F1HRE. Six stations will be operating 24 hours a day for nine days on all bands, 160 m to 10 m, CW, SSB, RTTY and PSK, with an emphasis on the low bands. A web site is under construction which will have additional information. QSLs will be handled by F5OGL.

**Sable Island.** Once again old man MURPHY has hit the Sable Island team. First the airplane and now the weather. The latest information from Randy NØTG "The CYØ team has coordinated with the approving authorities and flight charter services to access Sable Island for a "third" try. The tentative dates for this third attempt are March 7 to 15. The link "How to Contribute" on the web home page for those able to consider this matter will be helpful and appreciated. Additional details will be provided as they develop." [www.cy0dxpedition.com](http://www.cy0dxpedition.com)

Finally, the following operations have been approved for DXCC credit:

9Q/DK3MO – Democratic Republic of the Congo  
Operations commencing in 2007

3CØC – Annobon 2010 Operation

3C9B – Equatorial Guinea 2010 Operation

3V9A – Tunisia 2010 Operation

3VØA – Tunisia 2010 Operation

TS7TI – Tunisia (Also /p operation) 2010 Operation

TS8P – Tunisia 2010 Operation

TS9A – Tunisia 2009 Operation

H40HP Temotu Province 2009 operation

7Z1HB Saudi Arabia, 2007 to present operation

Good luck in the pile-ups until next month.

Special thanks to the authors of *The Daily DX (W3UR, 425 DX News (I1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)



## Silent Key Maxwell Ray Strugnell VK5SMR - SK

I regret to advise of the death of Maxwell Ray Strugnell VK5SMR.

Max was born in Adelaide on 12 February, 1925 and grew up in the suburb of Croydon. He attended technical school and later, at 18 years of age, enlisted with the RAAF where he served from 23 February, 1943 until 18 February, 1946.

In 1948 he worked as a linesman with the PMG, becoming

a Technical Instructor, and retiring in 1982.

Max married in 1953, becoming the father of two daughters who later gave him five grand children and five great grand children.

Max was a keen supporter of local committees and working bees, being a valuable addition to his community. The Moonta Scouts and Radio Group will surely miss Max, as will many others.

To those who are unaware of his passing, the cause was diagnosed as coronary heart disease (heart attack). His passing took place in Melbourne at his daughter's home. The doctor stated that it was quick and was all over in an instant.

On behalf of the family, this article is submitted by Larry Teakle VK5HBG, who is also an old mate from the PMG days.



# Spotlight on SWLing

Robin L Harwood VK7RH

2011 has finally arrived and only time will tell what this year may bring. Already two major shortwave broadcasters have left the scene, although a reprieve of sorts came through at the last minute. Radio Slovakia International from Bratislava stopped using their senders within Slovakia on 31 December 2010, yet a last minute deal saw programs to the Americas being aired via a small Florida based station WRMI. This broadcaster is rarely heard down here as it mainly airs programming directed to Cuba from various anti-Castro émigrés and not surprisingly is jammed extensively even when they do not have this being aired. WRMI is owned by Jeff White, a prominent DXer, and is also relaying the World Radio Network (WRN) which is mainly international programming from various program sources distributed via domestic networks such as the CBC, our own ABC, etc. WRMI is on 9950 yet I have never heard it because of the ever-present jamming and the sender is only 50 kW whilst the jammers are much higher power than a puny 50 kW.

Radio Prague also uses the Slovakian senders as Czechia and Slovakia were once a single entity which ended in the so-called Velvet Divorce in 1993. This station is also to cease utilising shortwave on 31 January as the number crunchers cannot justify serving a shrinking shortwave audience. Radio Prague will continue on the Internet but we are only too aware of the fate of international stations relegated to download streaming such as Swissinfo, the successor to Radio Swiss International. Both have disappeared.

Talking of disappearing, I noted around Christmas that Real Audio decided to axe their terrestrial radio Internet streams with over 4,000 stations. They replaced it with a puny 25 separate streams representing different genres. So much for the rationale behind the major broadcasters' decisions to axe HF for the Internet. Windows Media Player still streams some radio stations but they too have cut back. AOL, a major American web portal, does have radio streams yet these are NOT available at all outside of the US, allegedly because of copyright restrictions.

iTunes does have a fairly good selection, yet most using this site are more interested in downloading music than listening to international radio.

My hearing hassles finally came good just after Christmas, thanks to a nasal spray for hay fever. Apparently this allergy is responsible for my Eustachian tube blocking my eardrums and making me deaf. It is a joy now being able to listen on shortwave.

One station that I have heard is within the now exclusive amateur allocation on 40 metres. It is on 7175 kHz between 1930 and sign-off at 2000. Monitors say it is Eritrea, which is a small nation between Sudan and Ethiopia. It was formerly part of the latter and the two have been engaged in warfare ever since Eritrea broke away. Anyway the station was broadcasting in Arabic with a very professional production. These two nations are locked into a radio war and poach each others frequencies so that one is never quite sure which nation is broadcasting. Ethiopia is Coptic Christian whilst Eritrea is Islamic, as is Somalia next door. Ethiopia has also been involved in the Somalian Civil war. Ethiopia is using either 7165 or 7125, and is often jammed, and retaliates by jamming Eritrea. Both also jam the VOA in Amharic as they resent anybody interfering in their ongoing squabble.

A new clandestine station appeared in November calling itself Radio Free Sarawak. It initially was not heard at all well and has now dropped to a lower frequency. I heard it at 1100 on 6205 kHz in Bahasa Malay and Chinese, with the occasional English phrase. The sender is reported to be in the CIS and also uses 7515 from 2300 till 2330. Programming favours independence for Sarawak from Malaysia. Sarawak is the northern part of Indonesian Borneo but the Indonesians are not involved in this clandestine operation and the local Dyaks, backed by ethnic Chinese, are believed to be behind the station.

Well that is all for now. Hopefully my hearing will remain good enough to listen over this year. Until next time, the very best of 73 from a very warm Tasmania.



## WIA Annual Conference

Darwin, 27th – 29th May, 2011

We strongly recommend that you book your accommodation early to avoid disappointment!



# Spinifex and dust storms

Barry Miller VK3BJM

## Introduction

Back in October 2008, I decided to take a drive to South Australia and, through the serendipitous assistance of a number of VK5 operators, found myself at the top of Mount Arden, near Quorn, in the southern Flinders Ranges.

I'd taken gear for 144, 432 and 1296 MHz, and the enjoyable experience of that trip was described in an article that appeared in the December 2008 edition of AR - but, as suggested in that article, I felt I had unfinished business back on Mount Arden...

This stemmed from a near contact with David Smith VK3HZ, on the 2 metre band. David had been able to observe an aircraft flying from Sydney to Adelaide, and as it crossed over the path between our two stations, David's signals rose up out of the noise floor - a clear case of Aircraft Enhanced Propagation (AEP). Whilst David was relatively easy to hear, he couldn't hear enough of me for a complete contact.

## The Objective

I strongly felt it would be worthwhile having a second attempt at working via AEP back into the Melbourne area, considering I now had access to various aircraft-position monitoring aids and could take advantage of regular flights on an established route.

## Aircraft Enhanced Propagation

Aircraft Enhanced Propagation is a well documented phenomenon. Seven articles discussing AEP, by several authors, appeared in AR between 1985 and 1989; David, VK3HZ, has collected together copies of all these articles and made them viewable in PDF form at <http://www.vk3hz.net/ae.htm>. Also stored there are copies of Rex Moncur's VK7MO GippsTech 2000 presentation, and Guy Fletcher's VK2KU explanatory note on the mechanism.

This note is an excellent starting point for those unfamiliar with the mode, and who may be potentially daunted by some of the



Photo 1: Saturday morning - the author starting the generator.

mathematics that crops up in the earlier articles.

In short, VHF/UHF propagation can be expected over non-line-of-sight paths of (theoretically) up to 950 km, with aircraft flying above 37,000 feet. This assumes that the aircraft is mutually visible to both stations - a low, unobstructed horizon naturally helps here. Without mutual visibility, you have nothing!

The path between my site at Mount Arden and the QTH of VK3HZ, for example, comes in at 903 km, give or take a metre. I have made AEP contacts over this sort of distance before, as have others.

## Proof of the theory

Further encouragement came when I worked Peter Whellum VK5ZPG, who lives just outside Quorn, from my home station not long after returning from Mount Arden. This was something we had been attempting for some time, but using flights from Melbourne to Singapore - these fly out along my beam heading from Kyneton to Quorn.

Frequently they would shift off course - and no contact was made. This time we used a flight from Sydney to Adelaide. I was able to watch the aircraft on my ADS-B Virtual Radar Receiver as it approached our signal path, and whilst I lost ADS-B contact a few nautical miles prior to the cross-over point, the enhancement on 144 MHz happened on time and the contact was completed comfortably. The path distance is 795 km.

## Being Heard...

On my previous trip, I had 150 watts and a home-brew 10-element DL6WU Yagi for use on 144 MHz. David runs the full legal VK power permitted, 400 watts, and a 17 element Cushcraft 17B2 Yagi.



Photo 2: Adrienne's open air office.

I figured that, to beat the local Melbourne noise floor, a glorious pea-soup of RF-nasties, I would have to run as close to the VK limit as I could manage, and increase the size of my Yagi. I already had a 14-element DL6WU Yagi that I had built a few years earlier, so that part was sorted. That just left generating more power.

Whilst this line of thought coincided with Ron VK4DD unleashing his popular BLF248 600 watt amplifier,

I wanted something that I could use in the car whilst mobile, though perhaps not at full steam... – so I had to limit myself to something that used 13.8 volts as a source voltage. I canvassed opinions, and from the three obvious candidates – the Tokyo Hi-Power HL-350V DX, the Mirage B-5030, and the TE Systems 1452 – it seemed that the HL-350V DX had the best reputation regarding quality and support. Quite some time was spent in shekel-saving mode, before shifting into spend mode; but eventually the big brown box arrived, and planning the trip could move into selecting a date.

Oh, and I also decided that, rather than running everything off the Land Rover's 120 Ah auxiliary battery, I had invest in a small generator. Again I asked about, and as a result I invested in a Honda EU20i. Along with that I needed a suitable 240 V/13.8 V power supply, and a Manson M8222 was added to the gear heap.

On paper, at least, I had added about 4 dB to my transmit side. I hoped that that would be just enough to lift my signal out of the noise to a 41 level – that is more than enough for a valid contact!!!

## Diversions

As this was to be a single-band trip – 144 MHz only – I raised the idea of making it multi-mode. Normally I stick to SSB – and occasionally CW, if I can find the WD-40 for the key... This is to avoid the complications that multi-band multi-mode efforts bring to a solo operator. However, with only one band to operate on, I thought I would have a go at including the laptop and running the WSJT software. This would make the operation – and the grid locator, PF87 – accessible to stations not able to participate in the AEP experiment. Using FSK441 and Meteor Scatter, contacts would be possible to most of the east coast, whilst JT65 could fill the gap in between the AEP and MS footprints. Rex VK7MO assisted with a crash-refresher on the software.

I also contacted Guy Fletcher VK2KU to see if EME via JT65 might be workable. By some enormous fluke, the weekend I picked seemed likely to be very favourable; the waning moon would be in a quiet part of the sky, and coincided with the first weekend of the ARRL EME



Photo 3: Saturday morning – clear blue skies.

contest. So my first attempt at EME was added to the schedule! Guy also ran a couple of tests with me (direct, not EME) just so I could iron out any bugs in the system.

## On site

My partner, Adrienne, and I departed Kyneton on the morning of Thursday 8 October. We arrived at Peter VK5ZPG's place mid-afternoon on Friday, having spent the night at Clare, in SA. By this stage we were

falling behind schedule; so we dashed in, dashed out, and headed up the road to Argadells Station, the property on which Mount Arden is located.

The property owners, Malcolm and Judy Juett, had again kindly granted us access to the mount, and we stopped briefly to chat with Malcolm before setting up the hill. He mentioned that there were a couple of large groups from 4WD clubs roaming the property, and to be on the lookout for them on the ridge road. This was not good news, as space alongside the ridge track is at a premium, and mostly covered with spinifex.

On arrival on the ridge, the de-sensing caused by the Mt Arden SAGRS installation seemed worse than last time, but that may have been due to the monitoring being done with a vertical antenna, rather than the horizontally-polarised Big Wheel that I usually use. We drove the length of the ridge, but could not find anywhere better than the spot I had been last time. By this time it was 1630 ACDT, or later, so we attempted to 'shoe-horn' ourselves into the old spot. Adrienne had packed some high visibility vests, and collapsible traffic cones, and these came in very handy for marking the border between the track and the campsite.

As it turned out, they had magical properties, too; not one vehicle came along the track all weekend!

Photo 4: Sunday morning, before sunrise, with the Yagi pointing to where the moon rose.



We had not finished setting everything up before the sun set; the mast went up in the dark, and only then did we stop to cook and eat dinner – at 2100 ACDT. We still had to set up the generator and power cabling, the HF antenna, and all the laptop/interface cabling/mobile phone broadband modem. I did not want to stumble about the ridge top, in the dark, in the Spinifex, setting up generators and cables; and my brain was starting to make that special frying noise, so we called it quits and collapsed into the sleeping bags.

## Day 1: Saturday

Perhaps not surprisingly, the alarm failed to wake me the next morning – or perhaps in the dark and the cold I had messed up setting it – I was woken by a phone call from Rex VK7MO asking how things were. I slurred something about setting the generator up, and being on air as soon as we could, and dragged myself outside. It was windy and very cold; but the sunrise colours were beautiful, once the sleep was wiped from my eyes. Setting up the remainder of the gear took 45 minutes, and then we were on air! Breakfast had to wait...

I think there were over thirty operators logged into the VK Logger when I came up – oh, boy..! The first contact, with Rex VK7MO, was completed via FSK441 by 2126 Z. Following Rex, Jim VK3II, David VK3HZ and Michael VK3KH were completed using the same mode. Gavin VK3HY was noted in the log, but as incomplete. I paused for breakfast at about 2230 Z (I think...). Brian, VK5BC was operating portable from Melrose; after a chat with him, David VK3HZ and Leigh VK2KRR were worked using JT65 – an attempt was also made to work Colin VK2KOL using FSK441, due to the number of pings that were being heard during the JT65 contacts, but this attempt was unsuccessful.

Later in the day voice contacts with Peter VK5PJ, Bill VK5ACY, David VK5AYD, Nora VK5NYD, Phil VK5AKK, Geoff VK5GF and Andrew VK5DL were completed. The contacts with VK5AYD and VK5NYD, who are located at Coober Pedy, were their first 2 metre contacts within VK5. VK5DL was a new call in my log book, as well, which was nice.

## AEP



Photo 6: Sunday afternoon – the approaching dust storm, viewed from Mount Arden.



Photo 5: The camp on the ridge.

Sadly, the attempt to work via AEP into Melbourne was a one-sided affair again. Amazingly, only one aircraft positioned itself suitably at a time when I was both free, watching the ADS-B screen, and David VK3HZ was available. An Etihad flight to Sydney from Abu Dhabi (ETD454 – arrives in Sydney at 1930 AEDT each Saturday) came in over Adelaide at 39,000 feet and was visible on my ADS-B receiver prior to the point where enhancement to Melbourne would take place. Perfect!

At 0647 Z David's signal came up out of the noise, to the point where he was 51 for several transmissions. Perfect! Brilliant!! However, even with the extra power I was running, David could not hear me. This was NOT perfect. A bit later, David disconnected his Yagi from the input to his pre-amp, and found that his 'natural' noise floor dropped 10 dB or so. This was definitely not perfect, or brilliant. There seemed to be little point in persisting; between the absence of further suitable aircraft, the inherent high noise floor in Melbourne, and there being more stations wanting to use the digital modes, there were no further attempts at voice contacts into Melbourne.

## EME

Unfortunately, the first of the two EME attempts, very early Sunday morning, proved fruitless. I was out of the sleeping bag at 1400 Z, well before moonrise at 1520 Z, in order to have plenty of time to get the generator, laptop and software going – and with time to sort out any problems if they occurred. Of course, when you do this, everything works perfectly – Murphy only joins you when you become complacent!

As a novice, and being in a shack with a window giving a view of where the moon should appear, it was a little disconcerting watching the software telling me that the moon was appearing over the horizon – yet not seeing it, as the waning half moon was rising dark side up! Sadly, not a trace of a signal was received in the hour we had before the moon was too high, above 10° elevation, for my fixed Yagi. Later, Guy VK2KU advised having received very poor ping levels from the moon, indicating that conditions were simply against us on the night.

The second EME attempt, scheduled to take place between 1610 Z and 1710 Z the next day, that is, early

Monday morning, was affected by what happened on Sunday...

## Day 2: Sunday

The weather turned ugly on Sunday morning, with the winds increasing in speed, and storms forecast. Peter VK5ZPG drove up to visit us, and after discussing the conditions with him, we reluctantly closed operations and pulled down the station just before midday.

Peter had travelled up in his 4WD ute, and he kindly assisted by allowing us to toss half of our stuff in the back of it, rather than trying to completely repack the Land Rover. This saved us a lot of time - we completed repacking the Land Rover at Peter's place, in a more relaxed manner. We could see the line of brown from the dust storm, approaching over the plain to the west, as we broke camp.

Choosing not to be on a 740 m ASL ridge-line in such weather was the right thing, much as it pained me to give up on the exercise. I extend my apologies to those who missed out on a contact, due to this reduction in operating time.

In the four hours prior to this decision being acted upon, Colin VK2KOL, Steve VK2ZT, Rex VK7MO, Jim VK3II, John VK4JMC, and Peter VK3PF were all worked using FSK441; Jim VK3II and Michael VK3KH were worked using JT65, and Peter VK5PJ was worked on USB. Gavin VK3HY was again logged as 'seen' but not completed.

## Conclusion

During the Saturday and part of Sunday that we were on air, 23 contacts were logged. Of these, eight were voice (USB); four were made using JT65 and eleven were via Meteor Scatter using FSK441. The Meteor Scatter contacts, naturally enough, covered the widest range of call areas; stations in VK2, VK3, VK4 and VK7 were worked using this mode. JT65 provided contacts into VK3 and VK2. All the voice contacts were to stations in VK5. Five incomplete contacts were also logged.

Personally I am very pleased with 23 contacts in a period of about 30 hours, considering the distances involved and the use of a single band.

Despite a lack of success, I very much enjoyed the EME attempt using JT65 and look forward to trying more of this challenge.

I did find the FSK441 mode a little frustrating. More than once a station appeared with a full decode, and I would start transmitting to them with a report, only to receive nothing else from them - but find another station from the same area appearing with a full decode. This happened to Gavin VK3HY several times; I also recall Andrew VK3OE appearing for a couple of transmissions, before being replaced by another station. I did not see any example of simultaneous decodes



Photo 7: The operating position; VK Logger on the laptop.

from multiple stations, which was something I'd heard could occur.

With regards to AEP, the issue of high ambient noise levels in cities like Melbourne may be insurmountable. If a way around this problem can't be found, there seems little point in attempting AEP contacts over these extreme distances - the signals will simply be blanketed in filth. And no-one likes a filthy blanket... Is there an answer to this?

Once again, having (relatively) high-speed broadband access, via the mobile phone network, was a boon. This not only applied to me, but also to Adrienne, who was able to work on assignments using her laptop and the Internet whilst sitting in a comfy chair under an awning - while I messed around on the radio. The broadband gave me full access to the VK Logger, plus email and other useful websites.

Dare I mention the Bureau of Meteorology site?!

This was also the first time I had DXpeditioned (no, that is not really a word) with a partner, and the good news is that, despite the trying conditions and everything else, she claims this is not the last time she will do this with me! She even suggested returning to Mt Arden for a third time!! Not sure about that myself, though - I might be all Ardened-out...

Finally, I would like to thank everyone who participated, either in working or attempting to work us on this trip. Your support is appreciated.

All photos were taken by Adrienne Walker and the author.



Photo 8: Sunday afternoon - the Mount Arden summit RF installation, and bad weather.



# WIA National Field Day 2010 Results

Philip Adams VK3JNI

**Congratulations to the teams from Amateur Radio Victoria, WICEN SA and the Peel Amateur Radio Group for the three top efforts in the 2010 WIA National Field Day.**

**Adrian Addison VK5FANA should also be congratulated for participating and providing a log as a private entry.**

Paul Hoffman VK5PH, representing the NFD committee, reported some excellent efforts by all the teams and it was evident that the publicity kits, prepared by Jim Linton VK3PC and assisted by Robert Broomhead VK3DN, were of great value to all participants. The field day station operated by the Midland Amateur Radio Club also earned Paul's special mention. Thanks are also extended to Fred Swainston VK3DAC and Gerard Rankin VK5ZQV who assisted on the committee.

Other clubs and individuals were active on the day including Scout Radio and Electronics from Victoria and many other stations called in to the event stations.

The weather on the day in VK3 and VK7 was reported to be not encouraging for either the general public or the invited guests. Other states fared much better. SRESU noted an 800% increase in the number of visitors in two hours after it stopped raining. All participating stations are encouraged to send letters of thanks to VIPs who visited their stations.

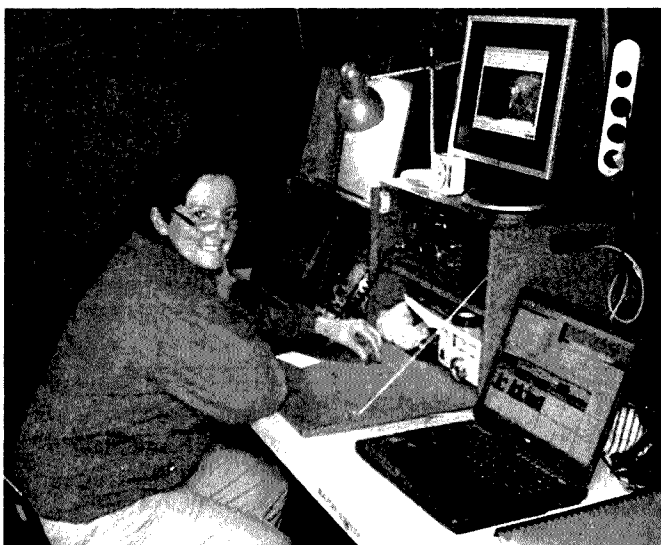
Several clubs reported good feedback from the general public and the VIPs. It was evident that the use of a spruiker together with good graphical displays, including colour and movement, all helped to attract interest. Radio related computer applications on the monitor notably attracted attention and kept the visitor interested and asking questions. Some clubs have already reported expressions of interest in forthcoming Foundation training courses directly as a result of the contacts made with the general public at the NFD.

Certificates of participation will be forwarded to all participating stations and clubs in the inaugural WIA National Field Day. More stories and photos can be found on the WIA Web pages.

Was it worth it? Yes, the WIA Board and the NFD Committee are convinced that the WIA National Field Day is an ideal way to expose amateur radio to the general public and to raise the profile of amateur radio with our emergency services and public officials.

We look forward to seeing the first 2011 registrations on the WIA online system in the near future. Please mark the date 17 April 2011 on your calendars for this year's WIA National Field Day.

Station	Station Type	Score
Amateur Radio Victoria	Public	3367
WICEN SA	Public	2410
Peel Amateur Radio Group	Public	1806
Adelaide Hills Amateur Radio Society	Public	1529
Midland Amateur Radio Club	Public	1219
Southern Peninsula Amateur Radio Club	Public	1012
Bayside District Amateur Radio Society Inc	Public	814
Lower Murray Amateur Radio Club	Public	733
Adrian Addison VK5FANA	Private	75



Jenny VK3MDR working the VK3SAA station using SSTV.



Philip VK3JNI with two of our visitors who spent some time discussing the station.

**“Amateur Radio: The first technology-based social network”**



# A combined capacitance meter and spot frequency generator

Paul Anderson VK2GPT

An instrument for measuring capacitance values and for generating spot frequency signals is described. This duality is achieved without resorting to circuit modifications, component value variations, or wiring modifications.

A crystal controlled clock together with digital frequency division provides a stable and repeatable calibration accuracy of short and long duration. Provision for zero setting is not required. The low power consumption favours the adoption of nine volt battery type EN22 alkaline as a suitable source of power. The expected useful battery life with intermittent usage is almost equal to shelf life.

Capacitance values are read on a moving coil meter (50 uA with 50 divisions, marked 0 – 100). The design is based on the well known principle of the charge in a capacitor  $C = Q/V$ , (farads, amp-seconds and volts respectively).

Referring to Figure 1, a square wave is applied to the capacitor under test with D1 and D2 separating the charge and discharge currents. When D1 is conducting, a current flows through meter M1 with an average reading directly proportional to the charge repetition rate, the charging voltage and the capacitor value. The reading resolution is enhanced through a choice of fifteen meter ranges.

This ensures that meter pointer deflection can be obtained at more than 20% of FSD except for values less than 20 pF. These ranges are available by selecting a meter scaling factor of 1, 2 or 5 in combination with a choice of up to five decimal frequency divisions. Short and long term accuracy of calibration is thus obtained in combination with a crystal controlled clock (IC1). The 1 MHz oscillator frequency should be adjusted against a known standard only if the unit is to be used as a spot frequency generator, otherwise C1 could be set to approximately 22 pF. Diodes D1 and D2 are type AA118 but other equivalents could be used.

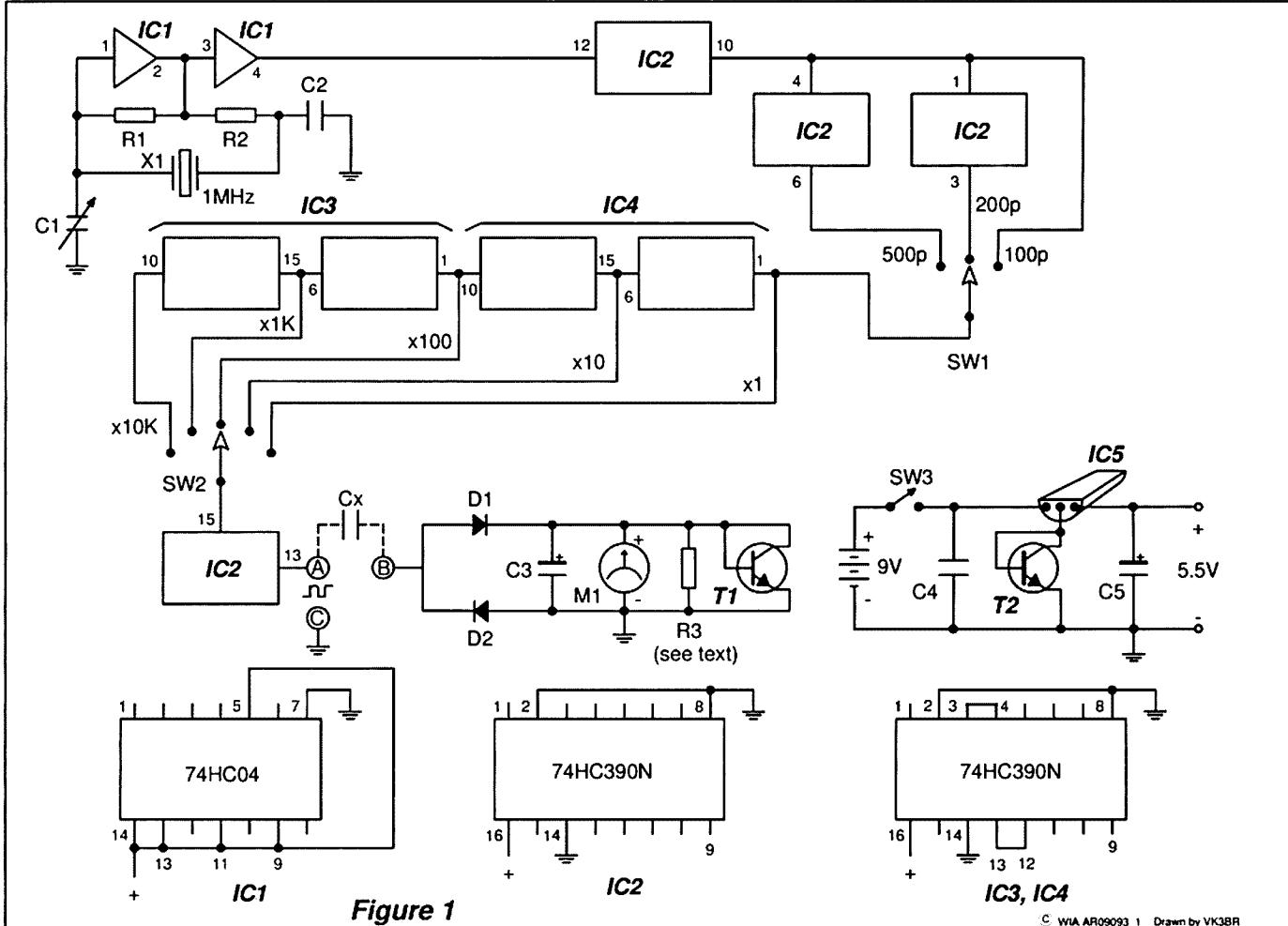


Figure 1

© WIA AR09093\_1 Drawn by VK3BR

Figure 1: The circuit diagram

C3, a 150  $\mu\text{F}$  tantalum capacitor should be checked for leakage, not more than 0.2  $\mu\text{A}$ . T1 provides a reasonable amount of protection against meter overload. The power supply uses a very low drop out regulator IC5 (LP2950) of 5 volts. This is increased to 5.5 volts approximately by addition of T2.

Calibration consists of selecting a stable resistor for R3, such that with a standard accurate capacitor of 10 nF, connected across terminals A and B and Sw1 and Sw2 set at 100 pF and X100 respectively a meter deflection of full scale is obtained. The value of R3 will depend mainly on the particular meter used.

Table 1

Switch settings		Capacitance	Output
Sw1	Sw2	at FSD	frequency
100 p	x 1	100 pF	100 kHz
200 p	x 1	200 pF	50 kHz
500 p	x 1	500 pF	20 kHz
100 p	x 10	1 nF	10 kHz
200 p	x 10	2 nF	5 kHz
500 p	x 10	5 nF	2 kHz
100 p	x 100	10 nF	1 kHz
200 p	x 100	20 nF	500 Hz
500 p	x 100	50 nF	200 Hz
100 p	x 1 k	100 nF	100 Hz
200 p	x 1 k	200 nF	50 Hz
500 p	x 1 k	500 nF	20 Hz
100 p	x 10 k	1 $\mu\text{F}$	10 Hz
200 p	x 10 k	2 $\mu\text{F}$	5 Hz
500 p	x 10 k	5 $\mu\text{F}$ *	2 Hz

\* On this range, the pulsating meter reading is easier to resolve with a highly damped meter movement.

When using the unit as a generator, the output is available across terminals A and C.

This facility is very useful when checking the linearity and calibration of CROs with switching step factors of 1, 2 and 5. The possibility of using the remaining unused buffers with

Component List

R1	3M9
R2	3k3
C1	50 pF trimmer
C2	27 pF NPO
C3	150 $\mu\text{F}$ tantalum 16 V
C4	10 nF ceramic 50 V
C5	1 $\mu\text{F}$ tantalum 16 V
IC1	74HC04
IC2, 3, 4	74HC390N
IC5	LP2950
T1, 2	*BC147
D1	AA118 Telefunken
X1	1 MHz crystal
Sw1	1 pole 3 position
Sw2	1 pole 5 position
Sw3	SPST
M1	50 $\mu\text{A}$ meter, 50 divisions, 0 to 100

\* Note the BC147 could be any common small signal transistor, for example, a BC107 or BC547.

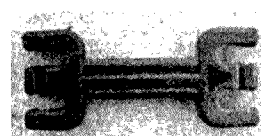
IC1 is left to the astute constructor.

Sw1 and Sw2 switch functions, when used as a capacitance meter or spot frequency generator, are tabulated in Table 1.

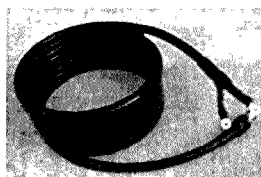
# TET-EMTRON



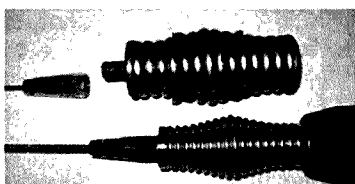
Copper wire



450 Ohm spreaders



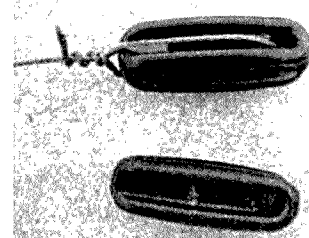
HF chokes



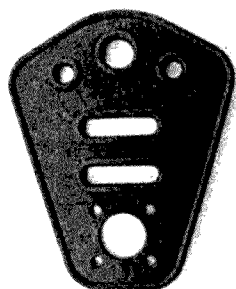
Codan and Barrett parts



Baluns



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[www.tet-emtron.com](http://www.tet-emtron.com)

## TET-Emtron

80 Stock Road, HERNE HILL WA 6056

Phone: 08 9296 3224

# Contests

Craig Edwards VK4LDX/VK8PDX & Phil Smeaton VK4BAA/VK4KW

## Contest Calendar for February 2011 – April 2011

February	5/6	Mexico Intl. RTTY Contest	RTTY
	12/13	CQWW RTTY WPX Contest	RTTY
	12	Asia-Pacific Sprint	CW
	12/13	RSGB 160 Metres Contest	CW
	19/20	ARRL Intl. DX Contest	CW
	26/27	CQWW 160 Metres Contest	SSB
March	5/6	ARRL Intl. DX Contest	SSB
	12/13	<b>RSGB Commonwealth Contest</b>	<b>CW</b>
	19/20	<b>John Moyle Field Day</b>	<b>CW/SSB/FM</b>
	19/20	BARTG RTTY Contest	RTTY
	19/20	Russian DX Contest	CW/SSB
	26/27	CQWW WPX Contest	SSB
April	3	<b>QRP Hours</b>	<b>CW/PSK31/RTTY/SSB</b>
	9/10	Japan Intl. DX Contest	CW
	9/10	Yuri Gagarin Intl. Contest	CW
	16/17	YU DX Contest	CW/SSB
	23	<b>Harry Angel Sprint</b>	<b>CW/SSB</b>
	23/24	Helvetia Contest	CW/SSB
	23/24	SP DX RTTY Contest	RTTY

*Note: Always check contest dates prior to the contest as they are often subject to change.*

After a brief one and a half years editing the Contests column, I have decided to give someone else the opportunity to do it. Fortunately Phil is able to take on the role again, so that was great timing. I have enjoyed my time here but in the second half of 2010 I really found myself sacrificing operating time to do the editing duties. This was made even more difficult when I did my IOTA DXpeditions to Fitzroy Island OC-172 in October and Magnetic Island OC-171 in December. Something had to give and so I am pleased to give the keys back to Phil. I am looking at doing a couple more IOTA trips in North Queensland during 2011 and I need to devote time to other pursuits like upgrading from Standard to Advanced. So I will see you on the air and good luck to everyone during ARRL and WPX contests coming up this time of year. 73s de Craig VK4LDX / VK8PDX.

**A New Year usually symbolises 'out with the old and in with the new'. Well, almost.**

Many thanks go to Craig for doing a sterling job.

Good luck with those planned IOTA trips!

A belated Happy New Year to all for 2011 from the VK4BAA household. I hope that Santa emptied his sack in your shack! We must have been good boys and girls, as Cycle 24 seems to be starting to have a bit of an effect at last.

So, after a quick shuffle around the shack and looking at the world of amateur radio, I wonder what has changed in my absence....

Shorter suffix callsigns are now in place and are being given an airing during world-wide contests as well as domestic. That is good news – but single letter suffix callsigns are still being debated and are likely to be some time away from being used by the general amateur populace.

VK is still behind much of the amateur world as regards legal power output limits. Plans are afoot to try and redress the imbalance somewhat, but the subject is far from being put to bed and may not reach full equilibrium anyway.

What else then? Let us see.

VK had a pair of operators (Kevin VK6LW and Bernd VK2IA/VK6AA) in the WRTC who did VK proud! One thing that is obvious is that contesting is coming of age in Australia. The claimed scores submitted for the 2010 round of the Oceania, WPX and CQWW contests for example, have increased greatly over the past 12 months or so. Cycle 24 might try to claim some of the accolades for this but in reality, a number of stations and operators have progressed hugely over this period and the evidence is there for all to see. The scores for 2011 will be interesting to see, as well as the final results for the 2010 contests.

No doubt about it – 2010 has been a good year for VK contesting.

### 2010 ARRL 10 m contest

Activity in this part of the world was somewhat low for this one – not too surprisingly I suppose – but 2011 might prove to be the time to watch 10m closely for openings.

Steve VK3TDX reported that conditions were poor to the States from his part of the world, but a 'pipeline' to JA managed to keep Steve awake to the tune of almost 560 QSOs. A late afternoon/evening opening to Europe on the first day was good log-fodder, but this did not repeat into the final day in such strength. Serial numbers from Europe were quite low and a chat with AH2DT in Guam revealed that they had not had the openings into NA and EU that they usually enjoy.

Steve VK6IR also reported poor conditions on 10 m with around 200 QSOs in the log to keep Steve's hand off his stubby.

Alan VK4AN chose CW as his sole mode and found close to 300 stations for his troubles, but reported strong QSB.

Mirek VK6DXI was operating as Z21DXI using low power and CW from Zimbabwe, netting close to 560 QSOs. Mirek used a simple wire antenna to grab some excellent DX during the





*Picture 1: VK4 VKCC attendees were John VK4IO, Catherine VK4GH, Mike VK4DX, Paul VK4FPDW, Mike VK4QS, Phil VK4KW, Alan VK4SN, Trent VK4TI and Dave VK4NDX.*

contest and was surprised to find the band open – but not to VK or Asia.

John VK4EMM used VK4IU in the high power mixed mode section to produce some impressive numbers to get to 443,000 points. John's claimed score places him within the world top 100 claimed scores for the contest and section, at number 10. Well done John!

Just for once, it looks as though VK was in the prime position for the propagation for this contest. If only this could carry-over to all other international contests! It was on my 'Santa List' but has obviously been overlooked.

## 2010 CQWW CW Contest

Last year (2010) was the first year that VK1CC dipped a tentative toe in the CW Section of CQWW. VK2IM, VK2NU and VK2CCC operated as a multi-multi station for the contest, netting some 4132 QSOs for 5.5 million points. The guys finished an hour early to pack up due to the weather, but everyone had a great time and learned a lot for 2011.

The ZL8X team also entered the multi-multi section and had a ball from a relatively rare spot on the planet, logging close to 12,000 QSOs, showing that the rest of the world do indeed point their beams in our direction from time to time.

John VK4EMM was in the operating chair as VK4IU and logged over 2100 QSOs for a score of 2.1 million points using low power.

No mean feat for low power – an impressive tally!

Bernd VK2IA operated as VK6AA from the station of the Northern Corridor Radio Group in Perth and amassed 4000 QSOs for 6 million points. Bernd dedicated his log to Neil Penfold VK6NE who passed away in late September 2010. Bernd put the Zone 29 station into good use, working like a man possessed on the 40 m and even

the "rare as hen's teeth" 10 m EU pile-ups.

Kevin VK6LW chose 15 m and grabbed a superb 2500 QSOs and 1 million points.

Mirek VK6DXI was firing-up the bands, logging ZL8X as his first QSO on 160 m on a seemingly un-open band. No QSOs to EU however on the first day, so Mirek had a sniff around the other bands to make-up the numbers, but claimed for 160 m only after a second day working NA stations by the bucketful and a few hardy EU signals that managed to make the trip to VK.

Patrick VK2PN was also playing in the contest, netting almost 900 QSOs for his efforts. Allan VK2GR was also in the battle, gaining a similar QSO tally. Allan used N1MM for logging and had to lock horns with the software from time to time as band changing appeared to be fraught with difficulties.

Steve VK3TDX had family commitments curtailing his BIC (Burn In Chair) time, but still managed to grab almost 1400 QSOs on 15 m, with late openings into EU. An excellent effort Steve!

Alan VK4SN also went for a 15 m single band entry, but Murphy paid a call to Alan's shack and managed to break the internet connection and persuade the PC operating system to spit the dummy too. Warnings flashed on the screen whinging about video drivers, swiftly followed

by the blue screen of death. Frantic button pushing got the PC alive again, as well as Alan's heart-rate higher than his previous QSO rate!

Laurie VK7ZE was also to be found on the bands, entering his log as a checklog for 2010.

## 2010 CQWW SSB

Catherine VK4GH got stuck into the contest and bagged just over 120 QSOs, using the contest to tease-out a few new countries for her DXCC award. An excellent approach, as the international contests often produce activity within parts of the globe usually not populated with a radio amateur.

VK1CC was activated during the contest as a multi-two station by David VK2NU, Vlad VK2IM, VK2KDP, Richard VK2BD and Ian VK2MCI. The guys used the contest to nurture new operators as well as having some fun on the bands. Troubled with equipment failures, the group grabbed just under 3000 QSOs into the log for 3.5 million points – a great weekend's effort! 10 m allowed the VK2 team to work into NA for a while, but the second day the band barely opened to JA. 15 m worked well for most VK contesters in the contest and the VK1CC operators used the band extensively – but were unable to hear some of the stations being worked by the VK4 and VK6 entrants! 20 m was reportedly mainly S&P and 40 m was the usual EU noise wall.

Steve VK3TDX prefers his contesting with a CW flavour, but still managed to find time to trawl the bands for any goodies on offer. Steve's BIC time extended somewhat beyond his initial time-slot allocation, allowing close to 1800 QSOs to be logged for just under 1.5 million points.

VK4UC was operational as possibly the only multi-multi entry from VK for 2010. Operators consisted of VK4UC, W6NV, VK2IA, VK3TZ, VK4CZ and VK4TI. Close to 2800 QSOs got into the log, for just over 3.5 million points – an excellent effort from a suburban lot! With all that RF flying round, I dare say that a microwave oven was not required for warming the pies.

The lads at VK6NC went 'big time' for the contest, as the log was to be submitted as dedicated to the memory of Neil Penfold VK6NE. The VK6 boys usually split into a club based group as well as an individual station or two, but felt this year that a concentrated effort was required to maximise their score. It worked, as from memory, the log bulged with 3000 QSOs and 3 million points as a multi-single station. I hope I have remembered those totals correctly, as my laptop chewed-up some data lately and some emails unfortunately fell victim!

Finally, VK4KW was also on the bands for the contest, operated as M/2 for the most part - and M/S for the rest - simply down to operator headcount. Operators were VK4NDX, VK4HAM, VK4SN, VK4LAT and VK4BAA. A few tweaks and twiddles to the station improved performance in 2010 and saw a rise in QSOs on most bands when compared to 2009. 80 m was very noisy indeed for atmospherics - as was 160 m too. 10 m opened a weary DX eye from

time to time, with NA and EU worked - but not in huge abundance. With just under 5000 QSOs and 7.5 million points, the team felt that the lack of sleep was well worth it!

### Commonwealth Contest

Beru, otherwise known as the Commonwealth Contest, will be taking place in March 2011. The format for the Commonwealth Contest 2011 team competition is likely to be virtually identical to last year's competition, and again with the Oceania multiplier that we and the Kiwis benefited from being reduced to give the rest of the Commonwealth a better chance.

Team Captain is yet to be announced at this time, but the 2010 team was a struggle to assemble and Kevin VK6LW did a superb job to get everything organised in time. My CW skills are far too rusty to be included in the team - I need to practice and polish my skills back to where they once were. If you want to be in the team, then drop me a line and I'll forward your details to whoever the team captain turns out to be. With

the Poms grabbing the Ashes, VK needs to step-up to the plate to teach them a lesson!

### And finally....

The VK4 'chapter' of the VKCC met at the Ipswich Jets League Club over the Christmas break. Picture 1 shows the attendees.

A great time was had by all, with discussions including tales of battles fought during contesting and antenna design approaches, as well as a good opportunity to meet and greet the face behind the callsign. So, the next time that one of the attendees grabs my frequency, I will now know who is responsible! I am just kidding. Honest.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au)

See you on the bands.

**73 de VK4BAA/VK4KW**  
**Phil Smeaton**



# Spring VHF-UHF Field Day 2010: Results

*Contest manager: John Martin VK3KM*

The Spring Field Day was very well supported, with a total of 98 logs received. This is another record. I am looking forward to wearing my fingers down typing up the results for well over 100 logs next January! The rules for the Summer Field Day will be the same as for the Spring event, with the addition of an optional extra "Microwave Challenge" certificate for stations operating on 1296 MHz and higher bands.

Call	Name	Location	50	144	432	1296	2.4	3.4	5.7	10	24	47	TOTAL
	MHz	MHz	MHz	MHz	GHz	GHz	GHz	GHz	GHz	GHz			
<b>Section A: Single Operator, 24 Hours</b>													
VK5ZD	Iain Crawford	PF95, PF96	91	438	685	912	930	960	930	900	890	-	6736
VK2DAG	Matt Hetherington	QF56, QF57	73	516	705	768	540	430	430	430	420	-	4312
VK3JTM	Tim Morgan	QF12	74	480	615	952	880	-	490	490	-	-	3981
VK4OE	Doug Friend	QG61, QG62	35	300	375	472	620	450	210	450	330	-	3242
VK3WRE	Ralph Edgar	QF31	-	348	405	584	570	210	330	440	-	-	2887
VK1DA	Andrew Davis	QF44	46	687	605	368	210	210	-	210	-	-	2336
VK5LD	Dale Loffier	PF96	83	462	765	936	-	-	-	-	-	-	2246
VK5LA	Andy Williss	PF85	-	450	605	832	320	-	-	-	-	-	2207
VK5OQ	Keith Gooley	PF95	47	351	545	544	-	330	-	220	-	-	2037
VK3LY	Bill Day	QF03	89	498	585	760	-	-	-	-	-	-	1932
VK5TX	Ben Hennessy	PF95	51	423	450	616	-	-	-	-	-	-	1540
VK5FANA	Adrian Addison	PF85	-	537	830	-	-	-	-	-	-	-	1367
VK3FEMT	Stewart Wilson	QF22	-	675	670	-	-	-	-	-	-	-	1345
VK4TJ	John Kirk	QG52	21	255	370	168	330	-	-	-	-	-	1144
VK1BL	Ted Garnett	QF44	24	75	125	168	210	210	-	210	-	-	1022

Call	Name	Location	50	144	432	1296	2.4	3.4	5.7	10	24	47	TOTAL
	MHz	MHz	MHz	MHz	GHz	GHz	GHz	GHz	GHz	GHz			
VK5AIM	Steve Mahony	PF95	80	63	110	648	-	-	-	-	-	-	901
VK1AGP	Greg Parkhurst	QF44	26	315	2850	-	-	-	-	-	-	-	626
VK5AGZ	Derek Reuther	PF94, PF95	66	174	365	-	-	-	-	-	-	-	605
VK2LSB	Stuart Bayliss	QF55	-	237	105	168	-	-	-	-	-	-	510
VK4HEC	Ewen Cameron	QG52	-	267	235	-	-	-	-	-	-	-	502
VK2FWB	Fred Baker	QF46	21	231	235	-	-	-	-	-	-	-	466
VK3VCL	Wayne Bruce	QF22	-	180	165	-	-	-	-	-	-	-	345
<b>Section B: Single Operator, 8 Hours</b>													
VK2DAG	Matt Hetherington	QF56, QF57	57	291	470	560	430	430	430	430	420	-	3518
VK3HY	Gavin Brain	QF32	99	552	645	760	-	-	-	-	-	-	2056
VK2TDN	Dave Nelson	QF56	-	270	410	448	220	-	220	400	-	-	1968
VK2GG	Dan Joyce	QF56	35	141	230	320	220	-	220	410	350	-	1926
VK3YFL	Bryon Dunkley-Smith	QF22	58	354	460	584	-	-	-	380	-	-	1836
VK5LA	Andy Williss	PF85	-	366	490	680	210	-	-	-	-	-	1746
VK5LD	Dale Loffler	PF96	59	288	470	760	-	-	-	-	-	-	1577
VK2CQ	Dave Maloney	QF55, QF56	23	141	230	320	-	-	-	390	320	-	1424
VK2TRF	Jack Swart	QF55, QF56	23	129	195	304	-	-	-	390	330	-	1371
VK5TX	Ben Hennessy	PF95	46	342	320	544	-	-	-	-	-	-	1252
VK3UBM	Michael Borthwick	QF21, QF22	21	252	240	272	330	-	-	-	-	-	1115
VK2GOM	Robert Greaves	QF56	-	171	230	-	220	-	-	400	-	-	1021
VK5AKH	Andrew Hall	PF95	71	366	485	-	-	-	-	-	-	-	922
VK5FANA	Adrian Addison	PF85	-	330	540	-	-	-	-	-	-	-	870
VK4ADC	Doug Hunter	QG61	49	237	305	272	-	-	-	-	-	-	863
VK3BG	Ed Roache	QF23	71	393	-	288	-	-	-	-	-	-	752
VK1PAR	Al Long	QF44	12	366	365	-	-	-	-	-	-	-	743
VK5AR	Alan Raftery	PF94, PF95	-	285	440	-	-	-	-	-	-	-	725
VK3RU	David Williams	QF23	-	288	235	-	-	-	-	-	-	-	523
VK1AGP	Greg Parkhurst	QF44	19	198	250	-	-	-	-	-	-	-	517
VK5KPR	Peter Banks	PF87	21	129	105	-	-	-	-	-	-	-	255
VK4JAZ	Grant McDuling	QG62	-	96	105	-	-	-	-	-	-	-	201
VK3SF	Ross Sargent	QF22	-	72	110	-	-	-	-	-	-	-	182
<b>Section C: Multi Operator, 24 Hours</b>													
VK3UHF	LUMEG (1)	QF21	102	738	935	1192	940	790	920	1040	540	540	7737
VK3ER	EMDRC (2)	QF22	182	744	1020	1328	800	230	470	480	-	-	5254
VK3ALB	(3)	QF11	99	621	675	1040	720	-	620	490	-	-	4265
VK4WIS	SCARC (4)	QG63	92	327	470	456	620	340	-	470	330	-	3105
VK5LZ	Elizabeth ARC (5)	PF85	59	378	575	504	-	350	349	-	-	-	2206
VK4WIE	CBRS (6)	QG62	92	465	505	440	-	-	-	-	-	-	1502
VK4WAT	TREC (7)	QH22	107	351	455	472	-	-	-	-	-	-	1385
VK2AWX	HRG (8)	QF57	85	375	480	352	-	-	-	-	-	-	1292
VK2MA	HADARC (9)	QF56	90	357	570	-	-	-	-	-	-	-	1017
VK3APC	MDRC (10)	QF21	80	486	430	-	-	-	-	-	-	-	996
VK1MAD	(11)	QF44	22	273	60	-	-	-	-	-	-	-	355
<b>Section D: Multi Operator, 8 Hours</b>													
VK3ALB	(3)	QF11	93	435	525	856	620	-	430	430	-	-	3389
VK5SR	SERG (12)	QF02	32	390	525	664	460	210	440	450	-	-	3171
VK3KH	(13)	QF21	32	399	535	720	680	-	-	350	-	-	2716
VK3BEZ	EZARC (14)	QF31	67	429	520	456	-	-	-	-	-	-	1472
VK5OM	(15)	QF03	-	178	280	360	-	-	-	-	-	-	818
VK2KCM	(16)	QF56	-	315	370	-	-	-	-	-	-	-	685
<b>Section E: Home Station, 24 Hours</b>													
VK3MY	Ross Keogh	QF22	-	609	845	1008	790	-	-	-	-	-	3252
VK5LSB	Simon Brandenburg	PF94	78	459	665	600	-	-	-	-	-	-	1802
VK5VCO	Paul Mullins	PF95	38	426	620	640	-	-	-	-	-	-	1724
VK5NE	Paul Roehrs	PF95	65	456	640	504	-	-	-	-	-	-	1665
VK2MER	Kirk Mercer	QF55	-	537	665	320	-	-	-	-	-	-	1522
VK4ZDP	David Purkis	QH32	101	330	495	536	-	-	-	-	-	-	1462
VK5MWH	Mark Hutchinson	PF94	74	369	500	184	-	-	-	-	-	-	1127
VK2KRR	Leigh Rainbird	QF34	-	315	340	448	-	-	-	-	-	-	1103
VK5ALX	Alex Glinski	PF86	33	219	425	376	-	-	-	-	-	-	1053
VK3KIS	Andrew Kayton	QF22	-	306	315	336	-	-	-	-	-	-	957

Call	Name	Location	50	144	432	1296	2.4	3.4	5.7	10	24	47	TOTAL
	MHz	MHz	MHz	MHz	GHz	GHz	GHz	GHz	GHz	GHz			
VK2ZTV	Peter Sturt	QF57	54	306	345	224	-	-	-	-	-	-	929
VK3VFO	Nick Kraehe	QF31	29	330	360	184	-	-	-	-	-	-	903
VK4VDX	Roland Lang	QG62	46	372	430	-	-	-	-	-	-	-	848
VK2EI	Neil Sandford	QF68	29	378	175	-	260	-	-	-	-	-	842
VK3ACA	John Adcock	QF22	-	375	440	-	-	-	-	-	-	-	815
VK2TG	Robert Demkiw	QF55	22	312	440	-	-	-	-	-	-	-	774
VK2HRX	Compton Allen	QF56	36	243	200	264	-	-	-	-	-	-	743
VK3KH	Michael Coleman	QF21	32	144	290	264	-	-	-	-	-	-	730
VK3WT	Max Chadwick	QF22	-	240	240	248	-	-	-	-	-	-	728
VK4HBO	James Kop	QG62	-	192	250	256	-	-	-	-	-	-	698
VK4NA	Alan Wills	QG62	63	297	320	-	-	-	-	-	-	-	680
VK3GK	Lee Moyle	QF21	75	201	340	-	-	-	-	-	-	-	616
VK5FPAW	Paul Schuiz	PF95	-	189	350	-	-	-	-	-	-	-	539
VK3HV	George Francis	QF31	60	246	250	-	-	-	-	-	-	-	556
VK2NR	David Porter	QF56	-	228	245	-	-	-	-	-	-	-	473
VK2AMS	Mark Swannack	QF68	11	156	170	48	80	-	-	-	-	-	465
VK5HZ	Darryl Ross	PF95	-	147	305	-	-	-	-	-	-	-	452
VK3PF	Peter Freeman	QF31	-	78	120	184	-	-	-	-	-	-	382
VK3TOM	Tom Steadman	QF31	27	135	145	-	-	-	-	-	-	-	307
VK3XH	Joe Walsh	QF22	37	123	120	-	-	-	-	-	-	-	280
VK3ZHQ	Eric Warren-Smith	QF22	32	90	140	-	-	-	-	-	-	-	262
VK5FXYL	Jade Ross	PF95	-	69	110	-	-	-	-	-	-	-	179
VK3AKT	Kevin Trevarthen	QF22	24	-	-	-	-	-	-	-	-	-	24

**Section F: Rover Station, 24 Hours**

VK5ZT	Tim Dixon	PF85, 86, 87, 95, 96, 97	104	444	745	976	910	1020	1000	900	890	-	6989
VK3AKK	Ken Jewell	QF11, 12, 21, 22	-	132	-	-	-	540	650	-	540	540	2402
VK2VVV	Ross Masterson	QF46, 54, 55, 56, 57	68	366	550	736	-	-	-	-	-	-	1720
VK2UVP	Vic Pisani	QF56, QF57	21	174	160	-	-	-	-	-	-	-	355

- (1) Lara UHF & Microwave Experimenters Group: Ken Jewell VK3NW, Charlie Kahwagi VK3NX, Chas Gnaccarini VK3PY, David Learmonth VK3QM
- (2) Eastern & Mountain District Radio Club: Mike Subocz VK3AVV, Peter Forbes VK3QI, Steve Baranyai VK3QW, Jack Bramham VK3WWW
- (3) Lou Blasco VK3ALB, Nik Presser VK3BA, Peter Westgarth VK3APW, Jenni Blasco VK3FJEN, Michael Blasco VK3FMIC
- (4) Sunshine Coast ARC: Leicester Hibbert VK4ALH, Cec Tysoe VK4FMOZ, John McPherson VK4JMC, Wayne Shaw VK4WS, Dave Carr
- (5) Elizabeth ARC: Wayne Rankin VK5LWR, Bruce Gauci VK5VAB, John Ross VK5NI
- (6) City of Brisbane Radio Society: David Noble VK4KSY, John Morris VK4MJF, Ron Croucher VK4CRO, Ross Colledge VK4WRC, Miles Colledge VK4FUST
- (7) Tableland Radio & Electronics Club: Dale McCarthy VK4DMC, Stu Dunk VK4SDD, Jeff Cochrane VK4BOF, John Roberts VK4TL
- (8) Hunter Radio Group: VK2SH, VK2FA, VK2FERM, VK2FWJL, VK2FBAI, VK2YCJ, VK2CLH
- (9) Hornsby & District ARC: Justin VK2CU, Bob VK2BMU, Peter VK2TTP, Colin VK2JCC, Mike VK2MTX, Dave VK2FDIU
- (10) Moorabbin & District Radio Club: Ian Morris VK3IFM, Gerard Werner VK3GER
- (11) Shane Goodwin VK1MAD, Matthew Bowman VK1MAT
- (12) South East Radio Group: Colin Hutchesson VK5DK, Trevor Niven VK5NC, Steven Smith VK5GL, Andrew McKinnis VK5KET, Tony Hutchison VK5ZAI, Ian Bishop VK3FNBL
- (13) Michael Coleman VK3KH, Peter Roberts VK3TPR
- (14) Eastern Zone ARC: Glenn Reynolds VK3SI, Nick Kraehe VK3VFO, Simon Beeching VK3FCAL, Dean Webster VK3NFI, Molly (The Dog)
- (15) VK5OM: Jim Bywaters VK5OM, Brian Farmers VK3AQX, Peter Sherlock (SWL)
- (16) Colin Matten VK2KCM, Ed Durrant VK2ARE

**Don't forget the National Field Day on 17 April 2011**

# AMSAT

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## 2010 – A summary

SO-67 and HO-68 have performed well since their launch late last year. Though not on continuously SO-67 is very loud and HO-68 gives good signals when activated.

Possibly the most adventurous mission was Unitec-1 tagging along with Japan's Venus Climate Orbiter. Unfortunately Unitec-1's 5.84 GHz transmitter went silent within a few days, a long way short of Venus. From the same launch the cubesat Negai was placed into low Earth orbit and soon re-entered.

On the downside of 2010, GO-32 has stopped being controlled, FO-29 went silent for a while, RS-22's beacon has gone silent and the best of AO-51 may be over.

## Six-monthly review of operational OSCARs

Here is an updated review of the operational OSCARs and other satellites using amateur satellite service bands. All satellites listed here have been heard by myself during November 2010 except PCSAT (NO-44), DO-64, RS-15, RAX and FASTER.

Satellites added or revised since last review in July: AO-7, UO-11, IO-26, FO-29, GO-32, AO-51, CO-65, SO-67, Tisat-1, RAX, O/OREOS and FASTER.

Failed satellites since last review: RS-22, and Negai.

The names of the satellites are given as OSCAR number, full name and (NASA catalogue number). Modes are represented by frequency bands: H=10 m, V=2 m, U=70 cm, L=23 cm, S=13 cm in order of uplink/downlink.

Linear transponders use CW and SSB. With the exception of AO-7's V/H

transponder, all linear transponders are 'inverting' types and use LSB for the uplink and USB on the downlink. For AO-7 mode V/H use USB for both links. Most of the activity is in the middle of the passband.

Foundation licensees are permitted to transmit SSB/CW and FM voice to any of the satellites in the 10 m, 2 m and 70 cm bands as well as receive all the satellites. Foundation licensees



**AMSAT-VK**

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### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

are not permitted to use 23 cm uplinks (e.g. AO-51 and CO-67) or AO-51's 13 cm downlink (e.g. mode V/S). See the AMSAT column in September 2009 AR for more details.

Telemetry decoding programs for several satellites are available from Mike Rupprecht's website at <http://www.dk3wn.info/software.shtml>

### AO-7 AMSAT OSCAR 7 (7530)

Launched: 15/11/1974

Status: Operational only when it is in sunlight. It may be in any mode. During non-eclipse periods it will alternate between modes V/H and U/V every 24 hours. Beacons are not always on.

Mode: V/H (old mode 'A'), linear, non-inverting.

Uplink: 145.850-145.950 MHz, Downlink: 29.400-29.500 MHz.

Beacon: 29.502 MHz CW. Occasionally the 435.106 MHz CW or RTTY beacon may be on.

Mode: U/V (old mode 'B'), linear, inverting.

Uplink: 432.125-432.175 MHz, Downlink: 145.975-145.925 MHz.

Beacon: 145.972 MHz CW at 10 or 20 WPM, intermittent operation.

Check the online log for current status at <http://www.planetemily.com/ao7/main.php>

### UO-11 UOSAT-2 (14781)

Launched: 1/3/1984

Status: Intermittent. UO-11's 145.826 MHz beacon came back to life late 2009 after being silent for 18 months and will only work when in full sunlight. You may hear its distinctive signal while monitoring the frequency for other satellites such as ISS, NO-44 and HO-68.

Beacon: 145.826 MHz FM 1k2 AFSK.  
<http://www.g3cww.co.uk/oscar11.htm>

### IO-26 ITAMSAT (22826)

Launched: 26/09/1993

Status: Semi-operational. IO-26 is in Master Boot Loader (MBL) mode. It transmits continuous BPSK carrier with the occasional telemetry packet. Some attempts have been made to configure IO-26 into a 'bent-pipe' transponder similar to AO-16.

Beacon: 435.790 MHz 1k2 BPSK (Note: this has shifted from the original published frequency)

<http://www.amsat.dk/oz7sat/tlm/view.php?sat=io26>

### FO-29 FUJI-OSCAR 29 JAS-2 (24278)

Launched: 17/8/1996

Status: Semi-operational as linear transponder. Most activity is around 435.850 MHz. The BBS and digipeater operation have not been used since 2003. FO-29 has been difficult to command due to high internal temperatures. It should not be experiencing eclipse problems until 2012.

Mode: V/U linear, inverting.

Uplink: 145.900-146.000 MHz, Downlink 435.900-435.800 MHz.

Beacon: 435.795 MHz CW telemetry.  
<http://www.ne.jp/asahl/hamradio/je9pel/index.htm>

### GO-32 Gurwin TechSat-1B (25397)

Launched: 10/7/1998

Status: Intermittent. Since 30/3/2009's on-board computer crash GO-32 has been sending intermittent telemetry. GO-32 has often been operating in 'emergency mode' with a 1k2 signal on 435.325 MHz.

Beacon: 435.225 MHz 9k6 FSK.

Emergency Beacon: 435.325 MHz 1k2.

Beacon call sign: 4XTECH-11.

<http://www.amsat.org/amsat-new/satellites/satinfo.php?satID=14&retURL=/satellites/status.php>

### NO-44 PCSAT (26931)

Launched: 30/9/2001

Status: Operational only in full sunlight.

One solar panel and the batteries are not functioning.

Mode: V/V 1k2 AFSK packet digipeater.

Uplink: 145.827 MHz, Downlink 145.827 MHz.

<http://pcsat.aprs.org>

### SO-50 SAUDISAT-1C (27607)

Launched: 20/12/2002

Status: Operational. SO-50 has a sensitive receiver and a transmit power of only 250 mW.

Mode: V/U FM voice with 67 Hz CTCSS tone

Uplink: 145.850 MHz, Downlink 436.795 MHz (but may switch to 436.800MHz).

To switch the transmitter on you need to send a few seconds of 74.4 Hz CTCSS tone.

The order of operation is thus (allow for Doppler as necessary):

- 1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute timer on board the spacecraft.
- 2) Now transmit on 145.850 MHz FM voice using a 67 Hz CTCSS tone to access the transponder.
- 3) Sending the 74.4 Hz tone again within the 10 minute window will reset the timer. Users have reported difficulties.

### AO-51 AMSAT-OSCAR-51 ECHO (28375)

Launched: 29/6/2004

Status: Operational

Mode: AO-51 is a versatile satellite that can be configured to operate in many modes, often two at a time. It can use FM and SSB voice, 9k6 and 38k4 FSK packet as a BBS or digipeater. It has three transmitters (two on 70 cm and one on 13 cm), four 2 m receivers and a wideband receiver that has been used on 10 m and 23 cm. AO-51 will be experiencing more eclipse periods so the high power systems are unlikely to be turned on. The control team issue a monthly bulletin on modes and

frequencies AO-51 will be using. Default frequencies are:

Uplink: 145.920 MHz, Downlink 435.300 MHz (67 Hz PL tone may be required)  
FM voice.

Uplink: 1268.700 MHz, Downlink: 435.150 MHz 9k6 FSK.

Beacon: 435.150 MHz 9k6 FSK.

<http://www.amsat.org/amsat-new/echo/CTNews.php>

### VO-52 HAMSAT (28650)

Launched: 5/5/2005

Status: Operational. VO-52 has two linear transponders that use nearly the same passbands. The Indian transponder is normally in use. Most activity is around 145.900 MHz.

Mode: U/V linear inverting.

Indian transponder:

Uplink: 435.220-435.280 MHz, Downlink 145.930-145.870 MHz.

Beacon: 145.936 MHz continuous carrier.

Dutch transponder:

Uplink: 435.225-435.275 MHz, Downlink 145.925-145.875 MHz.

Beacon: 145.860 MHz CW 12 WPM preset message.

<http://www.amsat.in/hamsat.htm>

Note: FM operation on VO-52 is permitted for QRP/handheld. In India, SSB gear is not very common and the operations team have suggested that FM operators can use this bird. If you are planning to work FM, please use another part of the passband e.g. 145.920 MHz. It would be best to arrange a sked in advance, as VO-52 is rarely used in FM mode over VK/ZL. Excessive uplink power will cause the beacon to FM.

The following are mainly Cubesats. Reception reports are often well received and can result in a QSL card for your efforts. See websites for details.

### CO-55 CUTE-1 (27844)

Launched: 30/6/2003

Status: Operational. From the first cubesat launch CO-55 continues to send CW telemetry.

Beacon: 436.8375 MHz CW telemetry.  
[http://iss.mes.titech.ac.jp/ssp/cubesat/index\\_e.html](http://iss.mes.titech.ac.jp/ssp/cubesat/index_e.html)

### CO-57 XI-IV (27848)

Launched: 30/6/2003

Status: Operational. From the first cubesat launch, CO-57 continues to send CW telemetry. It also has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 436.8475 MHz CW telemetry.  
<http://www.space.t.u-tokyo.ac.jp/gs/en/index.aspx>

### CO-58 XI-V (28895)

Launched: 27/10/2005

Status: Operational. CO-58 has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 437.465 MHz CW telemetry.

### DO-64 Delfi-C3 (32789)

Launched: 28/4/2008

Status: Semi-operational. The linear transponder has failed. The control team switched DO-64 back to science mode on 29/1/2009. Often by the time it has reached VK/ZL the transmitter has stopped, so it will be heard here occasionally. If they change it to basic mode then the telemetry will be heard over VK/ZL on most passes. The telemetry can be demodulated and decoded using software from the Delfi website.

Beacon: 145.870 MHz (primary) or 145.930 MHz (secondary) 1k2 BPSK telemetry.

<http://www.delfic3.nl/index.php>

### CO-65 CUTE-1.7+APDII (32785)

Launched: 28/4/2008

Status: Operational. The CW beacon is on continuously. The mode L/U APRS digipeater has been activated during weekends using 9k6 GMSK modulation. Unproto via JQ1YTC.

Mode: L/U 9k6 GMSK.

Uplink: 1267.602 MHz, Downlink 437.475 MHz.

Beacon: 437.275 MHz CW telemetry.

[http://lss.mes.titech.ac.jp/ssp/cute1.7/index\\_e.html](http://lss.mes.titech.ac.jp/ssp/cute1.7/index_e.html)

### CO-66 SEEDS II (32791)

Launched: 28/4/2008

Status: Operational. CO-66 is a cubesat that transmits CW telemetry, packet telemetry and a pre-recorded message of voice and SSTV. Sometimes all three can be heard during a pass over VK/ZL as it changes modes. At 450 mW output, CO-66 has the strongest signal of the cubesats.

Beacon: 437.385 MHz CW telemetry, 1k2 AFSK packet and FM Digtalker/SSTV.

[http://cubesat.aero.cst.nihon-u.ac.jp/english/main\\_e.html](http://cubesat.aero.cst.nihon-u.ac.jp/english/main_e.html)

### SO-67 SumbandilaSat (35870)

Launched: 17/9/2009

Status: Operational but transponder times are set by command stations. SO-67 will not be available for every pass. Its high powered transmitter (5 watts) is easily heard. There is a 3 second tail after each transmission, so pause before transmitting to the satellite. Keep your overs brief as there is also a cut-out timer. For best results set your radio to narrow FM or turn down the mic gain if your transmitter allows. SO-67 is scheduled for use over a different area each week. For VK/ZL it is usually during the last week of the month. For the current schedule see the AMSAT-SA website at <http://www.amsatsa.org.za/>

Mode: V/U FM voice.

Uplink: 145.875 MHz with 233.6Hz CTCSS, Downlink 435.345 MHz.

<http://sumbandilamission.blogspot.com>

### HO-68 XW-1 CAMSAT (36122)

Launched: 15/12/2009

Status: Operational but may still be under commission. The CW beacon is on continuously and the transponders have been activated for some passes.

Mode: V/U FM voice.

Uplink: 145.825 MHz 67.0Hz CTCSS, downlink 435.675 MHz.

Mode: V/U linear (inverting).

Uplink: 145.925 – 145.975 MHz, Downlink: 435.765 – 435.715 MHz.

Mode: V/U PacSat BBS.

Uplink: 145.825 MHz 1k2 AFSK packet, Downlink: 435.675 MHz 1k2 AFSK packet.

Beacon: 435.790 MHz CW telemetry.

<http://www.camsat.cn>

### RS-series satellites

#### RS-15 RADIO ROSTO (23439)

Launched: 26/12/1994

Status: intermittent. The beacon only comes on when satellite is in full sunlight, and is not on every pass.

Beacon: 29.352 MHz on/off carrier.

#### RS-30 YUBILEINY (32953)

Launched: 23/5/2008

Status: Operational. Only the CW beacon has been heard over VK/ZL. Other transmission types are heard when it is in range of the control stations in Russia. It has been heard by AO-51 users when they share the same footprint.

Beacon: 435.315 MHz (primary), 435.215 MHz (secondary) CW telemetry.

[http://www.dk3wn.info/sat/atu/sat\\_rs30.shtml](http://www.dk3wn.info/sat/atu/sat_rs30.shtml)

### Other satellites using amateur frequencies.

#### ISS (25544)

Launched: 20/11/1998

Status: Operational. The International Space Station has an amateur radio station that operates in many modes. Ultimately it depends on the manned crew's activities.

Voice, digital, and SSTV modes are used. Sometimes experimental modes are tried; one example was a 23 cm FM repeater uplink on 1269.650 MHz.

Mode: U/V crossband FM repeater.

Uplink: 437.800 MHz FM, Downlink 145.800 MHz.

Mode: V/V Digital / APRS 1k2 AFSK FM.

Uplink: 145.825 MHz, Downlink: 145.825 MHz.

Mode: V/V FM Voice, SSTV.

Uplink: (Region 1) 145.200 MHz, (Region 2/3) 144.490 MHz, Downlink: 145.800 MHz.

<http://www.issfanclub.com/>

<http://www.rac.ca/ariss/>

### COMPASS-1 (32787)

Launched: 28/4/2008

Status: Operational. Compass-1 has a chirpy CW telemetry beacon that is normally sent every 3 minutes. If battery voltage is low it will send every 8 minutes. COMPASS-1 can be commanded by any amateur to send telemetry on demand using DTMF codes, though the satellite may not give a response each time. Every command will give a confirmation beep on 437.275 MHz.

\*\*35## - request a test beacon CW.

\*\*36## - request a test packet 1k2 AFSK FM (UI-Frame).

\*\*60## - request a housekeeping frame in 1k2 AFSK FM (KISS frame).

Mode: V/U DTMF command, 1k2 AFSK.

Command: 145.980 MHz, Downlink 437.405 MHz.

Beacon: 437.250 MHz CW telemetry.

<http://www.cubesat.de>

### STARS (33498)

Launched: 23/1/2009

Status: Operational. STARS is two satellites tethered together. Both 'Mother' and 'Daughter' have CW and 1k2 AFSK packet telemetry on 70 cm. The CW beacon of 'Mother' is on continuously, but 'Daughter' is weaker and intermittent.

Beacon: Mother 437.485 MHz, Daughter 437.465 MHz FM 1k2 AFSK.

Beacon: Mother 437.305 MHz, Daughter: 437.273 MHz CW telemetry.

<http://stars1.eng.kagawa-u.ac.jp/english/index.html>

### PRISM (33493)

Launched: 23/1/2009

Status: Operational. Following from the success of CO-57 and CO-58, the University of Tokyo built PRISM to carry a larger camera with a telephoto lens. The packet downlink may be only available over the command stations in Japan, though the CW beacon is on world-wide. PRISM also has an uplink channel but frequency and modulation details have not been published yet.

Mode: -/U 1k2 AFSK or 9k6 GMSK.

Downlink: 437.425 MHz.

Beacon: 437.250 MHz CW telemetry.

<http://www.space.t.u-tokyo.ac.jp/prism/main-e.html>

### KKS-1 (33499)

Launched: 23/1/2009

Status: Operational. KKS-1 transmits a series of messages on its CW beacon.

Beacon: 437.385 MHz CW message.

<http://www.kouku-k.ac.jp/~kks-1/kks-gs-top-e.htm>

### SWISSCUBE (35932)

Launched: 23/9/2009

Status: Operational. Transmits CW telemetry with frames every 30 seconds. The tone quality of the transmitter is poor.

Decoding software is available at their website.

Beacon: 437.505 MHz CW telemetry.  
<http://swisscube.epfl.ch>

### ITUpSAT (35935)

Launched: 23/9/2009

Status: Operational. This Turkish cubesat transmits a frame of CW every three minutes giving its name and callsign.

Beacon: 437.325 MHz CW message.

### TIsat-1 (36799)

Launched: 12/7/2010

Status: Operational. TIsat-1 is the first Swiss student-built satellite. Its mission is to test various materials exposed to atomic oxygen at low Earth orbit.

Downlink: 145.980 MHz FM FSK.

Beacon: 437.305 MHz CW at varying speeds.

<http://www.spacelab.dti.supsi.ch/tiSat1MS.php>

### RAX (37223)

Launched: 20/11/2010

Radio Aurora Explorer. Its mission is to explore large plasma formations in the ionosphere. Beacon decoding software available at the website below.

Beacon: 437.505 MHz 9k6 GMSK telemetry

<http://rax.engin.umich.edu/>

### O/OREOS (37224)

Launched: 20/11/2010

Organism/Organic Exposure to Orbital Stresses. O/OREOS is the next NASA scientific cubesat experiment after GeneSat and PharmaSat. This experiment monitors the growth or micro-organisms and changes in organic molecules in space.

Beacon: 437.302 MHz 1k2 AFSK telemetry every 5 seconds.

<http://ooreos.engr.scu.edu/dashboard.htm>

### FASTRAC (37227)

Launched: 20/11/2010

FASTRAC is a dual satellite system to explore inter-satellite communications. After the primary mission has finished they will be turned over to the amateur operators for APRS use.

FASTRAC-1 437.345 MHz 1k2 AFSK telemetry.

FASTRAC-2 145.825 MHz 1k2 AFSK telemetry.

[http://fastrac.ae.utexas.edu/our\\_project/overview.php](http://fastrac.ae.utexas.edu/our_project/overview.php)

### Final pass

No amateur built satellites were launched in 2010 but ARISSat-1 and Fun-cube are scheduled for launch this year. KiwiSAT's hardware construction has finished and launch negotiations are now under way.

# VK6news

## Keith Bainbridge VK6RK

A happy, healthy and prosperous DX full New Year to you all. As I am writing this it is the day before Xmas Eve, all the festivities have yet to start and my holiday on Tasmania is only four days away! By the time you read this you will all probably be Christmas'ed/New Year'ed, even Australia Day'ed, out! Seems a long time away now! Holidays will be over for another year and we will be settling down to what will hopefully be an exciting year on the radio.

Sunspots are improving and monitoring Zeljko VK6VY and Steve VK6IR operating from the NCRG shows the bands are definitely improving. The DX those guys manage to work is fantastic.

To business:

December was an eventful month with a visit to VK6 by WIA President Michael Owen, to update us on national activities. He first met with Scout Communications Group leaders, then the VK6 Advisory Committee. He also chaired a 'council of clubs', as we used to call it, at the Neil Penfold State Amateur Radio Centre on Saturday 18 December. This was a most interesting meeting, giving all clubs in attendance (NCRG, HARG, WARG, WICEN and Ham College) a chance to ask questions and to update Michael on their activities and goals for the coming year. The following day a BBQ was held in Kings Park and those who attended witnessed the presentation of the Jim Rumble Award to Heath VK6TWO and Monique VK6FMON for their services to AR in the state over the past year. Michael also announced the new WIA Awards Manager, but more on that later. It was good to hear things first hand from the National Office and to be kept up to date on national and international matters.

### News from the Hills Group

The Hills Amateur Radio Group (HARG) will be holding a Swapmeet at their clubrooms on Sanderson Rd., Lesmurdie. HARGFEST is on

Saturday afternoon, 9 April 2011.

All amateurs, friends and interested parties are invited. Other AR groups in WA are also invited to attend to promote their amateur radio area of interest. HARG also hope to have some commercial representation. Entry is \$5 and includes a door prize entry. Tables are free but MUST be booked; contact Marty VK6FDX on 0447 382 963 or email [marty.martin@bigpond.com](mailto:marty.martin@bigpond.com) to reserve yours. There will be a raffle, sausage sizzle and soft drinks. More details will follow in the News West broadcast on Sunday mornings.

I am looking forward to going; hopefully it will not be as hot next year!

I have received a report on JOTA from Greg VK6ED which follows on from my report last month.

The 1<sup>st</sup> Herne Hill Scout Group participated in the Jamboree On The Air at the Neil Penfold State Amateur Radio Centre at Whiteman Park in October and it was a success thanks to the generosity of our host, the Northern Corridor Radio Group. The NCRG provided the Scout Group with excellent facilities, equipment, expertise, and a spacious camping area for the duration of the event. More than 40 Joeys, Cubs and Scouts contacted various Scouting groups in other countries, throughout Australia and locally. Contacts were made during Saturday afternoon and Sunday morning using the radio equipment in the club shack, EchoLink and portable IRLP equipment on two metres.

The youth members also participated in various electronic activities. They constructed a flashing LED bicycle tail light to take home and fit to their bikes. The light was in the form of a commercially supplied kit and was completed by the kids on Saturday afternoon. Other activities included Morse code sending and receiving using Morse keys and sounders at two separate stations, a night time light signalling



wide game, a night time 'Fox Hunt' to locate a hidden radio transmitter, constructing wooden pole chariots, and tables of radio/electronic items to pull apart and find out what is really inside. It was amazing to see the interest from everyone in dismantling the electronic gear; our youth showed us how motivated they are to explore if they are given the opportunity to do so. This is what Scouting is all about, after all.

Our Scout group has two young lads with Foundation licences already, but there is interest by some others in the group to obtain licences and get on the air. Plans are underway for them to do the Foundation course.

It was noticed that some youth members were very good with the soldering, without much practice at all. Some were good with the tools and cutting wires. Also, some of the kids were very natural and confident (even talkative) on the radio when talking to other Cubs, Scouts and Guides. So I think we can conclude that we have some future technicians, engineers, electricians, public speakers and even some politicians among our youth members!

The 1<sup>st</sup> Herne Hill Cubs and Scouts wish to thank the NCRG members for their effort, and for supporting the youth in their local area. A great community service.

A pleasure Greg, looking forward to next year!

Commencing Sunday 7 November 2010, the 21.185 MHz Travellers Net will run in a new time slot, from 0400 UTC to 0500 UTC. Syd VK6SMH the Net Controller for the daily 21.185 MHz net has consulted with the regular relay operators and together they have reached the conclusion that due to poor propagation conditions it is necessary to change the net time from its 0100 – 0200 UTC slot.

This net commenced operation soon after the introduction of the Novice licence to provide travellers with Novice calls a service similar to the 20 metre Traveller's Net which was well established on 14.106 MHz for the full calls. Today the 20 metre

net runs on 14.116, opening at 0200 UTC with a callback and reports at 0300 UTC.

The operators on both nets log the callsign, name and planned overnight stop for all travellers who check in each day, pass any messages as requested, and arrange QSOs or QSPs as required as a voluntary service to the amateur community, their family and friends. So listen out for the 21.185 net between 0400 and 0500 UTC or check in and give a signal report. The Travellers Net has provided great service over the years so hopefully this change will aid their efforts.

As I mentioned earlier, there has been a change in the WIA Awards Committee. I was asked to promote and restore the old Zone 29 Award as it had fallen by the wayside over the years. In doing so, I offered to run the award and was propositioned by Eddie VK4AN the WIA National Awards Manager about joining the Awards Committee. I thought why not, it is a chance to put something

back into the hobby and the WIA.

Before I knew it I was on the committee and had been proposed to replace Eddie as manager. In for a penny, in for a pound as they say, so as of Michael Owen's announcement on Saturday 18 December, your VK6 Notes scribe is also the WIA National Awards Manager.

The committee has been expanded to include another new member Chris VK3QB. VK6 is well represented on the committee with Alek VK6AP also a member. Should you decide to apply for one of the many WIA Awards please visit the website at <http://www.wia.org.au/members/awards/about/>

That is about it for this edition, still no shack photos sent in to me, so get that new camera you got for Xmas out and take one of your pride and joy and send it to me for publication.

May you all have a most rewarding 2011 and I look forward to receiving your input for the column over the coming months.



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## Silent Key Arthur Brean VK6SY – SK

Unfortunately we have another silent key. Arthur Brean VK6SY passed away peacefully on Monday, 29 November 2010 at 0730 local time at Osborne Park Hospital. He was licensed in 1978.

Arthur was born in Cardiff, South Wales on 20 April 1926 and always had that Welsh sense of humour. Soon after leaving school in 1940, Arthur obtained employment with a famous steam railway company, the Great Western Railway, as a trainee signal man and continued to be a senior signal man with GWR at many signal boxes over Wales. Married in 1951 to Jean (deceased), they came to Australia in 1952.

Arthur was first employed by WAGR as a signal man. His first signal box was at Mt Lawley then

he served time at Karrakata and Wellington Street Eastern signal boxes. In 1980, Arthur started with CIG as a medical technician and retired from CIG in 1990.

He gained his first ham licence in 1978 as VK6NRT, then VK6KBA in 1982, and finally a full call, VK6SY, in 1983. Arthur was a member of the NCRG. He will be missed by all his amateur radio friends. Besides ham radio, his other interest was collecting GWR steam locomotives and carriages, and he had a small working model railway at his QTH. Arthur is survived by four children and nine grand children.

Arthur Brean VK6SY ... silent key.

**Contributed by Bob Bristow VK6POP**



# A safer antenna mast from an old war machine design

Ian Simpson VK3GPL

In books and films about wars in the ancient past, you may occasionally see the invaders using a trebuchet, which was a large catapult device on wheels that hurled rocks at the enemy. Refer to the illustration in Photo 1.

The trebuchet design can also be used to make a mast that is easier to lower and erect, and allows a convenient way to adjust antennas, without the danger of climbing on roofs, up tall ladders, or hanging off trees, which has caused serious problems in the past. The design is a pivoted 11 metre mast as shown in Photo 2, and this allows the mast to be lowered and raised in seconds.

The construction of the base starts with a pair of two by four metre treated timber poles, about 900 mm apart, concreted about one meter into the ground. These are stabilised by three cross pieces on the same side of the poles- this will be the side where the mast will be lowered. Accurately cut the top of the poles, to make sure that they are level- use a spirit level or a length of clear tube with water.

Photo 3: The 'U' shaped fulcrum at the top of the poles.



Photo 2: The completed and safer 11 metre antenna mast.



Photo 1: An illustration of a trebuchet, the old war machine whose design fundamentals were used for the homebuilt mast.



Photo 4: A view of the counterbalance, actually two buckets of sand.

Pieces of half-round timber are bolted on top of each pole to make the 'U' shape fulcrum, as can be seen in Photo 3.

The pivoting mast is made by bolting a length of aluminium tubing between two three metre wooden poles. In the illustration, the mast is 40 mm aluminium tubing, with the lower half strengthened by sitting inside a length of 50 mm tube. Add a spacer between the lower ends of the wooded poles to keep them parallel.

A one metre cross piece is attached about 900 mm below the top of the wooden pole- this becomes the axle, and is fitted into the 'U' shapes on top of the base, see Photo 4.

A rope is attached to the base to control the raising and lowering. When the mast is upright, this rope ties it to the base. Experiments have shown that two buckets of sand attached to the base will provide a useful counterbalance, as can be seen in Photo 4. A tip is to have a stand available to rest the top of the mast when it is lowered, to avoid any damage to the antenna elements, as seen in Photo 5.

The major benefit of this design is that the mast can be safely and easily lowered and raised by one person, standing on the ground. (Another advantage- if the neighbours complain about TVI, you might return to the original design to hurl rocks!)



Photo5: Working on the mast whilst it is in the 'down' position.



## New WIA Membership Brochure

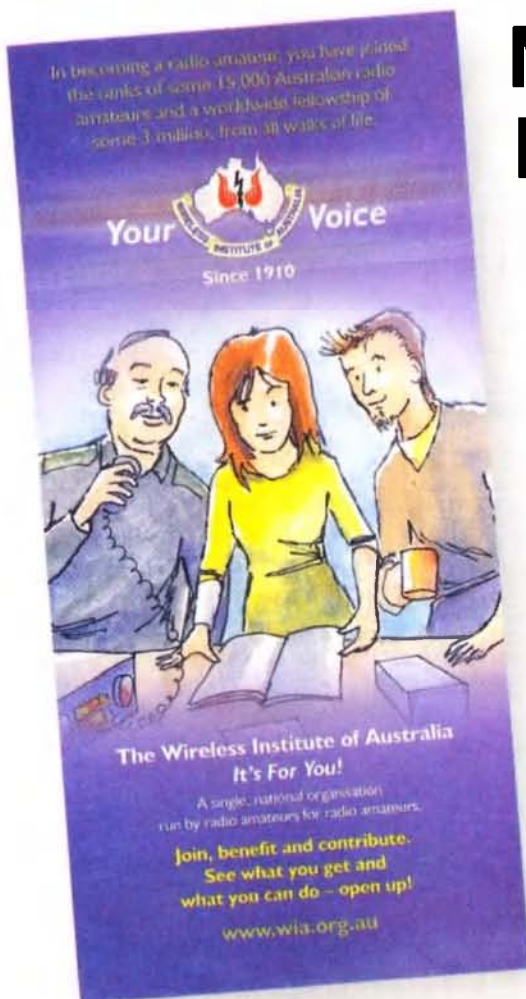


Did you know the WIA has a new membership brochure?

Produced for the WIA by Roger Harrison VK2ZRH and Robert Broomhead VK3DN with illustrations by Ivan Smith, the new DL size brochure carefully sets out the many valuable benefits of WIA membership in an easy to read, easy to understand format. The brochure is intended for those who are yet to become a WIA member, or members who are considering renewal. The full colour brochure with its eye catching cover is ideal for display and distribution at hamfests, field days etc. Easily obtainable clear plastic DL brochure stands are perfect for displaying the new membership brochure, whilst its small size format makes it ideal for keeping a copy in the car glovebox or door pocket along side the Calling CQ brochure.

Copies of the brochure can be obtained from the WIA National office, simply send an email to [nationaloffice@wia.org.au](mailto:nationaloffice@wia.org.au)

**Support the organisation supporting your hobby -  
Encourage someone new to join the WIA today**



# Silent Key **Walter McInnes Dempsey VK3WD – SK: 17/05/1910 – 30/07/2010**

Wal gained his Amateur Operators Certificate of Proficiency in Radio & Telegraphy on 25 May, 1929, and was allocated the callsign of VK3WD.

He set up his radio shack at his family's house amidst the market gardens in Centre Dandenong Road, Cheltenham. By 1930 he was regularly broadcasting music on a Sunday on 200 metres. He had reports from listeners from all states.

He was self taught and to ensure he hadn't missed learning some topic he took leave from the PMG in 1931 and undertook study and formal exams at the Marconi School of Wireless in Sydney. Others studying at the school at that time included Hector Varnes VK2LW, Reg Reynolds VK2RH (Hector's uncle) and Con Bishop VK2LZ.

Leaving school at fourteen with his Merit Certificate, Wal joined the PMG. He worked at Mentone and Cheltenham post offices, with a stint in Ballarat until he joined the newly created Department of Civil Aviation in 1939, as an Aeradio Officer, and was quickly posted to Oodnadatta. Postings to other remote locations followed; Karumba, a flying boat stop-over and Daly Waters. As military forces came south, DCA officers were ousted from their quarters to the airstrip at Daly Waters where the tractor shed became both sleeping quarters and radio room. The tractor shed has been recreated at the Airways Museum at Essendon.

Whilst at Karumba, Wal became engaged to Mary, whom he'd left in Ballarat. They were married in 1942 when Wal managed to get a posting to Essendon Aerodrome. In 1944 Wal, with Mary and young baby relocated to Cambridge, Tasmania as Officer-In-Charge.

With war's end Wal obtained the call sign VK7WD. Here began the ritual of building a shack and setting up an aerial which was repeated in later years at Pascoe Vale, Oak Park and, finally, Marong.

On returning to Melbourne in 1951, Wal had to wait until VK3WD was again allocated to him. With a growing family and shift work, holiday trips were the only time for amateur radio. Wal and Mary loved these outback trips which covered the whole of the country over many years. Each day he called into the Travellers Net to give his location and where they would be over-nighting.

Wal retired from DCA in 1975 and moved to Marong, near Bendigo. In the shack at Marong Wal kept learning, designing and building projects to master the newest technology. Not every project got finished!

After nearly 66 years of marriage and dedication to each other, Mary passed away in 2008. In the last few years Wal loved reading AR and the RAOTC magazine. He enjoyed reminiscing about the old days with his family. He had a photograph of his shack in Centre Dandenong Road in the 1930's with QSL cards pinned to the wall. Wal kept those cards, which were recently found and put in an album. He would go through them and remember the QSO and the operator's name.

Wal celebrated his 100<sup>th</sup> birthday on 17 May, 2010 with a gathering of family and friends, with lots of memorabilia and stories of his life, and to which Wal added his recollection and responded wonderfully.

Wal passed away at the Austin Hospital on 30 July, 2010.

*Contributed by his son Peter Dempsey VK3YIM*



VK3YVG's

# HAMFEST

sale

Sunday 27th February 2011

10 am to 2 pm

Gary Cooper Pavilion 16 Anzac Ave  
Yarra Glen Mel: 271K1

For booking of tables and further information:

Gavin VK3GH on 5968 8482  
Laurie VK3LD on 0414 759 812

[www.yarravalley.ar.org.au](http://www.yarravalley.ar.org.au)

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

[arv@amateurradio.com.au](mailto:arv@amateurradio.com.au)

## Centre Victoria RadioFest

An enormous behind the scenes voluntary effort goes into staging lots of community activities, including the major amateur radio event at the Kyneton Racecourse on Sunday 13 February.

First held in 2007, the volunteers at the end of that day were exhausted, but had a sense of achievement in making a contribution to bring something new and long overdue to Victoria.

This year the Organising Committee plus others in support roles began their tasks in early September to rapidly create an interesting program so publicity could begin.

An interesting program of mini-lecture presentations will include the DX0DX DXpedition, IARU Region 3 ARDF Championships coming to Victoria, Optical Communications by leading exponent Rex Moncur VK7MO and Kite Antennas with Tino Pavic VK3EGN.

Increasingly important around the world is the role that radio amateurs can play in times of natural disasters and emergency communications will be on show with both WICEN (Vic) and Red Cross Emergency Communications RECOM.

Those wanting to book a table or car-boot sales space should do so without delay by contacting Tony Hambling VK3VTH 0423 635 152. Anyone arriving without a booking, and if a space is available, must pay a \$5 surcharge. Indications are that there will be an interesting variety of items on offer.

The Club Corner Precinct is an opportunity for clubs, groups and the Wireless Institute of Australia to put on a display about their activities and promote these to the wider amateur radio community.

The Scout Radio and Electronics Service Unit will have a wonderful display and run a come 'n try sniffer activity that complements the mini-lecture about the ARDF championships.

The Kyneton Racecourse is an easy to reach venue that is mostly undercover, with plenty of free car parking, hot breakfast available before it opens at 10 am with tickets on sale from 9 am.

Do not miss this major event and great social occasion for everyone with an interest in radio communications. Ready to help you maximise your participation are volunteers from Amateur Radio Victoria and the Central Goldfields Amateur Radio Club.

## National Parks Award

The rules for the Keith Roget Memorial National Parks Award have been updated following the declaration of new parks taking the total to 45, an increase of 10 since the award was revived in 2008.

A full list of the National Parks and the rules are in the award section of the Amateur Radio Victoria website. A Basic Award requires 15 points, with each contact with or from a National Park worth one point.

Special endorsements are available including for 25 points and all 45 parks. Tony Hambling VK3VTH has activated ten parks and will nearly double that number in March while he is in eastern Victoria.

From March 5-7 Croajingolong National Park, Gippsland, 8 March Alfred National Park, 9 March Coopracambra National Park, 10 March Lind National Park, 11 March Erinundra National Park, 12 March (return) Croajingolong National Park, 13-14 March (two nights) Snowy River National Park, 15 March Alpine National Park (two hours only), 16/17 March (two nights) Burrowa-Pine Mountain National Park, 19 March Chiltern-Mt Pilot National Park (1200-1800 local time JMMNFD), 29 March Warby-Ovens National Park (1300-1500 local time approximately).

Please listen out for and give Tony VK3VTH a contact from these parks while also contributing to your own log towards the Keith Roget Memorial National Parks Award.

## History of VK3MT

Research is underway to find out as much as possible about the history of VK3MT, which is the callsign of the radio club of the RMIT University. So far an early listing of it has been found in the 1930 book "The all electric receiver" by Geoffery G Thompson VK3GT.

When founded the now major education institution was called the Melbourne Working Men's College and that was how it was recorded in that list of experimental stations. Perhaps there is a listing of VK3MT earlier than 1930, or maybe that is when it actually began?

Michael Van den Acker VK3GHM ([mike.vda@rmit.edu.au](mailto:mike.vda@rmit.edu.au)) would like to hear from anyone who has information or knowledge about VK3MT, its history and activities over the years.

## Standard Licence bridging course

A limited number of vacancies remain in this quality training opportunity for Foundation licence holders to take the next step up to the Standard licence.

Instructor Kevin Luxford VK3DAP will deliver the targeted course on Wednesday evenings 23 February, 2, 9, 16 and 23 March, plus a revision session Saturday 26 March. Written theory and regulations assessments are available on Sunday 27 March.

The training covers the theory subjects needed to bridge the gap in knowledge between the Foundation and Standard syllabus. A number of these have been run over the past four years and proved to be highly successful. It does require those enrolled to attend on every class evening, revise and self-study in between classes.

If you are interested in obtaining more information and to enrol, please contact Barry Robinson VK3PV 0428 516 001 or email [vk3pv@amateurradio.com.au](mailto:vk3pv@amateurradio.com.au)

## Membership inquiries

To join and support the state-wide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request. The office at 40g Victory Boulevard Ashburton reopens after the summer holiday break on Tuesday 15 February.



# A non-kinky slinky antenna – with a 1:1 balun

Raffy Shammay VK2RF and Allan Hirschel VK2VEC

Allan VK2VEC and I decided to make a couple of slinky antennas that were portable, and so the spring-like arms did not flop around and tangle in storage. After construction, the antenna plus balun ended up weighing 665 grams.

We thought it might be helpful for other hams to have these notes. The antenna is a great portable, compact dipole. It is particularly useful for operating from restricted spaces like balconies, or inside a room.

Here are our construction notes.

## Making the 1:1 balun

- 1 Fold 1.2 metres of No14 AWG enamelled copper wire in half, and wind the folded wire for ten turns on a T130-6 toroid. Leave 60 mm of wire free of the toroid on each of the wire ends. Separate the 10 turns from each other so that they are equidistant from each other. Ensure the wire is tightly wound against the toroid.
- 2 Make the folded end of the wire face in one direction, and the open end (two wires) 180 degrees from the folded end.
- 3 Cut the wire at the fold. Scrape some enamel off about 10 mm of each of the four wire ends and tin. Refer Photo 1.

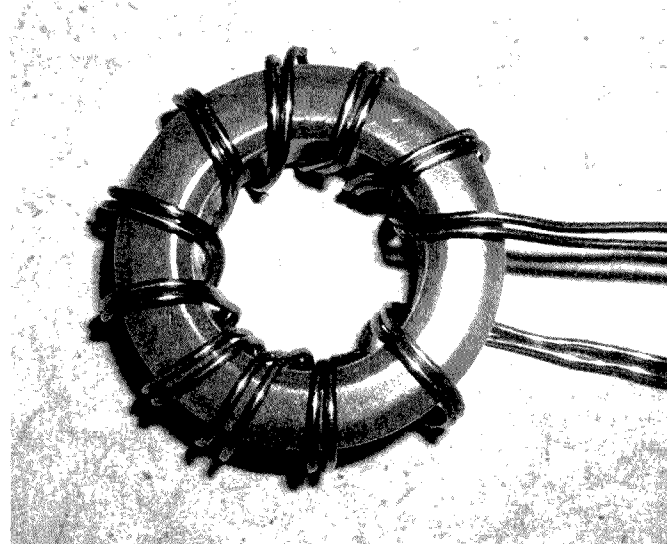


Photo 1: The completed balun.

- 4 At one of the box ends, drill a guide hole at about 15 mm above the box base, and centred left to right. Using this guide hole, drill or nibble a hole of about 16 mm diameter, with the guide hole at the centre.
- 5 Use the SO-239 socket
- 6 Push the SO-239 socket from the inside of the hole, and drill four holes for the panel bolts.
- 7 Fit the completed toroid into the jiffy box, fit the panel mount SO-239 and fit the panel bolts and screw on the retaining nuts.
- 8 Solder one wire to the centre of the SO-239. Twist the other wire from the same end of the toroid under one of the panel bolt nuts. You could solder this point, but be careful not to apply too much heat continuously otherwise you will melt the box. Alternatively, solder an eye tag on to the lead and thread onto the bolt before tightening the nut.
- 9 Make two small holes in the end opposite the side to the socket,

sufficient to poke the two remaining wires through.

These will be soldered directly to the slinky, so make the holes 15 mm apart. These holes will also be used to thread a cable tie through for strain relief, so make it sufficiently large, say 2 mm diameter.

10 Poke the wires through the hole, and if you have some

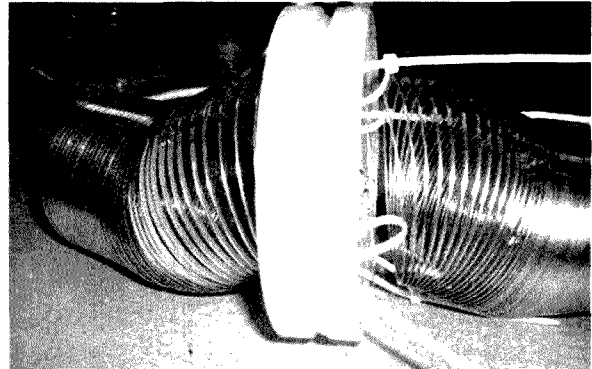


Photo 2: Attaching the slinkys to the lids using cable ties.

spaghetti for insulation, sheath the wires, leaving enough free to solder to the slinky. Screw the box lid on but so you can remove it easily later to fit the strain relief cable tie.

## Making the antenna

- 1 Put the two plastic container screw lids back to back,
- 2 You need to make eight holes around the inside of the lid, such that when you place the slinky in, each of two holes allow a cable tie to hold both slinkies in place in the lid. Our lids had a convenient circle in the plastic which matched the slinky circumference, so we could drill the cable tie holes first, four on one side of the circle, and four on the other. We used a bit of double sided sticky foam tape to hold the lids together so they didn't wander whilst drilling.
- 3 Grind or file one end of each slinky to permit solder to stick.
- 4 Feed the free wires of the balun to reach each slinky when attached.
- 5 Scrape the enamel off the free end of the balun wires.
- 6 Solder the free balun wire ends each to one slinky.
- 7 Attach both slinkys to the lids using the cable ties, but do not tighten the cable ties completely. Refer Photo 2.

- 8 Thread a cable tie through the wire holes in the balun's jiffy box and in between the two plastic screw lids, and around the cable tie in between the two wires attached to the slinkys.
- 9 Thread a cable tie through one of the other cable ties in between the lids, so that it forms a loop on top from which to hang the slinky on a mast or tree branch with rope or extra cord.
- 10 Tighten the slinky cable ties and snip off the excess plastic.
- 11 Using an Utilux crimp tool, crimp two 6.5 mm Utilux terminal eyes to the free ends of the two slinkies. This will be useful to tie up each slinky to the extended length you choose when operating.
- 12 Drill a hole sufficient to allow the twine or cord through the dead centre of the lids, and thread the 15 metres of cord through the hole.  
Leave 7.5 metres per side and tie a knot on either side of the hole to fix it in place. Refer Photo 3.
- 13 In use, the cord should be tied off to the eye of each slinky to prevent the slinky being stretched more than about 2.3 metres either side, and to support the slinky when in the air.
- 14 We put a few drops of glue on the balun windings to ensure they remained in place.

- 15 To store, roll up the cord on each side and place within each slinky, and then screw the lids on. Refer Photo 4.

### Operating the antenna

Hang the slinky antenna from a mast, tree branch, or hook. Fit a coax feed line to the balun and the (antenna tuner and) radio. Extend each side of the antenna no more than about 2.3 metres. Tie that length to the eye at each slinky end with a knot, and use the remainder of the cord to tie the antenna to side supports. This prevents the slinky from being deformed by being stretched too much.

At about 2 – 2.3 metres, it should resonate on 40 metres. I (Raffy VK2RF) actually use an antenna tuner because when tuned, it will also radiate nicely on 20 metres, 15 metres and 10 metres.

I've also used it on 3.5 MHz with a tuner but I can't imagine it's very efficient.

Electrically the antenna is about 40.226 metres, but there are capacitance effects because of the slinky coils.

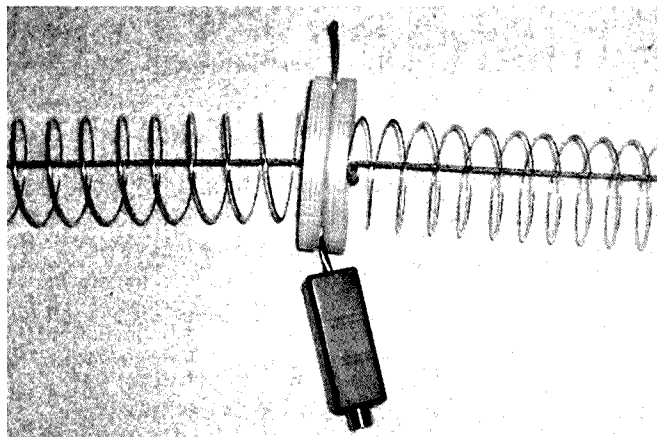


Photo 3: Fixing the cord each side of the lids.

### Beware

Do NOT stretch the slinky past about 5 metres. It does not work better and you will deform it.

Do NOT leave it outside for a more than a few weeks. It will rust. If you must use it outside for long, paint it to protect it, and put some silicon sealer on the holes in the jiffy box.

Further information about slinky antenna's <http://www.qsl.net/kd4cga/slinky.htm>

### Tools used

Drill – small drill bits; knife; file; soldering iron and solder; thin heat shrink tubing; tape measure; small screwdriver; 16 mm hole drill bit (or nibble tool or reamer); Utilux crimp tool; needle nose pliers.

Total cost will be something around \$35, and less if a well stocked junkbox is available.

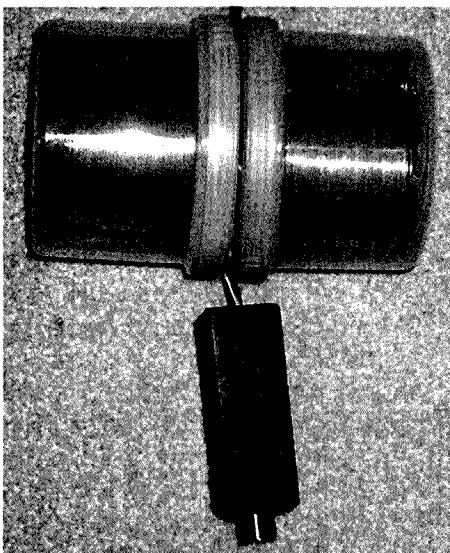


Photo 4: Storage of the cord with the slinkys, inside their plastic container.

### Components

Metal slinky, 88 turns – 2 of	Toys Online Australia
450 ml round plastic screw-top container – 2 of	
14 AWG copper wire – about one metre	
Nylon cord – 15 metres – 10 of	Bunnings
Cable ties – 7 of	Dick Smith No H1980
Utilux automotive crimp eye terminal, inner diameter 6 mm, 10 pack – 2 of	Dick Smith No H3214
Torroid 130-6, in a three pack – 1 of	<a href="http://www.kitsandparts.com/">http://www.kitsandparts.com/</a>
Jiffy box – 1 of	Jaycar HB6015 <a href="http://www.jaycar.com.au">http://www.jaycar.com.au</a>
Panel mount SO-239	Jaycar PS0686

# Amateur LCD amended

The Australian Communications and Media Authority (the ACMA) has amended the Radiocommunications Licence Conditions (Amateur Licence) Determination No 1 of 1997 (the Amateur LCD) and the Radiocommunications (Overseas Amateurs Visiting Australia) Class Licence (the Class Licence).

In doing so, the ACMA has given effect to several matters first requested by the WIA in December 2008.

WRC-07 allocated the band 135.7 – 137.8 kHz to the amateur service on a secondary basis in most parts of the world, including Australia.

To date, Advanced licensees have been able to operate on this band only if they had obtained a variation of their licence conditions.

Now all Advanced amateurs may operate on the band 135.7 – 137.8 kHz, subject to conditions including the condition “If a licensee operates an amateur advanced station in the frequency band 135.7 kHz to 137.8 kHz, the licensee must not operate the station using a radiated power of more than 1 watt pX EIRP”.

Previously section 42 of the Amateur LCD (part of the conditions of a repeater licence) required the originating station to use what was called an “access control system”, which is defined to be either a tone burst system that has a frequency of 1750 Hz, or a continuous tone coded squelch system or a dual tone multi frequency system if the output frequency was different from the input frequency.

The WIA argued that such access control systems were not appropriate with current digital technology protocols used by amateurs, such as the D-STAR system. In that system, the transmitter has to be specifically programmed to determine the output frequency band of the digital repeater.

The Amending Determination now adds as an access control system any system that “uses any other readily available code or signal”.

A further matter raised by the WIA was that the Class Licence by Section 11 (1) provided that “An amateur station must not be operated unless a qualified person operating the station identifies the station by use of the callsign, mentioned in subsection 6 (2), followed by the suffix VK” and that was inconsistent with CEPT Recommendation T/R 61-01 and was an exception to the way in which amateur callsigns are constructed under similar arrangements.

The WIA pointed out that T/R 61-01 provides that “When transmitting in the visited country the licence holder must use his national call sign preceded by the call sign prefix of the visited country as indicated in Appendices II and IV. The call sign prefix and the national call sign must be separated by the character “/” (telegraphy) or the word “stroke” (telephony).”

Subsection 11 (1) of the Class Licence has been amended to read “An amateur station must not be operated unless a qualified person operating the station identifies the station by using the call sign mentioned in paragraph section 6 (2) (e) preceded by the letters VK.”

In addition to these changes requested by the WIA, a number of other changes are made, mainly of a technical nature, for example substituting “the ACMA” for “ACMA” and rectifying some omissions.

More significantly, section 5 (3) of the Amateur LCD had provided that “The licensee must not transmit messages to an amateur station in a foreign country if ACMA has published a notice in the Gazette to the effect that the government of that country has given notice that it objects to the transmission and reception of messages between amateur stations in that country and amateur stations outside that country.”

That provision has been deleted and a new provision inserted as follows “The licensee must not transmit a message to an amateur station in a foreign country if the transmission would be inconsistent with the Australian table of allocations in the spectrum plan or a footnote to that table.”

The term “spectrum plan” is defined to mean “the Australian Radiofrequency Spectrum Plan 2009”.

While the WIA has supported all the amendments, it has expressed its reservation about the possibility that the term “inconsistent” in the context of the spectrum plan may lead to unintended consequences.

The other changes to the Class Licence simply reflect the changes to the Amateur LCD.

At present the amendments are available as separate documents, and the primary documents have not been consolidated to incorporate the changes.

When the Class Licence and the Amateur LCD consolidated versions become available they will be placed on the WIA website.



## Is your Callbook current?

The WIA 2011 Callbook is now available

[www.wia.org.au/bookshop](http://www.wia.org.au/bookshop)



Tim Mills VK2ZTM

vk2ztm@wia.org.au

Best wishes for 2011. This is the big month in VK2 with the annual **Central Coast Hamfest** staged by the **Central Coast ARC** at the Wyong Racecourse on Sunday 27 February. Gates will open early, giving time to check out the Flea Market before the Trader section opens. There will also be both an early and later start for the exam assessments provided again this year by ARNSW – prior bookings would help – contact 02 9651 1490. No details were available for the Saturday night dinner as these notes were prepared but for all activities in conjunction with the field day listen to VK2WI News during the month or check out their web sites. The first VK2 field day for the year was the Mid North Coast Expo, just concluded at Coffs Harbour.

Several clubs will have their first meetings for the year this month. **HADARC** resume the informal gathering on the 9th and the monthly on the 23rd. They plan to have a table at Wyong. **Waverley ARS** has a training course at their Rose Bay club room over the weekend 12/13. Contact via [education@vk2bv.org](mailto:education@vk2bv.org) **VK2AWX** news net resumes on Monday the 7th to advise about the first **Hunter Radio Group** meeting on the 11th. **Manly Warringah RS** have assessments scheduled this month. They have a Youth Grant for anyone under 18 who would like to become an amateur. For either, contact Chris VK2YY at [vk2yychris@gmail.com](mailto:vk2yychris@gmail.com) or on 0428 239 413. **Orange & District ARC** is seeking a new meeting venue. All clubs and groups may make use of the VK2WI news service to advise members and visitors of meetings and activities. Send off an email to [news@arnsw.org.au](mailto:news@arnsw.org.au) This location provides an automated acknowledgement.

The **Oxley Region ARC** who are celebrating their 40th year, advise that their 36th annual field day will

be on the June long weekend 11/12. At a different venue this year: the Tacking Point Surf Club due to a major sporting event in town over the weekend having booked the Sea Scout hall. Those needing accommodation should book it now. Oxley has a new EchoLink system. The former one, provided by Chris VK2CJM, closed early December.

It has been replaced by one provided by Bill VK2ZCW. Thanks to both for the service. The new node number is 553 696, again on repeater VK2RPM 146.700 MHz.

There are to be the RTO based Emergency Communication Operators Training workshops in VK2 over two full weekends, the first this month and the second in April.

Jeff VK2BYY who spends some of his time being an author has just completed the fourth in his Barefoot Times series. The latest, 'Cry of the Bunyips', is scheduled for release later this year.

The **VK2BWI** Morse training session provided by Ross VK2ER out of Orange is resuming after a break over January. Ross provides the weekly transmission for ARNSW on Thursday at 2000 hours on 3550 kHz. He would welcome others to assist in providing this service. The transmission facility at VK2WI has recently had a new 23 cm repeater

system installed, replacing a pair of Yaesu transceivers donated by DSE in 1989. The new system was built up by station engineer Mark VK2XOF. Work is proceeding with a new transmitter for the 160 metre broadcast. New antennas are being prepared for some of the VK2RSY beacons. The packet system at the VK2WI site was decommissioned late last year. The next Trash & Treasure at VK2WI is scheduled for Sunday 27 March.

**ARNSW** is scheduled to hold their AGM in April and there will be a call for nominations for the committee towards the end of this month. Details via VK2WI broadcasts or on the web site [www.arnsw.org.au](http://www.arnsw.org.au) As part of the Centenary year, ARNSW has been issuing certificates to their current members who have 40 or more years membership, first as members of the NSW Division and then as members of ARNSW. There are a few gaps in the records so if you have not received a certificate and would like one, contact Brian VK2WBK by a telephone call to the message bank on 02 9651 1490, or 0400 445 829. Email to [office@arnsw.org.au](mailto:office@arnsw.org.au) or mail to P. O. Box 6044 Dural Delivery Centre NSW 2158.

73

Tim VK2ZTM



## Silent Key Alf Wachsmann VK7LAW

Sadly, Alf VK7LAW became a silent key on Saturday 27 December. He is survived by his loving wife Hilda plus a son and daughter. A private funeral was held on his property at Diddleum Plains, which was attended by Joe VK7JG, Allen VK7AN and Barry VK7BE. Another gentleman of the airwaves passes on.

Vale, Alf VK7LAW.

Jason VK7ZJA



# ALARAnews

Margaret Blight VK3FMAB – Publicity Officer

Well, after taking a deep breath, we now face the New Year of 2011. I wonder if it will be as full of life's ups and downs as last year! I do hope everyone enjoyed a happy and peaceful festive season and caught up with friends and loved ones.

Perhaps this year will bring some unexpected surprises, some of you may further your interest in radio by studying for an Advanced licence, or participating in your club's activities. Perhaps you will nominate for a position on your club's committee! Don't be shy. You may have more to offer than you think.

## Trip to Adelaide

Last November, arrangements had been made for VK3VIP and her OM John VK3DQ, together with myself and OM Andrew VK3BFA, to visit Adelaide, to attend the Bring and Buy Sale held annually by "The Biggest Amateur Radio Club in South Australia" - Adelaide Hills Amateur Radio Society. We had a pleasant trip over to Adelaide due to beautiful weather and pleasant countryside. Everything was still green following the recent rain.

The VK5 ALARA members had kindly arranged a dinner to meet and greet the VK3 members on the Friday evening prior to the Sale. We all caught up at the Jetty Hotel, Glenelg, and enjoyed a good meal and great company. Marilyn VK3DMS with her husband Geoff attended as they were holidaying in SA for a few days. Also present were Pam VK3NK and her OM Graeme VK3NE who were visiting radio friends in Adelaide that weekend. There was much catching up on news and much delight at being able to speak with some people face-to-face for the first time. In other cases, it was the simple enjoyment of speaking with people we had not seen since the ALARA MEET in Ulverstone, Tasmania, two years previously.



ALARA well represented at Adelaide Hills Buy & Sell.

## Bring & Buy Sale

On Sunday we ventured to the Westbourne Park Memorial Hall, Wesbourne Park, to participate in the Buy & Sell Meet. There was quite a crowd waiting to be allowed into the main hall, in the meantime they could buy refreshments from the well named "ALARA Coffee Lounge". Naturally, when the doors finally opened there was a surge forward from the menfolk and the women took the opportunity to go into the side hall where the VK5 ALARA members were busy providing, drinks, muffins & cakes etc.

The Meet was formally opened by Michael Owen who spoke about the enthusiastic response to the VK100WIA Centenary callsign and his hope that membership growth may be encouraged.

Peter Wolfenden also gave a most interesting presentation on the History of Wireless in Australia.

Adelaide is a delightful place to visit, with the city set in beautiful park surroundings. There are many interesting places to explore nearby and we undertook a trip to Strathalbyn on Sunday afternoon. There we found ourselves meeting up unexpectedly with the group of radio friends from VK3 who had been at the dinner and enjoyed afternoon tea together.



Casual meeting in Strathalbyn of VK3 visitors.



VK3FMAB presents History of ALARA.

It was with some regret that we set off for home on Monday but were mindful that we will return again for the ALARA International MEET in 2012. This will be held in Glenelg, South Australia. We look forward to that important event.

## Presentation on ALARA

The Eastern & Mountain District Radio Club (EMDRC) invited Margaret VK3FMAB and Jean VK3VIP to give a talk to club members about ALARA. Jean VK3VIP spoke about recent activities including interstate Meets, accompanied by a video projection showing numerous photographs illustrating the range of social and club field days involving ALARA members. Margaret VK3FMAB discussed the development of ALARA and described some of the pioneer women radio operators who were active in the early era of wireless.

ALARA Christmas Luncheon Bendigo.



From this initial interest grew a basis for the development of women's continuing involvement in radio especially post WWII. Eventually a movement was initiated towards establishing a group for woman operators,

leading to the formation of LARA. This later developed into the Australian Ladies Radio Association upon affiliating with the WIA.

## ALARA Christmas lunch

This year our travelling luncheon was held in the City of Bendigo. We are very aware that a number of ALARA members regularly travel down to Melbourne to meet up for a meal with fellow members. So to maintain the balance, we attempt to arrange some of the get-togethers in a location closer to country members.

We all met up at a delightful local hotel, The Old Boundary Hotel. A great choice as it happens, everyone enjoyed the environment and the food and presentation was first class. So despite the heavy rain, everyone had a jolly good time. The Kris Kringle presents were exchanged with much laughter. It was later pointed out that the lunch had extended for 3½ hours so there seems little doubt that everyone was enjoying themselves.

## Is this a record?

The following news has been sent from Queensland "Greeting from The Rockhampton and District Amateur Radio Club, the RADAR club. Here is something that may be a first for Queensland and perhaps Australia, a Diamond Wedding Anniversary for two lovely people, both open licence holders with a combined licence duration exceeding 90 years.

On 7th December 2010, two long standing members of our club and the WIA celebrated their Diamond Wedding anniversary. Both are proud to advise they are 84 years young.

Gordon Adams VK4GM and his wife Mary VK4PZ were married at the Holy Trinity Church in Blackall in 1950, spending several years there before moving down the road to Jericho where they established a service station. In 1984 they shifted to the big smoke of Rockhampton, before settling at the Caves on a block of land in 1996 where they replanted their antenna farm, probably too conspicuous at their QTH in the developing city.

Gordon obtained his initial licence VK4ZGA in 1963 with Mary taking out a listener's licence in 1968. Mary laughingly explains that she was not theory minded as she calls it and took 10 years to gain her licence after Gordon. She finally dusted down her books and herself to complete a course. Proudly, Mary was one of four to be successful from an initial class intake of 54.

They have both been continuous members of the WIA since licensing and Mary has been a long standing member of ALARA. She attains 30 years of membership with ALARA in March 2011."

Congratulations and Best Wishes to the happy couple.



60th Anniversary RADAR Club VK4.

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Don Jackson VK3DBB

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# Hamads

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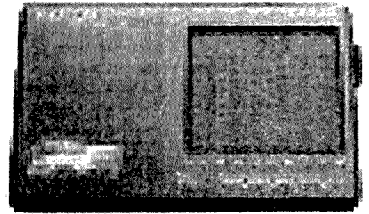
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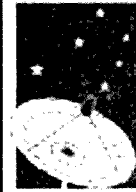
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# Amateur Radio

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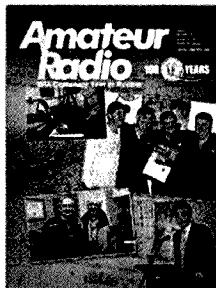
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### Our Cover

The cover this month links back to our early history by reprising the cover used in March 2010. Using the same background, we have added some highlights from the Centenary celebrations during 2010.



Upper left: Leighton Moss VK3CLJ operating VK100WIA from the EMDRC Clubrooms Saturday evening 18 September 2010.

Upper right: L to R: Councillor Andrew Antoniolle, IDRC President Michael Charteris VK4QS, Mayor Paul Pisasale Hon Vice President IDRC, Mr Ewan McLeod VK4ERM, Director WIA with the Certificate of Appreciation from Ipswich City Council presented to the Ipswich & District Radio Club for community involvement and assistance in times of disaster.

Lower left: Dick Smith VK2DK and WIA President Michael Owen VK3KI in the radio room of the Bowylie Flying Club during the Centenary weekend of activities, May 2010.

Lower right: ACMA Chairman Chris Chapman speaking at the Centenary Dinner in Canberra.

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## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome.

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

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# Editorial

*Peter Freeman VK3PF.*

## One year on...

Or should that be one hundred and one years on?

Our cover this month is a reprise of the cover from the March 2010 issue. That cover was based on historical photographs. This month, we have the same background, but have substituted a number of photographs from some of the activities that occurred during the Centenary celebrations.

Thanks to the efforts of the Centenary Committee, our lead article this month is an overview of activities during the past year. In itself, it will add to the archive of material that has been building, both of activities during the Centenary celebrations and from earlier years.

The Centenary year saw many separate events that combined to add to the celebrations. It is clear that the special callsign VK100WIA played a significant role, involving clubs around the nation during the six months of operation. These operations commenced with the WIA directly sponsored operations during the month of May, including the period around the Annual General Meeting and associated activities.

Many amateurs around the globe made the effort to qualify for the Centenary Award. A total of 438 certificates were issued for the Award. It was interesting to see a number of relatively recently qualified local amateurs become enthused by the award. They started to keep an eye on the on-line logbook to obtain hints as to when and where to find the VK100WIA callsign as it moved from club to club. Most of them assisted with the setup of the station when our local club was operating the callsign and booked in for the operating roster. I note that some of them achieved their goal – they are on the list of those who have gained the award.

## Some time on air

I did manage to load the car up with gear for the Summer VHF/UHF Field Day. It took some time to find all the required items, as the unpacking after the move last year has not progressed well as far as the radio shack contents are concerned.

I did a small Rover operation, venturing to the region around the nearest grid square junction. The actual grid square junction is down in a gully system – not the best site for successful VHF and UHF operations. From the first site chosen I was able to make contacts with several local amateurs, on all bands from 6 m through to 3 cm, except for 13 cm – for some reason the transverter decided it did not want to work. It was then a matter of moving around to some other locations in adjacent squares and making as many contacts as possible. At the second location, I found that now 23 cm was not working, as well as 13 cm.

By late afternoon I had activated three squares and decided to head back closer to home to activate the home square, dropping into home to pick up my IC-910 so that I had 23 cm operational. After grabbing some food, it was off to a local hilltop to leisurely work whoever I could manage to catch.

Later in the evening I heard something of interest on 23 cm. It ended up being very interesting – I managed to work our 6 m contributor Brian VK5BC at his portable location at Corny Point on 1296 MHz. The contact distance was just less than 934 km, and set a new national mobile record for the band, as well as being a new square for the grid square collection. I gave up at around one in the morning and drove home to get some sleep. I went back to the hilltop the next morning to work a few more stations before heading home after the contest ended. It was a satisfying weekend of radio activity.

## New look

By now, you should have noticed the new appearance of the magazine, thanks to the input from Sergio Fontana VK3SFG. Overall, the Publications Committee is happy with the new appearance and Sergio will continue to refine his workflow in an effort to meet new goals for delivery. Of course, we would welcome any comments from readers.

Cheers,

Peter VK3PF







# WIA comment

Michael Owen VK3KI

## Has the Foundation licence been a failure?

Once a year, we pull out all sorts of information for the annual Directors' Report and the report to the Open Forum following the Annual General Meeting.

This year it occurred to me that, as the first Foundation licensees were qualified in October 2005, we had now had full five years of the restructure of the Australian amateur licences and, more particularly, we now had five full years of the entry level licence.

So, it seemed a good idea to ask the question, has the Foundation licence been a failure?

One table that I have been building up is the total number of amateur apparatus licences in force on 30 June each year, extracted from the Annual Report of the ACMA, previously the ACA, showing total apparatus licences.

30 June 2001	15,017
30 June 2002	14,536
30 June 2003	14,363
30 June 2004	14,047
30 June 2005	14,041
30 June 2006	14,475
30 June 2007	15,009
30 June 2008	15,278
30 June 2009	15,432
30 June 2010	15,626

It should be pointed out that the steady decline in numbers to 2005 had started many years before 2001.

There is a turnaround in 2006 and a fairly steady increase each year since then.

Now those figures show that there are actually much more than just a couple of hundred new licences each year.

Those numbers are the total apparatus licences in effect on the relevant date, and include amateur

repeater and beacon licences as well as licences held by people who hold more than one amateur licence.

But the number of amateur licences at the relevant date is the number after the removal of licences that have not been renewed or have been quarantined because of the death of the licensee.

So, before you have an increase in the total number of licences, the number of licences not renewed or quarantined has to be offset against the new licences.

If you look at the Directors' Report you will see that 88 callsigns were quarantined on the death of the licensee in the 2010 year. And neither ACMA nor the WIA is necessarily advised of the passing of all amateurs.

We also know from the families that contact us in relation to the renewal of WIA membership that a number of people's membership and licences are simply not renewed because of age and health.

So, really, while the total number of amateur licences may have increased by a couple of hundred a year, the number of new amateurs is more than just a couple of hundred in a year.

Since the WIA has qualified all amateurs since the restructure of the Australian amateur licences in 2005, we are able to throw some more light on the matter.

In each Directors' Report we have said how many people qualified for the Foundation certificate of proficiency in each calendar year, starting in 2006.

So, I can make a new table:

2006	1,065
2007	743
2008	580
2009	541
2010	480

Without producing more tables, the WIA data shows that since 2005 the preferred entry route into amateur radio for the majority of amateurs is the Foundation licence, with relatively few first entering at either the Standard or Advanced level.

Our data also show that the number of Foundation licensees upgrading to Standard and Advanced is acceptable.

WIA Director Peter Young has analysed the WIA examination information, and other data that he could access, and concluded that since the introduction of the Foundation licence, the average age of radio amateurs had dropped, with many new amateurs being aged under 25.

Does the fact that for the last couple of years the WIA has been advocating the promotion of amateur radio to the general community with a view to attracting more amateurs mean that the Foundation licence is not working? Of course, we did not have to do much for the first few years, because the fact that an entry level licence would be introduced had been announced for quite a while, and so people were waiting for it.

However, we live in a world where many things clamour for people's attention, and amateur radio is just one of them, but at least we have something to sell with the entry level licence.

Let me look at another table, also from the Open Forum Report but with the latest figures in the Directors' Report, the membership of the WIA.

Continued on page 4

## Result of nominations for Director announced

Nominations for election as a director of the WIA were called for by notice published in the December 2010 issue of the WIA magazine *Amateur Radio*.

The four retiring directors Michael Owen VK3KI, Peter Young VK3MV, Ewan McLeod VK4ERM and Philip Adams VK3JNI offered themselves for re-election.

The WIA Returning Officer, Chris Chapman VK3QB, has advised the Board that no other nominations were received and in accordance with the Election Regulations, he had declared the retiring directors elected unopposed as Directors of the WIA.

Each will hold office until the conclusion of the Annual General Meeting in 2013.

## Consolidated LCD now available

On 22 December last year the WIA advised that the ACMA had made amendments to the Amateur Licence Conditions Determination (LCD) and the Visiting Overseas Amateur Class Licence.

The amending documents have now been consolidated into the single basic documents by Office of Legislative Drafting and Publishing, part of the Australian Government

Attorney General's Department.

The WIA website provides access to both consolidated documents.

## ACMA proposes changes to the Radiocommunications (Citizen Band Radio Stations) Class Licence 2002.

On 28 January 2011 the ACMA released a paper signalling its intention to vary the CBRS Class Licence. The paper follows consultation between the ACMA, industry and the public in the context of the ACMA's review of the 400 MHz band. The ACMA proposes to increase the number of radiofrequency channels in the UHF Citizen Band.

The ACMA proposes to vary the Radiocommunications (Citizen Band Radio Stations) Class Licence 2002 (the CB Class Licence) to facilitate operation on the new channels. Other proposed variations to the CB Class Licence include variations to:

- facilitate the transmission of electronic identification and location information;
- relax the duty cycle restriction for telemetry and telecommand transmissions;
- improve the regulatory effectiveness of the CB Class Licence;

- prohibit the indirect linking of repeater stations; and
- prohibit the linking of CB stations.

The proposed variations are discussed in the paper Proposed Variations to the Radiocommunications (Citizen Band Radio Stations) Class Licence 2002 which can be found on the ACMA website.

The WIA was represented on the ACMA 400 MHz Review Working Group by WIA Director Peter Young VK3MV.

## NASA seeks amateur radio operators' aid to listen for nanosatellite's beacon signal

On Wednesday, January 19 at 1630 UTC, engineers at Marshall Space Flight Center in Huntsville, Alabama confirmed that the NanoSail-D nanosatellite ejected from Fast Affordable Scientific and Technology Satellite (FASTSAT). According to NASA, the ejection event occurred spontaneously and when engineers at Marshall identified and analyzed onboard FASTSAT telemetry, the ejection of NanoSail-D also has been confirmed by ground-based satellite tracking assets. NASA is asking radio amateurs to listen on 437.270 MHz for the signal and verify NanoSail-D is operating.

## WIA comment

Continued from page 3

That table looks like this:

31 December 2004	3,494
31 December 2005	3,851
31 December 2006	4,114
31 December 2007	4,302
31 December 2008	4,376
31 December 2009	4,541
31 December 2010	4,641

That table only goes back to December 2004, and tracks the membership numbers from the year of the restructure of the WIA from a federal organisation of state and territory based "Divisions" to a single national body.

Now what is interesting is that while there is an accelerated growth in the early period, the growth rather follows the growth of amateur licences.

Of course the rate of growth is not as fast as we would like.

But remember, exactly the same issues in relation to total licences apply to total members as against members dropping out. A steady increase in members is more new or rejoining members than it appears.

In short, despite the internet and mobile phones, I think that in Australia amateur radio is alive and well.

And I believe the Foundation licence has been successful.

A final thought. We have celebrated our Centenary. We are conscious of how amateur radio has changed in that time. As the world changes and as technology changes, amateur radio will and must continue to change, I suggest at an ever faster rate.

Amateurs should send information to the NanoSail-D dashboard.

NASA said that the NanoSail-D science team is hopeful the nanosatellite is healthy and can complete its solar sail mission. "This is great news for our team," said Dean Alhorn, NanoSail-D principal investigator and aerospace engineer at the Marshall Center. "We're anxious to hear the beacon which tells us that NanoSail-D is healthy and operating as planned. The science team is hopeful to see that NanoSail-D is operational and will be able to unfurl its solar sail." As of Thursday, January 20, the NanoSail-D dashboard is reporting that beacon data has been received, but NASA still wants amateurs to track and report the signals.

On December 6, 2010, NASA triggered the planned ejection of NanoSail-D from FASTSAT. At that time, the team confirmed that the door successfully opened and data indicated a successful ejection.

Upon further analysis, however, the team found no evidence of NanoSail-D in low-Earth orbit (LEO), leading them to believe NanoSail-D remained inside FASTSAT. The FASTSAT mission has continued to operate as planned with the five other scientific experiments operating nominally.

"We knew that the door opened and it was possible that NanoSail-D could eject on its own," said FASTSAT Project Manager Mark Boudreaux. What a pleasant surprise we had [Wednesday morning] when our flight operations team confirmed that NanoSail-D is now a free flyer."

If the deployment is successful, NASA said that NanoSail-D will stay in LEO between 70 and 120 days, depending on atmospheric conditions. NanoSail-D is designed to demonstrate deployment of a compact solar sail boom system that could lead to further development of this alternative solar sail propulsion technology and FASTSAT's ability to

eject a nanosatellite from a micro-satellite - while avoiding re-contact with the FASTSAT satellite bus. *(Item courtesy ARRL)*

## UK Radio club celebrates Centenary.

RSGB reports that GB100D, Golf Bravo 1 Oscar Oscar Delta, has been issued for the year 2011 by Ofcom, the UK regulator, as a Special Event callsign.

It will be used throughout the year to celebrate the 100 years of the Derby Wireless Club, founded in 1911, which is the UK's oldest continually active local wireless club and is now incorporated within the Derby and District Amateur Radio Society.

From 1 January to 25 March it will be operating from the "Silk Mill Museum" located in the City Centre of Derby alongside the River Derwent. The station will have restricted operation due to the museum opening hours.

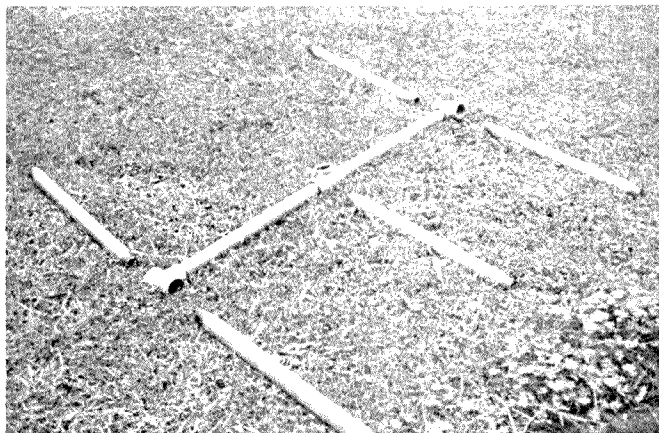
# A simple antenna base for portable vertical antennas

*Graeme Scott VK2KE*

This article describes a compact, cheap simple antenna base for portable antennas such as trap verticals like the Hidaka and the Hi-Gain 18AVT.

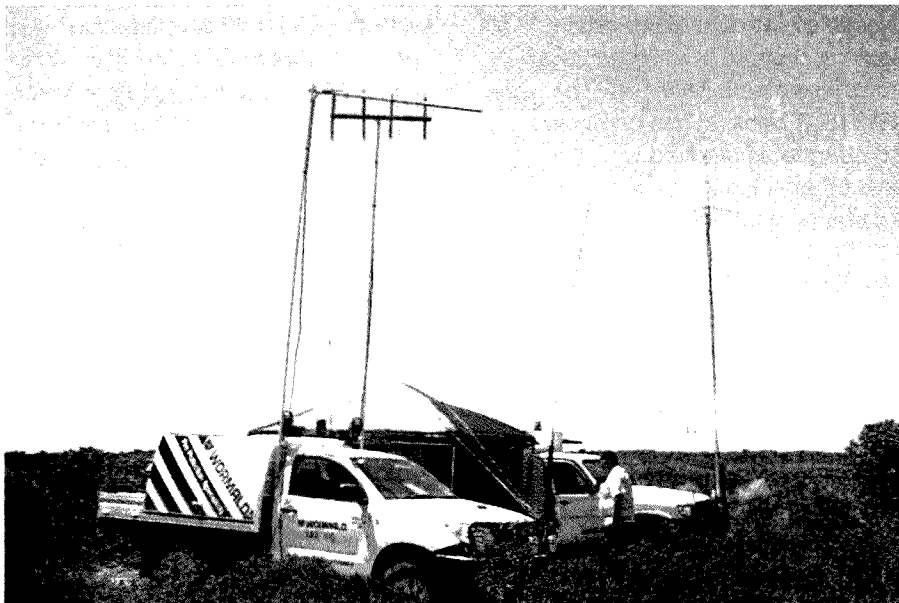
The idea occurred to me recently when I was to stay at Apollo Bay with friends and where the husband was getting into ham radio, having retired recently. I took the base with me in the car along with the Hidaka suitably dismantled into pieces that would fit in the car - stretched through from the boot to the front seat.

The base is made from pre-cut and threaded lengths of galvanised water pipe bought at the local plumbers supply depot. I used 25 mm (OD) pipe and you get seven pieces each 340 mm long with thread on each end. You will also need to get three tees that are threaded internally. The base is easily assembled as shown in the photos and the threads tightened up with a Stillson wrench.



*Photo 1: The antenna base disassembled to indicate the number of pieces of pipe.*

Then the antenna can be attached to the base using a piece of a slightly larger size pipe that will drop down over the vertical one in the central tee.



The GARG VHF/UHF Field Day 2011 site.

We are into yet another year and it is already slipping away! My holiday in Tasmania seems eons away, a distant memory. One good thing about visiting Tassie was that I had a chance to meet Brian VK7BW who featured on a past cover of this magazine and was a great help in setting things up for the VK6RNS repeater at the NCRG headquarters in Whiteman Park.

I recently spotted news of activity in the Kalgoorlie area so I contacted the Goldfields Amateur Radio Group via their website and received this update from Ben VK6RM:

The Goldfields Amateur Radio Group (GARG) has become quite active once again. The club has relocated the 2 metre repeater VK6RAK to a new commercial site just outside of Kalgoorlie and connected it via EchoLink (53116) and IRLP (6089). Coverage from the repeater now extends down to Kambalda and out west of Coolgardie.

APRS is now active in Kalgoorlie. Just this week a Tx/Rx I-gate has been installed, with digipeaters on their way, to give APRS coverage of the Goldfields. Future plans are

to supplement these with DPRS equipment until a D-STAR repeater is installed in the area.

GARG is seeking members! Currently GARG has six very active members, however we need to increase this number to incorporate the club and become affiliated with the WIA. Hopefully we can get some interest from some non active amateurs in the area to get back on the air and join in with the club and its planned activities. To help interest in this the club hopes to resurrect the 'Hainault's Reward' contest; in the past any amateur making contact with the entire GARG group via any mode has been eligible to receive the commemorative QSL card. GARG contact details are via their website [www.garg.org.au](http://www.garg.org.au) or email to [vk6rm@garg.org.au](mailto:vk6rm@garg.org.au)

### **GARG Summer VHF/UHF Field Day 15/16 January, 2011**

On Saturday 15 January three members from the GARG ventured south, towards Esperance, in the hope of netting some QSOs from across the Bight. Preparations started well ahead of the event, with Des VK6HDM and Stuart VK6LSD constructing some very good home

brew antennas including a four element two metre quad that gave absolutely outstanding performance. Also a two metre linear, kindly lent by Lewis VK6OI received a much needed tune up and was restored to its full 200 watt output.

Originally the location selected to set up the portable station was on top of Cape Arid, east of Esperance; however an alternative location was selected at Alexander Bay, approximately 60 km east of Esperance. This ended up being quite a good call, with a cleared hilltop location being found right on the water where the views were excellent and this, along with favourable ducting forecasts boosted hopes of many VHF contacts to be made.

As the antenna farm was erected Stuart and Des, being keen home brewers, were somewhat unappreciative of Ben VK6RM's efforts, where after much head scratching his new factory made tri band Diamond V2000 antenna was in the air, and the cable length issue causing VSWR problems on six metres was also rectified. Ben was disappointed to be told that assembling a factory built antenna was not quite 'home brewing'. None the less the simple 2.15 dBi vertical antenna proved to be an excellent performer on six metres.

During the Saturday afternoon many QSOs were made on six metres, with 59 signal reports being received from all over Perth, to Karratha and into Melbourne. Despite constant calling no contacts were made on two metres or 70 cm until late into Saturday night. Just as the guys were about to call it quits for the night a contact was made into Adelaide with an F call station that was mobile on FM. This gave new hope to the possibility of gaining some high value two metre QSOs; however very late into the evening the only other QSO was a 59 report into Adelaide on SSB.

Despite many more numerous attempts, no other QSOs were made for the field day!

Exhausted and ready for a decent night's sleep the guys packed up early Sunday morning and made the trip back to Kalgoorlie. A great weekend was had by all and the Winter Field Day should see more of the GARG members attending. The attached photo shows the field day site.

Well done guys, it is great to hear of things happening in Kalgoorlie other than mining!

As I am writing this I have just received an email sadly telling me that Mick VK6IN (formerly VK6YXL) has passed away after a battle with cancer. Mick was a good friend, a club member and my local Sparky who did all my jobs around home. Apart from the fact he was a Cockney, he was one of the nicest guys I have ever had the pleasure of knowing. He is the third club member we have lost recently and none of them can be replaced. Vale Mick VK6IN. More next month.

A reminder that the **Hills Amateur Radio Group** will be holding HargFest on Saturday 9 April at the club rooms in Sanderson Road, Lesmurdie, so put the date in your phones/organisers or even diaries and contact Marty VK6FDX on 04 4738 2963 or email at [marty.martin@bigpond.com](mailto:marty.martin@bigpond.com) to book tables and for more information.

It is almost three years since I took on writing this column and at times it has been like getting blood out of a stone extracting information from the various groups around the state. However things are improving, more club secretaries are supplying updates and future activities which has made the job easier. I have had to reassess my time-poor life with the impending sale of most of my business, an upcoming overseas trip and taking on the role of WIA National Awards Manager.

I have decided that next month's column (April) will be my last and I am looking for a replacement columnist. If you would like to take on the role

and provide VK6 with a monthly update that was sadly missing for many years please contact me direct at [vk6rk@wia.org.au](mailto:vk6rk@wia.org.au)

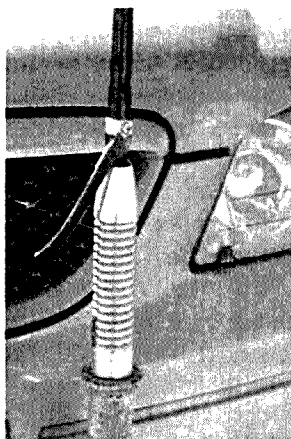
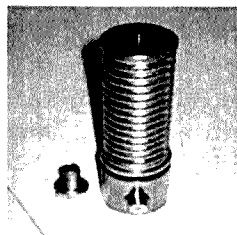
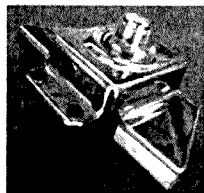
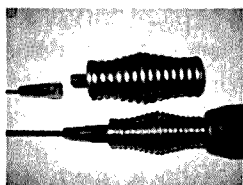
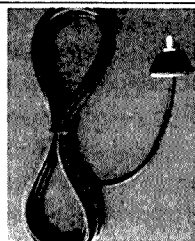
That about finishes off things for March, the contest season is upon us so I will be busy at VK6NC as much as possible, and it will not be long until National Field day is upon us at its new time in April. Hopefully your club will be able to successfully promote the hobby to the general public and your members are looking for ways to do that this year. The NCRG is hoping to be able to participate this year as it is no longer slap dab in the middle of the October contest season. Plans are afoot to stage something, so hopefully we will also be able to put on a show.

In closing, please consider if you can take on this role as VK6 columnist as I will not be continuing past next month's column.

Vy 73 es gud dx, Keith VK6RK.



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Tim Mills VK2ZTM  
vk2ztm@wia.org.au

The next **Urunga Convention** is scheduled to be held over Easter. It has been a continuous yearly activity since 1948. This will be followed by the **Oxley Region** annual field day over the June long weekend at Port Macquarie. There are other major events in Port over the same weekend and accommodation will be scarce. If you need it you should book now. Over the October long weekend the **Oxley Region ARC** will be celebrating their 40th anniversary.

A memo to all clubs and groups with listings on both the ARNSW and WIA sites: You need to check and keep the details up to date as many refer to these sites for information and contact details.

The second of the WIA Emergency Communications training weekends in VK2 will be held on 9 and 10 April at the ARNSW Dural site. The first weekend was on 19 and 20 February.

The **Orange and District ARC** turns 50 this year and they will be celebrating from this month until the end of June with special call V150AOA. Also starting last month they will be meeting at the Orange SES. Late January the **Mid North Coast ARG** held their annual Expo which went off well, reports President Jack VK2CJC. Some previous exhibitors were unable to attend due to the flood problems in VK4 and VK3. They were not directly affected but their personnel were involved with the flood recovery. The hall was still filled up including first time attendee Les VK2MPZ with his Amateur Transceiver Radio Centre from Sydney. Others attending included Ludatronics, Syncro Australia, Coffs Harbour & D ARC, Coffs Harbour Marine Rescue,

CREST, Urunga Radio Convention, Summerland ARC and Oxley Region ARC. Some changes had been made with the kitchen and there were small tables and chairs in the hall to enjoy the 'cuppa'. The annual **Central Coast Hamfest** was held at Wyong Racecourse at the end of February.

An early announcement that the **Riverina Field Day** will be held on Sunday 31 July at the Lavington Scout Group Hall, with a 10 am start. The event is arranged by the Albury Wodonga ARC. Contact Tony VK2MY by email: [saunders\\_01@bigpond.com](mailto:saunders_01@bigpond.com)

The Secretary of **ARNSW Norm VK2TOP** has advised that the AGM will be held on Saturday 16 April 2011 at 63 Quarry Road, Dural with a 10 am start. The **Returning Officer Peter VK2EMU** has advised that the close of nominations for the next committee will be at midday Saturday 5 March 2011 at the VK2WI Dural site. Members of ARNSW are reminded that they need to ensure that they are financial prior to 16 April. They can check by email to [membership@arnsw.org.au](mailto:membership@arnsw.org.au) and also can use the same address to advise any recent changes to postal or email details. Annual reports are sent to most members by email. Others will be sent by post, so it is important that your details are correct.

A course will be starting this month at the **VK2WI Dural** site for all licence grades. It will be conducted by Terry VK2UX on Monday evenings, 7 to 9.30 pm. Registration and inquiries to the ARNSW office phone 02 9651 1490 or mobile 0400 445 829. Details will also be given in the VK2WI news bulletins or in the text edition on the ARNSW web site.

The operator provided Morse

sessions from **VK2BWI** resumed for the year in early February. These are conducted by Ross VK2ER from Orange on behalf of ARNSW. Look for the session on 3550 kHz Thursday at 2000 hours. Do you have an interest in the mode and would like to help? Give Ross a call back after the session. At other times there is the VK2WI automatic CW transmission on 3699 kHz except during Sunday broadcast times and when there is other operation from the Dural site on 80 metres.

VK2 reverts back to standard time next month and while **VK2WI News** maintains the same local time there is the shift in UTC time. HF conditions for the bulletins continue to be difficult, but are helped by the use of the channel on 5425 kHz USB in the morning which provides a link for the remote relay stations. The text version of the VK2WI News is available on the ARNSW web site from Monday [www.arnsw.org.au](http://www.arnsw.org.au) Thanks to Jack VK2XQ who provided the 6 metre DX report over the summer period. The next quarter roster for the Broadcast team will be made up this month by John VK2JV who is always on the lookout for additional personnel. Joining the team this year is Peter VK2BEU.

The next Trash and Treasure event at the Dural site will be the last Sunday of this month – 27th. Les VK2MPZ of ATRC has plans to attend with a range of equipment. Major T&T items on offer can be viewed on the ARNSW web site [www.arnsw.org.au](http://www.arnsw.org.au) under Disposals.

73

Tim VK2ZTM



## Head to Coffs Harbour for the Urunga Convention over Easter

### A simple antenna base for portable vertical antennas

To obtain stability in a wind, lengths of pipe or dowel can be inserted either inside [or over] the legs as shown in the photo to keep the base steady on a windy day.



Photo 2: The antenna base assembled with all legs screwed in place.

Alternatively, sand bags or the like could be dropped over each leg to weigh them down. Another alternative would be to have some slightly longer pieces of the same size pipe and using some sockets [or couplings] they could be screwed onto each leg to increase stability in the wind.

When the portable station is closed, the base can be unscrewed leaving the three tee pieces joined together as they are not very long and can be stowed in the car easily thus minimising the number of pieces of pipe rolling around in the boot.



Photo 3: The antenna base with the Hidaka vertical fitted to the base using a slightly larger piece of pipe.

Four quarter wavelength radial wires can also be attached to the base legs with alligator clips to improve the efficiency of the antenna when on air.

We used this base with the Hidaka trap vertical recently to demo HF to my friend (VK3FAJW) who is now upgrading to the Standard licence from his initial Foundation level. While portable, we worked a VK7 in Hobart and a VK3 in Bairnsdale on 7 MHz with good signals and we had not even added any radials to this configuration! He was suitably impressed with HF and he now has more experience with operating procedures, especially in a net with a few stations, some of which we could not hear.

I also wanted to demonstrate to him the ability to use a trap vertical as he has a very small block in Melbourne. I think the point has been made!



Photo 4: The old yellow welded base that was very hard to stow in the car.

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# Spotlight on SWLing

Robin L Harwood VK7RH

It is March already and I have just received some grim news. The BBC World Service has immediately axed several language services and stopped broadcasting English to another major target area.

Language services axed include Albanian, Macedonian, Portuguese for Africa and Serbian. Shortwave programming will also cease in the following languages: Azeri, Mandarin Chinese (note that Cantonese radio programming continues), Russian (save for some programmes which will be distributed online only), Spanish for Cuba, Turkish, Vietnamese, and Ukrainian. These languages will continue online but as has been pointed out, the Chinese have effectively blocked out the BBC's Chinese website. It sounds as if the BBC will primarily target the worldwide Chinese diasporas outside of the mainland.

There are further reductions in shortwave distribution coming into effect on the last Sunday in March with Hindi, Indonesian, Kyrgyz, Nepali, Swahili and the Great Lakes service (for Rwanda and Burundi) all being taken off as well as further reductions in English. Apparently other platforms will be used to distribute BBC World Service programming such as the Internet, cell phones plus relays from domestic partners. All BBC World

Service shortwave transmissions are planned to cease entirely by March 2014 with the exception of Somali and Burmese.

The BBC expects that these cuts will shrink the 180 million audience by 30 million. Also there are job cuts and a reduction in the BBC's online output. It looks as if Bush House will close in 2012 and the BBC World Service will go entirely to a rolling news format and be relocated to Broadcasting House. The separate BBC World Service news team will be merged with the domestic BBC News with further job cuts. Naturally the National Union of Journalists (NUJ) has reacted angrily to the proposed cuts. These have been brought on by a reduction in government funding and a change in how the remaining funding is allocated.

Sadly the grim news does not end there. The VOA has also axed several language services including Indonesian as well as a further reduction in shortwave output. DW in Cologne also has axed shortwave programming with the aim of leaving HF entirely. The Radio Netherlands relay station in Bonaire is also going to cease as from October 2012. RNW's Head of Programme Distribution, Jan Willem Drexhage, said the closure was regrettable, but stressed that this was a financial

decision, and does not mean that RNW has imminent plans to drop shortwave. They will probably continue from French Guiana or Madagascar. Radio Prague also left shortwave on January 31, joining Radio Slovakia who ceased at 31 December 2010. The latter continued to be relayed by WRMI in Florida on 9955 but suffered continual jamming from Cuba as WRMI broadcasts anti-Castro programming at other times.

Some of you may remember the original "DX Partyline" from HCJB in Quito, Ecuador when it was hosted by Clayton Howard. It was without doubt the best DX program on shortwave and I have fond memories of listening into it in the 70s and mid 80s. Clayton died at the end of January, aged 92. His cheery voice will be missed. Another shortwave voice also died in January in Moscow: Carl Watts, also known as Karl Egorev, was a regular announcer and host on Radio Moscow both in its North American Service and World Service. He was born in Canada to Ukrainian immigrants but they fled back to Russia in the mid 50s at the height of the McCarthy era.

You also heard that VOR is also phasing out shortwave? Oh it has been a depressing month!



Don't forget:

**John Moyle Field Day** on March 19 and 20

**National Field Day** on 17 April 2011

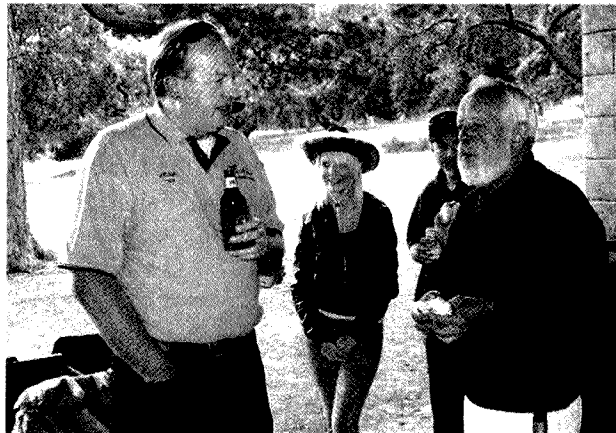
**World Telecommunication Day** on 17 May



# VK3news

## Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC



Nik VK3BA with Gavin VK7VTX.

The year 2010 was punctuated by a number of positive events both in the WIA Field Day successes and local club house achievements; but was marred by the tragedies of the untimely passing of Jennifer Cole, wife of Ian VK3HAJ, Alys Jones wife of our President Dallas VK3DJ and long time member Jack Cations VK3ALP.

### GARC in the PARK

The last activity in the GARC calendar for 2010 was the now well established GARC in the PARK, held at the Geelong Eastern Gardens, Rotunda. The organisation of this event was down to Jenni VK3FJEN as to who was bringing what food and drinks. Amongst the attendees was Gavin VK7VTX a previous member of the club now resident in Flinders Island. This annual event is also attended by the Geelong Radio and Electronic Society

### Introducing VK3ROW

Ken VK3NW, Shaun VK3VLY and Nik VK3BA have re-installed the VK3ROW Otways/Beech Forrest 2 m repeater on 147.275 MHz. From reports thus far, it seems to be working very well. Early examples of its foot print were from Ron VK3FTFM at Caramut, Leigh VK2KRR at The Rock (near Wagga Wagga), Lou VK3ALB at Drysdale

and Greg VK3UT at Warrnambool.

The diplexer has been re-tuned and new tails fitted, the old repeater was ditched and replaced with a Motorola MTR2000, it runs the best part of 40 W into the diplexer, has a CTCSS encode and decode of 91.5 Hz, a three minute TOT and the encoder is disabled

during the CW identification period. It is configured exactly the same as the new VK3RGL 2 m repeater on 147.000 MHz that we have been enjoying for the last year. Also involved in this project were Peter VK3WK and Bert VK3TU.

The GARC now supports five repeater stations VK3RGL on 147.000 MHz, VK3RGC on 147.125 MHz, VK3ROW on 147.275 MHz, VK3RGL on 147.000 MHz and VK3RNP on 438.175 MHz (D-STAR).

In addition it also supports two beacons VK3RGL on 144.530 MHz in QF22DC and VK3RGL on 432.530 MHz in QF22DC; both beaming alternately West and North East.

Lee VK3PK with Max.



Amateur Radio Specialist  
Look forward to hearing from you

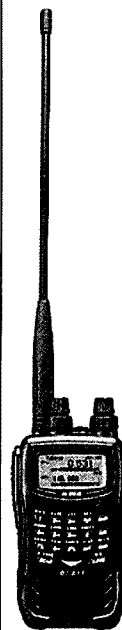


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# How to aim an antenna with the Internet and the sun

Erich Heinzle VK5HSE

## Introduction

Recently faced with the problem of aiming a new digital antenna at the local television transmitter, and relying on knife edge diffraction for the signal, aiming at the tower visually was not possible. Being a radio amateur, I was too cheap to buy a digital signal strength meter, and too lazy to find a compass.

This is a worked example of how an antenna, or anything else for that matter, can be pointed simply and accurately using little more than the sun and the Internet. Celestial navigation underpins the technique, and the Internet provides the data and calculations required.

The same general techniques can also be used to determine the bearing towards a specific target, such as true North, or perhaps a mobile APRS transceiver which is broadcasting its location. The aiming of earth-moon-earth (EME) antennas also relies on the same fundamental techniques.

Used in reverse, the technique can also be used to determine the alignment of an existing structure. Elements of the technique may also be worth doing with scouting groups as an educational exercise.

## Determining your QTH

The first step is to establish the latitude and longitude of your planned antenna, which we will call Antenna A. This can be easily determined with an internet based mapping tool, such as Flash Earth or Google Earth.

Flash Earth (<http://www.flashearth.com/>) is a Flash based world map which allows you to zoom in to the point of interest and read off latitude and longitude simply by using a web browser. Alternatively, Google Earth software can be downloaded and installed. Of course, if you have a GPS receiver, you can determine your latitude and longitude with it instead.

If you end up with decimal numbers instead of hours, minutes and seconds,

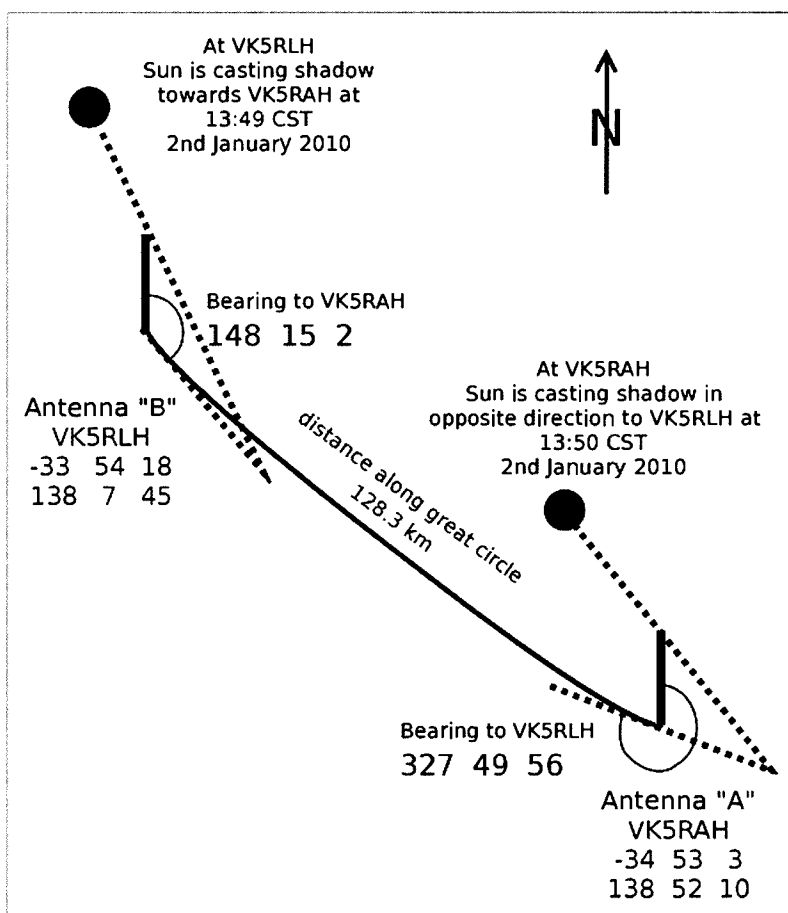


Figure 1: Using the Sun to aim an antenna

you can convert them at <http://www.satsig.net/degrees-minutes-seconds-calculator.htm> You will need the coordinates for Antenna A in degrees, minutes, seconds format for the final step, when you are interpreting the table of sun positions.

For our example, we will use the latitude and longitude of the VK5RAH Lobethal repeater:  
Latitude: -34° 53' 3"  
Longitude: 138° 52' 10".

## Determining your target

The next step is to establish the latitude and longitude of the antenna you are aiming at, which we will call Antenna B. Again, this can be done using Flash Earth, or simply from the person at the other end, or by looking up published details if it is a repeater, such as with a web based directory, that is, <http://k5ehx.net/repeaters/qrepeater.php>

For example, we will assume Antenna B is the VK5RLH Central North repeater:

Latitude: -33° 54' 18"  
Longitude: 138° 7' 45".

## Finding the bearings and distances

Once you have the latitude and longitude for antenna A and B, you can use one of a number of web based calculators to determine the distance between the locations, and more importantly, the initial and final bearings along the great circle joining the two locations. A convenient one to use is: <http://www.movable-type.co.uk/scripts/latlong.html>

Owing to the fact that the earth is a sphere, spherical geometry comes into play. The shortest distance between two points on a sphere is a great circle, and the bearing you start on relative to North (the initial bearing) will

not always be the same as the bearing you finish up on (the final bearing) relative to North as you arrive at your destination.

To aim Antenna A at Antenna B, the initial bearing is what is needed. For our example, VK5RAH aiming at VK5RLH, after entering the coordinates, and clicking the 'calculate distance button', we get:

128.3 km

and, after clicking the 'calculate initial/final bearing' further down the page:

327°49'56" the initial bearing from VK5RAH to VK5RLH, and  
328°15'02" the final bearing from VK5RAH to VK5RLH

If we swap the Antenna A and Antenna B around, that is, going in the other direction, we get:

148°15'02" the initial bearing from VK5RLH to VK5RAH, and

147°49'56" the final bearing from VK5RLH to VK5RAH

Which, as expected, is the exact opposite of the results for the other direction, that is, the difference is 180 degrees.

Having established the initial bearings along which Antenna A and Antenna B need to be aimed, all that remains is to point the antennas along those bearings.

### Where to aim the antenna(s)

There are two ways to do this. One option is to use a compass, but the accuracy of this will be affected by magnetic deviation, nearby magnetic structures, and a very tiny bit by geomagnetic storms!

The more interesting way to do it is to use the Internet again, to predict the sun's position. A handy solar position calculator is provided by the US Navy: <http://aa.usno.navy.mil/data/docs/AltAz.php>

You will need to go to 'Form B - worldwide locations'.

Select the sun position checkbox, as well as the date for which the sun's position relative to north (the Solar Azimuth) is to be calculated, and choose one minute intervals for the generated table. For our example, we will use 2 January, 2010.

You will need to add one hour to the time zone offset if it is daylight savings. In this case, we will use 10.5

hours for Australian Central Standard Time in mid-summer.

You will then need to enter the latitude and longitude you found for Antenna A. Then press the 'Compute Table' button.

### Which way will the sun cast a shadow?

In the southern hemisphere, if the initial bearing is between 270 degrees and 90 degrees, that is, pointing in a generally north direction, then you will need to aim the antenna towards the sun or, in the opposite direction to the mast's shadow. For our example, the initial bearing from Antenna A to Antenna B is 327°49'56", that is between 270 and 90 degrees, so the antenna will need to be pointed towards the sun and we will need to find the time that the sun's azimuth will be 327°49'56". This can be converted to decimal degrees, giving 327.832 degrees as our Solar Azimuth goal.

In the southern hemisphere, if the initial bearing is between 90 degrees and 270 degrees, that is, pointing in a generally southwards direction, you can aim towards the mast's shadow, when the sun is at the initial bearing minus 180 degrees. This is not the case for Antenna A, but it is the case for Antenna B.

If the sun is to cast a shadow in the direction of Antenna A, along the initial bearing from Antenna B, it will need to shine from the initial bearing minus 180 degrees.

So, with the initial bearing from Antenna B to Antenna A 148°15'02", that is, between 90 and 270 degrees, the sun's azimuth to cast a shadow in this direction will be:

$148^{\circ}15'02'' - 180^{\circ} = 328^{\circ}15'02''$ .

This can be converted to decimal degrees, giving 328.2506 degrees as our Solar Azimuth goal.

### When to look for the shadow

We now look at the table of solar positions generated by the calculator and find that 13:50 CST with daylight savings in effect is the time at which we must aim Antenna A in the direction of the sun, to achieve a bearing of 327°49'56", and 13:49 CST with daylight savings in effect is the time at which we must aim Antenna B in the direction of the shadow cast by its mast, to achieve a bearing of 148°15'02".

### Troubleshooting

If you are getting strange results, double check your latitude, longitude and UTC offset. If you cannot find a time of day matching the required azimuth, it is probably because the sun has risen or set too early, for example in winter, in which case you will either have to wait a few weeks, or wait until the sun is at ninety degrees to your antenna's required bearing and line up an antenna element (if it is a Yagi), with the mast shadow.

Having established the right time of day to aim towards the support pole's shadow, or aim in the direction of the sun, that is, opposite to its shadow, you only need to have the right time. If you have a GPS receiver you have an accurate clock already. In the absence of a GPS receiver, you can use an online time tool such as:

<http://www.timeanddate.com/>

All you have to do now is sit and wait, and hope for sunny weather!

### Concluding Remarks

The technique assumes your antenna mast is vertical, and that it is daytime. As a bonus, the US Navy calculator will also allow you to tabulate the position of the moon minute by minute. It turns out that you can also aim Antenna A at the moon at 4:16 am, and Antenna B at the shadow cast by the moon at 4:14 am. According to the table generated it will be 99% illuminated – a full moon!

None of the websites listed is unique. A simple web search will find multiple sites providing calculators, converters, maps, time, and solar position calculators. Another good solar position calculator is provided by NOAA, the nice people who look after the weather satellites many amateurs tune in to:

<http://www.srrb.noaa.gov/highlights/sunrise/azel.html>

The NOAA web site is a bit quirky and requires a minus sign for eastern longitudes, southern latitudes and eastern UTC offsets. However, it will let you resolve the sun's position down to the second.

I nearly forgot - one last tip - do not stare or look directly at the sun!



# Across the Tasman on 2.4 GHz

David Smith VK3HZ

After many years of trying, the gap between the Australian mainland and New Zealand has finally been bridged on 2.4 GHz.

On 27 January, 2011, at 0326 UTC Adrian VK4OX worked Stephen ZL1TPH/p on 2403.1 MHz SSB over a path of 2314.5 km. Adrian is located about 20 km inland from Caloundra on the Sunshine Coast, while Stephen was operating portable from Moirs Hill on the coast to the west of Auckland. They exchanged 5/3 reports both ways.

Stephen ZL1TPH takes up the story: *Looking at the Hepburn propagation maps that afternoon (see Figure 1), band conditions did look exceptionally promising from northern ZL towards VK4 with indications of a strong tropospheric duct running almost the full way across.*

*I looked on the VHF logger for further information. The Logger is an invaluable tool and we thank Adam VK4CP for providing these services to all amateurs. Seeing Adrian VK4OX on the Logger and knowing that he had high performance gear for the 2.4 GHz band, I decided to load up my 2 metre and 2.4 GHz equipment into my work vehicle, so as to operate portable from a nearby elevated site called Moirs Hill. This site is at 352 metres ASL and has an excellent take off towards VK, and was only a short drive north from my home QTH.*

*Once on site, I set up my 144 MHz station - a TS-700A feeding a 250 watt SSPA and eight element 2 metre horizontal Yagi - and operated from the rear tailgate of my vehicle. The weather conditions were extremely warm, with no winds whatsoever. Within the first few CQ calls on 2 metres, I worked VK4APG and VK4OX at 5/9 on SSB and this pointed to conditions as being much enhanced.*

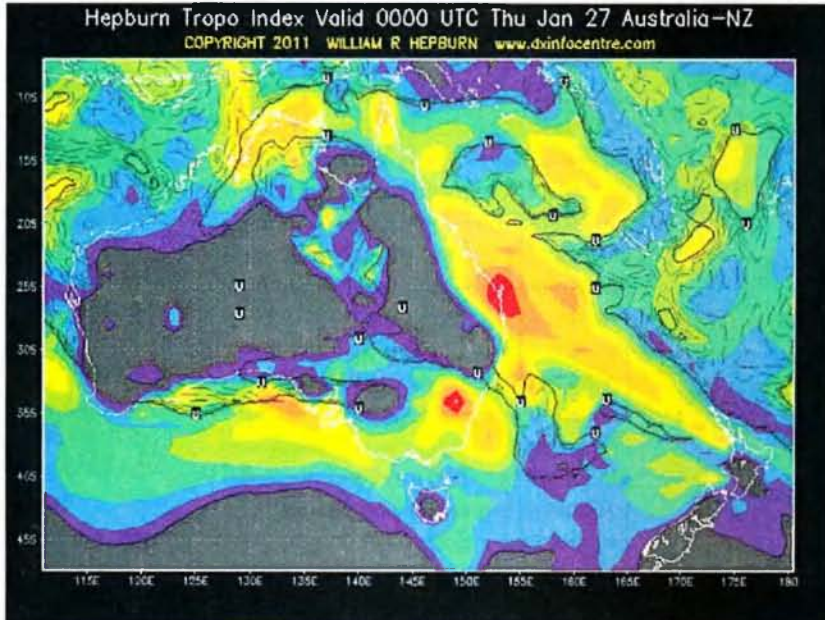


Figure 1: Hepburn Chart shows strong enhancement.

*Adrian and I then decided to test 2.4 GHz. Firstly my 1.15 metre dish was set up. This attaches to my 2 metre antenna mast, which is attached to my tow ball. This dish is fed with the dual mode, 23 cm and 13 cm loop feed as described in a recent DUBUS article. From the rear of the dish, a short length of low loss coax is used to connect to the 2.4 GHz transverter placed also on the tailgate, beside my TS-700A 2 metre radio.*

*With my initial carrier down on 2403.1 MHz, Adrian VK4OX reported it as very weak. This was confirmed by switching off the carrier at my station. My concern at this point, I was not sure exactly where to point my dish. I asked Adrian to provide his CW keyer to me for dish alignment at my end.*



Figure 2: A Rare Sight – 2.4 GHz between VK4 and ZL.

At first I heard nothing, but a few seconds later it came out of the noise on a QSB peak. I quickly panned my dish and his CW signal was now very strong indeed, my dish was now locked on his signal and I continued to watch my S meter in disbelief. Once he switched off his CW keyer, I called him on SSB and completed the QSO and then chatted. We also, of course, logged the contact on the VK Logger (see Figure 2).

My 2.4 GHz transverter is mainly home brew, with kit modules mostly from VK. The transverter itself is from Mark VK5EME of Mini-Kits, along with one of his earlier 1-2 watt PAs and his current 13 cm preamp. TX power is then fed into a VK5KK signal stage GaAs FET PA, which David produced many years ago. Then into two surplus 75 watt Spectrian power modules which are combined with W6PQL 13 cm combiners. The 144 MHz IF radio to the transverter at the time was an ICOM IC-202. I decided not to use my FT-817 at the time. It was a great contact to Adrian VK4OX, on 2.4 GHz that afternoon at 2314.5 km.

Adrian VK4OX writes:

This contact was not pre-arranged. I was watching the logger and Steve ZL1TPH just posted a comment to say that he was going out to RF73hm and would take 144 MHz and 2403 MHz gear. He would not have logger access while portable. 144 MHz had been open across the Tasman for over 24 hours but I thought it was better the

previous day at around 0500 UTC when I worked ZL1AVZ on 144 MHz and heard him on 1296.1 MHz very weakly. No two-way QSO was made on 1296. There were very few ZLs on, so I thought the band was dying.

ZL1TPH/p was very loud at times on 144.300 but took the occasional dive close to the noise floor. 2403.100 was exceptionally good - some QSB, but strong peaks. I managed to record the QSO and the audio file can be found on the VK Logger at: [http://www.vklogger.com/docs/zl1tph\\_vk4ox\\_13cm.mp3](http://www.vklogger.com/docs/zl1tph_vk4ox_13cm.mp3)

I was running about 20 watts at the feed of a 24 dBi Gridpack antenna about nine metres off the ground. I have a VERY good QTH for working across the Tasman. The QSO would not have happened without the logger. The immediacy of the information allowed everything to be set up pretty much on the fly. Alas, I do not have any pictures. All my gear is old technology and my only camera is still a box Brownie. I cannot remember when I last bought a roll of film for it! I do not think I can any more.

This contact established a new national distance record for the 13 cm band of 2314.5 km, eclipsing the previous record of 1885.5 km set way back in 1978 by VK5QR and VK6WG. Unfortunately for Stephen, his record was not to stand for too long as the following morning, Adrian then further extended the record by working Brian ZL1AVZ to set a new record distance of 2317.5 km.

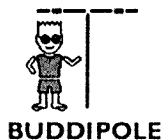


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# The Darwin Invitation

The members of the Darwin Amateur Radio Club are very pleased that the WIA Board accepted its offer to act as the host club for the 2011 WIA Annual Conference.

On behalf of all the amateurs in the Top End I want to invite you to come to Darwin in May for a great weekend with us.

Come and see what it is all about.

Meet with other amateurs from all over Australia.

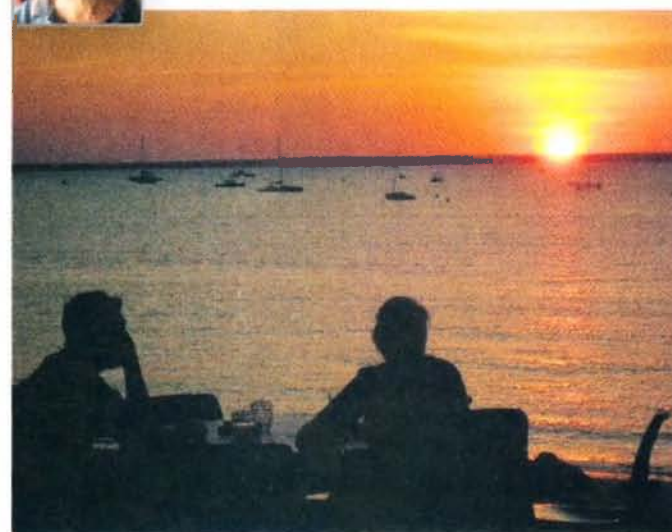
Have a barby and above all else have fun.



**Spud Murphy VK8ZWM**

President

Darwin Amateur Radio Club



## Bookings are now being taken!

Bookings are now being taken for the WIA Annual Conference Weekend in Darwin. Don't delay your preparations, as travel / accommodation opportunities are limited.

**You can now register on-line at the WIA website, or you can register by phone to the WIA office or by completing and mailing, faxing or even hand delivering to the WIA Office the Registration Form that accompanies this edition of AR (it is on the reverse of the address sheet).**

A registration fee of \$75 will be charged. That fee will include morning tea, lunch and afternoon tea on Saturday, transport for Friday evening and, for partners not participating in the AGM/Open Forum/Symposium, a tour of Darwin.

Other costs are:

Darwin Sunset Dinner at Darwin Trailer Boat Club Friday night:	\$55
Annual Dinner, Saturday night	\$50
Litchfield National Park tour and BBQ, Sunday	\$55
Mindil Beach Sunset Market, Sunday evening	\$8

*(You can buy food at the Markets)*

## Program

### Friday 27 May 2011

2 pm to 5 pm	Registration at Travelodge Mirambeena
6 pm	Darwin sunset over Fannie Bay at Darwin Trailer Boat Club, with a buffet dinner

### Saturday 28 May 2011

8 am to 9 am	Registration at Travelodge Mirambeena, with welcome tea and coffee
9 am to 12.45 pm	Annual General Meeting and Open Forum, Mirambeena Room
1 pm to 1.45 pm	Lunch Treetops Restaurant
2 pm to 5 pm	Symposium - Technology for the Bush, including the Centre for Appropriate Technology
6 pm to 7 pm	Drinks
7 pm	Annual Dinner, Treetops Restaurant

A Partners Tour will be available for Saturday, including visits to some of the highlights of Darwin. The cost of that tour will be included in the registration fee.

### Sunday 29 May 2011

8.30 am to 4.30 pm	Tour to Litchfield National Park, including a visit to the termite mounds, Buley rockhole, Florence Falls, with a BBQ lunch and plenty of time at Wangi Falls.
6 pm	The Host Club's event – Mindil Beach Sunset Markets, in a special area.

When you register, we will send you the Essential Top End Holiday Guide, so you can plan what else you will do and then we will also send you, shortly before the Annual Conference, the Open Forum documents.

## Accommodation

There are many attractive hotels offering accommodation in Darwin. The WIA has negotiated a special deal with the Travelodge Mirambeena.

A Standard guest room, with 2 queen beds, for two people, including two buffet breakfasts at \$160 per night.

Executive Room, with a king bed or two single beds, for two people, including two buffet breakfasts at \$180 per night.

Townhouse, self contained, with kitchen and extra beds, for two people, including two buffet breakfasts at \$190 per night.

Travelodge will only hold rooms for the WIA until 30 April 2011.

**The earlier accommodation is reserved, more rooms will be made available.**

### To book:

Call Travelodge Mirambeena at 08 8946 0111 and speak to Aleishia Good or Belinda Anthony, quoting the **WIA Conference**.

Julian Sortland VK2YJS has kindly given us the benefit of noting some of his travelling experiences to Darwin. Some of these include:

As you are hopefully aware, the WIA AGM and associated activities are scheduled for late May in Darwin. You may be wondering if the trip will be worthwhile. I have travelled to Darwin five times since October 2004 to attend a series of conferences for the Library industry, and always had an interesting and pleasant trip, and found the participants friendly. Even during this time the city, especially the CBD and close-by have developed significantly.

The NT is on Central Standard Time (CST) year-round, at UTC+9 1/2 hours.

I have stayed at the Value Inn in Mitchell Street and at the Cavanagh, in Cavanagh Street. The Value Inn is affordable and has free parking. It has a small pool, and access to the larger pool complex at the Melaleuca on Mitchell next door. "The Cav" has somewhat nicer rooms, but access is through the noisy, and often smoky pool area. There are also some very up-market hotels. Several hotels are located in "The Gardens", which while pleasant, is to the north of the Stuart Highway, and so quite a walk from town. Other options range from back-packer hostels to luxury hotels. I have often used the wotif.com website to make bookings. There are also caravan parks along the Stuart Hwy.

There is a motel and a resort at the airport. However, given the lack of route buses, unless you hire a car, taxi fares will soon add up.

The newly developed Wharf Precinct features both an enclosed artificial beach (free) and a simulated surf beach, for which admission is charged. These are within walking distance of the CBD, with the lift down from street level the easiest option. There is some parking. This area also features the WWII fuel storage tunnels which can be toured for a small charge.

**WWII Memorials.** The park to the west of city, overlooking the harbour, features many plaques commemorating ships and their crews, including many sunk during WWII. There are many other sites around Darwin.

**Markets.** As well as Sunday nights, the Mindil Markets run on Thursday evenings. They are very much a multi-cultural experience, with a wide range of foods from around the world. There are also handicraft and souvenir stalls. As sunset approaches, be sure to have your camera ready, as once the sun "touches" the water, it disappears within a minute. There are a number of other markets in Darwin over the weekend.



Australian Aviation & Heritage Museum - Photo courtesy of Tourism NT

These are Palmerston markets on Friday nights, Coolalinga and Parap on Saturday mornings, Rapid Creek early Sunday mornings and Nightcliff late morning and early afternoon. It should be possible to get breakfast at the Parap Village Markets before the Saturday events.

**Australian Aviation & Heritage Centre.** Located on the southern side of Darwin Airport, this museum houses a range of aircraft, including

the only B-52 bomber in Australia (a B-52G), Spitfires, Japanese aircraft, a Mirage, a Huey and a DeHavilland DH 104 Dove from Timor, plus operational and stationary engines, uniforms, displays and a collection of valve radios.

**Parap.** Located a short drive north-east of the City, Parap features the original Qantas Hanger, housing an Automotive Enthusiast collection, and various aviation material. Parap Village is home to Parap Fine Foods and Arafura Catering Equipment. There are a number of restaurants, including the Happy Garden Chinese restaurant.

East Point Military Museum is another WWII historical site, and includes some interesting gunning emplacements.

**Repeaters.** There are a number of repeaters in the Darwin area, including FM repeaters, some IRLP-linked, and D-STAR devices. All give coverage throughout the Darwin region. All repeaters use the traditional offsets. Co-sited FM repeaters appear not to be linked. All D-STAR repeaters are gateways. Remember to suffix your callsign with "portable 8". It may be best to put your hand-held on a laptop tray when going through airport screening. VX-7R antennas evidently appear pointed if left inside your bag.

Portable operation on HF or 6m may provide some interesting contacts into South-East Asia or beyond.

The full text version of Julian's travel notes is available to all registrants upon request. Thank you Julian.



Darwin Wharf Precinct - Photo courtesy of Tourism NT



# Hills Amateur Radio Group (HARG)

**Richard Grocott VK6BMW**

Secretary, HARG Inc



Photo 1: A photo montage of the HARG John Moyle Field Day 2010 activities.

## John Moyle Field Day 2010

CQ Contest, CQ Contest, CQ Contest, The John Moyle is on again. Field day! Pick a spot in the hills away from RF interference and a good vantage point for VHF/UHF into the metro area and beyond.

Mt Gunjin or was that Mt Gungin? Your scribe seemingly had it wrong, so at least one party could not even find it on the map. Well we settled on Mt Gunjin, 300 odd metres above sea level (rising sea levels will not get us up here!). In the forest, with access via some rather dubious gravel roads. Roads? You gotta be kidding! Some travelled in their sedans and utes where only 4WDs



Photo 2: The HARG John Moyle Field Day 2010 site.

should go; it was even mentioned that one HARG member went up the power line track, in his campervan, where only trailbikes and hikers should go.

Well the advance party at least made it to the top, set up a marquee, tables and then thought...power! We need power....mains, solar, battery. We had it all. Cables snaked here, there and everywhere. Antennas went up into the trees; the generator went behind a stump and well away. Well they are noisy things, are they not? Did I say noise? It was the stuff that impinges on the ears we were thinking about. A cry came up from near the HF rig "What's all that noise, turn the gennie off!" That is better. Oh, oh, a fancy, expensive 2000 VA generator and it has a HF signal all of its own. "Let's try this one" was heard. Another generator was connected up, a lesser known

brand! But what is this you hear? I did not hear anything. This gennie does not have an RF signature tune. OK, now we have 240 V, well it was 240 V some of the time! Solar power...plenty of SUN in Western Australia and some nice big batteries.

We are well and truly set. The CQ calls started to go out. Responses came back, numbers? You want a number! Who is driving the laptop? Give him a 59001P someone says. HARG (Hills Amateur Radio Group) were well on their way operating the John Moyle Field Day with the call VK6AHR.

Throughout the 36 hours we had some visitors from local dirt bike cycling clubs, looking for a drink break and showing quite a bit of interest in activities. A few Perth amateurs also made the trip into the forest to observe our setup and progress. More a case of get lost and/or give the GPS unit a work out! Just as well they had 2 metre on-board to start a search and rescue mission.

Did you hear us? Many probably did, some replied. Contacts were lower than expected but we did have a good time and proved HARG can set up a field operation for HF and beyond.

Next year? I am sure we will, listen for us and give us a call, if only to say "hello" and help keep one of the clubs, the essence of AR, alive and well.

Editor's note: This story tells of one Club's participation in the 2010 John Moyle Field Day contest. Perhaps you can use it in planning how you or your club might participate this year...





# An adaptable antenna for portable operation

Henrik Stenstrom VK2HHS and Jim Ayling VK2JA

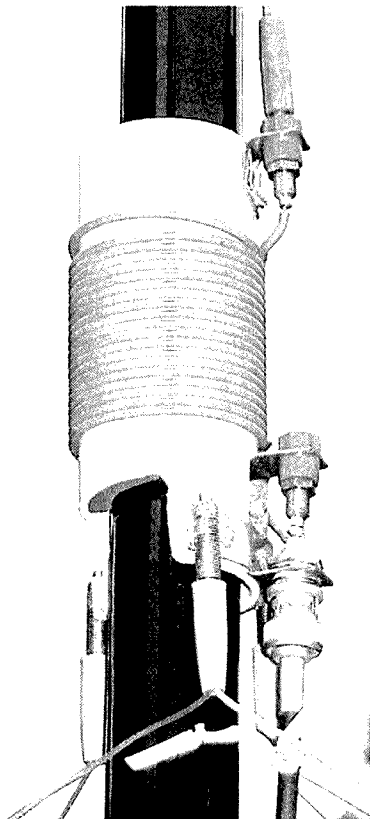


Photo 1: The VK2JA Mark 1 antenna feedpoint.

A recent group purchase organised by the Waverley Amateur Radio Society saw the acquisition of a seven metre heavy duty squid pole and matching 80 cm turf/sand spike pole holder. The intention was to use these for the construction of a portable antenna to be used on field days, holidays and the like. True to well known VK2HHS style, much procrastination took place before deciding exactly what to do with these new purchases.

The prerequisites for the finished antenna were that it had to be uncomplicated, easy and fast to erect without special tools. It should be useable on the most favoured bands of 40 and 20 metres, preferably without a tuner and, further, it should be able to accept 100 watts PEP at a minimum.

As is often the case, inspiration for the final result in the form of a vertical antenna came from the internet. With approximately 7.5 metres to play with (pole and pole holder), a quarter wavelength vertical on 40 metres was out of the question. A quarter wavelength on 20 metres was very much achievable, with only a loading coil required to make the antenna useable on 40 metres.

## The loading coil

It is worthwhile paying close attention when constructing the loading coil as in some ways it forms the heart of this antenna system. Not only does the coil form serve to hold the 40 metre loading coil itself but also serves as the feed-point, groundplane radial and vertical radiator element attachment point.

The former used is a piece of 45 mm nominal diameter PVC pipe 100 mm in length. A 15 mm x 3 mm aluminium strip approximately 140 mm long, bent into a roughly circular shape is attached to the coil form using three M4 screws and nuts, from the inside. This forms the groundplane radial attachment point. The SO239 connector is also attached here using a small bracket bent from scrap aluminium and suitable rivets. An additional two M4 screws form the attachment points between which the loading coil is wound and fastened.

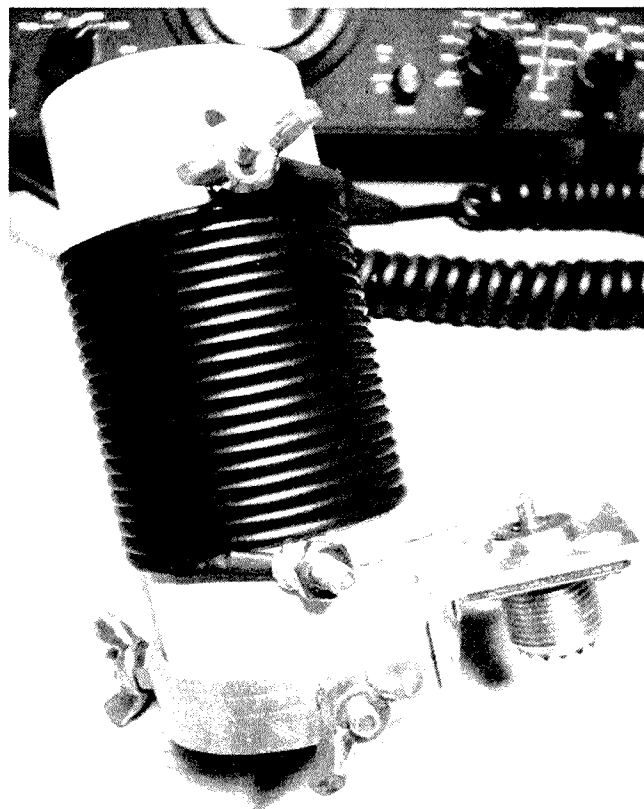
A note on the wire used for the loading coil is required here. I used black insulated 24 x 0.2 mm – Jaycar WH3041. A little more than 2.8 metres is required to wind 20 turns on the former. Terminate an eye connector on one end, then wind the coil before cutting off the excess and terminating the other

end with another eye connector. It is worthy of note that use of wire substantially different, either plastic insulated or enamelled, may require calculation or experimentation to arrive at the correct coil inductance.

## The rest...

... cannot be simpler. From suitable insulated wire, cut six radials 4.9 metres in length and terminate these in pairs with an eye connector. The six ends of the three radial pairs should be formed

Photo 2: The coil assembly.



into small loops using pieces of heat shrink tubing. Cut another 4.9 metre length of wire and again terminate at one end with an eye connector. This will serve as the vertical radiating element. Incidentally, I used Jaycar WH3041 throughout this project. The total requirement is 37 metres which, at \$0.40 per metre, is less than \$15 all up.

Note: For better visibility, especially after dark, the last metre of the ground plane radials could be made from yellow wire or covered with yellow heat shrink sleeving.

### Setting up the antenna

Drive your pole holder into the ground and mount the squid pole. Extend the topmost section of the squid pole and temporarily attach the unterminated end of the vertical radiator with a rubber band or cable tie, leaving 10 – 15 cm loose at the top. Slide the coil assembly over the pole and attach the radiator to the 20 metre connection with the loading coil bypassed. Attach the three radial pairs and the coax feed then extend the squid pole to full length. The radials should be spaced out evenly and pegged to the ground using 'tent pegs' cut from wire coat-hangers. These groundplane radials should be insulated from their 'tent pegs'. Resist the temptation to use the radials as tight guy wires, for in anything other than the slightest of breezes, the squid pole will collapse telescopically back into itself. So leave just a little slack...you have been warned!

Using an antenna analyser or carefully applied low power RF from a mobile HF rig, trim the vertical radiator incrementally for a low/ acceptable SWR at your preferred frequency of operation on 20 metres. The prototype was trimmed to 4.83 metres for a SWR of 1.2:1 at 50 ohms, at 14.2 MHz. Note that minimum SWR and 50 ohm impedance may not fall at the same frequency!

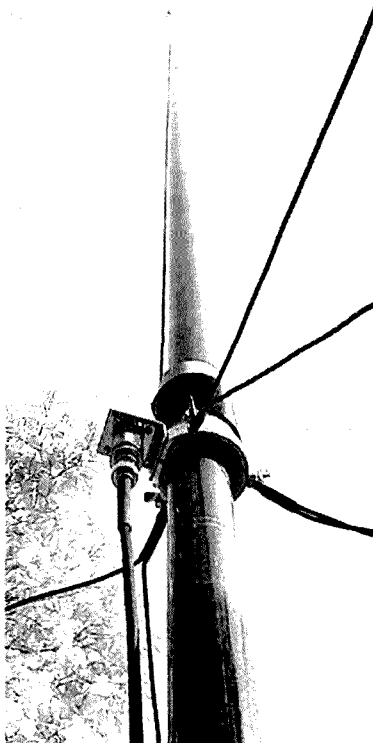


Photo 3: The antenna and coil.

When you are happy with the 20 metre SWR readings, reconfigure the antenna for 40 metres and check those. As can be seen in the photos, the original loading coil was first wound with more turns than required; this number was subsequently reduced to twenty. This gave a SWR of 1.3:1 on 40 metres initially, which was improved by slight pruning of the radiator by another 2 cm. SWR is now at or below 1.2:1 over segments of interest on both the 40 metre and 20 metre bands.

Operation on other bands is certainly possible. A tap could be added in the 40 metre loading coil for operation on 30 metres or a supplemental coil added for 80 metre use. Experimental determination of the requirements to enable this should not prove too difficult.

### Proof of concept

Fellow Waverley Amateur Radio Society member Jim VK2JA

volunteered to construct a second antenna to test proof of concept and repeatability. His Mk I was put together in less than an easy afternoon's work and gained a contact into Hawaii on its first test! Following this electrically identical but mechanically simplified version, Jim advises that his Mk II is now under construction.

### Performance

The prerequisites for this antenna have been well and truly met. Erecting the antenna takes less than ten minutes and performance has proven to be very good. Over the holiday break, it was taken away to VK3 and used portable in various locations. Good contacts into Japan, Italy and the Canary Islands were made on 20 metres in the late afternoons. The antenna also performed very well on 40 metres netting multiple local contacts out to 1500 km or so in the evening hours.

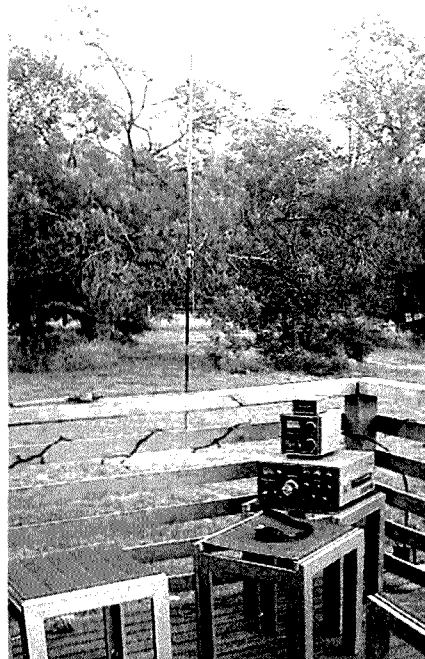


Photo 4: The completed antenna doing duty in the field.

# It all started just on 100 years ago

## A review of the 100<sup>th</sup> anniversary celebrations

### The Centenary Celebrations Committee

It all started just on 100 years ago when on 11 March, 1910 a meeting took place between like-minded radio enthusiasts at the Hotel Australia in Sydney.

There, a group was formed, initially known as the Institute of Wireless Telegraphy of Australia. A similar organisation took shape in Melbourne about a year later, known as the Amateur Wireless Society of Victoria. Like-minded organisations were gradually established in other Australian states, and in time these groups all became Divisions of a federated organisation known as the Wireless Institute of Australia.

Over the years, further restructuring took place. Now the national Wireless Institute of Australia, a single body continues to represent the interests of all Australian amateur radio operators.

Throughout last year, clubs, individual amateurs and the WIA celebrated *100 Years of Organised Amateur Radio in Australia* - a direct consequence of the foresight of the early experimenters in Sydney. Indeed, the formation of a determined negotiating body which finally became the Wireless Institute of Australia was probably due to the frustrations of individuals who sought permission to experiment with wireless transmission and were delayed or denied a licence by the authorities. A 'WIA' could apply a greater pressure than that possible by any individual!

So in recognition of what transpired over the past 100 years, it was considered appropriate that Centenary Celebrations were in order!

### WIA Centenary Celebrations - the vision

Conceptual planning to celebrate 100 Years of Organised Amateur Radio in Australia commenced in 2008, and in April, 2009 a brief outline paper prepared by David Wardlaw and Peter Wolfenden was presented to the Board of Directors. This included a brief review of the 75<sup>th</sup> Anniversary celebrations including aspects considered applicable to any the forthcoming 100<sup>th</sup> year event; they were:

1. A **celebration** - a time for amateurs to come together, enjoy each other's company and remember their past achievements.
2. A time to gain **publicity for our hobby** and educate the public.
3. An opportunity to further **add knowledge to our history**.

The Board gave its approval and a small Centenary committee was formed, made up of individuals with experience in the areas that needed to be developed. David Wardlaw VK3ADW headed up the group as Chairman, Peter Wolfenden VK3RV undertook the history and archive research project, Jim Linton VK3PC acted as Centenary Media Officer and was responsible for much of the media aspect of our preparations, whilst Robert Broomhead VK3DN organised the promotional merchandise, website development and arrangements for the Centenary Weekend. Most issues involved the collaboration of all members of the committee.

The committee faced many challenges and hurdles, most were overcome, however a few ideas were simply not possible to implement. In the true spirit of the hobby many members stepped forward to assist the committee in a multitude of practical ways. It is true to say that these individuals are the 'unsung heroes' of the success of the year's activities - and there were hundreds of them!



*Photograph taken during the IARU Region 3 meeting held in Canberra during the days leading up to the Centenary weekend of activities.*

These members (and a number of non-members) really got behind the celebrations and finally made it all work so successfully. The commercial suppliers generously made available equipment and commemorative memorabilia. They also met some of the costs. Their involvement is greatly appreciated.

A detailed report of all the centenary activities would be almost impossible to achieve within the space available in this magazine article. Many activities have been reported in their own right in various articles published in *AR* over the last 12 months and we would like to acknowledge and thank the many authors for their contributions.

In this article the Centenary Committee aims to present what we feel are a number of key highlights.

### Tangible results

The committee called upon the creative skills of Ivan Smith from Communiqué Graphics to undertake the development of the special Centenary logo.



*The very first Centenary award issued being presented to John Fisher VK3DQ by WIA President Michael Owen VK3KI.*

After viewing a number of choices Ivan had provided, the committee made its final decision and work commenced on the development of the Centenary Poster, QSL card, Centenary Award and Centenary merchandise.

One item the committee was very passionate about was the release of a commemorative postage stamp and so we were extremely disappointed when we learnt that Australia Post had not accepted our proposal to produce such a stamp. Despite the committee's best efforts and despite the fact that we completely fulfilled Australia Post's requirement criteria, regrettably we were unable to change their decision.

In October, 2009 the appearance of a news release on the WIA website announced the many activities that were being planned for the 2010 Centenary year.

*Dick Smith VK2DIK giving weekend participants the story of his around the world helicopter flight.*



This along with the availability of Centenary merchandise that could be purchased through the WIA's online store saw enthusiasm begin to build among members. By the end of January, 2010, the online registration form for the Canberra weekend was available via the website and within days people began registering for the weekend. The announcement that the Friday evening Telstra tower

technical tours had been confirmed and the subsequent announcement that Dick Smith had accepted our invitation to speak at the Saturday evening dinner plus the Sunday afternoon BBQ at Dick's property saw registrations simply pour in.

The WIA website played an important role in communicating information about the Centenary and developing an interest in the planned celebrations.

The January/February issue of *Amateur Radio* saw the commencement of a series of historical articles written by Peter Wolfenden. Entitled: ***Arena of Wonder*** (a quote from George Taylor's press release on the formation of the Institute), the articles helped to explain the early days of

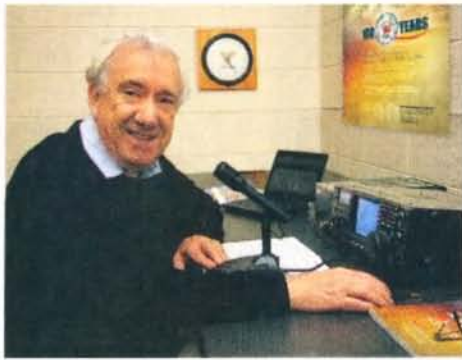
organised amateur radio in Australia and provide readers with an insight to those who went before.

The release of the distinctive ***Centenary poster*** resulted in a lot of positive feedback from members, incorporating some fascinating imagery of early wireless experiments provided courtesy of the Waverley Amateur Radio Society. The especially themed Centenary artwork was used in a number of places during the year, including the VK100WIA QSL cards, the Centenary Award and the 2010 Call Book. The range of ***Centenary Merchandise*** available from the WIA became extremely popular. Vests, caps, hats, jackets, shirts and other memorabilia were sold in the hundreds. A CD ***The Sounds of Amateur Radio Volume 2*** was released and ***The Sounds of Amateur Radio Volume 1*** (1985) originally on cassette tape was re-mastered and also released on CD. Another CD containing PDF copies of ***AR Magazines 1933-39*** was re-issued. These CDs will be available on an ongoing basis from the WIA Bookshop.

A special callsign, ***VK100WIA***, was proposed by the committee and after much discussion and correspondence with the ACMA through WIA President Michael Owen VK3KI, it was announced that the callsign would be made available to the WIA for a six month period to be used by nominated affiliated clubs. An online registration

*WIA AGM weekend participants enjoying the presentation in Dick Smith's aircraft hanger (Toy Shop).*





*WIA President Michael Owen VK3KI making the very first VK100WIA on air contact with Geoff Atkinson VK3TL.*

form was placed on the website and clubs selected from the calendar a three day operating window, creating a fair and equitable way to share the callsign among the clubs.

There is little doubt that VK100WIA had a major impact on our hobby. From May to October, 2010 it was on air almost continuously, operated by over 50 clubs around Australia. The WIA website *VK100WIA online log*, recorded 24,460 contacts during this time and over 100 countries made contact with *our* special callsign.

The **Centenary Award** also proved popular with over 380 certificates awarded to the end of December, 2010 and further applications in January. Both VK100WIA and the Centenary Award have been very successful, resulting in the reactivation of many stations within Australia, generated a lot of interest from overseas amateurs and raised activity and interest levels within clubs.

## Gaining publicity

The WIA Centenary Committee recognised the importance of making a professional *Media Kit* available to the clubs to ensure that those engaging with the media during the year had suitable resources to draw upon. The comprehensive kit prepared by Jim Linton VK3PC, included a template media release, background sheets on amateur radio and the WIA, plus a **how-to guide for clubs**. The WIA National Office posted out these kits approximately a month before each club's rostered VK100WIA slot and followed up each club with reminder emails.

It was very pleasing to see the media releases adapted with club information appear in so many newspapers and result in radio and television interviews. Undoubtedly the level of media coverage achieved right across Australia is something we have not previously seen. Hopefully the exercise in promoting the Centenary will have a long lasting influence on the way radio clubs think about promoting themselves and amateur radio in the future.

A decision was made to appoint a **Patron** to help promote the celebrations to the general public – someone who would be able to provide a 'public face' for amateur radio. Dick Smith VK2DIK not only volunteered his services as Centenary Patron but in the ensuing Canberra AGM/Celebrations in May, 2010, opened his private flying club, museum and barbeque facilities to us. As it transpired, this was a wonderful, awe-inspiring and unforgettable experience for all of those attending the weekend in Canberra including the representatives of international radio societies.

## A national formal celebration

The location, structure and timing for the **formal celebration** were major tasks. Robert VK3DN conducted much of the 'field work' with a number of visits to various locations and venues to seek out the most suitable that met our requirements. Facilities included not only the usual accommodation, dining and meeting/lecture facilities but also the requirement for a dedicated 24/7 radio room for an amateur radio station together with access to a suitable roof for antennas with access permission to mount an array of antennas. There were additional requirements for a proposed ARISS contact planned to take place during the Saturday evening dinner.

It was decided to hold the special celebrations combined with the WIA AGM in Canberra, the nation's capital, which is reasonably central to the majority of amateurs in Australia. A bonus was that the IARU Region 3 was able to schedule their Annual Directors Meeting to coincide with the celebrations thus enabling a significant international presence at our Centenary celebrations.

The vision of a **National capital event**, designed to provide a number of interests for each person attending – including partners and families, gradually crystallised. The Canberra weekend was considered by many as a real highlight of the Centenary Celebrations. The weekend was based on the format of past **WIA AGM weekend of activities**, and expanded with many other facets including an opportunity to recognise our history. The **WIA AGM weekend of activity** theme, run for a number of years, has promoted a weekend with activities of particular interest to the radio amateur, so it was a unique but fortuitous coincidence that one of Canberra's most famous technical landmarks, the **Telstra tower** was celebrating its 30<sup>th</sup> Anniversary in the same month as the WIA Canberra weekend. The technical tour of the tower became a memorable element in the weekend's program and was followed by dinner in the tower's Alto revolving restaurant with spectacular views over Canberra.

Thanks are extended to Telstra and property management for making the once-in-a-lifetime technical tours possible.

*Gopal Madhavan VU2GMN, IARU Region 3 Director and President of ARSI, operating the VK100WIA station at the station set up at Rydges Hotel Canberra during the Centenary weekend of activities.*



During the Saturday morning the WIA conducted its **AGM** followed by the presentation of awards and the **Open Forum** which included reports on all WIA activities over the year and providing the opportunity for questions and comment from members.

The **historical presentation** held throughout the Saturday afternoon at Rydges Hotel was an outstanding success brought about by the number and quality of the guest speakers and their subject matter which ranged from history, through construction techniques, ladies in amateur radio, to an overview of future developments in communications techniques. Oh, and the cat's whisker was in there somewhere also!

The **Centenary Dinner** featured a message from the Chairman of the Australian Communications and Media Authority, Chris Chapman; the Centenary contact with the International Space Station and Dick Smith VK2DIK as keynote speaker. The evening's events went off without a hitch. Astronaut and Flight Engineer Tracy Caldwell-Dyson KF5DBF delivered a congratulatory greeting to the WIA and all attending the dinner at the commencement of the ISS contact. Tracy then answered questions from ten students from Trinity Christian School: an evening the students and their Principal, Carl Palmer VK2TP/VK1TP, will not forget for a long time!

To conclude the evening, representatives from a number of international Radio Societies delivered messages of congratulations to the WIA and gifts in recognition of the occasion.

International visitors included: Tim Ellam VE6HS President, International Amateur Radio Union, Professor Joong-Geun Rhee HL1AQQ Director IARU Region 3, Peter Lake ZL2AZ Director IARU Region 3, Gopal Madhavan VU2GMN Director IARU Region 3 and President Amateur Radio Society of India, Shizuo Endo JE1MUI Director IARU Region 3, Keigo Komuro JA1KAB representing The Japan Amateur Radio League, Isamu Kobayashi JA0AD representing the Japan Amateur Radio League, Panayot Danev LZ1US representing IARU Region 1, Roy Symon ZL2KH President NZART, Vaughn Henderson ZL1TGC

*ARRL president Kay Craigie N3KN making the very last on air contact for VK100WIA with WIA President Michael Owen VK3KI.*



*The WIA Broadcast team conducting the very first live WIA broadcast held during the Centenary weekend of activities. At the microphones from left to right, Graham Kemp VK4BB, Phil Wait VK2ASD and Michael Owen VK3KI.*

NZART Councillor and Jay Bellows K0QB International Affairs Vice President ARRL.

On Sunday morning, the weekly VK1WIA news broadcast was transmitted live from the radio room at Rydges Lakeside Hotel. Simultaneously recorded, it was also uploaded to the WIA website shortly after the broadcast concluded thereby making it available for retransmission around Australia and the world. This very 'first' live broadcast VK1WIA news was anchored by Graham Kemp VK4BB with live appearances by WIA President Michael Owen VK3KI, Vice President Ewan McLeod VK4ERM, Secretary Geoff Atkinson VK3AFA, WIA Manager Mai Brooks VK3FDSL, Director Philip Adams VK3JNI, Director Peter Young VK3MV, Director Bob Bristow VK6POP, Director Phil Wait VK2ASD and Jim Linton VK3PC representing the Centenary Committee.

Following the broadcast, the focus moved to Dick Smith's Gundaroo property, where a wonderful day was enjoyed by all.

Sincere thanks are extended to the members of the *Canberra Region Amateur Radio Club* for their assistance during the weekend and to the management and staff of Rydges Lakeside Hotel for providing the venue and meeting our somewhat unusual requirements.

## Legacies of our 100th year

Whilst the formal Centenary Celebrations are now well behind us, a number of **legacies of the year** remain. Some of these are in the form of new friendships and stimuli for clubs, but there are others which are the result of the combined efforts of many people over the years.

The sorting of the many uncatalogued documents held by the Institute has enabled an **embryonic Archive to be established** at the national office in Melbourne. One early project undertaken is the scanning of all callsign listings and callbooks from 1912 onwards.

Although this is still a 'work in progress', it has already paid dividends for the Institute which can now, from searchable PDF files, relatively easily answer enquiries about licensed amateurs – usually from family historians.

Another major ongoing result of the year's celebrations is the wonderful response to the 'Call for Historical Articles' in *AR*. This resulted in many submissions, some of which have already been published. Other very interesting and significant articles will follow and all material will be indexed and added to our archive for use by future researchers.

We can all be part of the on-going Centenary Celebrations of Organised Amateur Radio in Australia, by contributing historical material to the WIA Archive - a true legacy of our 100th year!

Another significant on-going aspect of the celebrations is the **availability of media help**. If you have not already done so, check out the 'VK100WIA Club & Media Feedback' section on the WIA website. A request for a special media release has in the past been received from a few clubs, but most felt comfortable preparing it themselves by drawing on the media kit. Having done this for the Centenary, there is no reason why a club cannot do it again in the future - such as for the National Field Day, this year entitled '*Amateur Radio, The First Technology-based Social Network*', to be held on 17 April, 2011.

Clubs are also now aware of the need to have knowledgeable, friendly and well groomed ambassadors, if possible across a wide demographic and of both genders, to give a positive first impression to any members of the public attending a club event.

Helping to raise the public profile of local radio clubs is another legacy of the Centenary celebrations.

## A constructive year for amateur radio in Australia

In summary, the real significance of 2010 has been much more than the events and images. It was a very friendly and constructive year. A year when many felt proud to be a radio amateur, and proud of the WIA and what it has achieved over the years. 2010 was a year that rekindled an interest in amateur radio for many people, generating a new pride, new interest, and new enthusiasm. Long may it continue!

We sincerely appreciate the generosity of all who

*Australia's newest Radio Club (at the time) the Macedon Ranges Amateur Radio Club operating VK100WIA from their clubrooms.*



contributed to make the Centenary Celebrations such an enormous success. There were many people who made it all possible - especially our Patron, Dick Smith VK2DIK, a wonderful and generous person.

It was definitely not just the work of the four committee members. At times officers of the Institute assisted the committee in the planning and implementation work. People like Michael Owen VK3KI, President, Geoff Atkinson VK3AFA, Secretary, John Longayroux VK3PZ, Treasurer, Peter Freeman VK3PF, *AR* Editor, and the other WIA Directors, not to forget the office staff in Bayswater!

The guest speakers at Canberra who all did a most outstanding job of their presentations, are worthy of special praise, as are the Canberra Region Amateur Radio Club members for their assistance, including the bus drivers and private car owners who helped with transporting guests. Those club members who helped so ably in providing appropriate publicity to local media and radio stations as well as the outstanding work of our own broadcast co-coordinator/announcer, Graham VK4BB and Clubs Co-ordinator Ted VK2ARA.

The efforts of local radio clubs which contributed in so many ways were major players in the year's activities. Some organised special events or re-enactments, like the Gippsland Gate Radio and Electronics Club, or the involvement with the public *Science Alive* activity in Adelaide. *Super Spring Time* in Perth was a real co-operative event involving a number of clubs. The dedication of the '*Dural Shed*' in Sydney and the '*Neil Penfold Centre*' in WA will provide a continuing long term focus for many amateurs. It is appropriate that these two significant facilities were opened this year. In Tasmania, Justin VK7TW also conducted multiple radio interviews publicising both amateur radio and his club's VK100WIA operation from the Domain. Many, many others contributed in a multitude of ways to their hobby and their community this year.

This list could go on and on. But the most important people of all this year are the individual radio amateurs who joined in the spirit of celebrating 100 Years of Organised Amateur Radio in Australia. Thank you all for your time and interest; it was a worth-while year!



## Centenary Video

The *WIA Centenary Video* is being made available for purchase by members.

The high quality twin DVD boxed set includes footage from the Centenary Dinner, Historic Presentations & Sunday's visit to Dick Smith's property.

Register to reserve your copy today by simply going to the WIA website and complete the registration form under "News & Events" - "Centenary Celebrations".

# My RFI experiences

James Fleming VK4TJF

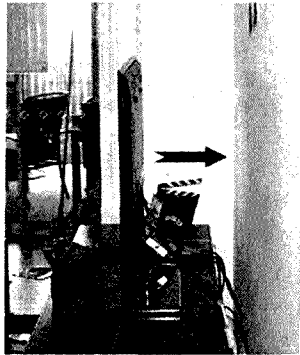


Photo 1: The TV, very close to my shack.

Hello from VK4TJF. I'm going to let you in on my RFI experiences in the hope that, unlike me, you don't have to stay up at night and think about what to do when you're causing interference and your neighbour or XYL is unhappy about it.

My RFI problems began when I started to operate HF radio. The first problem I discovered was interference into my neighbour's phone while on 20 metres SSB. Wrapping the phone line around a ferrite rod cut the interference in half. The other half was solved by giving my phone to them. Yes, all phones are *not* created equal when it comes to picking up stray RF. I could also have used some commercially made RF filters that plug into the telephone line. It seems that a few bypass capacitors could solve the telephone RFI issue, but many of the companies that manufacture the phones do not bother to have them in the phone circuitry.

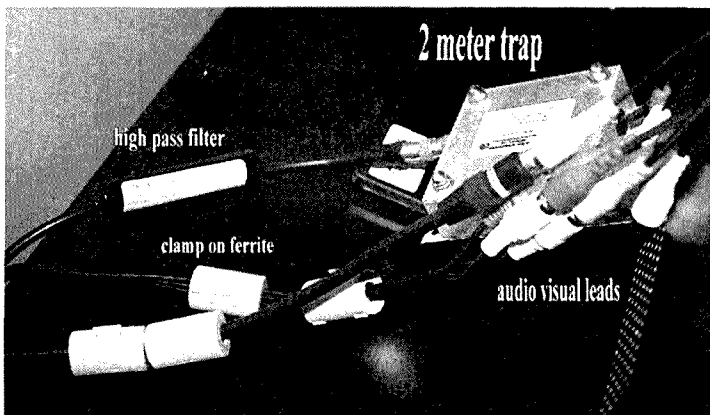


Photo 2: My two metre filter and ferrite trap.

After the phone issues, my other neighbour stated that I was causing interference to her speakers when I operated on 10 metres. At the time I was running 100 watts through a dipole antenna. I looked at her set up, and the speaker leads looked like the size of a perfect 10 metre antenna. So again I used some ferrite rods and wrapped the speaker leads around them; and this fixed the problem. I live very close to my neighbours in a small suburb. We all live on about 500 square metre lots, so very tight quarters.

Now we will move on to my TVI issues. I used to have an electron tube TV and used the free to air antenna to pick up a couple of channels that I could not pick up on the satellite dish. When I installed a three element Yagi on 2 metres I caused some TVI. This was solved by changing the polarization of the Yagi from horizontal to vertical and installing a 2 metre trap filter in series with the lead to the TV antenna. I could have used a piece of transmission line 1/4 wave length long on 2 metres and open at the end. This would have provided a low impedance for the 2 metre signals and the signal would be absorbed by the transmission line and not the TV.

To combat any problems with my HF transmissions, I have a high pass TVI filter in series with the TV antenna to block the 0-30 MHz signals and pass the television signals. On my HF antenna feed line I have a low pass filter

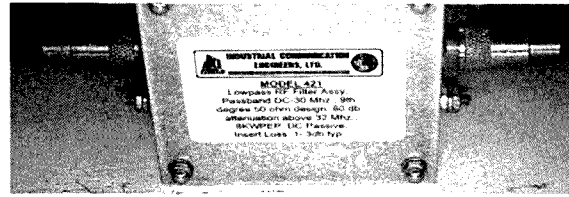


Photo 3: The ICE Model 421 HF low-pass filter.

to pass the 0-30 MHz signals and block any higher frequency signals.

Very recently I purchased a new LCD TV and you guessed it, more TVI. First, while operating CW I was turning the TV on and off! A couple of clamp-on ferrite beads on the power cable helped with that. I put them on the power board lead that plugs into the wall and also on the power cord of the TV. Now I was still getting into the sound and visual part of the TV. So I put some clamp-on ferrites on the audio and visual leads going into the TV. I must admit that most of my problem is that my station is about one metre away from the TV. However now I can run 100 watts through a mini beam antenna, on CW, and my XYL can watch TV at the same time.

So hopefully now you know what may help! Mostly ferrite, some transmission line and perhaps a few filters.

The clamp-on ferrite beads and ferrite rods can be purchased at Jaycar Electronics.

The TV high pass filter I got from Rippletech Electronics, part number HPF-50-55.

The other filters that I have are from Industrial Communication Engineers.

The one on the TV is a model 437B, a high pass filter that is wide spectrum passing all frequencies 54-500 MHz but with a 2 metre trap for 144-148 MHz.

Between my HF transceiver and antenna is a HF lowpass filter model 421. This filter has deep notching using a Chebyshev design.



# Delta loops and Quad loops and inverted vee dipoles

Felix Scerri VK4FUQ

Although this general antenna investigation seems never-ending, I have taken off on a different tangent and in recent times have been investigating the humble Delta loop, a loop configuration that was my first 'loop' antenna way back in the midsixties (lots of 'interesting' memories back then). In more recent times my investigations have centred on one wavelength Quad Loops configured as a diamond shaped loop, but a number of interesting possibilities have prompted me to have another look at the equilateral Delta triangle loop. I am glad I did!

Of all the loop 'shapes', at least according to theory because of reduced enclosed area, achievable gain is lowest compared to a square or diamond loop shape by about 0.5 dB. Certainly looking out my window here in the shack the Delta loop 'looks' smaller than an equivalent diamond Quad loop, however close comparisons have not shown up any noticeable performance difference at least in terms of 'gain'. Moreover, the Delta loop has certain other advantages that the Quad or diamond loop shapes do not (more on this later).

My recent evaluations with the Delta loop have made me realise that there are other important aspects to antenna behaviour than just 'gain': radiation angle, for example. The two references at the conclusion of this article are mandatory reading in showing the possibilities afforded by specific feed point positions. My own observations are in close agreement. I have tried top feeding with horizontal polarisation (of an 'apex' up Delta triangle), along with the 'quarter wavelength' vertically polarised feed position. The effect of the different feed point positions

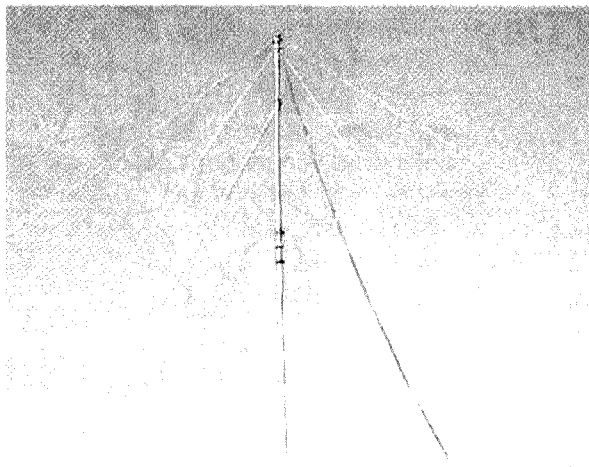


Photo 1: The inverted vee on top of the Delta loop, at their apex, and both on 20 metres.

is almost like having two different antennas in one! The difference is almost unbelievable, and in fact the amazing DX/low angle performance of the Delta loop when vertically polarised has made me realise that for working around VK, the Delta loop fed in this way, at least on 20 metres, is too 'good', at least from this QTH. Feeding at the top, giving horizontally polarised high angle radiation was much better around VK, although some observed anomalies are yet to be explained. During this test period a simple half wave inverted vee dipole was found to be the best of all for 'local' around VK working with presumably reasonably high angle horizontally polarised radiation, being at a top height of about half a wavelength.



Photo 2: The Delta loop feed point.

However on extended distance working, the Delta loop with the quarter wavelength vertically polarised feed point absolutely shines in frequently dramatic fashion. Eventually, on my pipe mast I was able to place at the top my half wave inverted vee dipole with my apex up Delta loop about 15 to 20 cm beneath and as far as I can tell, there is minimal interaction between the two antennas. It is amazing to switch between the inverted vee and Delta loop (vertically polarised), and observe the signal level difference on local

and more distant signals. The inverted vee is always better on 'local' signals and the Delta loop is always better on 'DX' signals. This was the same observation when the two antennas were used separately. The best of both worlds? Yes, I think so!

As an aside, for general short wave listening the difference between the two antennas is even more apparent. Listening to the BBC World Service on the Delta loop, on 15.310 MHz (not too far away in frequency) is, most of the time, beautiful clear copy with good signal strength whereas on the inverted vee it is much poorer copy in terms of general readability and strength, and the same sort of situation exists with the time signal station WWVH from Hawaii, on 15 MHz. At the other extreme, Radio Australia from VK3, on 15.240 MHz, is much better copy on the inverted vee. By the way, all antennas 'look' in the same directions. Aren't antennas interesting? Yes!

## References

1. <http://www.isy.liu.se/~mj/HAM/ANT/nabla.html>
2. <http://www.thebrowns.fsnet.co.uk/20mdelta.htm>



# Amateur radio - The first technology-based social network

Philip Adams VK3JN1

## WIA National Field Day

On Sunday 17 April 2011 radio clubs from around Australia will be demonstrating amateur radio to the public in prominent locations. This activity, now in its second year is the ideal opportunity to promote the hobby of amateur radio and your club to the wider community. The date selected for this year's WIA National Field Day is close to IARU World Amateur Radio Day, 18 April and it is anticipated that by aligning with World Amateur Radio Day it will provide many opportunities for interesting and newsworthy stories. The IARU have announced the theme for the 2011 World Amateur Radio Day to be "Amateur radio: The first technology-based social network". Coinciding with the IARU celebration, the WIA has therefore adopted "Amateur radio: The first technology-based social network" as the theme for the 2011 WIA National Field Day.

Rules and guidelines will be shortly published on the WIA Web site and in AR magazine.

### Promoting amateur radio

Clubs are encouraged to highlight 17 April on their calendars and to start considering eye-catching locations. The event is a public relations exercise aimed at the promotion of Amateur Radio and your club. To maximise the effectiveness of your display, it is helpful to have a friendly well presented person out front of the display to greet visitors and to provide an easy to understand explanation of what is being demonstrated. You may wish to highlight or label your field day equipment, promote emergency communications preparedness, and consider promoting your club's training and assessment capabilities.



## AMATEUR RADIO GETS PEOPLE TALKING

Whatever your club or group chooses to do, it is most important to plan the display in a way that engages the public.

### Catching the public's attention

Colour and movement will help to attract attention. The WIA Calling CQ posters are freely available to all participating clubs and groups – perhaps consider mounting these eye catching posters around your display. Has your club the capacity to run your station on solar or wind power for the day? The safe installation of a wind generator, an array of solar panels or generator could be just the thing to attract attention.

### Where to locate your display station?

An ideal location is somewhere with passing foot traffic. Consider approaching your local shopping centre for permission to set up in the car park. Does your local community have a sports complex that runs hot on Sunday? Does the date

align with a local festival or school fete? Can you encourage your local Scout group to run a sausage sizzle, just the ideal opportunity to invite the participants while they enjoy a snack? The opportunities are endless. Are you up to the challenge?

### Promoting our hobby

Be sure to emphasise how much easier it is to enter the hobby through the Foundation licence. The ongoing development and education of young people through involvement in amateur radio may attract the education minded. This is your club's opportunity to recruit not only new applicants for your training courses, but also club members. Be mindful to keep explanations simple, be careful not to scare or confuse people with too much technical jargon.

The public face of amateur radio will be on display, and so too is our professionalism. Ensure the appearance of both display and coordination of people manning are

a good reflection of the hobby and of your club. The use of National Field Day branded clothing will help lift the presentation.

Excellent operating procedures and tolerance will be on display. We wish to generate as much positive public exposure (and traffic on the bands) as possible. Local repeaters, IRLP or EchoLink can play an important part in keeping something happening. A good clear signal will impress the public far more than a signal that is difficult to understand with an RS of 31. The safety of the operators and general public is critical during station setup, operation and packup. Ensure that all cabling is well secured and is not a trip hazard. Electrical safety is essential and many venues will insist that mains equipment and cabling has been tested and tagged.

Remember your audience, for young people, sound and visual activity is important. IRLP, EchoLink, Slow Scan TV, ATV, colour and movement will appeal to the younger audience. HF may be interesting,

but the noise should not dominate the activity. Radio direction finding is very popular, if you have the room to safely run it. Get people involved without being intimidating. Over the next 10 years, most of the Baby Boomers will officially retire. They will be looking for new hobbies and challenging activities to keep their minds active. Add the following generation, "Gen X's" who now are facing empty nests with a few spare dollars and a spare room at home. What an opportunity for amateur radio. Our WIA 100 Year Centenary may be interesting; our display should equally show the future.

**Frequencies and modes**

Frequencies and modes of operation will be in accordance with the current WIA Band plan. Clubs are invited to demonstrate technologies including SSB, Morse code, various digital techniques (such as D-STAR, Slow Scan Television, RTTY, PSK31 and WinLink), IRLP, APRS, EchoLink and even amateur radio via satellites. PC based modes will appeal to the

younger generation. Remember to keep your discussions simple.

**Promotional clothing**

The WIA's promotional clothing helps to create a strong bond between the many amateurs who will be participating in the event as well as draw the attention of curious prospective radio amateurs through the highly visible graphic. Hoodies, T-shirts and polos will be available in sizes Small, Medium, Large, XL, 2XL and 3XL.

**Posters and banners**

The WIA's Calling CQ posters and event brochures will again be made available to clubs and groups participating in the National Field Day. In addition, we will be releasing the "Amateur radio - The first technology-based social network" artwork with unique logo developed to help promote this public event.

**Register Online Today**

Online registration for your group and chosen venue is now available via the WIA website.



EASTERN AND MOUNTAIN DISTRICT RADIO CLUB INC.

# WHITE ELEPHANT SALE

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Entry \$6.00 per head

**Sunday 13 March 2011**

Table space \$18.00 - 6ft  
\$20.00 - 8ft  
(included entry for one person)  
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03 9005 9251  
or email  
wes2011@emdr.com.au  
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# Dual Centenary plus celebrated at Ipswich

## Wireless Institute of Australia Centenary & City of Ipswich 150 Years as a municipality

*Michael J. Charteris VK4QS*

President  
Ipswich & District Radio Club  
Chairman, Queensland Advisory  
Committee, WIA

Some months ago now, on October 31 2010, there was a gathering in the form of a BBQ, of quite some social significance. Namely, Mr. Paul Pisasale the Mayor of Ipswich, Mr. Ewan McLeod Director of the WIA, Mr. Andrew Antoniolle local Ipswich Councillor, and the members of the Ipswich & District Radio Club. The occasion for such a celebrated gathering was in fact to embrace the Centenary of the Wireless Institute of Australia with our City's milestone, the 150th Anniversary of the City of Ipswich as a municipality. A noble cause such as these events saw us embrace our City and its citizens in such a combined embodiment of both Radio and Community.

The Ipswich & District Radio Club honoured our wonderful Mayor, Mr. Paul Pisasale by inducting him into the Club as a Vice President for Life. To enlighten him as to the history of amateur radio in Queensland, the President, Michael VK4QS, presented Paul with a copy of the now legendary book, *Halcyon Days*,

by the George Taylor Medalist, Mr. Alan Shawsmith VK4SS, recently SK.

The WIA was represented on the day by Director Ewan McLeod, who kindly presented the Mayor a Centenary polo shirt, badge and hat. The Mayor enthusiastically donned the WIA uniform which can be seen in the photo supplied. In response, Paul spoke to those gathered in regards to the very special role Ipswich amateur radio operators have played in the history of Ipswich, especially in terms of community involvement and in times of disaster.

Councillor Andrew Antoniolle then spoke to those gathered, and presented a large framed Certificate of Appreciation from the Ipswich City Council to the members of our Radio Club for all their community involvement over the past 50 years. Ipswich as such first had an amateur radio club in 1924, thus covering some 86 years of history in the community. Then to the great surprise of all those present, the Mayor announced that he would be granting the Ipswich and District Radio Club a Community Donation to the sum of five thousand dollars for the purchase of new radio equipment. Well you could

have heard a pin drop, followed by a resounding applause from all present.

The festivities then moved forward with a tasty BBQ, kindly cooked by our Club Secretary, Jamie Ware VK4JY, now Dr. Jamie Ware Ipswich Hospital, and the Club President's wife Lori Charteris. The day was topped off with a large chocolate cake, specially iced to reflect the significance of both anniversaries being celebrated.



*Photo 1: Ipswich and District Radio Club president Michael Charteris VK4QS (left) presents Ipswich Mayor Paul Pisasale with his honorary vice president certificate and a copy of the book *Halcyon Days*.*

I would like to thank all those members of the radio club involved in this very successful day. It goes without saying, that without a dedicated group of good people behind you, nothing is ever achieved. I am most fortunate in this regard to be surrounded by positively motivated community spirited amateur radio operators here at Ipswich.

For all those who have taken the time to read this article be aware that such successes can indeed be yours as well. I can only advise you all to involve yourself in your local area, embrace your local councillors, and engage them in your activities and aspiration as part of your local community. For the wider the door is open to the public, the greater the role you will play and the better your club will be for the overall results.



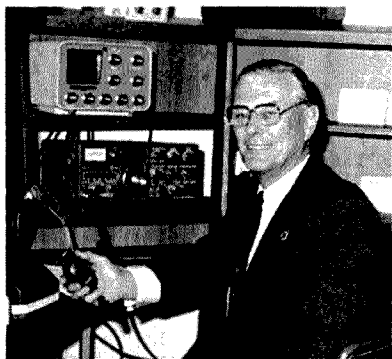
*Photo 2: The special double celebration chocolate cake Ipswich 150 and WIA 100 years.*



*Photo 3: L to R: Councillor Andrew Antoniolle, President Michael Charteris VK4QS, Mayor Paul Pisasale Hon Vice President, Mr Ewan McLeod, Director WIA with the Certificate of Appreciation from Ipswich City Council to Ipswich & District Radio Club community involvement and assistance in times of disaster.*



# Silent Key Phillip Mark Williams VK5NN - SK



Phil VK5NN at the WIA transmitter, Burley Griffin Building, Thebarton, July 1977.

Phil was born in Adelaide in 1922, and passed away in Adelaide on 12 December, 2010.

He was educated at Prince Alfred College, and then joined AESCO (Adelaide Electric Supply Company) for a short time, before World War II called him to the service of his country, and the beginning of a military service full of achievement in the field of radio physics generally but particularly within the area of radar systems, and their development and maintenance along the northern coast of Australia, New Guinea and throughout a number of smaller islands in the war zone.

Phil was one of the 'Bailey Boys', named as such as he trained under the leadership of Professor V.A. Bailey at Sydney University during WWII. Initially

Australia used COL radar (Chain Overseas Low Flying), English-made and very bulky and heavy units, housed in concrete structures. The modern light-weight radar equipment for the New Guinea area, made in Australia, was in contrast to the previous COL gear, and could all be man-handled. Using this new equipment, and with only a Jeep and a trailer, with practice, units were able to unpack and set up a station to be operational in 12 hours. He finished as Senior Radar Officer at Port Moresby at the end of the war, and became a Flight Lieutenant.

Phil gave three landmark talks to AHARS, in 1995 on "Antenna tuners (Z-match type)", in 1997 on "Australia's part in Radar in WWII" and in 2003 on "The Early Days of AESCO, the Adelaide Electric Supply Company, the forerunner to ETSA".

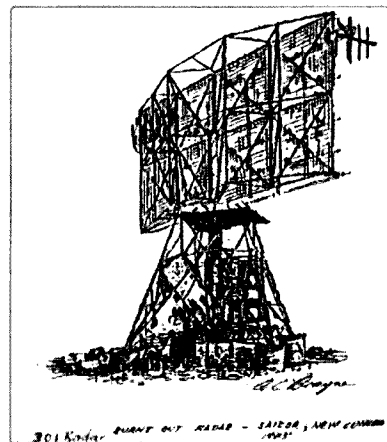
He was active in amateur radio, being one of the first to grasp the intricacies of SSB, and wrote several articles in AR, to guide fellow amateurs into using this much superior (over AM) system. In the early 1960s, Phil was the President of the South Australian Division of the WIA, and was the host to an Annual General Meeting and Conference for that organisation in Adelaide in 1964.

Phil's professional work in the Electricity Trust of South Australia was also useful to those

investigating interference to radio and television caused by power lines. He assisted the Postmaster General Department staff on many occasions with his knowledge of the fundamental reasons for the generation of such interference.

AHARS offers its condolences to his family and friends. Sources included Rob Gurr VK5RG, Ron Coat VK5RV, Phil Williams VK5NN SK, Lloyd Butler VK5BR, Peter Wolfenden VK3RV, and John Elliott VK5EMI. Further information on the amazing life of this quiet but highly gifted gentleman can be found on the AHARS website: [www.ahars.com.au](http://www.ahars.com.au)

Collated by John Elliott VK5EMI, Club President, Adelaide Hills Amateur Radio Society.



## WIA Annual Conference

Darwin, 27th – 29th May, 2011

We strongly recommend that you book your accommodation early to avoid disappointment!

# DX - News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

By the time you receive this magazine the big DXpedition to the Orkney Islands will have been completed. For those readers, who like me, needed this for an all time new one, I hope that you will have managed at least one QSO!

Quite a lot is happening in the next few weeks.

Bernhard DL2GAC updates us on his operation from the **Solomon Islands**, which is on now and will end on April 12. He will have a two element 5-band beam for activity on 20, 17, 15, 12 and 10 metres and dipoles for 40 and 75 metres. It may be possible that he will install an 18 metre Spiderbeam pole for a 1.8 MHz vertical. Bernhard will be operating as H44MS using a Yaesu FT-857 along with an Ameritron ALS500M amplifier. He will be doing SSB only. Last month he received the "MixW software and MixW Rigexpert Tiny wiring device" and hopes to have it running for digital work. QSL H44MS via DL2GAC.

An international team will activate **Kanton Island** (Central Kiribati, OC-043) for nine days in mid April. An additional day may be added depending on the sailing time to the island. Transportation has been arranged, all licences are assigned and the permit is in its final stage of processing. There will be six stations, 160 through 10 (SSB, CW and RTTY). There are a few berths available on the boat. For those interested in joining the team, please contact W2IJ at [kanton@t31a.com](mailto:kanton@t31a.com) for details. A website is under construction at [www.t31a.com](http://www.t31a.com)

David 9M6/VO1AU, will be on the air from **East Malaysia** March 2 to 15 including the BERU British Commonwealth event March 12-13 and the ARRL DX SSB Contest March 5-6, when David will be single op all band high power. He also plans to be active from various QTHs in Southeast Asia the next two years. Some of the callsigns are BY1TTY,

Dates	Call	Island (IOTA)	QSL via
April 2-7	P29VCX	Feni Island (OC-101)	SM6CVX
April 8-14	P29NI	Nuguria Island (OC-257)	G3KHZ
April 15-18	P29VLR	Green Island (OC-231)	SM6CVX
April 22-25	P29VCX	Misima (OC-117)	SM6CVX
April 25-27	P29VCX	Loloata (OC-240)	SM6CVX

BY1RX, BY1DX, JG1RSL and VR2/VO1AU. QSL them all via VO1AU.

Four Dutch and one Liberian radio amateur will cooperate with the Mercy ships organization in a **Sierra Leone** operation March 15 to April 4, with the callsign 9L5MS. They will operate from Freetown. Operators are PA3A, PA8AD, EL2DT, PD0CAV and PA3AN. They plan to raise awareness of the work of Mercy Ships, raise funds for the ships' Charity Project, and activate Sierra Leone on the HF bands. <http://www.sierraleone2011.com/>

Laci OM5AM, is now QRV as D2AM from Luanda, **Angola**. He has been there since Christmas Day 2010 and expects to remain until March 17th, 2011. He began activity on 20 RTTY and SSB. Listen for Laci mostly on SSB between 14190 and 14200 but also on 80 and 40 metres. On RTTY he operates near 14.080 MHz. He is using an Auto TRX 2009 with home made OK1NOF 150 watt amp into a one element Quad and a G5RV. Some old timers will remember Laci from his 1979 D2A (ex OK3TAB) operation where he made some 27,000 QSOs when Angola was very rare. QSL via OM5AM either direct or via the OM QSL bureau.

W5FKX, N5HZ, W5XU and W5ZPA will be operating from the Signal Point contest station (PJ2T) from March 10th to 17th. They will be on HF on all modes.

Five European amateur radio operators are teaming up to do three P29 - **Papua New Guinea** IOTA counters followed by one of the team members going to two more islands! The five include SM6CVX, G3KHZ, CT1AGF, G3JKX and G3UKV.

They plan to have four stations QRV simultaneously with activity on all bands, including 6 metres on CW, SSB and RTTY. Above is the schedule. Remember the first three are with the five man team and the last two are single op trips by SM6CVX.

Any questions or requests can be sent to [sm6cvx@hjelmsstrom.se](mailto:sm6cvx@hjelmsstrom.se). They have a web site at [www.p29ni.weebly.com](http://www.p29ni.weebly.com)

Frosty K5LBU and Wayne W5KDJ are heading back to Africa in March. Destination the Trading Post Lodge in Roma, **Lesotho** as 7P8CF and 7P8KDJ from March 11 to 20. Plans are to have two stations for activity on 1.8 through 28 MHz on CW, SSB, RTTY and PSK. For antennas they will have a T6 at about 40 feet (12 m), an R7 vertical as well as a Tennadyne TD-160, a folded dipole that is 126 feet (38.4 m) overall in length. They will have a log search after the DXpedition. QSL 7P8CF via K5LBU either direct or via LoTW. QSL 7P8KDJ via W5KDJ either direct or via LoTW and eQSL.

4A4A will be the callsign of an international team from the **Revillagigedo Archipelago** (XF4) in March of this year. The team will be lead by Marcos XE1B. Other team members include Javier EA5KM, Elmo EA5BYP, Javi EC4DX, Fernando EA5FX, Vicente EA5AFP, Santos EA4AK and John N5NTP. They will have a web site (it is currently not available) at <http://www.revillagigedo2011.com/> and will be on Twitter at <http://twitter.com/4A4A2011> QSL via EB7DX.

Continued on page 33

# A poor man's single paddle lever for a Hallicrafters T O Keyer

Yves Bernier VK2AUJ

I was in need of a single lever Morse key to test and play with a Hallicrafters HA-1; a keyer circa 1960 that I had acquired. Most keys I could find were far more expensive than the keyer itself. I had the 6.3 mm (1/4") male plug already plugged in the front of the keyer, with one loose wire I was using to test the keyer.

Many earlier keyers had the levels or paddles built in.

Photo 2: The paddle lever plugged into the Hallicrafter's keyer.



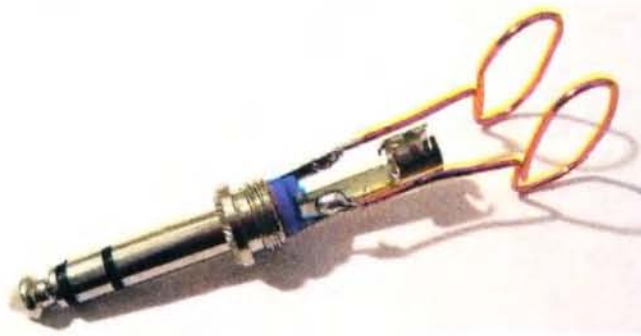
Photo 1: The 6.3 mm stereo plug single paddle lever.

The plug for the key on the HA-1 is conveniently located at the front, so I thought to myself it would be nifty and simple to install a lever onto the plug. I soldered a few PCB nuts onto the tip and ring contacts, passed a music wire through a necklace bead, which is held in place and centred by a copper wire welded to the ground.

This paddle is a bit lazy but fully adjustable.

The third photograph shows a later fully iambic version with the two paddles.

Photo 3: The iambic version of the paddle lever.



## DX - News & Views

Continued from page 32

**EA8 - Canary Islands:** Andrea EA8/IK1PMR and Claudia EA8/PA3LEO will spend their vacations January 20 through March 8 operating on 160 through 6 m. QSLs for both calls via PA3LEO, and LoTW.

**FH - Mayotte:** Bruno DH1BL will be living in the City of Combani, central Mayotte (AF-027) for the next three years. Currently he is active as FH4VOS and is using an FT-920 and a Spiderbeam for the five HF bands. QSL via DL7BC, direct or via bureau.

**6W - Senegal / J5 - Guinea-Bissau:** Peter HA3AU1 is going back to Africa. He will be active in his spare time as either 6W2SC from Cabrousse, Senegal, or J5UAP from Varela,

Guinea-Bissau between February 1 and March 31. Peter plans to operate mainly CW and digital modes on 160 through 10 m. His equipment includes an Elecraft K3-Transceiver, 500 watt linear and 5-band Spiderbeam, as well as verticals. QSL via HA3AU1 - direct only. His website is at <http://cqafrika.net>

Russian Callsigns. Are you confused by the new Russian calls? Most of us are, but there is an answer. Go to [QRZ.com](http://QRZ.com) and search for RW2L. He has posted a complete list of the prefixes so you can see who is where.

And finally, my attention had been drawn to a book "Atlas of remote islands" ISBN 978 1 846 14348 9.

It covers 50 islands, and from a DX point of view, we would consider them all 'rare'! Annobon Island makes interesting reading after the sudden close down of the station there last year!

Special thanks to the authors of *The Daily DX* (W3UR, 425 DX News (1JQJ) and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)



# Building an 80 metre SSB kit radio

Lyle Whyatt VK5WL

This story began when I read an article in the UK magazine Practical Wireless (March 2009) about a kit-set from the Milton Keynes Amateur Radio Society, which is a five watt, SSB, 80 metre transceiver called the MKARS80 kit. See <http://www.mkars.org.uk/> As I was looking for something new to make I thought this would be good and would also turn back the clock to the days when all amateurs built their own

equipment. The challenge was on!

The kit includes everything for the radio except a 12 volt power supply, speaker and microphone. There is power provided in the microphone input socket allowing use of an electret microphone designed for computer use. Frequency and power supply voltage are displayed on a two line digital display. The kit costs UK 50 pounds plus UK 7 pounds for pack and post which, at our current rate of exchange, means just a little over AU\$100.

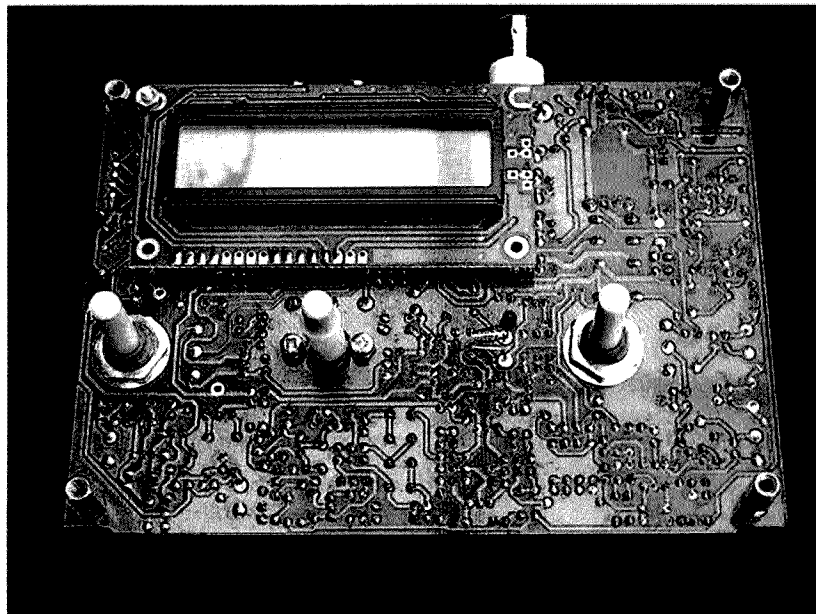


Photo 1: The solder side of the PCB including plug-in display.

**Building the transceiver**  
The kit has a single printed circuit board to which all components, including the digital display, are fitted. Components were supplied in plastic bags numbered 1 to 4 and all pieces in each bag are fully described (including colour codes) and numbered. The printed circuit board is extremely well produced and has individual marked locations for all

components. The instructions for assembly need to be downloaded from the internet.

The fitting and soldering of all components is straightforward as all components, the diodes, resistors and capacitors, are 3 mm pigtail type, not SMD. The instruction sheet details each component to be fitted in sequence and when the component is fitted, a box beside the listing should be ticked to confirm correct installation. Because the components are small, working under a magnifying lens is recommended.

The most difficult activity is the winding of inductors and transformers, however with patience and following the precise instructions provided, this is straightforward!

## Testing and finishing

The testing is straightforward, and having been fastidious with my soldering, I can confirm that everything worked as it should first time. Alignment is also straightforward, consisting basically of frequency measurement and adjusting as necessary. BFO, PA bias current, and band pass filters set-up are all straightforward without the need for sophisticated test instruments.

When all is correct, the board can be mounted in the case having first marked, drilled and cut all holes. The case drilling template is downloaded from the internet.

I modified a commercial computer microphone to include a push to talk button and this allows simple audio connection through a stereo lead.

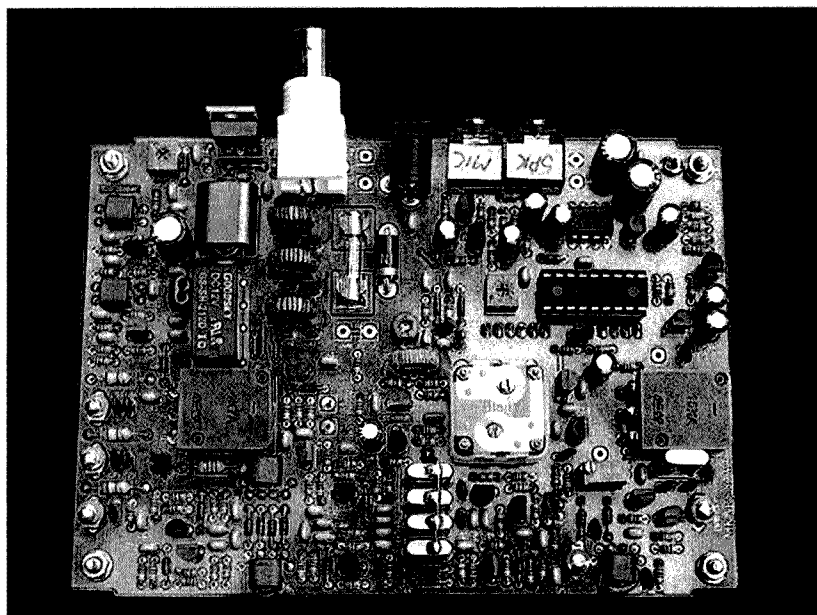


Photo 2: The component side of the PCB.



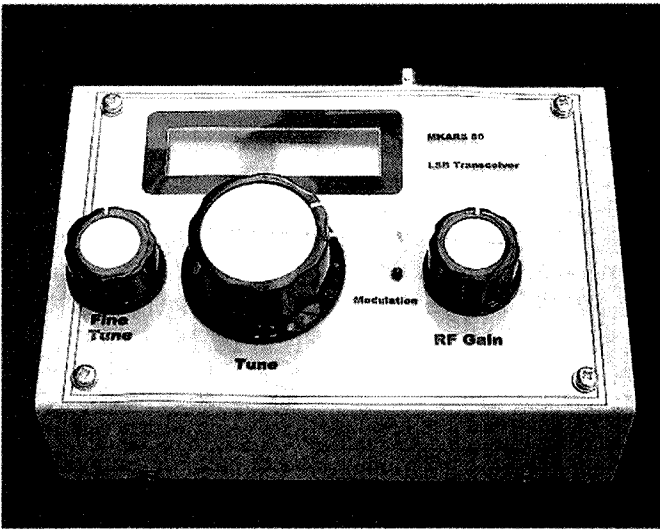


Photo 3: The completed MKARS80 kit radio.

The size of the case is 155 x 107 x 45 mm.

### Test on air

My first test on air with a pre-arranged contact gave me great satisfaction as it all worked well with good reports on audio quality. The receiver sensitivity is excellent and transmission is only limited by the five watts, and efficiency of the aerial. Now an amplifier to boost the output is my next project.



Photo 4: The completed radio with microphone.

The last word belongs to MKARS. 'Firstly it should be remembered that the MKARS80 is low cost and of relatively simple design, its functionality cannot be compared with a complex commercial transceiver! That said great enjoyment can be had if its limitations are realised.'

## Silent Key **Len Effeney VK4DI - SK**

On Tuesday, 1 February, 2011, Len Effeney VK4DI of Rockhampton became a silent key at the age of 83.

Len was one of the 'old guard', being licensed for approximately 65 years, throughout which time he continued his membership of the Wireless Institute of Australia. CW on the HF bands remained his passion and forte and a fellow club member described his transmissions as 'music'.

He was a family man, married to Pauline, and they had six sons and one daughter, with at least three sons obtaining amateur licences. Len worked for the railways for quite a number of years.

Several of their children completed university qualifications, quite unusual in those days and an indication of Len and Pauline's vision.

Although Len's health had failed markedly, he still attended the Queensland President's Luncheon last November where he was presented with a WIA long service medal by WIA President Michael Owen VK3KI.

Len's funeral service was held on 7 February, 2011 at St. Peters Catholic Church, Rockhampton, prior to a private family committal. Vale Leonard William (Len) Effeney VK4DI, Silent Key.

Submitted by Les Unwin VK4VIL.

## Silent Key

### David Soundry VK4SM - SK

I wish to inform the amateurs of Australia of the passing of David Soundry VK4SM, who became a silent key on 30 January, 2011.

He will be sadly missed by all who knew him.

Contributed by Dave Muller VK4JT.



# AMSAT

David Giles VK5DG

vk5dg@amsat.org

## ARISSat-1: A satellite of many names

By the time you read this, ARISSat-1 should be in orbit and bringing joy to many. This month is a look at what ARISSat-1 has to offer. Also AMSAT-UK announced they will be building a second FUNcube transponder.

## A busy week

As I type this column during the last week of January, there have been some significant milestones in the life of ARISSat-1. It was mounted in the Progress M-09M cargo vehicle at Baikonur for its flight to the International Space Station. On the 28<sup>th</sup> the Progress was successfully launched and docked with the ISS. A video of the docking is available on the ARISSat website [1]. The Russian Federal Space Agency, Roscosmos, reports that the Progress delivered 2.5 tonne of propellant, oxygen, water, food, and equipment as well as "a small spacecraft named 'KEDR' that was developed to commemorate the 50<sup>th</sup> anniversary of Yuri Gagarin's space mission". The article has pictures of the rocket ready for launch [2]. The commemoration of the first manned space flight will be on April 12. KEDR was the callsign used by Gagarin during his flight. ARISSat-1's callsign will be RS1S. ARISSAT-1 is scheduled to be sent from the ISS during an EVA (Extra-Vehicular Activity or 'spacewalk') on February 16. During its time at the ISS, ARISSAT-1 will have its flight battery installed. This silver-zinc battery is the same type as used in the Russian Orlan spacesuits.

## What ARISSat-1 has to offer

ARISSat-1 is the first amateur satellite with a software defined transponder. The 2 m downlink fits two CW beacons, a BPSK beacon, a FM beacon and a 16 kHz linear section in the space of 40 kHz. Total output power will be 500 mW with 250 mW of that for the FM beacon. According to an email from Gould

Smith WA4SXM, this should work well from an altitude of 350 km to a handheld radio with its whip antenna.

Now to look at these signals in turn. The CW-2 beacon on 145.919 MHz and CW-1 beacon on 145.939 MHz will transmit callsign (RS1S), select telemetry and the callsigns of people involved with the ARISS program. AMSAT-NA says there will be a contest to see who copies the most CW callsigns sent as there are over 200 to collect [3].

The BPSK beacon will alternately transmit spacecraft telemetry and data from the Kursk experiment. The experiment from Kursk University in Russia will measure vacuum for 90 minutes (one orbit) per day as ARISSat-1 travels through the Earth's upper atmosphere. Gould Smith reported that "The BPSK-1000 downlink is transmitted in SSB mode. It sounds like a "shusssch", higher pitch than the 400 bps growl. It is difficult to tune by ear. So the CW signal was moved close to it so the CW signal could be used as a tuning signal." Users of AO-10, AO-13 and AO-40 will be familiar with the 400 bps BPSK "growl". Software should be available from the AMSAT-NA website by the time you read this to decode

the CW and BPSK-1000 for PC and Mac computers via their soundcards. The beacon can also transmit at 400 bps. The 1000 bps mode uses forward error correction for error free reception with simple antennas [4].

The FM transmissions cycle between a voice ID, select telemetry values, 24 international greeting messages in 15 languages and live SSTV images [3]. This is not a FM transponder but a beacon centred on 145.950 MHz. There are 'secret' words hidden in the greetings and awards are available for those who recognise them. ARISSat-1 has two pairs of cameras. A set of snapshots is taken every two minutes with very dark or blank pictures discarded and good pictures saved in memory. There are some pre-recorded pictures for transmission during eclipse periods. The transmission format is Robot 36 and the pictures will be in colour. During its deployment from the International Space Station there is a 15 minute safety period between the cosmonaut turning it on and the transmitter starting. In this time ARISSat-1 will take several pictures and hopefully catch a glimpse of the cosmonaut or the ISS.

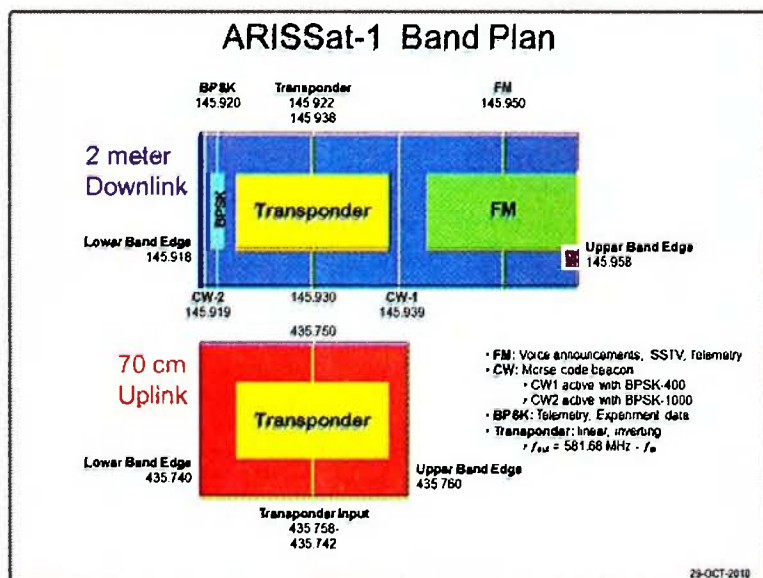


Figure 1

The safety period is to prevent interference with the cosmonaut's spacesuit.

Last but not least is the 16 kHz wide linear transponder. The uplink is centred on 435.750 MHz with the downlink centred on 145.930 MHz. It is an inverting transponder so for SSB use LSB on transmit for USB receive (same as AO-7 and VO-52). The receiver is very sensitive and should be usable with 5 watts into an omnidirectional antenna.

Figure 1 is ARISSat-1's bandplan as given by AMSAT-NA. The latest version of the bandplan and current news is available from their website [3].

So what started out as Suitsat-2 became ARISSat-1, RadioSkaf V, KEDR and maybe by the time you read this AMSAT-OSCAR 69. Call it what you will, but ARISSat-1 should provide some interest during its short life of about a year.

### A second FunCube

The UK Space Agency has announced it will build its first cubesat, UKube (UK Universal Bus Experiment).

UKube-1 will be a 3U design and will incorporate the same linear transponder as used on AMSAT-UK's FUNcube-1. UKube-1 will be used to carry up to three payloads. After sending out requests from interested organisations, the UK Space Agency received twenty proposals. Of these seven have been selected for the next round of the competition:

- Two different imagers.
- Two different electric propulsion systems.
- A set of five small experiments.
- A random number generator using radiation hits.
- Ionosphere measurement using a special GPS receiver [5].

AMSAT-UK will be busy producing two sets of boards in less than a year. As well as the flight version of UKube-1 there will be a backup version built. This backup may fly if funding is approved. The scheduled date for UKube-1's launch is 1 December 2011 and the mission will last one year. If you have ever wondered what is required for a

controlling ground station, the UK Space Agency also asked for submissions from interested groups in the UK. The basic requirements as outlined in their "Announcement For Opportunity" would be met in a well equipped amateur shack [6].

### References

- [1] <http://www.arissat1.org/v3/>
- [2] <http://www.roscosmos.ru/main.php?id=2&nid=11260> "About Progress M-09M Launch", 27/1/2011
- [3] <http://www.amsat.org/amsat-new/index.php>
- [4] Tony Monteiro and Gould Smith, "An ARISSat-1 Overview" AMSAT Journal, Sep/Oct 2010
- [5] <http://www.ukspaceagency.bis.gov.uk/21973.aspx>
- [6] <http://www.ukspaceagency.bis.gov.uk/20701.aspx>

### Final pass

After four years of effort by over 50 AMSAT volunteers and NASA, RSC-Energia and ARISS-International, ARISSat-1 is finally in space. Congratulations to all involved.



## AMSAT-VK

### AMSAT Co-ordinator

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### Website

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### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, EchoLink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

# Contests

Phil Smeaton VK4BAA/VK4KW

## Contest Calendar for March 2011 – May 2011

Mar	5/6	ARRL Intl. DX Contest	SSB
	12/13	RSGB Commonwealth Contest	CW
	19/20	John Moyle Field Day	CW/SSB/FM
	19/21	BARTG RTTY Contest	RTTY
	19/20	Russian DX Contest	CW/SSB
	26/27	CQWW WPX Contest	SSB
April	3	QRP Hours	CW/PSK31/RTTY/SSB
	9/10	Japan International DX Contest	CW
	9/10	Yuri Gagarin International Contest	CW
	16/17	YU DX Contest	CW/SSB
	17	WIA National Field Day	SSB
	23	Harry Angel Sprint	CW/SSB
	23/24	Helvetia Contest	CW/SSB
	23/24	SP DX RTTY Contest	RTTY
May	14/15	CQ-M International DX Contest	CW/SSB
	7	VK/Trans-Tasman 80 Metres Phone Contest	SSB
	28/29	CQ WW WPX Contest	CW

Note: Always check contest dates prior to the contest as they are often subject to change.

Welcome to this month's Contest Column.

As I sit here frantically pressing buttons on the PC (thank heavens for spell check) Brisbane is on flood alert and the situation could be understated by being described as currently being on the far side of moist and about to get even worse over the coming days. Ipswich and Toowoomba have been particularly badly hit, with extensive flooding to many houses and businesses. Many townships are inundated with water and will, no doubt, be left with a legacy of silt / mud / whatever when the water level finally drops to normal levels.

The iconic Aussie spirit has shown itself however, with neighbour helping neighbour (as well as strangers helping others) to shift valuables into safe places and then to help clear up the muddy mess. The emergency services and other brave souls are doing battle with the torrents to save lives and safeguard property. Situations such as these bring out the best in people, but

unfortunately the worst in people also. As a contrast to the neighbourly spirit, it's a shame to see that some people of doubtful parentage have seized the opportunity to capitalise upon the grim times to help themselves to the property of others.

By the time this magazine reaches you, the clean-up will have been underway for some weeks and the full story of the disaster should be known. Further north in VK4, the waters have already claimed the houses and livelihoods of many and the rain is currently heading on its way through VK2, VK3 and there's flooding currently being reported in VK5.

Whatever happened to major areas of VK being in drought conditions? It seems so long ago.

VK6 is also going through a tough time, with reports currently coming in of crazy people deliberately starting bushfires! What are people thinking?

Hopefully, there are no radio hams suffering as a result of the carnage at the cruel hands of Mother Nature or man-made stupidity. I hope

that you and your family managed to escape the deluge and are all safe and well.

### CQWW 160 2010 Results

I received the results of the contest quite late, so apologies if these details are already known. VK was represented in the contest by VK6DXI with 15,960 points; VK3IO with 5,952 points and VK3TDX with 212 points. Top Band doesn't necessarily require a large amount of real estate to be effective as regards an antenna – but it sure helps! Achieving gain on LF is not a simple task – it's not as if multi-element rotatable beams are common place after all. But as always, if you can't hear them, you can't work them. Receive antenna systems don't always need to be huge to be effective and there are a few products on the market now that enable those elusive DX stations to be plucked from the band noise and static crashes. Their physical size often belies their performance, with much of the benefit of a large antenna being achieved by quite a modest footprint. 80 m can also benefit from this approach too. Maybe add a system such as this to your Santa list for later in the year? Remember though – you have to be a good boy or girl.....

### CQWPX SSB 2010 Results

The following VK stations (table next page) submitted a log in the WPX SSB contest in 2010.

The bands finally came alive for the majority of VK. Cycle 24 opened a myopic eye and allowed antipodean RF to reach far-flung parts of the planet.

VK was very well represented in the contest, with almost all States submitting a log to the adjudicators. VK5 operators were a tad mic-shy apparently, as no VK5 appears in the contests results. The results underline my viewpoint that VK contesting is alive and well on the world stage, as the scores and

Call	Category	Score	QSOs	WPX
VK4KW	MULTI-TWO	16,480,506	4,377	1,106
VK1CC	MULTI-MULTI	8,840,424	2,636	958
VK7ZE	SO HP ALL	3,635,620	1,638	740
VK2APG	SO HP ALL	2,827,968	1,378	618
VK3HR	MULTI-MULTI	1,803,776	973	512
VK6NC	MULTI-ONE	1,272,744	945	396
VK6HZ	SA HP ALL	791,056	675	392
VK8PDX	SO LP ALL	625,975	602	343
VK3IO	SO HP ALL	589,356	461	306
VK2CA	SA HP ALL	534,360	615	292
VK3TDX	SO HP ALL	511,056	486	312
VK4FJ	SO LP 15M	330,561	412	297
VK4BL	SO LP ALL	169,740	259	207
VK4EJ	SO LP 15M	168,639	309	201
VK4ATH	SO LP ALL	156,600	241	180
VK4GH	SO HP ALL	73,580	168	130
VK3DXI/6	SO HP 10M	73,502	175	143
VK3TZ	SO HP ALL	63,707	162	133
VK4XES	SO LP ALL	62,500	142	125
VK4ZD	SO HP 10M	57,360	174	120
VK6FDX	SO LP ALL	56,375	179	125
VK3VTH	SO LP 40M	54,614	109	94
VK2ACC	SO HP ALL	44,308	119	106
VK3LM	SO LP ALL	39,168	110	102
VK3MDX	SO LP ALL	31,720	111	104
VK2WAR	SO HP 40M	28,500	88	76
VK7AD	SO LP 40M	12,600	50	45
VK2HBG	SO LP ALL	10,502	66	59
VK2WAY	SO LP ALL	8,234	51	46
VK6DXI	SO HP 80M	4,557	39	31
VK4HEC	SO LP ALL	3,420	41	38
VK2W.TT	SO LP 20M	3,220	38	35
VK4VSP	SA LP 20M	2,640	34	33
VK2BCQ	SA HP 15M	275	12	11
VK2DXI/6	SO HP 160M	60	10	4
VK3ZGP	SO LP 40M	6	1	1
VK6WX	Checklog			
VK7XX	Checklog			

'BIC' time have evidently improved over the last few years. Looking at the multiplier tally for some of the leading European stations, they are generally in the range of 1600 to 1700. VK comparatively languishes behind somewhat at 1000 or so – but geography is against us somewhat. During many of the world-wide contests, VK stations can often find that only one band is available to them for DX. In Europe, a single DX band can be worked, whilst using any other vaguely open band for more local QSOs. However, VK is quite a distance away from other countries

a bit of RF towards NA and rack-up a nice QSO and multiplier count whilst the rest of Oceania are trying to work DX only.

### Station Maintenance

Summer is traditionally the time of year to blow out the cobwebs that accumulated in station systems over the winter months. With soldering iron in hand, hams can often be seen scurrying about the back garden, getting tangled-up in bits of wire and generally cussing profusely (under their breath of course) at the resulting mêlée, whilst working on their station.

so 'local' QSOs with adjacent countries don't happen. Inter-VK QSOs only count for prefix multipliers, so they'll be thin on the ground come the wee hours. So, EU stations have a nice advantage in that they can run at least one DX band whilst another operator should be able to mop-up 'local' QSOs to further augment the multiplier total. No use whinging about it though – we've just got to make the best of it! If anyone knows where the fixing bolts are that attach Hawaii to the floor then let me know – I'd put it on wheels and shuffle it to the right a little bit to get them out of the 'Oceania' category and into the 'NA' category instead. The Hawaiian stations have a nice advantage in that they're comparatively close to the NA western coastline but still count as 'Oceania'. A nice position to be in, as it's not too much of a distance to squirt

However, there is a need to be even more vigilant this 'summer'. As an aside, I find it hard to call the current VK4 weather 'summer' – summer rain and / or storms are usually active during a summer afternoon from December to March or so for example – but not for weeks on end! I digress.

With the amount of standing water that we currently have, it's not an easy task to simply walk the length of the Beverage antenna (if you're fortunate enough to have one) looking for damage from livestock or other indigenous creatures such as kangaroos, deer or even love-struck farmers perched atop tractors who should've been looking where they were going instead of driving seemingly in Braille and destroying hours of hard work. Have I digressed again? Well, maybe. I have no axe to grind. Honest.

Dropping the antenna to fix that annoying intermittent coax connection is potentially fraught with seasonal danger, as when the water level rises, the snakes are surely just in front of it trying to keep dry. Having recently emerged from slumber and feeling a tad peckish, the humble snake is likely to be ticked-off somewhat at having to search harder than usual for lunch due to the layer of water covering the likely prey. A wandering ham in a paddock or suburban back garden might unwittingly be put into a position of danger by being confronted with a hungry, wet snake. This event would surely result in an immediate underwear tainting moment, known colloquially as 'Touching Cloth' or what electricians would call a 'Brown Out'. Snakes often like to perch atop fence posts, so moving close to such a creature whilst focussing on the task at hand and not necessarily to environment around you, might result in the aforementioned 'Malteser Ejection' type of event taking place. I don't mind producing a huge log during a contest, but not otherwise! As the sergeant said at the beginning of the shift in an 80's police drama: "Hey - let's be careful out there....."

There's almost nothing more

annoying than the antenna/radio/PC/whatever suddenly developing a 'fault' whilst in the heat of contesting battle. I say "almost", as one of the most annoying I find is an aurora taking place when I'm hammering away on HF.

If I happened to be contesting on VHF it might be quite a different matter of course, but HF suddenly shutting down when I had a decent score developing in my log is no fun at all. Anyway, Murphy does indeed like to pay a call from time to time, but much can be done to try and reduce the amount of available 'fodder' for him to be naughty with by a planned approach to system maintenance and fault finding before Murphy finds it. Chores such as checking coax integrity, replacing that sometimes flickering fluorescent light tube, waterproofing the connections on the antenna, greasing the winch on the tower, checking the tightening of the bolts on the rotator – it all helps. Unless that is, you over-tighten the bolts and create a problem for yourself!

### **CQWPX & BERU 2011**

Are you ready for the challenge of WPX CW this month? I ask somewhat tongue-in-cheek, as my CW skills are still a mite rusty and

have been cruelly described as sounding akin to a drunken goat relieving itself whilst standing on a corrugated tin roof. Oh, those other VK4KW team members can be nasty when they've been on the Boags. Anyway, their thinly veiled message is that I need to practise for the contest and then maybe have a go at spitting some RF around when the likely QSO rate is not too far out of my reach. Maybe there will be a few like-minded people who feel the same and may form an impromptu multi-two entry for 2011. Time will tell no doubt, but I find that setting yourself a few realistic goals prior to a contest help enormously. There's little point in scheduling someone with my current CW prowess commencing the contest for example, as I'll soon be swamped with callsign fever, then panic, then silently embark upon a non-snake induced 'Touching Cloth' episode when the QSO rate plummets to the floor. If I'd just taken the time to brush-up my CW skills and then target a more realistic operating period to suit my skills, underwear would not have unnecessarily been put into jeopardy and the team would not be likening my skills to the dulcet tones of a urinating cloven-hoofed quadruped adorning the shack roof.

Beru (aka Commonwealth Contest) is also taking place in March. VK will be entering a team for 2011 (no details unfortunately at the time of typing this wee ditty) but the entry is a single operator affair. No-one to hide behind for errors or whatever – they are all yours! I might be able to enter this year as the station antenna system is a bit more mature now and I can operate at my own CW speed and not feel the pressure to go faster. That's one of the fun parts of contesting – you can compete against a friend down the road, a station overseas, or just against yourself. This should be relatively easy for me in 2011, as to beat my 2010 would be a simple task of making just one QSO as I did not manage to play Beru last year. The VK team members will need your callsign in their log for the points as long as you are in a different call area to them, so have a listen and give them a call if you hear a VK callsign calling 'CQ Beru' or 'CQ CC'.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au). See you on the bands.



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## **John Moyle Field Day Contest 2011**

*Denis Johnstone (VK4AE/VK3ZUX)*

**19 - 20 March, 2011**  
**0100 UTC Sat - 0059 Sun**

I wish all entrants good luck, and look forward to hearing you on air during the contest!

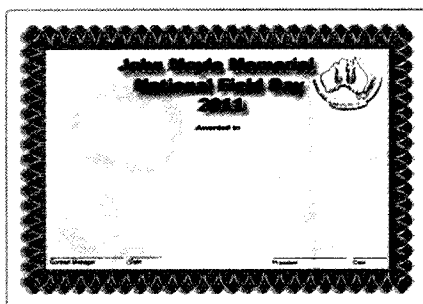
N.B. new email address: [jmfd2011@wia.org.au](mailto:jmfd2011@wia.org.au) will be set up close to the event for entries and you can check out latest info at <http://www.wia.org.au/contests/>

### **Overview**

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.
2. The contest takes place on the 3rd full weekend in March each

year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 19-20 March 2011.

3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.
4. Single operator portable entries shall consist of ONE choice from each of the following (e.g. 6 hour, portable, phone, VHF/ UHF):
  - a. 24 or 6 hour;



- b. Phone, CW, Digital or All modes;
  - c. HF, VHF/UHF or All Bands.
5. Multi-operator portable entries shall consist of ONE choice from each of the following (e.g. 24 hour, portable, phone, VHF/UHF):
- a. 24 or 6 hour;
  - b. Phone, CW, Digital or All modes;
  - c. HF, VHF/UHF or All Bands.
6. Home and SWL operator entries may only be either in the 24 hour or 6 hour, and only all modes, all bands.

### Scoring

7. Portable HF stations shall score 2 points per QSO. CW only contacts to score 4 points per QSO for contacts with either home or portable stations. On VHF/UHF for portable stations Digital Modes score at the same rate as Phone and CW only scores at twice the rate of a Phone contact.
8. Portable stations shall score the following on 6 m:
- a. 0-49 km, 2 points per QSO;
  - b. 50-99 km, 5 points per QSO;
  - c. 100-149 km 10 points per QSO;
  - d. 150-299 km 20 points per QSO;
  - e. 300-499 km 30 points per QSO;
  - f. 500 km and greater, 2 points per QSO.
9. Portable stations shall score the following on 144 MHz and higher:
- a. 0 to 49 km, 2 points per QSO;
  - b. 50 to 99 km, 5 points per QSO;
  - c. 100 to 149 km, 10 points per QSO;
  - d. 150 to 300 km, 20 points per QSO.
  - e. 300 km and greater, 30 points per QSO.
10. For each VHF/UHF QSO where more than 2 points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance such as the 6-figure Maidenhead Locator must be supplied.

11. Home stations shall score:
- a. Two points per QSO with each portable station.
  - b. One point per QSO with other home stations.

### Log Submission

12. For each contact: UTC time, frequency, station worked, RST/serial numbers sent/received and claimed score. (VHF and above location of other station and distance showing the Lat/Long or Maidenhead Locator to 6 figures for the station worked.)
13. Logs must be accompanied by a summary sheet showing: call sign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used, and a signed declaration stating *"I hereby declare that this station was operated in accordance with the rules and spirit of the contest and that the contest manager's decision will be accepted as final"*. For multi-operator stations, the names and call signs (legible) of all operators must be listed.
14. The email address for this year's JMMFD contest should be setup a few days before the contest, and I would suggest to those that will be sending in your logs electronically, to send in a test email with the words "TEST JMMFD 2011", in the subject line and also set the "READ REQUEST RECEIPT" flag. Your call sign can then be added into the database for this year's contest. When actually submitting your log, if you do not receive an e-mail acknowledging receipt, then the log has not been received.
15. Paper logs may be posted to "John Moyle Contest Manager, 27 Laguna Ave, Kirwan 4817 QLD". Alternatively, logs may be e-mailed [jmfd2011@wia.org.au](mailto:jmfd2011@wia.org.au), [vk4ae@wia.org.au](mailto:vk4ae@wia.org.au) or to [vk4ae@hotmail.com](mailto:vk4ae@hotmail.com), or snail mailed via the WIA Contest Manager, JMMFD, P.O. Box 2042 Bayswater, VIC 3153.

16. The following formats are acceptable: Microsoft Excel or Word, ASCII text or electronic log programs such as VK Contest Log (VKCL). Logs sent by disc or e-mail must include a summary sheet and declaration, but the operator's name (legible) is acceptable in lieu of a signature. Logs must be postmarked no later than 22 April 2011.

### Certificates and Trophy

17. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.
18. The Australian portable station, with the highest overall score will be awarded the President's Cup, a perpetual trophy held at the National Office, and will receive an individually inscribed wall plaque as permanent recognition.

### Disqualification

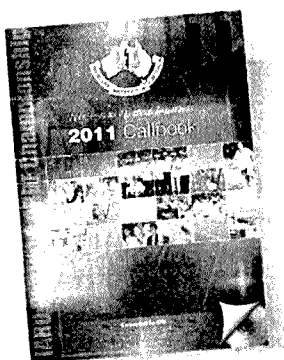
19. General WIA contest disqualification criteria, as published in *Amateur Radio* from time to time, applies to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

### Definitions

20. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities, which is not the normal location of any amateur station.
21. All equipment comprising the portable station must be located within an 800 m diameter circle.
22. A single operator station is where one person performs all operating, logging, and spotting functions.

23. A single operator may only use a call-sign of which he/she is the official holder. A single operator may not use a call-sign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multi-operator entry.
24. A multi-operator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
25. A multi-operator station may use only one call sign during the contest.
26. Multi-operator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
27. Multi-operator stations must use a separate log for each band.
28. Logs submitted electronically can use a separate Excel worksheet for each band linked to a summary sheet. A typical example is shown at <http://www.wia.org.au/contests> which can be copied and adapted for the individual use of either a single or multi operator station.
29. A station operated by a club, group, or organisation will be considered to be multi-operator by default.
30. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
31. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to three years.
32. Phone includes SSB, AM and FM.
33. CW includes CW hand or computer generated. Fully automatic operation is not permitted. CW contacts will score 4 points for HF and double points for VHF & UHF contacts.
34. Digital modes such as PSK31, RTTY, and packet may be used in the contest, but if they are, they shall be classed as Digital. Other modes such as ATV may be used and will be classed as Digital for scoring. Digital contacts will score points at the same rate as Phone.
35. All amateur bands may be used except 10, 18 and 24 MHz. VHF/UHF means all amateur bands above 30 MHz. Note: On 50 MHz, the region below 50.150 has been declared a contest free zone, and contest CQs and exchanges may only take place above this frequency. Stations violating this rule will be disqualified.
36. Cross-band, cross-mode and contacts made via repeaters or satellites are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.
37. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 0100-0359, 0400-0659, 0700-0959, 1000-1259, 1300-1559, 1600-1859, 1900-2159, 2200-0059 UTC. If you work a station at 0359 UTC a repeat contact may be made after the start of a new block providing they are not consecutive, or are separated by at least five minutes, since the previous valid contact with that station on the same band and mode.
38. Stations must exchange ciphers comprising RS(T) plus a 3 digit number commencing at 001 and incrementing by one for each contact.
39. Portable stations shall add the letter "P" to their own cipher, e.g. 59001P.
40. Multi-operator stations are to commence numbering on each band with 001.
41. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.
42. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

If anyone wishes to contact me privately to discuss rules etc, my home phone number is (07) 4723 4229, and my snail mail and e-mail address is as shown in the Log Submission section above.



## Is your Callbook current?

The WIA 2011 Callbook is now available

[www.wia.org.au/bookshop](http://www.wia.org.au/bookshop)





# COQC QRP Hours Contest 2011

Sponsored by the CW Operators' QRP Club (COQC), the aim of the QRP Hours Contest is to make as many contacts as possible within a one-hour period using your choice of mode. While it is hoped that the event will be strongly supported by COQC members, it is open to all licensed amateur radio operators.

Date / Time:	Saturday, 2 April 2011, 1000-1159 UTC.
Frequency Band:	80 m – see Frequency / Mode Table below.
Category:	Single Operator.
Modes:	CW or PSK31 or RTTY / SSB - see Frequency / Mode Table below.
Power:	Preferably 5 Watts, but not more than 10 Watts average (CW/PSK31/RTTY) or PEP (SSB) at the transmitter output – this is to stress the QRP nature of the event.
Exchange:	A three-digit serial number starting at 001 and incrementing by one for each new contact.
Repeat Contacts:	No repeats – only one contact per mode per hour.

The contest is divided into two (2) one-hour periods. Modes and frequency sub-bands are allocated to each hour as shown in the table below.

Frequency / Mode Table			
Hour	Time (UTC)	Mode	Frequency (MHz)
First Hour	1000-1059	CW or PSK31 or RTTY	3.500-3.535 (CW)
			3.620-3.630 (PSK31 / RTTY)
Second Hour	1100-1159	SSB	3.550-3.590

## Scoring

- Score one (1) point per contact regardless of mode.
- No multipliers apply.
- QRP stations can count contacts with QRO stations towards their final score.

## Logs

- Logs must show full details for each QSO, viz. time (UTC), station worked, mode, exchange serial sent, and exchange serial received.
- A Summary Sheet showing operator's callsign, name, address and total points claimed must accompany the Log.
- The preferred method of sending the log is email, but entrants must still include their postal address as per the Summary Sheet.

- Send Logs and Summary Sheet to the Contest Manager, Mike Dower VK2IG - email: qrphours at exemail dot com dot au; or snail mail: PO Box 8013, Gundaroo, NSW, 2620.
- Emailed logs must be postmarked no later than 2359 AEST on Wednesday, 20th April, 2011; snail mailed logs must be postmarked no later than Wednesday, 20th April, 2011.
- Feel free to include information about your station and band conditions; and any comments on what you liked, what you'd like to see included or improved, etc.

Certificates will be awarded to the highest scorers in each mode in each VK State or Territory and ZL.

These rules can also be found at [http://home.exetel.com.au/auriga/AR/QRP/QRP\\_Hours.html](http://home.exetel.com.au/auriga/AR/QRP/QRP_Hours.html)



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# VHF/UHF – An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au



Photo 1: Steve ZL1TPH with his Multi-band Dish.

## Weak Signal

The big news for the month is that the VK to ZL path on 2.4 GHz has finally been crossed. On 27 January 2011, Adrian VK4OX worked Stephen ZL1TPH/P on 2403.1 MHz SSB over a distance of 2314.5 km. Adrian is located near Caloundra while Stephen was operating portable on a hill to the west of Auckland. Details of the milestone contact can be found elsewhere in the magazine.

This contact set a new distance record of 2314.5 km. However, the record was only to stand for less than a day as the following morning Adrian worked Brian ZL1AVZ to up the record to 2317.5 km. Shortly after, John VK4JMC also worked Brian, over 2305 km.

The audio recording of the VK4OX – ZL1TPH/P contact made by Adrian is interesting listening and indicates that it was a fairly easy contact with good signal strength for some time. I suspect that contacts may have been possible on 3.4 GHz

and perhaps even 5.7 GHz. I wonder how long it will be before we bridge the gap on even higher bands?

## VK9NA to ZL Microwave Contacts

Strictly, the VK4OX to ZL1TPH/P QSO was not the first VK to ZL contact on this band. It was the first mainland VK to ZL contact, but some weeks earlier, the VK9NA group worked Stephen ZL1TPH/P as he reports below:

*To support the VK9NA VHF and microwave DXpedition to Norfolk Island, we drove to the top of New Zealand and operated portable out of a vehicle for the same two-week period. Two sites were chosen - Ahipara on the west coast and 838 km to Norfolk Island and Cape Reinga at the top of New Zealand and 748 km.*

*Our prime focus was the microwave bands from 23 cm to 3 cm with 144 MHz as liaison. Our station on VHF was 250 watts to an 8 element horizontal Yagi on 2 m.*

*With the microwave bands a 1.25 m diameter dish with 150 watts on 23 cm, 100 watts on 12 cm, 20 watts on 9 cm, 100 watts on 6 cm and 5 watts only on the 3 cm amateur band.*

*It became evident that, from either site, VK9NA were easily worked on 2 m at around S2, but the conditions only provided marginal propagation on the 23 cm band. Watching the Hepburn charts as the days went by, we saw what could be an intense inversion layer appearing on Sunday 16 January UTC at around 1800 or thereafter, with red on the Hepburn indicative of "Very Intense Propagation" between Cape Reinga up to Norfolk Island.*

*Arriving at Cape Reinga at 8 am, it was cloudy and misty and the humidity was extremely high with no visibility whatsoever. Initial contact on 2 m was not that strong at only S2.*

*We both decided to set up our respective 1.25 m dishes at each end, and then tested on 12 cm (2.4 GHz) with no success. We dropped down to 23 cm and I locked my dish on the VK9NA signal - I had lost my accurate visual bearing marker in the mist.*

*With tests again on 12 cm, their beeper identification was easily heard, resulting in a weak SSB contact on 2.4 GHz at 10 am NZT. We then completed a digital QSO (FSK441) with signals becoming stronger.*

*At around 10 am ZL time or 2100 UTC our liaison frequency on the 2 m band surprisingly went up to S9 plus. It turned out we now had a three to four hour intense temperature inversion.*

*We now moved up to the 5.76 GHz band. The initial received signal from VK9NA was not strong but VK9NA was easily heard at my station at around 11:30 NZT. VK9NA could not hear my return transmission on 6 cm. I swung the dish only a few degrees to the north and VK9NA were now S7 and extremely loud on 5.76 GHz. We completed on SSB and Digital (JT65C).*

Once that was complete we attempted a contact on 10 GHz or the 3 cm band. No signals were heard each way, but at the time the TWTA from VK9NA was not fully operational.

We then moved back down to 3.4 GHz. The VK9NA signal was easily heard and we completed on SSB. We attempted JT65C but it was soon evident that my transverter was not stable enough for this transmission mode.

We checked the 2 m band at around 2:00 pm NZT. Signals were down to S2 and the intense opening looked to be over. We tested 10 GHz again with VK9NA now having fixed their 100 watt TWTA power amplifier, but nothing was heard either way. The intense opening to VK9NA, we believe, only lasted for around three hours that day, from 10 am to around 2 pm NZT on 17 January 2011. We both packed up our stations and I left Cape Reinga at 3 pm NZT for another 1.5 hour drive back to the Kaitia motel.

The station operators, with the VK9NA DXpedition to Norfolk Island were Alan VK3XPD, Kevin VK4UH, Michael VK3KH and Andrew VK1DA. New Zealand amateur radio operators would like to thank the VK9NA team for activating Norfolk Island once again in January 2011.

## VK5 Portable Microwave Operations

In line with the VK9NA operations, Colin VK5DK, Trevor VK5NC and Les VK5JL travelled to the northern coast of NSW with the hope of working across to Norfolk Island. Colin writes:

As the plans were to have VK9NA operational from 8 January 2011, Trevor VK5NC and I left on 6 January to travel to Port Macquarie on the North Coast of NSW in an attempt to make contact from VK2 to VK9 on as many VHF/UHF/Microwave bands as possible. We chose Port Macquarie as Les VK5JL has a residence there, so it was a central location for any planned operations to VK9.

We arrived on the 7th and quickly installed our 3-element 50 MHz antenna and 10-element 144 MHz Yagis at Les VK5JL's portable QTH.

Mid afternoon on the 8th January, we were able to have a short Sporadic E contact to VK9NA plus working several VK3, VK5 and VK7 stations on 50MHz.

During the following few days we investigated several possible portable sites to give a good take-off to the north, south and east so as to be suitable for the VHF/UHF/Microwave Field Day. We checked out North Brother, which has a good take-off to the East, but no good north or south. Several locations were checked around Port Macquarie, with a possible good location found at the Tacking Point lighthouse. The problem at this location is that it is a popular scenic attraction with lots of visitors and locating portable equipment would be difficult. Crowdy Head lighthouse on the coast east of Taree was suggested and found to be quite suitable for all directions.

On Thursday afternoon 13 January starting at 0230 UTC there was a very good Sporadic E opening on 144 MHz with several states worked from our portable home location in Port Macquarie. Stations worked included: VK5JR, VK7MO, VK5ZK, VK5NY, VK5AKK, VK5GF, VK5ZBK, VK5APA, VK9NA/P, ZL3TY, VK3DUT, VK3AUU, VK5BC/P, VK5ZPS, VK5GF and VK2ZT who was on normal Tropo.

Trevor VK5NC, Les VK5JL and myself VK5DK travelled to Crowdy Head lighthouse on 15 January and with the help of Mark VK2AMS we set up for the VK VHF/UHF/Microwave Summer Field Day operations and managed 46 contacts on bands from 50 MHz up to 24 GHz in the 8 hr section. There was quite a lot of wind, which did not help operations, but contacts were made on all bands.

On Sunday 16<sup>th</sup>, from our portable location in Pt Macquarie, we were able to work Steve ZL1TPH via Sporadic E with S9 signals plus VK2IF, at Kempsey also S9. Adrian VK4OX was also worked on 144 MHz from his Maleny QTH, but nothing heard when attempting a 2.4 GHz contact.

Monday 17 January we returned to Crowdy Head lighthouse in an attempt to work to VK9NA on some of the microwave bands, plus have some contacts with Matt VK2DAG.

We were able to have contacts with Matt VK2DAG over the 210 km path on all bands from 2.4 GHz to 10 GHz with good signal on all bands, 24 GHz was attempted, but with no results.

While attempting to work VK9NA, the wind tipped our 1.2 m dish over and damaged the 2.4 GHz feed beyond repair plus some damage to the dish itself, so we packed up and returned to Pt Macquarie.

Since returning home to Mt Gambier, Colin has had a number of interesting contacts. He writes:

I have resumed tests on 10 GHz with Russell VK3ZQB on a nightly sked with very good results. Also, on 23 January Rex VK7MO/p in QE48 was seen at our portable location QF02GG on 10 GHz WSJT, but no contact made. This was over a distance of over 800 km.

On Saturday morning 29 January, there were some very good S9+ signals received by Gary VK5JR and myself on 144 MHz and 432 MHz from VK7XX and VK7JG plus Karl VK7HDX mobile in Launceston was worked on his mobile with a ¼ wave whip at S2.

On Monday morning 31 January, Alan VK3XPD and myself had a 5 x 9 SSB contact on 10.368225 GHz over a distance of 380 km plus Ralph VK3WRE portable on Mt Tassie in Gippsland (OF31) a distance of 510 km was heard at S2 on SSB, but not worked.

## Summer VHF/UHF Field Day

The Summer Field Day in mid January was again well patronised in the southern part of the country. Unfortunately, the disastrous floods in Queensland meant that many had much more important matters to attend to up that way.

The VK2SMC team went out to their usual location in the heart of the Snowy Mountains. David writes:

VK2SMC completed a reasonably successful Summer FD for 2011 from our usual location near Mt Selwyn (QF43GV) - at 1610 m asl. There was a weather issue leading up to the event but we were fortunate that the fog and rain cleared almost on cue,

allowing us to assemble the station on Saturday morning without any major problems.

For almost the full 24 hour duration the weather was essentially perfect with clear skies, almost no wind and mild temperatures (14 – 22 C). This was easily the best 24 hours of weather we have ever experienced at the QF43/P QTH.

Propagation was excellent too. To the west and south-west several VK5s were very audible for the entire 24 hours, which is very unusual over a continental path (floods excluded). During Saturday evening and Sunday morning we saw S9 signals from VK5 and we were eventually able to complete a 1.2 GHz contact with Phil VK5AKK, and also managed repeated 2 m and 70 cm contacts with Brian VK5BC/p - on the York peninsula. We also worked VK5 on 6 m troppo?? This sort of propagation is far from normal - but very welcome on a Field Day weekend - even if the distance does not equal points!

In total we managed to complete nearly 150 contacts on 4 bands combined, but we might have done far better on 1.2 GHz if the SSB preamp had been working. That was our only failure but it proved a crucial one - restricting the number of long haul stations worked on that band.

All in all it was a fruitful as well as enjoyable weekend, which only helps to keep the motivation factor high for next year.

Thanks to all that participated and particularly to those field stations that braved the high temperatures and high humidity at lower (normal) altitudes.

Cheers from the entire VK2SMC group - Dave, Rod and John.

We will definitely be up there again in 2012 come rain, hail, lightning or blizzards.

Mike VK1MC had a Field Day encounter from a different perspective: I had a friend visiting Canberra from Melbourne this weekend and I did what any Canberran would do and set about showing her the local sights. In the middle of the day we decided to cruise up Mt Stromlo to take in the view and I spoke about the legacy of the 2003 bushfires on

the mountain as we cruised past the burned out telescope buildings. I decided to pop up to the laser ranging station for a look and as we hit the top I saw a bloke surrounded by bits of recalcitrant aluminium trying by himself to build a radio station.

"VHF Field Day" I thought to myself and muttered the same to my puzzled friend. "I need to go and say hello." I said. She thought I was mad, but came along for a look.

I parked the car and walked over to find Greg VK1AI attempting to juggle a mast and fiddly antennae by himself. While introducing myself I grabbed the mast and together we chatted and assembled his selection of field day equipment. I managed to undo a nut and drop it to the ground while keeping track of it in the grass and rocks then finding it again... so I didn't make anything worse. :-)

With a bit of juggling and re-jigging we got his slot-fed over and under 2 m array up there below a 6 m vertical then clamped on a wee 70 cm Yagi.

I'm still not sure how he'd have done this if I hadn't happened along at the critical moment but great respect to him for pressing on regardless. Here's what it looked like: <http://goo.gl/UvJKj>

We took a deep breath and Greg hooked up the power to the 2 m rig with a SWR meter in line. Power good. Cal good. Forward power good.

Reflected power... um... Hmmm. From my perspective, reflected power was Too Good To Be True (i.e. none) but I couldn't fault Greg's approach. He decided to "Give her a go" and immediately found Dale VK1DSH in Gundaroo. The proof of the pudding etc.

Thanks Greg for sharing your site setup with a random bloke who showed up on the mountain.

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

## Digital DX Modes

Rex Moncur VK7MO

### A new 2 metre Digital Record

Following the report of an almost new record in last month's AR, Derek VK6DZ and Jim VK3II completed a new 2 metre digital record on 21 January 2011 with JT65b signals up to -1 and -2 dB over a distance of 2497 km – congratulations Derek and Jim.

### WSPR – report by Leigh Rainbird VK2KRR

A number of stations have begun to explore the use of K1JT's WSPR (whisper) mode on 144 MHz and more are following suit.



Photo 2: Mt Poimena QF48 station.

Timestamp	Call	MHz	SNR	Drift	Grid	Pwr	Reporter	RGrid	km	az
2011-01-22 02:16	VK6DZ	144.145496	-29	0	QF84ux	10	VK5BC/P	PF85mc	1759	95
2011-01-22 00:48	VK6DZ	144.145551	-24	-1	QF84ux	10	VK5BC/P	PF85mc	1759	95
2011-01-21 23:54	VK6DZ	144.145534	+7	-1	QF84ux	10	VK5AKK	PF94ix	1909	96
2011-01-16 22:52	VK6DZ	144.145571	-25	-2	QF84ux	10	VK2KRR	QF34mr	2657	96
2011-01-24 23:08	VK2KOL	144.145479	-12	0	QF56jf	50	VK5GF	PF94hk	1130	256
2011-01-24 22:52	VK2KOL	144.145483	-15	-1	QF56jf	50	VK5GF	PF94hk	1130	256
2011-01-25 03:46	VK5ZK	144.145560	-25	-3	QF56jf	20	VK2EMA	QF37qs	872	68
2011-01-21 07:00	VK3GHZ	144.145402	-15	1	QF56jf	5	VK2KOL	QF56jf	536	34

Figure 1: Sample of Data from WSPR data base.

WSPR stands for Weak Signal Propagation Reporter. WSPR implements a protocol designed for probing potential propagation paths with low-power transmissions (originally designed for HF). Normal transmissions carry a station's callsign, Maidenhead grid locator, and transmitter power in dBm. The program can decode signals with S/N as low as -28 dB in a 2500 Hz bandwidth. Stations with Internet access can automatically upload their reception reports to a central database called WSPRnet, which includes a mapping facility. The WSPR software is available from the WSJT software site <http://physics.princeton.edu/pulsar/K1JT/> and the WSPR online database site is located <http://wsprnet.org/drupal/>

The following stations have been active using WSPR on 144 MHz during January VK2MER, 2KOL, 2KRR, 2XTT, 2EMA, 2QW, 2CDS, 2DVZ, 2BLS, 2DAG, 3SO, 3GHZ, 4LHD, 4FIL, 4VDX, 4JMC, 5GF, 5ZK, 5ACY, 5BC, 5LA, 5AKK, 6DZ and more.

Figure 1 (above) shows a sample of the data you can find online about your signal or reception of others.

When on the WSPRnet site you will find it quite interesting to analyse the data and compare 2 or more stations reception of your signal in different locations. There have been numerous surprises for a number of stations finding signal paths they were not expecting to hear, such as the VK5GF to VK2KOL path was very interesting indeed, 1130 km over the inland and mountains.

The more stations active using WSPR the more interesting the data can become. If you have your two

m SSB rig sitting idle, why not hook it up to WSPR and either let it log reception reports or you can TX also. Why not have a go? You may be surprised what you might hear or who can hear you, and have a bit of fun.

Note on WSPR Frequencies:

While the above examples show the use of a dial frequency of 144.144 MHz, the Chairman of the WIA Technical Advisory Committee, after consultation, has decided that it would be more appropriate to use the international WSPR frequency of 144.489 MHz (dial frequency) in VK. This frequency is within the present beacon allocation but not on the frequency of any existing beacons. Advantages of using the international allocation are that this may open up international 2 metre DX opportunities and would also remove the possibility of mutual interference with SSB stations. The Band Plan has been amended accordingly. Under the guidance of Leigh VK2KRR, WSPR activity has now been transferred to a dial frequency of 144.489 MHz.

### Mt Poimena QF48 Expedition

On the weekend of 22 and 23 January, Rex VK7MO and Joe VK7JG operated on 144, 432, 1296 and 10368 MHz to activate the rare grid square QE48 on the east coast of Tasmania. In most parts of QE48, VHF propagation is blocked to central and western VK3 and VK5 by mountains in northeast Tasmania, but Mt Poimena (see Photo 2) in the northeast corner of the grid offers the opportunity to work into these areas with an almost clear view across Bass Strait. However, there is no vehicle access to the summit and thus activation involved carrying

all the equipment over about a 800 metre track to the summit – in total Rex and Joe made 10 return trips each, about 16 km, often carrying around 20 kg of equipment – that is half a marathon each carrying equipment up a slope over rough ground – not bad for a 69 and 66 year old.

Aside from the fact that they both took off some weight, the radio results were excellent and many stations now have four new grids to their totals. The trip was planned primarily as a 10 GHz digital exercise but as it turned out the excellent take-off and some good conditions allowed most stations to be worked on SSB. In total 45 contacts were made including 11 on 10 GHz. The best distance contacts were VK5AKK 432 MHz SSB (1065 km), VK5DK 1296 MHz JT65c (725 km), VK3PY et al 10,368 MHz JT65c and SSB (469 km). The nearest miss was VK5DK on 10,368 MHz (725 km) with decodes one way on JT65c.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

*Brian Cleland VK5BC*

The 6 m band certainly lived up to its reputation as the "Magic Band" during January producing openings from VK/ZL to W, XE and KH6 as well as contacts from the eastern states to H44 and VK0 (Macquarie Is).

The first reports of US signals into Eastern Australia occurred mid morning January 11th.

In the previous few weeks ZL1 and ZL3 had made infrequent contacts with Bob K6QXY who runs a 44 element array and an EME capable station, K6MYC and N5JEH but nothing had been heard in VK, but on the morning of the 11th Norm VK3DUT worked E51CG at 0010 UTC and shortly afterwards at 0016 UTC started hearing the K6FV/b on 50.068 in Woodside California @ 519. This beacon runs 100 watts and a Yagi antenna which at the time was directed towards the South Pacific. Norm then heard W0OGH on 50.115 CW, followed by weak Ws on 120, 125 etc eventually working WA7JTM, AA7A. Norm completed a great morning by working VK9NA Norfolk Is. and H44DA Solomon Is.

Steve VK3OT in Hamilton noticed the report posted on the DX Summit and VK Logger websites by Norm and on tuning the 6 m band at 0035 UTC heard the CW signals from N5JEH in New Mexico USA on 50.105 running at around 579. Despite a concentrated effort for some five or six minutes Steve could not break into this keyer, so tuned up to the US call channel on 50.125 and encountered W0OGH in Gilbert Arizona DM43ii calling CQ on CW and a two way contact was completed. In the USA there was linkup between west and east coast by mid winter E-skip and the appearance of VK and ZL into the USA produced a huge pileup on 50.125. Steve also worked AA7A as late as 0123 UTC and logged WA7JTM, K7TNT and W7KNT and heard N5JEH. Also Steve completed good contacts with N7CW in DM34rn, 13,850 km and also a triple hop F2 contact with K9HMB in EN52ri at 15,739 km.

The above contacts are the first into USA from VK3 since Cycle 23 in the year 2000/01, remarkable considering the solar conditions with figures of 83-6 and 1.

Meanwhile up in VK4 Wade VK4WM worked the following:

Paul VK4MA worked the following stations between 0100 & 0128 UTC:

N5JEH in NM, W0OGH in AZ, WA7JTM in AZ, N7IR in AZ, XE2D in Mexico, W7RV in AZ and W7XA in AZ.

Two days later on 13 January Norm VK3DUT was in the action again, this time spotting the NH6P beacon on 50.045 at 0035 Z and working KH7Y at 0056 Z. The NH6P beacon was also heard in VK2, 4, 5 & 7 and many VK2, 3 & 7s worked Fred KH7Y. KH6SX was also heard.

From New Zealand Bob ZL1RS logged the following:

01Jan2011 E51CG as far as 3 x VK6s at almost 8300 km ... not bad for 100 W/5 element stations at both ends of the path!

03Jan2011 VK9L + all mainland VK prefixes 1-8 throughout most of the day.

04Jan2011 2358 OA4TT for 1 hour signal between 529 and 559

07Jan2011 0130 K6QXY weak

10Jan2011 0027 OA4TT weak, QSO in JT65A only

10Jan2011 2333 K6QXY weak in JT65A but 20 minutes later N5JEH 559 on CW as the band really started to open at the start of the 11 Jan UTC day.

11Jan2011 The big opening to USA. There were 26 x W6, 7, 9 and 0 and 1 XE worked here between 0015 and 0135 UTC. I understand ZL2TPY heard the K6FV beacon and may have worked K6QXY?

12Jan2011 00:30 4 JAs worked at up to 579

13Jan2011 00:54 KH7Y and KH6SX worked with K6QXY between them for good measure!

14Jan2011 2336 - 0040 ZL2TPY reporting CE "muzak" on 48/49 MHz

18Jan2011 0447 - 0930 good opening from ZL1/2/3 as far as VK6 for nearly 5 hours. Station worked here including a digital QSO to VK6OX with both ends running 5 W. In fact signals were at the JT65 level "-04" and so were quite strong enough for an SSB QSO.

Shane VK4KHZ was on holidays in the Solomon Islands in early January and operated as H44DA. The 11th also proved a good day from the Solomons and Shane provided many VKs with their first H44 on 6 m, working many stations down the east coast from as far north as Cairns south to Melbourne.

As can be seen from the above 11 January was certainly an outstanding day both in VK and ZL.

Early in January Kevin VK0KEV Macquarie Island was worked by several VK3 and VK7 stations on two separate days.

The VK9NA DX expedition on Norfolk Island worked many VK/ZL stations on 13 and 14 January.

Received a note from Greg VK8GM in Alice Springs saying he is active on 6 m from the Alice and that on New Year's Day he had 38 contacts. This included 2 x ZL and all VK states except VK6 & VK8.

From a Sporadic "E" perspective there were several good days where the band opening all over VK early in January but it started to fizzle out in the third week of January with very few openings since then.

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



# National Field Day

17th April, 2011

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0120 UTC	AA7A	AZ	sent 559	rx 559
0129 UTC	WA7JTM	AZ	sent 519	rx 529
0137 UTC	N7RP	NM	sent 419	rx 559
0141 UTC	W0OGH	AZ	sent 419	rx 339

Justin Giles-Clark VK7TW

Email: [vk7tw@wia.org.au](mailto:vk7tw@wia.org.au)

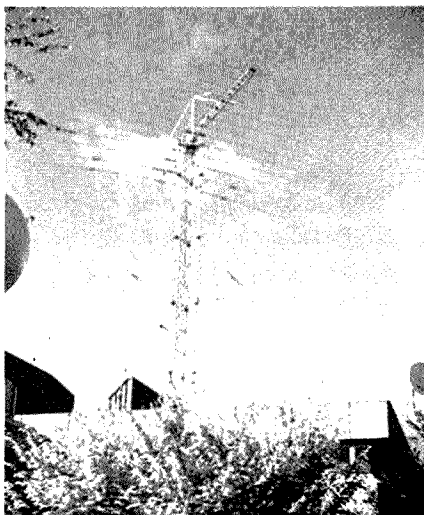
Regional Web Site: <http://reast.asn.au/>

## Meet the Voice BBQ 2011

Don VK7AY lets us know that Sunday March 20 is the date for this very popular VK7 event. It sees amateurs, partners and families converge on the Ross Caravan Park for a day of what radio amateurs do best – face to face communication, socialising and eating! Registration from 10 am with an 11 am chat session where you can voice your ideas and suggestions for the further development of amateur radio and in particular what can be done to improve participation in the daily 5 pm Sewing Circle Net on 3.589 MHz. Everyone will be made very welcome.

It has been AGM season in VK7 starting with NWTATVG on February 5, NTARC on February 9 and REAST on February 20. So thank goodness, club formalities should be completed by the time you are reading this report. I received email greetings from Steen OZ8SW from Broenshoej in Denmark. He let us know that a fellow radio amateur Thomas OZ1AA is cycling from Denmark to Sydney and you can follow his progress on the very professional website: <http://www.cyclingtheglobe.com/>

A big congratulations to Rex VK7MO and Joe VK7JG who activated grid squares QE27 and QE48 over the last few months. I think we will be renaming these two the dynamic duo! The QE48 - Mt Poimena activation saw this 69 and 66 year "young" duo have to cart all the equipment over the last 800 m of the track and they each did about 16 km carrying some heavy equipment. Now that is dedication or an extreme grey-power weight loss program... HIHI. Rex and Joe were also logged working the VK9NA DXpedition using various modes. Rex even set up camp at picturesque Bicheno on Tassie's East coast for the event, dropping back home to work them on EME!



Log Periodic Array at Alanvale Campus  
(Photo: Eric Ferrier).

## Northern Tasmania Amateur Radio Club

NTARC meets at the Alanvale campus of The Skills Institute in Launceston. For many years this campus had a large log periodic antenna that was used by the college and amateur radio operators at this campus.

This antenna was an LP1017 and had a frequency range of 6 to 30 MHz with a boom length of 11.5 metres and was one very impressive antenna. With the changes at the campus this antenna was dismantled and the lucky recipient was Tony VK7DXX. So you can expect some serious signals from Northern VK7 in the near future.

## Cradle Coast Amateur Radio Club

The CCARC New Year's Dinner at the Bass and Flinders Motel in Ulverstone was held on February 5 and by all accounts was a great show with many attending.

## North West Tasmanian Amateur TeleVision Group

There is renewed ATV activity in Ulverstone with Steve VK7ZSJ, Ross VK7WP and Tony VK7AX experimenting on 70 cm and 23 cm ATV. Thank you to Ken VK7DY who has kindly loaned some 70 and 23 cm ATV transmitting equipment and antennas for the experiments. Regular ATV transmissions on 70 cm take place with all the daily amateur radio broadcasts that usually come from VK7AX.

## WICEN Tasmania (South)

WICEN have been busy over the last few months with communications support for Targa West Point, the two day Tarmac rally around Southern Tasmania was held on January 29 and 30. February 6 saw communications involvement for the Hobart Run the Bridge event over the Tasman Bridge. February 18 to 20 the WICEN crew provided safety checkpoints and communications for the Portland Endurance Riders in the North East of VK7 around Pyengana and St Helens.

## Radio and Electronics Association of Southern Tasmania

Congratulations to Pat Price, Angela Devine and Nicole Sweeney who all passed their Foundation licence assessments on the 22 January Foundation Training Day. We look forward to hearing you all on air.

Over the Christmas break our DATV Experimenters Nights on Wednesday were very busy with demonstrations of an optical spectrometer, demonstrations of the software and hardware for a HPSDR transceiver, time lapse films of Mt Wellington and Hobart, Australian Sky and Telescope article discussions and one special night where Patrick VK7FPJB described some of his PhD project that he is undertaking at the University of Tasmania - Computing Science department. Patrick will be back later in the year to give a presentation at one of the REAST presentation nights and we certainly look forward to that one. Want to receive digital ATV in Hobart? All you need is a directional antenna pointed toward the Queen's Domain with a reasonable amount of gain and a set-top box or TV that can tune 446.5 MHz (with 7 MHz BW). We look forward to your signal report.



# ALARAnews

Margaret Blight VK3FMAB – Publicity Officer

## YL International update

Our President Tina VK5TMC has been working hard organising the YL International Meet to be held in Adelaide in 2012. As we know how time passes swiftly, we can support Tina by making this information as widely available as possible and requesting people register their interest in attending, as it is important for planning to know how many are likely to attend.

Tina advises that: *The organization of the YL International 2012 Meet in Adelaide is almost complete. The meet dates are set with delegates arriving on or before 3 May 2012 staying at various venues in Glenelg SA. The following few days will see us tour Adelaide, Hahndorf and Cleland National Park, Port Adelaide and the Dolphin cruise plus a progressive lunch at three Barossa Valley wineries. Those that are doing the optional Ghan tour will join it for either a 7 or 9 day adventure. The 7 day option allows you to leave the tour in Alice Springs after being out to Uluru. I have created a website which is at [www.ylinternational2012.com](http://www.ylinternational2012.com) with up to date information.*

*The Meet is open to any YL and their OMs interested in amateur radio. You do not have to be a member of any organization or even licensed. Most participants are active on air but that is not a requirement for attendance. If you are interested in attending please complete an expression of interest or send me an expression of interest by snail mail. My contact details are below. The list of potential participants is growing and at the moment there are 50 on the list.*

*I should have final prices for the Adelaide Meet about April, but the Ghan prices will not be released until June or July 2011. I know most of you cannot make a commitment until final prices are released but I do need some idea of numbers.*

*I hope many of you will consider.*

*joining us for a great time in Adelaide and possibly also on the Ghan.*

Anyone wishing to contact Tina Clogg can reach her by email on [vk5tmc@bigpond.com](mailto:vk5tmc@bigpond.com) or snail mail at: PO Box 78, O'Halloran Hill, SA, Australia 5158.

## News from VK4

### Sweers Towers Project

*Lyn VK4SWE*

Last August, my OM promised me a tower for my birthday, so over the Christmas period, we carried out the Tower Project! Harold VK4ANR provided a 14 m tower, Col VK4CC the Yagi, Bobby VK4PNR the rotator and we received lots of invaluable advice and help from others, too many to mention here.

Harold built an ingenious system for both tilting and raising the mast using one wire and winch. By the time we got back from our holidays, Harold had built the base section and made ingenious use of bits and pieces which he found and converted into pulleys and pivots, enabling the mast to be tilted right over into the horizontal position. My OM Tex drove the backhoe, expertly and delicately manoeuvring the lower mast section into position onto the pivot. We stood that up and waited (im)patiently for the rotator to arrive. It had missed the barge in Karumba by one day, so we had to wait a whole week for it to arrive on the next one. This is one of the downsides of living on a remote tropical island!

Meanwhile Harold built the winch plate and also a special section of mast to house the rotator as the current mounting plate was not really strong enough for our "curly wind" QTH. Lyn meanwhile assembled the Yagi, carefully measuring, and re-measuring, the element lengths to best suit both SSB and CW modes. Those of you who have assembled antennas will understand why I had to throw the workshirt out when

finished - all that aluminium grease had me looking like the Tin Man from the Wizard of Oz!

At last the rotator arrived. Harold installed it, and we were then able to slide the top section of mast up inside the lower half. Next came the cables - we had fun threading them through! Then the mast on top with the CP6 attached and, finally, the Yagi - it was all starting to look seriously big.

We worked in between the rain storms which were causing floods all over Queensland. Being on a sandy island is definitely an advantage in this case. The first calm day we got, we winched the tower to its full height and ran some tests to check SWR. We were amazed at the results. The Yagi was performing even better than expected, with SWR lower than two right across all bands. It is possible the proximity of the CP6 radials are causing this, but it is a good side effect, so we are happy. The CP6 did not reciprocate at first, (my hope was it would be my omni-directional "ears" and I could turn the beam to suit). It turned out that water had gone into the traps while the CP6 was on the ground during tower construction, so I resurrected my hairdryer and we dried it out! We YL operators have our own special tools, Hi.

So now we have a 15.2 m tower, with the tip of the CP5 at about 21.3 m. All guyed safely in place but can be wound down and tilted over in the event of a cyclone. It is a credit to everyone who helped with the project. On one night I have worked Europe, South America, the U.K. - getting 59 reports on SSB. Something I never dreamed possible. Thanks to everyone involved.

## VK3 news

In early January, a group of VK3 EMDRC Club members and ALARA members gathered at the Mountain View Hotel in Glen Waverley to welcome back Micheline VK3MGE and her OM Peter VK3KG from their





*The VK3 ALARA group gathered at the Hastings Marina.*

various travels. Together they had spent months journeying around Australia and, in Micheline's case, more recently visiting her family in Switzerland. We hope to hear from Micheline later with details of their radio use while travelling.

The evening was also a farewell to Jean VK3VIP's mother Elsie who had been visiting from New Zealand and was flying home the following day after a month's stay.

### **VK3 ALARA luncheon**

On 29 January, the first ALARA Lunch for 2011 was held at the Hastings Marina. The weather was beautiful for a trip to the coastline, although it was not exactly an easy jaunt for some of the participants who were not familiar with the area. However, once arrived, everyone commented favourably on the location. The venue was attractive with views to the water nearby. Some of us were able to enjoy one of the day's specials which consisted of half a Lobster plus salad for \$20.00. Yum.

In all 19 people attended including a number of OMs.

*The group enjoyed the lunch at Hastings.*



The conversation flowed freely as it usually does on these occasions and everyone enjoyed themselves catching up with friends. After lunch everyone went outside to enjoy the scenery at the water's edge plus admiring the many boats in the Marina.

The next VK3 ALARA lunch will be held in Gisbourne on March 26. Details available from the State Representative Jean VK3VIP.

### **SILENT KEY: Dawn Sebbens VK4HER - 9th January 2011**

*Composed by Anne VK4ANN*

Dawn Ward was born in Maryborough, Old 13 April 1936, the eldest of eight children, to whom she was a "mother hen". She was raised in Bargara and worked as a piano tuner's assistant. She was married to Bill Sebbens, a primary school teacher, on 7 May 1958 in Bundaberg. The birth of their three children, Sandra, Darryl and Cheryl followed. Afterwards Bill taught in a number of schools including a one teacher school at Nondah, far NW Qld, where she helped with numerous activities, Bill entered the banking profession with the Commonwealth Bank. They were stationed in Charters Towers in the late 1960s when we first met when both OM Guy and Bill VK4XZ were in Apex.

Dawn was the Head Caterer at the Anglican Church and enjoyed oil painting. In 1969 Bill was transferred to Townsville, where Dawn was

a TAFE teacher for Leatherwork, Basketwork, Copper Tooling and Resin Crafts. She and Bill were extremely dedicated House Parents for Wee Care, a Townsville children's refuge.

After the extreme Christmas present that Cyclone Althea gave us in 1971, both of our families were without mains power for over a week, but Bill and Guy shared the use of an SES HQ generator for a few hours each at night that kept some food, stored in the freezer, cold. Our garden was a mess of destroyed vegetation, so while the boys were at SES HQ, Dawn helped me in cleaning out our yard. After a particularly difficult, stinking, hot day moving this garden wreckage out to the footpath, Dawn, together with a couple of very helpful neighbours, was offered a cold beer. To everyone's amazement, little Dawnie grabbed the stubbie and downed it in virtually one gulp.

I was impressed, as I had rarely seen her drink a shandy, let alone a full strength beer!!

It was during this time in Townsville, we became members of each other's extended families, spending time together caring for each other's children at times through the years.

After Bill's retirement from the Bank, they moved to Maleny and Dawn was a very active member of the Maleny Arts and Crafts group, received her Amateur licence with the callsign VK4HER and became ALARA VK4 Representative. She was also a founding member of the Friends of Ebenezer Aust. Inc, fundraising and cardmaking for sale to help provide for an orphanage in Livingstone, Southern Zambia.

Dawn was a caring, incredibly capable homemaker, who worked intensively, but stayed in the background giving Bill the opportunity to serve the community in various organisations such as Apex, Rural Fire Brigade, SES and WICEN.

We will miss her.

# A different sort of radio

Hans Smit VK5YX

vk5yx@tpg.com.au

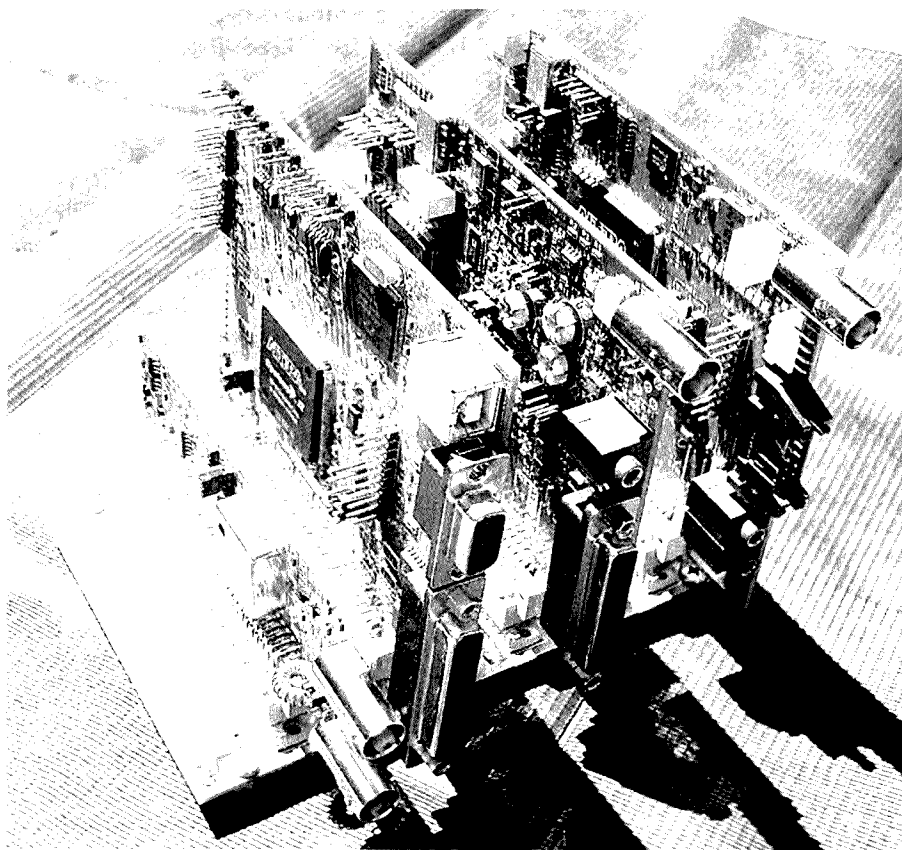


Photo 1: The hardware portion of a Software Defined Radio.

Does not look much like a top notch HF/6 m all mode transceiver, does it? Well, that is because it is the hardware portion of a Software Defined Radio – SDR.

This particular SDR is a part of the 'HP-SDR' project developed during the last four years by enthusiasts cooperating via the internet, employing leading edge technology. The "HP" stands for High Performance. There are no tuned RF stages, no converter, no conversion oscillator, no IF amp, IF filters, or demodulators, and there is no requirement for a sound card. Virtually all functions are executed in software in a common PC.

## The Receiver – "Mercury"

Essentially an analogue to digital converter (ADC) which direct-down-converts (DDC) the 0-55 MHz signals from the antenna to a data stream presented to the PC. The actual ADC chip is an LT2208 and can be seen in the centre of the top edge. It is clocked at 122.88 MHz. There is firmware contained in the large IC. This is a Field Programmable Gate Array (FPGA). The programmed functions in this IC

'decimate' (reduce) the data stream by re-sampling to manageable proportions for input to the PC. As you can appreciate, no sound card or equivalent is involved; there is no Intermediate Frequency (IF).

## The Transmitter – "Penelope"

This card does the DAC - digital to analogue conversion - function. It performs the direct-up-conversion (DUC) of a data stream from the PC to 500 mW of RF (0-55 MHz) to the antenna, or to a PA, in the reverse manner of the receiver card. All the other 'magic' is done by free, open source software called PowerSDR. It is a modified version of that used by the FlexRadio company.

The other larger card ('Ozymandias') you see in the first picture is the controller and interface to the PC USB connection. It also provides audio in-out, band information to control other devices, and so on.

The front panel of the radio is presented on the PC display, which includes a superb 'panadapter', 192

kHz wide. You control all functions with the mouse and optionally, some with the keyboard.

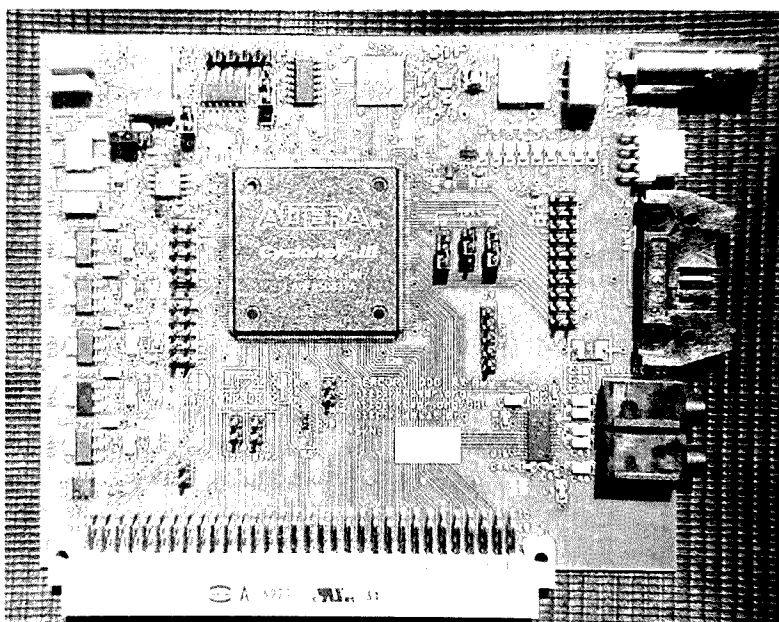


Photo 2: The receiver – 'Mercury'.

There is no need for physical knobs, dials or meters. For those familiar with using a mouse, that becomes easier and more intuitive than conventional controls!

The HPSDR project is described in utmost detail at this website: <http://openhpsdr.org/> - but be warned; you may spend many hours there!

My interest was kindled in 2006 by SDR articles in 'RadCom', the monthly magazine of the Radio Society of Great Britain - RSGB, presented by Phil VK6APH and Steve VK6VZ. Phil Harman is one of the key developers and made a presentation at the 2009 WIA AGM on the subject (See 'Amateur Radio' June 2009).

I started to accumulate kits and parts as they became available, and had a fully functioning transceiver in January 2009. 100 watt output was achieved by adding a surplus Codan power amplifier, including LP filters available from the Adelaide Hills club a few years ago.

Performance is better than any other transceiver I have experienced previously, and even improves with software updates from time to time! You can get some idea by reading the final HPSDR article in 'RadCom'

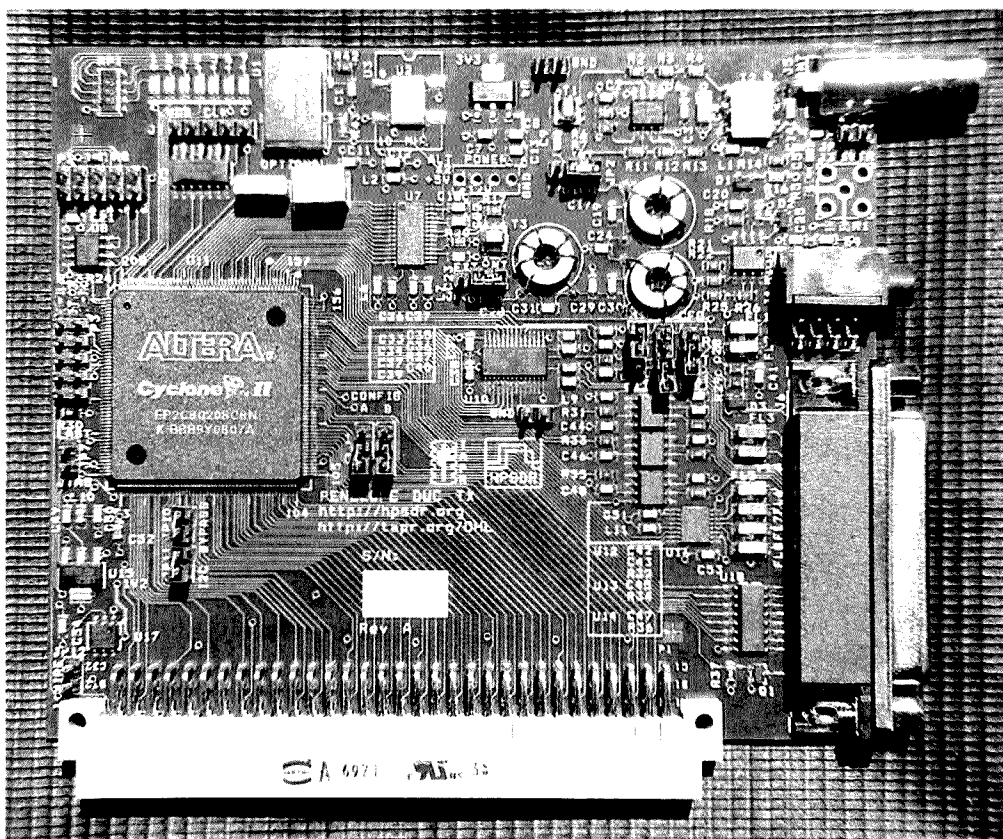
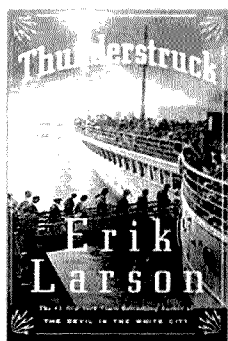


Photo 3: The transmitter - 'Penelope'.

December 2008 in which the Mercury RX is compared with an Elecraft K3. Some performance measurements are included. It is available from the RSGB website, or I can provide you with a copy via email.

The HPSDR project continues with added facilities and improvements as time progresses. I read the email reflector each day with anticipation! It's a continuing, exciting journey!



## Book Review Thunderstruck

Author: Erik Larson

Crown Publisher/New York 2006

Reviewed by Lesley Smit VK5LOL

This book is must for all amateur radio enthusiasts.

Erik Larson weaves together two exciting stories in very readable prose.

He tells the life story of Guglielmo Marconi from his earliest tinkering at home with what he called "my electricity"; his transfer to England where his apparatus was destroyed as a potential bomb threat; his battle with the knowledgeable elite of the day who did not think his wireless could possibly work; to the ultimate final triumph

of transmitting a signal across the Atlantic with his spark generator. Communications would never be the same again!

Marconi's story is interspersed with a scintillating whodunnit; a Jack the Ripper type murder.

Justice is brought about through Marconi's invention.

Available as an inter-library loan in South Australia.



# Hamads

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IC-251A FM/SSB 10 watt transceiver, in good condition, and working. Make an offer. Eddystone S770U VHF/UHF valve receiver, with manual. Needs work. Make an offer. Contact Ian VK3AQU on 03 5751 1631 AH

Two only Icom IC-22S transceivers, both with PLL faults. Free to a good home.

Homebrew receiver, using Harold Hepburn building blocks. Working. Free to a good home. Contact Ian VK3AQU on 03 5751 1631 AH.

Complete HF set-up comprising HF/50 MHz Transceiver Icom IC-736, external speaker and audio filters Icom model SP-20; SCS multimode controller model PTC-11e. Instruments come with full documentation, history, cables & where required, software. The IC-736 has had fitted FL-52A and FL-100 narrowband filters for CW work, plus a high stability crystal. Neil Duncan's review in ARA May, 1994 is included. The PTC-11e, when properly configured is capable of decoding RTTY, Morse, Packet, Fax, Pactor 1 & 11, Amtor & Fax signals. It requires a computer, (an old "clunker" with a serial port, running 95 or 98 is adequate); interfacing program NcWinPtc is supplied on a floppy. Signal & power is obtained from the receiver via cable plugging into receiver accessory plug No.1. Other RS232 cable plugs into computer serial port. NB. These are quality instruments. Full operation requires that you read the handbooks! Price \$2,000, no price debate. Contact Ken Morgan VK3CEK on 95929957 or [ken3@iprimus.com.au](mailto:ken3@iprimus.com.au)

2 off 12 metre tapered aluminium Flagpoles, with external halyards of PVC coated stranded s/s wire rope. Supplied and installed by ABEL flagpoles on 30-1-98. Still in excellent condition. 1 off galvanized steel poles, bolted together plus Unistrut section to enable mounting to brick wall. Complete with finial and hook to hold balun of Tet Emtron ED52C multiband dipole antenna. The flagpole requires a foundation of 0.6 cubic metres of 25 MPA concrete. A block measuring say 0.7 x 0.7 x 1.2 metres. Fixing via 4 studs chemi-welded into the concrete. Price – The original installation, less antenna, cost \$4,448. Removal, intact by Abel, is priced at \$990 + GST. The owner would like to defray a reasonable amount of these costs, and would appreciate an offer. Flagpoles do not attract unwanted Council attention, & are a great replacement for trees. The installations may be viewed at 20a Sussex St. Brighton by arrangement with Ken Morgan VK3CEK on 95929957.

## WANTED – NSW

Service Manual/User Manual for the RCA Victor SBA 1000 Mk2 linear amplifier (also known as MI-22805). Any material on this amplifier would be greatly appreciated, either for loan or to buy. Please contact John Bateman VK2ABA at [vk2aba@wia.org.au](mailto:vk2aba@wia.org.au) or phone 02 6790 4028 any time.

## WANTED – QLD

Copy of circuit, or the handbook, on the Yaesu external VFO Model FV107. I will reimburse cost. Contact Brad Booth VK4CDL, 48 Gregory Street, Cardwell. Qld. 4849, or at [bradtimmy@hotmail.com](mailto:bradtimmy@hotmail.com)

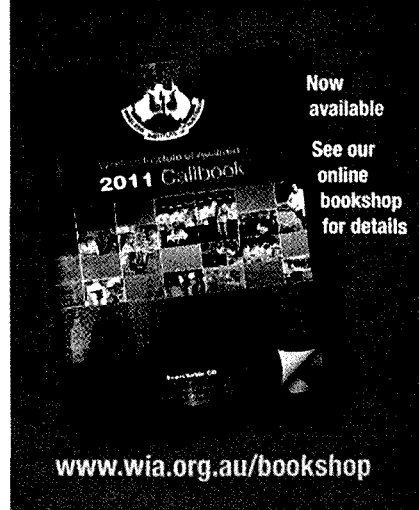
## FOR SALE – SA

Repeater overtimer. Lets you know when you have been talking long enough on the repeater. See November 2009 issue of AR magazine. Complete kit of parts with instructions, last few kits to clear. \$20 each including postage. Also available built and tested \$25 including P&P, from Elizabeth Amateur Radio Club. See <http://www.earc.org.au/articles/2009/05/repeater-over-timer/> or email [vk5oq@earc.org.au](mailto:vk5oq@earc.org.au)

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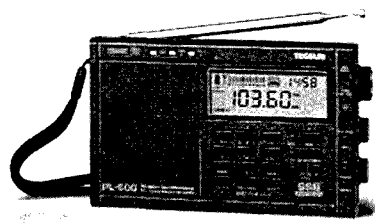
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*56 ITU Radio Regulations*

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*\*Denotes nominated by the WIA Board  
("Nominated Member")*

# A Centenary Recognised

A highlight of the Centenary celebrations was the good wishes extended to the WIA from across the world by many national amateur radio societies including the societies of Finland, Ireland, Kenya, Namibia and the Netherlands.

A highlight of the Centenary Dinner was the presentation of a number of significant gifts, some pictured opposite.

Icom Australia had presented every participant in the weekend with a Centenary satchel and also presented the Canberra Region Amateur Radio Club with a D-STAR repeater and at the dinner its Managing Director Takashi Aoki VK3NON presented a plaque on behalf of the founder of Icom, Tokuzo Inoue.

Gopal Madhavan VU2GMN, IARU Region 3 Director and President of ARSI presented a plaque on behalf the Indian society, Professor Joong-Guen Rhee HL1AQQ IARU Region 3 Director presented a plaque on behalf of the Korean society and Jay Bellows K0QB International Affairs Vice President presented a plaque on behalf of

the ARRL. The Radio Society of Great Britain could not directly participate, but IARU President Tim Ellam VE6SH, a RSBG member, presented a Georg Jensen silver tray on its behalf.

IARU President Tim Ellam also presented the WIA with an elegant silver watch on behalf of the International Amateur Radio Union.

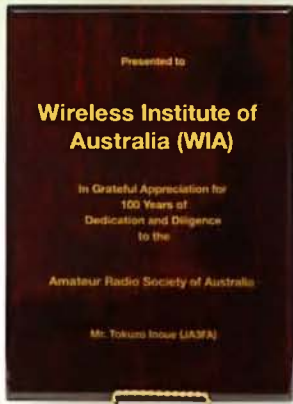
Panayot Danev LZ1US IARU Region 1 Executive Committee Member, presented a plaque on behalf of IARU Region 1.

The Directors of IARU Region 3, in Canberra for their annual meeting as well as the WIA Centenary, presented signed good wishes and congratulations.

NZART President Roy Symon ZL2KH and NZART Councillor Vaughan Henderson ZL1TGC presented a plaque on behalf of the New Zealand Society. Keigo Komuro JA1KAB and Isamu Kobayashi JA0AD presented a plaque on behalf of the Japan Amateur Radio League and its President Shozo Hara.



Some of the gifts presented to  
the WIA at the Centenary Dinner  
May 2010



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# Amateur Radio

Volume 79  
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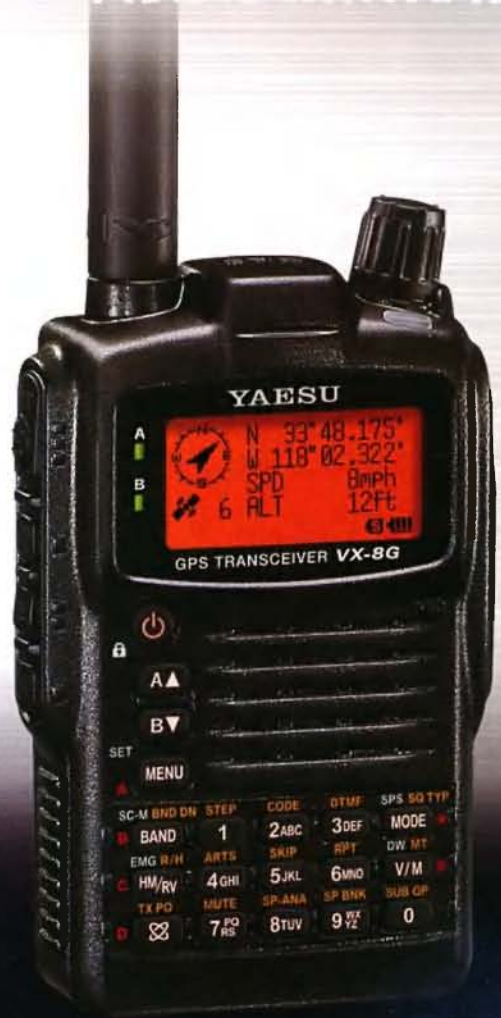


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# Amateur Radio

The Journal of the Wireless Institute of Australia

Volume 79  
Number 4  
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### Cover photo

Our cover this month shows the elegant mast system developed and built by Rik VK3KAN. Some parts from a large hardware outlet together with a Squid pole and other low cost components produce a light weight yet versatile mast system suitable for portable operations.  
Photo by Rik Head VK3KAN.

## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

### Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

### Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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# Editorial

Peter Freeman VK3PF.

## An electronic AR?

From time to time I am asked the question: Can I receive *Amateur Radio* in electronic format?

Clearly, this message has also been received by the WIA Board. As a result, the Publications Committee discussed this issue at its March meeting.

From the comments received over a period of time, and included in the discussion at the meeting, it is clear that some individuals think that receiving the magazine in an electronic format (such as Adobe Acrobat® format) will mean that the individual will have to pay less for their WIA membership.

However, everyone needs to consider all of the steps required for the magazine to appear each month. Whilst most of the required work is done by volunteers, the major costs of production fall into two categories. Firstly, there is the cost of the layout (typesetting) of the magazine, which represents about two thirds of the productions cost. The remaining third is the printing costs. Then we need to add the costs of packaging and posting the magazine. All members will be able to see these costs if they read the financial reports included in last month's issue. Yes, we also need to add a small honorarium and expenses amount that I receive for my contributions. To offset these costs, we have some advertising income together with a small amount from Club and direct subscriptions.

All members can calculate the production costs and income if they examine the financial statement. But is this the whole story?

The reality is that the main component of the productions costs will not change if we produce less printed copies. This is due to two fundamentals: the typesetting costs are the same, regardless of how many hard copies are made, and the marginal cost advantage of reducing the print run by say 1000 copies is very small, as to simply print a single copy incurs significant set up charges. As long as we need to print physical copies, we cannot gain any significant cost savings in production.

The place where some small savings could be made is in postage – a smaller number of magazines posted would reduce the postage costs, but only by a small amount.

There are other factors to consider, including the benefit to our hobby overall by having the hard copy magazine appearing each month on news stands around the nation. These copies bring some income, at a small marginal cost. However the benefits are difficult to assess in dollar terms. In addition, there is the publicity value of having past issues available to give away to new members when they join the WIA.

After considerable discussion, the Publications Committee resolved to recommend to the Board that electronic copies of *AR* not be made available to members on a monthly basis, at this time. However it did recommend a move to produce an annual compilation in electronic format, to be made available after the December issue is published in each calendar year, commencing with the 2011 volume. We have yet to decide the mechanics of the distribution of this electronic version. It might be in the form of a CD or DVD available for purchase through the WIA Bookshop, in a manner similar to the ARRL and RSGB.

I am scribing these notes before these issues have been considered by the Board, so no firm decision has yet been reached.

## Cumulative Index

One project that has been going on in the background for the past two or three years is the collation of a cumulative index of major articles in *AR*. This work has been undertaken in recent years by Don VK3DBB. We have also benefitted from the work of others, who have collated partial indices of past editions and who have placed those indices on the web for public access. Don is continuing his work and we anticipate that we will be able to make the cumulative indices available to members and others at some time later this year. Once again, no decision has been made at this time regarding the method/s to be used for access.

## Sign off

The teaching year started recently, so I have been very busy with work. Apart from getting out for the Summer VHF/UHF Field Day and a couple of other occasions to play microwaves, I have not progressed very far with the major tasks at home. Hopefully I can find the time and energy to get the mast erection project progressed in the near future.

Cheers,

Peter VK3PF





# WIA comment

Michael Owen VK3KI

## The ACMA needs some appropriate policies?

The WIA believes that the Australian regulator, the Australian Communications and Media Authority (ACMA) should enforce the law affecting the amateur service. There have been far too many complaints of deliberate interference or improper behaviour for us to take any other position.

However, what is the law and how it is enforced has recently become the subject of some discussion, with some allegations that must concern us, in particular in relation to the question of the possession of equipment by amateurs and in relation to the inspection of amateur stations.

The primary offence is the unlicensed operation of "radiocommunication devices" which is section 46 of the *Radiocommunications Act*.

Let us ignore the extended definition of radiocommunications devices in this Comment and while a radiocommunications device may be a receiver, let us simply talk of "transmitters", which is really all that is immediately relevant.

The problem appears to have arisen because section 47 provides as follows: "... a person must not have a radiocommunications device in his or her possession for the purpose of operating the device otherwise than as authorised by: (a) a spectrum licence; or (b) an apparatus licence; or (c) a class licence."

Note the vitally important words "possession **for the purpose of** operating the device otherwise than as authorised by" a licence, that is, for the purpose of causing a transmitter to transmit.

Subsection (1) of section 48 then sets out a number of rebuttable presumptions. That is, the section

sets out a number of situations where a person may be taken to have the transmitter in his or her possession for the unlawful purpose if the transmitter can be operated merely by doing one of a number of things, for example by connecting the transmitter to a power supply by a plug, connecting a microphone or switching the transmitter on or connecting it to an antenna and so on.

However, subsection (2) of section 48 says that subsection (1) "only applies in the absence of any evidence to the contrary."

The WIA believes that if the person having possession of the transmitter holds an amateur licence, that is sufficient evidence to rebut the presumptions in subsection (1) of section 48.

Some other evidence must exist to show that the possession was for the purpose of operating the device other than as authorised by the amateur licence.

Any other position must be nonsense.

First of all, only a qualified operator, that is someone holding a certificate of proficiency, can hold an amateur licence.

Then a Standard or Advanced (but not Foundation) licensee may design, construct and operate a transmitter.

And how many of the older amateurs recall buying "disposals" equipment and converting it to amateur bands?

Any other view makes almost every HF transmitter owned by amateurs in this country illegally possessed. Let me give just one example. The Amateur LCD provides that the Advanced licensee may operate on the bands 3.500 MHz-

3.700 MHz and 3.776 MHz-3.800 MHz Does your equipment allow you to operate between 3.700 MHz and 3.776.MHz?

Of course it does.

Any other position is simply ignoring the whole purpose and history of the amateur service.

What has the WIA done about it?

In accordance with the *Freedom of Information Act*, the WIA requested the ACMA to provide copies of any "document or documents disclosing the policy of ACMA in relation to the transmitting equipment authorised to be possessed by a licensee in the amateur service."

The ACMA has responded by a Notice of Decision under section 26 of the *Freedom of Information Act*, and to our surprise, in a four page letter, advises that despite "extensive searches" no such document exists!

Because of the anecdotal evidence of amateurs feeling concerned at the way ACMA officers have sought to inspect stations, in our FOI application we also sought copies of any "document or documents disclosing the ACMA policy or operational procedures relating to the inspection of stations in the amateur service."

The WIA accepts that many people will feel obliged to comply with the request of an ACMA officer to allow him immediate access to the station, no matter how courteous the officer is. The WIA suggests that an amateur is perfectly entitled to decline admission if it is inconvenient and make an appointment with the officer for a more convenient time.

Continued on page 5

## New WIA Secretary

The WIA has announced the resignation of Geoff Atkinson VK3TL as WIA Secretary and the appointment of Sarah Thompson VK3AUD as the new Secretary.

Geoff Atkinson has been WIA Secretary since February 2008.

He became Secretary replacing Ken Fuller, who had taken the position on a temporary basis on the death of Chris Jones. Geoff has played a very important role as Secretary, in particular in relation to finding the WIA's current building, negotiating the lease and ultimately its purchase. Geoff is a totally practical person, and has done much in organising the building, organising the inwards distribution of QSL cards, setting up WIA stands at hamfests and the like.

WIA President Michael Owen said that he very much regretted the resignation of Geoff who has been forced to resign as WIA Secretary because he believes that his health no longer allows him the time to do the job to the level he believes is necessary. "Geoff assures me he will still be able to contribute, looking after the inwards QSLs, and will continue as a regular visitor to the office. I would like to record my very personal gratitude to Geoff, whose views and contribution I have valued greatly."

The new WIA secretary Sarah Thompson VK3AUD recently retired from Telstra, at a senior technical position at the IP Networks, Global Operations Centre at Clayton, after many years with Telstra. In 1977 she spent a year with the Antarctic Division as a Radio Officer at Macquarie Island.



Sarah Thompson VK3AUD

She is currently Secretary of the Moorabbin and District Radio Club, and among her many interests she is a certified Marriage Celebrant, a member of the RSL, holds a current St John Senior First Aid certificate and is a Black Belt in Taekwondo.

The WIA Board believes that her experience in Telstra and her various interests, well fit her for the task. Members will be able to meet Sarah at the WIA Annual Conference in Darwin.

## WIA Extends Emergency Communications Training

Following the success of the first series of courses, and with almost 100 people registered for future training, the WIA has extended its Emergency Communications Operator Training Scheme to all Australian licensed radio amateurs.

The non-refundable fee payable for undertaking the WIA Emergency Communications Training is:

- WIA Member \$30.00 inc. GST
- Non-WIA Member \$65.00 inc. GST

The difference is because the WIA is recovering the full cost of the training from non-WIA members but subsidising member's participation.

Non-WIA members will be given a non-voting temporary membership of the WIA from the commencement of training for a period of six months.

As temporary members they will receive six issues of *Amateur Radio* magazine and will be eligible for all other WIA member services and discounts. Temporary members will not be eligible for accreditation as WIA Volunteer Communications Operators. Temporary membership will cease on the last day of the seventh month after the month in which the temporary membership commenced.

Temporary membership may be converted to ordinary membership at any time by completing the application for ordinary membership and paying the membership fee. Any unexpired period of temporary membership at the time of application for ordinary membership shall be credited as additional time as an ordinary member.

WIA Vice President Phil Wait VK2ASD, the WIA Director responsible for Emergency Communications, explained the reasons for the WIA giving temporary membership to participants in WIA Emergency Communications Training. He said "We have two reasons for doing this; firstly, temporary membership gives us the opportunity to mail copies of *AR* magazine and provide other member services that hopefully will encourage the temporary member to upgrade to full membership on the expiry of the 6-month period. In other words, we are using this as an opportunity to identify active amateurs and to promote the WIA to them.

Secondly, WIA membership simplifies and clarifies the issue of insurance. No issue arises as to whether one candidate has different insurance cover than another candidate during the training. The WIA will include these temporary members in its membership for premium calculation purposes."

All WIA affiliated clubs who meet minimum requirements for numbers, and who have access to a suitable venue and accredited trainers, can apply for a group training event. Interested clubs should phone the WIA office for more information. The standard registration fees apply for each trainee. The WIA reserves the right to insert other trainees into such events if excess capacity exists. Further information about the WIA's Emergency Communications Training, dates and venues, and on-line application and payment form is available on the WIA website.

The training and accreditation scheme is a two part process - Training and Accreditation. Persons who have completed the training course and who are assessed as competent can then apply for WIA accreditation as a WIA Volunteer Communications Operator (VCO). Accreditation is not an automatic process, and only those who meet certain criteria for health and availability will be accredited.



An inspector may obtain a search warrant from a magistrate if he can produce evidence of an offence and an inspector has extensive powers of entry to control transmitters interfering with safety and other services without a warrant.

For an ordinary inspection without any underlying criminality we see no reason for an inspector under the Radiocommunications Act not behaving like other agencies such as the Australian Taxation Office, and making an appointment with the licensee by a simple telephone call.

And that is particularly important in the case of amateur licensees under the age of 18, as we cannot imagine the ACMA approving an

officer seeking to inspect a station otherwise than in the presence of a parent or guardian.

But, again to our surprise, the ACMA response to our FOI request was that despite "extensive searches" no such policy or operational procedures exist!

We also have been told that ACMA officers have purported to direct the licensee to dispose of equipment said to be possessed in contravention of section 47. We have not been able to find any statutory basis in law for such a direction.

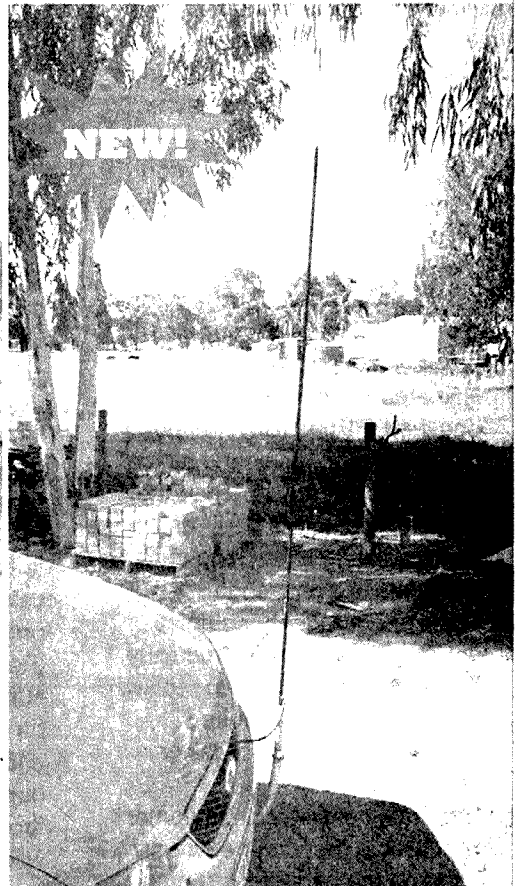
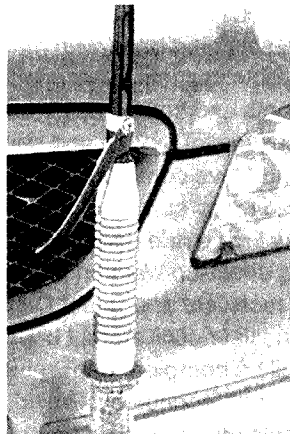
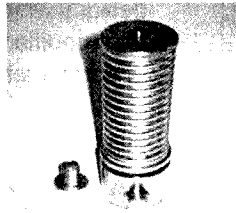
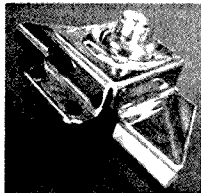
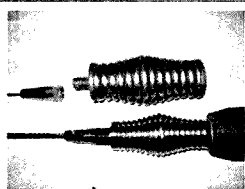
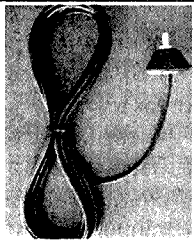
The WIA is of the opinion that clear and appropriate policies must be formulated in respect of all of

the matters I have raised, including policies that recognise an amateur's right to possess any transmitting equipment and relying on a breach of licence conditions for any improper conduct and ordinarily requiring an inspector to make a mutually convenient appointment for station inspections with such inspections, only taking place in the presence of a parent or guardian in case of licensees under 18, and those policies must be easily accessible for all amateurs.

The WIA has approached the ACMA accordingly.



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# A transceiver for 137 kHz

Dale Hughes VK1DSH

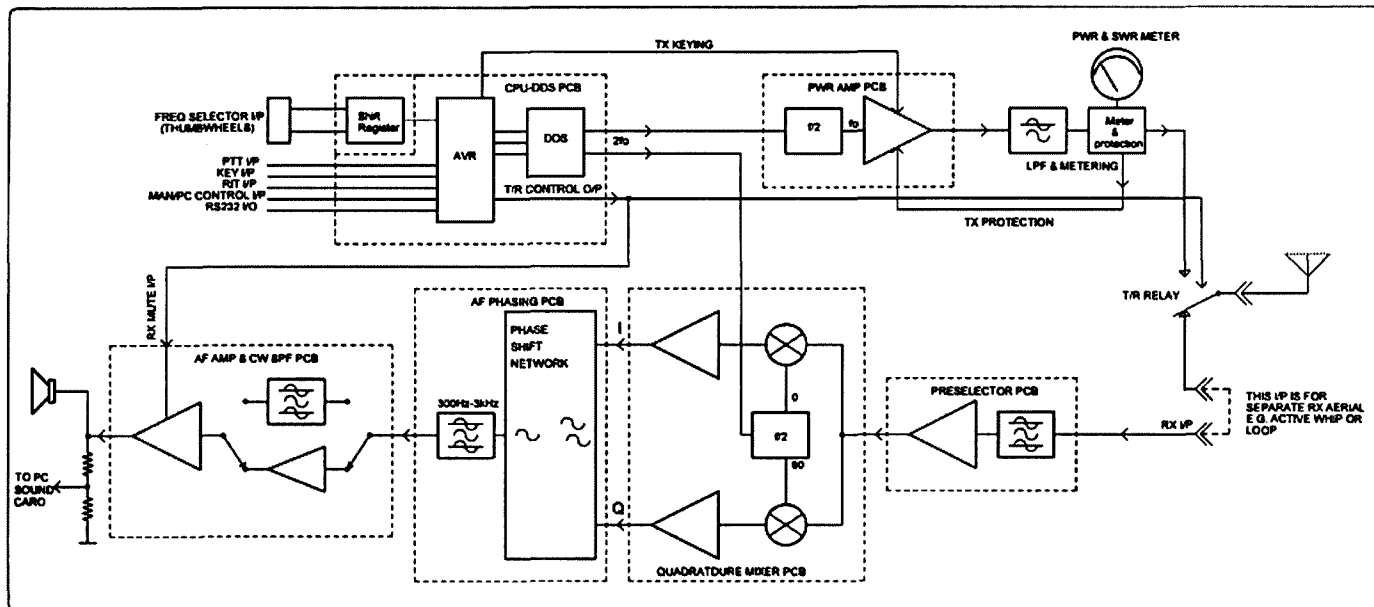


Figure 1: Block diagram of the transceiver. For clarity the power supply to each module is not shown.

This article describes a transceiver for use on the low frequency band that was recently allocated to Australian amateur operators. This band has a number of peculiarities when compared to other amateur bands:

1. The band is only 2.1 kHz wide covering 135.7 kHz to 137.8 kHz. This limits transmission modes to a variety of narrow band digital modes, with some form of Morse code being the most popular at present.
2. Radiated power is restricted to one watt EIRP. This is not much of a restriction, given the typical inefficiency of any antenna that most amateurs are likely to erect; even radiating a few tens of milliwatts is a challenge.
3. Local and atmospheric noise levels are very high, particularly in summer. The ability to receive signals is generally limited by noise rather than receiver sensitivity.
4. Very little commercial equipment is available that can be directly used on the band, thus 'home brew' equipment still reigns

supreme. A typical setup might be a transverter based around a standard HF transceiver, with a substantial homebuilt power amplifier to overcome antenna inefficiency. Less common is the construction of a complete transceiver.

Despite all of these challenges, it is a fascinating band with many enjoyable aspects. Reasonable DX contacts can be had using one of the various digital modes and reliable ground wave communications can extend many hundreds of kilometres.

As I have had good experiences using direct-conversion phasing type receivers and Direct Digital Synthesiser oscillators, I chose to build a complete transceiver using that technology. Previous projects using phasing techniques (References 1 and 2) provided suitable circuit modules that could be duplicated for use in the receiver and transmitter, leaving only a number of modules to be designed 'from scratch'. The following pages will describe each major section of the unit. Figure 1 shows the block diagram of the transceiver with each

of the major modules shown within dashed lines. Exact inter-connection details have been omitted and it is hoped that the connections between modules are self-explanatory.

There is quite a lot of information regarding the 137 kHz band available. The RSGB has published an excellent book (Reference 3) which covers all aspects of LF operation and equipment. It is essential reading if you intend to operate on the band. Many of the circuits described in this article were based on previously published designs which were then adapted and modified to suit local availability of components.

## Features and description of the transceiver

### Frequency range

135.700 kHz to 137.800 kHz. Operating frequency is set using 'thumbwheel' switches and the minimum adjustment step is one Hz. Frequency stability is approximately 2.5 parts per million and this is an important aspect to consider for the QRSS modes as the bandwidths



used are only a fraction of a Hertz, so the ability to accurately set your frequency – and to stay on it – is vital if a contact is to be successful.

### Transmitter

A push-pull class D design with a maximum continuous output power of 220 watts into a 50 ohm load. A five pole low pass filter ensures a clean RF output. A front panel meter shows RF output current and forward and reflected power.

### Receiver

An 'image reject' direct conversion design which offers low noise with excellent dynamic range. No AGC is provided and it appears unnecessary, particularly when using the QRSS modes.

### Operating modes

1. Standard CW - either hand sent or from an attached PC at 6 or 12 wpm.
2. Slow CW – known as QRSS – from 3 to 120 second dot lengths.
3. Differential frequency CW - where the dot and dash elements

are sent as slightly different frequencies. Dot and dash lengths are the same in this case.

4. Castle CW – Dot and dash are sent as different frequencies with an additional frequency shift depending upon the time relationship of the character elements. This mode is probably the most time efficient and easiest to read of the QRSS modes.
5. Sequential multi-tone Hellschreiber – an 'image' based transmission mode where each character is sent as an array of pixels that can be read directly from the computer screen.

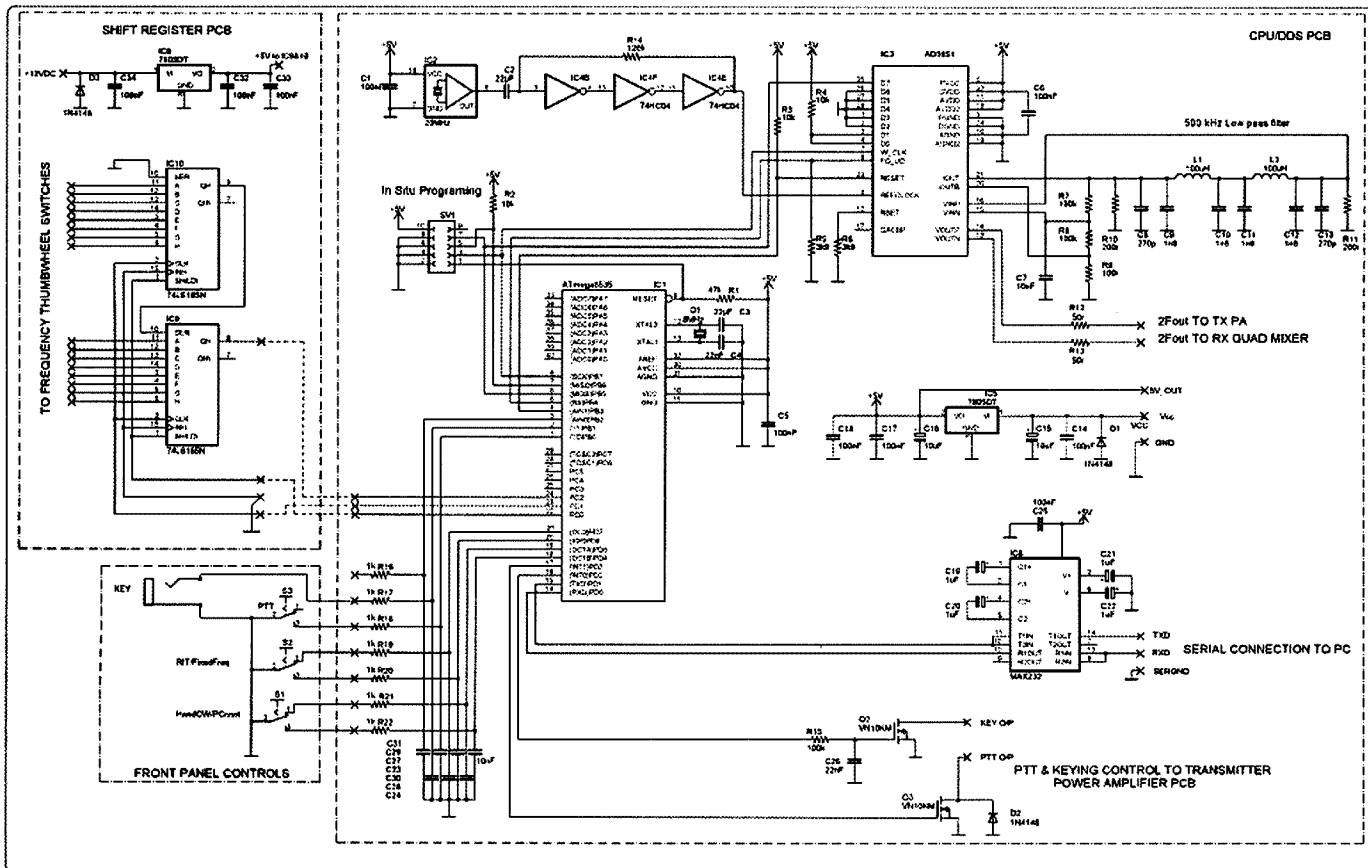
Modes 2 through 5 require the use of an attached computer for both transmission and reception of the signals. For reception of the QRSS modes it is essential to use a computer running specialist spectral analysis software, which converts the received signals into a display suitable for visual decoding. Several packages are freely available and are

commonly used: ARGO, Spectran and Spectrum Lab. A search of the web will easily locate them.

The receiver can operate in two distinct modes, 'RIT' or 'fixed frequency':

1. The RIT mode shifts the receiver local oscillator frequency so that it is always offset from the received frequency by (in this case) 1000 Hz; this generates the audio tone when receiving a CW signal by ear, for example if the receiver frequency is 135.900 kHz the local oscillator is set to 134.900 kHz which results in a one kHz beat note. The band-pass filter on the audio amplifier board (see Figure 8) is tuned to the same frequency as the beat note. This is the reception mode we are all familiar with when using a conventional CW/SSB receiver.
2. The fixed frequency mode is different in that the receiver local oscillator frequency is set to 135.000 kHz. This means that any

Figure 2: Processor and DDS circuit. L1 and L2 are miniature axial chokes. Except for the AD9850 DDS chip and a number of capacitors, all of the components are the leaded variety.



frequency in the band is received as an audio tone that is directly proportional to its frequency, for example a signal at 137.400 kHz appears as a 2400 Hz tone etc. When using a PC with suitable spectrum analysis software that is properly calibrated the received signal appears as a line on the screen at the correct frequency. In this way the whole band can be seen at one time and a watch kept on activity. When a signal is seen the operator can zoom-in on the frequency and decode the transmission. This is very similar to the normal Software Defined Radio applications that are now becoming common.

The transceiver serial port allows the transceiver to be controlled using a PC if desired. Except for setting the frequency (which is done using the thumbwheel switches) all other modes and functions can be accessed through the serial port by using a PC running common terminal emulator software (HyperTerminal etc.). In addition to being able to view and change most settings of the transceiver, text can be entered from the terminal which is then converted by the AVR processor to the required transmission mode (CW, DFCW, CASTLE and Hellschreiber) and speed, then transmitted. A beacon mode is provided so that specified text is sent repeatedly. The same PC can also run the spectral analysis software (for example, ARGO) at the same time as the terminal emulator and this makes the system very easy to use as the received signals can be shown on the same screen as the transmitted signals.

## Circuit description

Overall control of the transceiver is achieved using an Atmel AVR processor (see Figure 2). An ATmega8535 device was originally used and then upgraded to the more readily available ATmega32 device; other pin-compatible AVR devices would be suitable if required. This device reads the various front panel switches, communicates with an attached PC (if used), controls the DDS chip, keys the transmitter

and performs T/R switching. The microcontroller is clocked at eight MHz and this clock determines dot length timing by means of regular internal hardware interrupts. Operating frequency is set using four BCD thumbwheel switches which are read by the microcontroller through two 8-bit shift registers. This was done as there would have otherwise been insufficient data lines for all the required functions and it means that the frequency selection switches could be mounted remotely from the CPU if required. The microcontroller generates a load and shift signal which then is used to shift the selected operation frequency into system. Note that the first two digits – one (1) and three (3) – are assumed by the software and the user can set the frequency to one Hz resolution. Other inputs to the microcontroller come from other front panel switches and the serial port. The RS232 serial port interface uses a common MAX232 chip. Open drain transistors are used to switch the main transmitter keying transistor and Transmit/Receive relay.

The local oscillator is generated at twice the signal frequency by an AD9850 DDS chip. Dividers in the transmitter and receiver chain convert the 2F signal to the required signal frequency. A high stability 20 MHz TCXO clocks the DDS chip and this gives the ability to precisely set the operating frequency with excellent long term stability. As the operating frequency is a small fraction of the 20 MHz clock frequency, a relatively simple 500 kHz low pass is used to clean-up the DDS output and this helps to ensure spectral purity of the output signal. The TXCO used in the prototype generated a sine-wave output and IC1 (74HC04) acted as a limiter to produce a square-wave. The limiter can be bypassed by a link if the chosen oscillator module provides a square-wave output.

The transmitter assembly (Figure 3) uses techniques that are commonly applied to switch-mode power supplies and the design is based on well proven techniques, which have been used in many

transmitter designs. The input frequency is divided by two and then fed to a FET driver which is used to drive the gates of the RF output devices. This is required due to the significant input capacitance of the output FETS and the driver chip ensures that each output FET is rapidly switched, which helps maintain the efficiency of the amplifier by reducing the period where the FET is passing through its linear region of operation. The gate drive is AC coupled with clamp diodes so that the output transistors will not draw any current if the input drive fails. The circuit is robust and will work with minor modifications to approximately 2 MHz.

The output transistors are in push-pull and their drains are connected to a tapped output transformer so that the output power can be adjusted from approximately 10 watts to full power. The ability to easily adjust output power is useful for testing aerials and for having local contacts. Note that the amplifier would be classified as a 'Class D' design and is configured in the 'current switching mode'; no bypass capacitor is installed at the centre tap of the output transformer primary. See Reference 3 for a description of current and voltage switching modes operation of push-pull amplifiers, as well as a number of transmitter designs using circuitry similar to that described in this article.

Protection circuitry is provided to protect the output transistors in the event of high SWR, DC current consumption or other undesirable conditions. The analogue signals from the SWR meter and current transducer pass to comparators and a flip-flop. In the event of an adverse situation, the comparator output goes high which toggles the flip-flop. This removes the drive to the divider chip and RF output power drops to zero. Protection can be enabled/disabled using links on the transmitter circuit board. I've found that when using paralleled FETs that the protection has been unnecessary as the FETS appear to be able to withstand most abuse.

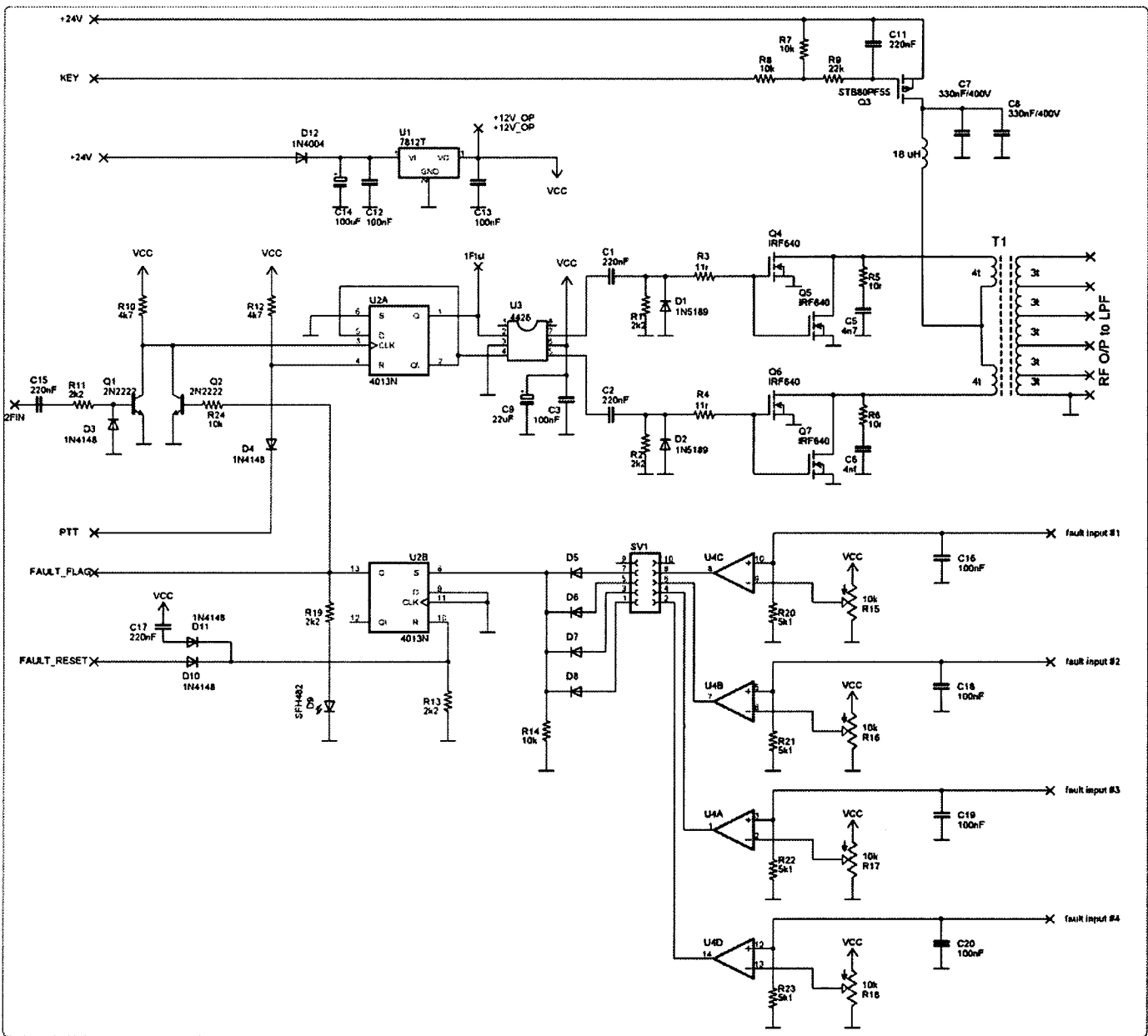


Figure 3: Power amplifier circuit. Transformer T1 is wound on an ETD49 ferrite core (3C85 material), similar cores of a suitable size and material could also be used if they are available. Choke L1 is a 28 mm toroid core (yellow and white marking) recovered from a PC power supply. Power to the output stage is enabled when the 'Key' input is grounded; RF drive to the output is enabled when the PTT input is grounded. The 'Fault Flag' output (will drive a LED) and 'Fault Reset' lines can be brought to the front panel if required so that the operator is alerted to a fault condition. Transmission can resume once the 'fault' is removed. The fault and overload protection circuitry (U2b, U4 etc) can be deleted if such protection is not required.

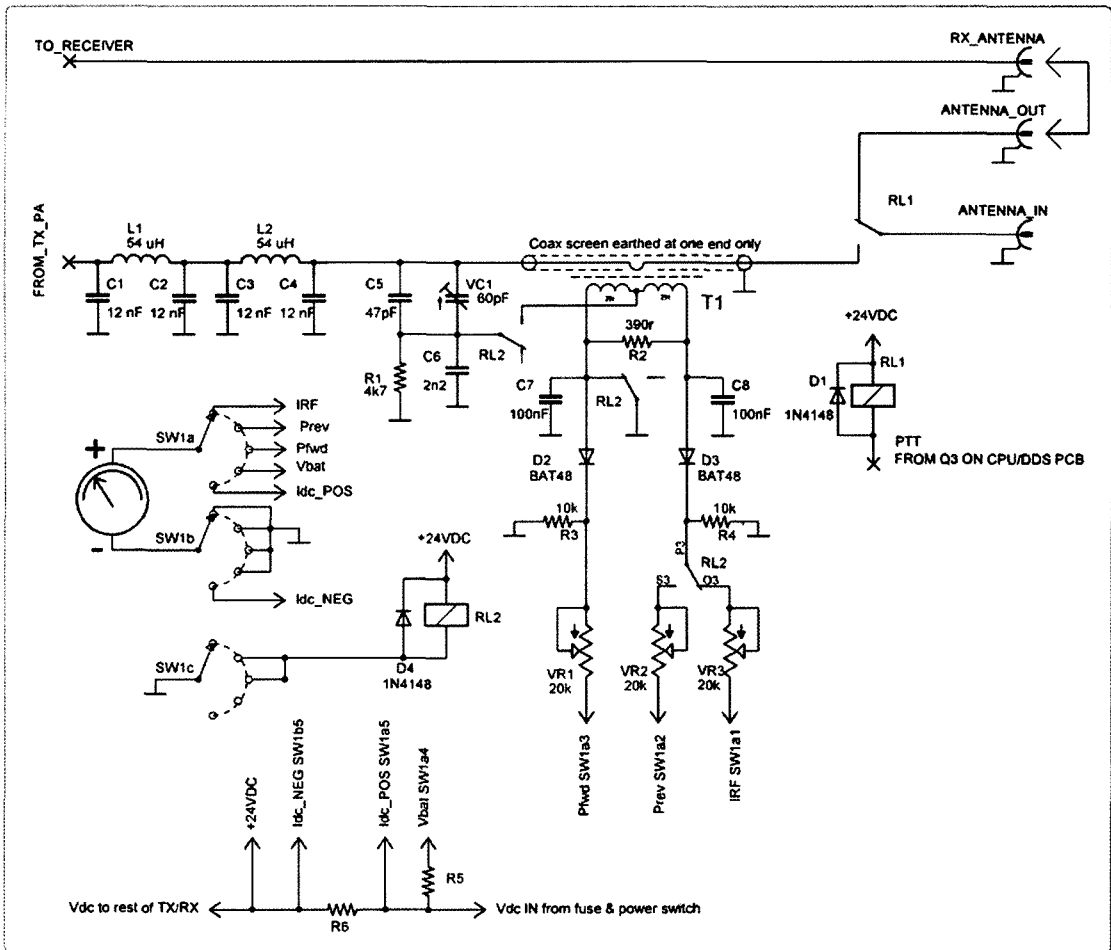
However, depending upon individual circumstances, it may be desirable to have some automatic protection installed.

Keying of the transmitter is accomplished using a P-channel FET, which switches the supply current to the push-pull output transistors. The rise and fall time of the keyer transistor input is controlled by an RC network, this results in rise and fall times of about 10 ms which virtually eliminates key-clicks.

The transmitter output is a more-or-less pure square-wave that contains many harmonics that must be removed from the signal before it is connected to the transmitter antenna. A five pole low-pass filter is suitable and this removes the harmonics from the transmitted signal (see Figure 4). The filter 3 dB frequency is approximately 200 kHz. Harmonic removal is also assisted by the resonant transmit antenna. Also provided is a SWR meter and

RF ammeter so that the operator can monitor the tuning of the transmitter antenna and adjust it for optimum tuning. The metering circuitry appears relatively complex, but it's a standard SWR bridge. The added complexity is due to my wanting to use the transformer as an RF current transformer so that the transmitter output current could be monitored. A separate current transformer could be used and the relay switching eliminated if required.

**Figure 4: Low pass filter and meter circuit.** The meter can be switched between SWR, RF current, forward power, reverse power, supply voltage and supply current measurements. R5 & R6 should be selected for the required full scale DC supply voltage and current measurement. Separate meters could be used if desired which would result in a much simpler circuit. So that the receiver can use a separate antenna, two connectors are provided on the rear panel which allow selection of either the main transmit antenna or a separate receive antenna e.g. active whip or loop. The primary winding of transformer T1 is the



inner conductor of the coaxial cable passing through the centre of the toroid core. The secondary is 25 turns, bifilar wound, on a 15 mm 3C85 core, type 43 material would also be suitable. Potentiometers VR1 through VR3 are used to calibrate the forward and reverse power readings and RF current. This can be done using loads of appropriate and known resistance.

Relay RL2 switches the function of transformer T1 between a current transformer and SWR bridge. Measurement of the supply voltage and current is useful for measurement of amplifier DC power input and efficiency calculations. The voltage from the reverse power detector can be connected to one of the fault input comparators on the transmitter power amplifier PCB if required. This will protect the transmitter in the event of a high SWR load, although I have found this unnecessary in practice. The main cause of failure of the output transistors has been spurious oscillation and this has been eliminated by the addition of low value resistors in the gate circuit which damp any high frequency oscillation in the output devices. Note that the resistors need to be mounted as close to the FET gate connection as possible.

Moving now to the receive path, the preselector input stage (Figure 5) consists of a double tuned circuit followed by a high impedance FET amplifier and emitter follower. Other transistor types than shown could be substituted if required. The input tuned circuits determine the overall RF bandwidth of the receiver. With the component values shown the bandwidth is about three kHz. L1 and L2 are small 455 kHz I.F transformers; the internal tuning capacitors were removed and external tuning and coupling capacitors installed. The transformer cores were then adjusted to give the required response.

Signals from the preselector filter and amplifier are passed to a pair of mixers (Figure 6) through a conventional three dB splitter. As the receiver uses a phasing method to reject the unwanted sideband (or image frequency) a pair of local

oscillator signals in phase quadrature is required. A 74HC74 dual flip-flop is configured to generate the quadrature signals, and these are fed to the mixer switches in anti-phase. The mixers are a variation of the 'H-mode' configuration which results in a mixer with very good signal handling ability. This variation eliminates the need for multiple transformers, which are required in the conventional version; however this design requires a transformer with five windings on a small toroid core. The advantage of the 'H-mode' design is that one side of the mixer switches are connected to ground and this eliminates the variation in gate 'on and off' resistance due to the local oscillator drive that can degrade the strong signal capability of switching type mixers. (See Reference 5 for more details) The amplifiers at the mixer output provide significant gain at audio frequencies,

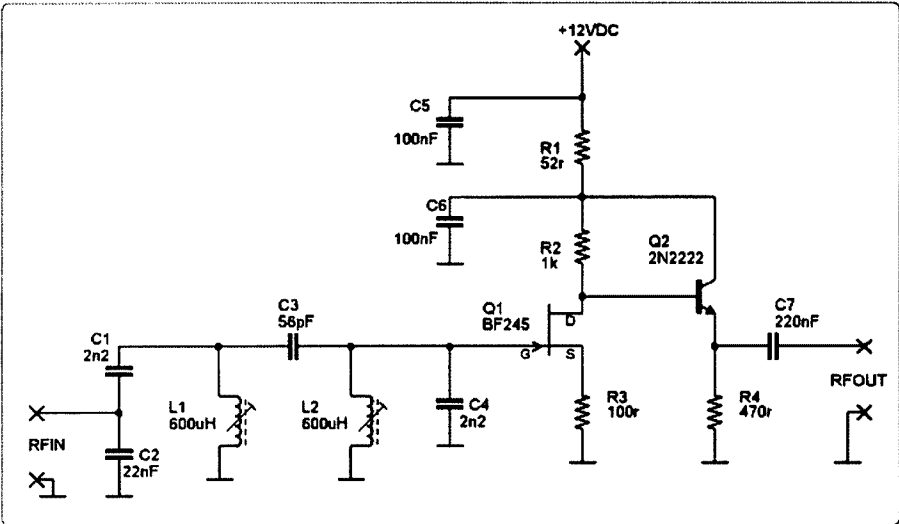


Figure 5: Preselector circuit. L1 and L2 are modified 455 kHz miniature IF transformers. The measured inductance for the units that were used is shown. Different types of transformers may have different inductance, in which case the resonating capacitors may need changing.

the summing junction. The wanted signal is then passed through an audio band-pass filter. The network shown has upper and lower cut-off frequencies of 2.7 kHz and 300 Hz respectively.

This design is taken from Reference 4 which gives a very good description of how phasing networks function. The phasing network resistors are standard 1% tolerance and the required values were made up from series connected resistors. The capacitors were hand selected from a bulk purchase of 100 polyester capacitors and were chosen from the batch so that all the capacitors used had matching values. The NE5532 dual amplifiers have a wide bandwidth and low noise, making them ideal for this application.

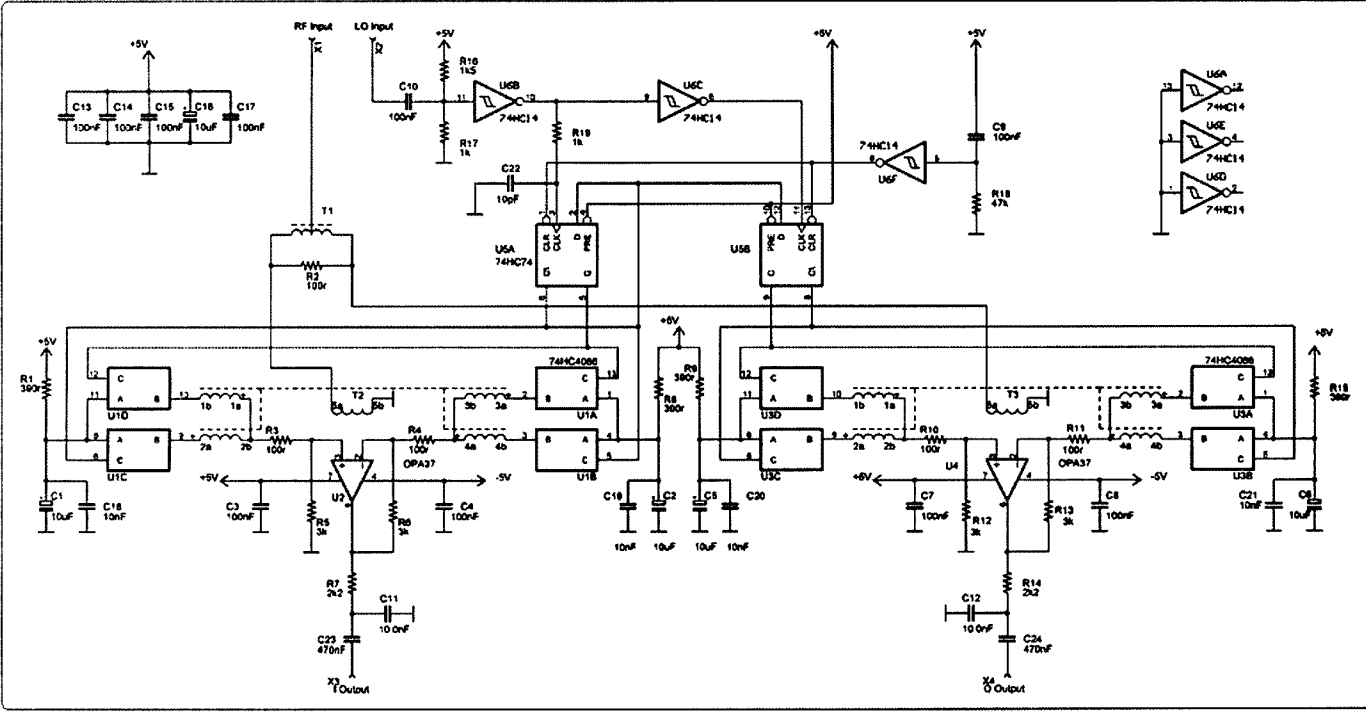
the audio output then passes through a low-pass filter to remove noise and unwanted frequencies before the signals are passed to the phasing network.

The two audio signals in phase quadrature (I & Q signal paths) from the mixer board are passed through an all-pass filter (Figure 7) which maintains an accurate 90 degree phase difference between the two

channels over the required range of frequencies. The output from each filter channel is then added together, and as a result of the quadrature phase relationship between the audio paths and the local oscillator, the audio image (the unwanted sideband) is cancelled out. Small amplitude differences between the I and Q channels can be corrected by means of potentiometer VR1 at

Following the band-pass filter is another gain stage followed by the audio power amplifier, which feeds a loudspeaker or headphone (Figure 8). For situations where aural contacts can be achieved, a CW band-pass filter can be selected. The filter has a 'Q' of 4 and a centre frequency of 1000 Hz, so the 3 dB bandwidth is 250 Hz. Selecting this filter significantly improves the signal to

Figure 6: Quadrature mixer circuit. T2 and T3 are 12 5-filar turns on T50-43 cores. T1 is 16 bifilar turns on a T50-43 ferrite toroid core. Amplifiers U1 and U2 must be low-noise types. OP37 or similar devices are ideal as they have a low noise figure and significant gain.



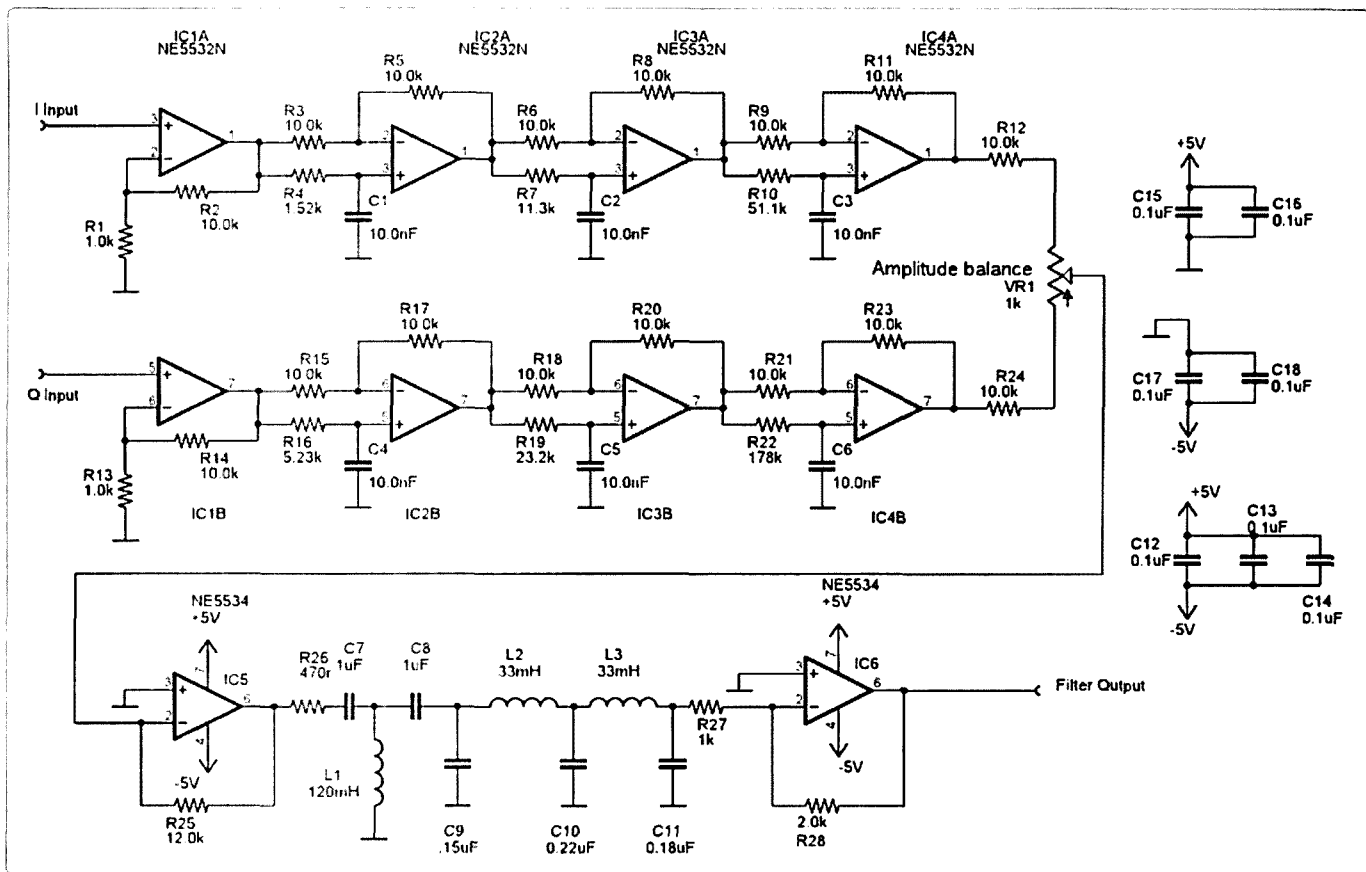


Figure 7: Audio phase shift and band-pass filter circuit. The resistors in the phasing circuitry can be made up from series combinations of standard values. The values of the capacitors in the phasing network don't need to be exactly 10 nF but should be closely matched if possible.

noise ratio of the received signal. So that signal levels are not disturbed, an amplifier with the same gain as the band-pass filter is fitted; thus the audio output level doesn't change when the filter is enabled or disabled. The final amplifier (U4) amplifies the signal to drive a loudspeaker; it also has a 'mute' input which suppresses any receiver noise when the set is transmitting. This mute signal is taken from the CPU board PORTD3 output which controls the T/R relay.

Power to the transceiver was supplied from a 24 VDC source and three terminal regulators and a small DC-DC converter were used to provide the various supply voltages to the modules. No detailed information is provided for the power supply as constructors will probably want to make their own arrangements; depending upon what parts they have available. The voltages required are 24 V, 12 V and +/- 5 V.

## Components and Construction

The transceiver was constructed on a simple home made chassis with CPU/DDS and receiver modules underneath and the transmitter, low-pass filter and power supplies on the top of the chassis. A front panel holds the operator controls and meter. The final design will be largely dictated by what components and facility the constructor has at his or her disposal.

Screened cable was used for all low level signal circuitry and extensive bypass and decoupling capacitors installed where power passed from one module to another. Appropriate feed-through capacitors or coaxial connectors were used whenever power or signals passed through chassis partitions.

Most of the components are readily available, particularly the power FETS. I purchased high voltage capacitors for the low-pass filter from Rockby Electronics ([www.rockby.com.au](http://www.rockby.com.au)) who also

has a selection of suitable ferrite cores and transformer assemblies. The AVR processor and Analog Devices DDS chip are available from Futurlec ([www.futurlec.com.au](http://www.futurlec.com.au)). Other specialised components were purchased through RS components (<http://australia.rs-online.com>) or Farnell (<http://au.farnell.com/>). Many suitable components (ferrite and semi-conductor) can be found in discarded switch-mode power supplies and some careful experimenting will soon indicate how useful such parts might be.

The 20 MHz TXCO was purchased from Hy-Q International Pty Ltd (<http://www.hy-q.com.au>) some years ago, but similar products are also available from other suppliers. Standard can type oscillators could be used, but frequency accuracy and stability may not be as good.

Software for the AVR Processor and artwork for the various printed circuit boards (in EAGLEcad format) are available to anyone who would like to build a similar transceiver.

## Adjustments and Testing

There are relatively few adjustments required before the transceiver can be used. The main thing to ensure is that all wiring is correct before turning it on!

Before testing, the transmitter should be connected to a suitable 50 ohm dummy load and the protection circuitry (if fitted) disabled by removing any links fitted to SV1. Starting with a low power tap selection, output power should be seen on the forward power meter when the transmitter is energised. Switch to reverse power and adjust VC1 in the SWR meter circuitry so that the meter reads zero. The forward and reverse power meter readings can be calibrated using the associated potentiometers (VR1 and VR2) in the SWR meter circuitry. The RF ammeter can be calibrated by measuring the voltage across the dummy load, calculating the associated current and adjusting VR3 so that the meter shows the correct value.

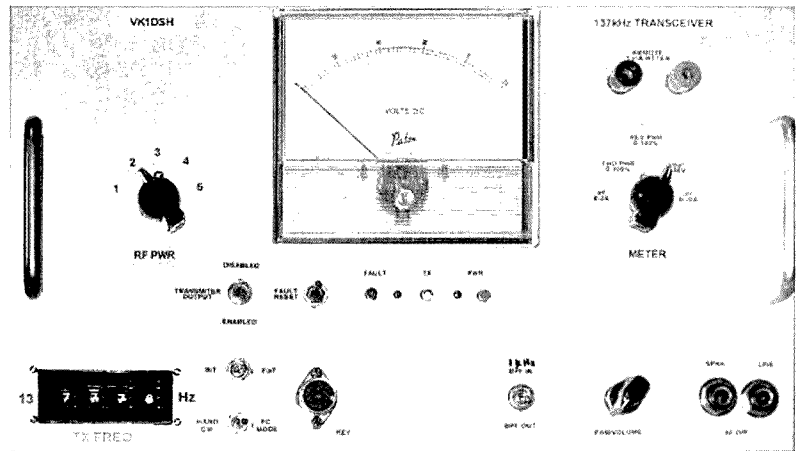


Figure 9: Front view of the transceiver. A useful addition was the 'Transmitter Output Disable' switch so that the set could be worked on without the risk of accidentally transmitting into receiver amplifiers or active whip circuitry. The switch disconnects the keyer transistor so that no drain voltage can be applied to the output power transistors.

Adjustment of the protection circuitry is done by re-installing the wanted jumpers on SV1 and adjusting the comparator trip potentiometers until the desired level of protection is achieved with whatever fault level is applied.

Constructors will have their own specifications for this aspect of the design. The transmitter can now be run at full power and at least 200 watts should be generated, efficiency is typically greater than 80 % at this power level.

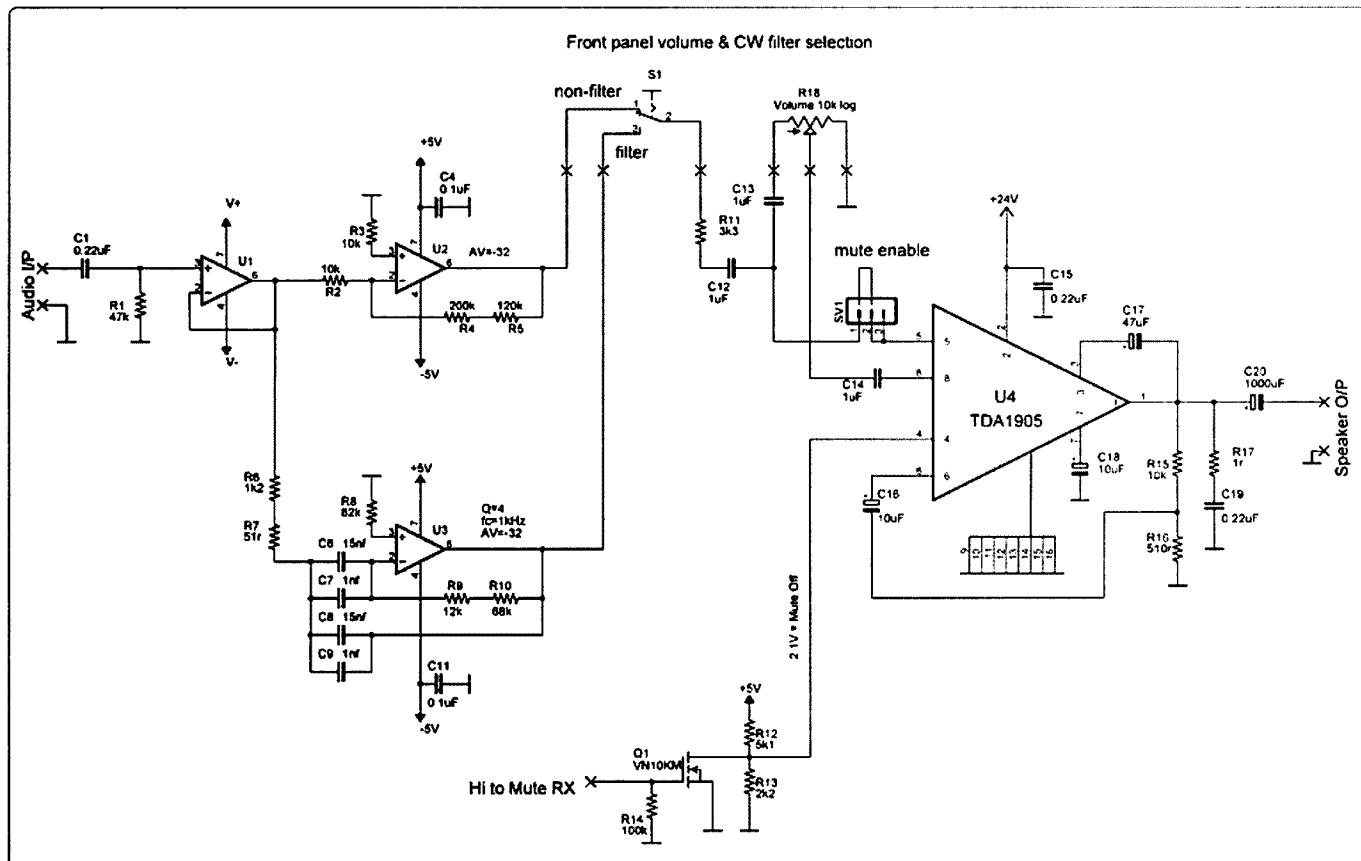


Figure 8: Narrow band CW filter and audio power amplifier. Amplifiers U1, U2 & U3 can be any suitable low-noise operational amplifiers that are suitable for audio use e.g. TL071, NE5534 etc. The in-built mute circuitry of the TDA1905 can be disabled by removing link from SV1.

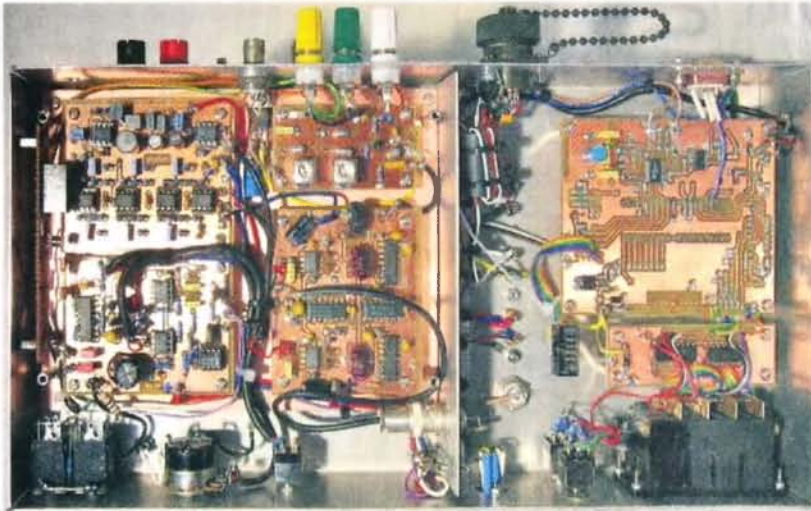


Figure 10: Underside of the transceiver chassis showing (from left to right): the receiver modules, CPU/DDS, shift register and thumbwheel switches. Terminals on the rear panel provide power to external circuitry such as loop and active antennas.

The receiver requires few adjustments. The tuned circuits in the preselector circuit (Figure 5) should be peaked for maximum response; using the values given in the schematic should give a response that covers the entire band.

Assuming the components selected for the audio phase shift network (Figure 7) were carefully selected, the phasing network should work by just adjusting the 'Amplitude Balance' control (Figure 7, VR1) to the centre of its range. Accurate adjustment can be done in the following way:

1. Set the receiver to 'fixed frequency' mode, this sets the receiver local oscillator to 135.000 kHz. Set the signal generator to 136.000 kHz and inject a weak signal into the mixer input, that is, bypassing the input RF preselector. If the mixer output I & Q channels are correctly connected a one kHz tone should be heard from the receiver, if nothing is heard swap the I & Q outputs from the mixer to select the other image frequency and the tone should be heard. If still nothing is heard, there is a fault somewhere else and that will have to be fixed before proceeding.
2. Now set the signal generator to 134.000 kHz, the one kHz tone should be much weaker.

Adjust the 'Amplitude Balance' control (VR1) to minimise the volume of the tone.

3. Reset the signal generator back to 136.000 kHz and the tone should be much louder. The amplitude difference between the two frequencies is a measure of the image suppression and in the prototype receiver it was measured and found to be approximately 47 db which is quite adequate for this application. If necessary, see References 1, 2 and 4 for more details about adjusting phasing type receivers.

## Conclusion

The transceiver described in the above pages has been in use for nearly one year and has proven itself to be a reliable and high performance design. Its signals have been received in New Zealand and a number of QSOs using either hand sent CW or one of the other QRSS modes have taken place. Receiver sensitivity and transmitter power output are more than adequate for working DX when combined with a suitable antenna. Thanks go to Bill VK7MX for reviewing this article and for his helpful suggestions.

## References

1. A dual band CW transceiver. *Amateur Radio*. Two parts: August & September 2005, Volume 73, No 8 & 9.
2. A phasing type transceiver for 144 MHz. *Amateur Radio*. Two parts: August & September 2009, Volume 77, No 8 & 9.
3. *LF Today a guide to success on 136 and 500 kHz*. RSGB. ISBN 9781 9050 8636 8 Available from the WIA bookshop.
4. *Experimental Methods in RF design*, ARRL, 2003. ISBN 0-87259-879-9, in particular, Ch 9, which deals with the theory and design of phasing systems for image rejection systems.
5. *Technical Topics Scrapbook 1990 to 1994*. RSGB, 1998. P230



Figure 11: Top view showing (from left to right): the power amplifier module (beneath the fans), low-pass filter and meter circuit and power supply box. The fans are only necessary if running at full power for an extended period of time. Otherwise they are optional. The home-made current shunt can be seen on the top right-hand side of the picture.





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### Big event went well

The RadioFest held at Kyneton was a resounding success although numbers were slightly down due to the widespread flood damage throughout Victoria.

The set up work began on the Saturday and involved the gathering of material from 40g Victory Boulevard Ashburton involving Barry Robinson VK3PV, Terry Murphy VK3UP and Tony Hambling VK3VTH.

The trio then met up with Ross Pittard VK3CE, Lia Pittard VK3LPH and Peter Cossins VK3BFG and others who made the site ready, including the public address system.

Caterers from the CFA Kyneton were ready for a big day. Volunteers from the Central Goldfields Amateur Radio Club led by Peter Rafferty VK3CC arrived from 6 am Sunday and the gates opened on time.

A brisk trade was reported from the commercial and second-hand sellers and plenty of interest shown. Keen bargain hunters rushed the tables, car boots and trailers in an attempt to snare the best treasures. All manner of amateur radio goodies were on offer for the discerning buyer.

Peter Mill VK3APO and other committee members manned the Amateur Radio Victoria sales table. Nearby there was a pictorial display about the Keith Roget Memorial National Park Award. Peter Fraser VK3ZPF and Tony Hambling VK3VTH spoke of their activations of the old and new parks. Quite a few stopped by to say 'hello' and the promotion

encouraged several new members to join the Yahoo activation group.

Other displays were mounted by participating clubs and they did well, being provided with one free display table each. The WICEN (Vic) caravan was located not far from the CFA food gazebo. A feature again was the WIA display.

The Traders Hall precinct included the latest on offer from Strictly Ham, NBS Antennas, TTS Systems, Vertex (Yaesu), Rippletech Electronics, TET Emtron/Bushcomm, Television Replacements and Jaycar Electronics.

The lecture hall began to operate with the first of three sessions with kites flying thanks to Tino Pavic VK3EGN who had a display on kite-erected antennas.

The other lecturers were Jack Bramham VK3WWW who spoke on the 8th IARU Region 3 Championships, and Rex Moncur VK7MO and Justin Gilles-Clark VK7TW who had an enjoyable day talking on light beam communications, and privately shared notes on digital television experiments.

Through the day the Scout Radio Electronics Service Unit not only had a good display but also ran come'n'try sniffer hunts.

The lucky door-prizes were drawn at 2 pm with Vertex representative Felicity Boulter who presented a Yaesu hand-held radio to David Cheney VK3FDJC, 2nd prize was a TZ1840 Balun from RippleTech Electronics, and the 3rd and 4th prizes

were two personal DVD recorders donated by Jaycar Electronics.

### Classes on offer

By the time you read this a number of former Foundation licensees have upgraded thanks to the latest Bridging Course under tutor Kevin Luxford VK3DAP. Congratulations to all involved.

The Education Team Leader, Barry Robinson VK3PV is finalising candidates for the next Foundation licence weekend of 30 April and 1 May.

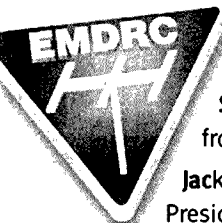
If you know someone interested please let them know for more information to contact Barry [foundation@amateurradio.com.au](mailto:foundation@amateurradio.com.au) or 0428 516 001.

### Annual General Meeting

As announced earlier the Annual General Meeting of Amateur Radio Victoria – WIA Victoria will be held on Tuesday 17 May, 2011 at 40g Victory Boulevard, Ashburton. The annual reports will be made available to members.

Primarily the annual reports and the profit and loss statements have been issued electronically via the e-membership pages. Hard copies are been sent to members not registered or on demand. Inquires about these matters are best made to the Secretary/Treasurer Ross Pittard VK3CE.

Sufficient applications have been received filling all eight positions for the incoming board of directors (Council) for the coming term.



Members of the Eastern and Mountain District Radio Club wish to thank all vendors, commercial and private, who supported their recent **White Elephant Sale** and also the many buyers who attended. We trust everyone benefited from the event and that the facilities and services provided were satisfactory.

**Jack Bramham VK3WWW**  
President

## Geelong Amateur Radio Club - The GARC

*Tony Collis VK3JGC*

### January WIA VHF / UHF Summer Field Day



*Photo 1: GARC Team LUMEG and their microwave installations.*

Three teams from the GARC set out on the Friday to prepare for the following day; two with rather more success than the third!

#### **Team GARC- LUMEG**

The LUMEG field day was a success, with considerable activity despite the floods keeping some operators from going portable.

There was some good propagation to be had with contacts into central NSW and SA. More time was spent on the lower bands this time due to several notable microwavers being involved in the VK9NA trip or chasing them from the east coast.

Once again the VK7 operators proved elusive although the beacon was coming in at good strength. Operators this time were Carlo VK3BCL, Ken VK3NW, Chas VK3PY and David VK3QM. Unfortunately Charlie VK3NX was unable to join them portable this time due to prior commitments, although he was with

them in spirit; as he operated from home for a short period.

#### **Team GARC – VK3ALB**

The team comprising Lou VK3ALB, Nik VK3BA, Peter VK3APW, Jenni VK3FJEN and Michael VK3FMIC headed to Mt Leura again for the Summer 2011 Field Day and inaugural Microwave Challenge. The microwave challenge is a distance based event for microwave bands 1296 MHz and up. The trip to Mt Leura was a little more eventful than usual due to the heavy rains experienced earlier in the week. Luckily the rains stopped on Friday afternoon but the Hamilton Highway was covered by flood water in many places. The weekend weather was much better than it had been in previous years and signal conditions were better than the team had ever experienced before.

Saturday morning, before the contest began, they were surprised to copy Leigh VK2KRR at S9 +20 dB

on 1296 MHz compared to the S1 or S2 that they normally hear him; so the changes they had made to their setup procedure meant that they had time to relax and chat with Leigh and other participants before the contest got underway.

The team introduced VK3APW's new 10 GHz transverter system into their arsenal, which performed very well. They also tested a VK3APW designed 6 m halo which worked wonders for them on the magic band and brought them a handful of nice contacts into VK5 and an amazing S9 contact with VK4FNQ.

Other highlights of the weekend were Michael VK3FMIC working VK3UHF (Team GARC – LUMEG) on all bands from 6 m through to 10 GHz in **three minutes flat**; working Ralph VK3WRE on all bands to 10 GHz at a distance of 299.4 km. A new grid square for both of them and a new distance record for the group on 10 GHz.



VK3ATL: Microwave dishes (L to R) 10 GHz, 2.4 GHz and 5.7 GHz.

They also had a flurry of VK5 contacts on 6 m through to 23 cm late on Saturday evening.

GARC Team VK3ALB are pleased to report that they came first in the 8 hour section, third in the 24 hour section as well as equal first with Ralph VK3WRE on 5.7 GHz and 10 GHz in the Microwave Challenge.

### Team GARC – VK3ATL

The operation of GARC Team VK3ATL in the Otways, was more one of triumph over adversity, where everything that could go wrong did.

Initially the feed line tails for the 70 cm and 23 cm antennas were too short to be connected direct to the transverter, so an improvised high up shelving had to be constructed over the door to house the equipment. The antenna mast with rotator then had to be extensively clamped to two ladders and the shack guttering to keep it upright. In the meantime the 10 GHz set up, pictured below, decided to intermittently malfunction within the transverter.

In spite of all the problems, multiple contacts were made on all bands, on Saturday, from 6 m to 3 cm but not in sufficient numbers to be anyway competitive. Those



Lee VK3PK setting up the 2 m antenna.



Dallas VK3DJ working the microwave gear.

participating were Dallas VK3DJ, Lee VK3PK, Tony VK3JGC, Garry VK3FWGR and Vanessa VK3FUNY. On Sunday the Field Day was abandoned and Team GARC-VK3ATL then went on a Geo Caching hunt using portable GPS systems.

# ELECTRONICS ONE-STOP-SHOP

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Ideally suited for adjustment, repair and calibration of AM/FM radios, amateur/CB radios, computer clocks, AV equipment etc. this 2.7GHz dual range frequency counter has a counter readout with a large 10mm high intensity 7 segment LED display with gate time and data hold function. Decimals are also included as well as a single step input attenuation to a factor of 20 and a low pass filter.



\$199.00

QT-2202

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Measures AC & DC voltage and current, resistance, capacitance, frequency and temperature. Includes a protective holster with hanging clip and tilting bail, low battery indicator, overload protection & test leads. WAS \$29.95

\$24.95  
SAVE \$5.00

QM-1320



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\$44.95  
SAVE \$5.00

QM-1324



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Dimensions 78(L) x 98(W) x 145(H)mm

TH-1983

\$12.95



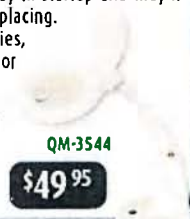
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# VK3BJM versus 'The tower'

Barry Miller VK3BJM

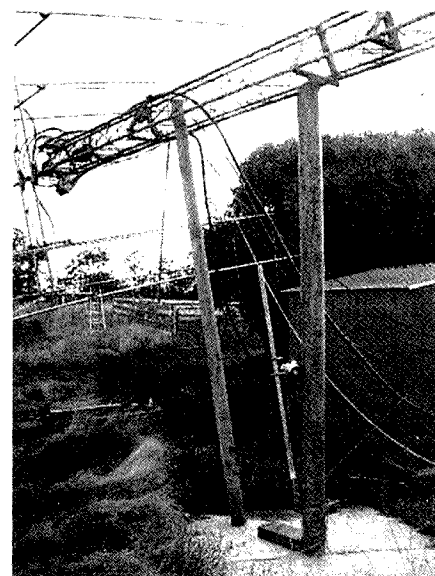


Photo 1: The temporary support.

Some time ago I posted a few photos on my website ([www.qsl.net/vk3bjm](http://www.qsl.net/vk3bjm)). These photos have caused some consternation, it would seem. The question 'Is that a staged photo, or was that situation REAL?' keeps being asked of me...

Then, at GippsTech 2009, Andrew Martin VK3OE gave a presentation entitled 'Towers: Some of what you need to know, plus what you don't want to know'. This was a well thought through reminder about an amateur's biggest, and most dangerous, asset. Over lunch on GippsTech Sunday, Andrew asked me about 'those photos'. Andrew had plans to write an article for *AR* on towers and tower safety, and was looking for examples of where things had 'gone wrong', or 'very nearly gone wrong'. I thought mine was a case of 'very nearly gone wrong' and, in an effort to retain any sense of face or dignity amongst the amateur community, I agreed to set the story down, before some wag did it for me.

No amateur is an island, apparently. However, there have been times when I have felt like a promontory with an isthmus that is submerged at high tide. That aside...

In mid-2003 I shifted to a 1.4 hectare (3.5 acre) property halfway

between Kyneton and Malmesbury, in central Victoria. The search then commenced for a second-hand Nally tilt-over tower. After some time, and with the assistance of David VK3QM and Chas VK3PY, one was found just south of Colac. Alan VK3XPD kindly assisted me in transporting it to my new abode. I was able to organise the insertion of the base-pole and concreting of the slab myself, but again I was assisted in raising the lattice tower section onto the base-pole, this time by Trevor VK3VG. With this complete, I thought all the hard stuff was out of the way – I had a tower I could tilt over single-handedly, and I need never bother anyone with requests for assistance ever again. And I am afraid that I am the sort of person who does not like to bug others for their valuable time.

All was well for a while. I duly installed a medium-duty rotator, and two Yagis, a 14 element for 144 MHz, and a 22 element for 432 MHz. Despite the tower being an older model – one with the old-style ratchet winch, un-gearred and no brake – I was able to tilt over, and restore the tower to vertical, without any problem, single-handedly.

But, of course, a single Yagi is just never enough. I started work on an H-frame, to hold 4 x 14 element yagis for 144 MHz, and 4 x 28-element yagis for 432 MHz. I knew others had similar size arrays on Nally towers, so I figured I would be all right. And then along came a stint of long-service leave, and the chance to get this all up in the air.

I tilted over the tower, and stripped it of the old yagis. On went a new, beefier rotator, then the H-frame, and next were all eight Yagis, plus feed lines. All looked good – so it was time to raise it to vertical!

Winding, winding, winding... Thinks: Gee, this lot is a bit heavier than the old set-up! I managed to get the tower wound up until it was raised about 1.5 to 2 metres above

the A-frame that I rest the lattice section on when tilted over – and that is where I stopped. I simply could not physically turn the steel handle of the ratchet winch! More critically I could not release the latch, so as to lower the tower back onto the A-frame, where it could rest safely. Argh!

I chose at that moment to stand back and consider the situation – the winch latch, at least, allowed me this luxury. I had a five metre length of treated-pine, and I wedged that into the tower lattice, to support it in lieu of the A-frame. Refer Photo 1. This is just visible on the right-side of one of the photos. Then I went and had a cup of tea...

Whilst drinking said beverage, I decided that my best approach was to jury-rig some form of counterweight, and add extra length to the winch handle, to provide extra leverage. I was as confident as I could be that the cable was of sufficient strength (it was 10 mm OD) and that the winch handle was strong enough (it was 19 mm steel rod, formed to shape and welded inside the drum) to turn the drum without shearing off with the extra leverage. You can see this in Photo 2.

Looking around, the best I could find for a counterweight were two old spare wheels, left behind by the previous owners of the property. Sitting out in the paddock, they'd somehow filled with water, adding precious kilograms to their weight. I took one and suspended it, using three lengths of steel guy-wire, doubled over, and D-shackles, from the base of the lattice section. I then filled the concave side of the wheel, which faced upwards, with three volcanic boulders – my property is on a decomposing volcanic plateau, so there are a few of these about... I topped these with the second water-logged wheel, and decorated it with spare bricks. In all likelihood, this assembly probably came in at about 70 kilogram in mass. Refer Photo 3.

Next, I attached a 1.5 metre length of galvanised tube to the

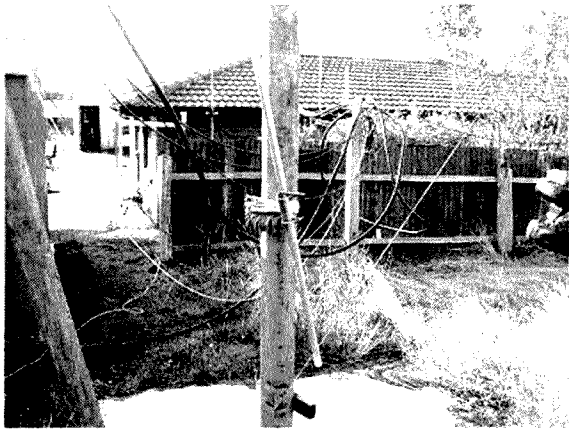


Photo 2: The winch.

winch handle with two suitably-sized U-bolts. I stood back, took a deep breath, removed the treated-pine pole – and started winding, slowly and gently.

I was pleased to observe the winch handle not deforming, bending, glowing red from the pressure nor shearing off completely. The extra leverage made turning the winch relatively simple, but I chose not to hold the pipe at the ends. I figured that establishing the point along the pipe where my hands could just overcome the turning resistance was a better way of 'staying in touch' with how things were going. It took around 15 minutes of gentle winding before the lattice was safely upright and the nuts were on the locating studs at the base of the tower. At least, I think it was around 15 minutes – whilst copious quantities of adrenaline may give you near-superhuman strength, it does rather mess with the ability to accurately recall the passage of time...

Here is probably a good place to note that adrenaline is no different to any other drug – over-use is sure to shorten your life, with the added bonus that the activity stimulating its release is likely to do the same.

Consequently, I removed the old winch, and replaced it with a Jarrett braked-winch, geared at a 10:1 turning ratio, and with a load rating that is more than enough for the tower. I believe it is the same model used on the current Nally towers.

The 'counterweight' was removed, and replaced with a counterweight constructed from two 750 mm long sections of 200 mm

OD steel tube, attached to the lattice section with a length of 25 mm steel rod. These are filled with steel railway 'dogs' (rail-securing spikes), to form a counterweight of about 80 kg. This forms a far safer counterweight – things are welded together, unlike the previous 'Near-Panic' brand of counterweight.

The ideal Andrew rightly pushes is that one should never perform

any work on your tower whilst alone. Obviously, Nally towers and such things marketed as 'one-man-towers' lend the impression that one can get away with solo activities. From my experience (that word sounds better, even if 'near miss' has fewer letters...), I would suggest that if you have made a major change to your tower and its attachments, regardless of make or marketing angle, *have someone with you when you undertake any such task.* At the very least, they can dial for an ambulance.

I can certainly recommend *not* getting into the situation I found myself in, back in May 2006.

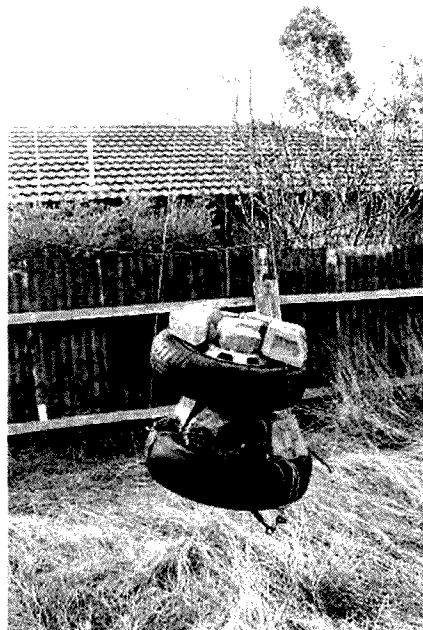


Photo 3: The counterweight.

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# Spotlight on SWLing

Robin L Harwood VK7RH

A quarter of the year has already gone and I have been busily engaged on other important tasks of late. My Mother had to be admitted to a hostel associated with this retirement village as she was unable to cope with looking after herself. I have been sorting out her affairs and it has been time-consuming and numbing. I have had very little time to really monitor the bands.

In last month's column, I mentioned that the BBC World Service was axing several language services off shortwave with the predicted loss of 30 million listeners. Naturally it produced an outcry both in the UK and worldwide, yet within days of the BBC announcement, the VOA dropped another bombshell, also announcing the closure of several language services via shortwave. One of these was Chinese and this has certainly raised eyebrows. The administrators say they were going to move Chinese language programs on to the Internet and stop shortwave broadcasts. As you are no doubt aware, most Chinese language programs from Washington have been subject to jamming for many decades and the Chinese have also managed to filter out overseas sites over the internet within its borders. This announcement also came shortly after a State Visit of the current Chinese President to the US. This also caused uproar

within the US but the decision was welcomed by China.

The other major news has been the downfall of regimes in Tunisia, Egypt and revolts in several other Middle Eastern countries such as Bahrain, Yemen and Libya. The latter is still ongoing at the time of writing with the nation descending into civil war. These uprisings seem to have been co-ordinated via Twitter and Facebook and shortwave seems to have been on the sidelines. I did find that overall the most authoritative extensive coverage came from Al JazeeraTV based in Doha, Qatar. Their English and Arabic language coverage enraged the regimes in Cairo, Tunis and Tripoli. This led to Al Jazeera being banned temporarily there but increased their audience throughout the World. It is even carried on FOXTEL/AUSTAR on Channel 651.

The ongoing Middle East crisis also saw a big increase in programming to the region, particularly news broadcasts. It also has caused a re-evaluation of the proposed cutbacks in the BBC World service, particularly on shortwave. No final decision has been made and we will find out eventually.

In the past three months, Australasia has borne the brunt of several major disasters. It started off with a cyclone off WA and moved across the continent to

central Queensland where there was major flooding over thousands of square kilometres. Then there were the floods in SE Queensland, impacting on Brisbane. Sadly the Queenslanders did not have much time to recover before FNQ was hit by Cyclone Yasi. The shortwave senders at Shepparton (Vic) relayed ABC Local radio via shortwave when there was a strong probability that the local AM/FM senders would be severely damaged. 6080 was chosen and programs were also relayed over the entire Radio Australia network. However 6080 is an extremely bad choice as there is a very strong Chinese external service during our local evening hours.

Then on 22 February, a 6.3 magnitude earthquake hit Christchurch (NZ). Although not as strong as the 4 September 2010 quake, it caused much more damage because it was a shallower depth. Over 105 people were killed and estimates of the damage are in the billions of dollars. Again local programming has been relayed via the Radio New Zealand International senders from near Taupo.

Well that is all for this month. Do not forget you can email your comments and news to [vk7rh@wia.org.au](mailto:vk7rh@wia.org.au)

73 de VK7RH



## WIA Annual Conference

Darwin, 27th – 29th May, 2011

We strongly recommend that you book your accommodation early to avoid disappointment!

# A car portable antenna mast

Rik Head VK3KAN

I have an IC-7000 that I use with a FAMPARC HF antenna, and other car mount VHF/UHF antennas when mobile. However, the mobile solution does not provide a good portable mast/antenna system for field days, WICEN operation, or the like.

I already had a 6 metre high standalone antenna mast for use on 6 m, 2 m and 432 MHz, and there was an opportunity to obtain a 10 metre squid pole as the basis for a HF vertical. This led to three questions:

- How could the squid pole be mounted using the car?
- Could the same mount be used for the existing standalone mast?
- Could the squid pole also be used for a VHF/UHF antenna?

I thought about it for some months until I came up with my solution – see Photo 1.

The criteria for the mast design were:

- The mast mount should use the existing rear ski bar without additional holes or damage. This requirement would then allow car access via all four doors
- The mount must allow the use of the squid pole and the existing standalone mast
- The masts and mounting when collapsed must fit in the back of the car
- The mount must allow vertical adjustment when the car is not on flat ground
- The mount must be simple to assemble and use minimum tools
- Both masts must be capable of being guyed in high winds
- The HF ATU should be attachable to the mast, together with a long wire counterpoise
- The squid pole should be able to be used away from the car, if required
- It would be desirable to be able to mount a ground-plane independent VHF/UHF antenna on the squid pole, if required

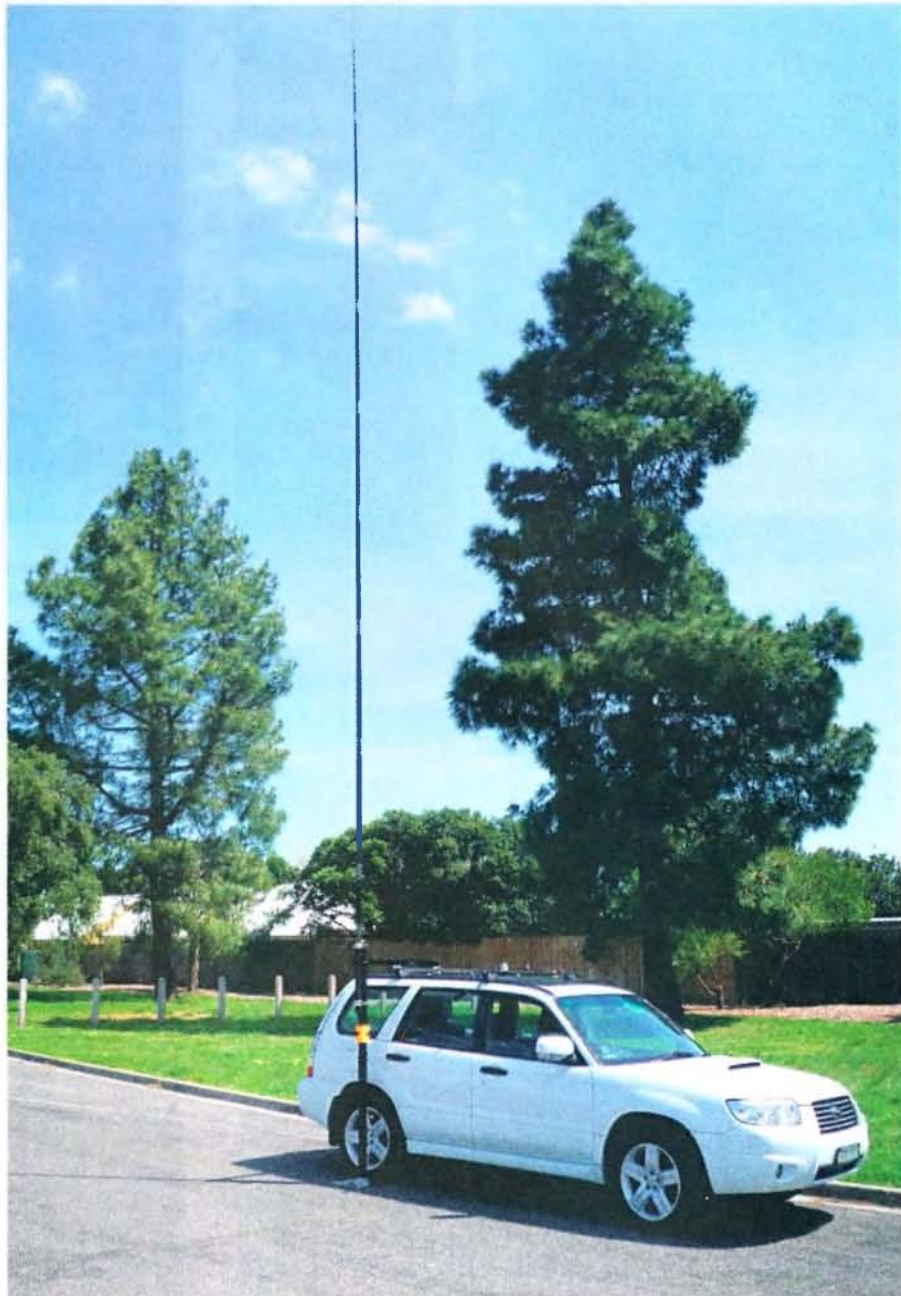


Photo 1.

The completed mounting post design required a plate under the rear tyre supporting a square vertical tube that is connected horizontally to the ski bar. Either antenna mast can then be attached to the mounting pole and guyed, if required.

Several visits to the local mega-hardware store eventually provided the necessary components.

The vertical mounting post is an off-the-shelf square aluminium tube that was cut in half and sleeved to allow disassembly to fit in the back of the car.



Photo 2.

The horizontal ski bar car mount is an off-the-shelf rectangular aluminium tube that is u-bolt clamped with spacers to the ski bar, and to the vertical mounting pole. See Photo 2.

The use of U-bolts with wing nuts allows easy assembly and adjustment to vertical with help from a cheap vertical post bubble level also found while at the hardware store.

As shown in Photo 3, a piece of checker-plate sits under the back wheel with an adjustable bolted connection to the mounting post.

My existing standalone mast slips into a ferrule inside the top of the square post. It can be guyed if required. The mast has an aluminium angle plate at the top and a choice of two VHF or UHF antennas with angled ground plane radials to ensure low SWR and the centre point of the 80 metre inverted vee. See Photo 4.

The main issue with the squid pole was how to mount it without it being damaged. The solution turned out to be two thick plastic plumbing ferrules filed on the inside to slide onto the base section of the squid pole. These ferrules can then be hose clamped to the mount as shown in Photo 2. A small plastic block prevents the squid pole sliding down the mounting post.



Photo 3.

Guying the squid pole required a small plumbing adapter and some filing to allow it to slide down and sit on the fourth squid pole section from the top. Wire was then clamped to the plumbing adapter to make guy rope clip points as shown in Photo 5. Short steel pickets are used to hold the guy wires in place. The squid pole may need to be taped at the joints, especially if guy wires are used.

Photo 4.





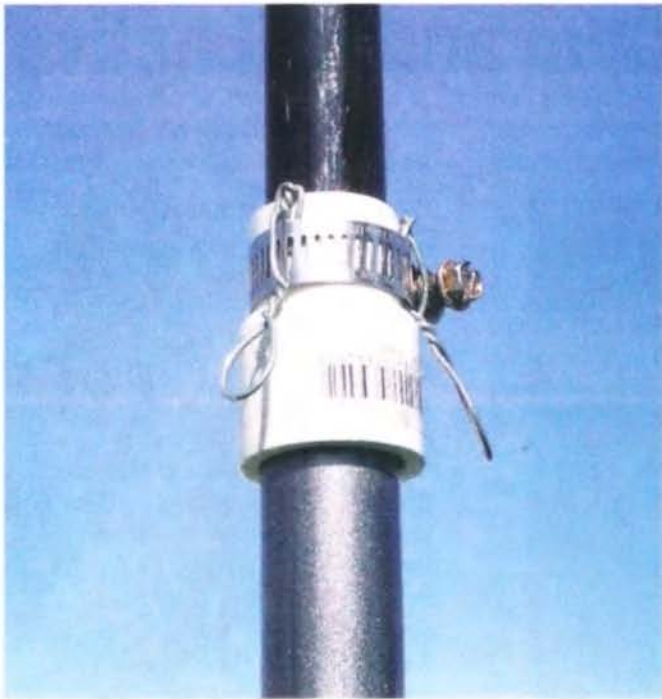
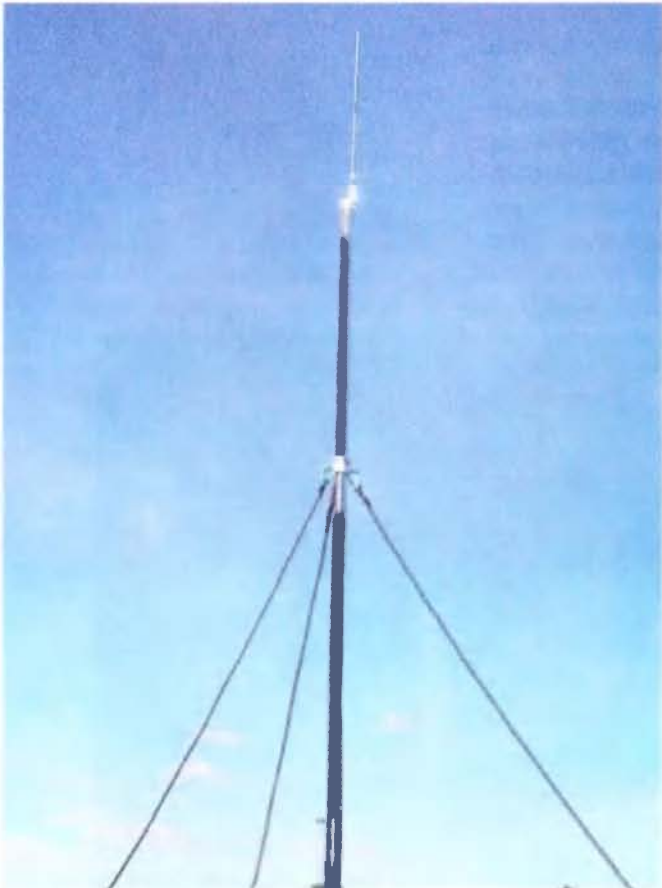


Photo 5.

Attaching a VHF/UHF antenna to the squid pole required dropping the top three sections inside the squid pole and using a plumbing fitting adaptor as shown in Photos 6 and 7.

Mounting the squid pole away from the car in the end turned out to be very simple. See Photo 8.

Photo 6.



It required the use of a medium length steel picket, hose clamps and a small bracket. The counterpoise can also be connected to the steel picket.

The outcome from the project is a number of antenna mount options that can be used according to the specific need. This solution could be adapted for virtually any car situation.



Photo 7.

Photo 8.



# 80 Years in amateur radio and still active

*Bill Magnusson VK3JT*



*Photo 1: George VK3LA with his smile.*

Putting this tribute together are just three of George's uncountable amateur radio friends. We are Ian Downie VK3XID, Richard Robbins VK3RR and myself as scribe, Bill Magnusson VK3JT. I have known the Bollas family since as a 14 year old lad I rode my bicycle the several blocks from my home to Marystone Street, Yarraville, guided by George's home made wooden tower and the three-element Yagi that he carried by hand to the top. They were landmarks in the district for decades. It was then that I first received the unforgettable Bollas welcome. Richard upon his arrival in Australia as a young science teacher in 1966 and Ian and countless others have experienced the same. It was like being welcomed into their family.

Back then George ran the family confectionary business in Chambers St., Footscray. It was a local icon for almost 80 years where the public were welcome to come for a chat and to watch the chocolates being made by hand. He did not neglect his radio during the day and at lunchtimes George could be heard working what today is considered exotic DX, like the Maldiv Islands on his Type-A Mark III radio. His

Three score years and ten is man's allotted time in this world – or so they say. There are some who exceed this and many who fall short. Then there are people like our friend George Bollas VK3LA who, at 95 years of age, is still an active radio amateur. First licensed in April, 1931 soon after duxing his old school, George studied Morse code with Lou Harding VK3LW, then a ferry-man on the Yarra and another of the well remembered pioneer Melbourne amateurs. They both passed the newly established AOCF with colours flying. That was 80 years ago, yes – 80, and George is still going strong, still active in areas of amateur radio that test many others. His transmitting days were interrupted as were all VK amateurs by the dark days of WWII, but that aside George's callsign VK3LA has been continually active since 1931. His most recent exploit was the

successful completion of a batch of three 23 cm 2C39 linear amplifiers to complement his already extensive ATV station.

*Photo 2: George VK3LA's 23 cm amplifier.*



antenna was strung across several small terrace houses in Chambers Street and he shared it with Don McKenzie VK3ALQ who ran an FS-6 transceiver and lived nearby. Old timers will remember these radios as WWII surplus.

In the 1950s and 60s George was passionate about working DX, but not in today's style of 'you are 5 by 9 please QSL'. His interest has always been in rag-chewing and getting to know the other person, their culture and interests outside amateur radio. Even then you needed a pretty good radio station to do that. During those 20 metre halcyon days, his young son Raymond acted as his QSL manager and stamp collector. In DXing, as in so many other endeavours, George had his own style of operation. His treasured Collins 'S' line and wide spaced Yagi allowed him to forge many firm friendships overseas in those years. A number of them were to sample and enjoy the Bollas welcome on visiting Australia.

George's interest in ATV, like so many other amateurs was sparked by the efforts of the Melbourne ATV Roadshow Gang, Ronnie Harrison VK3AHJ, Ian Davis VK3ATY and Howard Rider VK3ZJY, who as a group were largely responsible for the upsurge of ATV activity in Melbourne in the 1970s. George's green thumbs and, as Richard recalls, his '200 degree' soldering fingers came to the fore and he soon had one of the more substantial ATV signals on 70 cm. His interest continues today almost unabated. He and Bill Lyon VK3KBL and their

wives Daisy and Jan became a firm foursome, Bill and George's interest in VHF and in particular ATV binding that friendship. In a similar way Daisy and Jan shared gardening interests that continued for decades.

Not one to be left out George joined Richard and myself in our annual ATV/satellite DXpeditions to Mt Skene on more than one occasion during the 1980s. His advice on antennas and ATV in general was most welcome as we were both novices in the area. George and our old cobbler Ian Berwick VK3ALZ developed the loop Yagi into a real power house antenna and for years it became the beam of choice for ATVer's in Melbourne. His ready advice helped well known ATVer's like Phillip Portelli VK3AWG and Tony Formosa VK3AAZ into their area of choice. Tony and Phillip reciprocated by helping George with HF antenna work. Recently Trevor Merton VK3KAP of Dromana sourced the 2C39 valves for George's latest project. We know there were dozens of others, please forgive us if we have left someone out.

A long time member and supporter of the WIA and more recently of the RAAF Williams Radio Club near his current Hopper's Crossing residence, George has never been far from the centre of things technically, but then as now he preferred to stay in the background and mentor people as they came forward. He was always

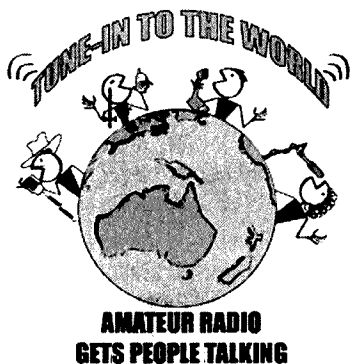
there with advice when I was a 14 year old lad, when Richard was new to Australian culture and when Ian as a newlywed novice ham was seeking guidance in ATV. At 95 years of age with an incredible 80 years of on-air experience behind him, he is still in there today.

George, this is for you. As just three of your hundreds of amateur radio friends, please accept from Ian, Richard and Bill our heartfelt thanks for your welcoming friendship over decades. Hearty congratulations on reaching that remarkable 80 years in amateur radio milestone that few of us can hope to emulate. Well done OM!

Contributed by Richard Robbins VK3RR, Ian Downie VK3XID and Bill Magnusson VK3JT.



Photo 3: George VK3LA with the 2C39.



Don't forget:

**National Field Day** on 17 April 2011

**World Telecommunication Day** on 17 May

# Ross Hull Memorial VHF-UHF Contest 2011: Results

*John Martin VK3KM, contest manager*

Here are the results for the 2011 contest. The number of logs continues to be small, but this year's entrants have shown that it is possible to make up very healthy scores in several different ways.

Most noteworthy is the fact that after some years of low activity in VK6, we have a VK6 winner for the first time since 1984. Congratulations to Barrie Burns VK6ADI. In second place came Ted Thrift VK2ARA. Barrie and Ted have both shown what can be done with some enthusiastic operating on 6 metres. We may be only at the start of the next solar cycle, but 6 metres is certainly alive and well.

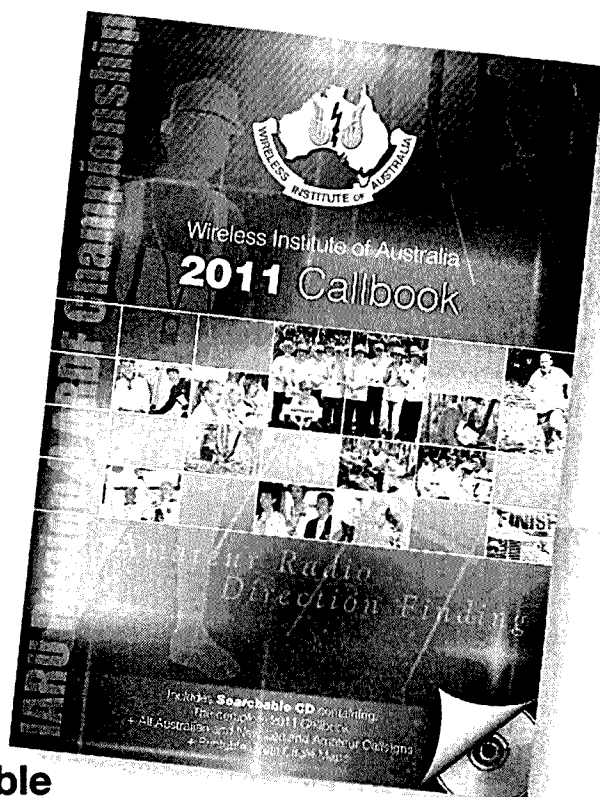
Coming third in Section A, Wayne Pearson VK5APN has accumulated the top 2 metre score with EME contacts. Top score on 1296 went to Kirk Mercer VK2MER, and Peter Freeman VK3PF gained a very healthy score on the higher bands.

In the digital modes section, the winner this year was Phil Moat VK4CDI with a mixture of terrestrial and EME contacts to 11 countries. He is followed by Rex Moncur VK7MO with a very healthy log of mostly terrestrial contacts.

Congratulations to all.



Call	Name	50	144	432	1296	2.4	3.4	5.7	10	TOTAL
		MHz	MHz	MHz	MHz	GHz	GHz	GHz	GHz	
<b>Section A: All Bands</b>										
VK6ADI	Barrie Burns	5226	48	45	-	-	-	-	-	5319
VK2ARA	Ted Thrift	2772	360	235	-	-	-	-	-	3367
VK5APN	Wayne Pearson	-	2310	-	-	-	-	-	-	2310
VK2AH	Brian Farrar	972	783	220	-	-	-	-	-	1975
VK2MER	Kirk Mercer	188	618	520	152	-	-	-	-	1478
VK2TG	Robert Demkiw	1110	312	10	16	-	-	-	-	1448
VK3HY	Gavin Brain	726	279	305	80	-	-	-	-	1390
VK7MO	Rex Moncur	-	816	265	154	-	-	-	140	1375
VK3FEMT	Stewart Wilson	-	831	455	-	-	-	-	-	1286
VK3PF	Peter Freeman	98	210	170	320	120	80	80	170	1248
VK3UH	Ken Brown	-	48	35	16	-	-	-	-	99
<b>Section B: Digital modes, All Bands</b>										
VK4CDI	Phil Moat	-	960	580	9610	-	-	-	-	11150
VK7MO	Rex Moncur	-	2137	75	2569	-	-	-	-	4781
VK1WJ	Waldis Jirgens	-	254	-	-	-	-	-	-	254



## Is your Callbook current?

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# VK7news

Justin Giles-Clark VK7TW

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Regional Web Site: <http://reast.asn.au/>

## Digital Amateur Television: VK3 to VK7

On the evening of 23 February 2011, DVB-T digital amateur television signals were received by Winston VK7EM in Penguin (NW VK7) from the Olinda ATV repeater on Mount Dandenong. Winston noticed Channel 31 Community.TV from VK3 gaining strength and then VK3RTV decoded into colour bars. Liaison on the ATV frequency 147.4 MHz led to an "on-screen" conversation with Peter VK3BFG and Neil VK3BCU, John VK3DQ, and Jack VK3WWW joining in. John VK3DQ came in via VK3RTV1 and Peter VK3BFG on VK3RTV2, and both in contact with each other. Some short videos were shown and as VK3RTV signals faded, Rob VK3TRX beamed a 1250 MHz analogue ATV signal toward Winston and was received noise free. Congratulations to Winston VK7EM, Peter VK3BFG and the VK3 ATV group. I was reminded that Winston still holds the 70 cm analogue ATV record of 412.9 km set back in 1972 with Peter who is now VK3RV.

## Digital Microwave Records Tumble

Following on from last month's report of the activation in VK7 of grid squares - QE27 and QF48 by Rex VK7MO, the microwave DXpedition has continued into VK2 and VK3. 10 GHz digital records were set on 18 February 2011 with VK3HZ over a distance 461.9 km and then this was broken again on 22 February between VK3HZ/3 and VK7MO/2 over a distance of 535.1 km. Congratulations to Rex and David.

## Successful ACMA Field Operation

Roger VK7HT let me know that over the last few months there has been a strong signal moving around 146.00 to 147.500 which could be



Test pattern and Peter VK3BFG - DVB-T signals received by Winston VK7EM (Pictures courtesy of VK7EM).

heard around Hobart and made two metres unusable in the suburb of Mt Nelson. The ACMA were called and their prompt and considerable investigative work located the offending data transmitter and shut it down. A big thank you to the ACMA.

## Northern Tasmania Amateur Radio Club

NTARC office holders for 2011 include President - Peter VK7PL, Vice President - Peter VK7KPC, Secretary - Jason VK7ZJA, Treasurer - Idris VK7ZIR, Committee Member - Peter, VK7PD and Public Officer - Bill VK7MX.

A repeater repair party consisting of Joe VK7JG, Peter VK7PD, Winston VK7EM, Kerry VK7PAK, Lucas VK7FLSB and Dion trekked up to St Valentines Peak in the North-West. This is a 90 minute hike to the top and Joe commenting that the wind was so strong it pinned him to the tower! Later on the other side of the state in the NE, Joe VK7JG, Peter VK7PD and Allen VK7AN made a trek to VK7RBH on Ben Lomond for maintenance to batteries and solar panels.

## Cradle Coast Amateur Radio Club

Congratulations to Steve VK7FUBI, Eric VK7NFI, Wayne VK7NET, and Scott VK7NWT who recently passed their Foundation and upgrade assessments. We look forward to hearing them on air soon with their new calls. Winston VK7EM let me know that the Tuesday evening NW rebroadcasts of the WIA National News and VK7 Regional News broadcasts has moved to one hour earlier and will start at 8:00 pm on the Mt Duncan repeater on 146.625 MHz.

## North West Tasmanian Amateur TeleVision Group

The AGM of NWTATVG was held on February 5 and the office holders for 2011 include President - Tony VK7AX, Vice President - Jim VK7JH, Secretary - Steve VK7EQ, Treasurer - Ivan VK7XL, Exec Officer - Neil VK7ZNX.

## Radio and Electronics Association of Southern Tasmania

The REAST office holders for 2011 are President - Ken VK7DY, Vice President - Justin VK7TW, Secretary - Tony VK7VKT, Treasurer - Alan VK7KAJ and committee members - Warren VK7FEET and Frank VK7FINF. Our Digital ATV Experimenter's night continues to be well attended. The author must thank Peter VK3BFG for his recent hospitality and ATV information sharing during a recent trip to the Centre Victoria Radio Fest at Kyneton.

Links have been established that I hope will see the two ATV communities sharing on a more regular basis via streaming and library footage. Content over the last month has included optical transceivers, 5.8 GHz ISM AV transmitter and receiver modules, class E amplifiers, Arduino microcontroller devices and Antarctic travel videos from Danish amateurs Magda ON3AX and Willy ON5AX. We recently featured two short 15 minute videos on the Kyneton hamfest and the VK3RTV repeater and ATV experimenters.

# City of Brisbane Radio Society – and their VK100WIA adventure

John Morris VK4MJF



Photo 1: The CBRS club logo.

Our VK100WIA call sign weekend was held on 2, 3 and 4 October. We would like to thank Ian VK4FABD, James VK4FJLY, John VK4MJF, David VK4KSY, Eric VK4NEF, Mick VK4NE and Ron VK4CRO for helping out over the weekend. The weekend was a great success and was enjoyed by everyone. Also, a big thank you to Ron VK4CRO for letting us use his property for the event. Also thanks to all the other club members for calling in and getting your name in the VK100WIA log. Thanks also to the visitors that came and gave us moral support over the weekend. Some individual member reports for the weekend follow:



Photo 2: James VK4FJLY.

## Report from James VK4 FJLY

'I arrived at Ron's VK4CRO place on the Saturday afternoon of the club's VK100WIA weekend and I spent a few hours helping to operate a couple of the HF bands. 20 metres was alive in the evening with contest activity from the Oceania DX Contest, which was also on during this time. There was a lot to be heard on the (very impressive) 40 metre setup as well. I made a few good contacts on 40 metres whilst getting used to using a foot switch and headset. This was my first time on HF and I must say I really enjoyed it. I cannot wait to get on HF myself now!'



Photo 3: John VK4MJF.

## Report from John VK4MJF

'Well, what can I say, after all the work done to antennas and last minute adjustments done by all, I arrived on Saturday, early in the morning, in my radio van and set up at the CRO's QTH, with the trusty TS-520D in the Marriott (the chook shed) and the FT-857D in the van. As the first contacts were made and we all settled in, the bulk of the operators stepped up to the plate. With the arrival of VK4NEF's radio gear, and being added to the pot, soon we all were making contacts to all points of the compass. Other than living in the chook shed for about three days, I personally enjoyed the experience with the company of good fellowship, with like radio nuts, and the fact I spoke all round the world on Monday, from Alaska, Texas, Europe, China and others without leaving the chair, what more could one ask for. The weather was not kind to us but who really cared. We were also looked after by NEF the chef extraordinaire, and Ron and Jenny with some oriental flavours (dim sims) as well. I left and, keeping in mind we all had very little sleep for the time period, smelt a bit off and looked a bit off. With that thought, I leave you with this, that very soon we have another field day coming to do it all again. Thanks for the memories - VK4MJF.'

## Report from Eric VK4NEF

'My thanks go to Ron VK4CRO and XYL Jenny for hosting CBRS with VK100WIA at their home. During the setup stage there was Ron VK4CRO, John VK4MJF, Mick VK4NE, Ian VK4FABD, Eric VK4NEF and John VK4HBG attend on that morning of 18 September when we were assembling the spider quad. All were lending a hand with the antennas to be used on our block period. The weather for our three days was a mixed bag, sunny, showers, and a storm on Monday night. We enjoyed long path QSOs on 20 metres to Europe during this time and Antarctica worked us and had fun on the 80 metre DX



Photo 4: Eric VK4NEF.

window working VK, ZL, W6, JA, ON and SM stations. The W6 was worked again seven hours later on 15 metres and said that we had a good signal on the low bands the previous night. We were pleasantly surprised with the good audio reports received when using the TS-480 and a Heil Proset with a HC4 microphone insert.

Total QSOs were 702, daily QSO breakdown being 307, 155 and on the Monday 140. Having had the time to now look up other Clubs QSO totals, which range from 69 to 1000 odd, most falling in the 200 to 400 QSO range, our total is about the fifth highest number of contacts. Therefore more amateurs had the opportunity to get in the log from our effort than most previous block operations. Operators over the three days put in a mighty effort that we can all be very proud off. We must not forget our XYLs who gave us this time so that we could help other hams from around the world make contact with VK100WIA in celebrating 100 years of the Wireless Institute of Australia, as this does not happen every day but once in a life time.'

**Report from Ian VK4 FABD**

'I arrived at Ron's home on Saturday morning not knowing what to expect. There was some fine adjustment needed on the 40 metre dipole that morning, in the rain! Got the new line over the tree and moved the antenna about six metres (20 feet) further down the yard. 0000 UTC came around so we decided to jump in the deep end and just go for it. Started my stint on 40 metres by calling CQ 40 CQ 40 VK100WIA listening. I did not have to wait long for the first call and they rolled in thick and fast after that. Apart from the rain pouring down and making it hard to hear the Kenwood TS-520D



Photo 5: Ian VK4FABD.

radio of Mick's in the Marriott (the aforementioned chook shed) the radio was working well. I made contacts from north Queensland down to Tasmania and everywhere in between. I would like to give a big thanks to Ron and his wife for holding the event. And to all members that were able to give their time. I would also like to thank all members that made a contact with the special call that weekend. Without their help none of this would have been possible.'



Photo 6: Chester, who we think was the mascot!



Photo 7: Ron VK4CRO.

**Report from Mick (VK4 NE)**

'I worked from my QTH with the VK100WIA call sign. I made a few contacts on two metres. There were not many stations available for contacts, but I still had fun. Regards Mick.'

The equipment used over the three day weekend was:

**Radio equipment**

Elecraft K3, Kenwood TS-520D, Kenwood TS-480SAT, FT-857D in John's VK4MJF van and an FT-857D in David's VK4KSY van.

**Antennas**

We had a 80 metre and 40 metre dipole, a two element Spider Quad for 10-15-20 metres, a seven element Yagi for 6 metres, and for two metres a 12 element Yagi and a 2 m/70 cm vertical.

**Amplifier**

Acom 1000.



Photo 8: The spider beam used for many of the HF QSOs.

# Gridsquare Standings at 11 February 2011

Guy Fletcher VK2KU

144 MHz Terrestrial		
VK2FLR	Mike	116
VK3NX	Charlie	107
VK2KU	Guy	102
VK3PF	Peter	90
VK3HZ	David	89
VK2ZT	Steve	82 SSB
VK5AKK	Phil	82 SSB
VK2ZAB	Gordon	78 SSB
VK2DVZ	Ross	77 SSB
VK3PY	Chas	77 SSB
VK3BDL	Mike	68 SSB
VK3QM	David	66 SSB
VK2EI	Neil	65
VK7MO	Rex	65
VK3BJM	Barry	64 SSB
VK2AMS	Mark	62 SSB
VK2TK	John	62
VK2MER	Kirk	61 SSB
VK3II	Jim	60
VK4FNQ	John	59
VK3II	Jim	58 SSB
VK3WRE	Ralph	58 SSB
VK4FNQ	John	58 SSB
VK3PF	Peter	56 SSB
VK5BC/p	Brian	55 SSB
VK5BC	Brian	53 SSB
VK3ZLS	Les	51 SSB
VK3HY	Gavin	49
VK4CDI	Phil	49
VK3VG	Trevor	46 SSB
VK7MO	Rex	46 SSB
VK3AKK	Ken	45 SSB
VK4CDI	Phil	45 SSB
VK7MO	Rex	45 Digi
VK4KZR	Rod	43
VK4TJ	John	41 SSB
VK3EJ	Gordon	40 SSB
VK3PF	Peter	40 Digi
ZL3TY	Bob	37
VK3UH	Ken	36
VK2TK	John	35 SSB
VK2KOL	Colin	34 SSB
VK6HK	Don	34
VK2TG	Bob	33 SSB
VK3ZUX	Denis	33 SSB
VK1DA/p	Andrew	31
VK1WJ	Waldis	28
VK3II	Jim	28 Digi
VK2TK	John	27 Digi
VK1WJ	Waldis	23 Digi
VK3TLW	Mark	23 SSB
VK4CDI	Phil	23 Digi
VK4EME	Allan	23
VK3ALB/p	GARC Team	22 SSB

VK3BG	Ed	22 SSB
VK3ECH	Rob	20 SSB
VK6KZ	Wally	20
VK2ZT	Steve	19 Digi
VK4EME	Allan	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
VK2EI	Neil	12 Digi
VK4EME	Allan	12 Digi
VK5APN	Wayne	12
VK2KOL	Colin	9 Digi
VK2DVZ	Ross	8 Digi
VK1WJ	Waldis	7 SSB
VK2AMS	Mark	7 Digi
VK5APN	Wayne	7 Digi
VK5APN	Wayne	6 SSB
VK6HK	Don	6 Digi
VK1WJ	Waldis	5 CW
VK4AE	Denis	5 SSB
VK4JAZ	Grant	4 FM
VK2GG	Dan	3
VK3QM	David	1 Digi
VK4FNQ	John	1 FM

144 MHz EME		
VK2KU	Guy	426
VK2KU	Guy	412 Digi
ZL3TY	Bob	392
VK3AXH	Ian	265 Digi
VK4CDI	Phil	225 Digi
VK7MO	Rex	157 Digi
VK5APN	Wayne	155
VK5APN	Wayne	153 Digi
VK2FLR	Mike	120
VK2KU	Guy	43 CW
VK3DDU	Paul	39 Digi
VK2ZT	Steve	28 Digi
VK3HZ	David	19
VK3II	Jim	16 Digi
VK2DVZ	Ross	6 Digi
VK3NX	Charlie	5 CW
VK4EME	Allan	5 Digi
VK5APN	Wayne	5 CW
VK3AXH	Ian	3 CW
VK2DVZ	Ross	2 CW
VK3AXH	Ian	1 SSB

432 MHz Terrestrial		
VK2ZAB	Gordon	57 SSB
VK3PY	Chas	51 SSB
VK3NX	Charlie	50 SSB
VK3QM	David	50 SSB
VK3ZLS	Les	40 SSB
VK3BJM	Barry	39 SSB
VK3HZ	David	39
VK5AKK	Phil	39 SSB

VK2KU	Guy	38
VK2DVZ	Ross	34 SSB
VK2ZT	Steve	34 SSB
VK3BDL	Mike	33 SSB
VK3WRE	Ralph	33 SSB
VK3PF	Peter	32
VK3PF	Peter	30 SSB
VK5BC	Brian	26 SSB
VK1DA/p	Andrew	24
VK2MER	Kirk	24 SSB
VK3VG	Trevor	20 SSB
VK5BC/p	Brian	20 SSB
VK7MO	Rex	20
VK2AMS	Mark	18 SSB
VK2TK	John	18
VK3ALB/p	GARC Team	18 SSB
VK7MO	Rex	18 SSB
VK2TK	John	17 SSB
VK3AKK	Ken	15 SSB
VK3BG	Ed	15 SSB
VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4KZR	Rod	15
VK4CDI	Phil	14
VK4CDI	Phil	14 SSB
VK6KZ	Wally	13
VK2EI	Neil	12 SSB
VK2KOL	Colin	12 SSB
VK4TJ	John	11 SSB
VK2TG	Bob	10 SSB
VK3AL	Alan	10 SSB
VK3ECH	Rob	10 SSB
VK4FNQ	John	10 SSB
VK6KZ/p	Wally	8
VK3UH	Ken	7
VK7MO	Rex	7 Digi
VK4EME	Allan	6 SSB
VK1WJ	Waldis	5 SSB
VK2DVZ	Ross	4 Digi
VK2ZT	Steve	4 Digi
VK3PF	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK4CDI	Phil	4 Digi
VK4AIG	Denis	3 SSB
VK4JAZ	Grant	3 FM
VK2AMS	Mark	2 Digi
VK2GG	Dan	2
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi

432 MHz EME		
VK4EME	Allan	42
VK4EME	Allan	39 Digi
VK4CDI	Phil	34 Digi
VK7MO	Rex	10



VK7MO	Rex	9 Digi
VK4EME	Allan	6 CW
VK3NX	Charlie	5 CW
VK3AXH	Ian	4 Digi
VK3HZ	David	4
VK2ZT	Steve	2 Digi
VK5BC	Brian	1
<b>1296 MHz Terrestrial</b>		
VK3PY	Chas	41 SSB
VK3QM	David	41 SSB
VK3NX	Charlie	37 SSB
VK2ZAB	Gordon	29 SSB
VK2DVZ	Ross	26 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK5AKK	Phil	25 SSB
VK3BJM	Barry	22 SSB
VK3PF	Peter	22
VK3PF	Peter	20 SSB
VK3WRE	Ralph	20 SSB
VK3KWA	John	19
VK3BDL	Mike	18 SSB
VK3HZ	David	18
VK3ALB/p	GARC Team	16 SSB
VK2ZT	Steve	13 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK7MO	Rex	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK5BC/p	Brian	9 SSB
VK2AMS	Mark	8 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UH	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4CDI	Phil	5
VK4CDI	Phil	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK6KZ	Wally	4
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4AIG	Denis	2 SSB
VK4CDI	Phil	2 Digi
VK4FNQ	John	2 SSB
VK2DVZ	Ross	1 Digi
VK2EI	Neil	1 SSB
VK2ZT	Steve	1 Digi
ZL3TY	Bob	1 SSB
<b>1296 MHz EME</b>		
VK4CDI	Phil	59
VK3NX	Charlie	54 CW

VK4CDI	Phil	49 Digi
VK7MO	Rex	41
VK7MO	Rex	36 Digi
VK4CDI	Phil	15 CW
<b>2.4 GHz Terrestrial</b>		
VK3PY	Chas	18 SSB
VK3NX	Charlie	17 SSB
VK3QM	David	17 SSB
VK3AKK	Ken	15 SSB
VK3WRE	Ralph	11 SSB
VK3ALB/p	GARC Team	7 SSB
VK3PF	Peter	7 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB
<b>2.4 GHz EME</b>		
VK3NX	Charlie	37 CW
VK7MO	Rex	14
VK7MO	Rex	10 Digi
<b>3.4 GHz Terrestrial</b>		
VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	8 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4
VK2EI	Neil	1 SSB
VK2GG	Dan	1
<b>3.4 GHz EME</b>		
VK3NX	Charlie	16 CW
<b>5.7 GHz Terrestrial</b>		
VK3NX	Charlie	14 SSB
VK3QM	David	12 SSB
VK3PY	Chas	9 SSB
VK3WRE	Ralph	9 SSB
VK3PF	Peter	7 SSB
VK3ALB/p	GARC Team	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	3
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK2EI	Neil	1 SSB
VK3ZUX	Denis	1 SSB
<b>5.7 GHz EME</b>		
VK3NX	Charlie	23 CW

<b>10 GHz Terrestrial</b>		
VK3HZ	David	44
VK3HZ	David	20 SSB
VK3PY	Chas	17 SSB
VK3AKK	Ken	16 SSB
VK3QM	David	15 SSB
VK3NX	Charlie	14 SSB
VK3PF	Peter	11 SSB
VK3WRE	Ralph	11 SSB
VK6BHT	Neil	9 SSB
VK3ALB/p	GARC Team	7 SSB
VK2EI	Neil	6
VK6KZ	Wally	5
VK2EI	Neil	3 Digi
VK3TLW	Mark	3 SSB
VK7MO	Rex	3
VK2GG	Dan	2
VK3BJM	Barry	2 SSB
VK3UH	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK1DA/p	Andrew	1
VK2AMS	Mark	1 SSB
VK3BG	Ed	1 SSB
VK3NX	Charlie	1 Digi
<b>10 GHz EME</b>		
VK3NX	Charlie	15 CW
<b>24 GHz Terrestrial</b>		
VK3NX	Charlie	4 SSB
VK3QM	David	3 SSB
VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK6KZ	Wally	2
VK3WRE	Ralph	1 SSB
<b>47 GHz Terrestrial</b>		
VK3NX	Charlie	4 SSB
VK3QM	David	4 SSB
VK2GG	Dan	2
<b>474 THz</b>		
VK3WRE	Ralph	3
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at <http://vhfdx.radiocorner.net> - click on Gridsquares.

Next update of this table will close on or about 17 June 2011.

Stations who do not confirm their status for more than 12 months may be dropped from the table.



# DX - News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

Recently DXers have had a number of new entities with the four new ones created by PJ2, PJ4, PJ6 and PJ7 towards the end of last year. Now **Southern Sudan** is set to formally declare its independence on 9 July. When Southern Sudan meets the current DXCC criteria there is no doubt it will be a new Entity.

Two DXpeditions have already been announced.

First: The group consisting of Alex 5Z4DZ (PA3DZN), Robert S53R and Martti OH2BH have opened discussions with Southern Sudan's institutions and other related parties in the region. The group will also be holding discussions relating to the provision of potential help to Southern Sudan's prospective Amateur Radio Service with several entities, such as NCDXF, in addition to obtaining resources from Japan. Updates will be released from time to time between now and July, and it is predicted that prospects for a new DXCC country are only a few months away with preparations well underway.

Second: Paul N6PSE announced that the Intrepid-DX Group and DX Friends are planning a joint operation "to take place on or after 9 July 2011". This is intended to be "a major effort, with a target of more than 150,000 QSOs. There will be up to ten stations on the air, using amplifiers along with high performance beams and vertical dipole arrays, 24 hours a day, for almost three weeks". While continuing "to move forward in our planning with representatives of the new Southern Sudan Government and the ITU/IARU", they "are not seeking donations or support until we have an official operating permit/licence in hand". The website for the DXpedition is at [www.dxfriends.com/SouthernSudan2011/](http://www.dxfriends.com/SouthernSudan2011/)

Still on the subject of DXpeditions, it is interesting to look at the statistics from the last three

Bands	160	80	40	30	20	17	15	12	10
VP8/O OC350	4	8	70	65	151	43	9	0	0
S9DX OC173	1	3	34	28	34	29	29	9	6
TJ9PF OC226	3	0	16	31	102	22	26	17	9

major operations – VP8/Orkney, S9DX and TJ9PF. As all three operations were using ClubLog. When the QSO data was uploaded not only were statistics available but also data on the times and bands that individual countries were working that particular operation.

The total number of different VKs that worked each DXpedition were:  
VP8/O 55, S9DX 32, TJ9PF 60

A great effort from all three DXpeditions.

Now to general DX News.

P29CW from Kunga in the Western Province of Papua New Guinea is the callsign for Allan VK2GR and Josette VK2FXGR, February until September. They will be doing voluntary medical work with Australian Doctors International, but plan to do some operating on 80-10 m CW, RTTY and SSB, in their spare time. QSL via VK2IR and eQSL. Logs will be on <http://www.p29cw.blogspot.com/>

Eddie VK4AN is one of the organizers of an upcoming DXpedition to Nauru (C2). Preliminary discussions with Nauruan authorities have taken place and they expect to receive word of their callsign very soon. They also anticipate authorization for 60 metres. Anyone interested in going for a two week trip, which is expected in mid to late 2011, should contact Eddie.

Fernando 6W/EA1BT plans to operate May 3-12 from Senegal.

P40A will be Tim WD9DZV in Aruba March 8-13, "holiday style," most bands and modes. QSL to WD9DZV.

D2CQ from Angola is back on the air. Mike CT1IUA says Paulo was off for a year after having some gear stolen from his QTH. He will be back on with a G3TXQ Hexbeam and will

be getting on 20-6 m SSB only. He plans to put up a dipole for 80 and 40 soon. He does sometimes QRT suddenly; power often goes out unexpectedly for several hours at a time. Paulo's home call in Portugal is CT1ITZ.

HI3/KL7JR and HI3/WL7MY will be on 80-10 m from the Dominican Republic March 1 until June. They will have various wire antennas from their beach location, with the main antenna being a 40-10 m vertical loop. You may request skeds at [KL7JR@yahoo.com](mailto:KL7JR@yahoo.com) QSL via KL7JR.

The upcoming Canton Island DXpedition in April 2011 has a website currently under construction at <http://www.t31a.com/> Their QRZ.COM page says a 12 man international team is expected to be QRV for nine days. Plans are to be QRV as T31A with six stations. They will be available on 1.8 through 28 MHz. The NCDXF Website gives the dates as April 15-24.

Dov 9N7DX (op 4Z4DX) and his XYL Anat 9N7YL will be on the air from Nepal April 13-30. Look for them on 20, 15, 10 and 6, mostly CW, RTTY and PSK31. Dov plans to put together a bigger operation for November to mark his 60th birthday and 45 years in ham radio. QSL both callsigns to 4Z4DX. <http://www.mdx.org/9n7dx/> or <http://www.qrz.co.il/home.php?page=9n7dx>

Nick G3RWF will be active again as 5X1NH from Uganda from 19 February for eight weeks. He will operate CW, SSB and RTTY on 80-10 metres (neither 160 nor 6 metres). QSL via home call, direct or bureau, and LoTW.

G3TBK's trip to VP2M and V2 has been postponed until at least April. Dave will, though, operate

as J88DR in **St. Vincent** February 16-March 14 including the ARRL DX CW and SSB contests and the RSGB Commonwealth Contest, "BERU." He will take a quick trip to J6 also, between the two ARRL contests, but will probably not get on the air. Dave does consultant work in these places. He holds the callsigns G3TBK, J88DR, VP2MDC and V29TBK.

The Northern California DX Club is publicizing its 62nd Annual International DX Convention, which is April 15-17 in Visalia, California. You can register at <http://www.dxconvention.org/>

Special callsigns 4X20HC and 4Z20HC will be in use from **Israel** between 1 February and 30 April to celebrate the 20th anniversary of the Holyland Contest. QSL via 4Z4TL. This year's contest will be held on

15-16 April; rules can be found on the Israel Amateur Radio Club's website ([www.iarc.org](http://www.iarc.org)).

Anne OH2YL is planning a trip to Saint Barthelemy, where she will be QRV as FJ/OH2YL from April 15 to 27. Activity is expected on 1.8 through 28 MHz on CW. More details can be found at [www.fjoh2yl.com](http://www.fjoh2yl.com) QSL via OH2YL including LoTW.

And finally the current details, released recently, following the usual annual survey of the 'most wanted' 100 Entities. The Table below shows the first 12 with the current standing (2010 when the survey was conducted) and the previous year.

Undoubtedly VP8/O will drop in the table and also, if the rumours materialise, for 7O.

Good luck in the pile-ups!  
Special thanks to the authors of

2010			2009
#	PREFIX	COUNTRY	#
1	P5	NORTH KOREA	1
2	KP1	NAVASSA	2
3	3Y/B	BOUVET	4
4	7O	YEMEN	5
5	VK0/H	HEARD ISLAND	6
6	FT5Z	AMSTERDAM	9
7	ZS8	MARION ISLAND	3
8	VP8/S	SOUTH SANDWICH	10
9	FT5W	CROZET	7
10	BS7	SCARBOROUGH	11
11	VP8/O	SOUTH ORKNEY	12
12	HK0/M	MALPELO	14

*The Daily DX (W3UR), 425 DX News (11JQJ) and QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)

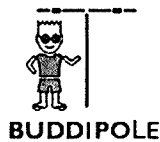


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## Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY



Photo 1: Rob VK5RG with the Golf Club manager.

In December we had our Christmas dinner at which Rob VK5RG won one of the dinners kindly donated by the manager of the Mount Osmond Golf Club.

In January we had a picnic hosted by the Lower Murray ARC at a park beside the river, just beyond the town. Many thanks go to David VK5OV and Meg VK5YG for arranging the venue.

It was an ideal spot and a really lovely day. There was a new Yaesu FT-747 and a squid pole on show but mostly it was just a pleasant picnic.



Photo 2: A view of the picnic spot beside the Murray River.

Photo 2 gives a general view of the area with a glimpse of the river in the background.

In February AHARS had the AGM

and there is now a new committee – President David VK5KC, Vice President Leigh VK5KLT, Treasurer Richard VK5ZNC, Secretary Sue VK5AYL, committee members Rob VK5RGA, Graham VK5ZFZ, and Barry VK5ZBQ.

In photo 3 – we have Rob, Graham, Leigh, Richard and David at the back with Barry and Sue sitting.

A short talk by Graham VK5ZFZ followed the AGM. He talked about a number of new tools available for making holes in chassis. Although much modern technology uses surface mounted and other small devices there are still some projects for which you need to make a hole. It is good to have the chance to catch up with new tools.



Photo 3: Rob, Graham, Leigh, Richard and David at the back with Barry and Sue sitting. Taken at the AHARS AGM.

# QRP 101 or the great radio heresy

Norm Lee VK5GI

Yep, that is the title, so all you Old Timers and folks with 2 kW amplifiers go and have a cup of coffee or turn the page, and leave the rest of us to it.

Right, having got rid of the unbelievers, what does QRP mean? Well, it is international code for 'Reduce Power'. It was used mainly by the merchant marine and the CW ops of old. You can operate QRP right now by simply turning the RF power knob on your rig down to the internationally recognised QRP output power of five watts.

But, when all about you are running anything from a hundred watts to a zillion watts, why would you bother?

There is a complex philosophy about QRP. The first QRP philosopher was without doubt William of Ockam, born in 1288 and died on 9 April 1348. Note that this was before the era of solid state rigs with bells and whistles so his thoughts are a bit biased towards the simple. He said words to the effect that it is vain to do with more, that which can be done with less. This brought him into direct conflict with Pope John XXII who, forever doing things in a big way (a QRO type of guy), took the hump at this and so poor old Bill died excommunicated in a monastery. A salutary lesson for all of us! However, it is true that under ideal conditions, running five watts will mean that the receiver of your QSO will hear you at only a couple of S points down on that which he would have received you if you were running 100 watts.



Photo 1: The Pixie transmitter.

But, I hear you say, that is not really an advantage is it? Well, yes and no. With only five watts you can more easily run your rig on batteries and be more flexible in taking your rig portable. Most QRP rigs will run on nine volt batteries, or a battery pack loaded with AA cells. I have known operators to run tiny rigs from the back of their push-bikes, or take them back-packing up mountains. I have a small QRP rig which I take up to my daughter's place in Brisbane, set it up on the table on her balcony, along with a cold beer, sling a wire antenna into a nearby tree and have a very pleasant afternoon. It runs on a PP9 battery. Try doing that with an FT-101!

On the other hand, if you have limited space at home or are on a limited budget then QRP may be the way for you to get into the amateur radio hobby. You can have your amateur radio station in a small box in a cupboard, and it is probable that it will not cost you a fortune, and at QRP power levels, you will not be causing your neighbours RFI. Again, why run high power when low power will do the job almost as well, and save you heaps on your electricity bill to boot? And, you will get that warm fuzzy glow from knowing that you are doing your bit to 'Save the Environment'.

So what can you expect when you fire up your five watts? As in all radio communications, it depends on your operating technique, on your antenna, and on the conditions prevailing at the time. I have personally worked Japan on my old Argonaut with about two watts on 20 metres sideband. I have worked most of the Australian states with a Pixie on 500 milliwatts CW – refer Photo 1. True, they were worked on a quarter wave 40 metre vertical antenna through a tuner – these days I am getting not quite so good results on my off-centre-fed Windom. None the less, I am getting out and having FUN. That is what it is all about. Be warned though – and this is REALLY important – have patience. QRP is not for everyone. It can be a frustrating exercise calling your call-sign at some exotic DX and being swamped by stateside stations running several kilowatts. It really does need persistence and knowing the old adage that 'Life Is Too Short For QRP'. Be warned.

If you are starting from scratch and want dedicated QRP gear, what is available? Well, TenTec started commercial production of QRP gear in the late 1960s with their little rigs, the PM-1,-2 and -3. I do not recommend them as they are by now at least 40 years old. They followed this with the Argonaut series, the 505, 509 and 515. Again, they are getting long in the tooth (teeth?) and the 505 and 509 may have problems with their permeability tuning circuits. If you can get a 515 for a reasonable price, that may be a good proposition, but these rigs are really

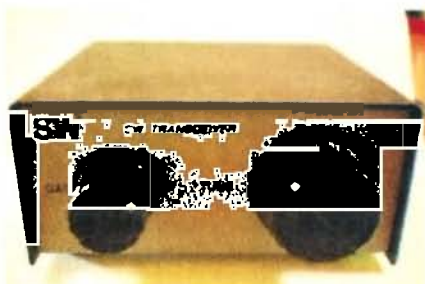


Photo 2: The Heathkit HW-8 transceiver.



Photo 3: The SW-40 CW transceiver.

only for collectors these days and everyday use may prove problematic. Other rigs from TenTec include the Scout which has plug in coil boxes, and the Argosy series which had user-selected five watt or 50 watt outputs. You can check these out on the internet auction sites.

Heathkit put out many QRP rigs, some single band transmitters, and some transceivers. Their most popular rigs without doubt, though, were the HW series. These were the HW-7, HW-8 and the HW-9. Trust me on this – avoid the HW-7 like the plague. At ANY price. It was a lousy rig, ill-conceived, badly designed. It was supposedly for 15, 20 and 40 metres but the problem was that you got them all at once on the same band! And you got microphonics as well! Keep clear of this rig. The HW-8, on the other hand (refer to Photo 2), is still a delightful rig to use, even though it is now coming up for 30 years old. I have one which I would not part with. According to the ARRL, it is the most modified rig in radio history, and the web is full of modifications for it. Mine has an S/power meter mod, an RIT mod and the LM-386 mod to use a speaker instead of headphones.

Both the HW-7 and HW-8 were direct conversion transceivers, but Heath had its act together by the mid 1980s and put out the HW-9. A magnificent superhet rig for 80, 40, 20 and 15 metres but with an add-on, it could operate on the WARC bands too. They tend to be pricey on eBay but they do come up from time to time. Amongst the 'Big Three' manufacturers, Yaesu offered their FT-7 at 10 watts; Kenwood had the TS-120/130, again putting out about 10 watts. I do not recall Icom putting out a QRP rig but I have an IC-707 which is turned down to 10 watts internally and is built like a brick outhouse. (Icom made the IC-703 – similar in appearance to the IC-706 but HF only and QRP. Ed.)

Currently on offer is the Yaesu FT-817 which comes up frequently on the auction sites and holds fairly high prices. Icom has the IC-703/706. There are others such as Elecraft, but they are current kits which need some expertise to assemble and are fairly expensive. However, I can recommend the SW- series of CW transceivers from SW-Labs. I have assembled one for 40 metres, refer Photo 3, and it is magic! It is not very big, and can be put together

over a couple of evenings, and is not expensive. New on the block is a Chinese rig, the HB-1A, which is available already assembled from the builder on eBay. This rig is my favourite, refer Photo 4; and it runs continuous receive from just over 6 MHz through to 16 MHz, so you can listen to all the DX broadcast stations as well.

I hope to be able to put in occasional articles as the time permits on QRP topics, maybe next time on simple antenna tuners and handy portable antennas. In the meanwhile, take the plunge and reduce your power – you will truly be amazed with the results.

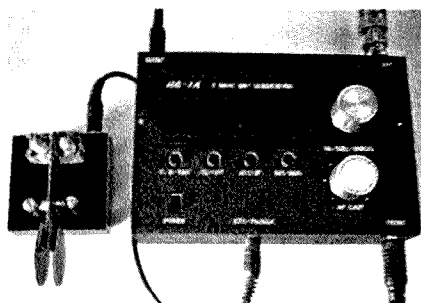


Photo 4: The Chinese manufactured HB-1A.

## VK6news

### Keith Bainbridge VK6RK

I am sad to say this is my last VK6 Notes. I mentioned last month that several factors were restricting me from putting the time and effort into producing these notes every month and it has come to a head this month.

Running two businesses, selling one of them, working 60+ hour weeks and also taking on the WIA Awards Managers job has meant something had to go. I have resigned as President of the NCRG and handed over the writing of these notes to allow me to concentrate on the remainder.

As from next month John Ferrington VK6HZ will take on

the role of VK6 Scribe. I hope you will all assist him in every way and flood his email with your updates and information. It has become increasingly difficult to get information from members in this state, with only the Hills group, Geraldton group and recently the Goldfields group providing regular updates. Of course the NCRG has always been a source given my involvement with it, but I have always tried to use NCRG input at a minimum or when all else failed!

So I would ask all of the groups in WA to get behind John and help him produce the notes each month. This is the only official WIA written

news report for this wonderful state of ours, and is the only source of information for the many WIA members who do not have email or cannot listen to the weekly news broadcasts.

I have not received any input this month at all so it means I go out on a bit of a low spot, but I do want to thank all who have assisted me over the past three years and I look forward to reading John's new column in the May edition of AR.

Vy 73 and gud dx. Keith VK6RK



# AMSAT

David Giles VK5DG  
vk5dg@amsat.org

## Status reports

This month I have reports on five current missions of interest to amateurs.

## ARISSat-1 status

First the good news: ARISSAT-1 is in orbit and functional. Now the bad news: it is still on the International Space Station until the next EVA in July. But this month it is planned to get another test for the 50<sup>th</sup> anniversary of the first manned mission. Roscosmos announced that ARISSat-1 will be turned on during April 12 for Yuri's night. AMSAT-NA will issue certificates for reception reports. During February ARISSat-1 was connected to one of the ISS' external antennas and powered up for testing. Over the course of a few days reports of its transmissions came in from all over the world.

I managed to hear some CW telemetry despite local interference on 145.919 MHz.

## Three new cubesats

As I type three new cubesats are sitting in the Taurus XL rocket awaiting launch from the Vandenberg Air Force base in California. These are KySat-1, Explorer-1 (Prime) and Hermes. The primary mission is NASA's Glory satellite which will observe aerosols in Earth's atmosphere and solar irradiance. Of all the sunlight that reaches Earth only half gets to the surface. A third is reflected back into space by the clouds and oceans, the rest is absorbed by the atmosphere and re-emitted. Glory will be used to make accurate measurements of this solar energy. Unfortunately there was a fault detected in the ground equipment during the launch

countdown at the end of February. They expect to get this sorted out and have the rocket launched by the time you read this report.

## KySat-1

KySat-1 was designed, built and tested by students at the University of Kentucky and Morehead State University. KySat-1 is a 1U size cubesat that will be used to demonstrate satellites to school students of all ages. Its primary mission is education outreach and this will be delivered using mobile command stations in the US. These command stations will visit schools in Kentucky and give students the chance to command the satellite, upload and download pictures and audio files. KySat-1 has a digital amateur transponder as well as a high speed 2.4 GHz commercial downlink



## AMSAT-VK

### AMSAT Co-ordinator

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### Group Moderator

Judy Williams VK2TJU  
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### Website

[www.amsat-vk.org](http://www.amsat-vk.org)

### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

## About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

## AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

## Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

which will only be used over the main ground stations at the two universities. The uplink frequency is 145.850 MHz and a downlink of 436.790 MHz with a power output of one watt. The two types of transmission are a CW beacon and 1k2 AFSK packet. But there is a catch – the transmission times are infrequent. The CW beacon transmits using 400 Hz modulation of FM signal at 32 wpm but only once every five minutes. The information frame gives KYSAT-1, battery voltage and CPU temperature. The packet transmissions are every 2.5 minutes and give beacon count, voltage, temperature and a status byte. Full details and sample recordings are available at their website (1). The reason for the long delay between transmissions is to keep the power budget positive (i.e. not drain the battery).

In the future KySat-1 may be used by amateurs as an APRS repeater. Any packets received or audio files recorded can be sent to [ssl@engr.uky.edu](mailto:ssl@engr.uky.edu)

### Explorer-1 (Prime)

The Explorer-1 (Prime) (or E1P) satellite is part of a scientific demonstration mission to measure space radiation. Built by students at the Montana State University, it is a 1U cubesat with a Geiger-Müller radiation detector that will detect electrons from the horns of the outer Van Allen belt. The 'horns' are the areas of the belt that come closest to the Earth and are located around 60 degrees latitude. Not to be confused with the 'South American Anomaly' which is an intense zone of radiation over the southern Atlantic Ocean that is part of the inner Van Allen belt. Almost all amateur satellites pass

through these radiation zones every day. The International Space Station passes through the edge of the South American Anomaly. A better description can be found at the ESA website (2).

E1P will transmit its data on 437.505 MHz using 1k2 non-coherent FSK. There is a telemetry decoder that runs under windows XP or later that will also send any telemetry received to Montana State University. You will need a TNC for data input. The decoder software is available at their website (3).

E1P was inspired by the original Explorer-1; the first US satellite launched in 1958. Its scientific payload of a cosmic ray sensor (a Geiger counter) helped make the discovery of the inner radiation belt surrounding the Earth. A detailed story of Explorer-1 and the start of the US space program can be found here (4) (click on the Explorer-1 booklet link). Even an amateur radio station gets a mention as the backup receiver to JPL in California.

### Hermes

The University of Colorado has built the Hermes cubesat. Like the others, Hermes is a 1U size cubesat and it will be used as a test bed for future missions and to test a high speed S-band transmitter. Its main communications system is based on a stripped down Yaesu VX-7R and a TNC (5). The TNC is based on the 'WhereAVR' APRS tracker (6). It will transmit on 437.425 MHz using 1k2 AFSK. Any reception reports can be sent to [hermesucubesat@gmail.com](mailto:hermesucubesat@gmail.com)

### Nanosail-D

As reported in last month's *AR*, Nanosail-D was deployed from the FASTSAT satellite. Unfortunately its

battery only lasted three days but that was long enough for amateurs to receive 469 packets from 11 countries. Nanosail-D will not be up there for much longer but is easily visible under the right conditions (i.e. after sunset or before sunrise and Nanosail is in sunlight). For those with an interest in photography, there is a competition with cash prizes for the best photo submitted at [www.spaceweather.com](http://www.spaceweather.com) (I rather liked the photo taken of the space shuttle Discovery nearing the ISS). The best place to look for its present location is at the Nanosail dashboard website (7).

### Final Pass

This month we get another chance to try ARISSat-1 as well as celebrate 50 years of manned space flight. I hope to receive some SSTV from it this time. As I wrote in a previous column, cubesats will be utilising higher frequencies for greater data throughput. KySat-1 and Hermes will both be trying S-Band but using 2 m and 70 cm for command and telemetry.

### References

- (1) <http://ssl.engineering.uky.edu/missions/orbital/kysat1/about-kysat-1/>
- (2) [http://www.esa.int/TEC/Space\\_Environment/SEMEF3T4LZE\\_0.html](http://www.esa.int/TEC/Space_Environment/SEMEF3T4LZE_0.html)
- (3) <http://ssel.montana.edu/e1p/>
- (4) <http://www.jpl.nasa.gov/explorer/history/>
- (5) <http://spacegrant.colorado.edu/index.php/current-projects/177-cubesat>
- (6) <http://garydion.com/projects/whereavr/gov/explorer/history/>
- (7) <http://nanosaild.engr.scu.edu/dashboard.htm>



## Coming Events

### 9 April

VK6 – Hills Amateur Radio Group HARGFEST at club rooms Lesmurdie.

### 18 April

World Amateur Radio Day "Amateur Radio: The first technology-based social network".

### 10-12 June

VK4 – Far North and North Queensland Amateur Radio Gathering at King Reef Resort Kurrumbeach.

### 9-10 July

VK3 – GippsTech 2011 VHF/UHF and microwaves technical conference, Churchill.

### 16 July

VK3 – Gippsland Gate Radio & Electronics Club

Hamfest, Cranbourne.

### 31 July

VK2/3 – Riverina Field Day, Lavington.

### 7 August

VK2 – SARCFEST, Lismore.



# Contests

Phil Smeaton VK4BAA/VK4KW

## Contest Calendar for April 2011 – June 2011

April	3	QRP Hours	CW/PSK31/RTTY/SSB
	9/10	Japan International DX Contest	CW
	9/10	Yuri Gagarin Intl. Contest	CW
	16/17	YU DX Contest	CW/SSB
	17	WIA National Field Day	SSB
	23	Harry Angel Sprint	CW/SSB
	23/24	Helvetia Contest	CW/SSB
	23/24	SP DX RTTY Contest	RTTY
May	14/15	CQ-M Intl. DX Contest	CW/SSB
	7	VK/Trans-Tasman 80 Metres Phone Contest	SSB
	28/29	CQ WW WPX Contest	CW
June	5	QRP Sprint	CW
	4/5	IARU Region 1 Field Day	CW
	11	Asia / Pacific Sprint	SSB
	18/19	All Asia DX	CW
	25/26	ARRL Field Day	All

*Note: Always check contest dates prior to the contest as they are often subject to change.*

Welcome to this month's Contest Column.

### Run Forrest, Run....

Running is one thing, but Search and Pounce (S&P) is quite another. Both are valuable operating approaches during a contest, but when is best for which methodology? Should contest organisers try to reach a level playing field by banning 'running' in some contests?

If you have a super-station with a great antenna then running for most, if not all of the time will probably be your tactic of choice for many contests as you may be able to hold a clear frequency and be audible to the DX. If you have an FT817 and a G5RV (or 10 W and a 5-ele on 2 m) then you are generally going to be a S&Per – but your DXCC tally might rise quite nicely. With a middle-of-the-road station (say 100 W barefoot and a doublet on 80 m for example) you will be able to do a bit of each but you are still very unlikely to be the overall winner. In some contests there are sections on the basis of power and/or antennas to make life easier

for the little guys and in some there are no such provisions – that is just a fact of life. The bigger stations can run, so they do. The smaller stations often cannot run – so they don't.

Levelling the playing field in contesting is a term heard more often nowadays. In WRTC it is essential that the competitors utilise similar stations, location, equipment etc in order to try and rely purely upon the operator skill-set for results. So, does this mean that the bigger stations require less skill to achieve a higher score as the hardware provides most of the perceived advantage? We are talking about contesting! It is competitive! Why should the organisers interfere with one station's optimum operating strategy to (presumably) try to induce another to employ tactics which may not be wholly suited to his station? Remember, without the Runners there is no-one for the S&Pers to work. And of course, equally, without the S&Pers, there is no-one for the Runners to work.

So, is it time to have sections in

contests that are for "Runners only" and "S&Pers only" so each type of station can at least compete against his or her peers? No, because it is not either-or. Even the biggest stations need to know how to S&P and equally importantly, when to S&P. On the other side, you may feel you're a 'little pistol' but there are times in some contests when you'll be able to run. There are 10 W stations that run successfully for at least part of the Commonwealth Contest, so it obviously can be done to a good advantage. Some of the QRP records for CQWW and CQWPX are very significant indeed – a rare location adds 20 dB to the signal!

Would the organisers possibly consider an "S&P only" section, a "run-only" section and a "mixed S&P and run" section? What would happen if 75% or more of the potential entrants decided to S&P only? Or Run only? I suspect that the band would be either very quiet with everyone tuning but not allowed to call, and huge unmanageable pileups for the few CQers, or very busy with everyone CQing but nobody answering.

Run versus S&P is an operational tactic and requires considerable skill and experience to get right. Add multiple bands and multi-per-band into the mix and it's all often portrayed as a science bordering on alchemy. It's a fine art getting it right - the IOTA single-op mixed-mode entrants will tell stories of how vital it is to get band changes, mode changes and run/S&P changes right. Activity levels itself out as a result - if running is not producing enough Qs or multipliers, you go run somewhere else or S&P a while if the rules do not allow you to change bands for a while.

So, how does one start out in contesting if skill and experience is required to get things scoring at their best? S&P is a great strategy in a contest you've not taken part in before because you can listen to

## IOTA Contest 2010

Call sign	IOTA Ref	Island	Category	QSOs	Mults	Final Score
VK7ZE	OC006	Tasmania	IOTA FIX SOU SSB 24H HP	647	95	403275
VK4AN	OC137	Russell	IOTA FIX SOA MIX 24H LP	348	100	312000
VK4BUI	OC001	Australia	IOTA FIX SOU MIX 24H HP	147	78	155142
VK4HAM	OC142	Fraser	IOTA DXPN MS MIX 24H LP	316	51	129132
VK3TDX	OC001	Australia	IOTA FIX SOU MIX 24H HP	241	40	54840
VK7GN	OC006	Tasmania	IOTA FIX SOU CW 12H HP	232	33	49500
VK7XX	OC006	Tasmania	IOTA FIX SOU SSB 12H HP	170	40	47760
VK4LDX	OC171	Magnetic	IOTA DXPN SOU SSB 12H LP	43	17	10557
VK2AYD	OC001	Australia	IOTA FIX SOU CW 12H LP	66	16	9504
VK4GH	OC001	Australia	IOTA FIX SOU SSB 24H HP	16	15	3420
VK2ACC	OC001	Australia	IOTA FIX SOU SSB 12H HP	19	14	3150

contest who would QSY adjacent to a station spotted on the Cluster to try and grab a few additional QSOs.

### An Insurance Bloke on a Stick

After the extensive damage caused by cyclone Yasi, the awful flooding and raging bush fires, an insurance bloke on a stick will possibly be the much longed-for

the CQing station before you make a contact, work out in your own time what you need to say, then dip your toe in and have a go yourself. Operating HF from suburbia, for example, operators can often be reluctant to call CQ as the noise floor means that there are likely to be many stations who would hear the CQ but who the operator making the CQ might not hear. Many of the "big guns" have excellent RX performance to match their transmit signal strength and this is very encouraging to those whose station capabilities may be more limited. Just as WJST etc has enabled lower power stations on VHF/UHF to make EME QSOs with a 9 element beam and a few watts of power, those fortunate souls with an 80 m 4-square make possible an otherwise marginally readable QSO for those who have 10 W and a random bit of wire.

The current top contesters were not born contesters - they started as 'mike-shy' and 'key-shy' in just the same way as many of today's new licensees. They got on the bands, worked a few contests and competed against themselves in order to hone their skills and stations to where they are today.

### CQWW RTTY WPX Contest 2011

Steve, VK3TDX was on the bands for the RTTY WPX contest. He reports that the weekend was great fun as finally all bands were open and in great shape. The lower bands 80 and 40 were ideal with low noise and great openings worldwide. 10 metres as usual was open to JA and

the north but not many stations there bothered to operate since the prefix multipliers are not unique to bands in this contest and all the other bands were bristling with activity. The WPX tests are great because of the 30 hour maximum operating time, which means that operators can get some rest and its XYL friendly! Steve amassed a score of just over 1.7 million - nice going Steve!

Eddie VK4AN decided a few days before IOTA contest to make a serious effort. As usual, Eddie planned to get lots of sleep ahead of time, tweak the antennas and test everything prior to the start. All was going as planned, so Eddie began to get worried! Where was 'Murphy'? He just *had* to be lurking around somewhere.

The contest started and all was going fine...then 'Murphy' finally showed up and crashed the PC in the middle of a pileup! A few minutes later (and a modicum of profanity no doubt) all was going well again and stayed that way the rest of the contest. Bands were open but Ed could not crack the RF wall of JAs very often into Europe or USA with 100 W on the lower bands, so he concentrated on the upper bands whenever he could. Eddie was surprised (but delighted!) to receive 1st Place World in the SOAB Mixed Mode Low Power category. Pride comes before a fall however, as in December the storms destroyed all of Eddie's antennas and one tower, but he will be back next year with new ones to hand out OC-137. True Aussie spirit - unlike some others heard operating during the

result of many an unsuccessful claimant trying to rebuild their lives. Definitions of what is, or is not, classified as a flood will no doubt be debated ad-infinitum for example.

Well, during a recent working-bee weekend at the station with many of the VK4KW crew lending a hand, I was in the privileged position to see such a sight - an insurance bloke on a stick. Atop a step ladder in a sloping paddock and trying to install a bit of wire on the top of a high wooden post, insurance broker Andy Munson VK4HAM could be seen wobbling around trying his best to halt gravity in its tracks by grabbing the support pole. Dave VK4NDX was no help and showed little sympathy, as he watched from afar and giggled like a school girl at the plight of a semi-airborne Munson delicately trying to maintain his balance while the distance from the top of the ladder to the support pole started to increase.

Both gentlemen had answered a plea for assistance from me to install some bits of wire in one of the paddocks. It was a hot sunny day and once we'd covered ourselves with plenty of goo to protect against the sun's harmful rays as we were all wearing shorts, we marched off carrying wire, pliers, plenty of water (no beer!) and a step ladder.

On the very top rung, stretching as high as he could to hook the wire onto the pole, Andy was reaching like a small child in a lolly shop trying to grab some goodies from the high counter. First to show signs of distress were his knees - a slight wobble commenced, followed by

ribald comments from his 'mates' about the ancient art of knee-trembling. Not a man to give-up a quest once started, Andy found that little bit more 'stretch' to finish the job and in doing so, managed to set underway a basic form of energy long sought after by scientists – perpetual motion.

To digress for a moment if I may: Everyone knows that if a cat falls it always lands on its paws. Also, if buttered toast is dropped, it is a sure-thing that it will land on the floor butter-side down. So, if a cat were to be augmented with a piece of buttered toast fixed onto its back and then delicately dropped from a height above the ground, would it reach a point just above ground level and rotate while the butter and the cat paws compete to reach ground zero, therefore creating another form of perpetual motion? The toast always lands butter-side down as this is likely to make the most mess, so the 'butter down' annoyance factor is accentuated if the applied substance (in this case butter) is difficult to clean up or if the floor has a high susceptibility towards staining. So, I wonder if more perpetual energy might be the result of swapping-out the toast with smearing chicken tikka vindaloo onto the cat and then conducting the experiment over a white shagpile carpet? A great power source for Field Day contesting – just add a dynamo to one end of the cat....

Now back to the task at hand. Andy's oscillations began without too much of an issue, but the ladder

was not on solid level ground and my attempts to hold-on to the support for 100 kilos of VK ham were generally unsuccessful. As the amplitude and frequency of the oscillation grew, so did the profanity and voice pitch from Andy along with the corresponding guffaws of laughter from Dave. Oblivious to all this detail at the time, I was clutching on to the middle of the step ladder whilst sideways glancing for an escape route if gravity won the battle – I had no intention of being a soft landing for an airborne Munson! I had intended to look up to check on timing for my seemingly imminent escape, when – horrors! What a day for Andy to go commando.....

### Beru Contest Team 2011

At the time of going to print, the VK Beru Team Captain for 2011 has just been confirmed as John Loftus VK4EMM. John is no stranger to the contest and is a good choice for the job. John is thinking of entering two teams for 2011 – a full time and a part time team.

Current members for the part-time team include: Vlad VK2IM, Phil VK4BAA, Alan VK4SN, Mirek VK6DXI, John VK6HZ and Alan VK8AV.

Current members for the full-time team include: Barry VK2BJ, John VK4EMM and George VK4XY.

John has found it to be a struggle to form teams this year due to people's busy life schedules. Let us hope that the propagation Gods favour the antipodes!

### Congratulations!

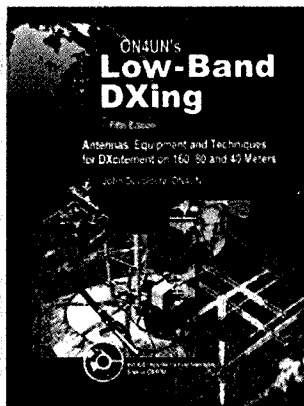
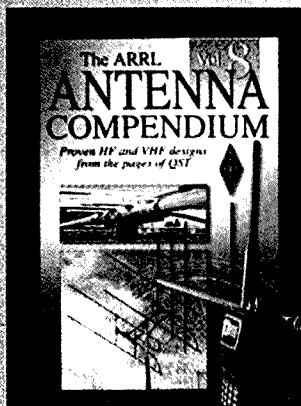
And finally, a word of congratulation goes to Andy VK4HAM for achieving his callsign upgrade in the last week or so. All the study has finally paid off. Andy sat the exam in mid-February, and with a pencil clamped in his nervous sweaty palm, he managed to keep composed enough to work his way through the ordeal. The exam paper was marked immediately, while Andy waited anxiously. Minutes seemed like hours, as his ham life flashed before his eyes while the paper was marked, checked then re-checked just to be on the safe side. However, the checking confirmed that Andy had gained a pass. The news was given to Andy, whose mobile phone bill immediately escalated as he told his friends and family the good news. A tyre iron couldn't have got the grin off his face.....

The new callsign is yet to be confirmed, but VK4HAM is to be traded-in and VK4NM has been applied for – well done Andy! There is no pressure at all on Dave VK4NDX to upgrade now – not any at all. Nope, absolutely nothing. None of the VK4KW team will mention it again. Honest.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au)

See you on the bands.

73 de VK4BAA



## New additions to WIA Bookshop!

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Proven HF and VHF designs from the pages of QST

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# COQC QRP Hours Contest 2011

Date / Time:	Saturday, 2 April 2011, 1000-1159 UTC.
Frequency Band:	80 m – see Frequency / Mode Table below.
Category:	Single Operator.
Modes:	CW or PSK31 or RTTY / SSB - see Frequency / Mode Table below.
Power:	Preferably 5 Watts, but not more than 10 Watts average (CW/PSK31/RTTY) or PEP (SSB) at the transmitter output – this is to stress the QRP nature of the event.
Exchange:	A three-digit serial number starting at 001 and incrementing by one for each new contact.
Repeat Contacts:	No repeats – only one contact per mode per hour.

Sponsored by the CW Operators' QRP Club (COQC), the aim of the QRP Hours Contest is to make as many contacts as possible within a one-hour period using your choice of mode. While it is hoped that the event will be strongly supported by COQC members, it is open to all licensed amateur radio operators.

The contest is divided into two (2) one-hour periods. Modes and frequency sub-bands are allocated to each hour as shown in the table below.

Frequency / Mode Table			
Hour	Time (UTC)	Mode	Frequency (MHz)
First Hour	1000-1059	CW or PSK31 or RTTY	3.500-3.535 (CW)
			3.620-3.630 (PSK31 / RTTY)
Second Hour	1100-1159	SSB	3.550-3.590

## Scoring

- Score one (1) point per contact regardless of mode.
- No multipliers apply.
- QRP stations can count contacts with QRO stations towards their final score.

Certificates will be awarded to the highest scorers in each mode in each VK State or Territory and ZL.

These rules can also be found at [http://home.exetel.com.au/auriga/AR/QRP/QRP\\_Hours.html](http://home.exetel.com.au/auriga/AR/QRP/QRP_Hours.html)

## Logs

- Logs must show full details for each QSO, viz. time (UTC), station worked, mode, exchange serial sent, and exchange serial received.
- A Summary Sheet showing operator's callsign, name, address and total points claimed must accompany the Log.
- The preferred method of sending the log is email, but entrants must still include their postal address as per the Summary Sheet.
- Send Logs and Summary Sheet to the Contest Manager, Mike Dower VK2IG - email: qrphours at exemail dot com dot au; or snail mail: PO Box 8013, Gundaroo, NSW, 2620.
- Emailed logs must be postmarked no later than 2359 AEST on Wednesday, 20th April, 2011; snail mailed logs must be postmarked no later than Wednesday, 20th April, 2011.
- Feel free to include information about your station and band conditions; and any comments on what you liked, what you'd like to see included or improved, etc.



# 2011

**Interested in all things related to weak signal operations, especially on the VHF, UHF and microwave bands?**

## Then think ahead

Keep the weekend 9 and 10 July free and make your plans to get to Churchill in the Latrobe Valley, Victoria to attend the annual GippsTech technical conference. More details can be found at the Eastern Zone Amateur Radio Club (Inc.) website:

<http://www.vk3bez.org/>

# VHF/UHF – An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

## Weak Signal

January 13 was a notable day with a huge sporadic E opening on 2 m covering the eastern side of the country. We had VK2 working into Adelaide, VK3 into VK4, VK7MO in Hobart working into VK2 and VK4, and ZL in the mix too.

Of particular note was VK9NA on Norfolk Island working into central VK3. Chas VK3PY had a dream come true when he worked them, finally succeeding with the goal to work all VK Call Areas, including VK0 Antarctica some 24 years ago.

Another contact of note, and probably the longest for the season, was Phil VK5AKK working Bob ZL3TY – a distance of 2924 km. This is the fourth year in a row that VK5 stations have worked into ZL on Sporadic E. On January 5 2010, Phil worked Nick ZL1IU – 3182 km; on January 1 2009, Geoff VK5GF worked Nick ZL1IU – 3179 km; and on January 9 2008, Brian VK5BC/p at Corny Point worked David ZL1BT – 3400 km. So, a recommendation to VK5s in the Adelaide area might be to not take a holiday away from your shack in the first two weeks of January!

## VR2RSY Beacon

The VK2RSY 2 metre beacon has been restored to service after the PA failed. A more efficient 25 W amplifier has been installed that should be more reliable. The frequency was adjusted against a GPS reference to +2 Hz - the adjustment is not capable of finer resolution.

Brian ZL1AVZ reports that the VK2RSY 23 cm beacon was received at Muriwai west of Auckland RF73FD on the morning of 30/1/2011 on a 1 metre dish RST 429 in for at least 3 hours. 2 metres was wide open at the time.

## Travelling with 2 metres

Fred VK2FWB is now operating portable and reports good contacts from Parkes on 13 February with

Bob VK3AJN, Trevor VK3VG, Norm VK3DUT, Jeff VK5GF, Peter VK5PJ and several VK1s. He hopes to be on a hill somewhere in central and southern NSW most Sunday mornings with 50 W and 6-element beam on 2 m SSB.

Fred was very active during the 1980s as VK2YZU on AE with VK2ZAB from Sydney and in the 1990s from Parkes as VK2YZU / KZU / FWB on AE to eastern Victoria. He has now retired and is travelling in a caravan.

## VK3BJM Activities

Regular contributor Barry VK3BJM sent in the following report of his recent activities:

*True to form, I was at work on January 13 - the day Es opened the door between VK9NA and VK3.*

*Saturday made up for it, though. In the morning, prior to the Summer Field Day kicking off, I switched on for the usual AE period at about 2115 Z. The VK5VF 2 m beacon was a good strength. Calls on 144.100 resulted in working Bill, VK5ACY at 2121 Z. Bill was a comfortable 59+10 signal on 2 m. Next was Brian, VK5BC/p at Corny Point, on 2 m and for the first time on 70 cm and 23 cm between 2123 – 2130 Z. Signals seemed a little better on 23 cm than 70 cm, over the 711 km path. This contact gave me PF85 on 70 and 23 cm; perhaps it also gave Brian QF22 on those bands, too?*

*Fifty minutes later I worked Jeff, VK5GF, again on 2, 70 and 23. This was the first time I had worked Jeff on 23 cm, too. Signals were impressive - a consistent 58 exchanged on all three bands. This was also the first contact I had made on 23 cm into PF94. Not long after that I worked Gary, VK5ZK at 59 each way on 2 m; that was followed by our first contact on 23 cm.*

*At 2258 Z Mark VK2EMA was worked at 59 on 2 m, but attempts made on 70 and 23 were*

*unsuccessful. At 2308 Z Leigh VK2KRR was worked on 1296.150, with signals steady at 59+.*

*I had a break before rejoining everyone for the Field Day. Propagation was reasonably good during the afternoon, and contest traffic was moving briskly. Working Jim VK5OM/p3 on 23 cm gave me the locator QF03 on that band, which was a nice bonus; thanks Jim! Saturday wound up with three new locators on 23 cm, and one on 70 cm - took the sting out of missing the lads on Norfolk Island. A bit.*

*The following weekend was preceded with the news that Rex, VK7MO, would be operating portable from Mount Poimena on Sunday the 23rd, activating QE48at. I had just put the finishing touches on my new 23 cm antenna - a 4x 50-element array of T-Boom Yagi - so I decided I would drop the tower Saturday afternoon and miss the Sunday morning AE session whilst I installed the array and tidied up a few other issues with cables in the H-frame, prior to Rex being QRV.*

*Surprisingly, Murphy was occupied elsewhere in the country at the time, and the tower was back up just after 0001 Z, which was when Rex was hoping to be on air. A few quick tests proved everything was working, and by 0033 Z I had worked Brian VK5BC/p at Corny Point on 23 cm for the second time in a week! Later tests using the VK3RXX beacon suggested an improvement on that signal of between one and a half to two S-points with the new array.*

*The beam heading to Rex was not brilliant for me - Mount Macedon, only 22 km away, presented itself as a major hurdle. Rex was certainly there on 2 m, as he worked the lads from Geelong. I listened as he worked VK3PY, then VK3AKK, then VK3ALB, then VK3QM - as Rex worked David, QSB took Rex away... Despite a few attempts, nothing got*

through. At this point I wanted to walk away completely! However, I decided a trip to the kitchen and back was far enough to settle the mind. I am glad I decided on that - ten or fifteen minutes later, Rex reappeared a little stronger than before, and reports were exchanged. Unfortunately conditions, and my local topography, meant the higher bands were not feasible - but a contact on 2 m over Bass Strait from this far inland is always very pleasing. The path is 541.5 km.

Things were a little easier when Rex headed to Mount Owen, QE27tv, on Thursday 3 February. Again, conditions were not astounding but the VK7RAE 2 m beacon held in all afternoon at 419, and Rex was worked without much difficulty on 144.225 MHz at 0319 Z; reports of 51 and 54 being exchanged. Nothing was heard on 23 cm. Path this time was 551 km. I will not be alone in thanking Rex for the effort put in to activate both of these locators.

Evaluating the new 23 cm array continues, but initial results are suggesting an increase in AE "window" time to Ian VK1BG. An Airbus A330 at 38000' provided consistent 51 to 52 signal strength between 2131 and 2137 this morning (Friday 4 February). Photos of the array during construction and after installation are on my Flickr page (<http://www.flickr.com/photos/72319077@N00/>).

I have also started adding a couple of new pages to my website (<http://www.qsl.net/vk3bjm/>) covering ADS-B, T-boom Yagi and a few other things.

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

## Digital DX Modes

Rex Moncur VK7MO

### Another New 2 metre Digital Record

Hot on the heels of last month's 2497 km record-breaking contact between Derek VK6DZ and Jim VK3II, Derek has extended the record to 2661 km. On the evening of February 12, he

worked Leigh VK2KRR using JT65b with signal reports peaking to -2. Derek's setup consists of a Kenwood TR-9000 with 70 W brick amp and 6-element Yagi at 10 metres with a site elevation of 2 metres above sea level. Leigh was running an IC-910H into 4 x 17-element Yagis and 120 W.

### Correction

In the February edition of AR, the callsign of Robert VK4LHD was incorrectly referred to as VK4LDH. Robert tells me he has a severe hearing impairment and thus the digital modes provide a special benefit in his situation. He is active on FSK441 and is keen to explore JT65 on 2 metres although he is still coming to grips with the procedures. If you are within troposcatter range of the Sunshine Coast and operational on JT65 look out for Robert on the VK Logger and run some tests with him.

### Activation of QE27 from Mt Owen

Rex VK7MO and Joe VK7JG planned to activate QE27 on the West Coast of Tasmania on 144, 432, 1296 and 10368 MHz on 3 and 4 February. As it turned out Joe had car problems and did not make it. With the reduced manpower Rex did not set up the 432 MHz station. A total of 11 QSOs were made on 10 GHz with four separate groups at Mt Gambier, near Geelong, the Dandenong ranges and South Gippsland. Eight of these were on digital and three on SSB. On 144 MHz 17 stations were worked - all on SSB. Despite many attempts during the late afternoon no QSOs were completed on 1296 MHz. It is interesting to contemplate why there was propagation on 144 MHz and 10 GHz yet none on 1296 MHz. The answer seems to be as follows:

Initially Rex set up on 10 GHz and worked Colin VK5DK over some 630 km at Mt Gambier on the digital mode JT65c. The Hepburn charts showed there was the possibility of some tropo enhancement. The signal on the waterfall showed no significant spreading consistent with a duct giving the enhancement. Shortly after Rex worked David

VK3HZ in the Dandenong ranges and again there was no spreading of the signal.

By mid afternoon the South Gippsland group of Ralf VK3WRE, Peter VK3PF and Jim VK3ZYC were operational but there was little evidence of signals - just occasional traces on the waterfall. But some time later the signal strength increased rapidly with wide spreading of the signal. Sufficient to work SSB even though very rapid QSB combined with the spreading made it difficult to copy. This is typical of rain-scatter on 10 GHz.

By late afternoon a further test with the Mt Dandenong group which now included Peter VK3TPR showed signals had faded to just a trace on 10 GHz with no evidence of spreading. At this time Norm VK7AC was reporting strong signals on VHF via a duct from Northern VK7 to VK3 but no sign of Rex's signal on 1296 MHz. The explanation seems to be that the duct was trapping the signal and preventing it getting over the Mountains in central Tasmania. This also seems to explain the initial lack of signals to the South Gippsland group.

A repeat test with VK5DK showed signals had weakened but there was now spreading as evidence of rain scatter.

By the early evening the Geelong group led by Chas VK3PY were set up and worked with good signals on 144 but there was no evidence of signals on 1296 or 10 GHz. Rex told them he had to pack up to get off the mountain before dark but on their pleading agreed to pack up the 144 and 1296 MHz stations and leave the 10 GHz system running. Sometime later the Geelong group telephoned saying they could hear the 10 GHz signal and an attempt was made at SSB. The SSB signals were distorted with rapid QSB typical of rain scatter but were too weak to complete a QSO. By going to the digital mode JT65c, QSOs were completed with VK3PY and VK3NX. The digital signals showed around 40 Hz of spreading which is an indication of rain-scatter.

Rex believes the most likely answer is that while the duct

that developed over Bass Strait had sufficient leakage to allow propagation at 144 MHz it trapped the signals at 1296 MHz and 10 GHz. However rain scatter which is far more effective at 10 GHz allowed intermittent propagation on this band. Rex has in separate tests from home with Chas VK3PY found that while it is weaker, rain-scatter does also work at 1296 MHz. Thus these initial results suggest that rain-scatter may well be worth exploring as a means of working microwave bands from southern Tasmania over the mountains in central Tasmania to VK3.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

### Brian Cleland VK5BC

February proved to be an interesting month with the sun finally becoming active and the solar flux going above 100. It resulted in some good sporadic E openings as well as some TEP openings to Japan.

After a few quiet weeks some good E openings occurred on 6 and 7 February. The day started early on the 6th with Brian VK4EK working David VK3AUU and Frank VK7DX, then David VK5AYD working Mark VK2AMS followed by Andy VK6OX. While this was happening Bob ZL1RS was working Warwick E51WL in the North Cook Islands. A little later in the morning stations using WSPR started to get strong decodes between VK5, VK2, and VK4, and Brian VK5BC worked Mark VK2EMA, John VK2FAD and Phil VK4FIL. Following these contacts the band opened to VK6 from VK5 and Brian worked VK6OX and Wayne VK6JR completed a contact with Mark VK2EMA. Igor VK6ZFG in Perth also worked Michael VK6BHY in Karratha.

7 February saw a good early morning opening from VK4 to VK3. Adam VK4CP, Denis VK4ACE, Phil VK4FIL and Wayne VK4WTN worked several VK3s including VK3s AKC,

AIG, and FZ. Adam also worked Ted VK2ARA. The band then opened to VK5 with Brian VK5BC working VK2 and 4 stations. Meanwhile further north John VK4FNQ in Charters Towers was working VK4 Brisbane stations as well as VK2XN and VK7DX.

9 February also turned out to be a very interesting day. At about 0530 UTC Denis VK4ACE worked several JAs including JA2LRE, JA1RJU, and JT1CUL then shortly after that Brian VK5BC worked JA2LRE, JA6EXN, JG2LEB and JA3APL, the first JA opening to VK5 for 12 months. Following these contacts the band opened from VK5 to VK4 with Garry VK5ZK working Wayne VK4WTN.

David VK5AYD in Coober Pedy worked John VK6JJ and Rick VK6XLR on 12 February.

14 February started with Wayne VK4WTN working Norm VK3DUT early morning. Then later in the morning the band opened from northern VK7 to VK5 with Peter VK7PD in Trevallyn working Gordon VK5KAA and Brian VK5BC. Brian then worked Norm VK7AC, Joe VK7JG and Frank VK7DX. Later in the day the band opened from VK5 to VK6 and Brian VK5BC worked Kevin VK6AB. Later that evening Mark VK8MS in Darwin worked Willem DU7/PA0HIP.

On 21 February Joel KG6DX Guam worked several VK4 stations including Wade VK4WM, Wayne VK4WTN and Steve VK4KUS.

From around 22 February openings occurred on many days from VK4, northern VK6 and VK8 to Japan, particularly good days on 23, 24 and 25. Brian VK4EK in Sapphire reports hearing JAs on the 22nd and working 11 x JAs in the 1, 2, 3, 4 call areas between 3.00 pm and 4.00 pm local time on the 24th and on the 25th the band opened again around 3.00 pm and this time working 17 x JA stations in the 1, 2, 3, 6, 7, 8 call areas and at one point had a dog pile going 50.140 MHz with many reports of 5/9+.

Wade VK4WM reports good openings on the 22nd working 2 x JAs on SSB and 8 on CW and on the 24th working a further 8 x JAs on

SSB and 12 on CW most with 5/9+ signals.

Phil VK4FIL in Brisbane was very pleased to report his first JA contact with JH1WHS on 24th February, well done Phil.

28 February: Andrew VK4KAY in Mackay had some interesting mobile contacts working both Remi FK8CP and JA3EGE whilst mobile and Glen VK4BG in Torquay north of Hervey Bay also worked FK8CP and JA3EGE.

It will be interesting to see what the Equinox produces.

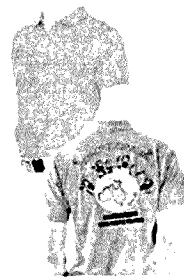
Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



# National Field Day

17th April, 2011

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# Summer VHF-UHF Field Day 2011: Results

Contest manager: John Martin VK3KM

The Summer Field Day went well. In all 99 logs were received, which was very good going considering that the contest coincided with the Queensland floods. There was also a log from VK6 this time, so here's hoping that there will be more in the future.

The winners of the sections were Ralph Edgar VK3WRE, Matt Hetherington VK2DAG, the Eastern and Mountain District Radio Club VK3ER, one of two Geelong Amateur Radio Club stations VK3ALB, Ross Keogh VK3MY and Peter Freeman VK3PF. Congratulations to all.

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
<b>Section A: Single Operator, 24 Hours</b>													
VK3WRE	Ralph Edgar	QF31	-	474	680	1000	750	620	730	760	-	-	5014
VK3ES	Andy Sayers	QF22	40	858	1195	976	390	-	-	-	-	-	3459
VK5ZD	Iain Crawford	PF85	55	219	305	632	470	520	490	330	-	-	3021
VK4OE	Doug Friend	QG61, QG62	44	258	335	544	530	210	-	440	420	210	2991
VK3LY	Bill Day	QF04	119	651	875	880	-	-	-	-	-	-	2525
VK5NI	John Ross	PF85, PF95	48	315	375	296	440	320	220	210	-	-	2224
VK5AKH	Andrew Hall	PF95, PF96	-	372	355	664	-	-	-	-	-	-	1391
VK3FEMT	Stewart Wilson	QF22	-	663	705	-	-	-	-	-	-	-	1368
VK1AI	Greg Parkhurst	QF44	64	510	460	-	-	-	-	-	-	-	1034
VK4HBO	James Kop	QG61, QG62	-	234	365	344	-	-	-	-	-	-	943
VK3VCL	Wayne Bruce	QF22	23	201	285	360	-	-	-	-	-	-	869
VK3VL	David Harms	QF33	-	375	435	-	-	-	-	-	-	-	810
VK2FWB	Fred Baker	QF46	32	315	220	-	-	-	-	-	-	-	567
VK3HV	George Francis	QF31	-	180	120	-	-	-	-	-	-	-	300
VK2NR	David Porter	QF69	-	129	-	-	-	-	-	-	-	-	129
<b>Section B: Single Operator, 8 Hours</b>													
VK2DAG	Matt Hetherington	QF57	48	216	355	368	430	430	430	320	-	-	2597
VK5ZD	Iain Crawford	PF85	21	192	260	552	450	380	350	330	-	-	2535
VK5KK	David Mochin	PF95	32	99	170	464	340	470	330	340	-	-	2245
VK5OQ	Keith Gooley	PF95	23	315	375	560	-	379	340	220	-	-	2203
VK5TX	Ben Hennessy	PF95	-	339	355	608	-	340	330	220	-	-	2192
VK2TDN	Dave Nelson	QF56	23	222	325	376	210	-	370	370	220	-	2116
VK2GG	Dan Joyce	QF56	36	126	205	344	220	-	350	370	220	230	2101
VK3YFL	Bryon Dunkley-Smith	QF22	66	390	565	496	-	-	-	380	-	-	1987
VK5DK	Colin Hutchesson	QF68	35	336	295	184	230	210	210	210	210	-	1920
VK3TPR	Peter Roberts	QF21	-	348	485	400	330	-	-	330	-	-	1896
VK5NI	John Ross	PF85, PF95	34	198	250	272	330	320	220	210	-	-	1834
VK5LA	Andy Williss	PF94, PF95	-	333	500	648	330	-	-	-	-	-	1811
VK2CQ	Dave Maloney	QF55, QF56	32	147	225	368	-	-	360	350	220	-	1702
VK2TRF	Jack Swart	QF55, QF56	32	135	170	368	-	-	360	350	220	-	1635
VK5HZ	Darryl Ross	PF95	-	240	330	392	-	330	330	-	-	-	1622
VK2CU	Justin Lavery	QF56	37	222	285	328	210	-	230	240	-	-	1552
VK5AKH	Andrew Hall	PF95, PF96	-	309	270	656	-	-	-	-	-	-	1235
VK2HRX	Compton Allen	QF46	-	420	390	384	-	-	-	-	-	-	1194
VK2APE	Les Poole	QF56	21	72	120	192	-	-	230	220	-	230	1085
VK4ADC	Doug Hunter	QG62	59	147	230	-	-	-	-	-	-	-	436
VK5FAAB	Peter Murphy	PF95	-	147	240	-	-	-	-	-	-	-	387
VK5AR	Alan Raftery	PF95	-	111	240	-	-	-	-	-	-	-	351
VK5KLV	Les Virgo	PF87	33	138	175	-	-	-	-	-	-	-	346
VK5KPR	Peter Banks	PF87	44	141	110	-	-	-	-	-	-	-	295
VK3FRAE	Rae Billing	QF31	-	147	115	-	-	-	-	-	-	-	262
VK5UE	Colwyn Low	PF95	-	87	-	-	-	-	-	-	-	-	87
<b>Section C: Multi Operator, 24 Hours</b>													
VK3ER	EMDRC	QF22	311	1260	1525	1416	990	500	500	630	-	-	7132
VK3UHF	GARC (LUMEG)	QF21	274	939	1220	1448	1100	500	650	700	210	-	7041
VK3ALB	GARC (Leura)	QF11	115	732	975	1128	760	-	480	700	-	-	4890
VK4WAT	TREC	QH22	306	378	480	352	-	-	-	380	-	-	1896
VK3CMZ	Midland ARC	QF23	63	417	500	-	-	-	-	-	-	-	980
VK3YVG	YVARG	QF22	74	288	340	-	-	-	-	-	-	-	702
VK1DSH		QF45	-	123	85	-	-	-	-	-	-	-	208
VK6RM		PF16	139	66	-	-	-	-	-	-	-	-	205



<b>Section D: Multi Operator, 8 Hours</b>												
VK3ALB	GARC (Leura)	QF11	73	546	815	864	680	-	440	660	-	4078
VK5OM		QF03	22	330	455	600	320	-	-	-	-	1727
VK2EH	CCARC	QF56	144	321	430	256	-	-	-	-	-	1151
VK2AWX	Hunter Radio Group	QF56, QF57	69	342	285	-	-	-	-	-	-	696
VK1PAR		QF44	27	273	425	-	-	-	-	-	-	725
VK3BJA	GGREC	QF21	19	141	155	24	-	-	-	-	-	339
<b>Section E: Home Station, 24 Hours</b>												
VK3MY	Ross Keogh	QF22	102	570	880	1112	580	-	-	-	-	3244
VK3NX	Charlie Kahwagi	QF21	32	300	450	384	320	320	320	320	210	2656
VK5NE	Paul Roehrs	PF95	61	477	660	592	-	230	230	-	-	2250
VK3VFO	Nick Kraehe	QF31	62	588	670	384	-	-	-	-	-	1704
VK2EI	Neil Sandford	QF68	48	243	120	168	250	210	210	210	210	1669
VK3BJM	Barry Miller	QF22	64	459	420	600	-	-	-	-	-	1543
VK3NFI	Dean Webster	QF31	60	483	550	264	-	-	-	-	-	1357
VK4JMC	John McPherson	QG62	36	366	225	376	330	-	-	-	-	1333
VK5LSB	Simon Brandenburg	PF94	46	393	385	472	-	-	-	-	-	1296
VK2MER	Kirk Mercer	QF55	67	393	510	296	-	-	-	-	-	1266
VK3HY	Gavin Brain	QF22	94	357	375	368	-	-	-	-	-	1194
VK5AIM	Steve Mahony	PF95	38	297	350	432	-	-	-	-	-	1117
VK3DMW	Ken Brown	QF31	-	291	415	392	-	-	-	-	-	1098
VK3XAS	Andrew Scott	QF22	44	456	505	-	-	-	-	-	-	1005
VK5ALX	Alex Glinski	PF86	22	264	385	280	-	-	-	-	-	951
VK2ZTV	Peter Sturt	QF57	106	360	245	176	-	-	-	-	-	887
VK4ALH	Leicester Hibbert	QG63	67	222	205	384	-	-	-	-	-	878
VK2TG	Robert Demkiw	QF55	62	303	295	176	-	-	-	-	-	836
VK3KIS	Andrew Kayton	QF22	-	177	270	344	-	-	-	-	-	791
VK4TJ	John Kirk	QG52	22	225	195	264	-	-	-	-	-	706
VK4VDX	Roland Lang	QG62	-	189	230	264	-	-	-	-	-	683
VK5MF	Matthias Fresacher	PF95	-	306	310	-	-	-	-	-	-	616
VK4RY	Richard Philp	QG63	64	123	125	288	-	-	-	-	-	600
VK3TOM	Tom Steadman	QF31	32	327	240	-	-	-	-	-	-	599
VK5FPAW	Paul Schulz	PF95	-	240	310	-	-	-	-	-	-	550
VK2TTP	Peter Pratt	QF56	42	267	210	-	-	-	-	-	-	519
VK1WJ	Waldis Jirgens	QF44	38	165	255	-	-	-	-	-	-	458
VK1MAT	Matt Bowman	QF44	24	225	125	-	-	-	-	-	-	374
VK2JDS	Dave Scott	QF46	-	168	170	-	-	-	-	-	-	338
VK3IFM	Ian Morris	QF22	-	132	175	-	-	-	-	-	-	307
VK1FOTO	Ian Stevenson	QF44	-	135	155	-	-	-	-	-	-	290
VK3HAG	Ashley Geelan	QF22	-	123	165	-	-	-	-	-	-	288
VK3XH	Joe Walsh	QF22	36	135	110	-	-	-	-	-	-	281
VK5FAAB	Peter Murphy	PF95	-	105	110	-	-	-	-	-	-	215
VK1XYZ	Michael Wagner	QF44	-	75	115	-	-	-	-	-	-	190
VK3XOR	Craig White	QF22	-	66	110	-	-	-	-	-	-	176
VK5FXYL	Jade Ross	PF95	-	135	-	-	-	-	-	-	-	135
VK5KLV	Les Virgo	PF87	76	-	-	-	-	-	-	-	-	76
<b>Section F: Rover Station, 24 Hours</b>												
VK3PF	Peter Freeman	QF21, 22, 31, 32	125	441	635	848	470	790	790	930	-	5029
VK5ZT	Tim Dixon	PF94, 95, 96	56	294	450	640	550	600	570	440	-	3600
VK2XDE	Steven Harrison	QF56, 57, 67	55	207	275	432	430	430	430	320	-	2579
VK5AGZ	Derek Reuther	PF94, PF95	47	219	390	-	-	330	-	-	-	986
VK3XDJ	David Harms	QF22, QF33	-	165	-	272	-	-	-	-	-	437
VK5MWH	Mark Hutchinson	QF21, QF22	-	99	225	-	-	-	-	-	-	324

## Notes

- VK1DSH Dale Hughes VK1DSH, Dimitris Tsifakis VK1SV, Peter Pokorny VK2A00  
VK1PAR Al Long VK1PAR, Matt Bowman VK1MAT  
VK2EH Central Coast Amateur Radio Club: VK2JDH, VK2KCM, VK2FVRJ, VK2BAC, VK2ARE  
VK2AWX Hunter Radio Group: VK2SH, VK2FWJL, VK2FERM, VK2CLH, VK2FA  
VK3ER Eastern & Mountain District Radio Club: Mike Subocz VK3AVV, Peter Forbes VK3QI, Max Chadwick VK3WT, Jack Bramham VK3WWW  
VK3ALB Geelong Amateur Radio Club (Leura): - Geelong Amateur Radio ClubFirst  
VK3BJA Gippsland Gate Radio & Electronics Club: Phil VK3YB, Chris VK3QB, Albert VK3BQO, Megan VK3HOP  
VK3CMZ Midland Amateur Radio Club: Kevin Crockett VK3CKC, Michael Tobin VK3AHA, Luke Steele VK3HJ  
VK3UHF Geelong Amateur Radio Club (LUMEG): Carlo Leone VK3BCL, Ken Jewell VK3NW, Chas Gnaccarini VK3PY, David Learmonth VK3QM  
VK3YVG Yarra Valley Amateur Radio Group: Dale Bedford, Trevor Bedford, Ken Taylor  
VK4WAT Tablelands Radio & Electronics Club: Dale McCarthy VK4DMC, Stu Dunk VK4SDD, Jeff Cochrane VK4BOF, John Roberts VK4TL  
VK5OM Jim Bywaters VK5OM, Brian Farmers VK3AQX  
VK6RM Ben Broeder VK6RM, Desmond Martin VK6HDM, Stuart Scott VK6LSD

## Microwave Challenge

"Microwave Challenge" certificates have been awarded to all entrants who operated on 1296 MHz or higher bands, and supplied distance calculations for the greatest distances they worked on these bands.

The Microwave Challenge scoring is based on the aggregate total scores of stations operating on 1296 MHz and higher bands (i.e. the scores as in the main scoring table, but omitting the scores for bands below 1296 MHz).

### Scores for 1296 MHz and higher bands

Call	Points
<b>Section A</b>	
VK3WRE	3860
VK5ZD	2442
VK4OE	2354
VK5NI	1486
VK3ES	1366
VK3LY	880
VK5AKH	664
VK3VCL	360
VK4HBO	344
<b>Section B</b>	
VK5ZD	2062
VK2DAG	1978
VK5KK	1944
VK2GG	1734
VK2TDN	1546
VK5OQ	1499
VK5TX	1498
VK3TPR	1480
VK5NI	1352
VK2CQ	1298
VK2TRF	1298
VK5DK	1254
VK5HZ	1052
VK2CU	1008
VK5LA	978
VK3YFL	876
VK2APE	872
VK5AKH	656
VK2HRX	384
<b>Section C</b>	
VK3UHF	4608
VK3ER	4036
VK3ALB	3068
VK4WAT	732
<b>Section D</b>	
VK3ALB	2644
VK5OM	920
VK2EH	256
<b>Section E</b>	
VK3NX	1874
VK3MY	1692
VK2EI	1258
VK5NE	1052
VK4JMC	706
VK3BJM	600
VK5LSB	472
VK5AIM	432
VK3DMW	392
VK3VFO	384
VK4ALH	384
VK3HY	368
VK3KIS	344

VK2MER	296
VK4RY	288
VK5ALX	280
VK3NFI	264
VK4TJ	264
VK4VDX	264
VK2ZTV	176
VK2TG	176
<b>Section F</b>	
VK3PF	3828
VK5ZT	2800
VK2XDE	2042
VK5AGZ	330
VK3XDJ	272

### Microwave DX Challenge: Greatest distances worked on each microwave band

1296 MHz	
VK3PF	933.7
VK3WRE	908.1
VK3UHF	736
VK3ES	733.1
VK3MY	646
VK3ALB	547
VK5OM	379
VK3ER	353
VK5ALX	242.5
VK5KK	242
VK5NE	222
VK3YFL	206
VK5ZD	172
VK3TPR	167
VK4RY	165.5
VK4OE	165.5
VK4ALH	164
VK5AKH	156
VK5LSB	137
VK2DAG	126
VK5ZT	120
VK2CQ	109
VK3HY	106
VK5TX	103
VK2CU	93
VK5HZ	80
VK4TJ	48
VK4JMC	48
VK2EI	42
VK2TDN	36
VK2TG	25
VK2GG	24.9
VK3NFI	24

2.4 GHz	
VK3UHF	713
VK5OM	315
VK3WRE	299.4
VK3ALB	299.4
VK3ER	274
VK5OM	274
VK3PF	230
VK3MY	194
VK4OE	170.1
VK5KK	120
VK5ZT	120
VK3TPR	118
VK3ES	94.8
VK5ZD	92
VK2DAG	68
VK2EI	61
VK2GG	22
VK2TDN	20
VK2CU	16

3.4GHz	
VK3PF	230
VK3WRE	229
VK3ER	229
VK3UHF	203
VK4OE	170.1
VK5KK	120
VK5ZT	120
VK5ZD	92
VK5AGZ	86.8
VK5NE	85
VK5TX	83
VK5HZ	80
VK2DAG	68
VK2EI	42

5.7 GHz	
VK3ALB	299.4
VK3WRE	299.4
VK3PF	230
VK3ER	229
VK3UHF	203
VK5KK	120
VK5ZT	120
VK5ZD	92
VK5NE	85
VK5TX	83
VK5HZ	80
VK2DAG	68
VK2EI	42
VK2GG	24.9
VK2CQ	24.5
VK2TDN	21.5
VK2CU	20

10 GHz	
VK3WRE	299.4
VK3ALB	299.4
VK3PF	230
VK3ER	229
VK3UHF	203
VK4OE	170.1
VK5KK	120
VK5ZT	120
VK3TPR	118
VK3YFL	118
VK5ZD	92
VK2DAG	68
VK2EI	42
VK2GG	24.9
VK2CQ	24.5
VK2TDN	21.5
VK2CU	16
VK5TX	0.5
<b>24 GHz</b>	
VK4OE	170.1
VK2EI	42
VK2GG	24.9
VK2CQ	24.5
VK3UHF	22.9
VK2TDN	21.5
<b>47 GHz</b>	
VK2GG	0.2
VK4OE	0.015



### "Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the



### Radio Amateurs Old Timers Club Australia

or if you have been licensed for less than 25 but more than ten years, you are invited to become an Associate Member of the RAOTC.

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Ron Cook 03 9579 5600  
or Bill VK3BR on 03 9584 9512,  
email [raotc@raotc.org.au](mailto:raotc@raotc.org.au)  
for an application form

# ALARAnews

Margaret Blight VK3FMAB – Publicity Officer

The weather has been very kind to our garden over this summer with just enough rainfall to enable our new native garden to establish itself. The garden is replacing the former front lawn which has always been a distressing sight over summer, so OM determined 'lawn had to go'. In its place he dreamt of a native garden with meandering paths based on permaculture principles. I doubt he realised the amount of work involved in creating this organic gem but, to his credit, the final effect is marvellous.

We have recently returned from a break of a few days, driving into Gippsland and travelling home via the Alpine Highway. At present the High Country is beautiful and we thoroughly enjoyed our travels even though they were brief.

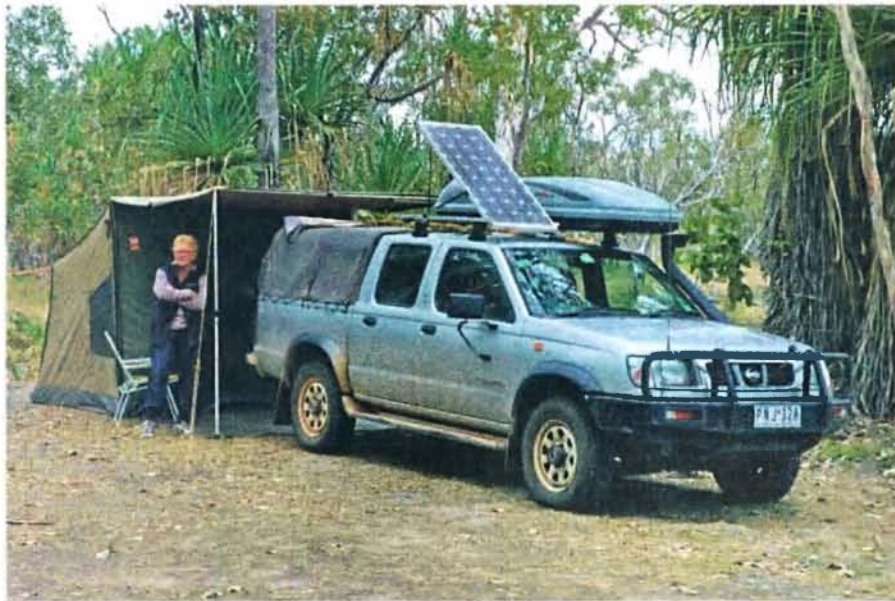
There is an opportunity in this issue to read of other people's travel experiences and I hope you enjoy them.

## Trip Western Australia 2010

After having worked what seems to be a lifetime, Peter VK3ID and his YL Micheline VK3FMGE finally made their dream come true, to visit part of this vast country of ours. Both retired, we had plenty of time to see as much as we could of Western Australia.

On 6 July 2010 at noon, we set off in our Navara Ute, the tray transformed into a kitchen and storage, and on the roof rack, a pod with our camping gear and an 80 watt solar panel. Our aim was to get from Melbourne to Katherine as soon as possible from where we would start our trip around Western Australia.

On the road to Port Augusta, Cooper Pedy, Alice Springs and Katherine we had many contacts, working 15, 20 and 40 metres. We joined the Kandos Net several times on 40 metres. Our equipment comprised a Yaesu FT-100D, and a FAMPARC tapped vertical whip mounted on the bull bar.



Micheline VK3FMGE at one of the campsites.

While mobile on the Stuart Highway, we had contact with Roy operating the Club Station VK3FRC in Frankston. On 20 metres we talked to Tony VK6CV from Perth and Allan VK5WAM. One memorable contact on 20 metres while mobile was with Dennis W7SNH in Seattle USA. He battled for quite a while to understand our weak mobile signal, but we eventually exchanged 4x1 signal reports, which was fun.

Each day on the trip we contacted The Travellers Net: Bob VK6KW, while in the Kimberleys, and then later Ross VK5KMH and Len VK3NJE, who kindly acted as relay for the Travellers Net.

From Katherine we drove to Kununurra, where our trip really started. Along the Gibb River Road we had many contacts including Winston VK7EM and Ray VK4ZH.

On 2 August at Mt Elizabeth, it was quite chilly – which we did not expect in the tropics. In the evening we had a few contacts and Michi VK3FMGE, tried to join the ALARA Net on 80 metres, just managed to talk to Meg VK5YG and later to John VK3DQ who gave us a very weak signal report.

The Gibb River Road was corrugated and bumpy but driving at the right speed was not as bad as its reputation. We enjoyed the farm stays at Home Valley station, Ellenbrae and Charnley River.

While on the road we had several amateurs relay our information on the Travellers Net, and thanks go to John VK5KJJ, Helmut VK3DHI, Bevan VK6BL, amongst others.

We walked the gorgeous gorge in Windjana and also through the amazing Tunnel Creek.

We enjoyed Derby very much but found Broome overrated unless one likes shopping and night parties. Cable Beach is lovely, even more so when you forget the time of the high tide, you get bogged in the sand and stranded there for a few hours. No 4x4 can get in or out, so it is party time.

The trip to Cape Leveque was an adventure, 100 km of horrendous road (Bob VK6KW calls it "the filter") to finally arrive at paradise, Middle Lagoon. On the second evening, with a screwdriver in one hand and a small hammer in the other, we took advantage of the big low tide to collect our supper, delicious oysters.

It does not get any fresher!

After spending a couple of days visiting the Dampier Peninsula, we overnighed at 80 Mile Beach, where we admired the sand art the children had made on the beach as well as a beautiful sunset. Our next stop was Pardoo Station. We arrived quite early and decided to drive to the Pardoo Creek where we caught our dinner; two prawns got us two fish.

The BHP town of Port Hedland was very interesting. Nice to see where our superannuation monies go.

We enjoyed the several enjoyable walks Karijini National Park had to offer. It is where VK4KC relayed our position to Bob VK6KW. We participated in the Rio Tinto Tour at Tom Price. It was very impressive to see the huge trucks driven by young ladies. We could just make them out waving at us. The whole Hammersley Range seems to be solid iron-ore.

By Millstream-Chichester National Park we started to be gorged out.

Karratha is a booming mining town. Accommodation is scare and dear, the caravan parks full and

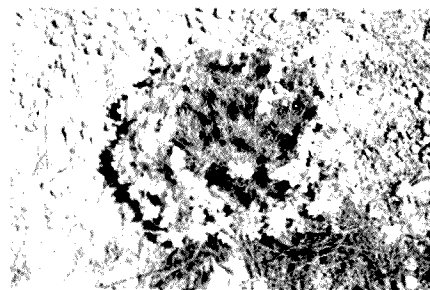
expensive. We put up our tent in the backyard of the mine workers caravan park and were waken up early in the morning by the workers driving to work. While in Karratha we visited heritage towns like Cossak, Roebourne, and we bought a painting from the local Aboriginal Art Group. Point Samson is a little resort town for the North West population and we sampled their delicious prawns.

Exmouth is on a rugged, desolate Peninsula and was one of the highlights of our trip. We took a day cruise and snorkelled. We could admire the beautiful corals and the colourful fishes. We saw quite a few Humpback Whales. They swam near the side of our boat, a scary but awesome sight. We bought some lobster tails in the Co-op before going back to Yardie Homestead, known as "the Home of the serious fishermen" where we had pitched our tent.

The antenna farms at both the North West Cape (VLF) and the Harold Holt (HF) communications facilities can only be viewed from the road but would make any amateur's mouth drool!

Further down the coast is Coral Bay, with beautiful turquoise waters and beaches covered with shells. We swam with a turtle and huge Red Snapper were swimming around our feet, waiting to be fed we later found out.

We stayed in Carnarvon (the poor town has now recently been flooded three times), the fruit and vegetable bowl of WA and while there we experienced rain, real rain. During our stay we had a flat rear tyre and after getting replacements from Perth, had them fitted. (Also replaced its mate, and had them rotated front to rear).



*A wreath flower found along the rabbit proof fence.*

At Hamelin Pool it was fascinating to see ancient stromatolites which millions of years ago were responsible for producing the oxygen we have the privilege to breathe today.

We camped at Denham, then fed the dolphins at Monkey Mia and later, decided to drive up to Big Lagoon in the Francois Peron National Park. The track in is single lane with dry sand, and despite a couple of deep soft parts, we arrived without any problems.

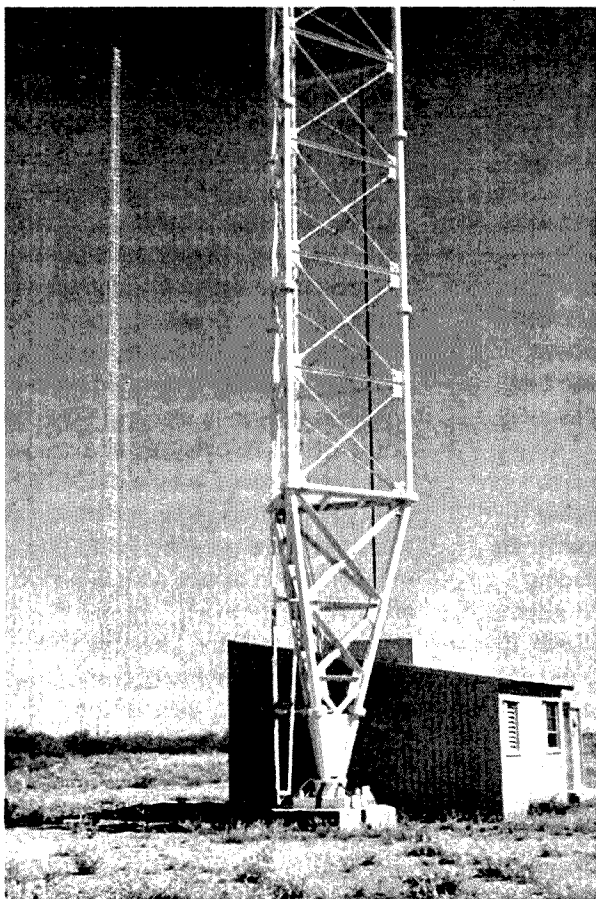
After lunch it was a different story when we decided to leave. After about the first 10 metres which was slightly uphill, the car came to a stop with wheels spinning. A quick check showed the underbelly of the car was on the soft sand. Many towels, sticks, branches, etc later, we were still firmly stuck.

Fortunately there was another 4WD at Big Lagoon, and with a snatch strap we were soon towed back to where we had started. Next question was, how do we get out of here? Then some smart person said - "why don't you engage 4WD". Of course we were in low range 4WD already, so OM snapped that he was. Then the man said ..... BUT YOUR FRONT HUBS ARE NOT ENGAGED.

Of course the rest is history. Engaged the hubs and bingo, off we went. Obviously when the new tyres were fitted in Carnarvon, and the tires rotated, they had disengaged the front hubs (for whatever reason), we never suspected that they were not engaged, but there you go! The moral is: don't take anything for granted.

At Kalbarri, there were more walks to tempt us along the Coastal Cliffs. The views were breathtaking.

*The base of one of the towers at North West Cape.*



After Geraldton we started to follow the wild flowers trail which we found to be amazing and colourful. We were told it was not a good year for wild flowers because of lack of rain, but we still wonder what would a good year be. We were overwhelmed by the beautiful display of yellow, pink, white, purple and blue everlastings, wreath flowers, donkey orchids, etc.

We stayed one week in Perth enjoying our family living there. On 4 October, we took the road again for Bunbury and the Margaret River. We stayed at a sheep station (near the Margaret River township), where 5000 sheep were being shorn.

In Albany we visited the Princess Royal Fortress and the Military Museum where the first Australian troops assembled and departed for Gallipoli.

Further on we admired the pristine township of Esperance. The harbour is beautiful with its unspoilt bush land and beaches, probably much the same as when the first French pioneers found it.

Kalgoorlie was interesting too, especially the sister city of Boulder with remains of old buildings and shops still being repaired after the recent earthquake. The ambience is still like it was back 100 years ago.

We attacked the Nullarbor Plain on 16 October, including the longest straight road in Australia, 146.60 km. The lookouts over the Bight were spectacular and we spotted whales in the distance.

*The VK5 ALARA Christmas group – details to the right.*



*Lesley VK5LOL has gained her DXCC certificate. Congratulations to Lesley on having made contact with 100 countries.*

During this long drive we had many contacts including with Bill VK6NQQ, and a Travellers Net relay via Brisbane through VK4WST.

After the Nullarbor, we rushed home, longing to sleep in a proper bed, our brain and eyes tired of coloured images and memories.

Finally we would like to thank all the helpful amateurs who kept us in contact through the Travellers Net with the rest of the world. With the assistance of the relays in one state or another we were always able to get messages through to the Net Controller.

### News from VK5

*Christine Taylor VK5CTY*

Quite a number of ALARA members were at the AHARS Christmas dinner, including Joy VK5YJ and her daughter. The photo shows in the back row, Jeanne VK5JQ and Mya, in the middle row Lesley VK5LOL, Suzie VK5FSUE, Sue VK5AYL, Shirley VK5YL, and Christine VK5CTY. Seated we have Joy and her daughter Joylene who is also an operator. Joy has three daughters,

two of whom have licences, also a son who is licensed as was her husband. Quite a radio family!

### News from VK4

For those of you who read in the March issue of *AR* magazine about the Sweers Tower Project and realized that, shortly after it was erected, Queensland was hit by a severe cyclone, the following should come as good news.

"Lyn VK4SWE is back on Sweers Island OC-227 after three weeks holiday. The island was spared by Cyclone Yasi, which dumped some rain but very little wind. Lyn and OM Tex had lowered the new tower and beam before leaving the island, due to the high risk of a cyclone at this time of year. Harold VK4ANR has constructed the 2-piece telescoping tower with an ingenious wind-down mechanism, which, when wound down and a locking pin is put in place, then converts to a tilt-over system on the same winch. The horizontal tower was lashed to a nearby tree and star picket, and Lyn removed all the trapped elements to reduce the effects of water getting into the trapped CP6 and the TH3JR donated by Col VK4CC. (And with heavy rain now lashing the Gulf and a Low causing blustery winds, it may be a week before Jack (as in beanstalk) and "Jim Beam" are wound back up! Meanwhile, the trusty little 'Guenthere' ground-mounted vertical built by Bill VK4FW is taking up the slack, being quick and easy to assemble, and working stations in the Pacific Islands, Papua New Guinea and Tasmania during yesterday's ANZA DX Net...)"

**Lyn VK4SWE.**

The couple had originally planned an ideal holiday flying down to Sydney to visit friends then on to Flinders Island with the following week spent exploring Tasmania by campervan. With the approach of Cyclone Yasi their carefully laid plans went slightly awry.

Arriving in Cairns in the early stages of the storm, Lyn and her OM found their flight to Sydney had been cancelled. Their motel room was near ground level and seemed likely to flood. Cairns received about 160 mm of rain in a 24 hour period.

Friends managing a motel in Cooktown invited them to stay with them, so they hired a car and drove north.

The motel was catering for a large number of people stranded by the storm, all wanting food as the local eateries were all closed. Lyn and Tex undertook to help their friends to provide a service to the other travellers and were soon doing waitressing and bar duty. The following day was another harrowing trip back to Cairns in torrential rain with fallen trees blocking the roadways. They eventually arrived safely and discovered their flight to Sydney was confirmed. Even though it ran an hour late, they were happy to be finally underway.

Time spent in Sydney meeting with friends was most enjoyable, as was their time spent on beautiful Flinders Island and touring lovely Tasmania. They completed the reverse journey back to Sweers Island at the end of their holiday and considered themselves lucky to have arrived when they did as it started raining heavily that same night and continued on for some time, flooding the airstrip and putting it out of action for the time being.

It is likely this particular holiday will linger long in their memories.

### VK3 News

Jean VK3VIP, our state representative had a good day out at the Kyneton hamfest. She manned an ALARA table assisted by Marlene ZL1MYL visiting from New Zealand. Heidi VK3FHID, and Catherine were also there. Jean managed to sign up a new member, and fielded quite a few inquiries. She also managed to sell some ALARA merchandise.

Since returning to New Zealand Marlene has been in contact with other radio operators there and the Red Cross and is volunteering to assist in reuniting people concerned about relatives/friends/others affected by the Christchurch earthquake.

Pat VK3OZ has been holidaying in New Zealand with her sponsor



Marlene ZL1MYL & Jean VK3VIP at the ALARA table.

Sharon ZL3AE. She wishes to advise she is OK and home again and to say that Sharon ZL3AE and her OM are in Christchurch assisting with communications after the Christchurch earthquakes. They intend to spend time as relief radio operators in the Emergency Communications Centre. It is great to know that they are able to help.

There is still a place for amateur radio operators in the modern world!



## VK2news

Tim Mills VK2ZTM  
vk2ztm@wia.org.au

The Orange and District ARC have started celebrating their 50 years of amateur radio in Orange and the surrounding districts. Part of the celebrations is the operation of special callsign VI50AOA until the end of June. Check out details at [www.vi50aoa.org](http://www.vi50aoa.org) Orange & DARC are now meeting at the Orange SES in McLachlan St., on the first Friday evening of the month. They had the first 2 metre repeater in the country – FRED – established a little before the rest – which had many years of very successful coverage from Mt. Canobolas. VK2RAO, when it obtained its licence, was first centred across 146 MHz and then on

6700. Being a popular mountain site, every other form of RF went there and in time FRED became deaf and channel 6700 in now retired as a local area service. VK2RAO has changed channel on the mountain to 7025 [+600] and has a companion on 70 cm, 8725. EchoLink had recently been added.

Next month the St. George ARS will be celebrating their 40 years of existence. There will be a dinner on Wednesday 4 May at the South Hurstville RSL Club and details can be checked at [www.sgars.org](http://www.sgars.org) Their VK2RLE 6800 repeater remains out of operation due to difficulties in site access and their Thursday night net is on the Mt. Bindo 6650 repeater at 2000 hours. Their 70 cm VK2RLE

8425 at Heathcote recently came to life after a long hibernation and was in low power mode in early March.

The annual **Urunga Convention** will be conducted on the NSW North Coast over Saturday and Sunday of the Easter weekend. It is two months until the annual **Oxley Region ARC Field Day** on the June Long Weekend in Port Macquarie. Other events in town over the weekend makes accommodation at a premium, so book now if required. Next October the Club will be celebrating 40 years since their formation. See [www.orarc.org](http://www.orarc.org) At their exams in February all four candidates gained their Foundation qualifications. The **Riverina field day** is scheduled to be held at Lavington on Sunday 31 July.

The **Blue Mts ARC** is in the process of changing their meeting venue. **Hornbsy & District ARC** will be operating in the International Marconi Day on the UTC day of Saturday 30 April. Watch for VK2IMD. They have exams planned soon. Check with Tony VK2BTL 02 9487 3383 or the web site [www.hadarc.org.au](http://www.hadarc.org.au)

**Summerland ARC** held their AGM on 20 February with Leith VK2EA as Returning Officer. Outgoing President Ross VK2ARD welcomed 27 members and the election resulted in Ross VK2ARD continuing as President. Rob VK2ELH is Vice President, David VK2HFK as Secretary and John VK2JWA as Treasurer. No one was cornered for Publicity Officer and Ron VK2AJD and Chris VK2ACD make up the committee positions. Next month they will have Standard exams on the weekends of 14 & 15 and 21 & 22 May. SARCFEST will be on Sunday 7 August.

**Fishers Ghost ARC** held their AGM on February 23. A few positions are still to be worked out. **Waverley ARS** operated in the John Moyle contest from the Cataract Park Scout Camp. They have exams assessments planned for the weekend 14 & 15 May. Contact [education@vk2bv.org](mailto:education@vk2bv.org), the web site [vk2bv.org](http://vk2bv.org) or Simon VK2UA 02 9328 7141. July – during the school holidays - will be their annual auction. The **Hunter Radio Group** also had a field operation in the John Moyle contest. The **Central Coast ARC** has their club rooms in Dandaloo St., Kariong. They have meetings on the first and third Friday evenings. Rooms also open on Saturday mornings and

a project and development group on Tuesday evening. Call 02 4340 2500 or the web site [www.ccarc.org.au](http://www.ccarc.org.au)

**Manly Warringah RS** meets each Wednesday evening at Terry Hills and has recently been visited by Kjell Karlsen LA2NI who gave them a lecture on his SDR transceiver as well as details of Apollo and Hermes projects. Check out [www.mwrs.org.au](http://www.mwrs.org.au)

The last Sunday in February was the annual **Central Coast Hamfest** at the Wyong racecourse. The arrivals started at first light and were soon scouring the Flea market stands. Having checked them out, the early birds awaited the opening of the Trader's section. The day started fine and warm but soon a cloud cover kept the temperature down and there were, at intervals, a few spots of rain. Since last year, work had commenced on a new entry gate and parking improvements, so a temporary entry had to be negotiated. Due to layout changes it was a bit hard to judge compared to previous years but seemed to be similar attendance with both the flea market and trader's area using all the available space. By midday the crowd had thinned out, a trend with a lot of events these days. The WIA attended, as usual, with a wide range of publications and signed up many new members – a very popular stand. ARNSW conducted exams for the fourth year, with five successful candidates from five starters.

There are either some inactive clubs or they do not seek publicity. They can always make use of the VK2WI News facilities by an email to [news@arnsw.org.au](mailto:news@arnsw.org.au) It is also time to remind clubs and groups, now

that most AGMs are over, to send in any changes of their details to the WIA and ARNSW web sites of Radio Clubs entries. Check out the sites for contact details. The annual Callbook uses the WIA listing.

**ARNSW** (with its parent company - the WIA NSW Division) will be holding its AGM at 63 Quarry Road Dural on Saturday 16 April 2011 at 10 am. A training course for all licence grades commenced early March at the Dural site. It is being conducted by Terry VK2UX, held on a Monday evening and will continue for about six months. The second half of the VK2 Emergency Communications Training course will be held at the Dural site over the weekend 9 and 10 April. There are twenty taking part from Sydney, Newcastle and Canberra.

As previously mentioned in these notes, **ARNSW** welcomes donations of surplus equipment and also provides a service for handling Deceased Estates. The details are to found on the ARNSW web site [www.arnsw.org.au](http://www.arnsw.org.au) under two headings - Deceased Estates and Disposals. It should be noted that save any confusion there is only one authorised point of contact and that is either via email: [disposals@arnsw.org.au](mailto:disposals@arnsw.org.au) or the office telephone 02 9651 1490. There are no other persons authorised to act on behalf of this service.

The 23 cm Sydney based beacon VK2RSY (1296.420 MHz) was copied across the 'pond' by Brian ZL1AVZ on 30 January 2011. Reports on this or any of the VK2RSY beacons can be emailed to [callbacks@arnsw.org.au](mailto:callbacks@arnsw.org.au)

**73 Tim VK2ZTM**

## Over to you

Sir...

While the motive of engaging the radio clubs in Federal WIA politics has merit and commendable, one must question the value of selecting Darwin as a venue irrespective of the worth to that community.

Doing a bit of a calculation, getting from Melbourne to Darwin and return by air, accommodation and WIA registration and the extras would set a chap with partner back about \$2000 for three day stand.

Encouraging interest in WIA affairs and being nice to interstate societies is all very well, but I would think that anyone with tourist aspirations pick some other time when they are free to engage in their own itinerary: of course there are probably some political animals willing to face the cost but rank and file might well consider money and time to be spent elsewhere. Not all amateurs with WIA interest are well heeled ex Toorak or Rose Bay.

Other attractive venues offer stimulating environment – why not Lord Howe Island: somewhat closer to major amateur population?

In any event, one would have thought that if attracting interest in WIA policy was the objective, a more central lower visiting cost geographical area be established and made standard as the venue for AGM.

Sincerely

**Pete Williams VK3IZ**

# Hamads

## FOR SALE – VIC

Complete HF set-up comprising the Icom IC-736 HF/50 MHz transceiver, Icom SP-20 external speaker and audio filters. The IC-736 has had fitted the FL-52A and FL-100 narrowband filters for CW work, plus a high stability crystal. Neil Duncan's review in ARA May, 1994 is included. SCS multimode controller model PTC-11e. Instruments come with full documentation, history, cables and, where required, software. The PTC-11e, when properly configured is capable of decoding RTTY, Morse, packet, fax, Pactor 1 and 11 and Amtor signals. It requires a computer (an old 'clunker' with a serial port, running 95 or 98 is adequate) and the interfacing program NcWinPtc is supplied on a floppy. Signal and power is obtained from the receiver via cable plugging into receiver accessory plug No.1. Other RS232 cable plugs into computer serial port. NB. These are quality instruments. Full operation requires that you read the handbooks! Price \$2,000, no price debate, please. Contact Ken Morgan VK3CEK on 95929957 or [ken3@iprimus.com.au](mailto:ken3@iprimus.com.au)

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is priced at \$990 + GST. The owner would like to defray a reasonable amount of these costs, and would appreciate an offer. Flagpoles do not attract unwanted council attention and are a great replacement for trees.

The installations may be viewed at 20a Sussex St. Brighton by arrangement with Ken Morgan VK3CEK on 95929957.

## WANTED – VIC

AWA transceiver, model RT85, low band, 70 – 85 MHz, Type 1LM82271 or similar. Needed for use in club repeater project on 6 metres. Modified or unmodified. Please email Albert VK3BQO at [vk3bqo@wia.org.au](mailto:vk3bqo@wia.org.au)

Yaesu two metre all mode transceiver, type FT-290Rll, with PA type FL-2025, and tone unit type FTS-7, or any of the above units. Call Brewster VK3YBW on 03 9527 2661 after 6.00 pm

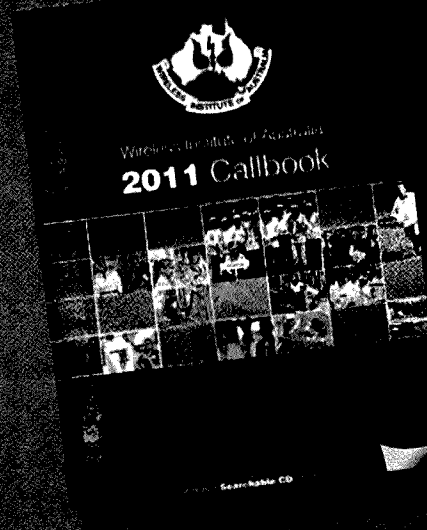
## FOR SALE – SA

The popular VK5JST Antenna Analyser kits are still available (see AR article, May, 2006). Why not build yourself an extremely useful item for your shack, and improve your HF antenna efficiency? For more details see [www.scarc.org.au](http://www.scarc.org.au) Contact SCARC, PO Box 333, Morphett Vale. SA. 5162, or email [kits@scarc.org.au](mailto:kits@scarc.org.au)

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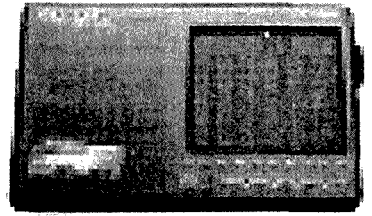
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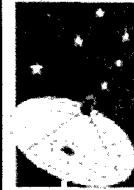
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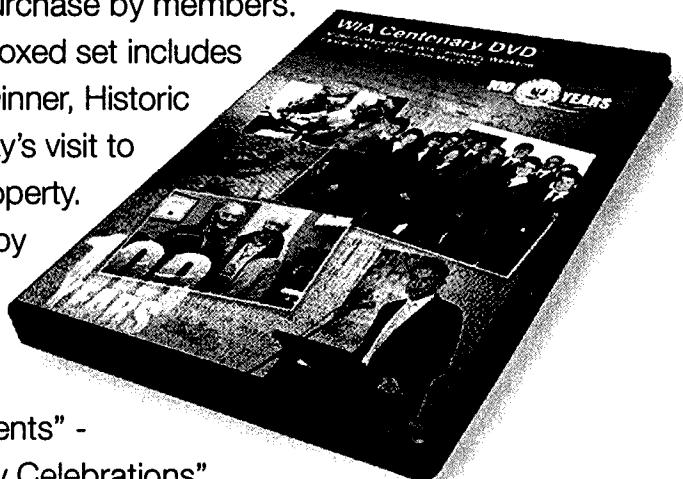
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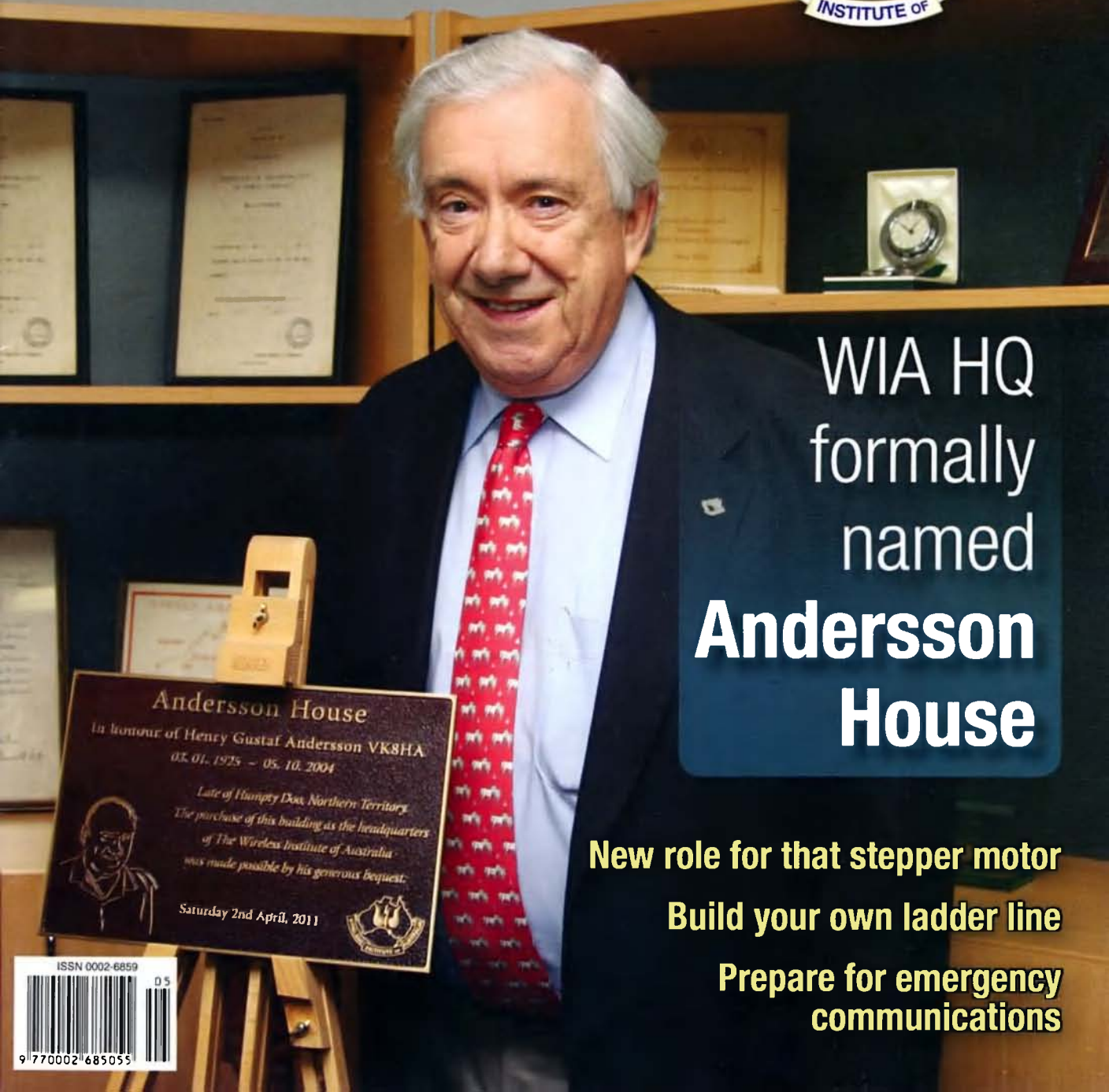
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# Amateur Radio

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# Amateur Radio

The Journal of the Wireless Institute of Australia

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### Cover photo

This month our cover shows Michael Owen VK3KI, President of the WIA, following the unveiling of the commemorative plaque during the formal opening of the WIA offices and the naming of the building as Andersson House. Photograph by Robert Broomhead VK3DN.



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## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

### Back Issues

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### Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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# Editorial

Peter Freeman VK3PF

## AGM approaching fast

This issue of the magazine is being prepared in early April and will hopefully reach most members just prior to the Easter break. This will give anyone not yet committed to attending the WIA Annual General Meeting in Darwin at the end of May only a short window to decide and to make all their arrangements.

I am sure that the program will be very interesting and am somewhat disappointed that I will not make the trip. The semester timetable at work will have me extremely busy with teaching related tasks which makes the timing impossible for me personally. I am sure that everyone involved with the AGM will have a good time and I look forward to reading reports of the event in due course. We may be able to include some news in the July issue, but such reports will need to be submitted immediately after the event, as our nominal deadline for submission of material for that issue is the very start of June.

## Local radio club activity

At the local club, we have started detailed planning for our annual GippsTech Technical Conference, to be held at Monash University Gippsland Campus in Churchill over the weekend of 9 and 10 July. We will soon have more detailed information available on the club website ([www.vk3bez.org](http://www.vk3bez.org)). A registration form will be available as soon as we have confirmed all costs and catering arrangements.

The conference is a great place to catch up on all things related to weak signal communications on the VHF, UHF and microwave bands. Not only will you be exposed to presentations on various aspects of such communications, you will also have plenty of opportunity to talk to many experienced operators involved in such communications – we usually have around 100 amateurs attending the conference. The informal discussions are as important to many as the more formal presentations, as is evidenced by the difficulty that

we have in breaking up the various groups at the end of a break to get them back into the lecture theatre for the next formal presentation. Presentations vary from short practical ideas or techniques through to detailed presentation illustrating the coming together of theoretical considerations to produce practical results or to predict what may be possible.

The conference program has only just started to form, with only a small number of speakers committed at this time, but we usually have a packed program. The program information will be published on the club website once it has a little more detail. You can also keep an eye on the discussion board on the VK LOGGER site.

## WIA office formal opening

Only last weekend (as I prepare these notes) the WIA formally opened its premises in Bayswater, with the building named *Andersson House*.

The event is featured on the front and inside back covers of this issue, with a report of the formalities in President Michael Owen's Comment.

The event was telecast live via the Melbourne ATV repeater and to potential viewers around the world via the BATC website. A video clip can also be found on the WIA website – look under the News section for April 2011. The clip is just under 10 minutes long.

I did not make the trip down to Bayswater, as I had been in hospital the day before to undergo a minor surgical procedure. Nothing serious, it was just a follow up to a positive screening test result. With all such screening results, it is always better to have all options checked as soon as possible. In my case, all was declared to be normal, so no worrying for me for the immediate future. So instead of travelling to Bayswater, I spent the day recovering at home and preparing material for upcoming teaching tasks.

Well, that is all for this month.

Cheers,

Peter VK3PF







# WIA comment

Michael Owen VK3KI

## Andersson House

The naming of the WIA's premises in Bayswater, Victoria to honour Henry Andersson VK8HA had a very special meaning for me.

Not that I knew Henry personally, but as a result of his bequest to the WIA I had visited Darwin, visited his house and talked to his friends about him.

It was all very soon after the WIA restructured in May 2004. Henry died on 5 October 2004.

I wrote about Henry, his bequest and the people from Darwin who had helped me so much in this column in the July 2005 issue of *Amateur Radio*. Perhaps that is one of the reasons I am looking forward to returning to Darwin at the end of May this year for our Annual Conference.

I concluded what I said in July 2005 by saying that we must make sure that we do not forget Henry Andersson, and of course, now I know we will not.

May I repeat what I said at this important event on 2 April this year? It is, after all, a focus of this issue. And it is my tribute to someone I did not know in life, but as a result of visiting his home and talking to his friends, someone I felt I did know in a different way.

And let us not forget that the generosity of Henry Andersson is so important, as without that bequest we would not have our own premises, and without our own premises we would forever be constrained in what we can do.

Henry Gustaf Andersson VK8HA died in Darwin on 5 October 2004.

By his will Henry left his "house and lands" to the WIA.

In the July 2005 issue of *Amateur Radio* magazine, after saying that I had never met Henry Andersson, I said this of his bequest to the WIA:

*"His generous bequest during this period of change, as we work to create a single national body, gives us great hope and great confidence, because it means that we now have some reserves that at least give us confidence.*

*As I say, I never met Henry, But we must make sure that we do not forget Henry Gustaf Andersson VK8HA, SK."*

Today we make good that commitment.

Today we name our national headquarters in honour of Henry Andersson.

Henry Andersson was born in Sweden and had come to Australia many years ago.

Henry built his house at 30 Trippe Road, Humpty Doo in about 1988, on some five acres of land. Humpty Doo is on the Arnhem Highway, a few kilometres from the Stuart Highway, in all some 40 minutes or less drive from central Darwin.

Henry erected three antenna towers on his land.

There were two other amateurs in the Northern Territory who had come from Scandinavia and with a similar

background to Henry and who were among his real friends. One was Karl VK8CAW from Darwin, and the other was Len VK8DK, from Tennant Creek. I have met them both, and we have talked of Henry.

Henry was a passionate CW operator, and became a member of the First Class Operators Club (FOC) in 1970.

Henry was an Honorary Life Member of the WIA, his QSL card proudly proclaiming that he was the first Honorary Life Member of the WIA "in VK8".

Henry had set up and ran the VK8 QSL Bureau for some 38 years.

He was the first Federal Intruder Watch Coordinator, and was appointed National Intruder Watch Coordinator when the WIA Board met in May 2004.

Henry Andersson was a unique person, supporting amateur radio and the WIA over many years, contributing significantly in that most important but often frustrating role of coordinating Intruder Watch, now called the Monitoring System, a task that requires skill to identify the intruder and patience to persist when there is not much response to the reports.

It is fitting that in the year we are holding our Annual Conference in Darwin we honour this great radio amateur from Darwin, without whose generosity we would not have our own national headquarters.

It is my privilege to unveil our recognition of Henry Gustaf Andersson's contribution to amateur radio as we now name our national Headquarters *Andersson House*.



President Michael Owen VK3KI inspecting the memorial plaque



## Board decides to increase some WIA subscription rates but creates special category for younger students

Way back on 20 and 21 February 2010 the WIA Board considered the WIA's finances in some detail and decided to increase most of the WIA subscription rates.

The implementation of this decision was delayed as we had to overcome some problems with our software.

Those have now been (hopefully) overcome.

At its meeting on 2 April 2011 the Board reviewed the earlier decision, and decided that some increases were essential and will take effect from 1 June 2011.

Why did the Board decide an increase was necessary?

The current subscription rate is the rate that was fixed in May 2004, when the new Constitution was adopted. The Board noted that the Australian Bureau of Statistics figures showed a 16% Consumer Price Index (CPI) increase for five years during the period since May 2004 to 2010.

The Directors concluded that the Consumer Price Index, the statistic that is accepted as a reasonable measure of inflation, cannot be ignored and must be reflected in the WIA's subscription rates.

In discussing the issue, the Directors noted that there was not really a great difference between the current ordinary annual subscription rate and the subscription rate for concession members. They felt that a greater difference was justified.

Accordingly, the Board has decided to increase the ordinary membership and overseas membership annual subscriptions by \$5, but not to increase the concession or family subscriptions.

The Directors also considered the fee currently charged to students, a category that has been treated on the same basis as other concession members. There are very few student members, though we know from our administration of the amateur qualifications, many young people are joining our hobby. It was accepted that

## WIA Membership Fees

Member Type	Years	Current Fee	Fee after 1 June 2011
Full Membership	1	\$75.00	\$80.00
Full Membership	5	\$356.00	\$380.00
Overseas Member	1	\$85.00	\$90.00
Overseas Member	5	\$403.00	\$427.00
Concessional Membership	1	\$70.00	\$70.00
Concessional Membership	5	\$332.00	\$332.00
Student	1	\$70.00	\$35.00
Family Membership	1	\$30.00	\$30.00

many younger people would not be able to afford even the current unchanged concession fee, but if they could be attracted to join the WIA, they could become members for many years.

Student members were defined as full time students under 25, and they will be charged a special fee of \$35 a year. Five year memberships will not be available to student members.

While the other changes come into effect on 1 June 2011, this change comes into effect immediately.

All the current and new fees are shown on the table above.

A Family Member is a second or further person living at the same address as a Member or Concession Member receiving AR (the Primary Member). A Family Membership must be linked to a particular Primary Member at the same address. A Family Member does not receive AR.

The Board decided that those increases would only apply to subscriptions paid on and after 1 June 2011.

This means that if a member wishes to pay a subscription before it becomes due (even a 5 year subscription) so long as it is paid before 1 June 2011, the WIA will accept the subscription at the lower and now current rate.

## Macedon Ranges Amateur Radio Club runs first Foundation course

Macedon Ranges Amateur Radio Club ran its first Foundation course over two weekends in February bringing new folk to the

amateur bands and bolstering their membership.

The course facilitator was Peter Willmott VK3TQ who was assisted by Joe Aprile VK3GFA and Bob Robinson VK3SX. The course was run over two weekends, Peter said while many courses run over one weekend the club decided to have the course over two weekends so students could take the time and learn, it also gave a lot of one on one time with students and gave time to explore in greater detail topics like operating ethics, ACMA and WIA, basically how everything fits.

The club is excited that it now has eight new Foundation licensees and one new Standard licensee.

## New IARU Region 3 Secretary

The Directors of IARU Region 3 have announced the resignation of Seiichi (Jay) Oka JA1TRC as Secretary of IARU Region 3 from 9 March 2011. Jay became Assistant Secretary to Keigo Komuro JA1KAB then the IARU Region 3 Secretary in September 1998 and on Keigo's resignation, Secretary in June 2009.

The Directors have appointed Katsumi (Ken) Yamamoto JA1CJP as Secretary of IARU Region 3 on the nomination of JARL. In nominating Ken as Secretary, JARL President Shozo Hara JA1AN reaffirmed his society's strong and continuing support of IARU Region 3 and its secretary, at the same time stressing the importance of the regional secretary's independence from any member society.

# Ipswich & District Radio Club partnership with Vertex Standard Australia (Yaesu)

*Michael J. Charteris VK4QS*

President

Ipswich & District Radio Club

Chairman, Queensland Advisory Committee, WIA

In the March 2011 Edition of *AR* magazine, I outlined the successful celebration that was held by our Radio Club with our local councillor Mr Andrew Antonioli and the Mayor of Ipswich, Mr Paul Pisasale. It was on this day, that the Mayor was kind enough to make a significant Community Grant to our Club, with a view to upgrading our somewhat old radio transceivers that hailed from the 1970s. The genesis of this event started at least two years before with the invitation and interaction with our local member, Mr Andrew Antonioli. Andrew was invited to visit our Clubhouse, whereupon we explained our Club history and our vision for the future as regards the role of the Club in the community.

Now all of a sudden the Club had the funds to purchase a new radio transceiver for the first time in nearly 50 years. The big question on everyone's lips was "What are we going to do?" After some discussion with my fellow members, I came up with an idea to approach one of the big communications manufacturers to see if they would be prepared to get onboard with a community based radio club like ours. I had no pre-expectations as to what might transpire, only that I was prepared to inquire most humbly, state our case and offer to push their barrow for what it was worth on our Club Website and in our local media should they be forthcoming.

What transpired exactly, I will not go into in detail, but I will say that, with a bit of imagination and good will on both sides of the fence, we succeeded in obtaining for our Club a new Yaesu transceiver. I was in this regard, most fortunate to have the opportunity to deal with Miss Felicity Boulter, the Sales Manager for Vertex Standard



*L to R: Councillor Andrew Antonioli, Miss Felicity Boulter from Vertex Standard, Mr Paul Pisasale, Mayor of Ipswich, and Club President Michael Charteris VK4QS celebrating at our BBQ on 23 March 2011.*

Australia – Yaesu as we know the brand. Felicity saw the possibilities of a working partnership with our Radio Club in a mutually beneficial operation.

The culmination of all these negotiations based on my proposal to Vertex Standard saw our Club organize an "Official Handover BBQ" that took place on 23 March 2011. Many would remember this as the John Moyle Field Day. Our distinguished guests for the day included the Mayor of Ipswich, Mr Paul Pisasale, and our local councillor Mr Andrew Antonioli. The icing on the cake saw Miss Felicity Boulter fly up from Melbourne for the day to celebrate this momentous occasion. It goes without saying that a picture paints a thousand words, as can be seen by the smiles on the faces of all those photographed. This day saw our radio club achieve its goal in the form of a brand new Yaesu FTDX-5000, thanks to both the Ipswich City Council and Vertex Standard Australia. The festivities did not stop there as Felicity was kind enough to donate a couple of Yaesu jackets and

coffee cups which were raffled successfully among the guests present. I would like to thank those gentlemen who travelled from as far away as the Gold Coast and Toowoomba to help us celebrate. I would also like to thank all those members who soldiered in the rain to secure the tarp so that our BBQ could actually proceed despite the inclement weather.

Finally my friends, the message is

this: Invite your local councillor to the clubhouse and express your aspirations as a Club, to interact with your community. Throw a few "free" BBQs (ask your local councillor for funding for sausages, etc), invite the Mayor, inform the local media for photo opportunities. And bring to their attention the great value of having a successful amateur radio/electronics club in your city or town. Be sure to mention values such as education and emergency communications. And when eventually you receive some funding for new "radio equipment", consider contacting Felicity at Vertex Standard to discuss how your radio club could develop a partnership where everyone wins for the benefit of all. I will be eternally grateful that we, at the Ipswich & District Radio Club actually did contact Felicity.

**Generate some radio fellowship in your community today.**

# Foundation Corner 15 – Nostalgia or better engineering? Making and using parallel line

Geoff Emery VK4ZPP

vk4zpp@wia.org.au

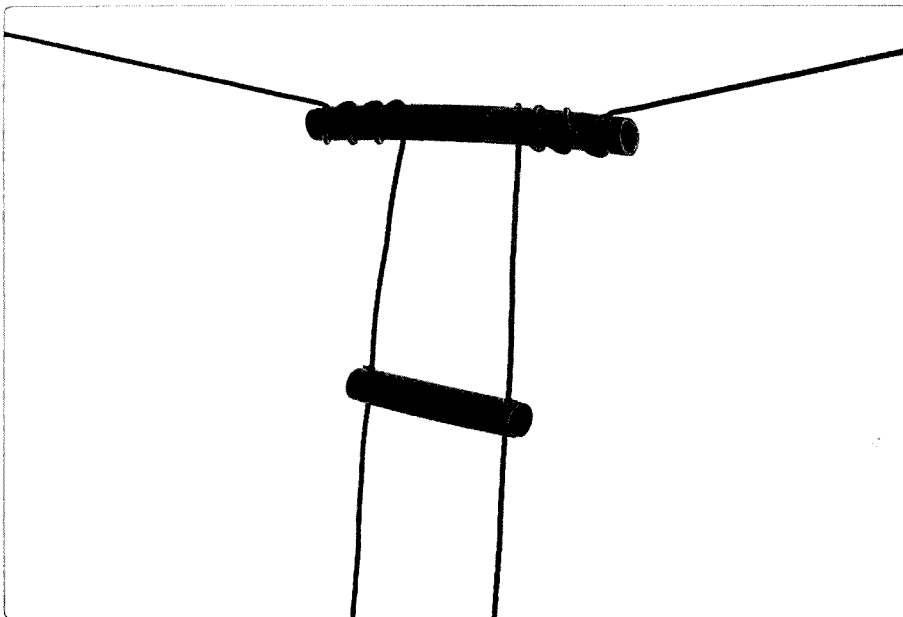


Photo 1: Open wire feed to centre fed dipole.

As part of the practical assessment for your amateur licence, you had to be able to identify different types of antenna feed line. Chances are that the sample of parallel line was either a piece of commercially made 450 ohm transmitting line or 300 ohm TV ribbon. We will look at different ways of making your own parallel line and the benefits of open wire feeders as against the ubiquitous coaxial cable.

If you look at the specification sheets for RG-58 cable you will find that at the 30 metre length you may be losing 3 dB of signal at 28 MHz. Just think of it this way; that translates to half your power from the transmitter and half the signal from the aerial is lost in the cable. Compare this with the same length of parallel line and the losses are negligible.

For this reason, when TV came to Australia, it was parallel line that was used and not coax in the early installations. Of course, the installer of parallel feed lines has to remember the basics, namely, even straight runs of wire exhibit L -

inductance, and parallel conductors exhibit C - capacitance. With TV antennas mounted on steel masts, a range of standoff insulators was made. To reduce the capacitance between the line and the mast an added twist about every seven cm balanced each run of wire to the mast.

You will see in the ARRL Handbook, and other publications, illustrations of wooden or other insulating materials holding out the feed line from a conductive mast. Not many installations used by amateurs use the twisting technique to equalise the capacitance in each parallel lead because, generally, the reactance encountered at HF is not a significant problem. If you wish to experiment at 2 metres or 70 cm, then remember this fix.

There are special variations and uses of specific lengths of parallel line and if you look back to Foundation Corner One, *Amateur Radio*, September, 2009, you will see one of them in the Slim Jim/J-pole matching stub. The lower quarter

wave section is a section of parallel line and the feed point is tapped along this to find an appropriate impedance match for the feed line. For a single band antenna, the Q-section, as it is known, has been a convenient matching device. The shorted Q-section has the advantage that it provides a DC ground and static and lightning drain for the antenna system. In fact the shorted quarter wave is also known as a 'metallic insulator' and has been used to support parallel lines to fixed frequency antennas. The RF follows the lines and the DC grounding helps protect the associated equipment.

However, these are areas that you can research for yourself. Let us get back to the practical approach to open wire feeders or parallel lines. You have basically two choices. You can contact a supplier and pay for commercially made 450 ohm line or ..... homebrew your own.

This is not a "follow the dot" point presentation as each amateur will have experiences and materials that they will apply to the task. The standard reference manuals and the Internet can provide specific ways of making and using open wire feeders.

Of course, if you stumble on a source of 300 ohm TV feeder, this can be used, certainly for powers up to 100 watts. As we mentioned, above, it is important to have a high dielectric constant (be a good insulator at RF) and for this reason for amateur transmitting use only the old "dog bone" or slotted TV line. I can remember reading in a copy of *Radio, TV & Hobbies*, the predecessor to *Electronics Australia*, a recommendation that TV ribbon should be washed every couple of years to remove the contamination that settled over the plastic sheath! I have used 300 ohm ribbon at UHF and after rain watched the VSWR vary enormously until the feed line was again dry.

What we need is enough wire for twice the length of line we need. At Foundation power, it would be possible to use single strand bell or blasting wire but mechanically it would be more prone to fracture from movement than thicker wire. Multi-strand cable is the preferred 450 ohm commercial lead in that it is less likely to fracture from vibration; this can be important if your QTH is subject to storms or gusty winds.

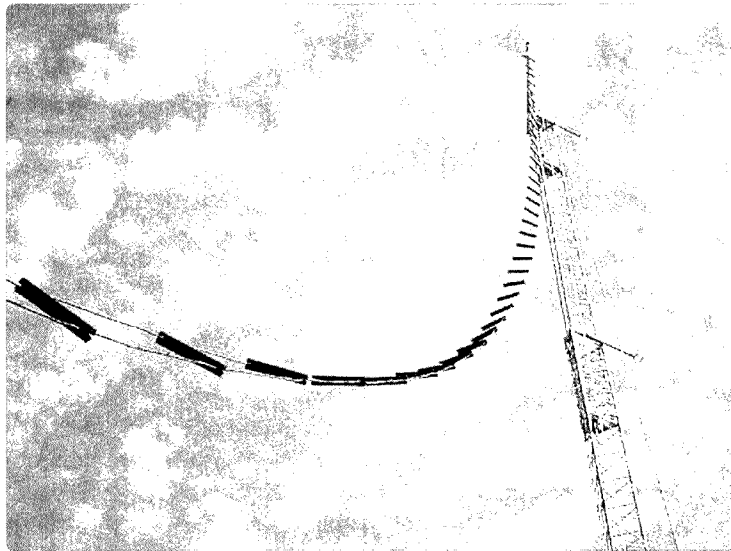


Photo 2: Open wire feed to tower.

Soft drawn copper, such as enamelled copper wire, has a tendency to stretch over time so unless you have no other alternative, try to make another choice. You can pre-stretch and partly work harden soft copper wire but it can be a long, tedious job and hard to accomplish on one's own. What we have to balance out is durability, mechanical strength and the suspended weight to be carried by the antenna.

If you can obtain it, aerial telephone cable works well. You have to strip the sheathed steel catenary from the copper pair. Keep this as it is remarkably strong and can be used for mast guys or vegetable trellises, and so on. Next strip the sheathed copper pair apart; roll loosely to prevent kinking and prepare the spacers.

One thing we need to ensure is high insulation (dielectric constant) in the spacers. If you wish to go retro you can get hard wood lathing (thin wooden strip), which after cutting and drilling, you can boil, in paraffin (surf board wax) for an hour for weatherproofing.

Today we have a choice of materials that are easy to work with, and cheap. Low pressure garden drip line comes in large coils and is cheap, easy to cut and drill but may deform (altering the characteristic impedance of the line) if subjected to too much heat. Ice cream sticks from your handicraft store are cheap but they have to be well sealed with

outdoor varnish (not paint which will probably contain metallic pigment) or they will absorb moisture.

One item is the jointing strip for compressed woodchip flooring. In the Queensland sun, it has been found UV stable and does not distort readily. If you can get exterior grades of PVC conduit, take a small sample and microwave it with a cup of water (to provide a load for the magnetron) for one minute. If it does not soften, it is suitable for RF use.

If you refer to standard amateur reference books, particularly those from the ARRL, you will find nomographs, showing the spacing versus impedance for different wire sizes. There is nothing magical in most applications between 450 ohm and 600 ohm line but a spacing of at least 50 mm between conductors is wise to increase the insulation and prevent arc over if high voltages are induced in the antenna system. 100 mm and 150 mm are probably good choices and depending on the flexion of the wires, spacers every 600 mm to 900 mm will maintain good geometry in the feed line.

All the cutting and drilling can be done using normal handyman tools and the last part of the job is fixing the spacers so they do not slide down in use. If you use sheathed cable, ordinary acetic acid cure silicone sealant squeezed into and around the wire and drill hole will suffice. If you are using bare wire, it will be

best to use neutral cure. Other methods are given in some of the reference books, such as using thin wire 'twist ties'. This is probably fine for most HF applications but introduces a small L-C component at each spacer, which may be significant at higher frequencies. Certainly the silicone method is about the fastest to apply but needs some hours for effective curing. Do not discount epoxy cement but try it on a sample of the spacer and wire to check that it does properly key and hold.

Once you have made your open wire feeder/parallel line check the specifications against those of some of the better Heliax® type feeders. You will at least have a comparable item and have the satisfaction of having completed a home brew project and saved a bundle too!

If you need to put bends in your line or give it support, some amateurs have found line trimmer cord suitable. The other support of choice is the marine 'silver' cord, which is designed to survive in harsh environments, and, of course, the blue and yellow pull through rope discarded by the telecommunications industry. However, remember the suspended weight is going to alter the geometry of a wire antenna if it is too great. Make the bends as gentle as possible, that is, with the widest arc that will do the job.

Remember that our hobby is experimental and aimed at self learning. Most of us learn more after we get out 'ticket' than before. For this reason, I have not tried to join all the dots for you. What we teach ourselves is often better remembered than what we are taught by others. Happy home brewing!

An interesting YouTube video on making ladder line using a cheap kitchen chopping block for insulators can be viewed at: <http://www.youtube.com/watch?v=D--K4Uc5p0I>



# A great old antenna, for not-so-great locations: the end-fed Zepp revisited (without the nasty RF issues)

Wayne Pickard VK2ACY

Those who know me are aware that I am fascinated by all things 'retro' as my station's equipment line-up testifies. Just do not get me started talking about the history of the Theremin, for instance. Similarly, I have spent a great deal of time getting my head around how things were done in the early days of radio, particularly within the amateur service worldwide. Many hours of pawing through very old copies of QST and similar publications during my early teenage years has left indelible impressions of old designs which have long fallen out of use, as knowledge and technology has advanced.

One such design, which has remained in my memory, is that of the end-fed half wave 'Zepp' antenna, which was named after the famous airship on which it would have possibly been used. This antenna, while known to work satisfactorily enough, has been much maligned for numerous reasons, not only because of the nasty RF voltages that it maintained at its feedpoint, but also because of the levels of interference it was sometimes capable of producing. Nevertheless, my recollections have persisted of a description within those old publications of a way of feeding the end-fed half wave in such a way as to provide a low impedance (current) feed, and also a more recent article which gave exact dimensions for doing this utilizing standard 300 ohm ribbon cable as the matching section. After many hours searching in the shack, and researching on the internet, I resolved that if a working version was ever going to materialize, I was going to have to put in the 'hard yards' all by myself.

While starting with what I knew to be an empirically derived length for a 40 metre half wave antenna, I then proceeded to anguish over the correct length for the 300  $\Omega$  ribbon matching section. After much trial and error, the resulting antenna looked something like Figure 1. The resulting antenna was found to have a measured SWR of better than 1.3:1, and was quite broadband, enabling operation across the entire 40 metre band without need for retrimming or use of an ATU. These measurements were determined using a measured length of RG58 coax 21.35 metres long. Other lengths were also tried; however it was observed that a length of 14.75 metres resulted in matching difficulties. Either way, my previous experiences had well prepared me for also avoiding lengths which approximated odd multiples of a quarter wave length, again allowing

for the coax's velocity factor.

Direct comparisons against a temporarily erected 40 metre standard half wave dipole at the same height, 10 metres, over time revealed that this antenna certainly may provide the 'edge' for those locations where extremely poor soil conductivity is known to be an issue; not to mention that it does not require an earth. Conveniently, it could also be configured as a vertical, inverted V, or sloper depending upon available supports and the coverage required. Scaling up or down in size for other bands should also be achievable, and I will leave it up to those adventurous readers who wish to determine the correct lengths for themselves. As for myself, this is one antenna that will remain a 'keeper' I expect for a good while to come.

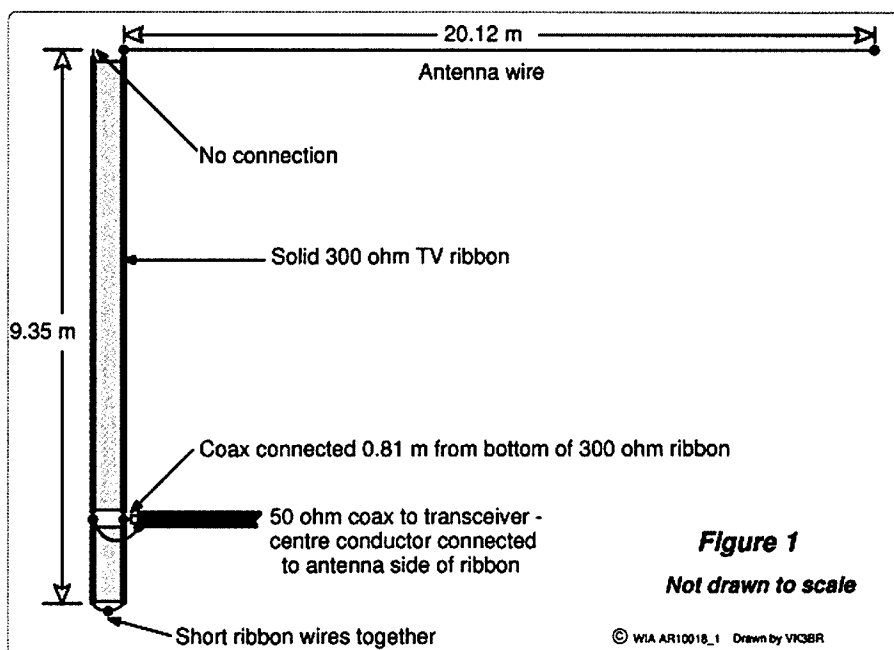


Figure 1: The author's end-fed half wave Zepp antenna.

# An introduction to stepper motors

Jim Tregellas VK5JST

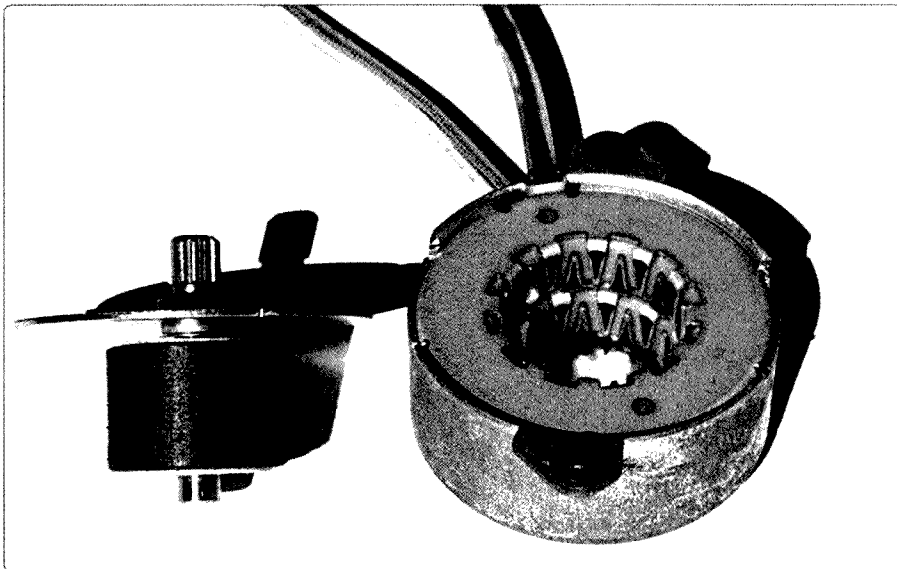


Photo 1: A disassembled 'tin can' stepper motor, showing field and rotor poles.

I have recently been involved in making a magnetic loop antenna for 80 metres and to tune this very narrow band system, once again found myself using a stepper motor. These motors are around our society in very large numbers but are not well understood. From an amateur radio point of view they are very useful for many things and examples include the remote operation of linears and antennas, automatic ATUs and antenna rotators. If you like to play around with robotics and CNC machine control then steppers are indispensable. And used in reverse as a generator, stepper motors make very good rotary position indicators.

## General

Stepper motors come in many styles, but their operation basically involves only one of two things – an energised field coil which attracts a pole of a permanent magnet rotor – or an energised field coil which attracts the pole of a soft iron rotor. The first type of motor is known (obviously) as a permanent magnet motor, while the second type is called a variable reluctance motor. Permanent magnet motors are very common while variable reluctance units are quite rare.

The rotors of both of these motor types move round in small angular steps as the energy to adjacent field poles is switched on and off. Typical motors take between 24 and 200 steps (15 deg or 1.8 degree steps) to complete one revolution. The ability to rapidly start and stop with great angular precision is the most important advantage of these motors.

The permanent magnet motor retains its rotor position even when power is removed. The number of steps per revolution can be determined by turning the rotor by hand through one revolution and counting the number of 'bumps' which occur as the rotor regularly realigns itself with the field poles. This effect is called 'cogging'. Conversely when all power is removed from the field coils of a variable reluctance motor, the soft iron rotor turns quite freely. This may be an advantage or disadvantage depending on the application. This form of motor must have a field coil lightly energised before the number of steps per revolution can be counted.

Motors are made in various qualities. The cheapest are 'tin-can' motors which generally only offer 24 – 48 steps per revolution and will

have sintered bronze self lubricating bearings. The rotor is a smooth cylinder of iron or ferrite with a pattern of alternating north and south poles imprinted parallel to its shaft on its surface. These rotor poles interact with two sets of pressed metal field poles which radiate from two field coils outside the rotor at its top and bottom. Motors constructed this way have relatively large air gaps between the rotor and stator due to manufacturing tolerances and generally do not deliver very high torques or speeds – but they are cheap. An example of this motor has been disassembled and is shown in Photo 1. The rotor has been lightly sprinkled with iron dust to show the pattern of magnetization and the two sets of offset field poles should be noted.

Better quality motors will almost always use ball bearings, and these, together with finely ground salient rotor and stator pole faces, allow much tighter tolerances and smaller air gaps. Such motors are capable of great torque and high stepping speeds. The diagram showing the 20 step/rev demonstration motor, refer Figure 1, shows the typical internal construction. All of the motors shown in Photo 2 are high quality units.

There are several ways of specifying motor size but the best is probably the NEMA system invented in the USA. A NEMA specification basically defines three things, motor outside diameter (in inches), mounting centre details, and shaft diameter. So a NEMA style 23 motor (commonly found in large dot matrix printers) has a diameter of 2.3 inches (57 mm), a shaft diameter of 0.25 inches (6.35 mm), and four well specified mounting points on a flat face.

Note that a NEMA specification does not specify the length of the motor frame and so a long frame NEMA style 23 motor (with its longer magnetic poles) will deliver more power and torque than a short frame NEMA style 23.

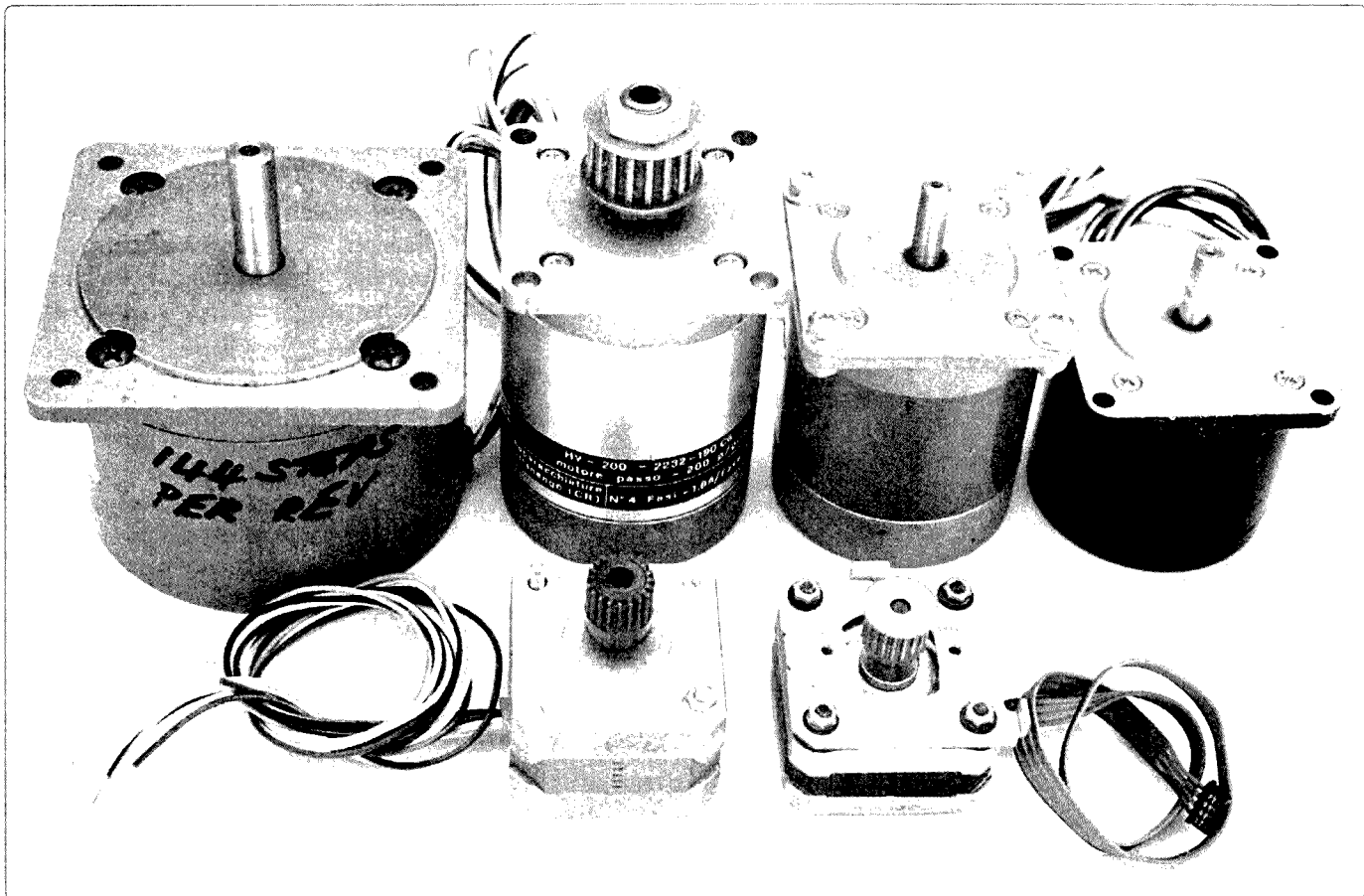


Photo 2: NEMA styles 17 (front), 21 and 34 motors.

But in general, commonly available motors usually have a diameter and length which is roughly the same.

Excellent amateur scroungers will probably accumulate a range of motors from the six common industry frame sizes. These are styles 11, 14, 17, 23, 34 and 42. Style 17 motors can be obtained from sources such as old 5.25 inch (133.35 mm) floppy disc drives and will deliver only small torque. At the other end of the scale, NEMA style 42 motors (4.2 inches or 106 mm diameter) from industrial machinery are real monsters with huge torque. Typically such motors will exhibit stepping speeds not exceeding 400 – 600 steps per second from a scratch start. Using a stepping speed beyond this limit will simply result in the rotor randomly vibrating back and forth around a central position as the magnetic forces are insufficient to bring the rotor up to speed within a single step. This limit can be exceeded by 'ramping up' the stepping speed from zero, which will

cause the rotor to remain in lock with the rapidly increasing field rotation. Note however that this driving technique demands electronics with considerable intelligence (and cost). The simpler forms of drive described later in this article are limited to speeds of less than the cold start speed. But also note that if the magnetic forces are large enough to get the rotor up to speed in just one step, then it can also stop within one step. This in turn means that if the motor speed is ramped up to beyond the cold start speed, then it also must be ramped down in order to predict where it will stop, resulting in complex control software and hardware which must 'look ahead'.

All stepper motors lose torque rapidly as the speed of rotation increases. This is due to the fact that their field windings possess inductance as well as resistance. Current in a series LR circuit- and the magnetic field associated with it- takes time to build up and it is this which limits the maximum motor speed.

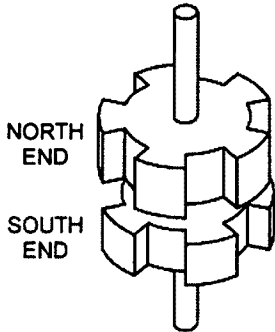
## Windings

There are many ways of winding the field coils in a motor, but commonly available units use either two or four coils and this article will only deal with these types. Motors with five, six, eight and more field coils are obtainable and all that is necessary to get these working is to remember that the magnetic field must step around the field poles in a circular fashion. This is easy to do once the three methods of driving four pole motors are understood.

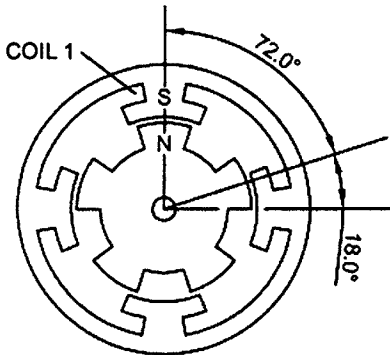
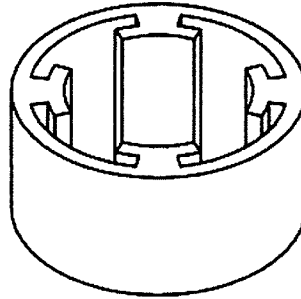
Figure 3 shows how connections can be made to motors with two or four field coils. As is shown in the demonstration motor diagrams, again refer to Figure 1, the user can elect to energise just one, or two adjacent field coils at any one time. Energising one coil at a time in a circular manner is called wave drive and this is little used. Energizing two adjacent coils in a circular fashion is called two phase drive and this latter technique doubles the magnetic force acting on the rotor and hence,



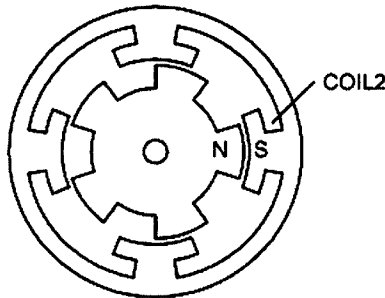
PERMANENT MAGNET ROTOR- NOTE HALF TOOTH OFFSET BETWEEN UPPER AND LOWER POLES.



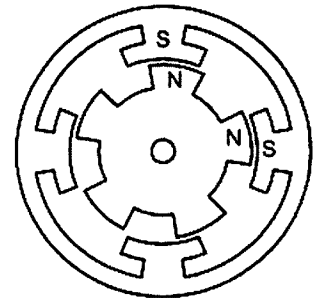
SOFT IRON STATOR HAS 4 POLES WITH A SEPARATE WINDING ON EACH POLE.



STATOR COIL 1 ENERGISED. THIS CREATES A SOUTH POLE WHICH ATTRACTS THE NEAREST NORTH TOOTH AT THE ROTOR TOP. IT ALSO CREATES A NORTH POLE DIRECTLY OPPOSITE, WHICH ATTRACTS THE NEAREST SOUTH TOOTH AT THE ROTOR BOTTOM.

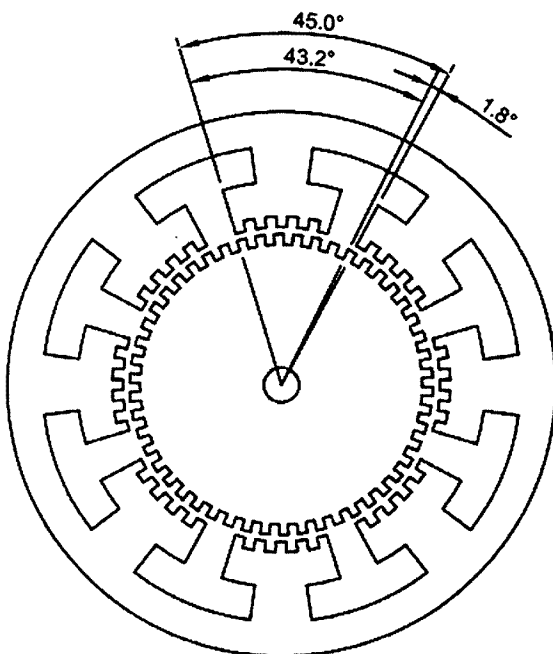


STATOR COIL 2 ENERGISED. THIS CAUSES THE ROTOR TO MOVE A FULL STEP OF 18 DEGREES (OR 20 STEPS/REV) TO ALIGN STATOR AND ROTOR POLES.



STATOR COILS 1 & 2 ENERGISED THIS CAUSES THE ROTOR TO MOVE A HALF STEP OF 9 DEGREES (OR 40 STEPS/REV) TO BEST ALIGN STATOR AND ROTOR POLES.

DEMONSTRATION 20 STEPS/REV PERMANENT MAGNET STEPPER MOTOR



NOTES

1. ROTOR HAS 50 TEETH
2. STATOR HAS 48 TEETH (IGNORING GAPS)
3. STATOR HAS 4 POLE PAIRS AND HENCE 4 SEPARATE WINDINGS
4. MOVING POWER FROM ONE POLE PAIR TO THE NEXT CAUSES THE ROTOR TO MOVE ONE FULL STEP OF 1.8 DEGREES OR 200 STEPS PER REVOLUTION.

MECHANICAL LAYOUT OF A PERMANENT MAGNET 200 STEPS/REV. STEPPER MOTOR

Figure 1: Demonstration 20 steps/rev permanent magnet stepper motor.

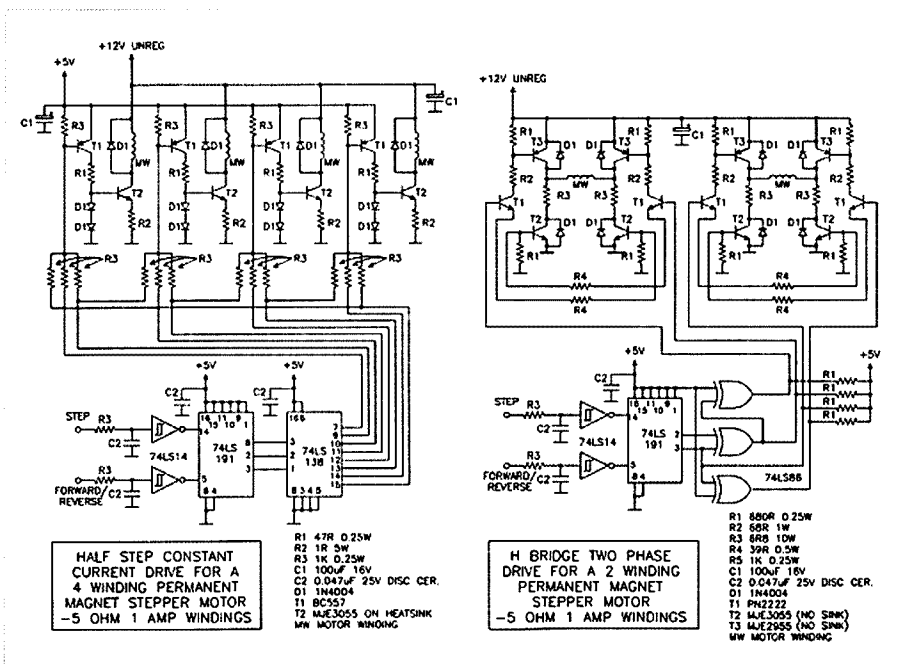


Figure 2: Common lead configurations for stepper motors.

relative to wave drive, doubles motor torque available. Half step drive, refer Figure 2, where first one coil is turned on and then two coils etc only allows the motor to produce the same torque as wave drive but doubles the number of steps per revolution.

There is also a drive technique called microstepping where the power to one field coil is steadily decreased in digital steps while the power to the next field coil is ramped up in digital steps. This results in a number of intermediate rotor positions in between two adjacent field coil poles. Microstepping gives smoother motor operation but considerably increases the complexity of the driver electronics. Reference should be made to the internet if the reader wishes to go down this path.

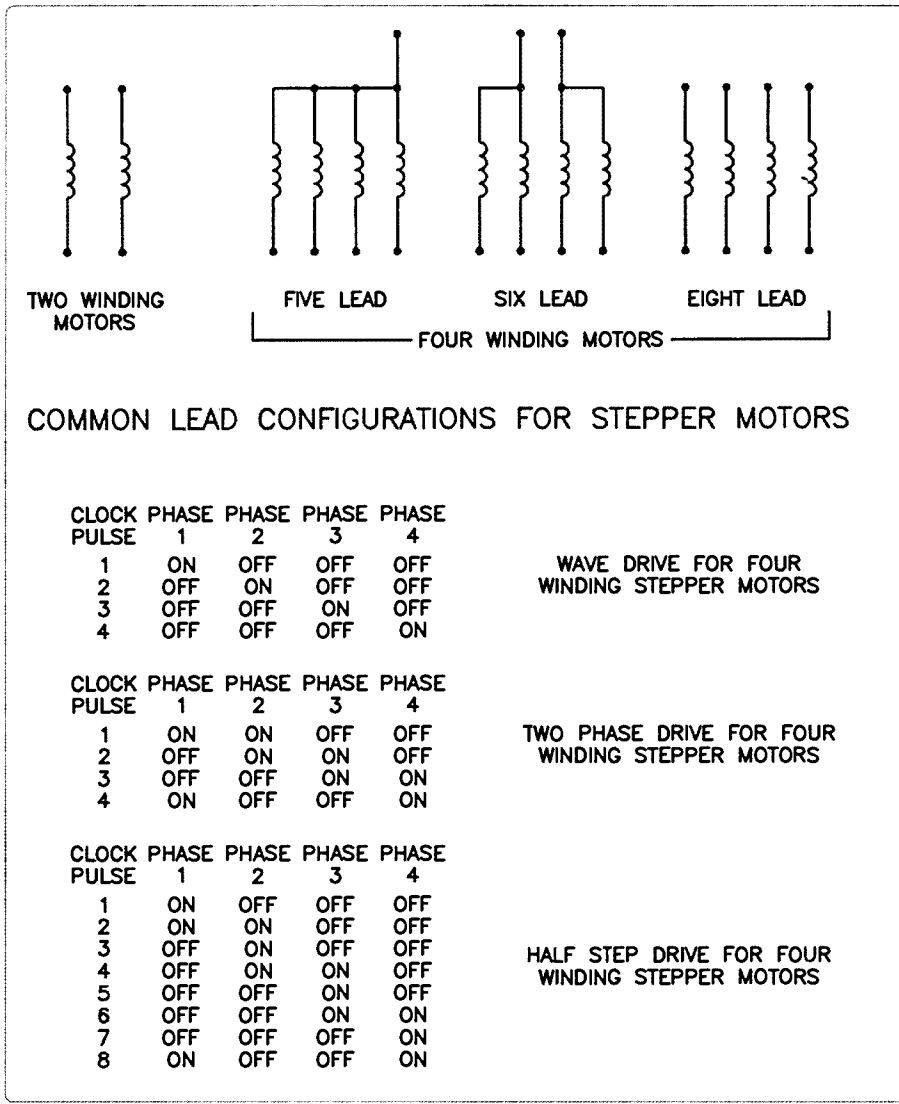


Figure 3: Showing half step and H bridge motor drives.

**Drives**

And now we get to the ugly nitty gritty. As mentioned earlier, all field coils have inductance and resistance, and it is the inductive component which gives us the headaches. This reactive component limits the rate at which current (and hence magnetic field) will build up when a particular DC voltage is applied across a field winding. It is the resistance of the winding which ultimately determines how much current will flow, and the mathematics tells us that to establish this final current five time constants of time (5L/R) must elapse. This idea defines the simplest drive possible where a series transistor is used to switch power to a field winding on and off. It is a relatively slow technique and the motor loses torque when there is insufficient time for the field current to build up to maximum. This technique and all of the other driving techniques are shown in Figure 4.

If we wish to speed the motor up, we must somehow reduce the time taken for the current to build up and the simplest way to do this is to increase the total resistance of the winding. If we add a series resistor of the same value as the winding resistance, then the time constant halves (L/2R) and we can then double the maximum motor speed.

Of course when we do this we will also have to double the supply voltage to the motor in order to attain the same final current, and so the price for this increase in operating speed is extra wasted power, in the form of heat in the series resistor. But this drive form still has the advantage of being very simple. With a five volt NEMA style 23 motor (serious torque) the driver transistor for each field winding will have to pass typically around one amp. So the collector dissipation for each driver transistor (which is either off or saturated) is about one amp times a collector emitter voltage of, say, 50 millivolts, or 50 milliwatts, and so no heatsinks are required. To put this in perspective a BC548 can safely dissipate 300 milliwatts, but will not pass currents of one amp.

If we wish to speed the motor up even further, then our final port of call is a constant current drive. Here we significantly increase the supply rail to the motor so that the current builds up very quickly along the exponential path to its final level, and then stop its growth at a safe level with a constant current source (say one amp in the example of the NEMA 23 just mentioned). There are standard driver chips around which will supply up to 36 volts to a five volt motor winding in order to get this rapid growth in current, and overdrive factors of three to five are very common. In fact overdrives of 50 are sometimes used (250 volt DC supply to a five volt motor!) in military applications to get the absolute best available speed from a motor. Of course once again the price for all this is waste heat and this time the waste heat will be generated in the driver transistors which cannot be operated in the saturated mode, but instead must operate under linear conditions. If we were to operate the five volt NEMA 23 motor above from, say, a 25 volt DC supply, then when the final winding current of one amp is reached, there will be a five volt DC drop across the field winding and about 20 volts of DC from collector to emitter of the driver transistor. With a winding current of one amp this means that the collector

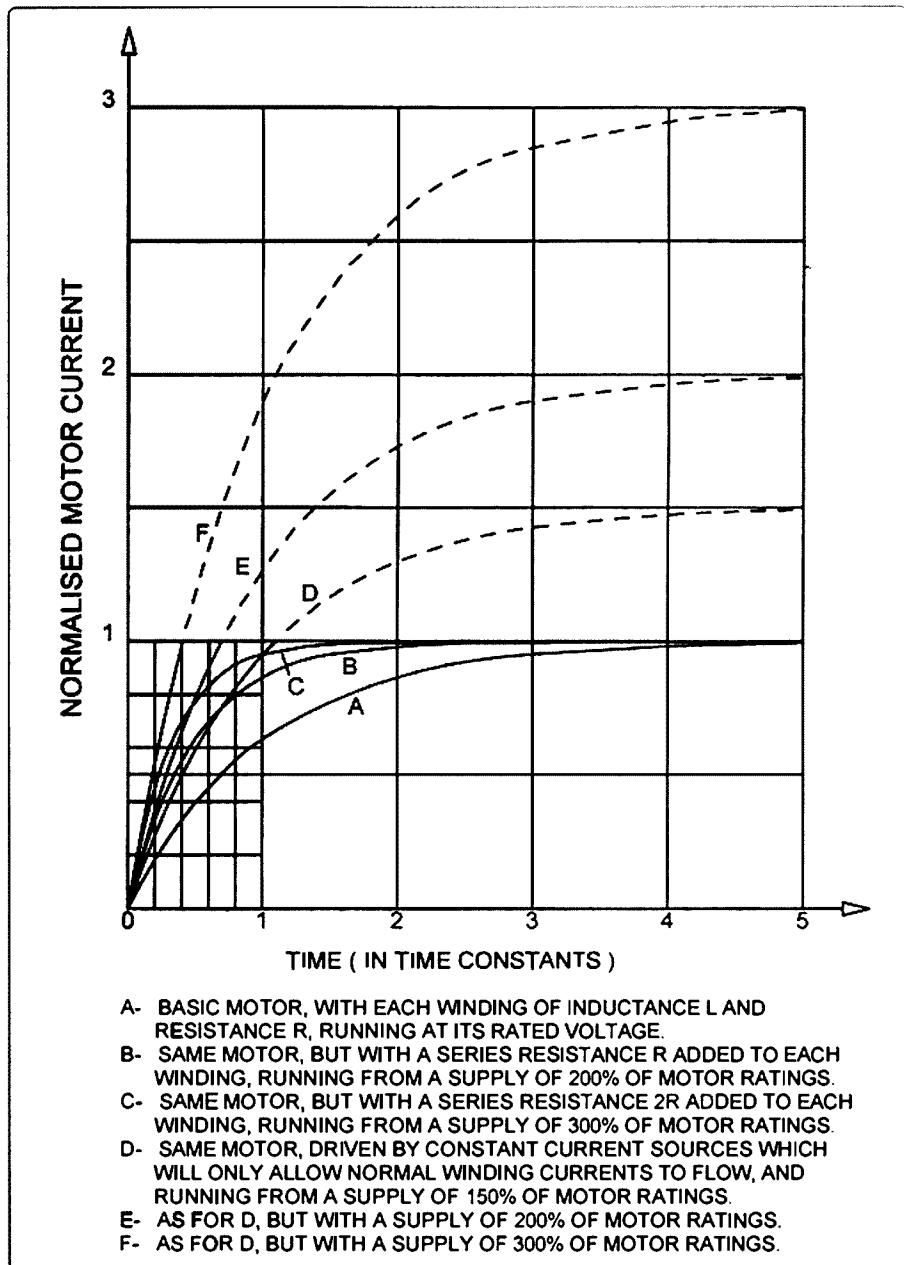


Figure 4: How motor maximum speed varies with different methods of driving the motor field coils.

dissipation of each driver transistor is 20 watts, and so large heatsinks will be needed to dissipate the 40 watts of waste heat created in a two phase motor drive circuit.

As a final comment, there is a form of drive called a chopper drive. Chopper drives are very efficient at low motor speeds as they use a high supply voltage to allow fast current build up in the field windings. Once the maximum winding current has been reached and the rotor has been dragged into final position, the drive circuit goes into a switching mode to deliver very low average current to the winding. But,

when the motor is flat out, this driving technique is no more efficient than the much simpler constant current drive and under these conditions has the same heat problems.

### Other Comments

There is one other thing of which users of stepper motors should be aware, and this is that the rotor of every stepper ever made has its own natural frequency of resonance. This comes about because the rotor has mass and its position is determined by an elastic magnetic force. So when the rotor is abruptly moved

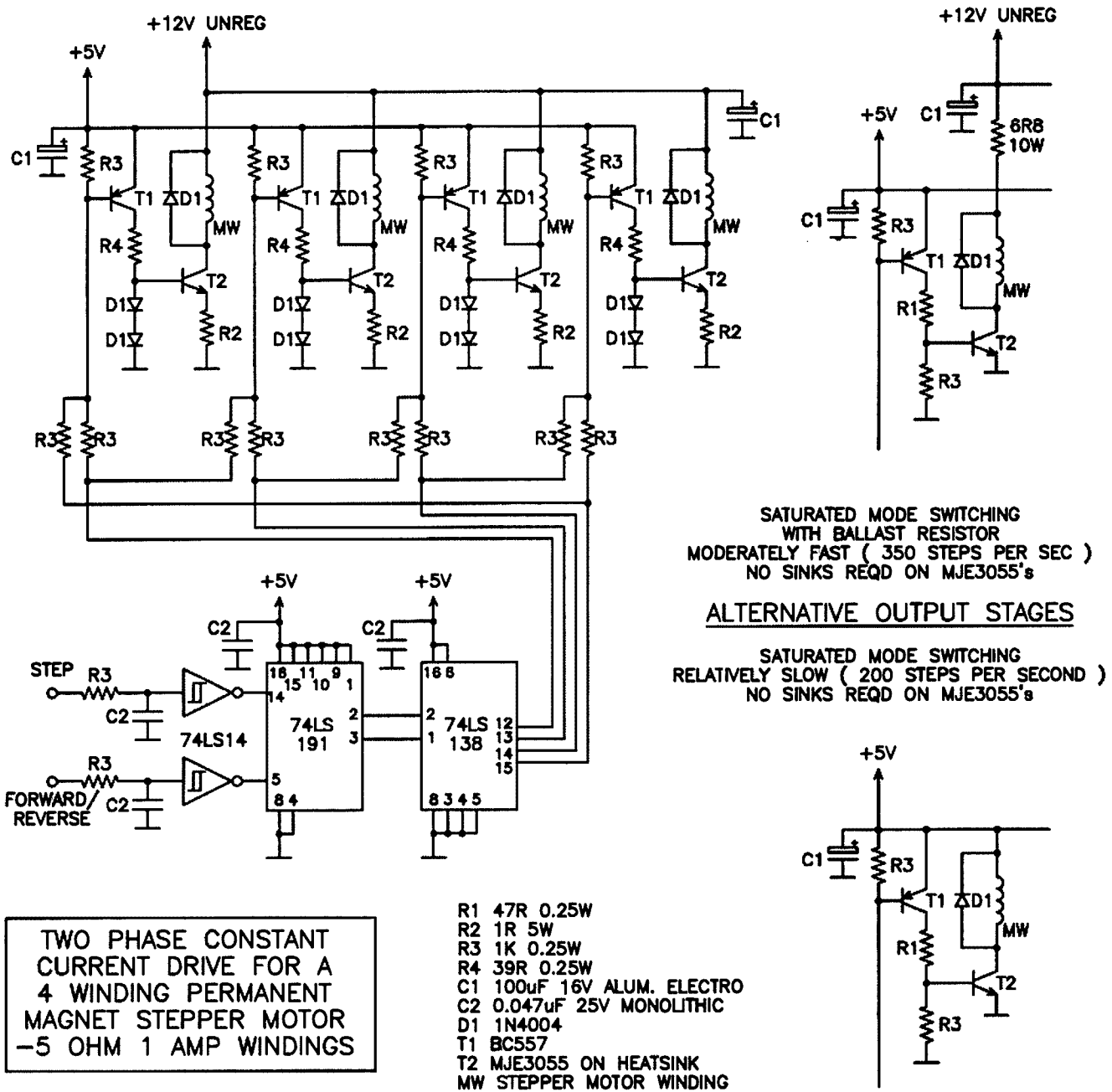


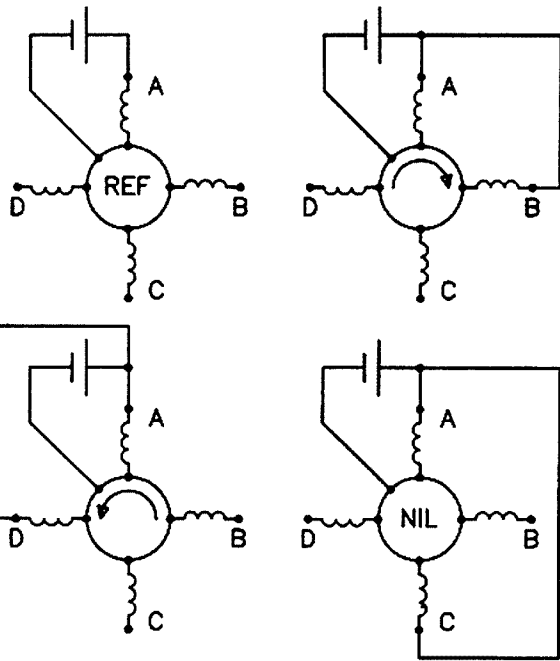
Figure 5: Three methods of driving motors with four field coils.

to a new position by switching field coils on and off, it will vibrate about its new position for a while until the kinetic energy of movement is dissipated in losses and the lines of magnetic force bring it to final position. If the frequency of pole changing happens to approximate this natural resonance then the rotor of the motor will cease stepping in an orderly fashion and take great uncontrollable positional leaps back and forth while emitting a lot of noise. From a user's viewpoint, there is little which can be done about this,

apart from avoiding this frequency entirely and/or adding some losses to damp the resonance somewhat (a gear box full of thick grease?). One of the great advantages of ramping the motor speed up and down is that this region of resonance can be passed through quickly before rotor oscillations build up sufficiently to cause loss of position. Microstepping greatly reduces resonance problems because the rotor is gently moved using a large number of small steps rather than pulled into position in one great square wave leap.

### Drive Circuits

A number of drive circuits are shown which can be directly connected to the parallel output port of a computer and which illustrate the various ways a motor can be driven. Long unshielded connections between computer and driver electronics can be used because all driver inputs feature a CR low pass filter to remove RFI and noise. The rounded off waveforms which result from this filtering are squared again up with a 74LS14 Schmitt trigger stage and applied to the direction and clock



### CHECKING STEPPER MOTOR WINDING PHASE

1. USE AN OHMMETER TO FIND THE COMMON LEADS AND THEN CONNECT ALL COMMONS TOGETHER. ON A MOTOR WITH 8 LEADS, IT DOES NOT MATTER WHICH END OF A WINDING YOU CALL COMMON.
2. RANDOMLY SELECT ONE OF THE REMAINING ENDS AND CALL THIS "A". CONNECT THE "A" AND COMMON LEADS ACROSS THE BATTERY AS SHOWN IN THE DIAGRAM LABELLED "REF". THIS IS THE REFERENCE POSITION.
3. NOW PARALLEL THE REMAINING LEADS WITH "A" ONE AT A TIME. ONE OF THREE THINGS WILL HAPPEN.....
  - (a) THE ROTOR WILL MOVE A HALF STEP CLOCKWISE
  - (b) IT WILL MOVE A HALF STEP ANTICLOCKWISE
  - (c) IT WILL NOT MOVE

THIS DATA WILL ALLOW YOU TO CORRECTLY PHASE THE MOTOR LEADS WHEN CONNECTING IT TO THE DRIVE ELECTRONICS. CONNECT IT IN THE ORDER ABCD (FORWARD) OR ADCB (REVERSE).

Figure 6: How to practically determine the field winding phasing of an unknown motor.

inputs of a 74LS191 reversible four stage binary counter. For motors with four field windings, the least significant two bits (or three bits for half stepping) of this counter are then decoded by a 74LS138 to give a one of four drive to the following motor winding driver stages (or one of eight for half step). Each winding driver circuit is OR connected to these 74LS138 output lines using 1K resistors so that either wave drive, two phase drive or half step drive can be obtained. Finally output stages are detailed for each of the three different ways of driving a motor winding. Refer Figure 5.

For two winding motors, an H bridge circuit is detailed. This uses the same input and counter structure

as the other circuits but a 74LS86 (exclusive OR) is used to decode the two least significant bits of the counter and drive the output stages.

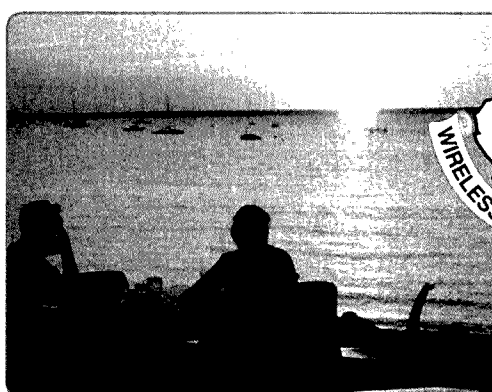
Scaling these circuits up or down for different motors is relatively simple once the basic operation is understood. For very large motors it is probably best to either go for the simple saturated driver type, or go directly to the expensive but high performance chopper drives. Chipsets such as the ST Microelectronics L297/298 and National Semiconductors LMD18245T are good examples of this drive type.

There is plenty of proprietary low cost software around on the 'net for NC machine control. Interfacing

to this software may require the inclusion of another 74LS14 inverter in both the clock and/or direction lines of the 74LS191 counter. Using these motors is a lot of fun, and when you have finally developed a computer controlled system to push an aerial or a high powered woodworking router around, you really have achieved something that very few can do.

Figure 6 shows a method of determining the relationship of the windings of an unknown stepper motor so that it may be correctly driven.

Now go turn the world.....



# WIA Annual Conference

Darwin, 27th – 29th May, 2011

We strongly recommend that you book your accommodation early to avoid disappointment!

# Murphy's emergency communications

Bill Isdale VK4IS



Photo 1: The digital modem.

Heat is a major stressor of electronics, as well as of people, and a hot day delivered a PC that would not start.

Troubleshooting involved completely disassembling the device down to a bare motherboard and removing the dust with electronics cleaner. Under the heat sink and integral fan the heat conducting paste between the CPU and its cooler was sparse and dry. New paste and reassembly put this in order and that's when I found the actual problem, lint in the mini switch that turns the computer on. It was as simple as that and easily fixed, once discovered after a couple of hours.

Interestingly, now clean and with new heat conductive paste to help keep the CPU cool, the monitoring software showed that the CPU and motherboard ran at the same temperatures as before.

However, I had no doubt been eating into the safety margin before and now the cooling would be able to cope more easily with high temperatures.

We all know that these pastes dry out and that computers are dust magnets, but how often do

we maintain their internals? One consideration is that opening it up carries the risk of creating a problem. Contemporary computers are shrinking and many people use notebook size machines that don't lend themselves to being opened and which struggle with heat dissipation at the best of times. The hardware in computers is designed to protect itself and at a certain temperature will abruptly shut down, without warning or explanation, until it is cool enough to be restarted.

If you are trying to use a computer and it shuts down without warning because it is overheating, futile troubleshooting could result in a computer unnecessarily in pieces while the reason for its behaviour is never discovered.

This brought to mind an article by Jim Linton VK3PC in *AR* of April 2009, commencing on page 27. In it he described the impressive achievements of the Red Cross Emergency Communications volunteers (RECOM). The article reminded us that bush fires will typically happen in very hot weather and themselves create severe heat.

In that environment the laptop computers which are used for HF digital modes may become unreliable unless means are found to keep them as cool as possible. The heat can cause erratic behaviour or failure. In the stressful circumstances of an emergency, this could have unacceptable consequences.

This worked around in my mind like grit. The emergency communications that we offer to help our communities have to be reliable or we are wasting everyone's time, including our own, and potentially becoming part of the problem rather than the solution.

Also in mind was something recently heard from a professional in aviation communications. When things go wrong the pilots of modern airliners, equipped with the latest satellite data terminals, go straight to the radio and make a voice call, on VHF where there is coverage and HF sideband anywhere else. A Pan or Mayday message can go out very quickly and no doubt their hands are going to be fully occupied without trying to use a keyboard.

The take away message, for me, was that emergency communication using HF digital modes, while making it possible to get through when the wider bandwidth required for voice may be full of noise, are only one string to the bow. People need and want to have voice communication when things go very bad. The usefulness of digital messaging also needs to be considered in the light of the associated complexity.

I decided on an experiment. Drawing on the success of digital modes as demonstrated by our Red Cross colleagues and taking into account that in an emergency simplicity and reliability will be of great value, I set as a minimum that emergency radio equipment must be able to deliver voice communication in addition to a digital mode (1). This is fortunately easy to achieve as the radios we are typically using will

## NUE-PSK Digital Modem

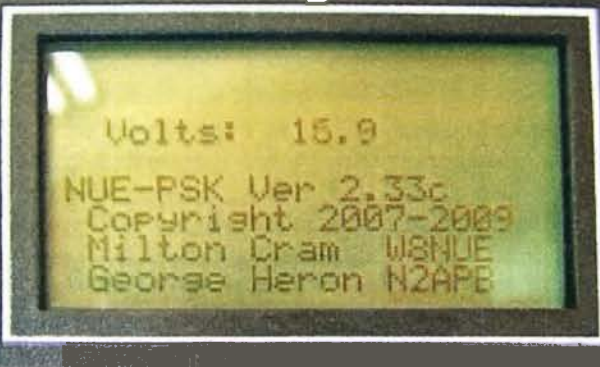


Photo 2: The start-up screen showing supply voltage.

be able to support voice communications. To provide a wide range of modes and very large choice of operating frequencies I chose the Yaesu FT-857D (2). There are other alternatives and people will have their own favourites.

Expecting to have to be able to operate in a hot environment, I replaced the standard reference oscillator with the optional temperature compensated crystal oscillator (TCXO-9) which provides frequency stability to within half a part per million despite varying temperatures. In order to make this modification it was only necessary to replace a small press-fit board, following the simple and clear instructions in the manual. A Phillips screwdriver was the only tool required and the whole operation took less than five minutes. This probably wasn't really necessary but will be useful when using digital modes so that the transmit and receive frequencies will not drift, particularly during extended use in high ambient temperatures. Digital modes also involve high duty cycles which will heat up the rig. It is easy to forget when running 100 watts output on SSB that this is only the peak power and that the average will be much lower. A digital mode transmission is emitted at the selected output level the whole time the rig is transmitting. The same radio, set to 25 watts, will heat up a lot more than when set for 100 on SSB. Fortunately, 25 watts should be plenty for a digital transmission.

Some experimentation convinced me that the stock Murata brand ceramic filter, located at the 455 kHz second IF and about 2.3 kHz wide, which is used for transmitting and receiving on SSB, performed well. However, the optional Collins 2.3 kHz mechanical filter reduced the noise on receive and seemed to make voice frequencies more prominent to my ears. The specifications indicate 2 dB less loss than the stock filter as well as steeper skirts. This option was as easily fitted as the high stability oscillator and the radio allows the operator to switch between the stock filter, which remains in place, and the additional filter. It is possible to transmit through one and receive through the other, reverse their roles, or to transmit and receive through the accessory filter. On air testing, particularly receiving through one and then the other, which can be changed in a second from the rig's controls, convinced me to use the Collins filter for transmitting and receiving.

To be prepared, wonderful phrase that, I chose an external bhi brand noise cancelling speaker and

## Refit Your Workbench

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headphones to connect to it. This audio frequency DSP device has been found to reduce noise beyond what the radio itself is capable of doing and the headphones help to exclude distractions at the operating position.

With the fall back position established, it was time to select a digital mode. The choice made was PSK31 as it is a well established and robust mode with which a good number of us have some experience (3). It can be used to produce readable copy from well below the noise floor. There are many other modes which could be examined in detail as to their suitability but this choice allowed a start to be made and could be changed later if necessary.

The next step was getting the PSK31 into the radio. A suitable socket is provided on the FT-857D for data and to key the transmitter. An interface box is needed to link the radio to the computer which both generates and decodes the digital information. The computer is effectively a modem sending to the transmitter the tones which it generates from the text typed in and decoding back to text the tones heard by the receiver.

Which brings us to the general purpose digital computer, which, with the right software, becomes the modem.

We all know just how reliable these things aren't, particularly if they are sometimes connected to the internet. The choice of hardware, operating system and digital mode software is immense and the makers of all of it are conscious of the potential incompatibilities and sensibly issue warnings such as the one that came with my new laptop; that it was not intended for use in the navigation of aircraft or operation of nuclear facilities.

In addition, the software we have available for digital modes is almost inevitably written by a skilled and well intentioned hobbyist who could not reasonably be expected to provide a perfect product. It is usually free, supported sporadically if at all and may have unknown

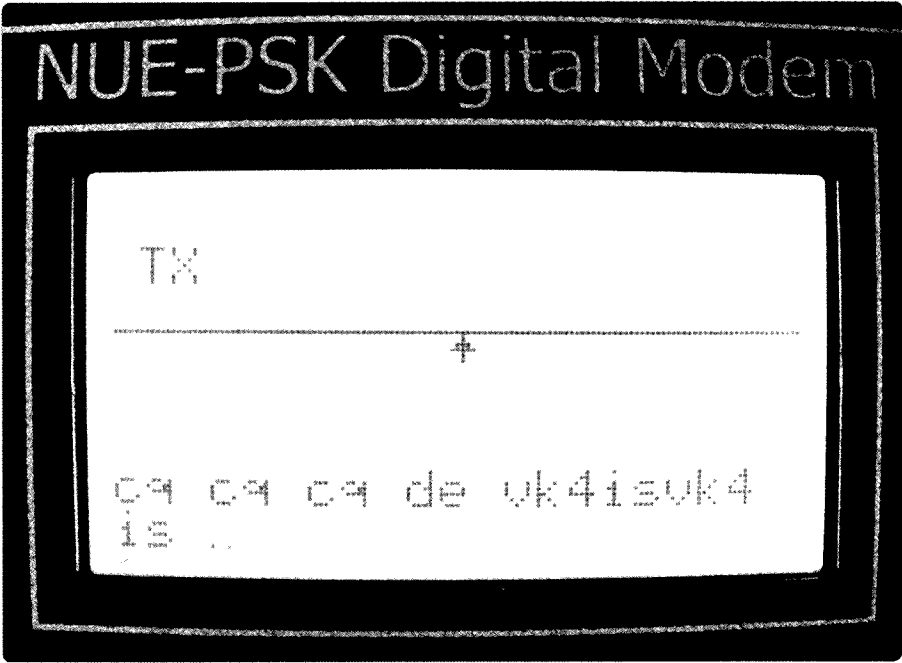


Photo 3: Just press F1 to send your chosen macro.

interactions with some of the huge range of hardware and software it may encounter.

Since updating of the operating system and other software installed on a computer may take place automatically when connected to the internet, a device used for emergency communications should be tested ahead of time to limit the scope for nasty surprises when it needs to be used.

It is too risky to turn up in an emergency with a computer that develops a mysterious problem which may make it useless. The alternative of keeping computers for this purpose only is expensive and in reality the batteries of a rarely used computer will most likely have deteriorated by the time they are needed.

The computer is the weak link. It may not work when required,

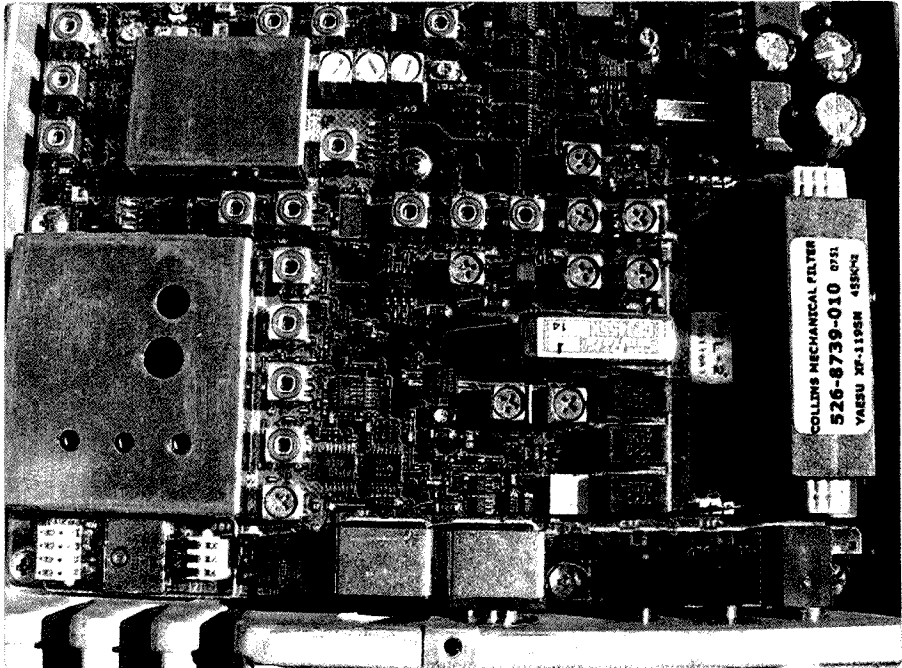


Photo 4: TCXO-9 at bottom left, Collins filter vertically at the right and stock Murata filter horizontally and upside down in this view.



may not tolerate extremes of heat and is likely to be fragile. It is also expensive and has significant power requirements.

A transceiver is engineered to carry out a relatively small range of tasks which it does very well. A computer is a much more generic device, designed to be adapted to many purposes, which is its strength as a commercial product. That versatility introduces complexity which may work against us. A more minimalist approach which reduces size, weight and power consumption may be more suitable for present purposes.

My interface box requires power, connection to the microphone and speaker sockets on the computer, a serial cable from the computer to key the transmitter and a connection to the control socket on the rig (4). Since modern portable computers are likely to be without a serial port, a USB adaptor, with a suitable software driver, may also be required. This is a real rats nest of wires with potential for a faulty connection at many points. A dedicated modem would have no need of an interface to a computer any more than it needs a computer.

This brings me to the Nue-PSK, a small and ingenious device designed by two highly qualified US radio amateurs, Milt Cram W8NUE and George Heron N2APB, for operating digital modes from portable stations. Its circuit diagram and list of components is published on the internet at [www.nue-psk.com](http://www.nue-psk.com) and it is sold as a kit or fully built. There are also a number of options available for it.

At present it supports PSK31 and RTTY, with more capabilities in development. It will run on an external power supply or a battery pack, drawing less than 100 mA, which is a tiny power requirement compared to a laptop. Two nine volt alkaline batteries, connected in series to deliver 18 volts, should give about four hours of operating time. Its small monochrome screen is easy to read in bright light and it requires only a single cable to the radio and a PS2 keyboard to operate.

I ordered a constructed unit with the optional USB connector to allow easy updating of the firmware which will change as new capabilities are developed. For convenience, I also ordered a printed version of the manual and two external battery packs. One for nine volt batteries and another for AA cells. It will run on 18 or 12 volts, with reduced current drain at higher voltages.

The operation of the device is well described on the maker's website and there are links to articles written about it. It offers compactness, low power consumption and the relative efficiency that results from it being designed to perform its limited tasks, just the ones we want for readily deployable emergency communications.

Early experience has been encouraging in that a well built unit was promptly delivered. It is easily powered up and put to work; so easily in fact that one can't help noticing how simple it is compared to using a computer and an interface. A cursor is moved, either by a rotary knob or the arrow keys of the keyboard, to the displayed signal you wish to have demodulated. Once near it, the software locks on to the signal automatically and the text is displayed. Pressing F10 allows the transmitter to be toggled from transmit to receive. The text is sent as it is being typed and there is provision for macros to facilitate sending often used information. The unit is light and compact and housed in a strong aluminium box. Significantly, it cost about \$350 Australian fully built and optioned up with all the accessories that I thought I would need. This is about a third of the cost of an average portable computer and interface. It is easy to spend less as the website offers different levels of kit to those who would prefer to build it themselves.

The unit is easily transported, the batteries are readily available, inexpensive and quickly replaced. The firmware can be easily updated as new capabilities are introduced so all operators are able to have consistent equipment.

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The use of a digital mode raises for consideration whether there would be any benefit in installing a very narrow filter for that purpose. On the transmitting side, it is desirable to use the widest filter so as to reduce restriction on the outgoing signal. A narrow filter, such as might be used for CW, could go in the receive chain to exclude the maximum noise. For my radio a 300 or 500 Hz filter is available, as well as a spare slot in which it could be installed. At present I have elected to use the 2.3 kHz filter, clearly intended for SSB, and to allow the DSP in the modem to sort out what is in the pass band. The advantage is that it is designed to receive a 2.5 kHz bandwidth and to display any signals within it. Introducing a very narrow filter, while perhaps useful when contesting, does not seem, at least initially, to be necessary as the modem will only demodulate the selected signal. Another consideration against a very narrow filter, particularly the 300 Hz version, is that different radios may have different ideas about when they are on a certain frequency. Couple that with drift of only two parts per million and it might become unnecessarily hard to find the transmission being sought. An analogy is trying to find a star in a telescope; it can be hard to find the Moon. Incredibly weak signals or extremely strong nearby signals might make it necessary to revisit this decision (5).

The remaining considerations for easily deployable communications are power for the radio and suitable feed lines and antennas.

While fuel cells are obtainable and high energy density batteries derived from those developed for portable computers and mobile phones are available, cost and the need to match the voltage we require for radio gear has led me to stay with sealed conventional batteries and a charger to maintain them. Although heavy and bulky, they are a reliable item.

With a radio as versatile as those available to us these days, we can take advantage of the capability of operating on different bands as conditions require (6). Readily deployable antennas may range from a doublet with balanced feed

line able to be used on many bands with an antenna tuner to a tapped whip on a vehicle. In practice, co-axial cable is more likely to be adaptable enough to run to where an antenna can be hung. A supply of spare antennas and feed line can easily be carried along with some light cord and the means to get a line over something like a tree branch to haul the antenna up.

It is worth keeping in mind that it may be necessary to deploy quickly and to be able to pull out and move in a hurry so anything that is set up should lend itself to rapid redeployment. The vehicle's battery needs to be kept fully charged to make sure it can start so dedicated power for the radio gear should be provided.

We have seen volunteers such as our colleagues with the Red Cross make a valuable contribution to the community in times of need. As they have demonstrated, proper preparation is essential if we are to be part of the solution and not become another problem for those we are intending to help.

The development of the dedicated digital communications modem with its simplicity and robustness may help us to increase our reliability by decreasing complexity. Offering voice communications in addition will give us another string to our bow, never a bad idea.

With the equipment generally available at present, providing secure data communications would require the reintroduction of computers into the processing loop. The solution I have sketched has favoured simplicity and inherently increased reliability and accepts the trade-off of reduced security, which I suggest is

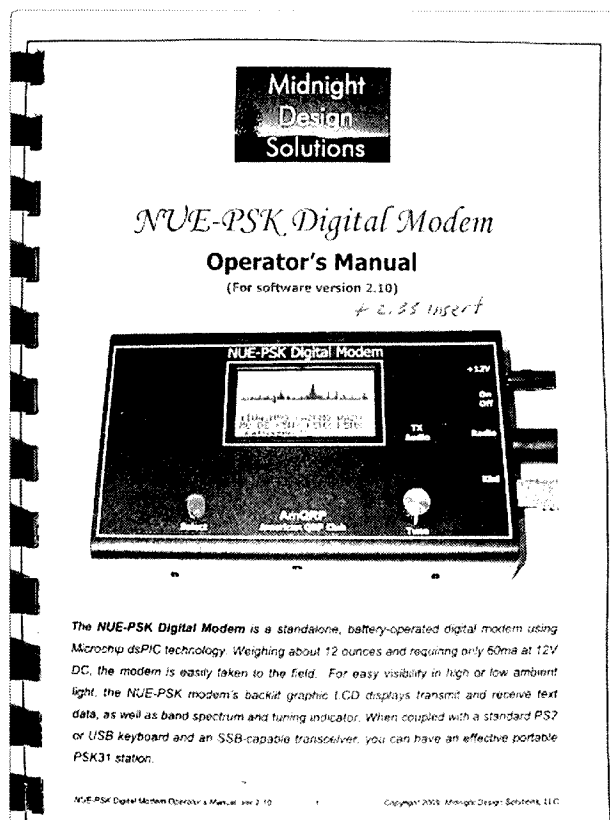


Photo 5: The well written manual.

an acceptable compromise to make for most communication needs in an emergency.

## Endnotes

1. See, for example, the photos of operators in emergency situations in *AR*, September, 2008, p.23 and *AR*, March, 2010, p.26.
2. Reviewed in *QST*, August, 2003, p.63 and in *AR* June, 2005, p.22.
3. PSK31 is described in the *Radio Communication Handbook*, 10<sup>th</sup> edition. RSGB at 20.8
4. A sound card interface is described in *AR*, September, 2004, p.14.
5. The signal reporting system for digital modes is described in *AR*, August, 2004, p.6.
6. The Icom IC-7600 will operate PSK and RTTY, needing only a keyboard plugged in to it. Reviews may be found in *AR*, November, 2009, p.22 and in *RadCom*, June, 2009, p.19.

# Western Victoria JOTA/JOTI weekend

Ash Clark VK3SSB



Photo 1: The JOTA site. Each tent set up as an amateur radio station, between them covering all HF/VHF/UHF bands.

Close to 100 Scouts and Leaders gathered at the Cooina Burrong Scout Camp in western Victoria for the JOTA/JOTI weekend. Scouts set up their own 'Standing Camp' and worked as patrols to enjoy the exciting range of communication type activities run over the weekend. Together with a total of 11 amateur radio operators on site for the weekend, nine of them being Scouts and two from the local Wimmera Amateur Radio Group radio club, another fantastic event was run.

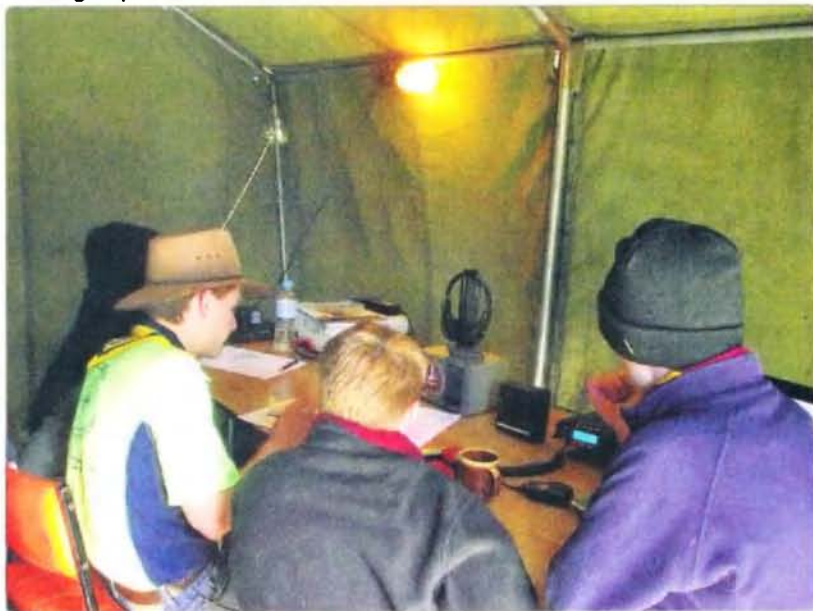
Photo 2: A mast built and erected by the Scouts for UHF CB communications back to base.



Scout groups arrived on the Friday evening to set up their campsite. For the first time in many years, it was wet and windy. This posed a challenge to everyone setting up and also had an effect on our numbers – this year being our lowest attendance in some years. Never-the-less, the weekend went on, and indeed we woke up to some sunshine on Saturday. With that the activities kicked off.

Activities ran in blocks of one hour where patrols learnt a variety of aspects of communication. These included foxhunting, building a Morse Code generator (Dick Smith kit), sending and receiving Morse Code, geocaching, orienteering using handheld radios to communicate back to base and even building a six metre free-standing radio mast in the bush to establish long range communications on UHF CB. The Scouts thoroughly enjoyed the spread of activities and by careful planning with a Scout Leader, the activities can go towards each Scout's badge work.

Photo3: Ash VK3SSB and the Horsham Scouts talking on 20 metres to a Scout group in Queensland.



Of course, the main part of the weekend was the JOTA/JOTI part, amateur radio and the internet. With the assistance of Telstra in providing superfast NextG internet, a local school for donating us around 15 quality computers and also the great efforts put in by Matt VK2ADF to get it all running, we were able to provide a great JOTI setup for the Scouts. Using JOTI, Scouts made contact to other Scouts in every continent.

On the amateur radio side, we had a fantastic bunch of enthusiastic operators who demonstrated many modes of amateur radio to the Scouts. We provided voice communications from three different shacks – 20 m, 80 m and 40 m and a VHF/UHF/D-STAR shack. SSTV was run locally, sending a photo of each patrol back and forth through a local SSTV repeater. Most of the Scouts were fascinated to see this mode of transmission actually working! We also built a radio backpack using the frame of an old hiking pack. This had UHF CB communications plus an APRS setup for tracking. An APRS receiver was in place in the shack to show the Scouts where the backpack was and how APRS worked.

Equipment wise in the shacks we had two FT-857Ds, FT-897, IC-7000 and an IC-2200H. We had three towers up with a Yagi for 20 m/15 m/10 m, Yagi for 2 m and dipoles for 80 m and 40 m. All in all we had another great JOTA/JOTI weekend and the exciting thing is that already, our extremely enthusiastic team of Scout radio operators (with an average age of 17) are planning for next year's event. We were fortunate enough to recruit seven Scouts over the weekend, all interested in doing a Foundation course here in western Victoria next June with the Scout Radio and Electronics Service Unit, so next year will be even better with the extra helpers! In finishing, I would like to individually thank the operators who put in much hard work with putting this great show on: Matt VK2ADF, Nat VK3NAT, Aeden VK3FABA, Luke VK3FLBP, Matt VK3FMCH, Lance VK3FLWW, David VK3GP and Jamie VK3JME.



*Photo 4: Venturer Chris, soon to be VK3FVAC, finding a contact for the Hamilton Scouts under the guidance of Luke VK3FLBP.*



*Photo 5: Venturer Matt, soon to be VK3FMAT, giving Hamilton Scout Leader Jess a few hot tips about using the radio.*



*Photo 6: L to R – Drew from Goroke and Emily from Horsham setting off to find the hidden 'fox' out in the bush.*

Plan NOW for  
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Contact your local  
**Scout or Guide group.**

# Amateur radio, bush walking, photography and fishing in the central highlands of Tasmania

Brian Morgan VK7RR

Everyone who has amateur radio as a hobby almost certainly has one or more other hobbies. Some, such as golf, could hardly be thought of as a hobby which can compliment amateur radio. But a bit of creative thinking could conjure up a golf day with a fox hunt, I guess. Others readily lend themselves to mixing well with amateur radio, from model aeroplanes to car racing, to scouting and so on.

But the subject of this article is amateur radio, bush walking, photography and fishing in the central highlands of Tasmania. My interest in writing such an article stemmed from those published in QST magazine, detailing the walking, photographic and amateur radio activities of the authors. In the case of my wife Sue and myself, the one object which best allows us to share these various pursuits simultaneously, is the ubiquitous pocket dual band radio, the VX-1 by Yaesu.

Let me tell you a little about this radio, just in case you don't know. It is small, about half the size of a cigarette packet. It has a rubber duckie type antenna which is thin and as long as a middle finger. You can obtain a leatherette carry case which makes it semi waterproof. It has a rechargeable three volt battery, plus has an option for a normal AA battery to drive it via a small plug in module with inbuilt voltage converter. One battery will last for several days' fishing, and still have some zap left over. It is rugged. It is reliable. It can survive smoke damage. It is a dual bander, with extended receive. And last, but most important, it easily fits into the top pocket of a fly fishing vest and the antenna is not so large as to risk catching a recalcitrant fly line.



Photo 1: Shiraz time at Penstock Lagoon.

In 1983 I had been invited by the lease holders of the highest point of land in the area to build an amateur repeater for use in search and rescue activities. There was a catch to the offer as it also required me to assist in installing several commercial systems, by doing the tower climbing. But the downside was more than compensated by having free access to a desirable repeater location which I quickly found, during our surveys, provided very good coverage as far south as Hobart, and to parts of the north and north west coast of Tasmania, as well as coverage of many of the hundreds of lakes in the highlands. So now let me set the scene.

The Central Highlands area of Tasmania is festooned with a myriad of lakes and streams, very suitable for fly fishing in the warmer months. For most of my life I have spent holidays and long weekends fishing, walking or enjoying the peace and quiet which only a layer

of snow can bestow. My wife, Sue VK7KSU is a very experienced bush walker and photographer and often accompanies me to a lake, to then go and do her thing with walking and /or photography. Probably 20 years ago, I began to hear rumours that there was a newly licensed amateur and keen fisherman at one of the lakes near to where we had our weekend shack. One night I heard a very strong station on 80 metres and recognised the voice from my long ago school days. Yes, David (now VK7OB) had had the misfortune to share the same school classes with me in the late 1950s and early 1960s. We had then lost contact with each other, save for the occasional word in the street as our work activities were largely unrelated. I knew that David had a national, if not an international reputation as a fisherman of note and had designed a particular pattern of dry fly, which was revered around Tasmanian fly fishing circles. His present ageing Labrador,

Obi, is even named after it. Thus, the time was overdue for us to meet up again and renew an old friendship.

One of the first things I noticed about his fishing apparel was that he had a small rubber duckie protruding out of the top pocket of his fly vest. Yes, he had discovered the VX-1, although I had not until then heard him on a repeater, only on HF. Initially I scoffed at the usefulness of such a tiny radio but I was soon disabused of my scepticism. He offered me the remains of his first VX-1, which had been damaged by a fire at his home QTH and written off. The case showed signs of heat damage, but it did not take much work and the radio was up and running. Its circuit boards were coated with powder from a fire extinguisher, which surprised me at how well that stuff got into a well sealed little radio. Until its dying day, it never looked very nice with its heat damaged case. But it served me well for a couple of years until suffering a fatal heart attack.

So David and I could tick off the following things in common:

1. We both liked to fly fish.
2. We both liked to talk about fly fishing.
3. We both liked to boast about the fish we caught.
4. We don't take our fishing too seriously.
5. We also liked amateur radio.
6. Our wives are amateurs.
7. The four of us were partial to red wine, particularly when consumed at dusk, on the shores of a lake.
8. We all had a long standing interest in the highlands and walking.
9. We have dogs as pets and they enjoy outings, particularly when a large fish jumps out of the water near to them. Warning, fish on hook and dog in water, do not make for a good combination.
10. We could each enjoy the other's success and in the unlikely event that one of us ever fails to catch a fish and the other of us is successful it is likely that we will laugh even though the joke is on us.



*Photo 2: David VK7OB with VX-1 loaded and ready for action at the entrance to his shack, venue for the annual general meetings of CHARCT.*

11. Summer or winter we and our spouses enjoy being out in the countryside.

12. David and I have a good arrangement. He ties good flies for us and I fix our radios.

It will not come as a surprise then, to hear that since his early retirement from the full time work force, David has taken every opportunity to use amateur radio as a means of causing me discomfort. Many Tasmanians would have heard him call me, when he was fishing, and I was working, and then leave the PTT engaged so that all could hear the sounds of landing a large trout. I think that on occasions he is making pretend fish catching noises.

I would like you to believe that this conduct is one sided, but that would not be true. On one occasion he was working on his shack and I took great delight in relaying to him each time I caught a fish. This was particularly appropriate. I had been installing cables in his roof, and noticed a fish surface in the lake just a few metres from the shore.

A quick sprint down the ladder, into his boat,

and I had the fish firmly on my line. He had declined to join me. When I landed the first fish, he changed his mind but I then refused to return to the shore to pick him up. In the space of a few minutes I had landed three fish and all he could do was stand on the shore speaking some strange words to me. He was not very pleased with me that night.

David and Marilyn VK7FMAZ, through their interest in amateur radio and the highlands, have helped to bring about the continuing success of the Central Highlands Amateur Radio Club of Tasmania. Because of their hospitality many visitors from interstate and overseas have been able to experience firsthand the joys of combining these two hobbies. And of course, the Club hosts the bi-annual Tasmanian hamfest which in 2010 attracted almost 200 people to the Central Highlands for a day of amateur radio fellowship. David organises this event, almost single-handedly.

For many years, they were regularly visited by an amateur from the United States whom they first met on 20 metres.

It is not uncommon when I am working a DX station and give my portable QTH, to be asked if I know them.

I cannot tell you how many people have eaten at David and Marilyn's table over the years, but I can tell you that a great many of them have enjoyed the pleasure of fresh trout caught in the lake adjacent to his shack.

Many have pulled up in campers, have pitched tents, have slept in the



*Photo 3: VK7FMAZ, VK7OB and the writer. It is clear who caught all the fish that day.*



*Photo 4: Returning from another successful fishing trip.*

bunkhouse next to the shack, but almost all of them have been drawn there because of the hobby of amateur radio. Small quantities of alcohol have occasionally been known to be consumed late into the night, requiring a large recycling bin to be on hand.

Oh and did I tell you how quiet this area is for working HF DX?

Sometimes it seems that there are not enough hours in the day, with fishing, joining in nets on air, and chasing DX. It is a good thing that other domestic chores can wait until a windy day, literally.

It seems that at the most inappropriate moment, the VX-1 will jump into life with a request for a first hand report on your progress. Often enough, this is fishing speak for, 'I have just landed one. I just called to gloat'.

As mentioned, the basis for our being allowed use of the repeater site was its availability in emergencies. David is a member of the local Fire Brigade and I am closely associated with the communications section of our State Fire Commission. In addition, we have both developed a good relationship with the police and other law enforcement people in our area so that there is no hesitation in calling for our help in an emergency.

Occasionally, therefore, one, the other or all of us, are called in to help with some emergency or other in the highlands. These have included a log truck which caught on fire on a blind bend when its brakes jammed on, a drowning at a nearby lake, a multiple drowning, an inebriated, elderly fisherman breaking his leg in trying to walk on ice wearing Ugg boots, a car running off the road and setting off a large grass fire, missing bush walkers, and so on.

I will never understand why people think they can walk in our central highlands during any time of the year in light tops, shorts and sneakers. We can experience snow at any time and no one should ever take this country for granted, no matter how the day starts off. They should realise that their thoughtlessness is interfering with our fishing. It has also caused lives to be needlessly lost.

On one occasion, David and Marilyn were bush walking near Cradle Mountain and therefore many miles from our fishing lakes, when they came across a badly injured walker. By climbing to the top of the nearest mountain, his little VX-1 was able to call for help and it was not long before the rescue helicopter arrived, following David's co-ordinates of latitude and longitude. At that time the carrying of EPIRBs in Tasmania's highlands was the exception rather than the rule so that this walker was at grave risk had David and Marilyn not been able to secure help.

Now I did mention that we are partial to a glass of red wine, particularly when consumed near the shores of the lake at sunset. We are all exceptionally careful that the one glass does not extend to two or more, because there is always the journey home to remember. In David's case, the best shore to partake of a glass is situated several hundred metres from his shack, from where one can carefully navigate back to his shack, unless interrupted by a fish surfacing in front of us and begging us to put it out of its misery.

It is amazing how quickly the two of us can carefully place our glass on the ground, grab our rod and position ourselves to cast at the errant fish

that has disturbed our concentration, to return a few minutes later, usually with one or other of us having been successful, to continue our discussion and our quiet drink.

I regret to say that the VX-1 whilst very useful has no features which increase our chances of catching a fish. It is very helpful though for us to compare notes and to make fun of several other amateurs who we could be sure would be listening to the repeater but who, surprisingly, are less reliable at rising to the bait of our conversations, than the fish are. One such amateur is a dedicated duck hunter. He religiously refuses to join in any discussion about the prevalence of ducks, when he is at home, some 150 km south of us.

I can remember that when I was first licensed, over 45 years ago amateur radio and fishing did not really work together, due to the size of radios and the obvious difficulties of operating away from mains power. In those days, my hand held radio consisted of a war surplus Motorola BC 611 HF valve radio (more accurately called the SCR 536), with its ON/OFF switch activated by extending or retracting the telescopic antenna, one channel and a range across land of a couple of miles. Oh, and not to ignore a battery life of a few hours, replacements having to be made from surplus unused dry cells?

Imagine how the soldiers of WW2



*Photo 5: Sue VK7KSU on Collins Cap north of Hobart, camera at the ready, VX-1 secure in her coat pocket. Too cold for fishing that day, but not too cold to be out enjoying the fresh air.*

would have felt had they been able to use a radio which weighs a few grams, with batteries little bigger than an AA cell, which last all day, versus the so called Handie Talkies which weighed several kilos with batteries installed, and were the size of a large brick.

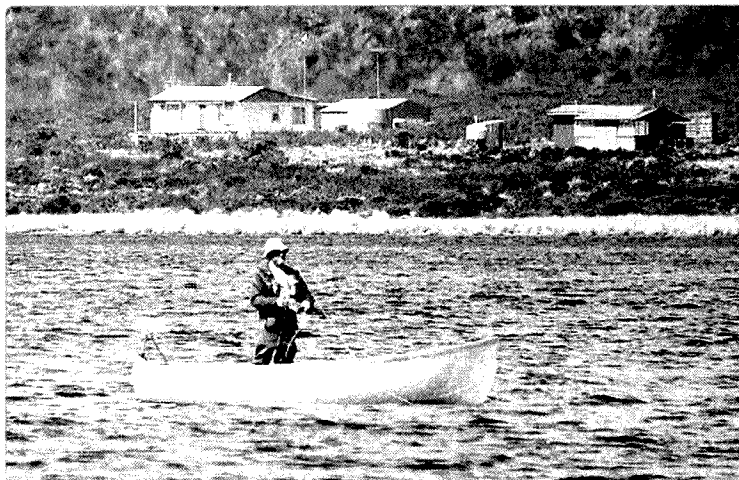
We are lucky to live in the solid state age where tiny radio devices are cheaply available, have amazing flexibility and versatility which gives us options of enjoying our various hobbies in any manner of ways, which were not even dreamed of 40 years ago.

So on any reasonable weather day, it is not uncommon to find two sprightly middle aged men, accompanied by their much younger spouses and sometimes by aging canines, walking the shores of one or other of the lakes of Tasmania's central highlands. Whether separated by 50 metres or 50 kilometres we are always able to compare notes by virtue of the incomparable little VX-1. If any of us go our separate ways for half an hour or half a day, the radio keeps us in contact, so that we can arrange where and when to meet

up at the end of the day. No matter what, we are only a call away.

I can tell you that sometimes it takes great dexterity and concentration to answer, particularly when you have a fish on the end of the line, a fishing net in the other hand, you are chest deep in water, your waders are leaking, the cold water is affecting sensitive parts of the anatomy, the march flies are being pervasive and you are losing sensation in your hands due to the cold.

So when you next see a VX-1, be suitably amazed at the versatility and reliability of such a little radio. At the same time, you might spare a thought for David, Marilyn, Sue or myself who are probably waist deep in freezing water, playing another of the mighty Tasmanian rainbow trout or walking in some of the most beautiful countryside imaginable. *Photos 1, 2, 3 and 4 were taken by Sue VK7KSU.*



*Photo 6: The writer fly fishing near the shore of Little Pine Lagoon. (Photo by Martyn VK2NFP/7 another keen fly fisherman).*



# OXLEY REGION AMATEUR RADIO CLUB Inc PORT MACQUARIE NSW

## 36th ANNUAL FIELD DAY JUNE LONG WEEKEND SATURDAY & SUNDAY 11-12th JUNE

### Our 40th Anniversary 1971-2011

**GENERAL INTEREST DISPLAYS  
TRASH & TREASURE SUNDAY ONLY  
TRADE DISPLAYS SUNDAY ONLY  
FOX HUNTS SAT & SUNDAY**

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**CONTACT FIELD DAY COORDINATOR: HENRY LUNDELL VK2ZHE. Email: [lundell@tpg.com.au](mailto:lundell@tpg.com.au)  
Location: TACKING POINT SURF LIFESAVING CLUB MATTHEW FLINDERS DRIVE PORT MACQUARIE**



# Presentation of Long Service medals for WIA members of Rockhampton & District Amateur Radio Club (RADAR)

*Les Unwin VK4VIL*



*Photo 1: The WIA 25 year medal.*



*Photo 3: A number of recipients of the medal with WIA President Michael Owen VK3KI.*

During the recent visit to Rockhampton of Wireless Institute of Australia President Michael Owen VK3KI, the Rockhampton and District Amateur Radio Club (RADAR) took the opportunity to present 25 year WIA long service medals to eighteen amateurs in the region as part of the WIA 100 celebrations.

Recipients included Len Effeney VK4DI who has been with the WIA for over 60 years, Ray Elliot VK4BLK, 57 years, and husband and wife team Gordon and Mary Adams VK4GM and VK4PZ respectively, holding in excess of 90 years membership between them.

The medals, produced locally, were an initiative of well known central Queensland amateur Clive Sait VK4ACC, who also organized the Queensland President's luncheon, where most of the medals were presented.

President Michael also cut a WIA Centenary cake, specially produced for the occasion. Sanction by the WIA was gained for the presentation. While Michael indicated the value of recognizing the service of long standing members, he advised that the WIA, understandably, does not hold personal histories dating back a couple of decades.



*Photo 4: Mary VK4PZ is ecstatic to receive her medal from the WIA President Michael Owen VK3KI.*

Consequently, he saw merit in similar presentations being made by clubs who held the necessary information and recommended this activity to other clubs. Amateur Radio New South Wales, for example, presents 40 year service certificates.

Information regarding these medals can be gained from Clive Sait VK4ACC QTHR.

Editors note: Len VK4DI became a SK on 1 February, 2011.



*Photo 2: A very proud Ray Elliot VK4BLK with his medal.*



*Photo 5: Clive Sait VK4ACC, Michael Owen VK3KI and Mary Adams VK4PZ cutting the Centenary Cake at the Queensland luncheon.*

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

[arv@amateurradio.com.au](mailto:arv@amateurradio.com.au)

### The Annual Reports

These have been issued along with a notice of the Annual General Meeting of WIA Victoria trading as Amateur Radio Victoria at 8 pm on Tuesday 17 May, 40G Victory Boulevard, Ashburton.

They can be found via a link made available to e-member users with email addresses since early April, posted as a hardcopy on request and through the mail to non-email address members.

In the Secretary/Treasurer Report is reported another very successful year which started in 2010 with the Centre Victoria RadioFest held again at Kyneton, continued through the year with Foundation weekend training and assessment sessions and another upgrade course.

In the accompanying financial reports our position is very sound and the fruits of our re-investments are now showing very good results. Your Council again sees no reason in the foreseeable future for membership fee increases.

The grant from the Office of the Emergency Services Commissioner to rebuild facilities at Mt Stanley destroyed by fire during the Black Saturday emergency is discussed by Ross VK3CE in detail.

The VK3RNU repeater at Mt Stanley was destroyed in the bushfires. The burnt remains have been removed from the site. The story continues with the

President Jim Linton VK3PC describing it as the major project of the year.

Terry Murphy VK3UP, the Event Coordinator and gang did extremely well to win, for Amateur Radio Victoria, the inaugural "Tune-in the world – amateur radio gets people talking" WIA National Field Day.

Amateur Radio Victoria featured heavily during the WIA centenary celebrations in early May through the efforts of David McAulay VK3EW, Noel Ferguson VK3FI, Terry Murphy VK3UP and Keith Proctor VK3FT.

### Thinking caps for Centenary

We began as the Amateur Wireless Society in 1911 and soon after adopted the name Wireless Institute Victoria. In this milestone year some thought has been given to how best to mark the occasion.

First is a special callsign to be run through the month of November with an appropriate QSL card. Others include a global first event on the VK3RTV repeater, a formal dinner or informal BBQ, a day or weekend of activation in the National Parks.

It would be wrong to dismiss the 100<sup>th</sup> anniversary of our organisation but consideration of such occasions, do need planning time and plenty of publicity to be a success.

### Education activities continue

Become a radio amateur, enter an exciting communications hobby through the Foundation licence.

The study and operational practice guide book for the Foundation licence covers all you need: mail orders \$26.00.

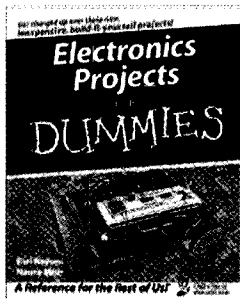
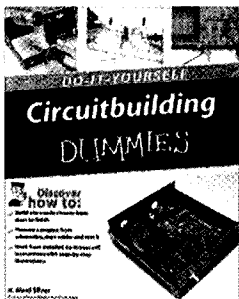
The next weekend course is 23 & 24 July. Inquiries to Team Leader, Barry Robinson VK3PV, either via email to [foundation@amateurradio.com.au](mailto:foundation@amateurradio.com.au) or phone 0428 516 001.

We welcome the return of Kevin Luxford VK3DAP as the instructor, who has recently successfully delivered another Bridging Course taking those already qualified at the Foundation level to that required to be found competent for the Standard Licence theory.

In all five progressed through his tailored class held at 40G Victory Boulevard, Ashburton on a number of weekday nights. Three attempted the assessments and were found competent. The remaining two will undertake the written assessments shortly.

### Membership inquiries

To join and support the state-wide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request.



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## Moorabbin and District Radio Club

PO Box 58 Highett 3190

VK3APC

# HAMFEST 2011

Saturday 7th May 2011

**Location - BRENTWOOD SECONDARY COLLEGE**

Watsons Road, Glen Waverley. Melways Reference 71 D7 (Enter via Heath Street.)

**\* GREAT VENUE \* PLENTY OF SPACE \* MELBOURNE'S BIGGEST \* MAJOR AND MINOR DOOR PRIZES**

The Moorabbin & District Radio Club have much pleasure in inviting you to participate in VK3's BIGGEST ANNUAL HAMFEST.

Snacks and hot food will be available.

Talk in via VK3REC 2M repeater on  
147.175MHz and on 439.900 70cm VK3RSE

### PRIZE DRAWS

Major and minor draws during the day. Every entry ticket goes into the draw. Additional tickets on sale.

### SALES: NEW

Importers and suppliers of amateur equipment & accessories.

### SALES: USED

Preloved ham gear & accessories,  
PC's & bits & pieces.

**All inside and undercover. Demonstrations of Radio equipment and accessories.**

**ENTRY ONLY \$6.00 (Doors Open 10am – entry tickets on sale prior)**

**( INCLUDES FREE DRAW IN THE MAJOR DOOR PRIZE..... )**

Tables available at \$20 each, (1.8m long) includes lunch voucher.

For further info or to book a table please contact:

Lee Moyle, VK3GK. Tel: (03) 9705 1051. Fax: (03) 9705 1054.

Email: [vk3gk@aanet.com.au](mailto:vk3gk@aanet.com.au)

Graeme Lewis, VK3GL. Tel AH: (03) 9702 1199 or Mobile (0418) 171601

Email: [vk3gl@bigpond.com.au](mailto:vk3gl@bigpond.com.au)

Webpage - [www.mdrc.org.au](http://www.mdrc.org.au)

## Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

Our talk in March was given by Iain VK5ZD about his experiments and experiences with SHF radio.

He had antennas at the meeting for 3.4 GHz, 5.7 GHz and 10 GHz and he had people lined up at a distance so he could actually demonstrate contacts on these frequencies.

On the night we heard a couple of contacts from the Hummocks, over 100 km away and another from a little nearer than that. Iain also told us about the records he and some of his friends have made recently, with the equipment he had on show. They have not had the mobile record confirmed yet but it is over 120 km on 10 GHz. No doubt we will hear more of this in the future.

It was a most impressive demonstration and will possibly inspire some more of the AHARS members to try some SHF. There are some members of AHARS already experimenting through one of the other clubs in Adelaide.

There is always another way to enjoy amateur radio.

One of these ways is as part of the John Moyle Memorial Field Day held over the weekend of 19/20 March at Womberoo near Swan Reach.

Eleven members spent the whole weekend there and three more joined us on Sunday. Rob VK5RG was there early enough to make a few contacts while Richard VK5ZNC and Sue VK5AYL arrived in time to help

*Photo 1: The 10 GHz dish set up for the demonstration of SHF operations.*



*Photo 3: General view of "Womberoo", in bushland near Swan Reach, Murray Mallee country.*

with taking down the antennas and packing away.

It was interesting to see that this year 80 metres, which had been amazingly good for the last two years, was much less busy this time. 15 and 10 metres are still disappointing. In fact there were not a lot of people on the bands through the night this year, but some of our operators were there to catch the beginning of the night owl section, 11.30 SADST.

*Photo 2: The VK5BAR crew at the dinner table. L to R: VK5s Christine CTY, Karsten ZKT, Kim FNET, Janet, David AAH, Sue AYL, Robert ZHW, Tina TMC, Richard ZNC, Jenny FJAY, Kevin AKZ, Rob RG, and Deidre. Photo by John VK5EMI.*



The weather was very kind. It was pleasantly warm under the tents with a bit of a breeze now and then. The only bother was the March flies – how do they know the date?

Kevin VK5AKZ used the suggested computer log program at the end of the contest to make it easier to submit the logs.

Thanks to all who participated.



Tim Mills VK2ZTM  
vk2ztm@wia.org.au

A month to go until the 36th annual Oxley Region ARC field day which will be held in Port Macquarie on Saturday 11 and Sunday 12 - the June long weekend. This year it will be held at the Tacking Point Surf Club which is in Mathew Flinders Drive, Lighthouse Beach. The dinner on Saturday night will be at the Tacking Point Golf Club at 6 pm. Over the same weekend the Winter Sun Festival is being held with many thousands expected to be in town - hence the change of venue - and this will stretch the available accommodation - book now if you need a bed - you might be lucky. The 40th anniversary of the formation of the club will be celebrated over the October long weekend. Amateurs on the Mid North Coast now have the advantage of a recently opened Jaycar company store

in the Port Macquarie industrial area.

The Waverley ARS will be conducting assessments this month over the weekend May 14 and 15. Details at [education@vk2bv.org](mailto:education@vk2bv.org) A Saturday morning in mid July will be their annual auction at the Rose Bay club rooms. Liverpool & District ARC meet on the second Wednesday evening at the QTH of the President. St. George ARS will be celebrating their 40th anniversary with a dinner on Wednesday May 4: [www.sgars.org](http://www.sgars.org)

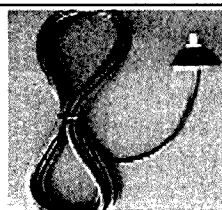
Summerland ARC will have a Standard course this month. Then SARCFEST on August 7. The annual 40 metre antenna Shoot Out on September 25. In October across the weekends of the 8/9 and 15/16 there will be an Advanced course [www.sarc.org.au](http://www.sarc.org.au)

Orange & District ARC are in the middle of the special event call VI50AOA as part of their 50th birthday celebrations. The Riverina field day is set down for Sunday July 31 at Albury/Lavington.

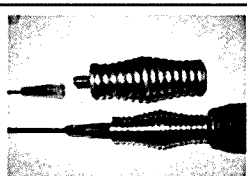
The next ARNSW Trash and Treasure event at Dural will be on the last Sunday this month - May 29. Also available in the morning is the regular exam assessments. The afternoon has the Homebrew and Experimenters gathering. Big thanks to those who continue to provide donations of their unwanted electronic items. Profits from sales of such items enables ARNSW to provide a free sausage sandwich from the BBQ to everybody in attendance.

Continued on page 47

## TET-EMTRON



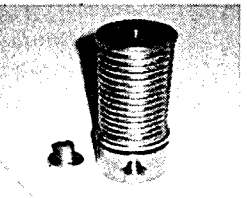
Base and Lead sets.



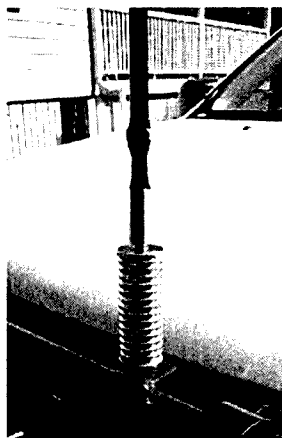
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# DX - News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

From the following report by Antonio Gonzalez EA5RM, a lot of time has been given to ensure that the two DXpeditions already announced can activate the next new entity.

*After a long way, a lot of hard work and several successful meetings with Southern Sudan Government officials of various Ministries, the first amateur radio licence has been issued by the new government.*

*Southern Sudan Government officials now understand amateur radio and they are ready to change the actual rules and regulations as soon as possible, looking to simplify the process of obtaining a licence, so that everyone can enjoy amateur radio in this new country.*

*We have the cooperation of both Ministries to update our licence if there is a new prefix that will be assigned by ITU and we will be in permanent contact with the proper department helping in the development of amateur radio in Southern Sudan.*

*Our DXpedition will start on 9 July from Juba so please stay tuned.*

*I want to thank the Government of Southern Sudan officials for their cooperation and my whole team for support.*

Another welcome news item for this part of the world, from Rick, NE8Z who informs us that he has been issued a "pilgrim visa" to enter Mt. Athos and will be visiting Monk Apollo (SV2ASP/A) on 9-16 April.

*"I will be taking him radio equipment accessories to compliment his present ham radio station", Rick says, "Monk Apollo has shown the desire to operate from portable locations in Mt. Athos so that he can work Asia which is partially blocked by a mountain behind his Monastery".*

The Southeast Michigan DX Association has adopted the project of helping Monk Apollo to improve his permanent and portable stations.

Details on the project and a PayPal link for donations can be found at <http://live.semdxa.org/> (click the "Monk Apollo Project" button).

The Oceania Amateur Radio DX Group, ODXG, is planning an expedition to Vanuatu, YJ0, 28 September to 14 October. Participants are being sought. Organizer VK3QB says, *"Being reasonably rare DX, coupled with being a sought-after multiplier for the Oceania DX Contest should prove a good formula for high QSO rates, good pileups and fun for new operators learning the ropes."* He says the timeline allows plenty of time for sightseeing and relaxing too. Plans are still developing but multiple stations from two locations on the island of Efate (Port Vila) are likely. It is a four-hour aeroplane flight from Melbourne, Australia. There are also regular direct flights from Sydney and Brisbane direct to Port Vila. The cost is currently estimated at about \$2,000 per operator, which includes air fares from Australia. Contact Chris VK3QB at this email: [vk3qb@wia.org.au](mailto:vk3qb@wia.org.au) or telephone 0429-187-593 with a brief overview of your interest and relevant or special skills (operating or other) that might be useful on a successful DXpedition.

Serge UV5EVJ, plans to be in Entebbe (KJ60fa), Uganda from March 21 to June 8 and will be QRV as 5X1VJ. His licence is good until the end of June. Serge is using an FT-850 running 100 watts into a Windom, which has a high angle of radiation, *"so don't expect strong signals"* he says. Activity will be on 7 to 28 MHz on CW and SSB. QSL via UV5EVJ either via the bureau or direct to Sergiy Ivanovich Shpak, P.O. Box 2378, Dnepropetrovsk 49040, UKRAINE with SAE and US\$2 for postage. His local post office at home does not accept IRCs.

Petr OK1CZ, plans to attend this year's Dayton Hamvention and afterwards go to Puerto Rico and

the US Virgin Islands. First stop will be from KP4 from May 23 to 25 and then from May 26 to 31 from KP2, including the CQ WPX CW test. As of the moment he does not know what calls he will be using but could be KP4 and KP2 /OK1CZ or /AA1TR with the possibility of a special call during the contest.

Several months ago there were rumours of a group planning to operate from Socotra Island (AF-028). Those not familiar with IOTA may not realize this unique island counts as Yemen (70) for DXCC purposes. It looks like the rumour of a group planning to go was true as someone has a website <http://7o7s.de/> It has since been pointed out that the web page was created a long time ago and there has been no activity on the site for years!

Time on Marion Island by Pierre, ZS8M, is coming to a close. He expects to QRT on May 5, as his team departs the island. The supply ship, which will be taking his team off the island, is expected to arrive on April 11. *"I hope to be able to operate after working hours"* prior to leaving.

DX World.net reports Wild Bill N2WB is planning a DXpedition to Honduras in the April/May time period.

Alan VE1AWW is heading back to Sable Island where he will be QRV as VE1AWW/CY0 in April through June.

Nigel ZL2SEA is now on New Caledonia and plans to be QRV as FK4WBT for about a year. During his evenings he frequents 20 metres, typically around 0830 Z to 0930 Z, usually earlier on Sundays.

DX0DX. After the failed attempt in January, the DX0DX expedition to the Spratly Islands ([www.dx0dx.net](http://www.dx0dx.net)) has been postponed until next year. The team leader (Chris Dimitrijevic VK3FY) says he is *"determined to recover as much of the costs as possible to put things right for all the team members, sponsors,*

organisations and individuals involved", and "to put DX0DX off until next year will allow me time to clean up the situation from the first attempt". The new target date is April 2012.

Tom Smith ZC4TS reports he has gone QRT "for good". He has disconnected his rig and taken down his antennas and will be heading to the US in two weeks. QSL via NI5DX. Currently the only amateur radio station QRV from the **UK Sovereign Bases on Cyprus** is ZC4LI.

EF8M from the **Canary Islands** will be on for the **WPX CW Contest** May 28-29, single op all band high power. QSL via UA3DX.

**QSL 8P6QL:** The Yasme Foundation is not the QSL manager for any current or recent 8P6QL operation. The Colvins (Lloyd W6KG and Iris W6QL) used the callsign back in October 1981. Yasme can

handle QSLs for the 1981 operation, but nothing since.

QSLs from **ZL8X:** the team reports "We got our first boxes with QSL cards from the printer and have already started to send the first cards out. DX clubs with a special QSL service for their members (GDXF, SDXF and DDXG) were the first who got them. Followed by another 1000 letters last week we continue working on the over 4000 direct request which came through OQRS". All QSOs were uploaded to LoTW the very same day the cards were received from the printer. The latest information from the ZL8X team (10 March) can be found at [www.kernadec.de](http://www.kernadec.de)

Dave A92IO (EI3IO) has posted a note on his QRZ.COM page saying "Due to the deteriorating situation within the Kingdom of Bahrain, it is becoming increasingly difficult to travel within the country. Therefore

*please do not send QSL requests to my Bahrain address (PO Box 31183) until further notice. Also please do not send to Ireland for the time being. At present all QSOs are confirmed by ARRL's Logbook of the World for DXCC and by eQSL for WAZ etc. Sending QSLs via EI3IO through the bureau system (not via the A9 bureau) is also OK."*

Good luck in the pile-ups!

Special thanks to the authors of *The Daily DX* (W3UR), *425 DX News* (11JQJ) and *QRZ.DX* for information appearing in this month's *DX News & Views*. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)



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# VK6news

John Ferrington VK6HZ

## Welcome to VK6!

I would like to start by thanking Keith for the last several years of compiling the VK6 Notes. I know I for one, have always looked forward to reading about the goings on in our great state each month. I hope I can continue the momentum that Keith has started.

Hi. My name is John Ferrington, my call sign is VK6HZ. I have lived in VK6 for the last nine years. My wife is a native sandgroper. It is her fault I am in WA. I, like so many who call WA home, am originally from VK2, more specifically the Blue Mountains. It is people like Jim Jones VK2AUX (SK), Geoff Donnelly VK2EGD, John Marshall VK2EGI/GI, and Brendon Austin VK2BCQ, who ignited and nurtured my passion for radio all those years ago that helped me obtain my Novice licence, VK2VOX, back in 1984 at the age of 18.

Enough about me. What about VK6?

## Cavity Modification and Tuning Day

March 5 and 6 on the WARG (WA Repeater Group) calendar was the Cavity Mod and Tune days at the Peter Hughes Scout Communications Centre in Cannington WA.

Arranged by VK6TWO Heath, the day was to stock take and audit the number and type of repeater cavities available to the group for a number of upcoming installations and for optimizing performance and reliability of the current operational repeaters.

Thanks to donations of second hand high band combinations, work was also undertaken to reconfigure these units for amateur radio installations.

Members and non-member alike arranged



Mon VK6FMON keeping a keen eye on progress.

the Scout hall into a production line and work began. Under the watchful eye of self-appointed quality control officer, coffee maker and runner Monique VK6FMON, tasking of the various stages was allotted to various members (no one was game enough to argue the position, Mon had a big stick).

First item on the agenda was to prepare the die cast boxes for the tops of the cans. Armed with drill and hole saw kit, Marty VK6FDX (below) and Jon VK6FJON went to work like men possessed and turned the boxes into items that reminded us of a particular type of cheese.

Link cable construction was left to Craig VK6FLAM. Along with these cables, Craig also had the new Kellerberrin repeater and APRS digipeater onsite so that cavities could be set up and configured. Steve VK6CS made the mistake of putting his head through the door on Saturday morning to say a quick "g'day" and ended up staying for the two days. Put to work on the Kellerberrin cavity, the task had him on his knees a number of times. Whether he was praying for the can to work right or he was just getting up close and personal, well that was anyone's guess. I can confirm that Pepsi and pizza had something to do with his long term stay.

A surprise visit from Dennis VK6KAD had tools down for five minutes allowing everyone to have a chat with him. Dennis has not been well for some time and it was great to see him up and about. He kept a close eye on Steve whilst the Kellerberrin cavities were being attended to.

Marty VK6FDX hard at work!



The weekend eventually came to a close about 5 pm on Sunday. Everyone went away with a better understanding of the cavities and their application. Thanks must go to all who attended and made the weekend a success: VK6TWO, VK6FMON, VK6FLAM, VK6LV, VK6FDX, VK6ZRW, VK6CS, VK6FJON.

Thanks guys. Sounds like you had a productive weekend!



Steve VK6CS tuning the new Kellerberrin cavities with Denis VK6KAD in the background.

## NCRG

The last few months have been rather busy at NCRG. We have a newly elected committee. Congratulations to Richard Beck VK6BEC our new President, Gerhard Mueller-Dorn VK6GMD secretary and Anthony Lumley VK6AL Treasurer. Well done guys. We look forward to your leadership for NCRG.

Contest season saw the club station get a decent workout in several contests. The club entered the CQWPX contest in the Multi-1 category. I am not sure of the final score as I have spent the last week of March at Rottneest Island with my family.

Well that just about wraps up another month from VK6 and zone 29! I look forward to bringing you the news from around VK6 next month.







# 2011 WIA Urunga Radio Convention

Ken Golden VK2DGT  
krgolden46@hotmail.com

See you at **Urunga Radio Convention** on again this Easter weekend, Saturday 23 and Sun 24 April 2011, *Senior Citizens Hall* Bowra St. Urunga.

The longest running Fox Hunt Field Day in Australia - two days of *Fox Hunting*.

Quizzes, raffles, and pre-loved gear, displays, enquiries welcome.

CHADARC will cater for lunches again this year. Free tea and Coffee available for those registering, (Numbers required for optional meal on Saturday night at Bowling Club, notify Committee).

The old cups from the early days are on display at the convention, and other times at *The Ocean View Hotel* where some of the early conventions were held.

An adjoining lounge is available for those that want to get away from the activities.

Urunga is a quiet village ideally suited to Fox hunting. It's a very relaxing environment on the Kalang River, and has old style charm, ideal for families.

Close by is Coffs Harbour and Bellingen, or perhaps a drive on Waterfall Way to Dorrigo and the National Park "Sky walk", picnic areas and lookouts,

Visit the Golf or Bowling clubs, or walk to the Ocean on the meandering Footbridge for a spot of surf fishing

Check "Urunga Radio Convention" web page  
<http://www4.tpgi.com.au/goldy2/>



*Rodney Somerville VK2TI and Ken Golden VK2DGT ready for the 2 metre mobile hunt.*

*40 metre foxhunt participants: Chris Williams VK2YMW, Rodney Somerville VK2TI, Carl Winkler SWL, Graeme Obrien VK2FA, Bryan Ackerly VK3YNG, Geoff Pages VK2BY.Y.*



## Bundaberg Amateur Radio Club

*Gail Lidden-Sandford*  
Secretary

**Bundaberg Amateur Radio Club turns 50 this year.**

***And they're looking for past members to return home.***

On a warm spring evening of 21 September 1961 a group of 12 amateurs met in Bundaberg and created an amateur radio club, adopting the aims of the Qld WIA and setting the dues at one pound.

BARC has remained active and a continuous member of the WIA since

that date and is proud to announce they're having a birthday party in 2011 to celebrate 50 wonderful years.

The President of Bundaberg Club, John (Rusty) McGrath VK4JM, who incidentally was one of those at the inaugural meeting, wishes to extend an invitation to friends of the club to gather in Bundy for the festivities.

He said emails would be circulated to club Secretaries asking for notices in newsletters and radio

news programs in an effort to locate our past members who have moved away from the area.

The club intends to hold a reunion luncheon so that old friends can return to Bundaberg to meet and recall the past and he urged anyone with ties to the Bundaberg club over the years to watch the website [www.barc.asn.au](http://www.barc.asn.au) and follow the 50<sup>th</sup> anniversary links for information on the dates and events.



# Barcfest 2011

## Mt Gravatt Showgrounds

1644 Logan Road, Mt Gravatt QLD. 4122

## Saturday 7 May

Doors open 9.30 am

Admission still only \$7.00

For information and site bookings

Contact Les VK4SO on 0411 729 642

Email: [parkerlf@optusnet.com.au](mailto:parkerlf@optusnet.com.au)

Tea, coffee, cold drinks etc. will be available at the venue.

# AMSAT

David Giles VK5DG  
vk5dg@amsat.org

## 'F' is for ....

The fickle fist of fate was felt in the failed launch of NASA's Glory mission and the three cubesats with it. These satellites were described in last month's column. Also this month is news on the start of AMSAT-NA's new satellite and more on AMSAT-UK's FUNcube.

## Failure

Three minutes into the flight of the Taurus XL rocket, the ground crews monitoring the launch knew they had a problem. A fairing separation system that is used to deploy the satellites failed to separate and the rocket crashed into the southern Pacific Ocean. Of the nine Taurus rockets launched there have been three failures. These have been in the last four launches costing over US\$700 million in lost satellites (not counting the cost of the rockets themselves). The last two launches have both had fairing separation failures despite the manufacturer spending two years to correct the problem. The fairing is an outer shell that protects the satellites as the rocket accelerates through Earth's atmosphere. In this case the fairing did not separate so its extra mass prevented the rocket reaching orbital velocity.

The makers of KySat-1 are hoping that NASA will make another ride available. There were two versions of KySat made and it would only take six months to transform the engineering version into a flight ready version. If not there are other missions in development (1). The other cubesat websites do not have any further news at this stage.

## Fox

AMSAT-NA has started development on the Fox project. Fox will be a 1U size cubesat with a U/V FM transponder which will be a replacement for AO-51. The primary aim is cram in a cubesat the functionality of AO-51's FM voice

transponder with enough power output to be used with handheld radios and antennas. This means there will be 1/16<sup>th</sup> of the volume and 1/5<sup>th</sup> of the surface area available compared to AO-51. AO-51 mass was 11.1 kg and Fox will be 1 to 1.3 kg. It will use a software defined transponder (SDX) of similar design to ARISSat-1 so that it could be reconfigured for flexible telemetry formats and linear or digital operation for future missions. The Fox developers hope to demonstrate a superior communications capability to other cubesat designers so they can use it for their missions. So far it seems that each cubesat has its own communications system with some of them being quite ineffective or needing specialised hardware or software. Most likely Fox will use telemetry protocols already proven by previous OSCARs.

The aims for Fox are a 800 km low Earth orbit, 500 mW transmitter on 2 m, digital uplink for commands and digital downlink for telemetry, magnetic stabilisation and deployable solar panels. SEEDS (CO-66) demonstrates that a 1U size cubesat can generate enough power to support an FM downlink of the order of 450 mW, there probably is not enough power to also support a receiver and digital signal processor. Fox will use deployable solar panels to increase the power budget. Deployable solar panels have been used successfully before on CUTE-I (CO-55) and Delphi-C3 (DO-64). There will also be enough room left over to fly an experimental payload, similar to the "This space for rent" sections of the microsat series (Oscars 16 to 19).

AO-51 was not built entirely by members of AMSAT and Fox will follow the same route. This time AMSAT members will be mentoring 34 engineering students at the State University of New York to work on parts of Fox.

The Fox designation is because it will be the sixth phase 2 satellite from AMSAT-NA. The previous five Phase 2 satellites are AO-5, AO-6, AO-7, AO-8 and AO-51.

An article in the Jan/Feb 2011 issue of the AMSAT Journal by AO-51 controllers Mark Hammond N8MH and Colin Hurst VK5HI explained the historical trends of AO-51's battery capacity. The bottom line is that after six years in space, AO-51's battery capacity has reduced to 15% since launch (as at May 2010, so it is likely to have further reduced). This is not enough to sustain AO-51 transponders during eclipse periods as operators now know. Thankfully none of the battery cells have short circuited as has been a sign of the nearing demise of previous satellites (yet). Time will tell if AO-51 will still be usable by the time Fox is launched; currently slated during 2013.

## FUNcube

The FUNcube website continues to be updated as the project progresses. There are now working documents such as a block diagram and specifications. For the latest news and even a chance to be involved there is a Yahoo! Group set up. Details on the website (2). The FUNcube dongle has its own website (3). This is the wideband receiver that covers 64 to 1700 MHz and just plugs into a computer USB port.

Some parts of FUNcube are commercially manufactured by Clyde Space who have supplied to many missions. SumbandilaSat SO-67 was supplied with solar panels manufactured by Clyde Space. Ever had the urge to build your own satellite? Clyde Space has an online shop where you can purchase cubesat parts for every section of the cubesat except for your own experiment. They even have prices but beware as rocket science is not cheap.

## Final Pass

The ground station of CUTE-1.7+APD II (known to the rest of us as CO-65) has added the message 'Ganbare Japan' to its telemetry stream. Ganbare means 'Show spirit' or 'Hang in there' as a

message of encouragement. And don't they need it.

Rockets still fail even after all the decades of experience the US has had. Hopefully the second KySat will be able to go into orbit.

## References

- (1) [http://www.trailblazeronline.net/index.php?option=com\\_content&view=article&id=2284:kysat-1-crashes-down&catid=42:news&Itemid=70](http://www.trailblazeronline.net/index.php?option=com_content&view=article&id=2284:kysat-1-crashes-down&catid=42:news&Itemid=70)
- (2) <http://uncube.org.uk>
- (3) <http://www.uncubedongle.com/>



## AMSAT-VK

### AMSAT Co-ordinator

Paul Paradigm VK2TXT  
email [coordinator@amsat-vk.org](mailto:coordinator@amsat-vk.org)

### Group Moderator

Judy Williams VK2TJU  
email [secretary@amsat-vk.org](mailto:secretary@amsat-vk.org)

### Website

[www.amsat-vk.org](http://www.amsat-vk.org)

### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katharine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

## Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

## WIA news Continued from page 4

Ken holds a Bachelor of Science degree in electronics engineering and worked for KDD, now KDDI, in the satellite communications field for many years. During that time he worked in many countries, including five years stationed in the United Kingdom working with the International Maritime Satellite Organisation. He retired from KDDI in 2002.

Ken is currently head of the JARL International Section on a part time basis. He was first licensed as a radio amateur in 1967 and today continues to have an active interest in DX and contests.

## Coming Events

### 10-12 June

VK4 – Far North and North Queensland Amateur Radio Gathering at King Reef Resort Kurrimine Beach.

### 9-10 July

VK3 – GippsTech 2011 VHF/UHF and microwaves technical conference, Churchill.

### 16 July

VK3 – Gippsland Gate Radio & Electronics Club Hamfest, Cranbourne.

### 31 July

VK2/3 – Riverina Field Day, Lavington.

### 7 August

VK2 – SARCFEST, Lismore.

# Contests

Phil Smeaton VK4BAA/VK4KW



Mike VK4DX enjoying the score during the WPX SSB contest at VK4KW.

Welcome to this month's Contest Column.

## Did you support the VK Team in Beru?

If you did – then it is more than I managed to do. Unfortunately, storm damage put my station onto the endangered species list for a while, taking quite an amount of effort to get the whole station up and running in time for this year's WPX SSB contest. A team of hardy souls descended upon VK4KW over a series of weekends to cut, solder and weld the station back into life again. My heartfelt thanks go to the whole '4KW team for pitching-in and giving-up their spare time.

The previously announced VK Beru Team finally emerged as: Barry VK2BJ, Vlad VK2IM, Les VK4BUI, John VK4EMM, Alan VK4SN, George VK4XY, Alan VK6BN, Mirek VK6DXI, John VK6HZ and Alan VK8AV.

However, as the news of the horrors emerging from Japan became known, contesters were asked to keep key frequencies clear for JA emergency communications on: 3525, 7030, 7043 and 7075. From the little I heard, the bands were not very kind to Beru, with 10 m being mute most of the time and 40 m also being fussy via either pole to the UK. The Canadians were

## Contest Calendar for May 2011 – July 2011

May	14/15	CQ-M International DX Contest	CW/SSB
	7	VK/Trans-Tasman 80 metre Phone Contest	SSB
	28/29	CQ WW WPX Contest	CW
June	4/5	IARU Region 1 Field Day	CW
	11	Asia/Pacific Sprint	SSB
	18/19	Winter VHF/UHF Field Day	All
	18/19	All Asia DX	CW
	25/26	King of Spain Contest	SSB
	25/26	Marconi Memorial Contest	CW
	25/26	ARRL Field Day	All
July	9/10	IARU HF World Championship	CW/SSB
	16/17	CQ Worldwide VHF Contest	All
	30/31	RSGB IOTA Contest	CW/SSB

Note: Always check contest dates prior to the contest as they are often subject to change.

showing a heavy presence on the bands however, with VE appearing wherever the VFO came to rest.

VK Team Captain John VK4EMM, managed to snare just over 530 QSOs, while Alan VK3SN bagged 150 QSOs in his limited time on the rig. Vlad VK2IM also logged just over 500 QSOs, reporting 400 QSOs in the first 10 hours or so, and then the rate dropping somewhat for the remainder of the contest. Mirek VK6DXI worked 400 stations in the 14 hours that he managed to stay awake. George reports logging just under 250 QSOs and some reasonable propagation – glad to see that someone got some!

Ah well – maybe I will play in Beru in 2012 if all goes well....

## John Moyle Field Day Contest

As I write this section, it is the week following the John Moyle contest. I spent the Moyle weekend trying to get ready for the WPX SSB contest this coming weekend. It would have been time better spent if I had taken the weekend to build an Ark instead. From the Friday evening until the Sunday afternoon, the station was either being pelted with rain, or Mother Nature was thinking about soaking us with rain and sent low cloud instead until the rain clouds turned up. As a consequence of this blatant disregard, I got seriously

soaked doing the preparation work. However, at least I could scamper away to the shack and seek solace in the relative sanctuary thereof. Not so the hardy souls who had set-up a portable station out in the sticks. I worked a few such souls during the contest – but only VK4 seemed to be affected by damp weather! Stations in VK2 and VK3 reported sitting in open tents, enjoying beautiful sunny weather! It rained so hard in VK4, that I had reports from EU on 20 m saying that my signal had a strange noise being transmitted with it. The rain was so loud on the roof of the shack that I gave up in the end and went to see how Mr Boag was doing instead.

I hope that the John Moyle contest weekend went better for you than it did for me...

## CQWPX SSB 2011

Did you get onto the bands for this one? As I write this part of this column, the sound of the contest is still ringing in my ears as it finished some four hours ago at the VK4KW station. Amidst the groans of ecstasy for prefix hunters and DXCC collectors alike, the WPX contest made the bands come alive – and we had some good conditions just for once! While WPX was designed as a DX contest, the prefix multipliers are equally valuable wherever they come from,

even one's own country. Of course, more QSO points are awarded for QSOs in other continents, but modest stations can feasibly make a very sizeable score if they operate most of the contest period.

WPX also emphasizes the low bands by awarding double points for QSOs on 80 and 40 metres compared to 20, 15 and 10 metres. Operating strategy for the WPX contests should take into account maximizing time on 80 and 40 as long as the QSO rate is at least half what could be expected on the high bands. The high bands are still important for multipliers that may not be on the low bands and for daytime QSOs of course. In practice, the 80 m band was largely ignored by most contesters however as the scoring for WPX negates much of LF being utilised because multipliers count only once for credit and are not on a per-band basis. Work VK4 on one band and that is it for the multiplier credit, for example. As a consequence, 80 m and 160 m see relatively little contesting activity during this particular contest – at least in this part of the world – as the higher bands tend to have more traffic and hence more multipliers. 10 m has been quite healthy as of late however – and the contest provided the opportunity to use 10 m to the full, with extensive openings to North America and Europe taking place over the two days of the contest. Some strange and exotic prefixes were in evidence during the contest, causing some logging software a headache no doubt.

Despite the troubles in Japan there were abundant JA stations during the contest, which is a credit to them considering the current circumstances within their country.

## Russian DX Contest

The organisers of the RDXC have been tweaking the rules lately. In yet another bid by a major contest to put the squeeze on possible cheating, organizers of the Russian DX Contest have unveiled plans that tighten the rules on log submissions for top scoring entries and require the frequency of every contact to be in a log entry.

An applicant will not be able to claim a spot in the "Top 3" places of any category unless exact frequency of every QSO made is indicated, reads one new rule, an effort to require even more evidence for log checkers as they evaluate high scoring contest entries.

Top entrants will also now have only 36 hours to submit their logs after the contest ends - you read that right - not 36 days, but 36 hours. For most competitors in the Russian DX contest, there will now be a 14-day time limit on log submissions after a contest ends - this year that means no later than 3 April 2011.

The organisers wish to communicate to the world, that if you want to enter the contest at the highest echelon, then your entry must be without reproach. All logs at a certain level of achievement will be scrutinised extremely carefully and a declaration must be made by the entrant pertaining to the nature and facility of the station that was utilised to achieve the score submitted. All of this effort is to try and limit or even wholly remove the cheaters of this world from achieving a hollow victory.

The rule changes include:

- Any competitor who thinks he/she will be in the top three of any category, must have their log indicate the "exact frequency of every QSO made (CAT system use)
- Low Power and QRP entrants are now required to "clearly identify equipment used, as well as antenna types by band, ASL elevation, type and length of coax cable"
- Multi-Two entries must identify the number of each transmitter in the log for all contacts

Russian DX organizers are also moving into the 21st Century, as they officially have ended the practice of accepting logs that are hand written. Logs will now only be accepted in CABRILLO electronic format. Furthermore, QRP and Low Power entries must show exact station detail – including equipment, antenna per band, ASL elevation; type and length of coax.

So, why bother and what impact will it have? What serious competitor does not use computer logging?

What serious competitor does not have the computer tracking frequency so as to switch filters and antennas? Given the reverse beacon network, a station claiming to be running low/QRP power on CW can be tracked almost continuously throughout the contest. Given antenna, transmission line and elevation information, a model can be created so the low/QRP power station can be compared to relatively nearby other stations. If one station's signal is received consistently better at various RBNs, adjusting for what the model predicts, that is a strong indication that they may not actually be running low/QRP power.

This approach could be considered to be a strong deterrent to claiming low/QRP power when QRO.

As always, there is another side of the coin, aside from the fact that the current technology for RBNs only covers CW signals. Many social studies have shown that it is human nature to cheat, especially when:

- the visibility (the chance to get caught) is low
- the penalties for getting caught are low
- the perceived personal advantage to benefit from cheating are high
- the perceived harm to others is low
- the perception exists that others are also cheating
- somebody feels that by cheating they are merely compensating for some other situational disadvantage or unfairness in the rules

Virtually all of those conditions exist in amateur radio contesting and there are lots of people in this world who really do not care what 'others' think of them as long as they are able to claim they "won". Following the rules (i.e. honesty) is not the universal behaviour that some folks would like to pretend it is, and there are countless examples from real life to prove it, such as employee time clocks, tax return audits, cameras at traffic stop lights, showing tickets at the gate of an event, etc. Those are not measures taken to regulate a few renegade cheaters – they are measures taken to prevent any one of us from cheating.

Humans have an incredible ability to rationalise their own bad behaviour, and many do it repeatedly.

There has been an unfortunate trend that has worked to diminish fun for some as ham radio operators. Previously it had manifested itself in DXing, with some operators claiming to be on certain islands or in certain countries, yet thousands of miles distant in actuality. And now, sad as it seems, this trend has permeated its way into the world of contesting. Some call it Radio Sporting, but for some it is much more than a sport. To the good fortune of the serious contester, the great majority play by the rules. But, a few seemingly must win at any cost. One can only wonder what they imagine they think that they have won when they receive the certificate afterwards.

Twenty years ago (so I am informed by others as I am *far* too youthful to know by direct knowledge) the WRTC endeavoured to level the playing field, even taking the radical step to have 24-hour referees so as to try ensuring that all play by the rules. This approach has been practised for quite some time, as any ex-patriot 'G' operators may know, as the Region 1 VHF/UHF National Field Day (for example) has been subject to occasional visitations of an official nature at contest sites to check that the rules are indeed being obeyed as claimed by the entrant. Some RSGB events also have this scrutiny facility in place within the contest rules.

A couple of years ago, AI 4L5A/D4B, believing so strongly in the integrity of our sport, put his money where his mouth was and dug into his own wallet to 100% finance some referees to cover three CQ WW CW SO/AB operations, all competing for world-high from the DX-end. Unfortunately, AI's efforts resulted in more recriminations, more misconceptions and was not executed well in some cases.

Radio contesting has become a different animal over a period of time. Some accredit this to the use of technology (some people still see the use of the PC as 'cheating') but computers, Skimmers, RBN, Packet etc is all here to stay – like it or not. It cannot be uninvented.

However, with new technologies and "skills", I suspect that for contesting to have any meaning, it must be done with integrity. Without that, it may be the case that its future will be sadly limited or even cast aside.

## 2010 IARU HF World Championship Results

Congratulations to the following VK stations appearing in the results listing for the contest.

VK4AN	26,158	SO, LP, Mixed
VK3DLI	25,075	SO, LP, Mixed
VK2APU	24,920	SO, LP, Mixed
VK5TX	13,237	SO, LP, Mixed
VK4XES	1,955	SO, LP, Mixed
VK3TDX	456,048	SO, HP, Mixed
VK7ZE	105,984	SO, HP, Mixed
VK3IO	101,380	SO, HP, Mixed
VK4LDX	5,720	SO, LP, Phone
VK4GH	17,507	SO, HP, Phone
VK2GR	35,165	SO, LP, CW
VK3FM	22,101	SO, LP, CW
VK4TT	17,056	SO, LP, CW
VK4EMM	357,555	SO, HP, CW
VK7GN	135,744	SO, HP, CW

## Channel 'Rights'

Does this following scenario ring a bell? You are trying to wrinkle out some desperately weak caller when someone calls 'QRL?' a bit off frequency and just the once. You treat it as a bit more QRM and then the station then starts CQing and will not go away when you protest - you are in a frequency 'fight' before you know it, or even did anything to deserve it. I have had the case a number of times when I have not left the frequency but rather have stopped to listen to a weak and / or slow station replying to me or repeating something for the n<sup>th</sup> time and have then had to make the decision whether to lose him by sending AS (wait) or (QRL) in response to a 'QRL?' over the top of the station therefore abandoning reception. What normally happens is that I tend to continue to listen and then the person who asked 'QRL?' does not hear him or me and therefore starts calling. Generally, a double check of the frequency is in order and some humility if you do not hear the guy immediately reply 'YES', or possibly 'RR'.

From the other guys point of view, a station calls CQ on frequency 'A' and works a few stations, then spots a "new" one on a second S&P frequency 'B' and works that one. This is the moment where you call 'QRL?' on frequency 'A', but he is busy repeating his serial to the other station on 'B'. He finally finishes the QSO and returns to "his" CQ spot only to find you happily occupying the frequency.

Another explanation might be that many of the serious operators will be using directional Rx antennas, so if the station who was originally occupying the frequency has switched to a long Beverage that is pointing away from you he probably will not hear your QRL or CQ.

With SO2R/SO2V you take a risk and must, I suppose, accept the consequence if / when you lose your place on the band!

## BARTG Changes

More changes are occurring at BARTG. Phil GU0SUP has had to relinquish his post as Awards Manager due to personal circumstances. Phil did a great job for BARTG and has been a huge ambassador for RTTY. He says he will try to support the contests as and when time allows. Chris Plummer G8APB has taken Phil's place. BARTG is now mainly a Contest/DX sponsoring web-based group and they sponsor various DXpeditions, encouraging Data operations. BARTG are also looking for Sponsors for some of their major awards/trophies. If you wish to Sponsor an award or trophy, write to Chris, G8APB at [plummerc42@hotmail.com](mailto:plummerc42@hotmail.com) Sponsorship can be a great way to commemorate an SK Ham, dedicating their name onto an award for an activity close to the heart of the namesake.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au) See you on the bands.

73 de VK4BAA



# Winter VHF-UHF Field Day 2011

John Martin VK3KM, Contest Manager

## Saturday and Sunday 18 and 19 June 2011

Duration in all call areas other than VK6:

0200 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only:

0400 UTC Saturday to 0400 UTC Sunday.

## Sections

A: Portable station, single operator, 24 hours.

B: Portable station, single operator, 8 hours.

C: Portable station, multiple operator, 24 hours.

D: Portable station, multiple operator, 8 hours.

E: Home station, 24 hours.

F: Rover station, 24 hours.

**Operating periods:** Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

**Entering more than one section:** If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

**Two operators:** If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

**Multi-operator stations:** Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

**Rover stations:** The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

## General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may

work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

## Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

## Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

## Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

## Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

## Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table. In this example the operator has operated from one locator and worked four locators on each band:

Band	Locators Activated (10 points each)	+	Locators Worked (10 points each)	+	QSOs	x	Multiplier	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
etc.									
Overall Total								=	680



A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

## Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to [vhf-contests@wia.org.au](mailto:vhf-contests@wia.org.au). Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, MDB, PDF, or any Open Document format. Logs must be

received by **Monday, 4 July 2011**. Early logs would be appreciated.

**Field Day Web Site** – <http://www.wia.org.au/members/contests/vhfuhf/>

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.



# Ross Hull Memorial VHF-UHF Contest 2011: Results

*John Martin VK3KM, Contest Manager*

Here are the results for the 2011 contest. The number of logs continues to be small, but this year's entrants have shown that it is possible to make up very healthy scores in several different ways.

Most noteworthy is the fact that after some years of low activity in VK6, we have a VK6 winner for the first time since 1984. Congratulations to Barrie Burns VK6ADI. In second place came Ted Thrift VK2ARA. Barrie and Ted have both shown what can be done with some enthusiastic operating on 6 metres. We may be only at the start of the next solar cycle, but 6 metres is certainly alive and well.

Coming third in Section A, Wayne Pearson VK5APN has accumulated the top 2 metre score with EME contacts. Top score on 1296 went to Kirk Mercer VK2MER, and Peter Freeman VK3PF gained a very healthy score on the higher bands.

In the digital modes section, the winner this year was Phil Moat VK4CDI with a mixture of terrestrial and EME contacts to 11 countries. He is followed by Rex Moncur VK7MO with a very healthy log of mostly terrestrial contacts.

Congratulations to all.

## Ross Hull Contest 2011 Results

Call	Name	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	TOTAL
<b>Section A: All Bands</b>										
VK6ADI	Barrie Burns	5226	48	45	-	-	-	-	-	5319
VK2ARA	Ted Thrift	2772	360	235	-	-	-	-	-	3367
VK5APN	Wayne Pearson	-	2310	-	-	-	-	-	-	2310
VK2AH	Brian Farrar	972	783	220	-	-	-	-	-	1975
VK2MER	Kirk Mercer	188	618	520	152	-	-	-	-	1478
VK2TG	Robert Demkiw	1110	312	10	16	-	-	-	-	1448
VK3HY	Gavin Brain	726	279	305	80	-	-	-	-	1390
VK7MO	Rex Moncur	-	816	265	154	-	-	-	140	1375
VK3FEMT	Stewart Wilson	-	831	455	-	-	-	-	-	1286
VK3PF	Peter Freeman	98	210	170	320	120	80	80	170	1248
VK3UH	Ken Brown	-	48	35	16	-	-	-	-	99
<b>Section B: Digital modes, All Bands</b>										
VK4CDI	Phil Moat	-	960	580	9610	-	-	-	-	11150
VK7MO	Rex Moncur	-	2137	75	2569	-	-	-	-	4781
VK1WJ	Waldis Jirgens	-	254	-	-	-	-	-	-	254



Don't forget

# 18-19 June Winter VHF-UHF Field Day

# VHF/UHF – An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

## Weak Signal

Early in March, there was some interesting propagation across the south of the country.

On the evening of 2 March, both Phil VK5AKK and Brian VK5BC reported hearing the VK6REP 2 m beacon in Esperance at 5x1-2. Phil also heard the beacon the following evening and on the morning of the 4th, although no contacts were forthcoming. Finally, that evening at 0922 Z, he worked Wally VK6WG in Albany at a good 5x7 on 2 m and 5x9 on 70 cm over a path of nearly 1900 km.

Meanwhile, on the morning of 4 March, conditions picked up between Adelaide and VK1 / 2. At 2214 Z, Col VK2BCC worked Jeff VK5GF on 2 m at 5x1 over nearly 1100 km. Multiple contacts occurred on 2 m between Jeff VK5GF, Phil VK5AKK, Brian VK5BC, Bill VK5ACY and Chris VK1DO, Rob VK1KW, Ian VK1BG, John VK1CJ. Phil VK5AKK also worked Ian VK1BG on 70 cm with a 4x1 report. At times, signals on 2 m rose above S9 and Jeff VK5GF reports being able to work into the VK1RGI repeater with a vertical omni.

On the morning of 6 March, there were some unusual conditions up the coast of NSW. At 2125 Z, Chris VK1DO worked Adrian VK4OX on 2 m at 5x4 SSB and 529 CW over a distance of 1015 km. Over the next 15 minutes, Chris then went on to work Rod VK4ARN and John VK4JMC in what was presumably a tropo opening.

March 17 brought a high level of meteor activity. At 2126, Jim VK3II worked John VK4JMC on 2 m SSB at 5x8 via a long MS burn. Brian VK3BBB also worked John. Norm VK3DUT just failed to complete a QSO with John, losing him at the end.

## Aircraft Enhancement Activities

Jim VK3II located near Phillip Island always has good results via aircraft



Ron VK4DD and Ron VK4CRO portable near Newcastle.

enhancement (AE) into the Sydney area and beyond. This seems to be due to both his excellent takeoff and favourable alignment of the path with the Sydney to Melbourne aircraft routes. As with real estate, in the AE game it is mostly about location, location.

During the AE net that operates on 144.2 MHz from 8 am to 9 am local time of a morning, Jim features highly in the list of stations worked. On a recent morning (April 1), he reports working VK1CJ, VK1BG, VK2BCC, VK2BXT, VK1DO/M, VK3AJN and VK3BJM. In addition, he worked VK7MO on 144.225 MHz JT65a and had tropo SSB contacts on 144.1 MHz with VK3AIG and VK5ZK.

Jim reports on a good recent contact:

*I had an unusual AE 2 m SSB contact with Ron VK4DD and Ron VK4CRO on Saturday morning 25 February from my home QTH (QF21RN). They had stopped at Snapper Point south of Newcastle QF56TT at a sightseeing location on their way to Wyong (see picture). They were running 250 W into a 4-element Yagi mounted on the car. The SSB signal peaked to 5x3 over a distance of about 800 km. They commented that*

*it was great fun being mobile and portable with the car and agreed that next year they would be mobile again on 2 m SSB while driving to Wyong.*

*Just before this I had worked Chris VK1DO mobile. Not sure where he was, but presumably on his way to work in Canberra.*



ZL1TPH/P ready to roll.

## ZL1TPH Portable Setup

Further to the report a few months ago about the excellent work by Steve ZL1TPH working VK9NA and across to mainland VK on 2.4 GHz from his portable location, I received a picture of Steve's portable setup packed into his vehicle. To say it looks a tight fit might be understating things a little!

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

## Digital DX Modes

Rex Moncur VK7MO

### VK2KU qualifies for Digital DXCC on 144 MHz

Congratulations to Guy VK2KU on being the first VK to work 100 countries on 144 MHz and qualify for DXCC. Guy provided the following report:

*DXCC is a good award because it is eminently achievable, especially on the HF bands. When I began playing with EME in late 1999, the only mode was CW except for SSB with super-stations. A DXCC on 2 m is of course only possible using EME, but for an ordinary station to achieve this on CW is an almost impossible dream. The arrival of the WSJT Digital modes (JT44 at the end of 2002 and JT65 four years later) changed all this, and DXCC became a real possibility.*

*The first award to which EME stations aspire is WAC (Worked All Continents), not trivial with the lack of stations in some continents, but not hard either. At the other end of the scale of difficulty lie the American WAS (Worked All States) and the Australian WAS VHF awards; these are particularly difficult on EME because you have to work all 50 American States, or all 8 prefixes VK1 to VK8 in Australia, and there just are not the necessary EME stations in some states. DXCC is easier than those awards because you do not have to work them all, just 100!*

*I now have 21 DXCC entities on 2m EME CW, but I have also worked all of those again using the Digital modes. So it has taken from December 2002 to March 2011, rather more than 8 years to work the magic 100 entities or "countries" on 2 m Digital EME. Of course the first countries worked were the easy ones: the USA, Germany etc, and all of those early countries have been worked again many times since, up until Cyprus 5B in January 2005. I have not worked Cyprus again, so in one sense the 100 countries have taken only six years or so. The 100th was HL5QO in March 2011.*

*The first 50 come fairly easily and steadily. These are the countries with at least several resident EME stations, sometimes dozens. The next 30 are harder because where only one or two stations operate regularly in a country, they often have only one or two Yagis and quite modest power. They may also live in RF-noisy cities, creating serious problems of deafness! VK was once quite a rare country on 2 m EME, but we now have enough regular stations to have met most of that demand. Above 80 countries you are relying more and more on EME expeditions to rare countries, usually well equipped, but with limited time and very much in demand with the corresponding pileups. The last 10 come quite slowly and consist almost entirely of such expeditions with the occasional resident station like HL5QO, my 100th. It is a great feeling to have made it at last, though I still have a few QSLs to collect. They say that the next 10 actually seem easier! It is also time I worked some more CW EME, which has its own special satisfaction.*

### ISCAT for microwave Aircraft Scatter

Rex VK7MO and Dave VK3HZ have been experimenting with digital modes for aircraft scatter at 10 GHz. They are using around 7 watts to 65 cm dishes. While the WSJT mode JT65c works well for aircraft that cross at angles of up to 10 or 15 degrees, at greater angles the variation of Doppler (more than 40 Hz per minute) becomes too great for WSJT to follow even with AFC. It has been found that for larger crossing angles the new ISCAT mode in WSJT9 works well and can cope with Doppler variations of up to 1000 Hz per minute as occurs at 10 GHz when jet aircraft cross at right angles.

While ISCAT has an averaging feature that works to around -17 dB (on the WSJT scale) it has been found that at 10 GHz aircraft scatter comes in short bursts of a second or so and that non-averaged decoding by clicking on the waterfall produces better results even though it works to only around -10 dB. On shorter aircraft scatter paths such as 450 km the bursts of signal can peak at +5

dB and even on long paths of 700 km peak signals of -2 dB have been measured – albeit for only a fraction of a second. Good decodes can still be obtained on weaker bursts down to -10 dB on longer messages such as two callsigns and a report and -12 dB on short messages such as RRR. For aircraft crossing near at right angles it is found that an aircraft produces only one or two bursts of a second or so duration but these still decode well through clicking on the waterfall – but it does take some practice to learn the operating procedures and react quickly when a burst of signal is detected.

ISCAT provides for TX/RX periods of 30 and 15 seconds as selected by clicking on the box near the centre at the bottom of the WSJT 9 window. It is recommended that 15-second periods be used for microwave aircraft scatter as this potentially allows a QSO to be completed on a single aircraft crossing as has been achieved with aircraft crossing at 30 degrees. At larger crossing angles it will usually be necessary to use multiple aircraft but still the faster TX/RX period is an advantage.

### New 10 GHz digital record

On 11 March Dave VK3HZ operating portable from Andy VK3ES's property on the north side of Mt Macedon and Rex VK7MO operating portable from near Peterborough, South Australia achieved a new 10 GHz digital record of 715 km. The QSO was achieved using ISCAT on aircraft crossing at between 65 and 75 degrees on either the Sydney-Adelaide or Adelaide-Sydney flights. Signals peaked at -2 dB. It took bursts from 5 separate aircraft over 90 minutes to complete the QSO and some produced no signals at all.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

Brian Cleland VK5BC

March proved to be a very interesting month on 6 m with many TEP openings from VK4, northern VK6

and VK8 to Japan, China, Hong Kong, Philippines, Korea etc. The highlight of the month being a contact between Wade VK4WM and UX0UN in Ukraine.

Wade VK4WM in Hervey Bay reports on his contact with UX0UN:

*On the 25th I had just finished working Hide JR6EXN when Nick UX0UN called me and gave me RST 559 but when he put it back to me there was really quick QSB on his signal that made it hard to read his callsign and I was expecting a JA callsign, I managed to send him his report of 419 but after he repeated his callsign a couple of times he disappeared, I still thought he was a JA however looking at what I had written down, it leapt off the paper at me who he really was! His email got to me before I found his address on QRZ.COM, it was a genuine QSO, and QSLs are in the mail!*

Congratulations Wade, both Wade and Nick were running 100 W, Wade was using a 6-el on a 6 m boom YU7EF design Yagi and Nick was using G0KSC 7-el on a 9.5 m boom Yagi. Wade's complete log summary for March is as follows:

05/03/2011	05.24 - 07.24 Z	JA stations 4 x SSB, 22 x CW
06/03/2011	04.54 - 07.00 Z	JAs 44 x CW
08/03/2011	07.04 - 08.03 Z	JAs 20 x CW
10/03/2011	04.21 - 07.00 Z	JAs 22 x CW
13/03/2011	04.04 - 04.38 Z	JAs 6 x CW
15/03/2011	04.50 - 06.01 Z	JAs 22 x CW
17/03/2011	04.36 - 06.37 Z	JAs 4 x SSB, 2 x CW
23/03/2011	05.16 - 0624 Z	JAs 14 x CW

25/03/2011	05.00 Z	50.100 MHz CW
Hide JR6EXN	S 519 R 559	

25/03/2011	05.03 Z	50.100 MHz CW
Nick UX0UN	S 419 R 559 KIEV UKRAINE KO50fk	14,427.83 km

27/03/2011	10.13 - 10.44 Z	CW JA1QOP S 559 R 599,
JK3HLP S529 R 539,	JA2BNK S559 R 559.	

The band was open on many days in March from VK4 to the various areas of Japan with openings extending south to Brisbane to Cairns in the far north. There were reports of 60 – 70 JAs being worked in an opening and Dale VK4SIX in Atherton reports that Charlie VR2XMT in Hong Kong could be heard and worked on many evenings. Willem DU7/PA0HIP was also regularly worked in VK4 along with several Chinese stations.

David VK5AYD in Coober Pedy northern VK5 has also been enjoying good conditions and reports the following:

04 Mar 2011	VK4s FNQ, EK, XGE, NPF, on SSB 50 MHz and 52 MHz and the last two on 52.525FM as well.... Plus VK4 beacons, RHT, RTL, RGG
05 Mar 2011	26 x JAs 0 - 9 areas plus a surprise call from Joel KG6DX
06 Mar 2011	9 x JAs 1,2,7,8 and 9 areas
08 Mar 2011	11x JAs 1,2,3,5 and 6 areas
10 Mar 2011	Nothing worked but heard JAs working VK4s SSB and CW
13 Mar 2011	13 x JAs 0, 1, 2, 3 and 8 areas, finished off with Marc VK8MS, pipeline to Darwin
15 Mar 2011	JA2IGY Beacon + plenty of JAs on SSB and CW, worked none
17 Mar 2011	DU7/PA0HIP Willem, 5x9 best contact so far with Willem, HL2KV Mike on CW 559 both ways

20 Mar 2011	5 JAs 0, 7 and 8 areas
24 Mar 2011	Weak JA0 on 50.110 heard only
27 Mar 2011	4 JAs 1 and 3 areas, Rx JA6 only, M/s pings from VK5s ZK and PO, couple of good long burns

Further south in VK5 JAs were worked on 12 March with Garry VK5ZK and Brian VK5BC working JA6WJL and JH6CDI, Brian also worked JP3WAU. A little after the JAs at 0838 Z Brian VK5BC worked BA4SI. This opening to China also extended to VK7 where Frank VK7XX, Norm VK7AC and Laurie VK7ZE also worked BA4SI. Then on 26 March a good opening which started around 0745 Z and lasted for approx three hours, John VK5PO worked all call areas except JA8 and 9 on CW. Brian VK5BC also worked JA6UOU 59 SSB early in the opening. Although JA beacons were being heard unfortunately there did not appear to be many stations active either end.

There are now several active stations in the Pilbara area of NW VK6 including Michael VK6BHY and Rod VK6KP (home call VK3TG) in Karratha, Steve VK6HV in Wickham and Rex VK6ARW in Exmouth. They have all been making the best of the good conditions to the north during March.

Rod VK6KP who working in the Pilbara on a two year term is using a FT-897D and 4-el Yagi reports the following:

*March has been excellent.*

*Late morning you start to hear JS2IR on 43.650 and the MUF slowly rises until 49.750 comes alive with many signals. These build up and most late afternoon 50 is full of "birdies".*

*Typical pattern - around 0700 to 0730 Z mid to late afternoon opening to JA. Most days the TV is there but not all the time. Gradually drops away and then reappears in force anytime around 1100 Z onwards. These evening openings last many hours and can still be open up to 1500/1600Z.*

*TEP flutter is there especially with Willem (DU7/PA0HIP) and Charlie (VR2XMT). Over the last week or so Charlie has been heard almost every night.*

*The most consistent JA beacon has been JA6YBR 017. It can be heard nearly everyday at the moment. JA2IGY.010 is there most days but not as often as YBR. I have heard JR6YRG a few times which is promising.*

*On a few occasions I have heard DU1EV on 008 up to S5.*

From Rod's log:

01/03/2011	1126 Z	BV2JD 5/5 followed by a few JA6s through to 1240Z.
05/03/2011	0720 Z - 0800Z	38 JAs 1, 2, 3, 4, 5 and 6 on CW and SSB mostly S9+.
07/03/2011	0930 Z - 1325Z	JAs 1, 2 and 6 plus JA6YBR/B.
08/03/2011	1117 Z - 1140Z	JAs 1, 2, 3, 5 and 6.
	1155 Z	BA4SI 50.110 5/5 SSB
	1210 Z	BA4SI 50.120 599 CW
	1223 Z	VR2XMT 50.110 5/8 SSB
09/03/2011	1033 Z - 1103Z	JAs 1, 2, 4 and a number of 6s (YBR/B S9+)
	1306 Z	VR2XMT 50.110 5/7 SSB
10/03/2011	1243 Z	DU7/PA0HIP 50.110 599 CW
13/03/2011	0600 Z - 0842Z	Massive JA opening all areas and all Sigs 9+ (Like the good old days!!) Huge QRM! Did remember

from years gone by to ask the JAs to standby and QRZ outside of JA! Sure enough at 0657 Z HL1VAU 50.130 59+ SSB.

15/03/2011 0430 Z – 1330 Z JA beacons and few JAs not strong.

16/03/2011 0730 Z – 1230 Z JA beacons IGY/YBR and YAG all in at varying times up to S9. Some JAs around.

18/03/2011 1300 Z VR2XMT 50.110 5/5 SSB

19/03/2011 0623 Z – 0634 Z DU7/PA0HIP 50.110 5/7 SSB and a few JAs 1 and 2.

All of the above were worked using a three element Yagi at 6.5 m fixed to the north. Gear FT-897D or FT-625D with amp.

Rod now has a 4-el Yagi.

A little further south Rex VK6ARW is active from Exmouth who has also enjoyed some good conditions and reports:

06/03/2011 I had 4 QSOs with JA stations between 0710 – 0730 UTC.

21/03/2011 at 1208 UTC VR2XMT in Hong Kong.

24/03/2011 at 1230 UTC VR2XMT, JR6EXN, DU7/PA0HIP.

26/03/2011 at 11:30 JR6EXN and on

27/03/2011 at 09:44 UTC JE6EZU.

Rex is using an IC-7000 and a Moxon antenna.

Great to see so many stations active from Northern VK6.

During March there was a new release of VKLogger. January is a busy month on the air and online! With a high number of simultaneous users (140+), VK Logger crashed the shared-server it was hosted on. Since then, VKLogger has been redeveloped, and now includes an integrated chat feature. Appearing to be running much quicker, VK Logger also includes some new feature such as the ability to enter WSPR and Radar reflection spots, and features for quick checking of other band loggers, DX clusters etc. Although it is still settling in, it appears to be an improvement on what was an already valuable tool for VHF operators.

Because of the Logger's server crash in January, temporary restrictions were placed upon idle chat, and

other sites became available to carry out general chat. One of these sites is the ON4KST 50MHz IARU Region 3 chat site, where there is often some international stations reporting 6 m conditions which can be of value when openings to overseas countries occur.

However, unlike chat sites, VK Logger users can post propagation information, known as "spots". This information remains useful long after the bands have closed, where the historical information gathered can be used to help predict openings and identify windows of opportunity in the future. This data also demonstrates to the authorities that amateurs are actually engaged in propagation experiments, justifying their spectrum allocations, and not just idle Internet chatter requiring no bands at all.

Testament to the value of collecting local and relevant propagation data was made by Roger Harrison, VK2ZRH, who recently produced a paper "A new model of VHF sporadic E propagation". This is a very interesting paper, in which Roger used data from VK Logger to help form the basis of his conclusions. The short-form of this paper can be read on the VK Logger Discussion Forums in the "Propagation and Solar Cycle News" forum. Stay tuned to AR, as the full paper will appear in a future issue.

VK Logger now enjoys a better hosting arrangement, where the previous disk space and limited monthly bandwidth restrictions should no longer be an issue, even during the peak times.

In some late news band opened from Perth area to JA on 31st March. John VK6JJ, Andy VK6OX and Graham VK6SIX working several JAs, the first opening to Perth from JA for over 12 months.

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



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## VK2news Continued from page 31

Ten ARNSW members are undertaking the course being conducted at VK2WI on Monday evenings. It is being run by Terry VK2UX, ARNSW Education Officer and will continued until about September. At the close of nominations for the committee of ARNSW there were eight nominations for the nine positions, so a ballot was not required. The AGM was held last month, with a report next month. The various reports for the AGM were either posted or emailed round the end of March. A bit disturbing was the high number of rejected emails where members had changed addresses without notification.

If you have made any recent changes – either email or postal - please advise ARNSW at [membership@arnsw.org.au](mailto:membership@arnsw.org.au)

Likewise remember to advise the WIA and your local club of such changes. At least to the sender - an email is cheaper than snail mail. Alternatively, you can leave a message on the office phone 02 9651 1490. There are also many changes of callsigns and these should also be notified.

73 Tim VK2ZTM

Autumn brings the season of White Elephant Sales and Ham Festivals as well as some welcome changes in weather. This offers the opportunity to not only meet and greet your own Club's members but the added advantage of travelling to other locations to participate in neighbouring club activities. I have observed it is never difficult to begin a conversation with another Ham.

On one such occasion recently, I was delighted to find the OM finally managing to participate in the selling of some long held radio parts and accessories. In fact a trailer load was taken to the EMDRC sale from our residence. A small miracle! It is now possible to walk, with care, the full length of the radio shack. One can only hope this is the start of better times to come.

I came upon the following comments recently and thought readers might find it interesting although, perhaps, some of the thoughts may cause a bit of a humphing from certain quarters. Nowadays of course there are many women operators, but they seem to be able to multitask with ease as well as spend time on the radio. But, after all, the piece may indeed be a little 'tongue in cheek' and a little bit of fun. There may also be some understanding nods over the contents from other YLs who have a ham at home.

## The care and feeding of your pet ham

Laura Sargent

The pet ham is one of the most intelligent of pets, often seeming almost human. BUT he can also be one of the most difficult to keep. Only a person with a great deal of patience and understanding should attempt to keep a pet ham.

The following is a short guide to some of the most important things that you should know about caring for your pet ham.

- 1. Living Area:** Your pet ham should have a private area of his own. An entire room if possible, where he will not be disturbed. He will spend many happy hours alone there with his collection of treasures, (boxes, wires, bits of metal, glass, paper, plastic, etc, that he will bring home regularly). He should be encouraged to confine his activities to his nest room in order to protect the rest of the house from his natural tendencies toward noise, clutter and making holes in the walls.
- 2. Expenses:** Raising your pet ham can turn into an expensive hobby. But, unlike most pets, the pet ham can be trained to work outside the home for short periods and so bring in enough money to cover part or all of his expenses.
- 3. Feeding:** The well behaved pet ham will be able to eat with the family on occasion. But he will usually feel more comfortable and secure if he can take many of his meals in the privacy of his nest room. It will be your responsibility to see that your pet ham is kept well supplied with food and drinks during the long periods of time that he will spend alone in the nest room.
- 4. Housekeeping:** Pet hams can usually be trained to use the family bathroom.
- 5. Obedience Training:** Most pet hams can be trained to respond to a few simple commands. The easiest for him is to 'sit' and 'speak'. Once your pet ham has learned these commands, he will sometimes practice them on his own for hours at a time.
- 6. Health Care:** The pet ham is especially subject to minor irritations of the lower back and sore throat. The special CW breed tends to have a tired wrist rather than a sore throat. The RTTY version may suffer from

tired and hurting eyes depending on his age and monitor.

- 7. Travelling:** Your pet ham will gladly travel with you in the family car if he is allowed to bring some of the collection from his nest room. His favourite trips will be to places where he can associate with pet hams from other families.
- 8. Breeding:** If you plan to breed your pet ham, you should do so as early as possible after you get him. As the pet ham matures he becomes more and more reluctant to engage in any activities not connected with his nest room collection.

(The author of this article is not a ham herself, but keeps one at her home).

## SYLRA meeting in Finland 2011

Annika OH2HSJ

If anyone is visiting Scandinavia later this year they might plan to call in on the SYLRA Meeting to be held in Finland in August 2011.

SYLRA stands for Scandinavian Young Ladies Radio Association. A number of ALARA members have a reciprocal link with members of SYLRA through mutual sponsorship and news is exchanged regularly.

The next SYLRA meeting will be held in Finland 11.-14. August 2011. The meeting will take place in a small town called Porvoo (Borgå in Swedish). Porvoo is Finland's second oldest town.

People come from all over the world to see the Porvoo Old Town. The town of Porvoo has about 48,000 inhabitants. It is a bilingual town with about 33% of the inhabitants speaking Swedish as their mother tongue. Porvoo is just an hour's drive from the capital of Finland, Helsinki.

The program of the SYLRA meeting:

Thursday 11 August 2011  
Arrival  
Dinner (self paid)

### Friday 12 August 2011

The SYLRA meeting 3-5 pm.

Grill party 6.30-10.30 pm.

### Saturday 13 August 2011

There will be guided tours of Malmgard mansion and Rutumi mansion in the morning.

Lunch will be served at Rutumi mansion.

Then there will be a tour of the town of Porvoo with afternoon tea served at Haikko mansion before returning to Porvoo where Dinner will be served at 7-10 pm.

### Sunday 14 August 2011

Leaving for home or for the expedition.

For more information about the meeting, accommodation and registration please visit <http://www.elisanet.fi/oh2hsj/sylra2011/>

### News from VK2

#### Dot VK2DB

In January OM John and I travelled to Qld to see our son's new home, hidden by trees near the top of a hill, overlooking the Gold Coast in Ormeau - a brilliant radio spot. There is a separate flat under the house so we did not wake to grandchildren jumping on us and John was able to set up the radio without it being in the way.

We took a day to go visiting ALARA members. Daphne VK4IA and her OM Ken VK4KD invited us for morning tea and we sat and had a long chat on their verandah overlooking valleys of trees. Another great radio spot. After leaving Daphne and Ken we went further south to meet Pam VK4PTO and her OM Paul. Susan VK4ST who was nursing bandaged fingers after a nasty fight with the garden shredder was also there. Pam had invited us for a few finger foods. Finger foods?! A great feast more like it. The table was groaning but as well as we three dainty ladies we did have two men to fill.

#### Wyong Field Day:

Late in February it was the Wyong Field Day and as usual I took the ALARA table. Two of my sons Ben VK2BRB and Peter VK2ZCU carried all the bags and set up the banners and table for me. Then they went



Jean VK3VIP, Micheline VK3FMGE, and Margaret VK3FMAB at the EMDRC event.

out looking and buying once the stalls had opened. To celebrate my 21 years of taking the ALARA table to the field day, I took a tray of 99 cupcakes and visitors to the table enjoyed them.

Nina DL2GRC / VK2INZ was over from Germany and sat behind the table with little son Benni - wonderful to see her again. In all there were 15 ALARA ladies visit the table, the best roll up ever. Catherine VK7LCB, she used to be VK6LCB, joined ALARA on the day and Leah VK2FREE took a joining form and had a chat. She has since joined. Another visitor who enjoyed a good chat was Pierce VK2APQ who turns 100 later this year.

I had advertising for the 2010 International YL meet in Adelaide with a calendar photo of the Ghan and it certainly generated a lot of interest, and questions. Agnes VK2GWI and I had a chat about holding the 2014 ALARA Meet in or around the Nelson Bay area. Agnes is going to be the coordinator and is already developing a program.

#### VK3 News

The EMDRC held its annual Elephant Sale on 13 March. ALARA members manned their table, selling a few items

and fielding a number of enquiries, and also helped out in the kitchen dispensing numerous cups of tea and coffee. The outdoor barbeque catered by club members, did a good line in providing breakfast and snacks for the hungry. The task of cutting the onions fell to the willing kitchen helpers. Our worthy State Rep. Jean VK3VIP, had sobbed her way through three bags of onions, cutting them by hand, before Max VK3WT (who was manning the barbeque) produced a modern vegetable slicer. Thankfully, no further tears were shed.

The weather was very pleasant and the occasion provided an

*Back row Left to right: Jean VK3VIP, Marg, Heidi VK3FHID, Ro VK3PLZ, Barbara VK3FBJD, Monica VK3FMON, Michele VK3FEAT, Marre VK3FSAT.*

*Front row left to right: Pat VK3OZ, Pam VK3NK, Elaine VK3EQY, Susan VK3UMM, Mary, Micheline VK3FMGE, Janet VK3BTU, Sally VK3FBND, Narre.*



opportunity for a number of old friends to catch up and chat. The Sale was rated a success with the numbers up to expectations despite the fact it was a long week-end.

Several ALARA members and their OMs ventured into the City to try out a restaurant which had shown potential as a future venue for an ALARA bi-monthly lunch. **All in the line of research of course.** The restaurant is situated quite close to one of the Railway Stations on the City Loop which will be convenient for travelling. Everyone agreed it was a very pleasant meal and enjoyed the glass of wine included in the price of lunch. More about this later in the year. It is nice to know that the chosen venues have all passed the 'taste test' before everyone arrives for the formal ALARA Meal.

### ALARA Lunch

The most recent VK3 ALARA lunch was held in Gisborne, hosted at the home of Pam VK3NK and OM Graeme VK3NE. The barbeque event was well attended with 26 ALARA members and their OMs. This number included a few first time attendees and it is hoped they will come to many more lunches. The weather was cool but fine. The food was delicious and plentiful. Popular opinion was that the Desserts were 'out of this world', with so many to choose from. A special Thank You for Pam who made the salads.

A very special entertainment was provided at the Gisborne Lunch by the Geri Buskers. This recently formed and enthusiastic group have come together to raise money for

the Very Special Kids' Glen Osmond Farm at Woodend. It is hoped that eventually there will be up to four cabins and a barn designed to give families the opportunity to take short breaks in a relaxed, peaceful, rural farm environment away from day to day routine and the demands of care.

The cabins will also provide families with full disability access and wonderful views of Mount Macedon and Hanging Rock. Activities will be structured around families being able to choose to get involved in all the Woodend area has to offer or just take time out for a complete rest.

Very Special Kids is a unique organisation that supports families throughout their experience of caring for children with life threatening illness from diagnosis through to recovery or bereavement. Many of these children have high medical care needs and sadly will not reach adulthood.

### ALARA members are versatile

All the members of The Geri Buskers are radio operators.

Pam VK3NK performs on the Hurdy Gurdy, (which she constructed herself) with Janet VK3BTU on the Accordion (one of her instruments dates back to 1889) and Ro VK3PLZ on the Harp. We hope this unusual combo has great success in raising



*The AHARS ALARA members on the JMMFD. See below.*

funds for such a worthy cause and continue to have a good time doing it.

Thank you to Pam and Graeme for opening your home up to us.

### News from VK5

Five YLs joined other members of AHARS for the John Moyle Memorial Field Day this year.

In the picture above they are seen with Jenny VK5FJAY at the microphone. Behind her we have Christine VK5CTY, Janet, XYL to Kim VK5FNET, Diedre, XYL to John VK5EMI, and Tina VK5TMC who was our "hostess with the mostest" for the weekend.

The weather was almost perfect, warm and sunny under the tents with a small breeze as well.

The rain held off till we had packed up all the equipment and antennas and were sitting down to a barbecue lunch. When the rain came, though it came with a vengeance.

### Special notation

Meg VK5YG has just been awarded a 'diamond' to acknowledge that she has been sponsored into YLRL for 25 years. Congratulations Meg.

AR



*Meg VK5YG.*

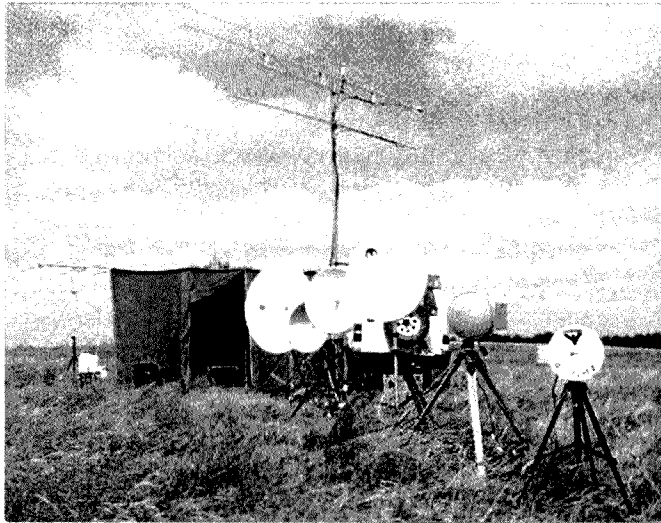
*The Geri Buskers in performance.*





## Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC



The microwave set up on Barabool Hills for VK3UHF.

### John Moyle Weekend

Whilst it has been customary for the GARC to field a number of teams at contest time, on this occasion it was a hybrid collection of operators from LUMEG, VK3ALB and VK3NW.

The location chosen was the one favoured by LUMEG in the Barabool Hills west of Geelong. It started out as a two man operation with Ken VK3NW and David VK3HQ operating as VK3UHF. They set up on Friday afternoon, as they usually do, covering all bands from six metres to 47 GHz.

On Saturday they had a visit from the VK3ALB team, resulting in Jenni VK3FJEN operating the six metre station for about three hours, and thoroughly enjoying her time operating. The weather was very pleasant throughout the duration of the contest, which added enormously to the overall enjoyment.

The 2 m band was open to Adelaide on Friday evening, but true to form was flat during the contest.

Jenni VK3FJEN and Ken VK3NW operating as VK3UHF.



There were some good contacts to central NSW on 2 m with the longest distance being VK2UH at 558 km and VK2WG at 429 km on 2 m and 70 cm. The team managed to work Adelaide station VK5AKK once on 2 m, at 604 km, but only one VK1 was worked and no VK7s.

A disappointing aspect from the weekend was the lack of microwave operators out.

The only contacts above 2.4 GHz were to VK5SR on 3.4, 5.7, and 10 GHz, at a distance of 328 km.

That being said, the overall score was around 20% higher than last year.

### The GARC 2011 AGM

At the annual AGM, following the General Meeting, the following members were duly elected to the Club Executive Committee: Tony VK3JGC President, Jenni VK3FJEN Secretary and Andre VK3FASW Treasurer. In support of the above, four new committee members were elected: Lou VK3ALB, Greg VK3VOX, Carlo VK3BCL and Calvin VK3ZPK. The meeting also felt that in the light of recent health issues with certain of the membership, there was a need to appoint an Almoner (or a "We Care Officer") and Barry VK3SY was duly elected. Our gratitude to all the members responsible for all the other club activity posts for agreeing to continue as per the arrangements for the 2010 - 2011 period.

At the AGM handover to the new committee, the stand-in Public Officer Barry VK3SY stated that the outgoing President Dallas VK3DJ had made enormous progress in the organisational and procedural aspects of the club during his two year tenure, which was duly noted and applauded by the membership. The outgoing committee members Garry VK3FWGR and Kevin VK3FKEV were also thanked for their enthusiastic support during President Dallas' watch.

### The Ray Cowling Award

The Ray Cowling Award is given to the GARC club member who is deemed to have contributed the greatest amount to amateur radio and the promotion of the Geelong Amateur Radio Club throughout the year. This year there was a landslide vote in favour of Jenni VK3FJEN.

### Internet access

Our grateful thanks to Greg VK3JIY who has supplied and installed a 2.4 GHz link from his home along with router and WiFi hardware to enable internet access at the club house to members. This now also provides the Melbourne Wireless Group with a node, KMT.

# Spotlight on SWLing

*Robin L Harwood VK7RH*

It is autumn at last and I have again been frustrated by a recurring hearing loss that has severely hampered my listening and monitoring. Fortunately I have kept in touch with others via the Internet especially with the extremely fluid situation in North Africa. As you may recall a revolt broke out in Tunisia earlier this year and quickly spread to Egypt, leading to the downfall of the Mubarak regime. Similar revolts broke out in other Middle Eastern nations. Some regimes nervously clamped down but the forces of change were not going to be easily subdued. In the case of Libya, a violent civil war broke out with the Gaddafi regime ruthlessly suppressing any dissent. This led to the imposition of a no-fly zone over Libya by the UN Security Council. Eventually NATO took over the enforcement of this operation.

Shortwave certainly was involved in this unrest across North Africa and the Middle East but it was the social networks such as Facebook and Twitter which were the principal means of communications. Several administrations attempted to disable Internet connections and cell phone networks in an effort to limit groups communicating. It is ironic that many major and minor broadcasters are doing away with shortwave radio in favour of the delivery via the Internet. As this ongoing crisis has demonstrated there is a continuing need for shortwave as a backup as regimes have shown that they can quickly shut down Internet connections.

The Libyan crisis also saw the re-emergence of psychological warfare via shortwave radio as it did almost a decade ago in Afghanistan. I remember hearing a signal with music and announcements in various languages on 8700 on USB which turned out later to be from a

plane flying at high altitude. Again PsyOps were heard particularly in Europe on 6877 kHz on USB. This time announcements were in English, French and Arabic and with a warning for maritime vessels not to leave Libyan ports otherwise they would face dire consequences. It was an odd choice of frequency as it was not in the maritime allocation but within the aeronautical section and few, if any, sailors would have heard it. Presumably they would have also broadcast on the standard VHF marine channel 16 for the intended audience.

Libya became effectively split in two with the rebels controlling the eastern half of the nation whilst the pro-Gaddafi forces were in the west around Tripoli. Most of the radio warfare was monitored on medium wave and only audible within the region. The Libyan external service was broadcasting on 21695 prior to the civil conflict but has since been logged in the 16 metre band. They also oddly began to relay audio from the Tripoli TV station alternately on 8500 and 7500 kHz.

The American clandestine station in Arabic, Radio Sawa, also re-appeared on shortwave in late March, probably to reach a wider audience within the region. On 27 March, just at the height of International tensions, the BBC World Service ceased broadcasting on shortwave in several key language groups, including Russian. This was forced on them by a massive decrease in their budget from the UK government. A temporary reprieve was granted to Hindi but it demonstrates the decreasing influence shortwave has with the major international broadcasters and their backers.

We were all shocked by the tsunami following a huge earthquake in Japan. Over 25,000 died and

millions were made homeless as whole villages and towns were swept away. The images were indeed powerful. It was followed by another major calamity with major damage being done to the Fukushima nuclear power facilities. A major leak of radiation followed a meltdown of the nuclear core. This led to a further mass evacuation in a 40 km radius in extremely cold weather. People were anxious to ascertain the latest situation and as the local media was severely damaged, many turned to shortwave radio as they distrusted local sources. Unfortunately many international broadcasters had long abandoned Japanese and they had to rely on other language services. Radio Japan, or as it is now known as NHK World, provided an extensive coverage of the major disaster in their Japanese and other languages on shortwave and on TV. Also Radio Australia in Melbourne increased their broadcasts to Japan for the estimated 8500 Australian expatriates estimated to be there at that time.

Incidentally I wonder if Family Radio in Oakland, California, will continue after May 21? I have previously referred to the prediction of Harold Camping, the director of this religious network, that the World will end at Noon Jerusalem time. He has been quite adamant about it. It should be interesting on May 22 if the World is still here and he will have a lot of explaining to do. One wonders about the huge bills Family Radio must have amassed in spreading this message by hiring air time over many relay sites.

73 and good listening.

*Robin L. Harwood*



# The road to Maldon

Jack Bramham VK3WWW



Competitor from Japan. Ballarat 2003. Photo by John Longayroux VK3PZ.

During the week of 23-28 September 2011 the WIA will be hosting the Eighth Region 3 ARDF Championships.

This is not the first time WIA has hosted the championships: the first was the Second Region 3 ARDF Championships held in Townsville in the year 1996. Next was the Fifth Region 3 champs held in Ballarat in 2003. Regional events are held in the odd years and World Championships in the even years. For the 8<sup>th</sup> Region 3 ARDF Championships we can expect competitors from the following Region 3 Societies: CRSA China, KARL Korea, JARL Japan, NZART New Zealand, MARTS Malaysia. Outside of Region 3 we are expecting competitors from ARRL USA, KFRR Kazakhstan, CRC Croatia. In all over 100 international competitors will attend.

So, from 23 September the Blue Light Camp in Maldon Victoria <http://bluelightcamp.com/> will have a very international flavour. Along with the international participants there will be a team from VK.

Here is the proposed program of events:

<b>Friday 23 September</b> Arrival Day
<b>Saturday 24 September</b> Equipment Check and Opening Ceremony
<b>Sunday 25 September</b> 2 m ARDF Competition
<b>Monday 26 September</b> Tour Day
<b>Tuesday 27 September</b> 80 m ARDF Competition and Closing Banquet/Prizes
<b>Wednesday 28 September</b> Departure Day

As ARDF is very similar to orienteering, there are plenty of orienteers that participate in ARDF events. Following the ARDF Championships are the Oceania Orienteering Championships and Australian Championships. Some of the ARDF Competitors will stay on and contest the orienteering event as well.

Continued on page 56

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### Satellite Receivers:

Humax IRCI 5400 \$90

UEC DSD660, \$90

Nokia 9500S with DVB2000

software, \$90

Xanadu DSR, \$20

### Other parts:

Chaparral CoRotor II C/Ku feed fitted with Norsat Gold 15K C-Band LNB

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Dynalink C-Band LNBF 25K, \$20

California Amp C-Band LNBF 25K, \$20

Chaparral Model C Ku LNB,

9.75/10.75GHz LOs, \$10

ACESAT Twin Ku LNBFs, \$20 ea

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DX Antenna DSA527D Ku LNBFs, \$5ea

Zinwell SAB-09C Coax Relays,

\$15ea

4 x Irdeto CAMs, not CI, various ages and S/W, \$20ea

Other misc parts, feeds, Power

inserters, DiSEQc switches.

Contact Roger Woodward VK2WWW

at [vk2www@hotmail.com](mailto:vk2www@hotmail.com) or on

02 9546 1927.

## WANTED – NSW

Swan TV-2 transverter for two metres. Any condition. Cash buyer. Please contact Chris VK2CY QTHR, [vk2cy@wia.org.au](mailto:vk2cy@wia.org.au) or phone 02 9763 1407 anytime.

## FOR SALE – SA

The popular VK5JST Antenna Analyser kits are still available (see AR article, May, 2006). Why not build yourself an extremely useful item for your shack, and improve your HF antenna efficiency? For more details see [www.scarc.org.au](http://www.scarc.org.au)

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Contact John VK500 QTHR, or phone 0412 000 076.

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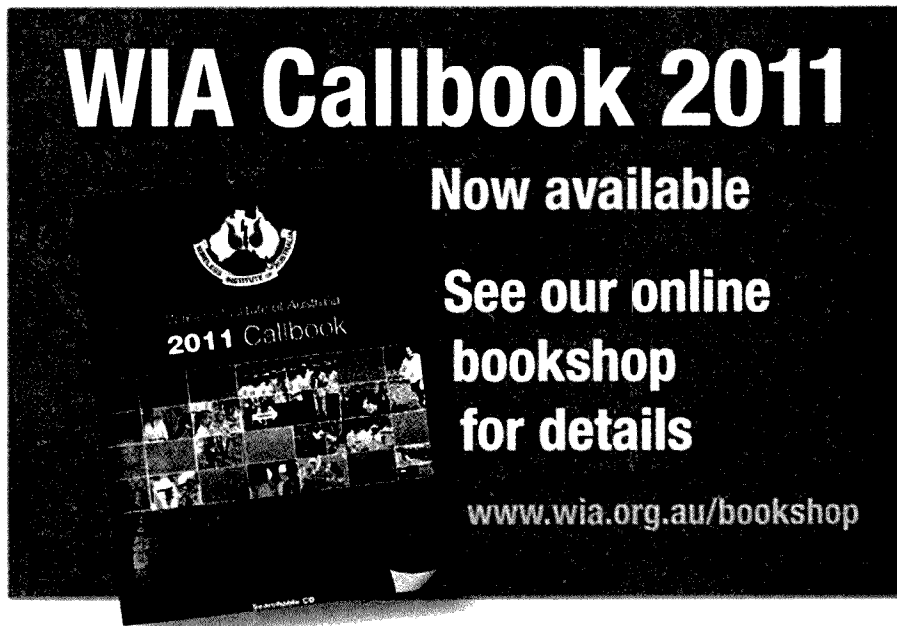
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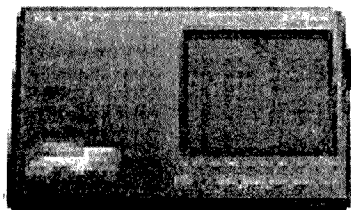
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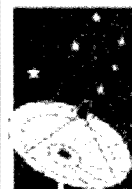
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## The road to Maldon

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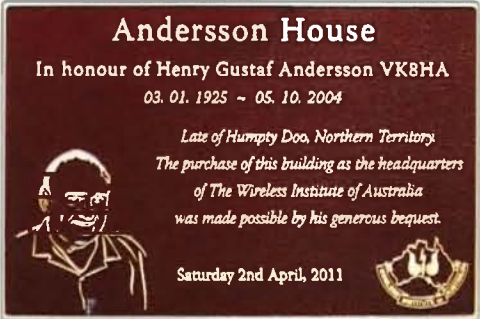
Organizing an event of this stature takes a lot of work; most of it is done by members of the Victorian ARDF Group. Information about the group and more detailed information about the Region 3 ARDF Championships can be sourced on the ARDF group's home page: [www.ardf.org.au](http://www.ardf.org.au) For a direct link to the Championships page go to: <http://r3.ardf.org.au/>

If you are interested in attending as a competitor or volunteer please contact the WIA ARDF Coordinator Jack Bramham by email: [vk3www@wia.org.au](mailto:vk3www@wia.org.au)



Large teams from L-R Korea, Japan, Kazakhstan & China - Ballarat 2003.  
Photo by John Longayroux VK3PZ.





# Andersson House

The formal opening of the WIA premises at Unit 20, 11-13 Havelock Road, Bayswater, took place at 4:00 pm Saturday, April 2, 2011.

The premises was named **Andersson House** in honour of Henry Andersson VK8HA. Henry was an Honorary Life Member of the WIA, who passed away October 6 2004. He left his property at Humpty Doo, near Darwin, to the WIA. That generous bequest provided much of the funds needed to enable the purchase. Light refreshments were served and the memorial plaque was unveiled by WIA President Michael Owen VK3KI.

For those not able to attend in person, members of Melbourne's Eastern and Mountain District Radio Club were able to transmit the formal opening and dedication live via Melbourne's VK3RTV amateur television repeater, which was also viewable worldwide via the BATC ATV website.



Michael Owen VK3KI official naming of Andersson House.



Intended location for mounting the commemorative plaque.



Directors at formal openings.



Warehouse area



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# Amateur Radio

Volume 79  
Number 6  
June 2011  
Price: \$7 incl GST

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## Field Day fever

Reports from the  
John Moyle Memorial  
and National Field Days



Down in the dirt:  
radio earths

Multiband  
antennas on HF

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ATRC



# Amateur Radio

The Journal of the Wireless Institute of Australia

Volume 79  
Number 6  
June 2011  
ISSN 0002-8859

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## General

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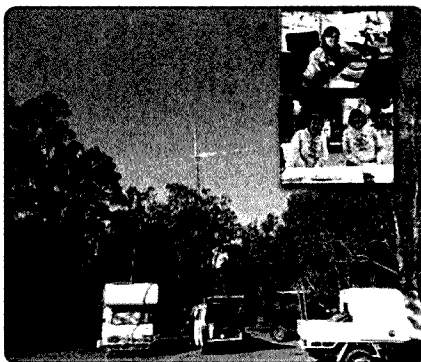
Scouts go bush for John Moyle  
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Field Day botch-ups and other  
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Peter Ellis VK1PE

### Cover photo

The cover this month depicts recent Field Day activities. The main photo shows the Hills Amateur Radio Group station at Mount Gunjin in WA for the John Moyle Field Day (Photo by Martin Stretton VK6ZMS).

Radio Victoria VK3WI interactive display at Point Gellibrand Coastal Heritage Park for the National Field Day, with Greens MP Colleen Hartland MLC at the microphone (Photo by Michele Grant VK3FEAT). The lower inset photo also depicts the National Field Day, with Jean VK3VIP and Jenny VK3NDR at the information table, part of the Eastern & Mountain District Radio Club station at Lilydale (Photo by John Fisher VK3DQ).



## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

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### Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

### Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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# Editorial

Peter Freeman VK3PF

## AR print and paper quality

I recently had correspondence from a WIA member regarding the quality of our magazine - *Amateur Radio*. In particular, the member was questioning if the decision to produce the magazine on "newsprint" was related to budget, and further he attempted to link the magazine print quality to the then just announced rises in WIA membership fees. I thought that many of our readers might be interested in the related facts, so here is my response to the inquiry:

*AR* has been published on newsprint for several years now - since well before I became Editor in 2006.

In 2010, we upgraded to a whiter and slightly heavier grade of paper when we changed printer, which brought with it an improvement in general reproduction and particularly the reproduction of colour images on the main pages of the magazine.

Production costs, especially the printing costs, are but one factor in the choice of printing technology used. We regularly explore the costs of moving to a whiter paper stock than currently used, but such a move would require a change of printing process. All previous quotations for such printing for *AR* at our small (for the printing trade) print run size would incur a significant increase in printing (and postage) costs. To date, we (Publications Committee (PubCom)) have chosen to not recommend such a change to the WIA Board, as we have considered the increased costs to be so significantly large that they were unlikely to be acceptable to us or the Board - they would require a very significant increase in the budget for *AR* and therefore a significant hike in membership fees for members.

With any printing technology, there are sometimes a number of impressions of a particular print run which have unacceptably poor reproduction. Most of these are usually picked up by the print house quality control mechanisms, but some may slip through and be sent out to recipients.

Perhaps the magazine that you received was one that was missed

by quality control? If that is the case, I am sure that the WIA office can arrange for a replacement copy to be sent to you if you contact the office.

Having said that, I do note that the May issue appears to have unusually poor reproduction of the internal colour images, especially compared to the January/February and March issues. Most copies of the April issue that we have seen were acceptable, but some colour photos had some issues. But the May issue was definitely not up to the usual standard. We have initiated inquiries with the printer in an effort to determine the cause of this issue.

The Publications Committee has no involvement of the setting of WIA fees, which are determined solely by the Board. My only comment is that we have been at the same membership fee for several years, and any normal person would have expected a review of the fees annually, with some increase very likely at some stage - any organisation can only absorb the increases in costs bought about by inflation for a limited time, especially when it has already done so across several years. I do note that whilst *AR* production is a significant proportion of the WIA's annual budget, the organisation undertakes many other activities. Whilst many of the WIA activities are undertaken by volunteers, each will have associated costs for the organisation. We are lucky that we have the volunteers assisting the organisation - if we did not, I doubt that we would have as many services that many members enjoy, and probably we would not have a monthly magazine published 11 times a year.

The Publications Committee will continue to review our printing options and will make a recommendation to the Board for a change if and when we can produce a better quality finished product at what we consider to be a reasonable cost. For the moment, we strive to produce the best magazine possible within the budget constraints imposed upon us.

Continued on page 5

## The RAVEN is not about to swoop

There has been much discussion recently in some quarters about the WIA in relation to emergency communications, with some suggesting that we have formulated policies when we are, in fact, still doing so.

Let me set out the current position of the WIA in relation to emergency communications.

First, why does the WIA think that what radio amateurs do in relation to emergency communications matters?

Amateur radio, in order to retain its increasingly valuable spectrum and privileges must be able to demonstrate a 'public benefit' in what it does. It can do that with an effective and relevant emergency communications capability, supporting the emergency services and the community.

Since 2003, when that part of the ITU's international Radio Regulations governing the amateur services was reviewed and amended, the importance of amateur radio emergency communications has been recognised internationally.

In Australia for many years the WICEN groups, through their volunteers, have been the focus of amateur emergency communications. Generally these groups are separate clubs. They grew out of the old Divisions, when the WIA was a federal organisation of state and territory organisations.

But despite their name, while many are affiliated clubs, they are not part of the WIA and cannot be controlled by the WIA.

The fact is that these organisations vary greatly from place to place, some having effective working relationships with local organisations, some providing safety support for community organisations in non emergency roles, some have almost ceased to exist.

It may be unkind to say it, but in some places WICEN is a solution looking for a problem to solve.

There is no national organisation and no single approach to amateur emergency communications.

But we also believe that over the years what is needed has changed. Once, the value of the amateur was to provide emergency communications using his own equipment. It is now clear that the manpower resources of the emergency services organisations become severely stretched during a protracted emergency, and suitably trained and qualified radio amateurs who can operate emergency services communications systems can be a valuable resource.

For a number of years the WIA has been considering these issues. In July 2009 the WIA proposed the possibility of a nationally recognised competency based Training Package, and in the September 2009 issue of *Amateur Radio*, under the heading "What about WICEN" I said "What should be the role of the WIA so far as the existing WICEN groups are concerned is not so clear."

The WIA has gone ahead with the training and accreditation program. It has distinguished between members and non members in the training program, subsidising part of the cost of the training for members and charging what it believes are the real costs for non members. It was concerned at the possible effects of different insurance coverage between members and non member participants in courses, overcoming this by creating a free, non-voting, temporary membership, but providing this magazine for 6 months in the hope that at least some would become full members.

The accreditation process has started, with the application forms now on the WIA website. This is only for voting members and is not automatic, requiring the meeting of certain health, mobility, hearing and similar requirements.

We believe that in doing that, we are providing valuable support for the WICEN organisations. We believed a training and accreditation program would be seen as complementing, supporting and strengthening the activities of the WICEN groups.

Once again, all of this was reviewed at our last face to face Board meeting at the beginning of April.

It was recognised that we needed to promote the WIA accreditation program to the appropriate services, government and non government.

In drawing together the various streams of ideas, we thought we would try to find a name for the project, and subject to what we called in our minutes "some cautious field testing", we decided to try the term RAVEN – Radio Amateur Volunteer Emergency Network. We have identified it as a tentative name, but because of the word "Network", seen in the same sense as in the term WICEN, we now feel that tentative use was rather putting the cart before the horse.

We also asked our group responsible for steering our work in this area to seek further advice and "on the basis of this advice and further investigations, to propose a structure and identify individuals to ensure that the representation of amateur emergency resources at appropriate regional levels was available."

Continued on page 6

## ACMA to review amateur station inspections program

Following the President's "Comment" published in the April 2011 issue of *Amateur Radio* magazine, WIA Directors Michael Owen and Peter Young met with senior ACMA staff including Mark Loney, Executive Manager, Operations Branch and staff from the Compliance Operations, Field Operations and Industry Partnership areas.

At the meeting the WIA's concerns regarding the station inspection program and the legislative basis for some of the outcomes of individual inspections were presented. The ACMA advised that the inspection program was undertaken as a proactive measure to combat interference issues, as well as educate and generate awareness among the amateur community of their responsibilities.

The WIA has now been advised by the ACMA that its contribution is appreciated and that the ACMA is keen to continue to work with the WIA on these matters. The ACMA intends to review the station inspection program in light of our concerns and the information gathered from the visits to date.

## Mobile Fox Hunt on the Golden Goal

Late last year WIA Australian ARDF coordinator Jack Bramham VK3WWW reported that a Norwegian television show by the name of "The Golden Goal" had contacted him in regard to the possible filming of a segment on ARDF and foxhunting in Australia.

The Golden Goal is a high rating Norwegian sports show that prides itself on showing some of the world's most unusual sports. A number of emails were exchanged between Jack and the show's producers, some helpful background information on foxhunting was supplied, with the final reply "we are coming to Melbourne can you arrange an event for us to attend".

A foxhunt on 10 December 2010 was the perfect opportunity for the crew. So the Golden Goal flew two presenters, two cameramen, a producer and a director from Norway to Melbourne Australia and filmed the amateur radio foxhunt!

The night was a great success, everyone involved thoroughly enjoyed themselves, it was filmed in a light hearted way, the crew got some great footage and the show has now been aired in Norway on their commercial television network.

## 2010 Club Grant results announced

The WIA Board, at its recent face to face meeting, considered the recommendations it had received in respect of applications for Club Grants for 2010.

The Board paid particular attention to the number of WIA members in clubs seeking Grants. The Report setting out the reasons for its decisions has been placed on the WIA website, and copies will be sent to all clubs that made an application.

Successful clubs will be advised

of any steps that will need to be taken before the Grant can be sent. Reference to projects to be completed by 1 April 2011 is no longer appropriate, and clubs will simply be requested to complete projects within the next 6 months.

Those clubs receiving grants are, in no order of importance. Please see table below.

## Amateur radio continuing to help in Japan

When these notes were compiled (16 April, 2011), amateur radio activity was continuing to help those mainly within the disaster recovery area struck by the worst earthquake in Japan in 140 years. IARU Region 3 Secretary, Ken Yamamoto JA1CJP said "several stations are handling medium distance information exchange on 7.030/7.043 MHz."

The operation in VHF and UHF bands becomes more active than in earlier days. About 250 transceivers with JARL licences are used for communications between various refugee rest places and local government offices.

<b>Redcliffe &amp; District Radio Club</b> <i>Building an ATV Transmitter</i> Amount sought - \$460	Amount granted - \$400
<b>Lockyer Valley Radio Electronics Club</b> <i>Purchase Wind Generator</i> Amount sought - \$1389	Amount granted - \$1000
<b>Moorabbin &amp; District Amateur Radio Club</b> <i>Purchase Portable Generator</i> Amount sought - \$1000	Amount granted - \$900
<b>Rockhampton &amp; District Amateur Radio Club</b> <i>Equip shack at historical centre</i> Amount sought - \$4000	Amount granted - \$1500
<b>Radio &amp; Electronics Association of Southern Tasmania</b> <i>Scholarships for licence course and WIA membership</i> Amount sought - \$1500	Amount granted - \$1000
<b>WICEN South Australia</b> <i>Purchase Hi-Vis vests, Lights etc</i> Amount sought - \$550	Amount granted - \$430
<b>Albury Wodonga Amateur Radio Club</b> <i>Purchase amateur radio station for teaching purposes</i> Amount sought - \$650	Amount granted - \$500

Continued on page 5

Two sets of 430 MHz repeaters have also been delivered to the disaster area and they are operational now to enhance the existing repeaters' coverage and provide easier communications between hand-held transceivers.

The big earthquake, now graded at nine on the Richter scale, and followed by a tsunami hit north-eastern Japan on 11 March, and crippled a nuclear power facility. More than 13,500 have been killed. The headquarters

station of the Japan Amateur League (JARL) in Tokyo, JA1RL became a disaster communication centre in the days immediately after the disaster. Ken JA1CJP said, "It should be noted that some towns are so heavily disrupted that the local government offices are also in the refugee centres and the residents are staying in multiple places. In such cases, amateur radio can contribute a lot to maintain the ties between the local government and residents."

## Darwin WIA Annual Conference

As of 12 May 2011, the WIA office reports that 100 people have registered for the WIA Annual Conference to be held in Darwin on 27, 28 and 29 May 2011.

President of the Darwin Amateur Radio Club, Spud Murphy says that all is ready for a great weekend.



## Editorial

Continued from page 2

We are definitely chasing up the print house following the May issue - we need to return to the quality achieved with earlier issues this year (January/February and March).

### What are your views?

Both PubCom and particularly I would be interested in your views.

Are we doing a reasonable job with the magazine? I try to balance all the interests of the hobby, provided that I have material to publish - our hobby is very diverse!

If you have any pressing thoughts on your magazine, please send them in to either myself or Ernie VK3FM,

PubCom Secretary. The comments will be carefully considered by PubCom. We cannot guarantee any changes in the short term - we all face budget constraints.

Regards,  
Peter VK3PF



## WIA comment

Continued from page 3

In short, we have not yet answered the question: what should be the role of the WIA and in what structure in relation to the provision of emergency communications in Australia beyond its training and accreditation program?

Certainly we have a role internationally, perhaps using specialist resources. We must ask could what is being done now be done better? Have we the resources to provide a substitute organisation? Should we enter into partnership arrangements with other organisations?

Can we better provide a national focus for amateur emergency organisations and volunteers? If so, how?

Have we been going slow? In a word, yes. Why? Because we see these as very complex issues across our nation, at times rather emotive issues, and with structures and requirements evolving all the time. If we move too fast, without the support of a majority, we will simply further fragment amateur radio's approach to these vitally important issues.

We have had some very thoughtful suggestions offered to us.

We invite further input, both from groups and from individuals.

We may even consider a weekend roundtable for all of those who are interested.

We believe that the training and accreditation program should be a first step to a new national approach to the provision of communications in emergencies. The WIA will continue to seek the best solution, so that the skills and training of radio amateurs are best utilised in times of great need for the benefit of the community of which they are part.



## WIA Club Grant Scheme – 2011

Applications are now being accepted. See page 45 for details.

Justin Giles-Clark VK7TW

Email: [vk7tw@wia.org.au](mailto:vk7tw@wia.org.au)

Regional Web Site: <http://reast.asn.au/>



All 73 of the attendees at the Meet the Voice gathering at Ross, Tasmania.

## Meet the Voice BBQ

The annual Meet the Voice BBQ was held on March 20 at Ross in the beautiful currently green midlands of Tasmania. Official numbers were 73 in attendance along with many partners, XYs and K9s! The finicky VK7 Autumn weather was kind and it turned into a magnificent day. The Sewing Machine Award was presented to Scott VK7NWT, previously VK7FTTT, with special achievement awards going to Frank VK7CK and Dick VK7DIK. The raffle was very popular with a big thank you to all our raffle prize donors resulting in five very happy people following the drawing of the raffle. Proceeds from the day went to the NW repeater group to help with the upkeep of NW repeaters. A big thank you to all who contributed to the organisation of this very successful day.



Raffle tickets selling fast – Meet the Voice gathering 2011.

## Repeater updates

On the North West coast the 6 m repeater VK7RTV (53.775 MHz) has been returned to service following a power amplifier failure. VK7RMD (146.625 MHz) on Mt Duncan has received some TLC and performance has improved. VK7RAC (438.650 MHz) on Table Cape and the APRS repeater were taken off air due to a power supply failure and this has been repaired. The APRS repeater on St Valentine's Peak VK7RVP has also received some TLC and is now performing well. In the South, Hayden VK7HA has VK7RCH (438.575 MHz) back on the air on Grey Mountain in the Huon Valley with links to VK7RAA in the North. A test APRS digipeater, VK7WCN-1 (145.175 MHz), has been co-sited with VK7RCH on Grey Mountain. The digipeater has good cover throughout the Huon Valley and to the deep South. It is hoped to make this installation permanent. VK7RAD is also back on the air following multiple power amplifier failures. A great big thank you to all who maintain and keep these repeaters going around VK7, it is very much appreciated by the VK7 amateur community.

## Northern Tasmania Amateur Radio Club

The VK7RAA (147.00 MHz) repeater antennas on Mt Barrow are mounted on the Air Services Australia tower and the mounting bracket needs replacing. NTARC put out the call and the amateur community came to the party and the commercial bracket has been manufactured to ASA standards. Thanks to donations from around Tasmania the cost of the bracket has been covered. NTARC would like to thank very much the donations received from WICEN South, REAST and Peter VK7PL and Lois.

## Cradle Coast Amateur Radio Club

The Cradle Coast Amateur Radio Club AGM was held Sunday 26 February and the Committee members are as follows: President David VK7EX, Vice President Dick VK7DIK, Secretary David VK7DC, Treasurer Dick VK7FORF and committee person Eric VK7NFI.

On 19 March 2011 CCARC provided communications for the Kentish Endurance Riders Club (KERC) at Sheffield. The club provided a base and seven checkpoints at five locations. Using 2 metre radios, good coverage was achieved for the 12 km radius of the event. The ride involved 95 riders and included three calls for transport



for injured horses. Positive reports were received from the KERC who were very happy with the service.

17 April 2011 saw CCARC operating from Hiscutt Park in Penguin for a family BBQ and demonstration of what amateur radio is all about. There was much interest from the public with many questions asked along with many contacts being made with many stations during the day.

Winston VK7EM lets us know that the Tuesday evening WIA and VK7 Regional News re-broadcasts in NW Tasmania have a new time on Tuesday night. These rebroadcasts on VK7RMD (146.625 MHz) now start at 8.00 pm.

### North West Tasmanian Amateur TeleVision Group

Tony VK7AX reminds us of the WIA and VK7 Regional News rebroadcasts around the Ulverstone area at 9:00 am and 8:00 pm on Sunday and 11:00 am on Monday on the following frequencies: VK7RTV (53.775 MHz & IRLP 6124), (146.775 MHz & IRLP 6616) and (ATV 444.250 MHz Vision and 449.750 MHz Audio). The broadcasts are also video streamed at: <http://vk7ax.camstreams.com> and EchoLink node 100478 - VK7AX-L and EchoLink Node 152375 - VK7AX-R.

The club meeting on 2 April 2011 was well attended and attendees were treated to a video of Ron VK7RN's trip to Ottawa, Canada, including the Fred Hammond Museum.

### Radio and Electronics Association of Southern Tasmania

Congratulations to the University of Tasmania Outstanding Achievers for 2010 - Thomas Karpiniec VK7NML received a Dean's Citation

for his Bachelor of Engineering (Honours) and Andrew Welch VK7AL was on the Dean's Roll of Excellence for his dual degrees of Bachelors of Science and Engineering. Congratulations also go to Damien Styles who has upgraded to his Advanced licence - VK7SD.

REAST's March presentation was given by Richard VK7RO and the author on Software Defined Radio. Richard and Justin took the audience through the advantages and then showed the Genesis and HPSDR radios. The presentation included a demonstration of the PowerSDR and KISS Konsole software using the hpsdr. Thanks to Richard.

REAST's April presentation was given by Peter Yates VK7PY, who is the Telecommunications Manager, and Ian McLean VK7IM, who is Senior Technical Officer, with the Australian Antarctic Division. Peter and Ian took the audience through the very impressive Antarctic Division's telecommunications system from the satellite systems utilised, a demonstration of talking with someone at Mawson base via radio and the Asterisk based VOIP/Linux system. Everything is touch screen driven and seamlessly integrates VOIP, RF (Airband, HF and VHF) and satellite communications. Thanks to Peter and Ian.

REAST setup an impressive demonstration of amateur radio on the lawns at Salamanca Place in Hobart on the National Field Day.



REAST at the National Field Day 2011.

A big thank you to the WICEN crew especially Roger VK7ARN and Garry VK7JGD for their assistance with HF, VHF and APRS displays. Thanks also to Tony VK7VKT, Sam VK7FSTL and Ken VK7DY for their assistance with the impressive display of equipment. We had many interested members of the public as well as some "lapsed" amateurs who all went away from the display with up-to-date information on the hobby and many questions answered.

Our Digital ATV Experimenters nights have continued to be successful with many articles of show and tell including CODEC2, Lo-Key magazine, Scientific American magazine article on CubeSats, set top box mods to run them off 12 V DC for portable operation, 1984 Amateur Radio Action magazine which featured the Quoin Ridge Monitoring Station, VK7PAH's latest Arduino project, the Canon Hack Development Kit and dual batteries in vehicles. Our video presentations library has grown to over 240 titles which we are adding to each week. Interested? Come along on Wednesday night at 7:30 pm in the Queen's Domain clubrooms DATV Studio. See you there!



## Centenary Video

The WIA Centenary Video is being made available for purchase by members.

The high quality twin DVD boxed set includes footage from the Centenary Dinner, Historic Presentations & Sunday's visit to Dick Smith's property.

Register to reserve your copy today by simply going to the WIA website and complete the registration form under "News & Events" - "Centenary Celebrations".

# Multiband antennas

Kevin Parsons VK2JS

Amateurs new to the hobby, or others casting about for a general purpose HF antenna, will invariably consider centre-fed doublets of some kind, of which easily the most settled upon must be the G5RV- around since the late 1940s and built in the thousands by new and seasoned amateurs alike. Notwithstanding its popularity, the idea of forcing any single-wire antenna to serve a number of bands is not universally supported. So some thoughts; especially on the G5RV, but perhaps more generally.

From time to time we hear someone holding forth, with great wisdom, along the lines 'of course, old man, you must understand the G5RV is, after all, a compromise; there are better arrangements, you know'. Well no doubt there are better arrangements if one has the real estate. But, as simple wire antennas go, it is a pretty good compromise. Though nothing magic, it is 31.1 metres (102 feet) of 100-percent used, un-trapped, wire in the air. A clever, essentially 20 metre antenna, without extremes of impedance on several bands, providing a relatively easy task for the necessary antenna tuner. G5RVs and the like have a good deal going for them in suburban situations where a multiband antenna is often more workable than a nest of dipoles.

Now that signs of ten metre propagation are returning, one negative aspect of the G5RV, glossed over in most literature, could be worth a mention. Unhappily its performance on 28 MHz is not the best; contributing factors being the length of the antenna itself, and the interface between coaxial cable and the feedpoint of the matching section. Taken in isolation one would not set up a ten metre antenna along these lines, though even the proverbial piece of wet string will sometimes work.

As we know, the antenna is commonly fed through a 14 MHz

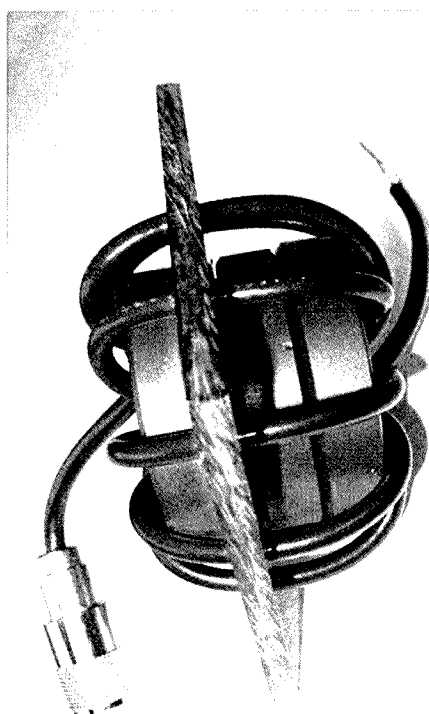


Photo 1: The assembled choke, side view.

half-wave open-wire matching section, about 10.36 metres long, depending on velocity factor. Being three half-waves long on 14 MHz, it presents an acceptable impedance at the antenna centre, about 100 - j40 ohms, which is then reflected to the lower end of the open-wire section presenting a similarly acceptable interface to 50 or 70 ohm coax. The problem is that at 28 MHz, the antenna is exactly six half-waves long and, this being an even number, the feeder will be connected at a voltage node, looking into a very high impedance; perhaps several thousand ohms. The 14 MHz half-wave matching section, a full-wave on 28 MHz, will reflect this same high impedance down to the junction, producing a most unacceptable interface with the coax.

Though the environment of the antenna may vary the parameters, the potential weakness is very much there. Newly licensed around 1980, the writer built the first of several G5RVs without thinking too much

about it, and was disappointed to find it seriously outclassed on 10 metres by a simple half-wave dipole – much more so than differing lobe patterns would indicate.

Modifying it to, say, the ZS6BKW version will circumvent the problem, but it can be attended to in several ways. One is to effectively shorten the antenna on 28 MHz by one half-wave, so that it becomes, electrically, five half-waves long and thereby fed at a current node. A comfortable impedance at the feed point will be reflected at the bottom of the matching section.

This is easily brought about by converting the outer 2.47 metres on each end of the G5RV into a 28 MHz quarter-wave trombone; effectively lopping, at this frequency, one quarter-wave from both sides of the antenna. All one does is run a parallel wire for this distance spaced an inch or two below the antenna, shorting it to the main wire at the far point. The ease of tuning, and the liveliness of the antenna on ten metres should dramatically improve, with very little effect on other bands.

Turning to feeder arrangements, there is much to be said for running open-wire line to the centre of any freely-suspended antenna; 100 percent reliability; no water problems; no heavy coax, balun, connectors etc. to pull the centre downwards. And, in the case of G5RVs and variants, the inherent provision of the prescribed matching section. But whatever the antenna, it is clearly not sensible to join coax directly to open wire line; centre conductor to one leg and braid to the other. It is tantamount to grounding or partially grounding one half of the antenna via the outer surface of the braid. To what degree will depend on the length of the coax, proximity to ground, metal, wet brickwork, and the like, frequency in use, and others. The many variables are best removed by isolating the outer of the braid from the rest of the system.

In this context, the use of ferrite cored trifilar baluns in transmission lines with high standing-wave ratios is strongly not advised. They can become highly inefficient at circuit impedances significantly above or below the design value. To counter this, many have installed a simple choke using the coax itself immediately before the junction. A coil of some ten turns, about 0.15 metres diameter, is typical. Although a step in the right direction, such a choke is likely to have an inductance of about 15 microHenries yielding about 350 ohms on 80 metres, which is not really enough for the desired isolation. Also on the higher bands self-capacity between the coils may seriously lessen its effectiveness.

Nevertheless a suitably configured choke can be highly effective. After all, coaxial cable wound into a coil will throughput RF energy as would an equal length of uncoiled cable. Only the outer surface of the braid looking backwards from the junction is at issue. If the impedance of the coiled braid could be raised, with lowered self capacity, the resulting choke should be capable, on all bands, of isolating the junction from ground. The trick is to use little coax plus a fair amount of ferrite.

An easily-made arrangement, which has been used with various multi-band doublets, is based on eleven turns of coaxial cable looped comfortably through two or three FT-240-77 toroids, or similar ferrite devices, in which the winding is spaced to minimize self-capacitance while providing sufficient inductance.

Close to 1.4 metres of RG58 or equivalent cable is threaded through holes in a piece of acrylic sheet sandwiched loosely between the toroids. The acrylic is drilled with considerable precision to make two concentric rings each with ten holes to locate the inside and outside of the turns plus one at the centre. The inner-ring diameter being 3 cm, and the outer about 8 cm with the holes placed to bisect the angles between the inner-ring holes and the centre. The sixth turn, at the half-way point, is a pass through the centre

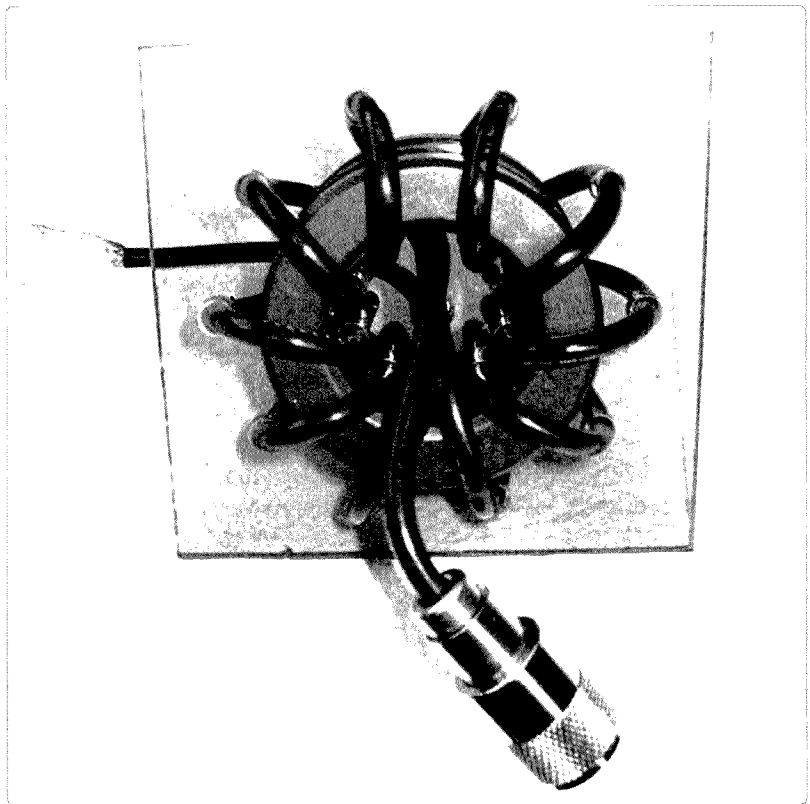


Photo 2: The assembled choke, from the top.

hole. The ends of the coil, when completed, will thereby appear at opposite sides of the winding. For RG58 cable, 6 mm holes are suitable and, to space the turns, the inner ring must be marked accurately and drilled carefully. The winding holds the toroids in place. The photographs show it more clearly.

The inductive impedance between the ends of the braid of such a choke using three toroids should be greater than about 10500 ohms at 3.5 MHz, and higher at 28 MHz. There is the prospect of considerably better performance than obtained with the simple coiled-coax choke mentioned earlier, and with a layout not likely to produce series-resonance problems at amateur-band frequencies. PVC plumbing bits and pieces make a good waterproof container.

Of course some are able to run open-wire feeder from the centre of the antenna right into the shack. The feeder, no matter what the VSWR on the several bands, will be virtually lossless. The choke can then be installed between the end of the feeder and the, presumably

unbalanced, tuner output via a short length of coax. In the case of the G5RV, it will still be helpful to get rid of that sixth half-wave on 28 MHz.

Living in an over-55s estate these days with space restrictions, the writer uses a random-length, centre-fed antenna plus a robust T-match tuner, mostly on 80 and 40 metres. It is somewhat shorter than 31.1 metres (102 ft) and fed by an equally random length of home-brew feeder, all of which the tuner takes care of with ease; on all bands including 10 metres. From signal reports the system appears comparable with resonant directly-connected half-wave dipoles. If carefully constructed, avoiding components with lossy potential, the *compromise* opinion referred to in the beginning seems hardly justified. Furthermore, it is highly satisfactory, with only one general-purpose wire antenna, to get back on ten metres from time to time; a great band for DX when it is open, and for local rag-chewing at other times. There is, too, the background concern that, if we do not use it, the powers that be will turn beady eyes to it.

Tim Mills VK2ZTM  
vk2ztm@wia.org.au

It is the big month for the **Oxley Region ARC** with the 36th annual Field Day in the club's 40th year. It will be on Saturday 11 and Sunday 12 – on the June long weekend. Details of the venue and dinner were given in the May issue of *AR* magazine. A bit of late information is that Dot VK2DB will be in attendance as the VK2 representative of ALARA. Main local repeater is VK2RPM on 146.700 MHz, with back up on VK2RCN 147.000 MHz.

The **Illawarra ARS** is running a crystal set construction competition for the rest of 2011. Check out the rules on their web site [www.ars.org.au](http://www.ars.org.au) Their annual picnic is being planned for Saturday 10 September – a full day of fox hunts, BBQ and DX radios. The monthly meeting is held on the second Tuesday evening at the Visitors Centre, Industry World on Springhill Road, Coniston. There is a possible change of venue. Their linked 2 metre repeaters provide coverage from north of Sydney to south of Batemans Bay. In the north is 146.850, then 146.975 and finally 146.675 MHz. IRLP node 6018 and no access tones are required.

The **Central Coast ARC** outside the annual field day is a hive of activity. Business night the first Friday and lecture on the third from 7.30 pm. The club rooms in Dandaloo Street, Kariong are also open Saturday morning from 10.30 am and a project and development group meet on Tuesday at 7.30 pm. Visit [www.ccarc.org.au](http://www.ccarc.org.au) or phone 02 4340 2500.

The **Orange & District ARC** are nearing the end of their anniversary special call VI50AOA. Their monthly meeting on the first Friday evening is now held at the Orange SES HQ in McLachlan St.

The **Hellenic Amateur Radio Association of Australia Inc** is preparing to invade Lord Howe Island between 24 July and 2 August 2011 with a DXpedition – VK9HR. You can contact team leader Tommy VK2IR on 0413 005 511 or [president@haraoa.com](mailto:president@haraoa.com)

The **St. George ARS** are also in the anniversary mode with a special event callsign VK40SGARS until the end of July for their 40th Anniversary. The first meeting was at the home of [SK] John Lambert VK2AKQ in South Hurstville in May 1971. They held a dinner on May 4. For more details [www.sgars.org](http://www.sgars.org) or email to [info@sgars.org](mailto:info@sgars.org).

The annual **Waverley ARS** auction will be on the morning of Saturday 9 July at the Rose Bay club rooms. The **Riverina Field Day** will be held at Lavington on Sunday 31 July. The **Summerland ARC SARC FEST** is on 7 August. The **Illawarra ARS** field day Saturday 10 September.

**Wagga Wagga & Districts Amateur Radio Club's** AGM will be held in the clubroom in Small Street, Wagga Wagga on 24 June at 8 pm. Please come along to show your interest in our club.

The annual **Urunga Radio Convention** was held over Easter with an attendance of about 50. Reports received advised that there was generally good weather with a couple of bits of light rain Sunday but this did not deter the fox hunters, who had stiff competition from the VK3 teams.

**ARNSW** held their AGM in the Centenary Building at the VK2WI site on Saturday 16 April. Special guest was WIA President Michael Owen VK3KI. Also attending was Vice President Phil Wait VK2ASD.

It was a wet day but there was a good attendance considering the conditions. The business was soon dealt with and Michael addressed the gathering on a range of national and international aspects of the hobby. Phil spoke about various technical matters. A BBQ lunch concluded the proceedings.

The call for nominations for this year's ARNSW committee resulted in the previous personnel, less Michael Corbin VK2YC, standing for 2011/2012. A ballot was not required. The positions are also similar to last year with Terry Ryeland VK2UX as President and Education Officer. Mathew Magee VK2YAP as Senior Vice President, Web Master and Broadcast co-ordinator. Peter Zielinski VK2PJZ as Junior Vice President and Security. Norm Partridge VK2TOP as Secretary and Membership. Brian Kelly VK2WBK as Treasurer. Tim Mills VK2ZTM with Dural Property, Publicity, Minutes and AR notes. Mark Blackmore VK2XOF as Dural Engineer, Deceased Estates and Trash & Treasure. Bob Yorston VK2CAN with Social and Welfare activities.

The next Trash & Treasure at the VK2WI site will be at the end of July. The Monday evening training session is well underway with Terry VK2UX as the tutor. It is expected to continue until the spring. The higher HF bands are improving. The first DX QSL card for many years arrived recently for the Dural based 10 metre beacon VK2RSY on 28.262 MHz. Telephone contact with ARNSW by either 02 9651 1490 or 0400 445 829. Mail to P. O. Box 6044 Dural Delivery Centre NSW 2158. Email to [secretary@arnsw.org.au](mailto:secretary@arnsw.org.au) or web site [www.arnsw.org.au](http://www.arnsw.org.au)

73 – Tim VK2ZTM



# A device holder for SMD construction

Winston Nickols VK7EM

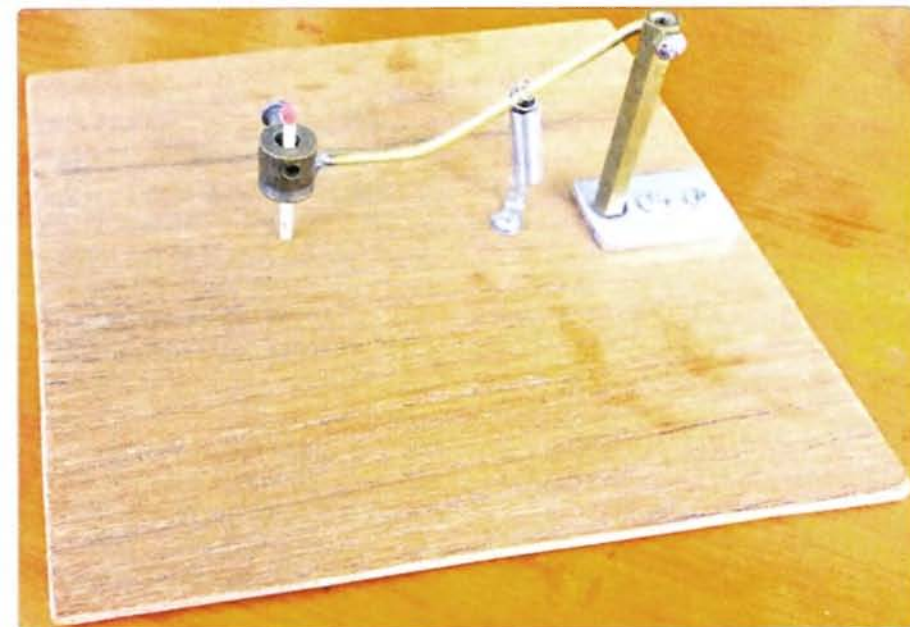


Photo 1: The SMD device holder.

When installing surface mount devices (SMD) I notice most instruction sheets suggest using tweezers.

Well, in my experience it is very likely the component will 'shoot' out and probably end up on the floor or be lost. Also I find 'tacking' the component in place with solder carried on the iron could cause more stress to the chip as it has to be done properly a second time.

I built this device which overcomes these shortcomings and allows two free hands, one for the solder, and the other for the iron. Place the chip over the required pads and align it carefully. With a good magnifier it is now a simple matter (and fun to watch) to have the solder 'pop' neatly into place.

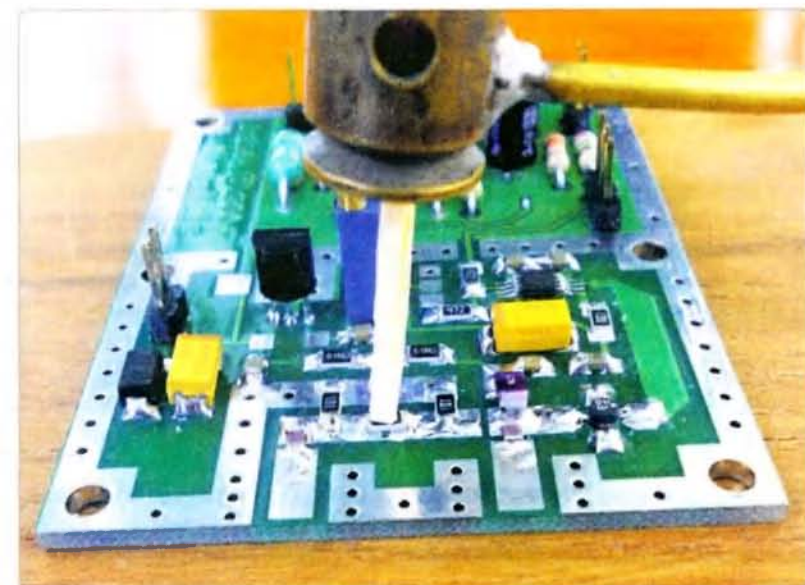


Photo 2: The SMD device holder in use.

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# Down in the dirt: radio earths...

Dale Hughes VK1DSH

Most amateurs have some sort of radio earth connection for their radios and aerials. This earth is generally separate from the 'mains' earth which provides protection to the operator in the event of an electrical fault. The radio earth is likely to be a ground rod driven into the soil somewhere near the radio; its function may be for lightning protection, noise reduction, or just to provide a common reference point for various items of equipment. For many aerials and frequency bands the earth connection does not play a big part in our ability to transmit or receive signals with high efficiency and so the resistance of earth connection is not often considered.

There is a great deal of information available about installing earth systems in the technical literature (both amateur and professional), but the focus of this article is on calculating and measuring the resistance to earth of whatever earthing system you have installed rather than the actual details of installing an earth system.

The impetus to write this article came from the need to get a 'good' earth for use with a short vertical aerial on 137 kHz. For the lower frequency bands, especially if using short vertical aerials, the earth plays a significant role in the station's ability to radiate a signal with reasonable efficiency. With typical aerials that can be constructed in a domestic/urban situation, the earth resistance is probably the dominant loss factor and reducing it can lead to significantly improved transmission efficiency.

The importance of a good earth is well known to communication professionals who install MF and LF transmission systems; such installations may have 120 or more quarter wave radials centred on the vertical radiator. As the wavelength increases so does the length of wire needed to get a suitable earth.

This sort of approach is beyond the resources of the typical amateur who has to accept a much poorer radio earth.

Having built a 'T' type aerial about 10 metres high and 26 metres long, the earth system needed attention. The original station earth consisted of three 1400 mm long by 12.5 mm diameter copper clad steel earth rods, spaced about 1500 mm apart and connected together. (The rods are available from electrical wholesalers.) Following transmission tests, a further three spaced rods were added which resulted in slightly increased aerial current when transmitting. At this point I thought 'what is the actual earth resistance and how might I measure it?'

An initial attempt to simply measure the DC resistance between the cold water tap and radio earth gave no sensible result as there were several hundred millivolts of AC voltage between the two earth connections. A better technique was required... but another question then arose – is the cold water tap a very good earth? How would I know?

A partial solution to the first problem was to use a four-terminal measurement technique with a battery, current limiting resistor and two voltmeters. Figure 1 shows the circuit. By measuring the current that flows through the earth and the voltage across the earth connections, the earth resistance can be calculated.

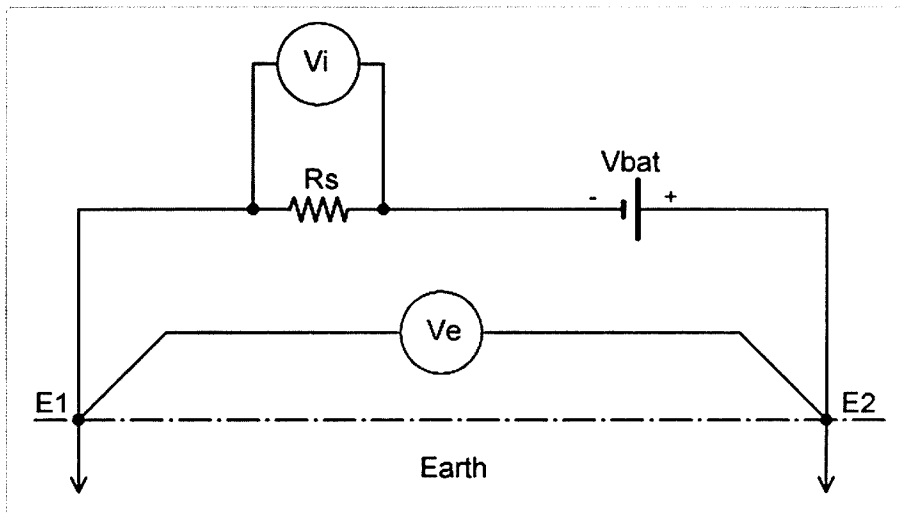


Figure 1: Four terminal measurement of earth resistance using DC excitation. If DC excitation is used it is useful to repeat the measurements with the opposite polarity to assess the measurement errors caused by electrode polarisation. The user is free to select the excitation voltage ( $V_{bat}$ ) and the value of the current limiting resistor  $R_s$ . I used a 24 V battery and a 33 Ohm resistor. The earth resistance is calculated using

$$R_e = R_s \frac{V_e}{V_i} \quad (2)$$

Where:

$R_e$  = the apparent earth resistance,

$R_s$  = value of current limit resistor,

$V_e$  = voltage measured across the earth electrodes,

$V_i$  = voltage measured across the current limit resistance,

$E1$  &  $E2$  are earth electrode connections.

This approach worked quite well and my initial measurement was under one ohm! I was pleased - it seemed too good to be true - which it was... there was equipment connected to the radio earth that also had a mains earth connection, so my first attempt was actually measuring the resistance of the copper wire that connected to the mains earth. But it did show that the mains earth is well connected to the cold water tap - a useful thing to know. A repeat measurement between the earth pin of a power point and the cold water tap confirmed the measurement. A slight digression at this point: We all know that the 240 VAC mains socket has three pins: an active, a neutral and earth. It turns out that the neutral wire is connected to earth at the fuse board of every consumer, all of which are connected by a common neutral wire. This is called the Multiple Earthed Neutral system. The end result of this is that the mains earth pin has many physical connections to the actual earth which results in it having a very low resistance and this is important if the mains earth is to adequately perform

Earth configuration	Apparent resistance
Mains earth pin to cold water tap	0.4 ohms
Isolated earth rod to cold water tap	42.8 ohms
Radio earth (6 stakes) to cold water tap	5.5 ohms
Radio earth (7 stakes) to cold water tap	4.9 ohms
Radio earth (8 stakes) to cold water tap	4.5 ohms
Isolated earth rod to radio earth	47.8 ohms

Table 1: Summary of earth resistance measurements. The table shows the dramatic reduction in earth resistance due to installing additional earth rods; the results also show the reducing incremental decrease in resistance as additional rods are added. Note that earth rods should be spaced by at least their length so that effects of mutual resistance do not compromise the effectiveness of the earth.

its protective function. It also makes it a suitable reference point of our purposes in measuring the resistance of our radio earth.

Having established a suitable reference earth, it was then easy enough to measure the resistance between the radio earth and reference earth. As the DC method has some issues due to polarisation of the electrodes, an AC source was used, as shown in Figure 2, for all following measurements.

After some research about measuring earth resistance I came to the conclusion that knowing the

actual resistivity of the soil around the earth system would be useful. A simple formula to calculate the resistance of a single isolated earth rod is given in a number of documents (1):

$$R = \frac{\rho}{2\pi L} \left[ \ln\left(\frac{8L}{d}\right) - 1 \right]$$

Where:

- $R$  = resistance (ohms)
- $\rho$  = soil resistivity (ohm.metres)
- $L$  = buried length of earth rod (m)
- $d$  = diameter of earth rod (m)

This equation is often called the 'modified Dwight formula' after its creator. If  $R$  is known by measurement, the equation can be inverted to calculate the soil resistivity ( $\rho$ ). In this case, for  $R \sim 43$  ohms, then  $\rho \sim 65$  ohm.m. Note that the value will change according to soil moisture content and temperature. The calculated value is fairly typical for inland soils. An additional benefit of knowing the soil resistivity is that it can be used to refine the results obtained from antenna modelling software by entering the appropriate data in the model parameters.

Following the resistance measurement of the single isolated earth I added a seventh, then eighth and final earth rod to the earth system to see the effect. The end result was a ground resistance of 4.5 ohms which is slightly less than the calculated parallel connection of earth rods.

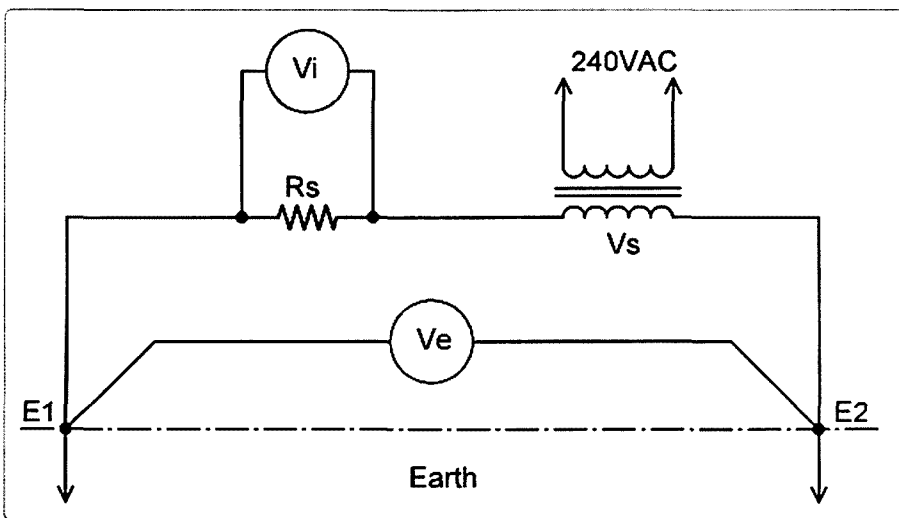


Figure 2: The AC version of the four terminal resistance measurement technique. The excitation current is calculated from the voltage measured across the series resistor. As before, the user is free to select other excitation voltages ( $V_s$ ) and current limit resistor, equation (2) is then used to calculate the resistance. For this case I used a 75 ohm resistor and a 40 VAC supply. In both cases a suitable ammeter may be used instead of measuring the voltage across the current limit resistor, but the resistor should always be included to prevent large currents flowing in the event of a short circuit.

The difference is probably due to the use of bare copper wire linking all of the rods, small scale variations of soil resistivity or the presence of buried conductors such as water pipes and tree roots. The final configuration of the earth rods and connection wires is an approximately radial array of earth conductors and rods that form a conductive network to ground at the point where the current density is highest, that is, at the feed point of the aerial.

Table 1 summarises the results of the measurements between the

various earth connections.

### Conclusion

It appears that in a suburban area the mains earth is a suitable reference point to measure the resistance of the stations radio earth if a suitable measurement technique is used. Measurements show that installing additional earth rods can significantly decrease the earth resistance, but that additional rods provide incrementally smaller reductions in earth resistance. Note that measurements made at other

sites will be different due to different soil characteristics (including soil moisture) and presence or absence of other sub-surface conductors.

### References

1. See for example Australian Standard 'Lightning protection', AS/NZ 1768:2007 Appendix C which has a useful table of resistivity for various soils and equations for calculating the resistance for various earth system configurations.



# The Darwin ARC at the WIA National Field Day in Darwin, 2011

*Spud Murphy VK8ZWM*

The Darwin Amateur Radio Club (DARC) display was at the Rapid Creek Business Village Sunday markets. We arranged with the markets manager Costa for a good position with outside access so we could erect some antennas.

What a great day, lots of people, lots of great food, coupled with lots of interest shown in our display.

Alan VK8AB brought along his computer and wireless internet adaptor to give us a fairly noise free HF set-up remoted from home. Much better than all the electrical noise at the shopping centre.

Spud VK8ZWM and Peter VK8HPB brought along their VHF and UHF



*Photo 1: Members of the DARC at their NFD site, the Rapid Creek Business Village Sunday markets.*

equipment and antennas so we had HF, VHF and UHF as well as D-STAR operational. Quite a few contacts were had with other sites and operators around the country via IRLP and D-STAR including two into ZL.

We had 13 good enquiries and quite a few others showing some interest. We gave out lots of handouts and information about the Foundation licence as well as what is needed for the Standard and Advanced. Let us see what comes of the enquiries. We have already had more than 20 successful examinations in the last year.

In all, a far more successful exercise than last year's NFD.



## WIA Contest Website

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[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)



# My FT-290R repair adventure

Steve Ireland VK2MD (ex VK5AOZ)

I always loved reading 'The Serviceman' where the skilled serviceman quickly tracked down and fixed a problematic TV or radio with almost surgical precision. This article is slightly different. It describes the successful repair of an old radio by a more circuitous route by an amateur who had not touched a soldering iron in 20 years.

I was licensed in the early 1980s and in about 1983/84 I purchased an FT-290R. I used this rig pretty constantly till the early 1990s, then with marriage and work taking priority I pretty much stopped playing amateur radio and the rig was put away in a box. I knew that one day I would want to use it again.

That one day arrived again in 2010 when a friend of mine caught the amateur radio bug again and he infected me, blast it! I purchased a new HF radio, a FT-950, and had an FT-50R from 1999, but really wanted a fixed two metre rig for the shack. The FT-290R would fit the bill nicely! Out came the old girl, which had the mobile mounting bracket, and a 25 watt amplifier, attached. I connected power, an aerial and switched on. A big 'Phuutt' noise ruined my day and magic blue smoke leaked out of the amplifier box. The FT-290R was silent. On further investigation the big 'Phuutt' was a tantalum capacitor in the amplifier going short circuit and blowing up. That repair is another story.

After being out of radio for a number of years, and being a bit rusty, I decided that this was a great project to get back into the technical aspects of radio. After all I had a full call (Advanced) licence. I had the circuit diagram from the original manual. This is also available as a download from the web and has the benefit of being able to be magnified, thus I could also write notes and add voltage levels and the like. I still had my old trusty Fluke 77 digital voltmeter (circa 1983) and had recently acquired an old 400 MHz oscilloscope via eBay.

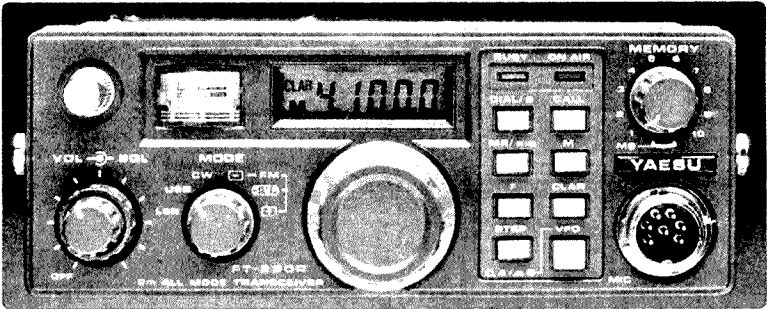


Figure 1: The FT-290R transceiver

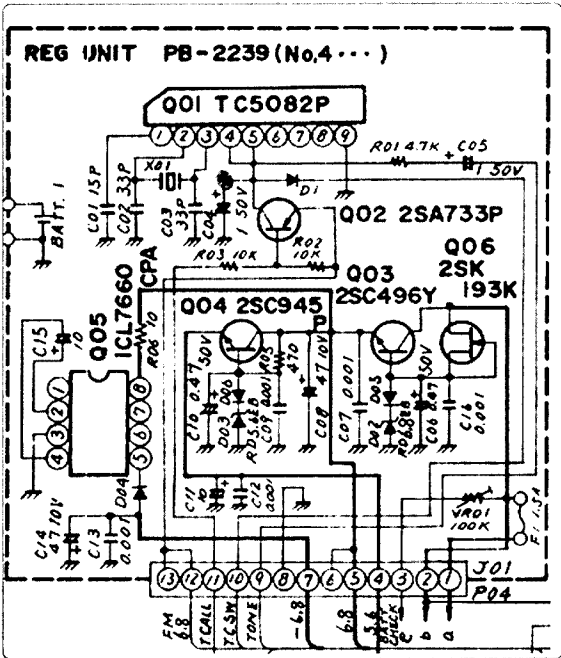
My poor old FT-290R was silent. Turning up the volume and playing with the squelch yielded a few crackles and bangs on the speaker. When tuning in on an FM repeater channel that was active I noticed that the S meter was at full scale deflection when there was signal. I selected CW, USB and SSB with the same results. The RF and IF stages seemed to be working correctly, but there was no audio output. OK, so it was the audio section.

I opened up the rig and removed the battery section. I had replaced the D cell batteries and carriers with two sealed six volt lead acid batteries when I first used the rig. Fortunately these batteries had not

leaked but they were 'as dead as a dodo' so they will go to the local council depot for environmental disposal. I opened up the top cover and was confronted with the most tightly packed circuit board that I have ever seen. Yaesu put a lot into this little radio and to fit it all in they used tiny components and packed them in tightly. Of course this was before surface mounting so they were all wire through-hole components.

First things first. Before launching directly into the audio unit I had a look at the regulator unit which generates various voltages, holds the fuse and backup battery and for some reason hosts the tone generator for the call function. All

Figure 2: The DC regulator circuit.



the voltages checked out OK though the -6.8 volts was a little low; so nothing further needed doing here. One bizarre thing was that my circuit diagram that came with the rig shows a chip (Q05 ICL7660CPA) that generates -6.8 Volts, whereas the downloaded schematic has a circuit made up of discrete components. The regulator board on my rig uses discrete components like the downloaded schematic. Maybe this is why the -6.8 volts was low.

I had to find the audio section which is dominated

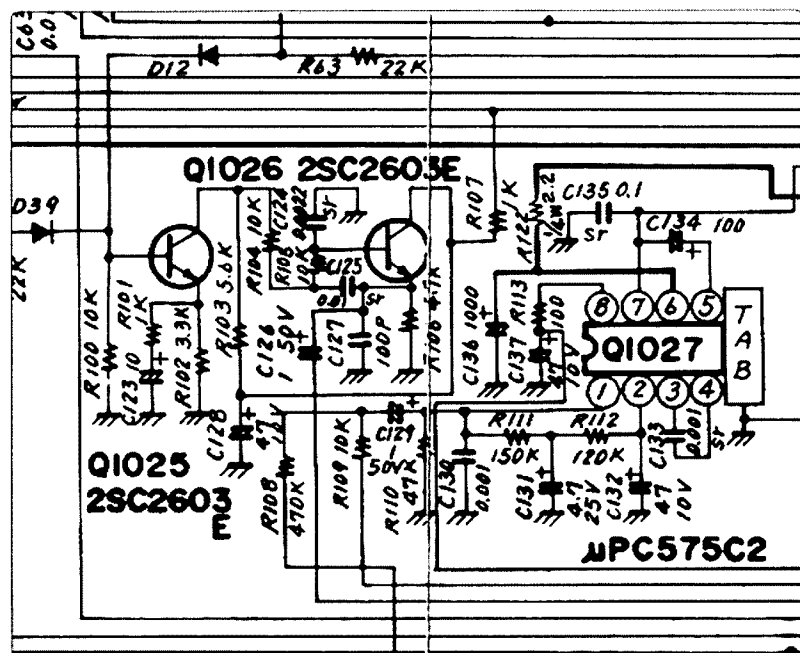


Figure 3: The audio amplifier circuit.

by Q1027, an uPC575c2 two watt audio power amplifier. I found and downloaded a specification sheet, but this was not very helpful, and I could not find any application notes. The chip was found at the top right hand side of the rig (with the front face pointing towards me). This chip must dissipate some heat as it has its own little heat sink attached, that is shown as TAB on the circuit diagram and it's fed directly by 12 volts. The chip had power (pin 6) and earth but no output. Input to the chip is via pin 1 and I wanted a more reliable input signal than waiting for somebody getting onto the local repeater, or trying to key and whistle, or using DTMF tones on my handheld. I did notice that the CW tone generator also feeds into this chip through R108. Turning to CW mode and attaching a key, I saw a stable audio signal on my new scope, on the -ve terminal of C129, a 1  $\mu$ F electro, which is acting as a blocking capacitor to the input to the chip. By clamping together the wires attached to my Morse key I could have a continuous 700 Hz tone injected into the audio chip to aid fault finding. Directly on pin 1 I saw the attenuated signal and thought that the blocking capacitor had gone bad. So I replaced it. No; still faulty. Maybe R110, a 47 k $\Omega$  that

goes from the input pin to ground is open or had gone wrong. So I replaced it. No; still faulty. Maybe the attenuated signal is actually correct onto pin 1, so why no output. Let's check the output on pin 7 and also on pin 5. Not very conclusive, but I will change C134, a 100  $\mu$ F electro, which is a blocking electro between these pins. No, still not working. I looked at the filter chain between pin 1 and 2 on the input circuit again and decided that this was OK as signal was getting to pin 1. Pin 2 looks like another input and the filter chain was adding a 180 degree phase shift to the differential input to pin 2. Another electro C137, 47  $\mu$ F, was replaced - this hangs off R113, 100  $\Omega$ , on pin 8. This circuit turns on the chip only in CW or FM mode and this still had no effect, and the audio amplifier was silent. OK, so the chip must be bad. I searched around on the web and luckily found a supplier in Australia who still had supplies of this old chip. I successfully, miraculously, managed to de-solder the chip and plonked the new one in, and expectantly turned on the radio. Nothing, still broken, zilch! I was depressed and thought I had better go rip up my amateur licence!

I re-read the specification sheet for the audio amplifier and compared it with other more modern

chips. Still no help, though the 180 degree phase change circuit had disappeared on later chips. OK, let's go back to first principals. I looked at the internal circuit diagram of the chip and realized that pin 2 was not a differential input, but a power line, and the 180 degree phase shift network was a biasing/filter chain to pin 1. It had nothing to do with a 180 degree phase change at all. Furthermore, the DC voltage at pin 1 at was not obeying the voltage divider law between resistors R110, 47 k $\Omega$ , R111, 150 k $\Omega$  and R112, 120 k $\Omega$ . It was too low. My suspicion then led to electros C131, a 4.7  $\mu$ F electro and C132, a 47  $\mu$ F electro, that act as the filter capacitors in this chain of components. If these were leaky then they could be bleeding current to ground. I replaced them and was rewarded with a pure sweet tone from the speaker. It was working. That was the problem.

Hooray! Reviewing and contemplating what I did right and wrong, I can see that I jumped to the wrong conclusion regarding the chip as I did not understand how the chip worked. Oh well, it is a pretty old chip, and modern chips doing the same thing do not need this external bias chain, so I let myself go a little astray here. So it seems that the electros were going dry and leaky and this caused a low bias to the input of the chip.

Hooray, I have fixed my rig. OK, a few dead ends but it is now working. I tuned to my local repeater, still in CW mode and heard the typical buzzing sound of FM coming through a SSB demodulator. I turned the dial to FM and out came crystal clear speech. Ha! - just an audio problem. As I listened however the voices disappeared and the squelch came on. Ay...what? The S meter was still full scale. I switched back to SSB and got the usual buzzing sound and then switched back to FM where I heard clear voices but again they disappeared after 30 seconds or so. So what is wrong? It must be the FM demodulation section as signal is getting through on sideband.

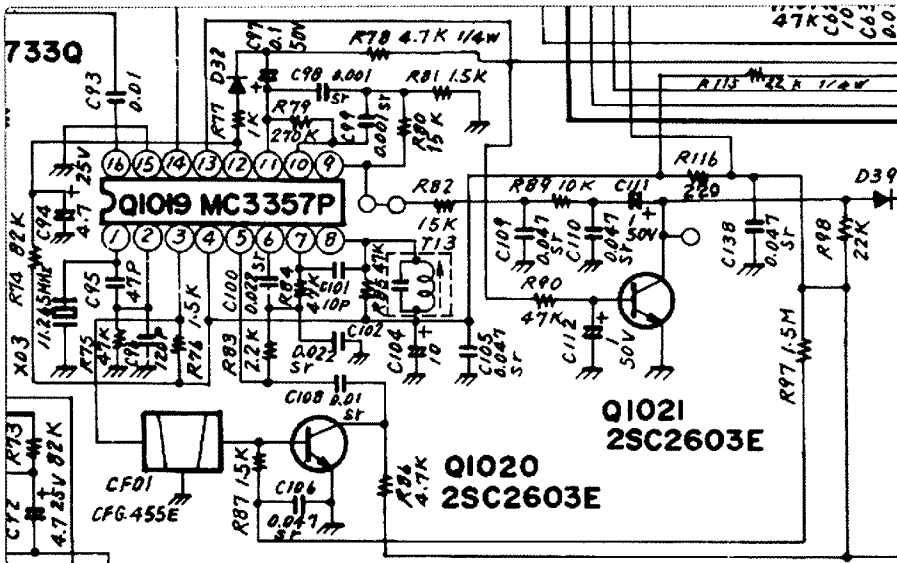


Figure 4: The FM demodulator.

The FM demodulator chip Q1019 (MC3357P) has been superseded a couple of times since the 1980s, but its children and grandchildren operate in pretty much the same way, and there are plenty of application notes available. One of the variants even had waveform pictures for each pin! Fantastic! Finding it on the circuit board was not obvious as it is hidden below the bundle of wires that lead from the front of the rig to the back. Again everything jam-packed, but with plentiful information on how the chip worked, this should be easy to fix!

### MC3357P description

10.81 MHz comes into pin 16 from the first IF section to be demodulated by the chip. An internal Colpitts oscillator is frequency controlled via pins 1 and 2, crystal X03, and 11.265 MHz is mixed with the 10.81 MHz input signal to create a 455 kHz second IF, which is output on pin 3. This goes to a ceramic filter, CF01, with a 7.5 kHz bandwidth and passes through IF Amplifier Q1020 (2SC2603E) which gives the signal a little boost to compensate for the filters insertion loss. Pins 5, 6 and 7 form a five stage amplifier/limiter where the second IF signal is amplified and any AM modulation is rejected. FM is detected using the quadrature coil on pin 8. Audio is finally output on pin 9. A portion of the output signal is fed into an op amp set up as a noise amplifier,

which is configured by components attached to pins 10 and 11. Noise is detected by D32 to produce a noise voltage in pin 12 which can be adjusted by the squelch potentiometer to control squelch level. When noise is detected, pin 13 goes high which turns squelch transistor Q1021 (2SC2603E) hard on, thus short circuiting any signal to ground and squelching the audio that is normally delivered via D39 to the audio amplifier section. Pin 14 meanwhile goes low and this is detected by the CPU to control memory scan functionality. De-emphasis is provided by R82, R89, C111, C109 and C110. Pin 4 is the positive supply rail and pin 15 is ground and these pins play a big part in the next section.

OK so there is a decay type problem here. This smells like another electro. I started with the supply voltage at pin 4. The power supply voltage is sourced from FMR6.8, FM receive 6.8 V, so it is only there in FM receive mode. When I changed to SSB this became zero volts, and when switched back to FM pin 4 jumped to about six volts then decayed to 4.5 volts. On the oscilloscope the supply volts was jumping around and noisy. Something was bleeding away current somewhere and not filtering. FMR6.8 voltage is fed to the chip via a 220 Ω resistor, R116, and filtered by a 10 μF electro, C104. So the

electro had gone leaky, I thought, and ripped it out and replaced it. Still I had the same problem. I replaced R116, the 220 Ω resistor as I thought it may have gone high, but with no success. There are quite a few electros around this chip so I took the opportunity to replace them all based on the audio amp experience. One problem I had was that Yaesu really did pack this board and managed to source very small miniature electrolytic capacitors. The only electros that I could get were still small, but not miniature. I did not have enough space to replace the old electrolytics with new ones. The solution was that we can now get monolithic ceramic capacitors up to 1 μF, and I used 3 of these, instead of the low valued electros. I researched replacing electros with monolithic capacitors on the web but could not find any information that it was good or bad, so in the monolithics went. This freed up enough space for the other bigger electros.

Unfortunately still no go. Next to the big filtering capacitor, C104, is another small decoupling capacitor labelled C105 0.047 sr. In the parts list sr is expanded to semiconductor. A semiconductor capacitor! I had never heard of this and neither had the web. I was a bit worried but it looked like a ceramic, so out it came and in went a monolithic. Still not working.

OK so now it really is the chip. I managed to get a couple of MC3357P from an Australian supplier and soldered in an IC socket, just in case, while I was waiting for the postman to deliver the new chips. I excitedly placed a new chip in the IC socket, turned on and..... same problem - the old chip was perfectly OK. The lesson I am learning here is that chips are quite resilient with age and ripping out a chip is really the last resort. However, having a socket here proved to be very useful. The circuit is such that you can power up the radio without having the chip installed.

Continued on page 19

## Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

### Museum Weekend and World Amateur Radio Day



The Marconi Hut where it all took place.



Lou VK3ALB.

This year the two events were coupled over a weekend at the Queenscliffe Maritime Museum where the administrator and Hon. Secretary June Negri enthusiastically supported the club's activities over the two days. This included us erecting a permanent mast and pulley system for the G5RV antenna outside of the Marconi hut. Whilst we had several interested visitors during the period we were slightly done down by the nearby Thomas the Tank Engine event that was also going on that weekend in Queenscliffe!

The operation as VK3ATL, the club call sign, mainly on 40 m as the band was very active and VK1 to VK7 were worked quite comfortably but by mid afternoon 40 m was subject to very heavy QSB.

The 2 m band was also catered for using a ground plane antenna rather than a Yagi.

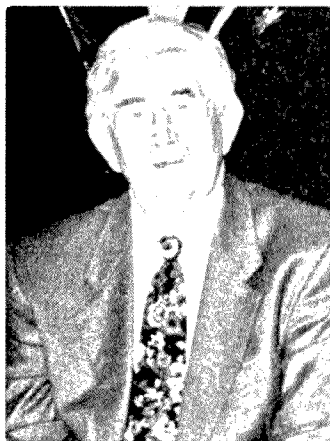
Inside the museum the GARC had contributed a lot of radio equipment reflective of historical maritime communications and placed it in a show case; amongst which was an Eddystone 640, prevalent in the 1950s, a Codan 7007 AM transceiver from the 1970s and a radio for ships inflatable life rafts and life boats, with a built in generator.

### Geelong Regional Museum

At Osborne House, situated north of Geelong, is the Geelong Regional Museum from which the club has operated in previous years, but this year was only a static display of historical radio equipment loaned by club members.

Radio receivers and Transceivers loaned to the museum by members of the GARC.





Jack VK3ALP (SK)

### Jack Cations VK3ALP – SK

The family of Past President Jack Cations generously donated his radio equipment to the GARC to use or dispose of for the benefit of aspiring radio amateurs.

For its part the GARC will use the bulk of it for training purposes and dispose of the balance by sealed bid tender.

To commemorate this donation the GARC is indebted to Paul VK3HRT, at Corio Engraving for designing the plaque which will sit alongside a framed photo of Jack; to be installed in the club house lounge.



## My FT-290R repair adventure Continued from page 17

This means that it was easy to measure all of the unloaded voltages at the chips pins. I did this and still noted that pin 4 still dropped, but now to only 5.5 volts not 4.5, and with no noise or bouncing. I concluded that the problem was still there and the higher voltage was due to the chip not drawing its nominal 2 mA current. Thus 3 mA was going somewhere else. I put the chip into yet another free IC socket and pulled various pins out of the socket, thus eliminating parts of the chip, and then plugged this into the socket that was soldered in piggy back style. I ended up with only pins 1, 11.265 MHz local oscillator in, pin 2, 11.265 MHz local oscillator out, 3, output to ceramic filter CF01, 4, input from ceramic filter CF01 via an amplifier transistor Q1020, 15, ground and 16, 10.8 MHz input, connected. Still the problem occurred with low DC voltage and the jumping up and down I noticed was related to the input signal strength. Weird!

The oscillator signals looked good on pins 1 and 2. Nice big sinusoids like the pictures in the specification sheet. I was getting input to pin 16. I managed to find a local two metre beacon as my test signal source and could just see signal on the oscilloscope. Besides I was getting audio output on SSB.

By exclusion there must be something screwy with the ceramic filter. There are two impedance matching 1.5 kΩ resistors, R75 and

R87, on the input and output to this filter. These were replaced with no success. With the power supply decaying and bouncing all the time, it was hard to see whether the signal was getting through the filter and driving the following amplifier. DC wise the transistor looked OK, with the base at 0.6 V. It must be the ceramic filter. Now I had made a couple of wrong assumptions about chips and I guessed that ceramic filters would also be pretty stable, so I did not want to remove this filter, as a replaceable part no longer is available. If I needed to change this filter I would need to buy a similar specified surface mount device and fettle a way to get it into position, or put a plea out on newsgroups to see if anyone has an old filter still laying around after 20 years - CFG655E anyone? I did not want to de-solder this filter unless I was absolutely certain. On the foil side I found the track that led to the input and with some trepidation I cut this track with a scribe. I figured I could always solder a bridge over the track. I monitored the voltage on pin 4 and it became rock solid stable at six volts. Something in the ceramic filter was dragging the supply down. To test to see if all of the following stages were OK, I jumpered across the filter with a 56 pF capacitor that I had lying around. I got a tone from the speaker and everything else seemed to work OK but, of course, without the benefit of a narrow passband

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filter. Oh well I need a new filter. Before heading down this route I just decided to bridge the track I cut with a 1 nF monolithic capacitor on the track side, just to see. This meant that the ceramic filter was no longer DC coupled to the power line and, miracle of miracles, it all worked perfectly. I got filtered signal. I could listen to FM signals for hours and not have a bouncing power supply at pin 4 or decaying audio. Hooray, I have fixed my rig. OK a few dead ends but it is now working. That crystal filter is a bit worrying however and I will put out a plea for a new one just in case.

All I had to do now was to get the radio back together and start using it. Because of my uncertainty in using monolithic caps to replace low valued electros, I did not directly replace them immediately into their correct locations on the board but soldered them onto the foil side. This meant they were easy to de-solder, if necessary, but also provided handy connection points for the oscilloscope and multi-meter probes. I de-soldered them all, put them into the correct locations, soldered them in and turned on the radio. Success, it all still worked, except, err, hold on, the squelch wasn't working very well anymore. I must have done something whilst de-soldering and re-soldering. Maybe I pulled out a wire from the component side. No, all still connected! Let's look at the squelch circuit then.

## Squelch

Squelch detection is provided by the FM demodulator IC with pin 13 going high when the noise filter detects noise. Pin 13 then drives the squelch switch Q1021 (2SC603E) hard on. This is a tiny transistor (of course) which when turned on, shorts out any noise to ground, rather than go to the audio amp. The voltage was going high on pin 13 and there was a voltage drop across R90, 47 k $\Omega$ , which drives the base. But the base of the transistor was not at 0.6 volts anymore. It was around 2.3 volts.

Squelch was kind of working with loud noise un-squelched, and partial noise when squelched. It looked like the tiny transistor has been fried when de-soldering the capacitors, and subsequent cleaning up of the holes with de-solder braid. De-soldering C112, 1  $\mu$ F, and cleaning up its hole, which is directly on the base of the transistor, would have been the culprit. A modern replacement is available, BC639, with roughly the same specifications, and the same pin outs, and this replaced the old transistor. Physically the BC639 is much bigger (of course)! Success, squelch returned to normality. The radio now receives on FM and squelches properly.

## Battery backup

Early on in repairing the FM section I got fed up with having to redial the frequency back to my test frequency, away from the 147 MHz local repeater, which is the default frequency on turn on. The old backup battery was 20 years old, flat as a tack and did not leak, luckily. This battery is soldered in with solder tabs attached to the battery. I did not even try and get a direct replacement with the same tabs but I found a similar battery of the same size, a CR2032 which is a bit fatter, with tabs. The tabs were in the wrong place and needed re-bending and reshaping with side cutters and a file but I managed to get one electrode directly soldered into the circuit board and connected the other with a bit of hook up wire soldered to the refashioned tab and into the circuit board. I did contemplate putting a button cell holder in, but there is not a lot of space and I thought that soldering was more secure. I replaced all of the old Mylar insulating film that was falling apart with new insulating tape on the regulator board and computer board. Easy.

## Putting it all back together

The top and bottom covers have some rubber sponge to hold things

tight and maybe provide some sound proofing. This had degenerated quite badly and when I pressed it with my finger it partially returned to a bituminous substance. It was reverting back to oil. I found a couple of mouse pads at a local stationary store. A fat one and a thin one. I cut these to the same size as the old sponge and used contact adhesive to glue them on the covers. I re-soldered the loudspeaker cable back to the loudspeaker as this was detached to aid in access to the circuit boards.

Because I am going to use this as a shack radio and not go walkabout with it I decided to return the rig back to the original battery arrangement. There are two plastic C cell carriers that hold four cells each and these were connected back to the recharge port. The carriers were held in place with double sided foam tape. I added some insulated bullet connectors so I could remove the covers without having to de-solder any wires.

## Transmit

On the transmit side everything seemed to be working OK. The only comments have been that the deviation is a bit low and this may be just an alignment. Looking at the circuit, the chip that does the speech amplification for FM is surrounded by electrolytics, so one or two may be leaky and causing deviation to go low. I'll attack this at a later date.

## Conclusion

I have now been using this radio for the past month and am happy to say it is still working OK. I am also pretty chuffed that I managed to fix it and I re-learnt a lot about radio again. I would recommend to any amateur who has an old radio that is not working is to dive in and try and fix it. The secret for me was to not give up and keep looking, after excluding possible causes, and not become too disheartened when making some wrong assumptions. Oh, and it only cost me about two hundred dollars to save this fifty dollar rig.



## Coming Events

**10-12 June**

VK4 – Far North and North Queensland Amateur Radio Gathering at King Reef Resort Kurrimine Beach.

**9-10 July**

VK3 – GippsTech 2011 VHF/UHF and microwaves technical conference, Churchill.

**16 July**

VK3 – Gippsland Gate Radio & Electronics Club Hamfest, Cranbourne.

# Silent Key

## Geoffrey Danvers Partridge VK2VU

I would like to inform you that my father, Geoffrey Danvers Partridge, passed away on 9 April 2011 at the age of 96 years.

Dad was involved in radio and communications from a very early age and his love of amateur radio brought him so much happiness throughout his life. When my sister was teaching at School of the Air in Alice Springs, before email and mobile phones, we had regular skeds with her. This came about as our Dad encouraged her partner, Joe Dalrymple (now deceased) to gain his amateur radio licence. Joe was an American, working at Pine Gap at the time, and just last year we passed on all Joe's communication texts to the local Port Macquarie Amateur Radio Club.

Following is a passage from the Eulogy read by my mother at the funeral:

'Amateur Radio was a huge part of Dad's life - VK2VU was his call sign and now it lives on in their email address. I remember us kids taking shifts to keep him awake through 24 hour competitions where the operators tried to make as many contacts as possible. But apart from talking to people all over the world, he assisted in locating lost people, hikers, rescues, Mayday calls, SES and police searches, and possibly saved a man's life in Alaska who was injured, stuck in the snow, and unable to contact local communication. He helped pass messages during flood times when phone communication was out and helped the police in passing messages for obtaining food for the town. One time he even helped Dick Smith find where he was, when flying his helicopter solo from England to Bundaberg (Dick was not lost, just unsure of his location, but Dad was able to tell him he was passing Avon Downs). On thinking about Dad's life we worked out that he was actively into radio communication for over 75 years!'

Because of the radio, mum and Dad often had amateur radio operators and partners pop in for a cuppa or lunch when they lived in Singleton and they met others on their travels throughout Australia. In recent years, Dad's dementia meant he was not up to continuing his skeds and once we moved my parents to a retirement village in Wauchope to be nearer family a couple of years back, Dad was no longer able to listen on the airwaves, but we wanted you to know what a huge part the radio was in his life.

Yours sincerely,

Leone Hill (daughter).



# Refit Your Workbench

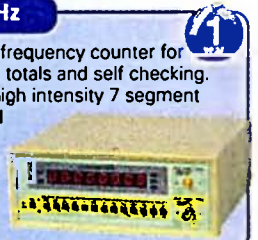
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# Building and using a touch keyer

Grant McDuling VK4JAZ

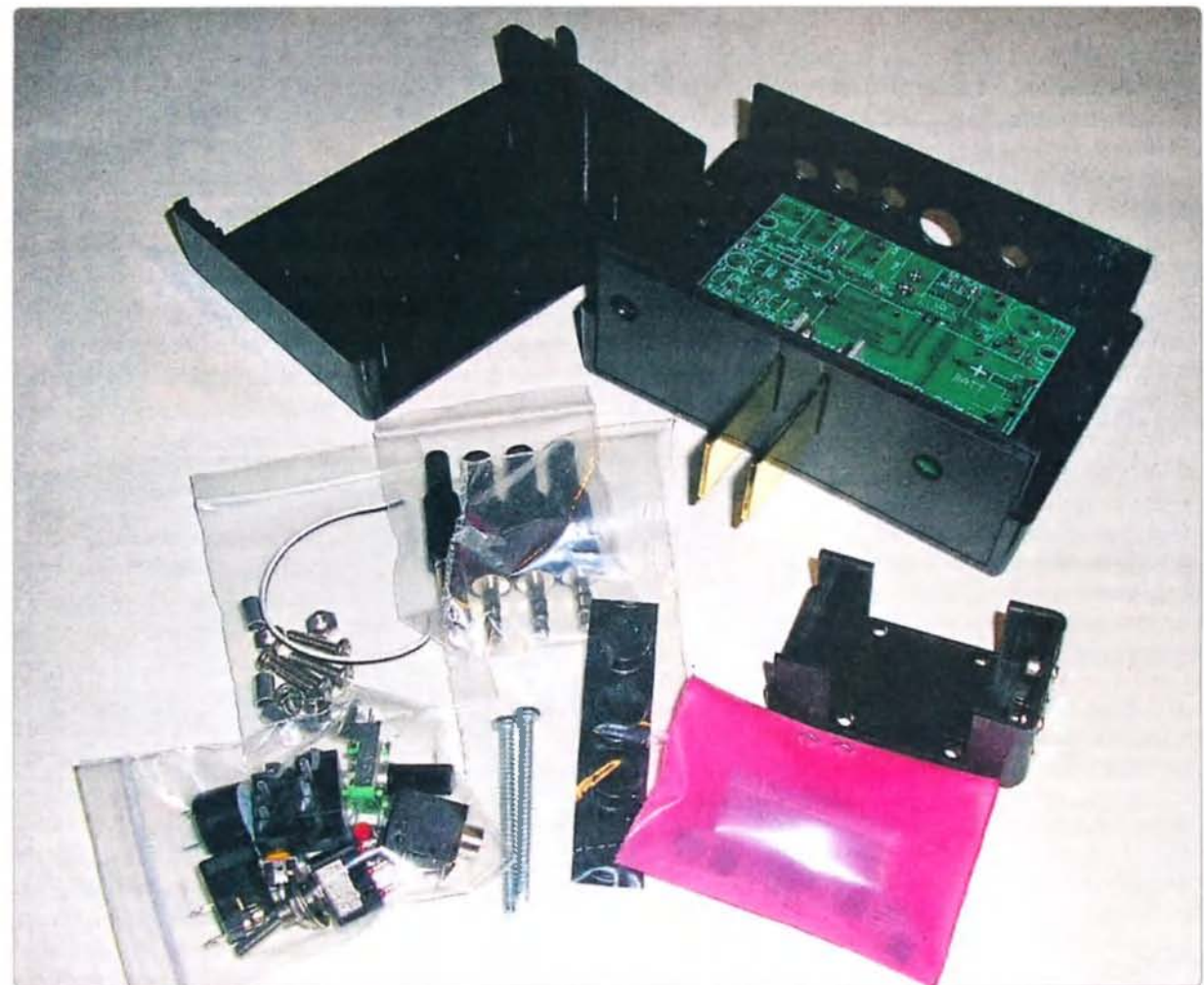
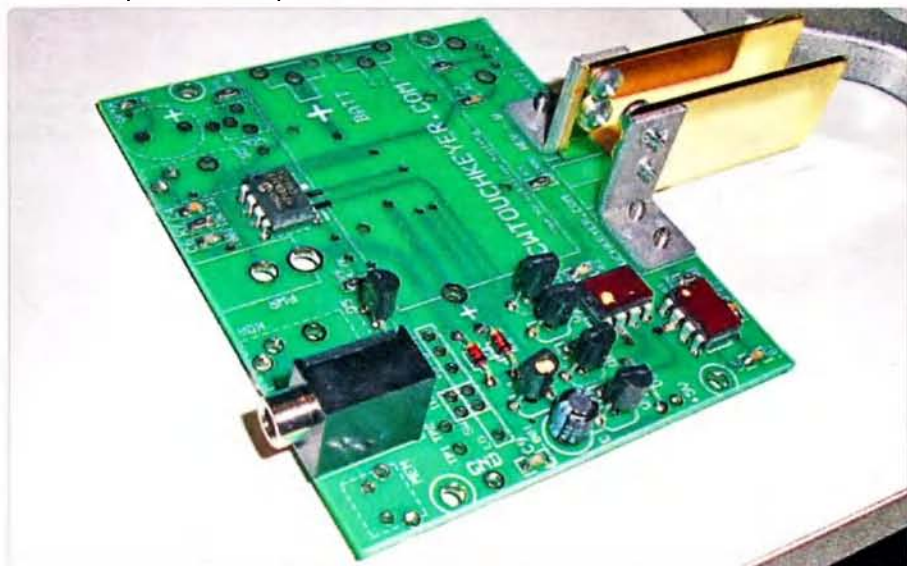


Photo 1: The kit as it arrived.

Taking part in the recent WIA Centenary QRP Contest highlighted a need in my shack; I could do with a side tone generator. The problem arose as I had decided to use my trusty homebrewed 125 mW Pixie 2 transceiver. I have always been amazed at the performance of this minimalistic rig, but operating without a sidetone to allow you to hear the code you are sending is challenging to say the least.

So I decided to see if I could rectify this in time for the next QRP contest. A quick trawl of the web brought up numerous schematics for simple keyers, but the one that caught my attention was CW Touch Keyer, <http://www.cwtouchkeyer.com/>

Photo 2: Work in progress, populating the PCB. The gold plated paddles and surface mount components were pre-installed.





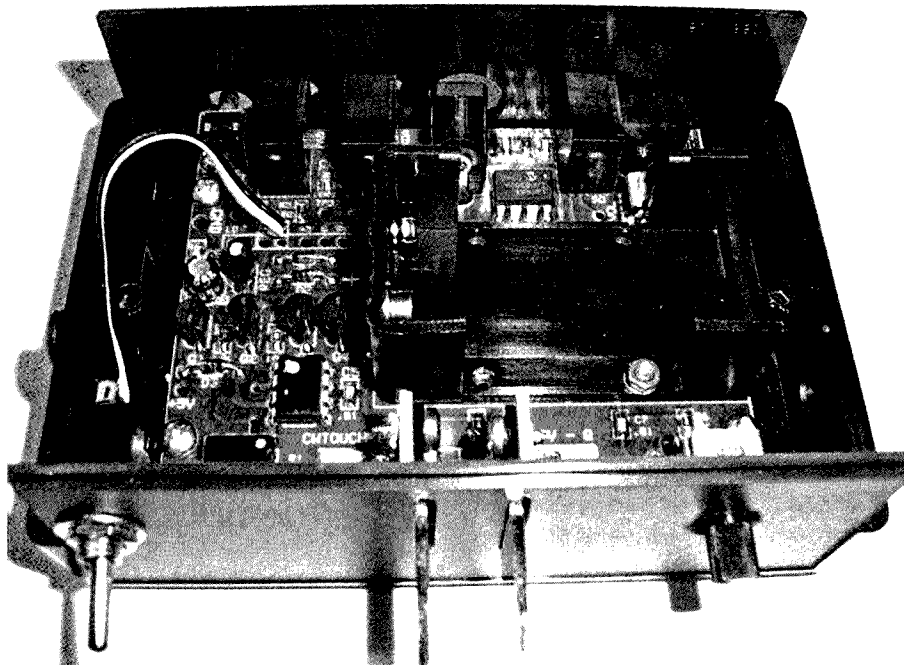
I was immediately attracted to the Model P1, which is a touch paddle with built in electronic keyer. It is also available in kit form. As an avid homebrewer, this looked like the solution to my problem.

After placing my order, the kit arrived from the US within a week. Everything was there, so I was raring to go.

The kit went together effortlessly and worked first time. This, I have to admit, was something of a rarity for me as I always seem to have a little troubleshooting to do before I can get kits to work. So, what exactly is a touch keyer and what is it like to operate?

This little gem, which sells for US\$99 plus around US\$16 for shipping, is basically a paddle without mechanical movements. The paddles do not move at all and do not rely on the resistance of your skin to work. The paddles, incidentally, are solid gold plated. They are super responsive and produce flawless CW.

Another big plus for me is that there are no annoying clicking sounds to distract me when in the thick of a long over. There is a tuning pot which allows you to adjust your speed from anywhere between 5 and 50 words per minute. Power is supplied via an onboard 9 V battery or an external power source of anywhere between 6 - 12 V DC.



*Photo 3: The completed PCB inside its custom enclosure. Note space for the internal 9 V battery, which is optional.*

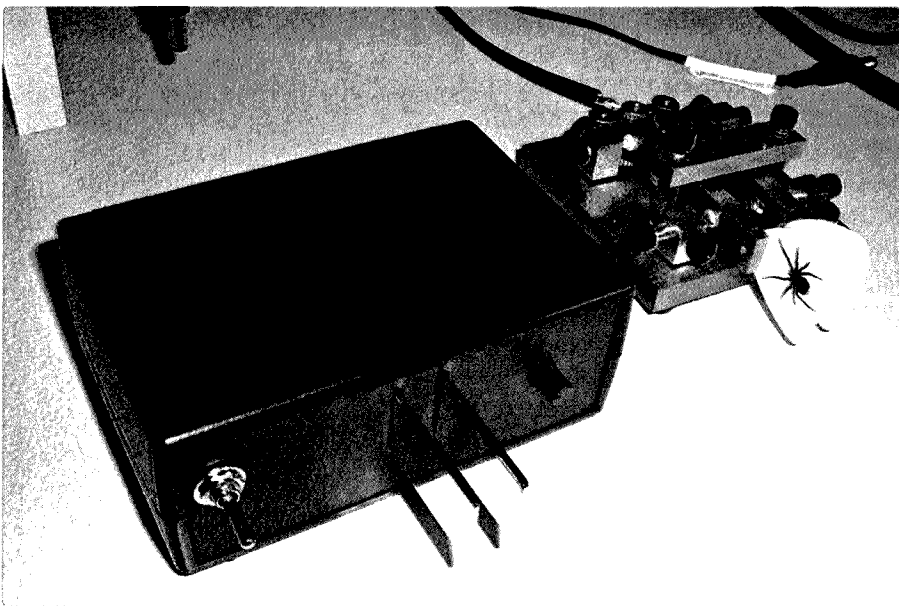
The touch keyer is also highly programmable, with two 80 character memories in addition to an 80 character call sign memory. Another nice feature is that it is easy to reverse the paddles for dots and dashes if you so wish. I know some right-handed operators like to use their left hand for operating the paddles as this frees up their right hand for writing.

The side tone, which can be switched on or off, can be heard from a small internal speaker, something I will be using with the Pixie 2. Another thing I like about this keyer is that it can be used in three ways, as an electronic keyer on rigs that don't have in-built keyers, as paddles only with rigs that do have keyers, and as a stand-alone unit using an external speaker. The keyer is also really heavy and does not move about on the bench during sending. It comes complete with a custom made weight that fills the bottom of the enclosure.

So, what is it like to use?

I join thousands of other operators who now swear by them. I have never experienced anything like it. No longer do I have to fiddle around trying to get a comfortable set of gaps on my paddles. With the touch keyer, this is a non-issue. There are no gaps to set. The paddles are self calibrating and are just perfect to use. I have often wondered how I managed without them. My code speed has improved nicely and I send more fluently. The paddles have an ultra-soft touch and have a smooth, quick and positive response. In a word, they are fabulous.

*Photo 4: The Touch Keyer alongside the more traditional Black Widow paddle.*



# VHF/UHF - An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

## Weak Signal

Early in April, there was some enhanced propagation across the Bight. On the evening of April 5, the VK6REP 2 m beacon in Esperance was heard by Jim VK3II. He then attempted a JT65 digital contact with Derek VK6DZ but only received one decode. On 2, 3, 4 and 5 April, Phil VK5AKK reported hearing the Esperance beacon. However, no contacts resulted.

On the morning of April 17, Norm VK7AC worked 1000+ km into the Adelaide area on 70 cm, having contacts with Peter VK5PJ and Phil VK5AKK.

Conditions on the microwave bands in western VK3 were excellent on the morning of April 26. Colin VK5DK in Mt Gambier worked Alan VK3XPD in Camberwell on 10 GHz SSB, reporting S9 signals.

## VK3 2.4 GHZ QSO Party

In what is becoming something of a tradition (well, it happened last year on the same day), Easter Monday saw the second of the VK3 2.4GHz QSO parties. This year, it expanded somewhat into a VK3 and VK5 event, with activity on a number of microwave bands. Michael VK3KH reports:

*Last year at Easter, a group of Victorian microwave operators decided it would be good to give our 2.4 GHz gear a bit of a shakedown, so we set up at different locations early on Easter Monday, and for several hours had a ball making contacts with each other. Because we had such a good level of involvement last year, it was decided to again repeat the activity this year. I set myself up on the side of Arthur's Seat on the Mornington Peninsula (a favourite portable location). The weather was spectacular, with no wind and bright sunshine. Oh, life is tough!*



Mike VK3KH's setup on Arthur's Seat.

*I was ready just before 8 a.m. with 2 metres for liaison and 8 W from my transverter and gridpack on 2.4 GHz. A check of the beacons on 2 metres and there was VK5VF, the Adelaide beacon at 5/2. Conditions were looking great. A quick contact on 2 metres with Jim VK5OM/p near Naracoorte and Bill VK5ACY at Bow Hill, confirmed things.*

*Then turning to 2.4 GHz, stations started to appear from everywhere. Over the next hour and half, I worked Ian VK3AXH, Ian VK3IDL and John VK3AIG (each with their own stations) on Mt Buninyong, Alan VK3XPD at home, Chas VK3PY and Lou VK3ALB just outside Geelong, Rob VK3MQ on Mt Dandenong, David VK3QM on Mt Rouse near Hamilton and Trevor VK5NC with the SERG Group near Mt Gambier. I also tried for Ralph VK3WRE but despite his 5/9 signal on 2 metres, we could not hear each other on 2.4 GHz. Sorry Ralph.*

*It was a very enjoyable morning's work. Along the way, I also managed contacts on 2 metres with Ian VK1BG in Canberra (via AE), Peter VK5PJ near Adelaide and Jim VK3II, just across Western Port Bay. You owe me for a new needle, Jim.*

*Eleven stations operational on 2.4 GHz is a very good effort. Thanks for all making the effort. A number of the guys had taken other bands as well, most notably 10 GHz, and continued on trying for contacts on these bands. I unfortunately had another commitment and was packed up and on the way home by 10 a.m. I am looking forward to next year!*

Colin VK5DK with the SERG group in Mt Gambier reports contacts on 2.4 GHz with VK3QM/p, VK3PY, VK3AXH, VK3IDL/p, VK3AIG/p, VK3KH/p, VK3ALB/p and VK3MQ/p. The paths to VK3KH and VK3MQ were 425 km.

That is an impressive level of participation for an event that was only organised a week before. With the increasing number of people now constructing microwave gear and operational on the bands, it looks like there is now a lot of interest in these sorts of events, where people can get out onto hilltops knowing there will be plenty of stations to work. Last year, an attempt was made to organise regular monthly Microwave Activity Days (MADs) but



Rob VK3MQ on John's Hill last year

it seems that monthly is perhaps too often for many. Currently, there are only the three VHF/UHF Field Days, which are not exclusively dedicated to microwave activity and have the pressure of being a contest. There is also a hole of around six months between the summer and winter events. A regular Easter social event could fill that hole quite nicely for a national microwave-only activity day.

### ZL3TY Sporadic E on 2 m in January

Bob ZL3TY, located in Greymouth on the west coast of the NZ south island, had an interesting time in mid January with some excellent sporadic E contacts into VK including his best ever 2 m contact to Garry VK5ZK in Goolwa. Here is an extract from his log below.

### Passing of Cecil Andrews VK6AO

After suffering ill health in recent years, Cec Andrews VK6AO passed

away on Friday 15 April. Although I never had the privilege of working Cec, he was a leading force in the VHF/UHF area for many years. Wally VK6KZ writes:

*Although limited in operating as VK6AO in recent years, following his first stroke, Cecil Andrews will be remembered for his tenacious operating on 50, 144, 432 and 1296 MHz. Many operators in VK3, VK5, VK6 and VK7 would have heard him on these bands and would have been thrilled to work a VK6 in Perth!*

*Those in Perth would know his marvellous skills in construction of much of his equipment, his tower and his antennas. His construction of U-shaped omnidirectional antennas for 144 and 432 MHz for the WA VHF Group beacons in Perth, Mt Barker, Dampier and Esperance have stood the test of time.*

*Vale Cec!*

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

Log extract from Bob ZL3TY.

Date	Time	Callsign	Locator	Tx	Rx	Mode	Distance
13/01/2011	03:17	VK2EI	QF68	53	53	SSB	2017+-
13/01/2011	03:19	VK5ZK	PF95	51	51	SSB	2917+-
13/01/2011	03:20	VK5NY	PF94HS	53	53	SSB	2913
13/01/2011	03:24	VK5AKK	PF94IX	51	51	SSB	2895+-
13/01/2011	03:26	VK2MAX	QF68JV	59	59	SSB	2063
13/01/2011	03:29	VK2ZT	QF57WF	59	59	SSB	2008
13/01/2011	03:30	VK5GF	PF94HK	57	57	SSB	2897
13/01/2011	03:30	VK2AMS	QF68FC	55	55	SSB	2027
13/01/2011	03:33	VK5DK/2	QF68	55	55	SSB	2017+-
13/01/2011	03:34	VK5NC/2	QF68	58	58	SSB	2017+-
13/01/2011	03:35	VK5JL/2	QF68	58	57	SSB	2017+-
13/01/2011	03:36	VK2ZTV	QF57	59	59	SSB	2009
13/01/2011	03:37	VK2KOL	QF56	55	55	SSB	2023+-
13/01/2011	03:38	VK2XTT	QF56IF	59	59	SSB	2030
13/01/2011	03:39	VK2BCC	QF56	59	59	SSB	2000
13/01/2011	03:40	VK2EEC	QF55	59	59	SSB	1961+-
13/01/2011	04:18	VK2TS	QF55KL	55	55	SSB	1971
14/01/2011	01:14	VK4OX	QG63KF	55	55	SSB	2410
14/01/2011	01:16	VK2DVZ	QF68GD	51	51	SSB	2025
14/01/2011	01:17	VK1DJA	QF44MF	55	55	SSB	2044
14/01/2011	01:18	VK1BG	QF44MS	52	52	SSB	2073
14/01/2011	01:19	VK1KW	QF44MT	52	51	SSB	2076
14/01/2011	01:20	VK2BHO	QF55KK	57	58	SSB	1968
14/01/2011	01:22	VK4ARN	QG62NI	51	51	SSB	2320
14/01/2011	01:40	VK2QO	QF55	559	559	CW	1961+-
14/01/2011	02:20	VK2ZT	QF57WF	55	55	SSB	2008
14/01/2011	02:26	VK2AMS	QF68FC	54	54	SSB	2027

## Digital DX Modes

*Rex Moncur VK7MO*

### New experimental ISCAT mode for microwave aircraft scatter

Following success in using ISCAT for 10 GHz aircraft scatter, Rex VK7MO and Dave VK3HZ suggested to Joe Taylor K1JT that it might be possible to improve the mode for this application. The main limitation of ISCAT is that it uses 1800 Hz bandwidth and that leaves little room for the signal to move around with Doppler in a typical VHF transceiver that may have a bandwidth from only 400 to 2400 Hz or about 2000 Hz. Rex and David have recorded Doppler shifts of up to 1000 Hz/min on aircraft crossing the path of propagation at right angles. It was suggested that a half speed mode, which would have half the bandwidth (900 Hz), would allow a useful variation with Doppler of up to plus/minus 500 Hz. A half speed version would use half size bins and should improve the performance by 3 dB at the expense of requiring bursts of signal twice as long. The present version of ISCAT works with bursts of around 0.5 seconds and most bursts of signal on 10 GHz aircraft scatter are a couple of seconds – so this should not be a problem.

Joe responded very positively but pointed out that running at half the bandwidth and half the speed would reduce the ability of the program to cope with Doppler variations by a factor of four but he felt he could overcome this by tracking the Doppler. Joe produced an experimental version called ISCAT-A. After extensive simulation testing (using a swept signal generator to simulate the Doppler) it was tried in field from the grid square QE47 near Swansea Tasmania to Werribee in Victoria. While this path is only 10 degrees off the Hobart-Melbourne flights and thus does not test the program with rapid Doppler variations, it did show the value of the new sub-mode with an easy completion on a single aircraft pass. Fig 1 shows the signal to noise ratio obtained on this path.

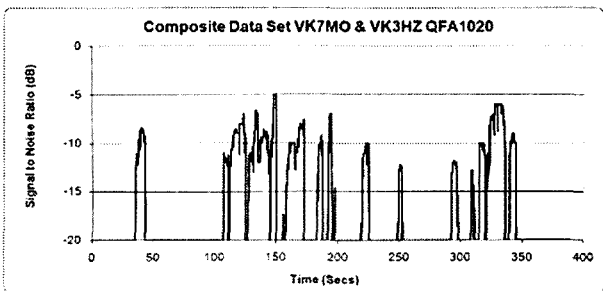


Figure 1: 10 GHz aircraft scatter signals from Werrabee in Victoria to Swansea in Tasmania

Note that the signal comes in bursts of a few to several seconds and lasts around five minutes on this single aircraft pass. The new sub-mode also demonstrated a useful performance improvement and will work to around -13 dB on a single burst. As seen from Fig 1 most of the bursts are stronger than -13 dB and thus produce good decodes.

The next step is to test ISCAT-A with aircraft crossing at right angles and this will require a trip to the mainland. ISCAT-A is still under development with new versions coming out each time Joe gets feedback. Until tests are completed the new mode will not be made generally available but if you would like to test the latest version contact Rex VK7MO.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

### Brian Cleland VK5BC

During April good TEP openings from northern areas of VK to Japan, China etc became a daily event with a few openings extending to southern areas of VK3, 5 and 6. Also several contacts were completed between far northern VK4s and Darwin VK8s to KH6.

Dale VK4SIX from Atherton reports that he and John VK4TL have been working into Japan, China, Taiwan, Korea, Hawaii and the Philippines most days up until late in the evening.

On April 3 Jeff VK4BOF near Innisfail worked JA2BNV, JI1CUL, JA1QOP, JH1WHS, JF3DRI and JF1KJC all on 50.120 with 5/9

signals or better, not bad for a K3 + 80 m inverted V.

April 7 saw KH6 stations making contacts into northern VK4 and VK8. Richie VK8RR and Mark VK8MS both in the Darwin area worked Art KH6SX and Kevin VK4BKP in Mackay

worked Fred KH7Y. Several other contacts from these areas were made into KH6 during the month.

Interestingly on April 7 Phil VK4FIL in Brisbane decoded JH0IXE in PM85 on 50.2930 WSPR at +10. This would be one of the first WSPR decodes on 6 m outside of VK; well done Phil.

April 12 Victor E51CG in Rarotunga worked many XEs, great to see the activity from Mexico and let us hope it extends to VK in the near future.

In VK5 there were several JA openings during the month although most were short in duration with weak signals. JAs were worked on 3, 5, 6, 7, 8, 9, 13, 22 and 30 April. The highlight was the opening on the 13th when up to five stations from China were worked on SSB and CW including BA4SI, BD9BU, BD4QH, BD9BA & BG0GE/9 as well as several JAs between 0700 UTC - 1030 UTC. During this opening David VK5AYD from Coober Pedy was also being heard & worked in the Adelaide area with S9+ signals via short Es skip and later in the opening the band opened to VK4 with VK4EK, VK4WTN worked by several VK5s. The 14th also started well with good early morning opening from VK4 to VK5 and followed by good contacts from VK5s to David VK3AUU and Andrew VK3OE.

From VK6 Rod VK6KP reports a good month in Karratha:

01/04 Evening TEP - JA 2 and 6 plus BD9BU

02/04 Open all afternoon JA4/5/6

03/04 Open afternoon and evening

06/04 Very strong afternoon opening to JA1/2/3/4 all 9+ Good evening TEP DS2KGJ/BD9BU and BV1EJ/

VR2XMT both calling CQ plus 9W6RT (5/4) on 115 with huge JA dogpile!

07/04 Another very strong afternoon opening JA0/1/2/3/4/6 followed by a good TEP evening opening. JAs/VR2XMT and BV2YA/B on 50.001

10/04 Late afternoon JAs and BA4SI

11/04 Late afternoon/evening JA5/6/BD9BU and DU heard. XV2RZ on 50.098 working JA. Still open afternoon 1300 Z. TV 48.251/244/260 offsets heard from Middle East and 89.9 from Shanghai?

14/04 Evening TEP Many JAs and BD9BU calling CQ 110 1225z.

15/04 Evening TEP Many JAs plus DS2KGJ, DU/PA0HIP all good strength.

16/09 Afternoon strong opening JA1/5/7/9 all S9.

17/04 Very strong afternoon and evening TEP opening to JA.

22/04 Strong afternoon opening to JA1/2/3/4/5/6

23/04 Evening TEP opening. Number of JAs, only worked JE6LMH 5/9 at 1015 Z

29/04 Strong afternoon opening to JA. A lot of crud etc across 50. Worked JM6JJA/6 599 both ways.

Meanwhile Rex VK6ARW in Exmouth North West Cape says he is going through a learning process and enjoying 6 m during this process and reports the following 6 m activity for April:

05/04/2011 8 JAs between 0658 – 0707 UTC

07/04/2011 16 JAs between 0505 – 0618 UTC

09/04/2011 51 JAs between 0639 – 0801 UTC.

Further south from the Perth area Andy VK6OX reports:

'April 1 saw an opening to JA from this QTH with two stations worked at 0901 Z and 0919 Z. VK6IQ Glen, who is located about 50 km north of Perth, also worked a JA during this period.

On the 7th we had another good opening to JA from about 0600 Z onwards. Signals were up to S9

at this QTH and several stations in JA1 and JA3 were worked. VK6IQ, VK6ZKO and VK6DU also enjoyed the conditions with a good number of stations being worked on both SSB and CW. On the 9th, the band opened again and many JAs were worked by VK6IQ and others. (As luck would have it, I was recovering in hospital from elective surgery, so I missed out!!). Glen also worked HL1VAU in Korea during this opening. April 16 again saw an opening, with VK6IQ, VK6ZKO and possibly others getting amongst the action. The band was pretty quiet until the 26th, when a very brief opening saw Glen snag JO3UGX Ross although he reported signals were marginal.

VK6XLR Rick in Geraldton has

also managed to work a few JAs.

Peter VK6KXW has been closely monitoring TV signals from further afield i.e. Middle East and Central Europe but to date has not managed any QSO. It is probably early days yet and the MUF is not getting to 50 MHz, not to mention the Sun's refusal to get its act into gear!!

Received a note from Lance VK6DU in Perth who says:

*I am relatively new to 6 m and have now worked five countries, VK, ZL, A3, E5 and JA (since Jan 2006).*

*The following is a report of my 6 m JA QSOs (on CW) in April 2011:*

*14/04/2011 - JA1RJU, JI1CUL, JA7DUI.*

*16/04/2011 - JH0HZO, JA1ADU, JM1WBB, JM1TWR.*

Well done Lance.

Although April was not the best for meteor scatter, contacts continue to be made early each morning on 50.200 MHz. Liaison for these contacts is carried out on VKChat with contacts being spotted on VKLogger. This group was started and is organized by Brad VK2QO after he completed contacts with John VK4ZJB and Brian VK4EK two years ago and is still running as strongly as ever. Listen on 50.200 any time before 2200 UTC any morning and join in the challenge of completing meteor scatter contacts.

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



**Gippstech**  
2011

## Final call for papers

This is your last chance to submit a topic for presentation at **Gippstech 2011, 9 & 10 July** at Churchill.

Email Peter [vk3pf@wia.org.au](mailto:vk3pf@wia.org.au)

## Silent Key Arne Jansson VK4BRN

Arne Jansson VK4BRN is now a Silent Key, having died on 23 August 2010, in his 85<sup>th</sup> year.

He has not been active on the bands since 1991, when a combination of strong sunspot activity with resulting bad reception and his taking up lawn bowls occurred simultaneously. He was diagnosed with dementia ten years later and eventually gave up bowls too. However, he continued to read his *Amateur Radio* magazine, RNARS Newsletter and OTN. I even enjoyed the non-technical articles!

Arne led an extremely interesting life. He first qualified as a Radio Telegraphist in 1949 and worked at Brama Airfield in Stockholm and in the Swedish Interception Forces north of the Arctic Circle, monitoring the Russian radio traffic. He then spent 16 years in the

Swedish Merchant Navy as radio Officer/Purser/Accountant/Personnel Manager, etc., travelling the world in a manner of Swedish owned ships from the fruit boats to huge oil tankers, when life at sea was romantic and adventurous and civilised!

After retirement from the sea in 1965 and working for NCR in Stockholm and Sydney, he qualified as a chartered accountant/company secretary and worked as financial controller for shipping and broking companies until retiring in 1985.

Arne was introduced to the world of amateur radio by Tom Soundy VK2ETS in Merimbula in 1985. Tom had been in the British Merchant Navy. He was a very active CW operator on his Vibroplex as VK2AJD in Merimbula and Roselle, Sydney, until 1989 when he moved to Buderim Queensland

and became VK4BRN. He worked Casey VK2CWS, Les VK2ALH, Eric VK2FYH, John VK2FUR, Gerry VK2CGA, Ken VK2LV, Dave VK2IJ, Keith VK2KEW and others in setting up the Snapper Island station which was an exciting and enjoyable time.

For someone with such an active nature and inquiring mind, the onset of dementia was tragic. He had always had a passion for music – jazz, swing, blues, gospel, classical, and miraculously his memory of and love for music never diminished, which was a godsend.

As you can imagine, I am very sad and miss him dreadfully.

Kind regards to all who remember him.

Kay Jansson



# Scouts go bush for John Moyle Field Day

Miles Burke VK6FMAB



Photo 1: Late night contesting in the shack.

The 2011 John Moyle Field Day was a great opportunity for the Scout Communications and Technology Team based in Perth, Western Australia to combine our two interests; Scouting and amateur radio.

The Scouting experience came in handy when constructing our camp site, and living in the bush where the amateur radio knowledge amongst some of the weekend team came in handy when the contest began in earnest.

We arrived at our campsite early afternoon on Friday, bringing our trailer-based portable repeater and most of the gear we would need, replete with solar panels and the all-important coffee urn that was destined to receive a fair workout.

Like previous field days, the team chose the Manjedal Scout Activities Centre, a 184 hectare site amongst the beautiful Jarrah forest located midway between Jarrahdale and Byford, roughly 45 kilometres south of Perth.

Once we arrived, Bob VK6POP and Tony VK6HAM were quick to grab the fishing rods, and start the process of casting the antennas into the very high trees nearby. A collection of homebrew dipoles for the 80 metre, 40 metre, 20 metre and 15 metre bands were soon hoisted up into enviable positions overlooking the forest.

With the generator placed and humming a fair distance away, our two stations were constructed. One station

was set-up for 40 metres, and the other arranged for the 80 and 20 metre bands. Each station was equipped with a radio, pens, paper, microphones, headphones and laptops running our chosen logging software, VK3AVV's popular VK Contest Log. Just as importantly, our tents and the other various cooking and lighting equipment were also organized.

We then settled back for a camp dinner, and further instruction for the younger members of our team, three 10 year olds, Davis VK6FAME, Prentice and Alex. These three recruits successfully passed their Foundation courses and exams that the team had held in January of this year, and for them this was really the first opportunity for them to get on air since then.

A quick refresher in radio etiquette and contesting rules and calling formats followed. Little did we know that in twenty four hours time, we would be amazed at how well all three young operators had morphed into seemingly seasoned contesting professionals.

The following morning, after breakfast on the barbecue, we counted the minutes down to 9 am local time, for the start of the contest. Propagation looked favorable for those of us on the west coast this year, which added to the excitement. Before you knew it, we were using our club callsign, VK6SH, swapping numbers, and punching away on the keyboards keeping our logs up to date.

The day continued with the three young recruits, as well as Bob, Tony, Ross VK6WW and myself, Miles VK6FMAB, taking turns on the microphone or as the support loggers.

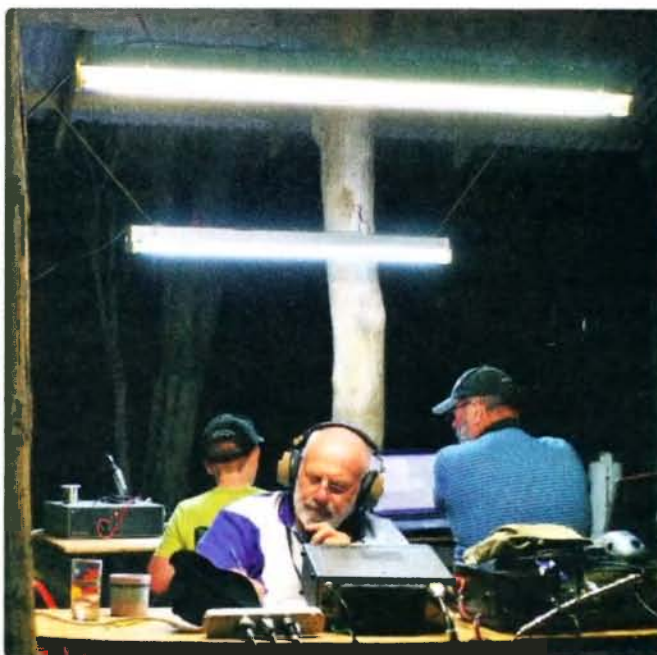


Photo 2: VK6POP on the microphone.

As the day continued, we had Mark VK6DY join us for the remainder of the weekend, as well as Cameron VK6FCAC and another youth member, Brendan VK6FREE drop in at different times for a chat. We also enjoyed the company of a number of other visitors from other local activities, who dropped past to see what the fuss (or at least, generator noise!) was all about. Even a few kangaroos were spotted showing an interest.

One of the memorable moments over the weekend involved VK6POP who records the weekly VK6 news broadcast, having to use his laptop in a caravan (the studio, he called it), to escape the constant sound of our CQ calls, and then driving 10 minutes in the dark to the nearest town to upload the file for broadcast the next morning.

Things often do not seem to go according to plan, and a number of software updates and file downloads ensued in the dark car park of a country town service station at midnight before all was good – a trying moment for the weary Bob, that is for certain.

We managed to keep the radios manned until around 12.30 am, when it was fairly obvious most of the eastern seaboard had retired for the evening. It was time to head to the tents and stay out of the chilly air.

At 5.00 am I woke, and lay in my sleeping bag whilst seemingly reciting 'CQ contest, CQ contest, this is Victor Kilo Six Sierra Hotel' many times, before realizing the voices were not actually in my head – Ross VK6WW had



Photo 4: The campsite radio shack for the weekend.

made an early start! His voice was being carried through the misty early morning air the 80 metres or so to my tent.

Not too long later, the radios were once again all manned, and we made that last ditch effort for the remaining hours until 9 am Sunday when the contest finished. All up, we ended with more than 550 points; not enough of course to get a place in the contest, but something we enjoyed achieving, and a goal for us to beat next year.

Having not participated before in a field day, I was unsure what to expect. Now that I have been lucky enough to have one under my belt, I can understand the enthusiasm from the rest of the team.

The field day is a great opportunity to hone those radio skills, as well as share a few laughs, stories and campfire recipes with fellow radio enthusiasts.

If you were one of the many we spoke with over the weekend, I thank you for answering our calls, and for the enthusiasm many of you showed when realizing you were conversing with a 10-year-old operator.

If you haven't participated before, I urge you to give it a go next year – it really was a load of fun and helps all of us appreciate the great outdoors.



Photo 3: VK6FAME showing his late night logging skills.

**The Elizabeth Amateur Radio Club**  
has secured a display booth at the  
*Science Alive! Event*, being held for  
Science Week at the Adelaide Show Grounds –  
**Friday 5 to Sunday 7, August.**

We are looking for range of hands on and interactive radio and communication displays for the event which present our hobby to the public in an interesting and engaging manner.

Displays at last year's event included: stations for sending and receiving Morse, two stations for radio communications using SSB, the Project Horus weather balloon and payload, a 'bionic ear' (parabolic dish) and voice communications via IR LED modulation.

If interested, or would like more information, please contact Paul Schulz (VK5FPAW@wia.org.au)

# The Whyalla ARC at the WIA National Field Day Sunday, 17 April, 2011

Peter Horgan VK5BWH



Photo 1: The Whyalla ARC set up in Gladstone Square, Whyalla, for the National Field Day.

The Whyalla Amateur Radio Club (WARC) participated in this year's National Field Day with Port Augusta club members and other local radio operators setting up portable stations in Gladstone Square, right in the city centre of Port Augusta. Port Augusta, sometimes called the crossroads of Australia, is situated at the top of South Australia's Spencer Gulf.

An early morning start was the order of the day so that antennas could be erected and operating displays set up before the public started walking through the square. Port Augusta Council allowed us to use an existing 10 metre flag pole to which we attached a pair of antennas, an off centre fed dipole and a 40 metre dipole fed with open wire line. Les Virgo VK5KLV set up his 'portable' field day station. Les has mounted an Icom IC-725 for HF,

Yaesu FT-857D for 2 metres and 70 cm sideband, and an IC-228A for 2 metre FM into a 'drag and drop' self contained unit. Getting the station on air is as quick and easy as connecting antennas and a DC power source.

A home brew dual band vertical was used for FM contacts, a dual band Yagi for VHF/UHF sideband and a three element antenna for six metres. Conditions on these bands were less than ideal but Les did manage a good number of contacts, many through the 2 metre repeater at Port Pirie. Frank VK5KV managed many HF contacts from his new IC-9100 station set up in the Square's rotunda, using the OCF dipole.

The event attracted 30 to 40 visitors. While many showed a lot of interest we were unable to coax anyone to take the microphone and have a chat. The most memorable

visitor was one 10 year old lad who dragged mum along to the display. Who knows, we may have planted the seed for a prospective amateur newcomer. We also had the pleasure of meeting George Wright VK3APL who is touring the area and enjoying what the Spencer Gulf region has to offer. Other hams that enjoyed the day were Larry VK5HBG from Whyalla, David VK5NOQ from Port Pirie and Tony VK5NMO from Port

Augusta. Tony has been inactive for some time but is slowly getting back to enjoying radio again.

Was the day successful? How can we measure success? Is it measured by the number of people visiting our site on the day, the number of contacts our group made or maybe the number of prospective amateurs to whom we passed radio information? Well it would be all the above but success of the day must be attributed to the following amateurs - Les VK5KLV, Peter VK5KPR, Dennis VK5NTX and Frank VK5KV. Thanks for a great day of playing radio.



# DX-News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

Well I start this month with a controversial 'posting' from the PY operators who activated the recent operation from Mayotte, TO2FH. PY4BZ, PY2PT and PY2WAS have said that: "Considering the problems and the costs we have been facing with bureau QSLs, the team supported by PY1NB - Felipe's technology (DX Watch owner) have decided to adopt the QSL Online Request as the only way possible to request a QSL. Direct QSLs or via the bureau will not be accepted. It is a safe way to guarantee that all applicants with confirmed QSOs with TO2FH will certainly receive their QSLs at their homes by mail." They plan to update their log, which will be posted to Club Log: <http://qrz.com/db/to2fh>

This policy raises quite a number of issues. I am sure everyone is well aware of the typical costs involved in

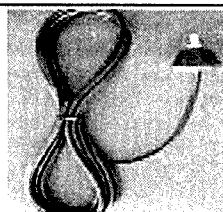
staging any distant DXpedition, but the stations (as far as I know) were not requested to go to Mayotte, they went of their own accord. In fact Mayotte does not appear in the "Top 100 Most Wanted Countries" listing! A number of sources have pointed out that in spite of the ARRL's LoTW, the demand for actual QSLs is growing! Traditionally it has always been considered the "Last Courtesy" to QSL. I am sure there will be more comment on the policy adopted by the TO2FH operation!

Still on the subject of DXpeditions - The Central Kiribati - T31A which, at the time of writing has just closed down. They really have had some bad luck and a lot of difficulties to overcome. The operation originally was planned for 12 days. Then the boat picking them up from Apia (Samoa) was four days late, arriving on April 16 and leaving for T31 on

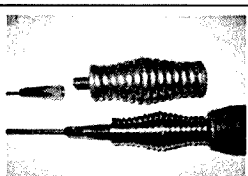
April 18. The journey normally takes four days, on this occasion it took five! The first station was on the air (21 MHz SSB) at 0000 Z April 22. Then the 'boys' on the island posted the following e-mail "April 24 - Team leaving Wednesday night (April 27), no extra days. LOTS of bad weather last night here and roof collapsed causing equipment damage from rain coming through the roof. All antennas need repair." Who said DXpeditioning is fun!

It is good to see that we have another operator heading to Macquarie Island: Denis ZL4DB is returning to Macquarie. Unfortunately on his last visit no HF equipment was available in the Shack for him to use. He should arrive on the Island in late April and will join Kevin (VK0KEV). Denis will be there for three months and on SSB only. Please QSL Denis direct to ZL4PW, or via the bureau.

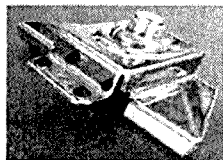
## TET-EMTRON



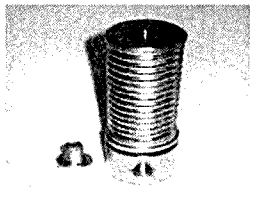
Base and Lead sets.



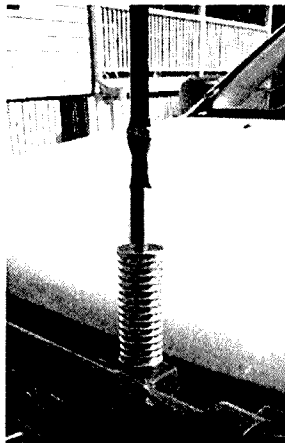
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Trinidad Island. This is really good news for VKs! Trinidad is a difficult path from Australia being a Polar Path for everyone. Junior PY2ZA plans to be active from Trinidad Island, (SA - 010) on 160-6 metres CW, SSB, BPSK and RTTY as PP0T for a couple of months. He expects to leave the mainland on 25 April on a Brazilian Navy supply ship, and to reach the island on April 29. Bookmark [www.trinidad2011.com](http://www.trinidad2011.com) for further information and updates. QSL direct via EB7DX. Logs will be downloaded to LoTW.

The JX7VPA team heading to Jan Mayen Island in July has "launched" their Website at <http://janmayen2011.org/>. Plans are to be QRV from July 6 to 14. The team will be taking a 6 metre vertical and will be donating to the JX7SIX beacon, which will be installed by the next maintenance crew after the JX7VPA operation.

Excellent news from IARU region 1. Russia joins CEPT. The Russian State Radio Frequencies Commission decided on 10 March 2011 that the

Russian Federation will join CEPT Recommendation T/R 61-01 and ECC Recommendation (05)06 (CEPT Novice), thus making it possible for every CEPT License holder to operate on the territory of the Russian Federation, within a limit of three months, without any additional permission. The call sign to be used shall be RA/Personal Call sign.

QSL Navassa 1993. This is excellent for anyone still trying to get Navassa confirmed from the 1993 operation. Jun OE1ZKC (JH4RHF) reports that the original logs for the 1993 DXpedition to Navassa Island have been retrieved from the widow of Vance LePierre (N5VL/W5IJU), the team leader and QSL manager. Should you still need a card for KH2S/KP1, KH2W/KP1, KH2Y/KP1, NF6S/KP1 or W5IJU/KP1, you can send your request to Jun Tanaka, P.O. Box 1200, 1400 Wien, Austria. "I will try to put all of log data into electric format", Jun says, "and upload to LoTW". He can be contacted at [jh4rhf@arrl.net](mailto:jh4rhf@arrl.net)

I wonder how long it will be before the team that gave us Desecheo will manage an operation from Navassa Island? I see from the last survey that it now ranks #2.

As a reminder the VK2IR group has cancelled their DXpedition to Rotuma Island and is instead heading to Lord Howe Island as VK9HR from July 8 to 17. They have a website at [www.lordhowe2011.com](http://www.lordhowe2011.com). YT1AD's Conway Reef team is heading to Rotuma as 3D2R in the July-August time frame and has supposedly pushed back their Conway Reef DXpedition to 2012. Eddie DeYoung VK4AN has "deferred" his trip to Rotuma to 2013, which will be the 25th anniversary of the first 3D2/R DXpedition. The Pacific DXers group <http://pacific-dxers.com/>, led by Bill Horner VK4FW is still planning to go to Nauru as C21A in the November-December of this year time frame. Rumour has it that a Polish team is also planning a C21 DXpedition in early 2012.



# GGREC HAMFEST

## Saturday 16 July 2011

Gippsland Gate Radio & Electronics Club Hamfest at our LARGE venue, the CRANBOURNE PUBLIC HALL, located at the corner of Clarendon St. and High St. Melway 133 K4. See our web page at <http://ggrec.org.au/hamfest>



**40 tables of new and used Electrical, Electronic and Amateur Radio equipment.**

- Everything is under cover.
- Tea and Coffee available during the event.
- A selection of hot & cold food will be available.
- Great Door Prizes will be drawn at approx 1:00 pm.
- Doors open to sellers at 8.30 am & buyers at 10 am.
- Buyers can gain entry for \$6.00.
- Sellers will pay \$20.00 per table, which includes entry.
- Proceeds from the sale will go to Gippsland Gate Radio & Electronics Club's ongoing promotion of Amateur Radio.

Persons wishing to reserve a table position must contact Steve Harding now on 0408 878934 or email [hamfest@ggrec.org.au](mailto:hamfest@ggrec.org.au) Book early, positions are limited!

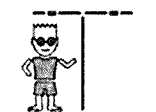


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**See you at the Albury Hamfest 31 July 2011**

Chris ZS6RI is active as 9J2RI from Zambia for a year or two on a "6-week on/6-week off" work schedule. According to his QRZ.com entry, direct cards should be sent to Chris J. de Beer, Box 333, Bethlehem, GA 30620, USA. He will upload his log to LoTW at least once every 6-week rotation, and probably even weekly. Bureau cards will be sent once a year.

Phil F4EGS will be active again as TT8PK from N'djamena, Chad between 15 April and 15 June. He will be QRV in his spare time. Last year he operated mainly CW on 80-10 metres. QSL via F4EGS, direct or via the bureau.

Tim KD5SSF will spend a couple of years in Ukarumpa, Papua New Guinea, and will be active as P29ZL. He will operate PSK31 and SSB in his evenings and during the weekends, using 100 watts.

**DXCC NEWS:** The following operations have been approved for DXCC credit: ZD9AH Tristan Da Cunha & Gough 2010 operation ZD9T Tristan Da Cunha & Gough 2010-2011 operation

If you had these operations rejected in a recent application send a note to [dxcc@arrl.org](mailto:dxcc@arrl.org) to have your record updated.

A final comment from Pierre Tromp ZS8M. He said, though his dipole "worked extremely well," the antenna restriction made it so he could not work everyone. Other limitations were "weak propagation conditions and restricted operating hours." Nearby construction made it impossible to test his SteppIR vertical. Severe RFI also was a problem, from the new base. Asked if he will return, he is not sure, but will be keeping the callsign just in case. He would like to go to Gough

Island, ZD9, especially if his XYL can go along for a year there. Pierre says it has been a fantastic year and he has made lifelong friends on his team there, plus fantastic friends in the DX community. 8,500 QSOs were made. Pierre says it was also a difficult year, being away from family. The supply ship arrived on April 11 last with two amateurs on board, but they are not active operators.

Good luck in the pile-ups!

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of *The Daily DX* from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)





*HARG John Moyle Field Day station.*

Welcome to another month of VK6 Notes! And what a month it has been! WOW! Here in Perth we finally had some rain. It was long overdue too. Here is what has been going on in VK6 for the last month.

At **NCRG** ([www.ncrg.org.au](http://www.ncrg.org.au)) we have had a change in our committee. Richard Beck, VK6BEC is now the President. Gerhard Mueller-Dorn, VK6GMD was elected Secretary, and Anthony Lumley, VK6AL has remained as Treasurer. Well done fellas, we look forward to your leadership for our great club!

What has been going on at HARG? Here is the report from Bill Rose VK6WJ.

March and April have been very busy months for the **Hills Amateur Radio Group**. We have participated in John Moyle Field Day, put on our annual HARGFEST and set up for National Field Day. On 7 May we will have conducted a demonstration of amateur radio at the Pickering Brook Show.

For the John Moyle Field Day we set up at Mount Gunjin and once again braved the rutted goat track

to the top of the mountain which is about 300 metres above sea level. For power we had solar panels and large 12 volt batteries plus an RF quiet generator. Antennas consisted of a well guyed telescopic mast carrying a rotatable dipole for 10, 15 and 20 metres plus a G5RV for 40 and 80. Comfort was provided by

Allan's marquee and Rob's tables plus the trusty HARG barbecue. In total about 10 to 15 amateurs visited or operated during the day. This year we did not stay overnight. Conditions on HF were quite good but late in the day we started to run out of operators so we packed up about 19.30 with just enough light to see the potholes on the way down.

HARGFEST was very successful, with all 18 tables booked. We were pleased to welcome John from Tower Communications, Mark from TET-Emtron and Heath and Monique from SpoOkTech Engineering. As well as the commercial tables there were many amateurs with interesting and useful bits and pieces ranging from 50 cents each for high power terminals to \$5 for wide spaced variable capacitors and hundreds of dollars for radios and test equipment. The sausage sizzle and drinks went down well and the weather was kind to us – not too hot. We obviously made the right decision to move from February to April. The door prize of a Wouxun Handheld, donated by Heath of SpoOkTech, was won by Gary VK2BL, the IC-718 by Barry VK6WF, the FT-1802 by Karen Wellstead

## **HARGFEST.**





The HARG group at the National Field Day 2011.

We also had a number of local amateurs visit the site as a result of reading our press release in the local papers. Some of these had dropped out of amateur radio over the last few decades but were interested in re-activating their stations and have taken home

copies of the HARG application form. A common question was "Is anything happening in amateur radio these days or has it been killed by the Internet". We had two radio systems set up in a marquee plus SDR with computer display. Power was supplied by two large deep cycle 12 volt batteries topped up by four

solar panels. An IC-7400 feeding into a G5RV made quite a few overseas contacts on 20 m. We were also pleased to have a QSO on 40 m to a Foundation call who was making his very first on-air contact. An FT 7800 with 2 m/70 cm vertical provided a number of VHF/UHF contacts. One of our newest members, who had recently received his F call, set up his very first HF station, consisting of an FT-857 into a 10 m high Squid Pole plus radials. One table was filled with WIA brochures plus Club membership forms and ARRL books. We also had a number of static displays including a working Morse practice set and several crystal sets.

Well that just about wraps up another month in VK6. We look forward to your company next month!

73 es gd dx

de John VK6HZ



from Albany and the 40/80 m dipole by Neil VK6FSKB. These last three prizes were donated by Ian VK6LCT of Timberden Plant Hire.

For National Field Day, HARG set up at Stirk Park in Kalamunda. In total, 23 amateurs attended - many from HARG plus representatives from the Scouts, Ham College and WIA.

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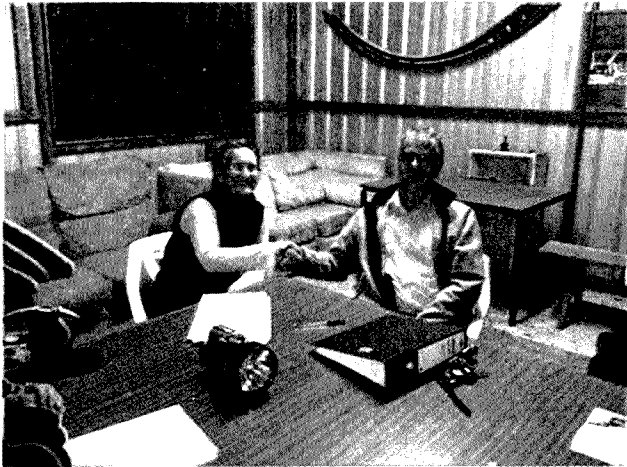
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[www.gccomm.com.au](http://www.gccomm.com.au)

# Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY



Sealing the deal with the Guides in the shed to be used: Suzy Baldry and David Clegg VK5KC.

The April meeting was the members only buy and sell. Not quite as many people there as it was the Thursday before Easter, but those that were there thoroughly enjoyed exchanging their own 'junk' for someone else's 'junk'. Don't we all?

The May meeting will be a talk on "Amateur Seismology" by John Harris VK5EV.

The June meeting will be a talk titled "Similarities between the

human cardiovascular system and radio transmission." An interesting and thought provoking talk by Andrew Russell VK5CV.

Sunday 3 July will be the club mid year lunch to be held at the "Fresh Choice Restaurant" in Oaklands Park.

November 20 will be the Club annual Hamfest at the Goodwood Community Centre,

time to start thinking of booking a table. Several commercial vendors have already booked a place.

The Club meets at the Belair Community Centre, corner of Sheoak Rd and Burnell Drive, Belair. Meetings commence at 7.30 pm on the third Thursday of each month. Check the Club website [www.ahars.com.au](http://www.ahars.com.au)

On Monday 2 May, Club President David Clegg signed an

agreement with the Blackwood Guide troop for the use of a shed on their premises.

The shed is a 6 m by 8 m garage; it will be insulated and lined at AHARS expense. We have an initial tenure of three years with extensions after that. Once renovated it is expected to be used for a club station, projects, and as a training venue. Use will be confined to Wednesday and Thursday nights and all day on Saturday. Full weekend access is available by arrangement when a course is to be run. The Guide Group have first right of use at all time, should they need it for special activities. Several members have already promised donations to the project. This promises to be an exciting time in the Club's history.

If you happen to be visiting Adelaide any third Thursday do contact the President, David VK5KC ([vk5kc@wia.org.au](mailto:vk5kc@wia.org.au)) or the Secretary Sue VK5AYL, ([vk5ayl@wia.org.au](mailto:vk5ayl@wia.org.au))

Visitors from other clubs are also always welcome.



## WAVERLEY AMATEUR RADIO SOCIETY

### Auction of Radio and Electronic Equipment.

Saturday, 9 July 2011

at

The Scout Hall, Vickery Avenue, ROSE BAY, NSW 2029



All are welcome to attend this annual event to buy or sell. Entry is only \$2 and there is plenty of free parking nearby. The club is adjacent to Lyne Park and Sydney Harbour. Doors open at 8:30 am and the auction commences at 10:30. Full details, including pictures of some of the items to be sold, can be found on the club's web site at [www.vk2bv.org](http://www.vk2bv.org).

Contact: Simon, VK2UA. Email: [vk2bv-info@vk2bv.org](mailto:vk2bv-info@vk2bv.org)

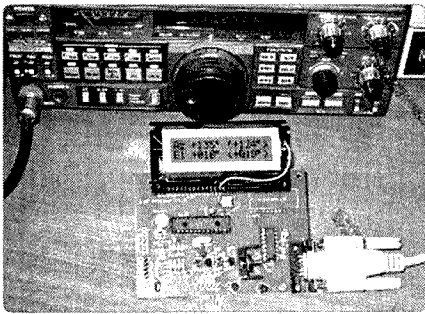


Figure 1: The LVB board during testing.

## Viva Las Vegas

Something from my own bench this month. Also results of ARISSat-1's event in April.

## The Las Vegas Boulevard Tracker

While holidaying in Las Vegas, Howard Long G6LVB came up with the idea for a new interface unit to go between a PC and antenna rotators. The aim was for a reasonably priced unit that was simple to construct and communicates with the PC via USB or RS-232 using a common protocol. Bare PCBs and fully assembled units have been produced by AMSAT-UK and AMSAT-NA. This month I present how my version came about.

## A new tracker?

The story starts some months ago when I bought a LVB tracker PCB from AMSAT-NA. I have been using a Fodtrack interface to control the antenna rotators and have found it to be a simple, reliable system. However it has its drawbacks. When powered up it tends to move the rotators to some random setting (usually maximum azimuth and elevation). My rotator pots are worn and have a few 'flat spots' that the Fodtrack interface tends to make worse by 'hunting' and lots of relay chatter. Fodtrack's other main drawback is that it is a unidirectional system; there is no feedback signal to the PC. It was time for another station upgrade. The LVB tracker had the most appeal for me as it had a USB interface so my laptop could drive it, a common protocol to all the tracking software I use from time to time and an LCD display option as my azimuth rotator's readout motor had died some time ago. But as so often happens, I will get the project

# AMSAT

David Giles VK5DG  
vk5dg@amsat.org

to the 80-90% completed stage, lose interest and get distracted by some other new project.

## A new computer

My place of employment was having a big chuck-out of office equipment. You get a mixture of feelings when you see a large skip full of PCs, printers and monitors. "What a waste." "What is worth salvaging?" "What will the wife say?" Having just been through the process of building a new shack and tossing out plenty of pre-loved equipment along the way I was able to resist much of the temptation to fill it up again. When I got home that night and told my XYL about the clean-up, she immediately asked, 'How many computers did you bring?'. The answer was 'just one'. I picked out the cleanest looking unit with a small case - a Compaq Evo D510. To my surprise it was a good choice. For a PC nearly 10 years old it had had very little use. There was only a small amount of dust, the fans were clean and ran quietly and the hard drive had survived being thrown in the bin. The only faulty part was the CD-ROM drive that did not read disks. Good thing I did not throw out that spare one during the shack clean-up. The important specs are a 1.8GHz Pentium 4, 512 Mb of RAM, two serial ports, one printer port, four USB ports and sound card with line-in and line-out: ideal as an amateur radio PC. As a bonus it runs quieter and uses less power than the main PC. Off to the computer market to pick up a wireless network card and a Keyboard/Video/Mouse switch and that is all the money spent on it.

After spending the time in checking the hard drive and getting all the wanted software loaded on and configured, it was time to figure how best to use the various ports. I also moved a two port serial card from the main computer to the new

one. So the inspiration was given to finally finish my LVB tracker as I was using the parallel printer port for my EPROM programmer and had a serial port left over.

## The LVB board

The LVB tracker goes between a PC and the azimuth and elevation rotator controller(s). The PCB has provision for a normal RS-232 serial port or an on-board USB to RS-232 converter module. The user interface consists of a two line LCD and four pushbuttons for manual control. All of these are optional, though the LCD is useful during calibration.

Figure 1 shows the LVB board during testing before being put in its box (it was tracking CO-55 at the time). The RS-232 connection is on the right hand side, the ribbon cable at the bottom goes to the rotators. The LCD module plugs into the header strip. The board can use 14 or 16 pin LCD modules (the extra two pins supply the LCD back lighting). My LCD module is from an old dot-matrix printer. It is a 14 pin module with the two wires feeding the back light off the LCD's 5 volt supply. The whole unit draws about 150 mA, so a heatsink on the 7805 regulator is needed. Most of the power goes to the LCD and its back lighting. Unplug the LCD and the bare board only uses 25 mA. The header strip on the left is for the optional front panel pushbuttons and the missing chip in the top right corner is for the USB-RS-232 module.

## My build

The LVB tracker can be purchased as a bare board, a populated board (no LCD or case) or the full package fully assembled in a case with cables. I had chosen just the bare board as I had many of the components already, enjoy building things and it was the most cost effective (i.e. cheap). The software, schematics,

instructions are freely available off the Internet [1, 2]. The 105 x 80 mm double sided PCB is silk screened and plated through but does not have a large ground plane, so I put it into a metal box to keep down any interference.

The other main component I had to purchase was the PIC16F876 microcontroller. Either a '876 or '876A is suitable and as it runs at 4 MHz any version can be used. The software also contains a program to install the firmware into the chip using the serial port, so a special programmer is not required. The only problem I had during construction was programming the PIC. I tracked it down to a faulty reset switch that had bad contacts. Once replaced all went according to the instructions.

I do not own one of the YAESU AzEl rotators for which the board is designed but use an old Daiwa rotator for azimuth and a KR-500 for elevation. Years ago I modified my rotator control boxes with relays and voltage outputs so all I needed to do

was tweak the pot voltage ranges from 0 to 4.5 V. Calibration was done as per instructions and went smoothly.

### In operation

The display shows the rotator azimuth and elevation on the right side and the desired azimuth and elevation from the PC on the left. No rotators are moved until it gets a message from the PC. The rotator pot flat spots do not seem to worry it either. I have used it with SatPC32, Orbitron via WispDDE and Nova, all work fine. It just works.

### ARISSat-1 special event

Sadly it was not as special as it could have been. The 50<sup>th</sup> anniversary of Gagarin's historic first manned spaceflight went without a signal heard from ARISSat-1. Battery problems have been blamed for the failure. Despite having a charger on board the ISS, the crew did not give the battery a charge before the event. The special silver-zinc battery as used in their spacesuits is rated for only 5 full charge / discharge cycles. The main worry now is that the battery

may not work when ARISSat-1 is deployed in July. ARISSat-1 has been designed to work with or without a functioning battery during its lifetime except during the first 15 minutes after it has been tossed out of the ISS when it will be running off the battery. Still it generated a fair amount of interest with many non-reports appearing on the AMSAT mailing lists.

### Final Pass

So far I am pleased with the LVB tracker. Unlike the Fodtrack interface, I have not had to worry about it moving the rotators right to their ends and possibly damaging them. It is a pity ARISSat-1 did not work in April, but let us hope the battery will be fully charged and it will be operational from next month.

### References

- [1] The LVB tracker home site: <http://sites.google.com/site/wa4sxml/home>
- [2] Howard Long's site: <http://www.g6lvb.com/Articles/LVBTracker/index.htm>



## AMSAT-VK

### AMSAT Co-ordinator

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### Group Moderator

Judy Williams VK2TJU  
email [secretary@amsat-vk.org](mailto:secretary@amsat-vk.org)

### Website

[www.amsat-vk.org](http://www.amsat-vk.org)

### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.



# Contests

Phil Smeaton VK4BAA

## Contest Calendar for June 2011 – August 2011

June	4/5	IARU Region 1 Field Day	CW
	11	Asia / Pacific Sprint	SSB
	18/19	Winter VHF/UHF Field Day	All
	18/19	All Asia DX	CW
	25/26	King of Spain Contest	SSB
	25/26	Marconi Memorial Contest	CW
	25/26	ARRL Field Day	All
July	9/10	IARU HF World Championship	CW/SSB
	16/17	CQ Worldwide VHF Contest	All
	30/31	RSGB IOTA Contest	CW/SSB
August	6	TARA Grid Dip	PSK/RTTY
	7	Waitakere (NZART) Sprint	CW
	6/7	10-10 International QSO Party	SSB
	13/14	Worked All Europe	CW
	13/14	Remembrance Day Contest	CW/SSB/FM
	27/28	ALARA Contest	CW/SSB

Note: Always check contest dates prior to the contest as they are often subject to change.

Welcome to this month's Contest Column.

### CQWPX SSB 2011 - Revisited

This contest was great fun to play radio in. The bands came to the party (even 10 m!) and continental records around the world began to tumble as a result.

An improved sunspot count meant that band occupancy was high. Operators seemed to be generally sensible in their approach this year as regards band occupancy. With propagation changing swiftly it is easy to ask if a frequency is in use, get no reply, then get berated 10 minutes later as someone in Europe was actually calling CQ on it and had been doing so for an hour or more. Most went for the easy option and shuffled frequency a bit to get out of their way as not doing so would lose QSO rate usually, but some operators were rude enough to start CQing on a frequency without listening beforehand and got the rough edge of the occupant thereof!

The VK4KW team was expanded by two for WPX, welcoming Laurie VK7ZE and Mike VK4DX for the weekend to come and play radio.

Photo 1 shows Mike VK4DX trying to encourage a station to become a much needed multiplier for the log. If only this approach actually worked, but much to Mike's chagrin it did not bear any fruit....

VK1CC generated some traffic on the bands and had some fun in the M/M section – but they almost did not make it! Member/s of the group could not attend at the last minute, so this initially left some holes in the equipment provision. With Murphy paying yet another call to the hardware of the gear that got to the shack, the lads soldiered on with 100 W to amass just over 1000 Qs for 1.8 million points. An excellent job!

Steve VK3TDX reported 10 m to be in good shape, with a nice run to EU on the Sunday night. Steve bagged 1085 Qs for a claimed score of 2 million points. Nicely done Steve!

Andrew VK4NM un-wrapped his shiny new callsign (well, new to Andy anyway!) and set about the contest with gusto, gaining a claimed score of a fraction under 6.6 million in the process for his M/S entry. I cannot help but wonder if VK4HAM appears in anyone's log for the contest,

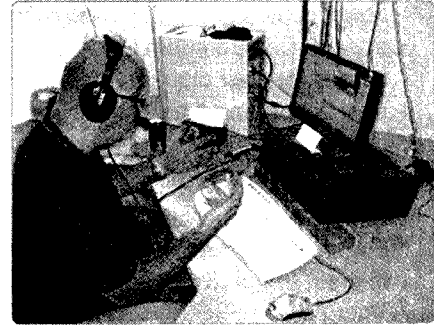


Photo 1: Mike VK4DX trying to encourage a station to become a much needed multiplier for the log.

as Andy has been CQing with his old call for years so he might have slipped up during the midnight shift!

Steve VK6IR entered as single band 15 m, with 1300 Qs for a claimed score of almost 2.5 million points – a superb effort that may well have netted Steve the Oceania record for the category.

The following VKs submitted a log for the contest – but unfortunately no claimed scores available at the time of writing. Please see table on next page.

### Team Contesting

Contesters have been allowed by the contest organizers to submit contest scores made attributable to our clubs/groups for several years now, but maybe it is time for a change. This rule was originally written back in the late 1940s when these competitions started and the wording took into account the situation of the US based Clubs. There are countries outside USA and Europe where the territory is vast (VK is a prime example) and the ham population is very little. The contests are world wide events however, so maybe the situation of other regions than those

seemingly currently catered for need to be considered. But, parts of the USA are also huge rural areas, so the current 275 km radius limit might not work for all of the USA either.

There are several options, including:

- Remove the geographic limitation completely, allowing members of each Club to submit their scores for their club, no matter if they have moved temporarily or permanently;
- Keep this geographic limitation as it is for the US and Western Europe countries and remove it for the rest of the world; and so on.

But some people do not feel that two people over 1000 km apart can be in the same club, as a club is a group of people that meet periodically. Australia's VKCC covers a huge geographic area however – other countries will also fit this 'club' description. But if the team competitions stimulate more activity in the contests, why would there be resistance to extend or modify the geographical area?

Perhaps it would be worth considering redefining how club competitions are scored.

Clubs might possibly be defined by their members in any way they like. Aspects such as geography, favourite contest, radio interests, date when first licensed - whatever they choose. Maybe a contest could impose some fairly loose constraints, e.g. being all in the same country.

Clubs could field one or more teams, with each team's composition well defined by the rules for a particular contest. In other competitive arenas, a team has a limited number of players – it would be unthinkable that an AFL team might have dozens of players on the field concurrently. So, for example, in a given contest a team might be defined as five operators - who could be either at a FD location or at their home stations. Perhaps a team might be required to have at least one LP and one QRP member, or even at least one rookie. Having a limitation on the number of operators within a given team might serve well to reduce the likelihood of vast teams forming and dominating the

Callsign	Operator	Transmitter	Band	Power	Assisted	Overlay
VK1CC	Multi-op	Unlimited	All	High	Assisted	
VK1MAT	Single-op	One	20m	Low	Non-assisted	Rookie
VK1MJ	Single-op	One	All	High	Non-assisted	
VK1OO	Single-op	One	All	Low	Assisted	
VK1PAR	Single-op	One	All	Low	Non-assisted	
VK2ACC	Single-op	One	All	High	Non-assisted	
VK2BCQ	Single-op	One	All	High	Non-assisted	Tb-wires
VK2CA	Single-op	One	All	High	Assisted	Tb-wires
VK2ERP	Single-op	One	All	High	Non-assisted	
VK2FHRK	Single-op	One	All	Qrp	Non-assisted	
VK2HBG	Single-op	One	All	Low	Non-assisted	
VK2HEK	Single-op	One	All	Low	Assisted	Tb-wires
VK2IM	Single-op	One	All	High	Non-assisted	
VK2WAY	Single-op	One	All	Low	Non-assisted	Tb-wires
VK2WTT	Single-op	One	20m	Low	Non-assisted	
VK3AVV	Single-op	One	All	High	Non-assisted	
VK3DOG	Single-op	One	All	High	Non-assisted	Rookie
VK3LM	Single-op	One	All	Low	Non-assisted	
VK3MDX	Single-op	One	All	Low	Non-assisted	
VK3TDX	Single-op	One	All	High	Non-assisted	
VK3VTH	Single-op	One	20m	Low	Non-assisted	Rookie
VK4ATH	Single-op	One	All	Qrp	Non-assisted	
VK4BL	Single-op	One	All	Low	Non-assisted	Tb-wires
VK4DMP	Single-op	One	20m	Low	Non-assisted	
VK4EMM	Single-op	One	All	High	Non-assisted	
VK4FJ	Single-op	One	15m	Low	Non-assisted	
VK4FJAM	Single-op	One	All	Qrp	Non-assisted	
VK4IU	Single-op	One	All	High	Non-assisted	
VK4KW	Multi-op	Two	All	High	Assisted	
VK4MN	Single-op	One	20m	Low	Non-assisted	Tb-wires
VK4NM	Multi-op	One	All	High	Assisted	
VK4QH	Single-op	One	All	Low	Non-assisted	
VK4VDX	Single-op	One	All	Low	Non-assisted	
VK4WIP	Multi-op	One	All	High	Assisted	
VK4XES	Single-op	One	All	Low	Non-assisted	Tb-wires
VK5FCJM	Single-op	One	15m	Low	Non-assisted	
VK5FMPJ	Single-op	One	40m	Low	Non-assisted	Rookie
VK5MK	Single-op	One	All	Low	Non-assisted	
VK6FDX	Single-op	One	All	High	Non-assisted	
VK6FMAB	Single-op	One	All	Low	Non-assisted	
VK6HAD	Single-op	One	All	Low	Non-assisted	
VK6IR	Single-op	One	15m	High	Assisted	Tb-wires
VK6NC	Multi-op	One	All	High	Assisted	
VK6WX	Checklog	One	All	High	Non-assisted	
VK7NET	Single-op	One	All	Low	Non-assisted	
VK7XX	Checklog				Assisted	
VK9CF	Single-op	One	All	Low	Non-assisted	Tb-wires

Listing of VK stations who submitted logs for the CQWPX SSB 2011 contest.

results table, as has often been the case in the past. Because teams are of limited size, almost any group calling itself a club could field a team. Some clubs might be able to field a lot of teams. Team

scores are computed by adding up the scores of the team members. Clubs in densely populated areas may be considered to still have an advantage with more potential team members available of course, but a

10-member club in a rural area might be able to field only two teams but if they are excellent operators those teams might end up at the top of the results table. An alternative might be that instead of defining a team as a fixed number of operators perhaps define a team as a fixed number of operating hours. If a contest allows Single Operator entrants to operate for a maximum of 30 hours, then the definition of a team might be expressed as a max of 150 hours of operating time. A team could be five operators working all 30 hours, or 10 operators working only 15 hours, or any other combination. There would be considerable strategy involved for a club in forming a team and setting a schedule of hours and bands. With intra-team coordination the strategy could also become tactical

as decisions are made during the contest in response to propagation etc. With teams defined by hours instead of headcount, the endurance skill of being able to sit in a chair and stay awake for days becomes less of a factor.

It certainly seems a tad strange to me under the present rules that travelling amateurs to, say, the Caribbean or Africa from their home country, are permitted to allocate their scores to their home club when at the same time guys who have been a member of a club for many years become ineligible if they move out of the stated radius.

The CQMM DX Contest in later April had a Club definition category starting this year, so it will be interesting to see how this pans out in the results. What is important

though in this call for change is not to impose additional burden on the Contest Committees, as they have more than enough to do without the necessity to check membership and prove boundaries – which is probably the reason why there has been little dialogue from the Contest Committees about this issue previously.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au) See you on the bands.

**73 de VK4BAA**



# Harry Angel Memorial Sprint 2011

*Ian Godsil VK3JS Contest Manager*

**2011 May 21st Saturday 1000 Z – 1146 Z**

Greetings All.

The rules for the Harry Angel Sprint 2011 are below and I hope that you will all join in.

I apologise for being so late with the announcement of this event this year. So far it has been a very busy year with lots of unexpected things happening. I meant to organise myself in January, but now it is a third of the way through the year and things are still not done.

Sadly this brings me to the conclusion that it is time to relinquish my management of this event. Is there someone out there who would be prepared to take over the management? If so, I would be very happy to hear from you. My email address is: [vk3js@zoho.com](mailto:vk3js@zoho.com) or phone 0466 286 003.

Thanks for all your past support and I look forward to receiving logs from you later this month.

**73, Ian Godsil VK3JS**

This year marks the 13th Anniversary of an annual Contest to remember VK's oldest licensed operator, Harry Angel. Please note the time length of the Contest - 106 minutes, Harry's age when he died in 1998. It is open to all HF operators.

Object is to make as many contacts as possible on band 80 metres, using modes CW and SSB.

**Category:** Single Operator

**Sections:** CW, Phone, Mixed (please choose ONE ONLY).

**Frequencies:** CW: 3500 - 3535 kHz, Phone: 3550-3590 kHz; 3650-3665 kHz

Exchange RS(T) and serial number starting at 001.

Score two points per CW QSO and one point per Phone QSO.

Stations may be worked once only per mode. Logs must show time UTC, callsign worked, mode, RS(T), serial numbers sent and received for each QSO.

**Sending Logs:** Email is the preferred method to [vk3js@zoho.com](mailto:vk3js@zoho.com) (Please note that even for email logs, the entrant's name, callsign and postal address are required, as per the Summary Sheet.)

Send written Logs to Harry Angel Sprint, 121 Railway Parade, Seaford 3198, by 2011 May 30th Monday.

Send summary sheet showing name and date of Contest, name, address and callsign of entrant, category entered, points claimed and a declaration that the rules and spirit of the Contest were observed.

## Notes

1. Please submit your logs as soon as possible after the Contest and do not forget to include your postal address (you cannot know if you may be a section winner!!).
2. The VKCL logging program covers this contest. This way everything can be kept electronic.



# John Moyle Field Day 2011 Results

Denis Johnstone VK4AE/VK3ZUX

Contest Manager

## 24 Hour Portable Operation – Multiple Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Place /Award
VK3JNH	Multi	Phone	All	277	2542	1 / <sup>*</sup>
VK3CNE	Multi	Phone	All	567	2311	2 / <sup>*</sup>
VK2WG	Multi	Phone	All	297	1850	3 / <sup>*</sup>
VK2HZ	Multi	Phone	All	485	1655	4 / <sup>*</sup>
VK3YVG	Multi	Phone	All	382	1351	5 / <sup>*</sup>
VK2BPK	Multi	Phone	All	163	1295	6 / <sup>*</sup>
VK3ANR	Multi	Phone	All	412	1096	7 / <sup>*</sup>
VK6ARG	Multi	Phone	All	291	769	8 / <sup>*</sup>
VK6KTV	Multi	Phone	All	169	417	9 / <sup>*</sup>
VK7WCN	Multi	Phone	All	172	344	10 / <sup>*</sup>
VK6AHR	Multi	Phone	All	154	306	11 / <sup>*</sup>
VK8DA	Multi	Phone	All	128	256	12 / <sup>*</sup>
VK8BP	Multi	Phone	All	120	240	13 / <sup>*</sup>
VK3UHF	Multi	Phone	VHF	299	3015	1 / <sup>*</sup>
VK2EH	Multi	Phone	VHF	85	1730	2 / <sup>*</sup>
VK4WIS	Multi	Phone	VHF	199	995	3 / <sup>*</sup>
VK4WIE	Multi	Phone	VHF	114	766	4 / <sup>*</sup>
VK2SRC	Multi	All	All	1043	9094	1 / <sup>**</sup>
VK3ER	Multi	All	All	735	6062	2 / <sup>*</sup>
VK4IZ	Multi	All	HF	820	1791	1 / <sup>*</sup>
VK2AWA	Multi	All	HF	800	1684	2 / <sup>*</sup>
VK4CHB	Multi	All	HF	224	460	3 / <sup>*</sup>
VK6LS	Multi	All	HF	226	452	4 / <sup>*</sup>
VK5LZ	Multi	Phone	HF	802	1604	1 / <sup>*</sup>
VK2AWX	Multi	Phone	HF	651	1302	2 / <sup>*</sup>
VK3FRC	Multi	Phone	HF	522	1044	3 / <sup>*</sup>
VK4WAT	Multi	Phone	HF	406	812	4 / <sup>*</sup>
VK5BAR	Multi	Phone	HF	399	798	5 / <sup>*</sup>
VK2AOJ	Multi	Phone	HF	347	694	6 / <sup>*</sup>
VK6SH	Multi	Phone	HF	279	558	7 / <sup>*</sup>
VK1MAT	Multi	Phone	HF	155	310	8 / <sup>*</sup>
VK4WIT	Multi	Phone	HF	148	296	9 / <sup>*</sup>

## Six Hour Portable Operation – Multiple Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Place /Award
VK3AWS	Multi	Phone	All	269	832	1 / <sup>*</sup>
VK5GRC	Multi	Phone	All	50	109	2 / <sup>*</sup>
VK4BAR	Multi	Phone	All	54	108	3 / <sup>*</sup>
VK1HW	Multi	Phone	HF	189	378	1 / <sup>*</sup>
VK2SF	Multi	Phone	HF	135	270	2 / <sup>*</sup>
VK7DIK	Multi	Phone	HF	68	136	3 / <sup>*</sup>
VK2BOR	Multi	Phone	HF	54	108	4 / <sup>*</sup>
VK8AR	Multi	Phone	HF	51	102	5 / <sup>*</sup>
ZL3UR	Multi	Phone	HF	45	90	6 / <sup>*</sup>
VK4WIL	Multi	All	HF	41	84	i / <sup>*</sup>
VK5SR	Multi	Phone	VHF	57	1378	1 / <sup>*</sup>
VK5OM	Multi	Phone	VHF	4	80	2 / <sup>*</sup>

## 24 Hour Portable Operation – Single Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK5KBJ	Single	Phone	All	131	571	1 / <sup>*</sup>
VK2ZTY	Single	Phone	All	31	296	2 / <sup>*</sup>
VK5CV	Single	Phone	All	54	255	3 / <sup>*</sup>
VK5FPAW	Single	Phone	All	14	49	4 / <sup>*</sup>
VK3VCL	Single	Phone	VHF	237	1285	1 / <sup>*</sup>
VK5FANA	Single	Phone	VHF	151	1171	2 / <sup>*</sup>
VK2IO	Single	Phone	VHF	46	572	3 / <sup>*</sup>
VK2JDS	Single	Phone	VHF	30	280	4 / <sup>*</sup>
VK4HF	Single	Phone	HF	614	1198	1 / <sup>*</sup>
VK4GH	Single	Phone	HF	529	1060	2 / <sup>*</sup>
VK2HBG	Single	Phone	HF	517	1034	3 / <sup>*</sup>
VK2ACH	Single	Phone	HF	164	328	4 / <sup>*</sup>
VK6YO	Single	Phone	HF	124	248	5 / <sup>*</sup>
VK6ZRW	Single	Phone	HF	111	222	6 / <sup>*</sup>
VK4NH	Single	Phone	HF	96	192	7 / <sup>*</sup>
VK3VGK	Single	Phone	HF	53	106	8 / <sup>*</sup>
VK5AR	Single	Phone	HF	30	60	9 / <sup>*</sup>
VK3MV	Single	All	HF	182	410	1 / <sup>*</sup>
VK4EV	Single	All	HF	71	154	2 / <sup>*</sup>
VK1WJ	Single	All	All	64	128	1 / <sup>*</sup>

## Comments on John Moyle Field Day 2011

This year's entries came from every Australian mainland call area, as well as from Tasmania and New Zealand. The total number of logs submitted was 129. This was an increase from the 122 logs received last year. It was good to see several ZL stations take part this year, and three stations submitted their log. Well done to all who took part.

I have included all of the results that I received in the totals and if any are missing, they are completely lost. I can only offer my apologies to anyone so affected. I am sorry if your log is missing, but it did not get to me despite my most careful procedures and cross checking.

Based upon submitted logs, there were some 20,540 contacts, amounting to some 70,411 points claimed, a 12.9% decrease from 2010. This was pretty heavy contesting, but unfortunately it resulted in just 129 logs being submitted.

## Six Hour Portable Operation – Single Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK3VFO	Single	Phone	VHF	34	561	1/*
VK3FIX	Single	Phone	VHF	29	312	2/*
VK1PE	Single	Phone	VHF	38	310	3/*
VK3VMC	Single	Phone	VHF	30	248	4/*
VK5ZD	Single	Phone	VHF	25	202	5/*
VK5KDL	Single	Phone	VHF	13	130	6/*
VK3FOAB	Single	Phone	VHF	7	36	7/*
VK5RX	Single	Phone	All	120	844	1/*
VK40E	Single	Phone	All	80	308	2/*
VK5ZT	Single	Phone	All	41	195	3/*
VK3EVL	Single	Phone	All	9	88	4/*
VK3FEGL	Single	Phone	All	9	88	5/*
VK3HJA	Single	Phone	HF	127	254	1/*
VK3VTH	Single	Phone	HF	112	224	2/*
ZL2AYZ	Single	Phone	HF	90	180	3/*
VK3ZPF	Single	Phone	HF	77	154	4/*
VK3YE	Single	Phone	HF	60	120	5/*
VK3AFW	Single	Phone	HF	53	104	6/*
VK4FHYH	Single	Phone	HF	44	88	7/*

/\* Certificate Awarded

/\*\* President's Cup

/\* Participation Certificate

## Home Station – 6 Hour

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK2KDP	Home	0	0	196	305	1/*
VK2DAG	Home	0	0	192	290	2/*
VK5KV	Home	0	0	150	228	3/*
VK2AFY	Home	0	0	151	215	4
VK2EI	Home	0	0	67	113	5
VK5ALX	Home	0	0	55	99	6
VK3FBCG	Home	0	0	44	82	7/\$
VK3CVF	Home	0	0	45	72	8
VK4DGU	Home	0	0	38	71	9
VK4PJC	Home	0	0	37	69	10
VK6WJ	Home	0	0	37	65	11
VK3KTM	Home	0	0	28	44	12
VK7FEET	Home	0	0	20	36	13
VK4KML	Home	0	0	22	35	14
VK3ADB	Home	0	0	20	34	15
VK3ZHQ	Home	0	0	17	32	16
VK5PX	Home	0	0	16	29	17
VK4ATH	Home	0	0	14	27	19
VK2XPT	Home	0	0	15	23	18
VK5KPR	Home	0	0	11	18	20
VK4PQ	Home	0	0	7	12	21

Unfortunately, the numbers of stations who went to the considerable trouble of going out and setting up as a portable station and then not bothering to submit a log as an entry, is still a disappointment. Some multiple operator stations got very big scores and perhaps it simply reflects the great and varied planning and implementation efforts required to assemble and operate a multi operator station.

## Home Station – 24 Hour

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK7NET	Home	0	0	502	708	1/*
VK4VDX	Home	0	0	410	655	2/*
VK3FSTU	Home	0	0	244	418	3/*
VK4MIT	Home	0	0	253	376	4/*
VK5FPAS	Home	0	0	182	305	5/*
VK2DF	Home	0	0	122	209	6
VK5FMPJ	Home	0	0	108	183	7/\$
VK4MON	Home	0	0	81	142	8
ZL2AKM	Home	0	0	75	135	9
VK3GK	Home	0	0	79	129	10
VK3AKT	Home	0	0	65	112	11
VK5NE	Home	0	0	58	111	12
VK2RZ	Home	0	0	61	108	13
VK3LOR	Home	0	0	47	86	14
VK2UH	Home	0	0	40	69	15
VK5FMJF	Home	0	0	44	65	16/\$
VK3JDA	Home	0	0	36	62	17
VK2KTT	Home	0	0	29	47	18
VK6HX	Home	0	0	25	46	19
VK4FJAM	Home	0	0	27	43	20/\$
VK5MK	Home	0	0	20	32	21
VK2AWJ	Home	0	0	14	25	22
VK3FCAA	Home	0	0	14	25	23/\$
VK3HGB	Home	0	0	12	19	24
VK5RG	Home	0	0	3	6	25

/\* Certificate Awarded

/\*\* President's Cup

/\$ Participation Certificate

Activity was carried out on all bands permitted under the rules. There was not a noticeably increased activity on HF, and the frequencies in use followed the low sunspot cycle. This sunspot cycle is only just after the bottom of the cycle and conditions did not appear to improve substantially this year.

In the higher UHF and Microwave bands there was an increase in activity, but not yet back to the peak in 2008. Maybe it follows a weather cycle, rather than the solar cycle?

The scoring in the UHF range was around the same as for last year. In the VHF range the number of contacts is about the same as for 2010. The absence of the larger VK2 & VK4 club stations, because of the miserable weather certainly reduced activity, with a number of stations making such comments.

The other major change noticed this year was the increase in Portable Station operation, and a decrease in Home Station operation. Clearly there were some portable station operators who did not bother to submit a log and are again strongly encouraged to do so next year.

The participation across the various Call Areas was patchy. There was a reduction in the number of Portable stations in VK2 and an increase in Portable stations in the other states as more Portable stations ventured into the field to take advantage of the kinder weather?

All of the portable stations that went to the effort to send in a log get a certificate. The WIA believes that

people who made the effort to set up a portable station and operate should be acknowledged. In line with last year, the Foundation License logs who did not achieve a placing were instead awarded a Participation Certificate for encouragement.

A pleasing increase to thirteen Foundation licensed operators submitted a log (none from VK2, five were from VK3, two were from VK4, five from VK5 and one from VK7). There were many more stations than this logged during the contest. All logs submitted by foundation operators were awarded a certificate. Logs from club station showed that quite a number took part, as part of the club station efforts.

Editor's Note: Denis has provided a very detailed analysis of results from 2011, including comparisons with previous years and between the various contest categories. The analysis points out that there can be NO single winner of the Contest, only winners in each contest category/section, as the rules are effectively different for each category. It should be noted that all stations submitting an entry are required to comply with the Rules of the contest in ALL respects. It is disappointing to see that one Club station was extremely reluctant to meet the requirements of the Rules, even after several requests to do so by the Contest Manager – they are extremely fortunate that their entry was not simply disregarded. Such behaviour in the future will not be tolerated and non-compliant entries

will be simply excluded from the results. Denis has also proposed a new system of scoring for the 2012 event. All can read the detailed report on the WIA website at: <http://www.wia.org.au/members/contests/johnmoyle/>.

### The Future

Now it is over to you. There are always ways to improve anything, but scrapping something because it does not suit you is not possible, but if benefits are shown to be available, further changes can also be made to better serve the amateur community.

If you have any contribution to these topics, the Rules for this contest are available at the WIA web site at <http://www.wia.org.au/contests/johnmoyle/> which already contains my contact information and please feel free to contact me with your submission for further consideration.

Well done to all of those stations that participated in the contest and well done those who bothered to submit a log. It is hoped that the number of logs to be submitted next year will return to the recent trend of increased log numbers.

I wish to thank those who did send in photographs of their equipment set-up and personnel involved for inclusion in the AR magazine. These have been submitted to AR along with this report so please give Peter Freeman ([editor-armag@wia.org.au](mailto:editor-armag@wia.org.au)) anything else you have for later use for the magazine.

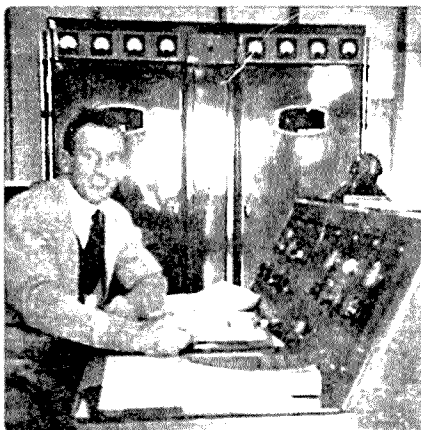


## Silent Key Colin King VK4CK

It is with deep regret that we report another Silent Key. Colin Melville King, VK4CK, from Keperra in Brisbane, became a silent key after a short illness on 30 December, 2010, aged 88 years. Colin was born in Temora, NSW, and grew up in Wagga.

By Colin's own account "I saw a wireless set for the first time during a visit to an uncle" (October 1934). With help from the postmaster's son, at age 12 he built his first crystal set complete with a galena crystal and "cat's whisker" and listened to the local broadcast station 2WG. Colin's first glimpse inside a wireless had to wait till his family bought their first set - a "Genelex" standard upright cabinet model. On Sunday nights he would listen to amateur station VK2YW at the top end of the dial.

Following technical study through the Sydney based Australian Radio College, Colin commenced work with Wagga Wireless Distributors, servicing Stromberg-Carlson radios.



*In the photograph Col is sitting at the 2CO station console equipment with the AWA 2 kW transmitter in the background.*

In 1941, Colin enrolled in the RAAF Reserve, and like many others in that era, he enlisted in the Air Force in April 1942. He trained as a Wireless Operator/Air Gunner and served with 14 Squadron based at Pearce, Western Australia, conducting submarine patrols and convoy

duties over the Indian Ocean. He later served with 100 Squadron operating Beaufort Bombers in the South West Pacific where he survived 87 strike missions and was promoted to Flying Officer.

During his 'spare time', Colin studied for the coveted First Class Operators Certificate of Proficiency (FCOCP) and Broadcast Station Operators Certificate of Proficiency (BOCP) and passed the exams in 1944.

After the war Colin's first job was with the Commonwealth Department of Civil Aviation at Mascot, Sydney Airport as an Aeradio Operator. Subsequently, in 1946 he was offered a position as a radio Broadcasting Technician at Station 2CO (ABC) in Corowa, NSW.

It was in Corowa that his studies were most important to him and he

Continued on page 45

# Club Grant Scheme 2011

The WIA has allocated \$6,000 to the WIA Club Grant Scheme in 2011.

In 2011 the WIA is supporting projects that fall within one or other of these two categories:

Projects and activities to be conducted before 1 June 2012 to attract new amateurs, but focussed on people under 25; or Amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

The Board, which makes the final decision, is advised by a Grant Committee of three independent amateurs. The members of the Grant Committee for 2011 are Wally Howse VK6KZ, Bob Tait VK3XP and Peter Lowe VK3KCD. The 2011 Grant Committee has been asked to recommend the distribution of the \$6000 between the two categories of projects and between particular projects.

The timetable for the 2011 Scheme is:

Applications for Grants to be lodged by	Monday 25 July 2011
Grant Committee to make its recommendations by	Monday 26 September 2011
Grants to be announced by	Monday 24 October 2011

## In 2011:

- Particular emphasis will be placed on the percentage of WIA members in a club when considering competing applications;
- Clubs must use the Application Template to be found on the WIA website supported by attachments;
- Successful Clubs may be asked to do certain things before they receive their Grant (for example, demonstrating that adequate additional funds needed for a project are available);
- Successful Clubs will be required to report to the WIA on the utilisation of the Grant they have received by:
  - providing evidence of the disbursement of the Grant,
  - submitting a statement setting out whether or not the objects of the Grant were achieved, and
  - submitting a statement showing how the WIA has been recognised as a supporter of the project.

Clubs should check the Club Grant Scheme pages on the WIA website (<http://www.wia.org.au>) found in the "Members Area" under "Affiliated Club Benefits" and then go to "Club Grant Scheme". There can be found the Club Grant Scheme Rules, the Application Template and the previous Recommendations and Report, which show how the Grant Committee has formed its judgements in recommending previous Grants. The previous Recommendations and the Report should assist clubs to identify the evidence needed to support an application.

Applications must be lodged by 25 July 2011 with the WIA office addressed:

Club Grant Scheme  
PO Box 2042  
Bayswater Vic 3153

Continued from page 44

graduated to a Radio Inspector in 1953. He was immediately offered a position with the Radio Branch of the Postmaster-General's Department (PMG) as the officer in charge of the Armidale district. While he was living in Armidale, Television was introduced into Australia and the TV Operators Certificate of Proficiency

(TVOCP) became a requirement for technicians working on TV transmitters. Colin did more study and obtained his TVOCP in 1957.

Promotion was not long coming and in 1959 Colin transferred to Townsville in a senior role as the District Radio Inspector (DRI). His responsibility now covered a large area of Queensland and he was instrumental in upgrading communications using HF radio between his office and the Regional headquarters

in Brisbane.

During his time in Townsville Colin joined the "Moonwatch Group" tracking artificial satellites for both the USA and Russia. His work was recognised with a citation from the Smithsonian Institute, USA. Colin was the only person in Australia and one of three in the world to track the first man into space, Yuri Gagarin.

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At the time of writing this article the weather is still being gracious, well into autumn! We have had enough rain to keep up the green glow on lawns and gardens, but the leaves are slowly beginning to turn and we are experiencing the beautiful brown and gold colours that appear as the leaves begin to fall.

Following the installation of extra water tanks around the house and garden only about a year ago, we are now wondering how to use the extra water. Having placed a larger tank upon the previous tank's stand, it is suffering under the weight and so has to be emptied as repairs need to take place. It is hardly conceivable that such a change could occur in such a short period of time.

The OM Andrew VK3BFA and I decided to take a week's break in Tasmania. We sailed over on the Spirit of Tasmania, taking our own car with radio installed, hoping to catch up with operators while over there. Unfortunately, neither of us checked the location of the repeater listing, both believing it was safely installed in the glove box. On arrival we discovered that while we had repeater listings for most other States, Tasmania seemed to be missing. Let this be a warning, never take for granted that something will always remain where you think it should be.

Otherwise the holiday visit was very relaxing. The weather was kind; it only rained lightly and not too often. We visited Hobart for a few days and enjoyed the Saturday Salamanca Market. Then it was up the East Coast for a brief stay overlooking the ocean from a holiday unit, then on to Orford to visit with relatives for two nights. It is always difficult to tear ourselves away from this lovely Isle and we hope to return soon, this time including the appropriate repeater information.



*Midlands & Shepparton Radio Clubs BBQ.*

## **VK3 news**

### **Organising Get-togethers**

There is great potential for Clubs to meet and greet their fellow operators by organizing an event in which two or more Clubs can come together for a social occasion.

The Midlands Radio Club and the Shepparton Radio Club combined to organize such a social event. They met for a barbeque at The Goulbourn Weir which proved to be a very pleasant spot. Although the weather was overcast, there was a good turn up with approximately 36 persons present. It appears there are a lot of good cooks in the region as reports of the home baked sweets provided after the barbeque were positively glowing.

Regional representative Jean VK3VIP and her OM John VK3DQ were in attendance and found everyone very approachable and friendly. A number of ALARA members participated. Monica VK3FMON and her OM Kevin VK3CKC brought along his portable trailer mounted tower and set up a HF station which provided the opportunity for everyone to test the equipment.

The EMDRC held a National Field Day operation at Lilydale Lake in April. Some enthusiastic members arrived at the car park by 4.30 am with others arriving around 6.00 am to set up a marquee and equipment for the day. This impressive dedication was rewarded

by giving them a ringside seat into a viewing of some local nightlife (human unfortunately) who were still performing at such a late hour, until a Police car arrived to bring a halt to the 'entertainment'.

Overall the Field Day was rated a success and about 40 amateurs made contact during the day. However, some further thought is being given to discovering the best way of supporting non-operators to feel encouraged to approach the display and learn more about the hobby. This is an ongoing challenge for all Clubs. It appears five stations from Victoria signed on for the day. EMDRC, Geelong, Yarra Ranges, and Rosebud Clubs all operated at least one station plus another located at the Williamstown Timeball by Amateur Radio Victoria. A great effort by everyone who participated, but there needs to be more consideration given to how each Club can provide their own unique way of promoting interest in joining up new members.

## **News from Dot VK2DB**

### **Meeting and Greeting**

OM John VK2ZOI and I were browsing along the shops in the Hornsby mall when we looked at a couple coming out of a shop and thought, 'gee we think we know them, but they live halfway to Queensland'. When we reached them we found it was Carol VK2FCSR and her OM Gary VK2ZKT. What a pleasant surprise!

*Jean VK3VIP and Margaret VK3FMAB at the ALARA table at the EMDRC NFD station.*







*Dot VK2DB: This photo was taken in the ARNSW Shed which, among other uses, houses a good selection of old interesting radios and parts. The sign was from the previous VK2DB, Ray Biddle. He was an avid Amateur TV man.*

We used to go away at Easter when John was at work as it was the only time he could get away but now he is retired, of course we don't go. Unfortunately, the family was unable to use the weekender so it remains empty these holidays.

Jenny VK5ANW and Peter VK3RV took a trip to Sydney. We were able to meet up for a few hours at Dural. They visited the Radio Museum at Kurrajong in the morning and we met at Dural that afternoon. Tim VK2ZTM showed us around.

Maria VK5BMT is visiting her daughter and grandchildren in Sydney and we hope to catch up.

My son Peter VK2ZCU travelled to Queensland on Good Friday to visit his brother and do some work for him. It took him 13 hours to get there: the traffic jams were horrendous. I watched him on APRS and found it very interesting. I was able to watch other amateurs I know travelling too. Fascinating, but a great waste of time if you are sitting at your computer supposedly doing work!

### **News from Jenny VK5ANW**

From March 29 to April 4 2011, Peter VK3RV and I spent some time in Sydney. Peter had two objectives, to do some historical research for the WIA, and also to visit some Sydney theatres and cinemas with the Cinema and Theatre Historical Society (CATHS). There are many connections between cinema and amateur radio operators! I also had

two objectives to play tourist and go shopping! Oh, and a third one, to try to meet up with Dot VK2DB!

On the day after our arrival in Sydney, Peter went to spend some time with Pierce VK2APQ. Pierce is 99 years old (he will be 100 in August) and is a former VK2 President and VK2 Federal Councillor. He is a man with much amateur radio experience who is possibly best known for his Amateur Radio Notes in *Electronics Australia*.

The following day was spent in Sydney, including a large part of it at the magnificent Botanical Gardens, followed by some shopping! On Friday, we headed to Kurrajong on the eastern edge of the Blue Mountains, to visit the Kurrajong Radio Museum where we were warmly welcomed by the owners Ian O'Toole VK2ZIO and his wife Pat. Also present, was Tim Mills VK2ZTM, whom Peter and I had not seen since the early 1980s when we all attended WIA Federal Conventions in Melbourne.

The Kurrajong Museum is a fascinating place which we thoroughly recommend to anyone with an interest in radio, be it Amateur, Commercial or Military.

After lunch, Pat and I went for a wander around her garden while the OMs continued to talk radio! Then, sadly, it was time to leave. We followed Tim for a bit over an hour finally arriving at Dural, the Headquarters of Amateur Radio NSW and the home of VK2WI.

As we pulled up, Dot VK2DB and John VK2ZOI arrived - can you spot why Ian and John can cause confusion when they are both on the air? (I should also admit that several emails and phone calls ensured this "coincidental" meeting!) Tim then gave us a guided tour of the Dural "shed" which although it is not quite finished as far as some of the

internal refurbishing is concerned, is certainly a great credit to the VK2s and will serve them well for many years. We also had a look around the original Dural building which houses VK2WI. After an "in depth study" of the transmitting facilities, we all went our separate ways some two hours later.

The rest of the time for Peter and me was spent on the CATHS tour, and sightseeing. It was a busy week but a very enjoyable one, and our thanks to everyone mentioned who made it so.

### **More from VK5**

Lesley VK5LOL went with her OM Hans VK5YX to a meeting of the North East Radio Club here in Adelaide and was delighted to see a number of other YLs there, too. Unfortunately she did not have a camera with her but the YLs included, apart from Lesley, Jeanne VK5OQ, Somkhith VK5FAAP, Jade and Betty.

### **News from VK4 - Visit to Borneo**

On a recent holiday to Kota Kinabalu, in the northern Borneo state of Sabah, Catherine VK4GH and her husband John VK4IO met up with Steve 9M6DXX and his wife 9M6EVA, who have lived in Kota Kinabalu for about five years. Steve is often heard from other locations as well, especially IOTAs, and his next major DXpedition is to East Timor 4W6A later in the year. He was very happy to meet us for dinner on our first

*VK4IO, 9M6DXX, 9M6EVA and VK4GH at Tanjung Aru Resort, Borneo.*





*Women in the Services during Wartime.*

### **Australian women at war**

Some of you might have viewed an interesting documentary on Channel 2 on April 21, entitled "Girls' own War Stories". It was an amalgamation of personal recollections and historic war documentary

films which outlined the situation for Australian women when World War II was announced. Apparently it was never considered, at that time, that women would have a role in the war effort and only Nurses were considered for service at the start of the War. Eventually the Red Cross commenced training VAD (Voluntary Aid Detachment) volunteers in First Aid and, as women's interest in doing

their bit increased, many attended the classes run by Mrs. Florence McKenzie, Australia's first female Engineer who trained hundreds of young men and women in the use of Morse code. Eventually there was an increasing need for women to offer their labour as more men departed to serve overseas. This period provided women with an opportunity to see an alternative lifestyle to the life of domesticity most of them had experienced.

As the War progressed many of Mrs. McKenzie's female graduates became employed as radio operators, cipher operators and code breakers. Most of the women interviewed looked back on that period with great nostalgia. They had been given opportunities to demonstrate their potential in ways they would not otherwise have had at that period of time.



**Albury Wodonga Amateur Radio Club**

# **Riverina Field Day**

on **Sunday, 31 July, 2011** at

**1st Lavington Scout Hall,  
Mutsch Street, Lavington**

Commencing at 10 am.

There will be door prizes, and a raffle.

**Entry is \$5.00.**

ATRC from Sydney, and distributors for Yaesu, Icom, Kenwood and TTS Systems will be attending with their latest equipment. There will be antennas, connectors, cable, and much, much more.

Hot food will be available, with tea and coffee free.

Contact **Stafford VK2AST** for further information: [vk2ast@wia.org.au](mailto:vk2ast@wia.org.au)

# VK3news Amateur Radio Victoria News

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

[arv@amateurradio.com.au](mailto:arv@amateurradio.com.au)

## Great PR day for AR

The gathering together of people to run the Amateur Radio Victoria VK3WI interactive display at sunny Point Gellibrand Coastal Heritage Park was deemed to be a great success.

The Team Leader Terry Murphy VK3UP scored at least three media mentions. He was supported at the event by Michele Grant VK3FEAT, Barry Robinson VK3PV, Brian Hallam VK3DBH, Peter Cossins VK3BFG, Tony Hambling VK3VTH and Jim Linton VK3PC. Richard Coco VK3FLAG popped in to lend a hand.

The station consisted of a Kenwood TS-2000 using a five band ground mounted vertical for HF, two ICOM IC-706 MkIIIGs, one feeding a 2 m/70 cm Diamond X50 vertical and the other with a magnetic mount. Among the layout was a Yaesu FT-817D QRP rig with a 2 m 5/8 vertical.

ATV transmission was from a self-contained station-wagon, where all that happened was captured mainly by Peter VK3BFG who immediately played it to air. Early mist over Mt Dandenong made the path problematic but the weather condition soon improved.

A highlight was when Greens MP Colleen Hartland MLC arrived and had her turn on the radio, leaving with a promise to feature a supplied picture of the occasion on her well read Facebook page.

A compilation of her visit, the rising and falling at 1 pm of the nearby time-ball sphere, and the day's happening are being produced by Peter VK3BFG and will form part of the entry.



Greens MP Colleen Hartland on the mike.

Bringing out his trailer mounted Keith Roget Memorial National Parks Award portable station, recently taken to parks in Gippsland, was Tony VK3VTH who attracted a lot of interest.

At the end of a fine day, more contacts seemed to have been made than last year and many more stopped by to see what amateur radio had to offer them, and what it was all about.

## Big cards cause problems

Users of the VK3 Outwards QSL Bureau are reminded that their cards should be no bigger than the standard size of 140 mm by 90 mm.

All users should note that large cards will just be returned in future. Part of the agreement to use the VK3 Outwards Bureau is to stick with the size limits. This is reflected by the requirements of Australia Post and the automated systems used.

The guidelines that appear on the Amateur Radio Victoria website are sent along with a pre-sorting prefix list and preferred distribution method. Users of both the Outwards and Inwards Bureau operated by Amateur Radio Victoria are required to be registered first.

Read at the *All about QSL cards* section of the website. It covers the history and the basics for all users of the Bureau which not only limits the size of cards but restrict them from being printed on paper.

## Membership inquiries

To join and support the state-wide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request.



Don't forget

# 18-19 June Winter VHF-UHF Field Day

# Field Day botch-ups and other lessons learned

Peter Ellis VK1PE

*The author confesses his John Moyle Field Day 2011 lessons, so that you do not need to do them, and shows off his Field Day Fence Wire, Lash-up, Over-and-Under, 2 m/70 cm beam.*

For some reason, I got excited about going into the field for the John Moyle Field Day, held over 19/20 March, 2011. Planning was simple after I downloaded the 'field day checklist' spreadsheet used by long-standing field day practitioner Andrew Davis ([www.vk1da.info](http://www.vk1da.info)) and updated it for my equipment.

For some reason I thought that Mount Coree (QF44jq) was a good idea for the field day; it is at the south-west end of the straight-line part of the border of the ACT and NSW, at 1,388 metres altitude. I had heard that it was accessible by 4WD. My youngest son had just bought a second-hand all wheel drive Subaru Forester which he was happy to swap with my little front wheel drive runabout for the weekend.

I had thought through the checklist for weeks. I had not actually gathered the gear in one place (Bad Move #1), though I had bought the straight pine boom of the VHF/UHF beam several days before. Several weeks before, another ham had advertised a small generator for sale. This was 'new' in that it had never run, but was surplus. I figured that I would just run it through a small UPS I have, then a 20 A power supply with a large transformer inside, the combination thus smoothing out garbage from the generator. Try as I might, the generator had not 'fired' for me, but I would rely on it (BM #2).

## On the day

On the morning of the event I started at about 7 am, knowing I would be wanting to be on the mountain by about 10.30 am for set-up ahead of the noon start for the Field Day.

I cut the 2 m and 70 cm elements from the roll of 2 mm fence wire and numbered them with dobs of



*Photo 1: Sunday morning gloom. The Mt Coree fire tower and trig point are in the cloud.*

permanent marker to identify them, and threw in the box of those bent-nails used for connecting wire to fence posts. Oh, and I also soldered the feedline to the driven element, a folded piece of 3 mm copper tube. This was a lash-up arrangement loosely based on a field day 2 m design from EI9GQ and a 2 element each 2 m/70 cm design by DK7ZB, both found via [www.dxzone.com](http://www.dxzone.com) I also drilled holes on one PVC mast and put some fence wire loops through to become the mast for the 2 m/70 cm beam.

By this time I was packing the Forester, using the list in my head more than the one on paper (BM #3). In the back, the generator, a roll of three-core electrical flex for me to make up 12 V interconnects and be a counterpoise if needed, the 20 litre drum of petrol for the generator, and a funnel and siphon tube, so I could then fill the car as I ran the engine overnight. And, lots of rope. (Good Move #1). In the passenger seat foot well went two high capacity batteries I had been charging for weeks off a small solar panel. I expected the passenger seat would also become an operating position. Lashed to the roof were the 3.6 m beam and several

lengths of PVC pipe for masts. I was distracted by noticing an antenna I had stashed in the rafters of the garage, a 6 element, fold-down, low-band TV antenna on two boom pieces which I thought might be useful for 6 m, so it went in, too. (BM #4). So, finally packed, I locked the garage and left for the mountain, stopping at the local petrol station, my last chance to miss anything.

The TV antenna had already rattled, and 'off-road' it rattled enough to be very annoying. Looping cloth around and through the elements would not shut it up. (Refer to BM #4?). I got lost. My small Google map just did not make enough sense. I realised that the 'survey' map was probably on the dining table (BM #5) where I had been discussing the destination with my wife. How hard is it to get lost only 25 km from home, I thought, when you have the destination and some road intersections in the GPS? (While unpacking, I found the map!) There were other people in the forest reserves. I stopped and asked directions from trail bikers (GM #2) whose directions took me over the roughest road imaginable in first gear, low range, but through a wonderful forest; the Forester was in its element. The rattling from my least-favourite antenna was immense. I spotted a sign to the summit, and got there about 11 am, in a full white-out from cloud.

## Despair, and invention

I worked out where to set up, and began to assemble the beam antenna. Hmm... driven element and coax? Garage! (See BMs 3 & 4.) Just short of despair sending me home, I realised I had thrown in a gutter mount and my own car's 2 m/70 cm whip; these could become the driven element of the beam, along with a counterpoise made from triple-flex wire (GM #3). I also realised that I had left behind the tape measure (BM #6). The shortest 70 cm element was a known length, so I guesstimated from it. The staple-nails worked a treat with the fence wire elements, 9 elements on 2 m on top, 14 elements on 70 cm under the 3.6 m boom. Thus, from a necessary

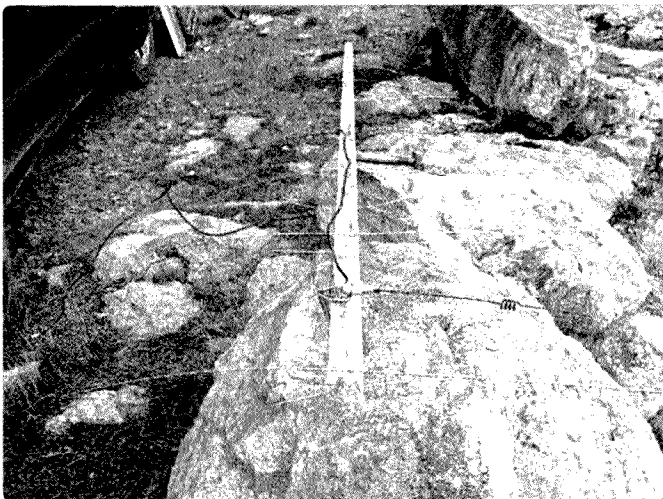


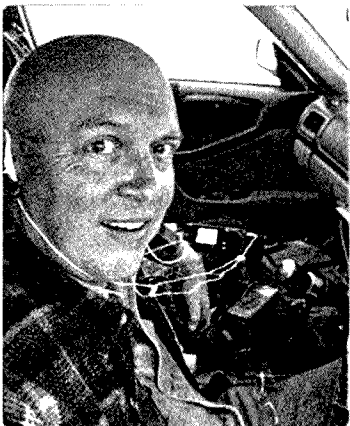
Photo 2: The 2 metre/70 cm beam after construction.

rediscovery of field day can-do, was born the *Fence Wire, Lash-up, Over-and-Under, 2 m/70 cm beam*.

This former Sea Scout and Navy seaman officer did a solid job of lashing the beam to the PVC pole then the pole to the tyre of the car. Hint: Turn the steering and the wheel becomes a good mount; leave several turns of rope around the pole so it will slip when you twist it, but grip when pointed; this arrangement worked well even in quite high winds (GM#4). Have a knife handy, though, in case you need to get away in a hurry.

I also set up the HF/6 m long-wire antenna off the automatic tuner, grounded with stakes into the only soil visible. Despite a 7 m squid pole lashed to a rock, I thought that this 100 m hookup wire antenna was always going to be close to the ground and not greatly useful; and, I

Photo 3: Peter VK1PE working from his JMMFD 'shack' on Mt Coree, near Canberra.



Canberra and I was staying overnight. That is why I was visited by two 4WDs, one at 1:50 am (two young yobboes who quaffed beer and stayed 40 minutes) and at 3:35 am (a bloke and two women, who went to the fire watchtower, got cold, and left after just 10 minutes). They probably all thought I was the odd one for being on a mountain in the middle of the night!

### Frustration Day

Sunday's early morning also brought light, misting rain, more than just cloud, and it was windy. Getting out of the driver's seat to twist the pole was becoming tedious. Thankfully, I was able to keep the passenger door fairly tightly shut against the cables using a rope from the door handle, and the rain did not get inside.

I had to start the engine about every 2-3 hours, to warm the car and to charge the two main batteries. I had run a triple-flex from the engine battery, and used a terminal block to connect the positive line when charging. The screw driver was in my shirt pocket where I could not lose it in the dark (GM #5).

It was obvious that the VHF/UHF antenna was giving only a little gain; stations much lower were hearing distant stations in VK3 quite well, and I was hearing just a whisper if at all. I heard nothing from Sydney, the southern highlands to the north-east, Melbourne to the south-west or Gippsland to the south. Christopher Davis VK1DO had said he could hear Gippsland's beacons from his vehicle in Canberra; admittedly a 14 element

was correct. Later, when the rain came, something happened that made it impossible for the tuner to get a match. Early on, though, I had several contacts on 50, 28, 21 and 14 MHz.

### Visitors

I did say that this was a mountain, in a national park, 25 km from

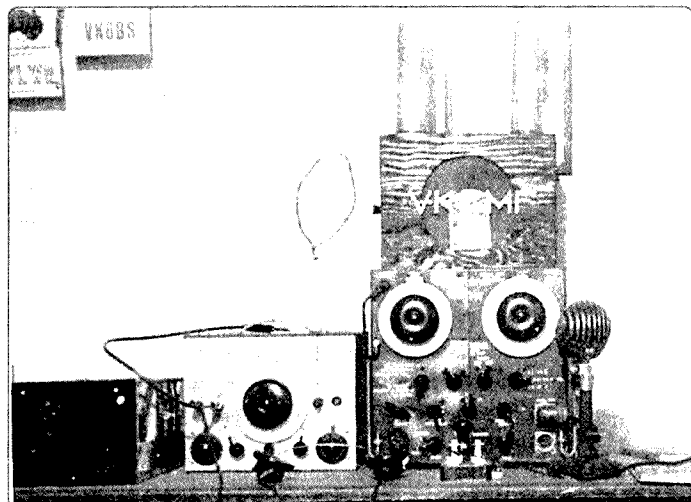
2 m vertical array on the top of a van. I began to dismantle the antennas and pack the car at about 8 am; the HF was useless and the squid pole was down in seconds despite the wind. The sundry items were piled into the back, topped by the useless TV antenna that I wound in overalls to reduce the clanking.

Finally, at around 9.30 am, having contacted the long-range stations in the last time-block, I decided to get going and pulled down the VHF/UHF antenna, just as the light rain began. The lashings were easily removed as I had intended; the elements came out of the hoop nails using multigrips. I lashed the poles to the roof and did a last check for gear and, importantly in a National Park, for any of my rubbish. I had been careful to even strip the triple-flex, those little bits of PVC covering the wire, into the back of the car (GM #6). My parka was shown to be non-waterproof and quickly soaked, and I dumped it into a rear foot well.

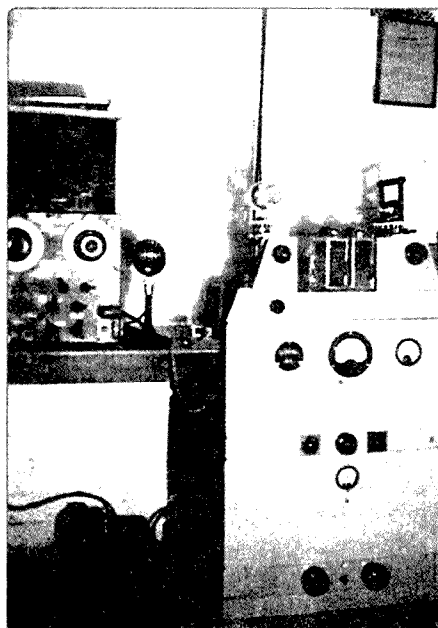
The drive down the mountain was eventful, too. I took the more travelled route, still almost all in 'low range'. The rain-slicked tracks and chunky but not off-road tyres also meant that I slid on several occasions, which my wife later heard me mention in conversation (BM #7). At a deeply rutted bog across the road I did some 'real off-roading' to get by, not wanting to have to leave the vehicle in the middle of that. Moments later, though, I came face-to-face with five real 4WDs coming the other way, so I would not have been stuck.

At home, I unpacked then took the vehicle to a local car wash; money well spent. I was glad of a shower before rejoining the family's Sunday events. Results were mixed: several distant portable stations were worked regularly, VK2WG/P (Wagga club) at around 120 km and Colin VK2BPK/P (Parkes club) at 170 km near Grenfell proved useful for my score: 310 points claimed from only 38 contacts (24 hour, single op, phone, all bands).

Will I do a field day again? Certainly. Will I be truly prepared? Probably!



Some of Col's early equipment.



Colin moved to Brisbane in 1962 to take charge of the Technical Section of the PMG Radio Branch in Queensland and in 1972 was appointed as State Superintendent. The PMG was disaggregated into Telecom Australia (now Telstra) and Australia Post in 1975 and the Radio Branch moved to the newly created Postal and Telecommunications Department. On Colin's retirement in 1982 he was Queensland Manager of the Department of Communications (DOC) (now known as the ACMA).

Never one to leave a stone unturned Colin was constantly studying everything that was offering in the field of Radio Communication including studies through the British Institute of Engineering Technology. In recognition of Colin's engineering qualifications, he was admitted into membership of the Institution of Radio and Electronics Engineers, Australia in 1977. He served in various positions with the IREE, including Secretary and Chairman of the Brisbane Division. In 1980 Col was awarded Honorary Membership.

Colin's amateur activities started after the War in 1946 with the callsign VK2MF. His first "shack" was located in the kitchen of their house at Wagga. With the move to Corowa, the shack moved to the cellar. His first transmitter was a Pierce oscillator delivering about 1 Watt to an end-fed Zep on 40 Metres. He was a keen CW operator. In those days home construction was

a key element of amateur radio activity and Colin had some beautifully made gear. One of his projects was a 100 watt AM Tx. It used two 807s in the push-pull modulator with two 807's in the final. Instead of band-switching he used plug-in coils. The tank coils in the final stage were made of rigid copper tubing and the output was fed by open-wire feeders to a centre-fed 40 metre dipole. Like a lot of other amateur operators at that time, he used toothbrush handles for spacers in high impedance transmission lines.

Before the days of WICEN, Colin was active in providing extended and essential communications for the Walgett Shire Council. In 1956 during the severe flooding of many towns in north west NSW, vital roads were cut and phone lines were down. When the levee banks protecting the town were breached, Colin used his equipment to arrange for the Walgett Shire Council to fly-in parts for the town's bulldozer which was hurriedly repaired and used to restore the levee.

An amateur's life is not all radio and usually involves some hard physical work.

Colin had to dig out space for his shacks under the houses in Armidale, Townsville and Brisbane and the station was not complete without a trusty windmill tower redeployed from a local farm.

The call sign VK4CK (Col's initials) was not available until the time when he was State Superintendent and he wasted no time in having his previous call sign changed. He was very proud of his call sign.

Colin was a very energetic man, and apart from his involvement with many clubs and associations, he found time to write and publish three books - one being the "Song of the Beauforts" which records the exploits of the Airmen of the first Australian squadron in action in World War II. It is now in its second heritage edition. Col's passion for the Australian made Beaufort bomber drew him to the group that is currently restoring a famous war-bird (A9- 141) to flight status in a hangar at the Caboolture Airfield, just north of Brisbane. He was instrumental in restoring the radio equipment that will go back into the aircraft. During an interview with Kerry O'Brien on the ABC's "The 7.30 Report" in 2002, Col explained "Australians can look upon a Beaufort as a symbol of what Australia can do".

Colin was a strong supporter of the WIA and in accordance with his wishes, his radio equipment was donated to the Ipswich and District Radio Club as the club nearest to the flood-devastated areas of South East Queensland.

In recognising Colin's very active life, we extend our sympathies to his family and to his many friends as they mourn his passing.

Submitted by Alan VK4AAE and Gary VK4AR.



# Spotlight on SWLing

Robin L Harwood VK7RH.

It is winter already and I am pleased to report that I am able to monitor once more. The recurring ear problems seem to have finally disappeared. Yes there are even more gaps within broadcasting allocations on HF as more major shortwave players exit the spectrum. This has revealed small domestic outlets that were immersed under the powerhouse signals. But the prognosis is still not good as the days of hearing broadcasters such as the BBC and Radio Netherlands are rapidly going. In case you were not aware, the BBC aims to quit shortwave entirely by 2015. Radio Netherlands aims to quit as early as next March. They are closing down the relay station in Bonaire and the future of the Madagascar relay is unclear.

The VOA as predicted dramatically increased their output, particularly in Arabic, following the continuing unrest in North Africa and the Middle East. Radio Sawa can be heard but they seem to be shifting channels almost weekly to take account of possible jamming. Civil war has broken out in Libya and the United Nations authorised a no-fly zone which has been enforced. Control for this enforcement has passed to NATO. As recently mentioned in this column, PSYOPS returned and was heard in southern Europe on 10405 USB. Broadcasts were mainly loops in Arabic, English and French, warning shipping not to leave port otherwise they would face dire consequences. 10405

at the time seemed to be an odd choice but it happened to be a known Libyan defence channel. The PSYOPS operation has not been monitored here although I have heard a recording off the Internet.

The BBC seemed to have also relented and I believe Hindi and Chinese were to be again heard on HF from May 1. The Chinese have a massive firewall that prevents any broadcaster from uploading any Chinese language podcasts that may criticise the current Chinese situation, hence the re-introduction of shortwave.

Talking of changes: Have you heard Radio Australia of late? They no longer relay the domestic Radio National and have now resumed their own programming. They have two streams, one for Asia and the other for the Pacific. Programming in Vietnamese, French, Indonesian, Burmese and a composite Melanesian language known as Tok Pidgin are the only non-English languages aired.

I have heard Burma or as it is now known Myanmar on 7200.05 from 1100 to sign-off around 1315. The modulation is terrible at times and I also have heard a spur on 7186 which is barely audible. I cannot determine where it is located whether it is Yangon or the "new" national capital. They apparently alternate senders between the two. When they sign-off, they re-appear on 5976. Frequency stability does not seem to worry them.



## Silent Key Professor Charles Miller VK7CM

It is with deep sadness that I noted the passing of Charles Miller in the death notices on April 11. Charles passed away peacefully on Friday, in his 91st year. While I had not seen Charles for many years, my memory of him is of a gentle, kind man and of a highly respected Engineer who

headed the Faculty of Engineering at the University of Tasmania for many years.

I am sure that there are many other who knew Charles much better than I did and who will be saddened to hear of his passing. Vale Charles.

Winston VK7WH



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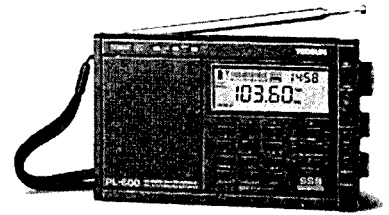
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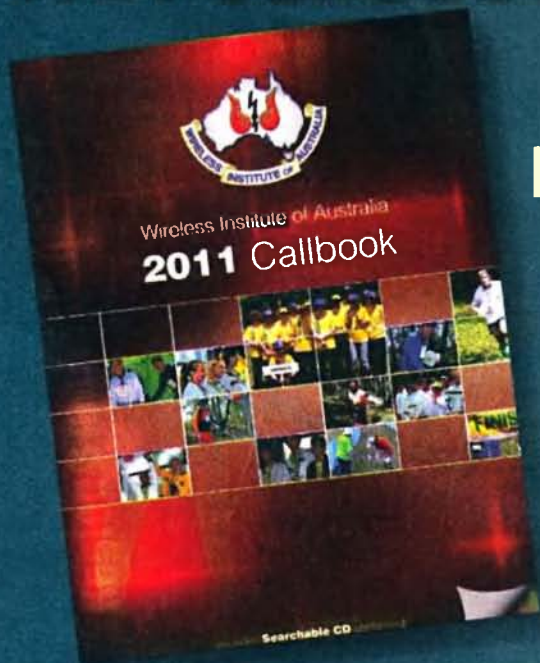
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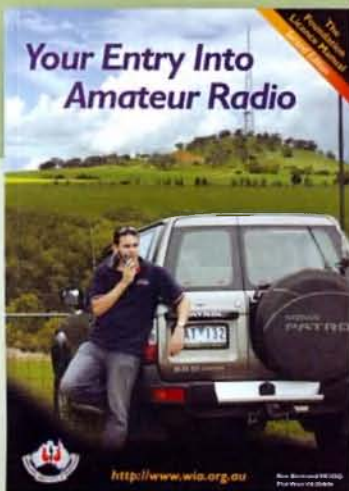
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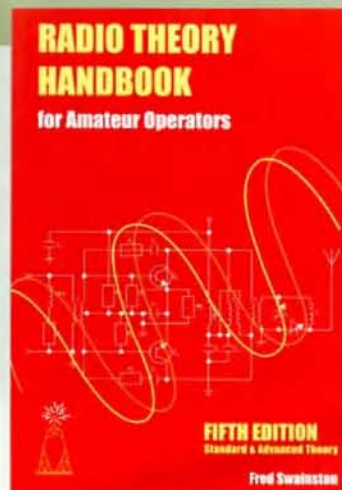
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### This month's cover

The main photo this month does not need explanation – it shows the IC-9100 transceiver. Thanks go to Icom for supplying the high resolution image. Also included are two inset images of events at the WIA Annual Conference in Darwin. The upper photo shows Michael Owen VK3KI and Spud Murphy VK8ZWM during a break in proceedings. Photo by John Longayroux VK3PZ. The lower photo is a view of some of the participants at the Darwin Trailer Boat Club. Photo by Dianne Ashton VK3FDIZ.



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# Editorial

Peter Freeman VK3PF

## Another successful Annual Conference

From all reports, the WIA Annual Conference in Darwin was a success. Congratulations go to all involved. You will find several articles outlining the events and key outcomes in this issue, including a sample of photographs from the event.

There was not much time between the events in Darwin and the production deadline for this issue – only a few days. Many thanks go to all who have contributed material so that we could publish some reports.

Personally, I am sure that many members will be pleased with the decision to announce the following year's conference venue and dates during the current year's event. So everyone can now pencil the dates in your diary for next May and consider if there is a means of making your way to Mildura. I can assure you all that the local amateurs are a very friendly and hospitable bunch. A few years ago I was in Mildura for a couple of days for work. I was browsing the local tourist information centre and ran into an amateur who had made the trip to Churchill for GippsTech a year or two earlier. We exchanged a few words – he was in the middle of a job – and then said our farewells. Before I had made my way back to the hotel, I had been called on the mobile phone and invited out to dinner with a small group of amateurs. The invitation was a surprise, and the dinner most enjoyable.

## Radio reviewed

We have been able to prepare a review of a new radio for this issue – the IC-9100. I must thank Michael VK3KH for accepting the invitation to “have a go” at something very new for him. I am sure that he was attracted by the prospect of playing with a new radio, especially one including all the bands to the 23 cm

band. I certainly found the radio to be an excellent performer – I also had the pleasure of exploring the transceiver's performance. It was certainly tempting to not return the radio! As noted in the article, we sincerely thank Icom Australia for allowing us to borrow the radio.

I trust that you, the readers, find the review of interest. We shall keep our eyes and ears alert for opportunities to review other equipment. Of course, you are most welcome to prepare a review and to submit it for publication.

## Update on QSLing

We have finally been able to print an article about how to exchange QSL cards in VK, prepared by the previous National QSL Manager, Neil Penfold VK6NE (SK). We were preparing to publish the article last year when news of Neil's death arrived. The article was withdrawn and we have waited until all the required changes for the processes had been made and Geoff VK3AFA checked the article. Neil's article required only very small changes, so it is terrific that we can finally publish the article.

## Articles and cover photos

We are slowly catching up with our publication backlog, so the number of articles on our Articles Register is growing smaller.

Please do prepare an article on your latest project and submit it for consideration. We rarely reject articles and only occasionally require extensive reworking of an article. Sometimes we have delays when following up some details that may not be clear, but the technical editors do their best to help an author to prepare the item so that it is ready for publication.

Depending upon the topic of the article, it may be published

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## WIA comment

Michael Owen VK3KI

### The WIA Annual Conference

I am writing this email just after the WIA Annual Conference, Darwin 2011 and a weekend at Upper Hutt, near Wellington, New Zealand attending the NZART Conference.

So, it makes sense now to write about our WIA Annual Conference. Actually, what we call it has not been all that consistent, sometimes the AGM, sometimes the AGM/Open Forum but we are now standardising on "WIA Annual Conference".

I think we now have a very clear basic format, refined originally by Robert Broomhead for the Parkes Conference in 2007 and developed by him since then. I think we also know what many of our members want.

Let me run through what I understand to be the basic ideas that we now have for this event.

First, our members look for our annual event to be held somewhere interesting in its own right, not a capital city. Parkes, Churchill, Broken Hill and Darwin filled that requirement.

Then, they ask that we tell them as soon as possible where and when, so they can arrange holidays, or even just a few days break to attend.

When we hold our Conference is rather restricted by the fact that it is also our Annual General Meeting, and we need to hold that within five months from the end of our financial year. Our financial year ends on 31 December, and then we have to have an audit completed, reports written and printed and circulated with this magazine.

That all means that we cannot move very much from "some time" in May!

The program, while not cast in granite, is pretty clear, too.

Friday night is usually a dinner, built around either an interesting speaker (the Lord Mayor of Darwin talking about the ecology and FrogWatch in Darwin) or an interesting venue (the Telstra Tower and Alto Restaurant on Black Mountain in Canberra).

Saturday is the Annual General Meeting and Open Forum. We treat the AGM as what it is, the statutory meeting, and then use the Open Forum for the consideration of reports covering all aspects of the WIA, encouraging discussion on any topic anyone wants to raise, and because it is informal, we do not have to worry about relevance, words in motions or procedure.

One important feature of the day is the announcement and presentation of WIA merit awards. Some are very special, such as Honorary Life Membership or the GA Taylor medal and only given occasionally, others are annual. They are important because it is the way we recognise those who do much for amateur radio and the WIA.

Saturday afternoon has been a symposium, and quite a few people are telling us that they would like more technical subjects covered next year.

Saturday night is the Annual Dinner. Usually we would look for a relevant and interesting speaker or some other interesting attraction.

More and more, Sunday is becoming a non-radio day, the visit to Dick Smith's place, the visit to Litchfield National Park.

NZART has Sunday as their day for meetings of groups, some presentations as well as a tour for those who want to participate (usually the partners!).

What was very special about

Darwin was for the first time a club played a major role in setting the program, looking after participants and making it all happen.

It is amazing what a small group of workers can do, even running a barbecue without burning the meat!

For next year, we have already announced that the WIA Annual Conference will be in Mildura, Victoria, with the Sunraysia Radio Group as the radio club supporting the event.

Early next year we plan to ask our Advisory Committees and our clubs for their suggestions as to venues and their willingness to support an Annual Conference.

That way, we would hope to announce at the WIA Annual Conference, Mildura 2012, the venue for the 2013 Conference. We would be looking for somewhere interesting and with some new ideas about some of its features. We would be looking for strong support from a club or a group of clubs.

After the Darwin Conference, some of us sat down with some of the leaders of the Darwin Amateur Radio Club, and discussed how it had all worked, and what we had learnt. That is being put together in a document, so we can give the Sunraysia club a useful guide.

Did you know that a New Zealand amateur and his wife had come to our Conference in Darwin?

Next year, the NZART Conference 2012 will be held on the New Zealand Queen's Birthday weekend of 1 to 4 June at Nelson.

Perhaps there are WIA members who would like to be welcome at the NZART conference at a very

Continued on page 5

## WIA Board meets in Darwin

Following the Annual Conference the WIA Board met in Darwin on Monday 30 May 2011.

The Board reappointed Michael Owen VK3KI as President and Phil Wait VK2ASD as Vice President.

An important task of the Board at its meeting following the Annual General Meeting is to appoint or reappoint the various Contest Managers, Coordinators and other officers.

John Spooner VK4AJS wished to retire as Manager of the Jack Files Contest, and Michael Charteris VK4QS was appointed as his successor.

The other Coordinators and Managers were all reappointed.

The Board has been concerned for some time about communication to members, and appointed a Communication Strategy Group to be led by Chris Piatt VK5CP.

WIA contests were discussed, and it was decided that a complete review would be desirable, leading to appropriate rules applicable to all WIA contests, as well as the creation of a Contest Committee composed of at least of all the Contest Managers.

This project is being led by Bob Bristow VK6POP.

Following the Board meeting, the President, the Treasurer and the WIA Manager met with Darwin Amateur Radio Club President Spud Murphy VK8ZWM and Secretary Peter Blackadder VK8HPB to review and finalise the weekend.

## WIA at NZART Conference

Each year the NZART and the WIA take turns to be represented at the other's annual Conference.

This year it was the turn of the WIA and President Michael Owen VK3KI and Treasurer John Longayroux VK3PZ attended the NZART Conference 2011 at Upper Hutt, near the capital Wellington.

Almost the same number of

people registered for the NZART Conference as for the WIA Annual Conference a week earlier in Darwin, including one ZL and his wife who attended both conferences!

Michael and John participated in the NZART Council meetings before and after the Conference, met with the NZART IARU Committee and with the NZART Administration Liaison Officer Don Wallace ZL2TLL and canvassed a number of matters where both societies will benefit from working together.

They also visited the NZART office in Upper Hutt.

Interestingly for Australian amateurs, the NZART Annual General Meeting passed a resolution that the NZART would negotiate with the New Zealand regulator to seek an amendment to the New Zealand Radiocommunication Regulations to increase the power limit for amateur stations on 160, 80, 40, 20, 17, 15, 12, 10 and 2 metres from 500 to 1000 watts, other bands remaining at 500 watts.

Next year, it will be the turn of NZART to come to the WIA Annual Conference 2012 in Mildura.

## WIA meets with ACMA project team

The President's "Comment" published in the November 2010 issue of *Amateur Radio* magazine quotes extensively from the WIA's letter to the ACMA proposing a means by which Advanced amateur licensees can seek a variation of their licence to allow higher transmitting power levels.

In response to the WIA's letter, the ACMA agreed to review the matter, and on Monday 16 May, WIA Directors, Michael Owen, VK3KI and Peter Young VK3MV met with the project team responsible for the review.

The ACMA is a facts based Commonwealth regulator and the meeting assisted in clarifying the related issues of electromagnetic interference, electromagnetic

radiation and associated matters.

The WIA was able to provide more detail on the background and respond to questions on this detail.

The ACMA is still considering this matter.

## VK amateurs presenting at the Dayton Hamvention 2011

Three VK amateurs are making presentations at the Forums that are being held in conjunction with the 2011 Dayton Hamvention.

At the Young Ladies' Radio League Forum, Tina Clogg VK5TMC is providing a run down on the arrangements for the YL International Meet 2012 that will take place in Adelaide.

At the TAPR Forum, Phil Harman VK6APH is talking about "Griffin - a Whisper and a Chirp". Griffin is a new HPSPDR project that will provide a low power beacon exciter, covering HF, 6 m and 2 m that will generate simultaneous beacons on multiple bands, each modulated independently. This revolutionary new beacon mode will enable real time propagation measurement and reporting for all HF and VHF bands.

Also presenting at TAPR is David Rowe VK5DGR on "CODEC 2 Explained". CODEC 2 is an open source CODEC designed for low bit rate speech over HF/VHF digital radio. Whereas most low bit rate CODECs are proprietary and require licensing fees, CODEC 2 is unique in that it is open source, allowing experimentation and modification. Author and developer David Rowe will explain CODEC 2 and how it works, breaking down the complex DSP into simple terms. He will present examples of CODEC 2 use with amateur radio.

## WIA meets with the ACMA on station inspections

On Monday 16 May, WIA Directors, Michael Owen, VK3KI and Peter Young VK3MV met with senior staff from the ACMA.

The meeting related to the issue of the ACMA's amateur station inspection program and the related issues of what sort of equipment an amateur can possess and operate and the manner in which such inspections are conducted.

The WIA's position on the issues is set out in the "Comment" published in the April 2011 issue of *Amateur Radio* magazine. The WIA representatives sought to reinforce

the WIA position at the meeting.

The ACMA is currently reviewing the issues and welcomed the WIA's input.

**The Radio and Electronics School**

In May the WIA released a statement for itself and for Ron Bertrand on behalf of the Radio and Electronics School.

The WIA continues to highly value the Radio and Electronics School as

an extremely valuable contributor to the future of amateur radio in Australia.

It is pleased to say that as a result of recent discussions the School is assured of the WIA's continuing recognition of its role and Ron assures everyone that he has every intention that the School will continue to operate.



**Editorial**

Continued from page 2

quickly, or may take a number of months until we have completed all the preparatory work and can find space in the magazine. Almost all articles submitted will eventually be published.

In addition to articles, we also need excellent photos for the cover –

preferably accompanying an article. For publication, especially on the cover, we need good photographic composition and exposure and adequately high resolution.

Anyone considering preparing an article and/or photos should look at the *AR* magazine section of the WIA

web site and follow the link to the page on Contributing Material.

Cheers,

Peter VK3PF



**WIA comment**

Continued from page 3

attractive place, with local wineries, boutique breweries and many craft shops? Look at [www.nelsonnz.com](http://www.nelsonnz.com)

Perhaps there are NZART members who would like to join us in Mildura, on the mighty Murray River, great weather and also with local wineries? Look at [www.visitmildura.com.au](http://www.visitmildura.com.au)

If you are a WIA member you will always be welcome at a NZART Conference (without a vote, of course).

If you are a NZART member you will always be welcome at a WIA Conference (without a vote, of course).

Perhaps, even if we cannot do it next year, we should make sure that there are more than just a few days between our two Conferences?

Perhaps there are some clubs or groups of clubs in Australia that will now start working on a suggestion for a great weekend in May 2013?



**Plan NOW for the 54th JOTA 2011**

The **54th Jamboree On The Air** will take place on **15 and 16 October 2011.**

This year's theme is: **\*Peace, Environment and Natural Disasters.\***

An exciting activity that focuses on the strength of Scouting: to act and support in unforeseen circumstances. Scouts are prepared.

Radio amateurs and clubs also need to be prepared - your planning should by now be well underway. Contact your local Scout or Guide group to confirm their plans.

# QSLing in Australia

Neil Penfold VK6NE, National QSL Bureau Co-ordinator

Since amateur radio began so many years ago, there has often been an exchange between the operators of the stations, in written form. Amateurs of many years ago, when they could rightly claim to be experimental, were interested in building their own equipment. They also were interested in the distant operator's gear and how far their emissions travelled. This established the exchange of the information in a written form, and required it to be posted to the distant operator. Early evidence exists that it was common practice to post the contact details and equipment in use, even to adjacent suburbs. As the experimenter (amateur) was often alone in his activity, this exchange was of great interest and value to him. Circuit diagrams, antenna descriptions the power transmitted, and often other station details were exchanged, and so grew this information exchange which became an interesting addition to the construction of stations and their operation.

Here is the information from a QSL card dated 23 October, 1929:

To Radio BRS 250 from 2MS Kenya.

Receiver: O – V – 1 Cct: QST  
1929 DX Receiving All World  
Transmitter Cct. Colpitts, Valve  
AT40, H.T. Dynamotor 40 mA, 1000  
Volts.

Aerial V.F. Zepp F.W. 21 m  
Transmitting G, F, D, ON, OZ, LA,  
SP, HAF, HB, VS, ZA,

Remarks. Vy mny tnx for yr rpt  
ob. Hpe to QSO u one day. QRN vy  
bad here, Cheerio OP. George F K  
Ball. ARRL SARL.

From this early beginning grew the interest in collecting these pieces of information. This was their evidence of the amateur making contact with local and overseas amateurs. The intrinsic value of the card became a collector's item and in the early days of radio, the written



A typical QSL card – one of thousands handled by the WIA bureau each year.

word was the communication of the masses. Eventually the amateurs found that the cost of posting their confirmation cards needed to be reduced. This was achieved by each club or organization introducing a system where it would post off in bulk the members letters or cards. And so the "QSL via the buro" began to be heard.

Today the bureaux system is a world-wide organization operated by societies large and small. It has many benefits, and its distracters as well. Many articles have been written about QSLing and have usually been the basis of further articles and letters to the editors of the various amateur journals. What started as an implied courtesy has grown to almost an industry within the ranks of the amateur population.

Last year, a report to the WIA Board, for the 2008 year, gave a figure of nearly 80,000 QSL cards being handled by the bureau system within Australia. With propagation at the low level being experienced, imagine the QSL card numbers when the peak of the solar cycle comes along. If ever, Hi! And Australia has

only 4500 WIA members compared to Japan with a million plus (?); the workload must be enormous for them!

The ARRL has implemented an electronic database titled Logbook of The World (LOTW). Many amateurs now upload their log of contacts to this database. It provides a readily accessible method of confirming a contact with a station, if that station provided his contact information to the database. There is also a shortcoming with it, as there are many awards available and some societies do not recognise the database for their awards programs. So the QSL card still remains a necessary requirement for those awards. The DXCC Awards of the WIA do not accept LoTW, or eQSLs, which is another form of QSLing that has arrived on the scene of late.

Over the past 15 to 20 years the cost of QSLing has risen with the printing of cards, and with postage. A great number of the bureaux with only a very low number of members have closed their bureau operations due to the rising postage rates.

The VK Outwards Bureau is not

in a position to assist the member when it receives cards that are for stations that only accept QSLs via their manager, and the manager's callsign is not clearly indicated on the QSL card, or when the manager himself is not a member. Then there is the QSL cards received for bureaux that are non-operational. For example there is no bureau in 1A0, 3B8, 3C, 3C0, 3D2/C, 3D2/T, 3W, 3X, 4W, and the list goes on to include many more prefixes.

To quote an example of the operation of the WIA Outwards Bureau: one Kg of QSLs, that is, approximately 330 cards, costs the WIA \$21.25 to post to JA, and to DL it costs \$31.35. And then there is the inevitable delay in the exchange of cards through the bureau due to a number of factors. Many bureaux are now holding cards until an economical mass versus the number of cards is reached, before posting the package. Continuing with the wait for cards to move through the bureau, even the large societies have resorted to holding cards till they are posted in bulk. To give some examples of recent deliveries to the VK6 bureau, from France came 660 cards, with the last delivery being in May 2007; from the USA, the last delivery of 600 cards was January 2008. And from JA came a mailbag via a shipping firm of 1400 cards on 12 June 2009, with the last delivery on 23 February, 2009. But to show how long the period between deliveries could be, a parcel arrived from SV in June 2005, then April 2008 and none since then.

The WIA National Outwards Bureau, with all members sending their cards there instead of to a local (state based) bureau can build up a batch of cards within a reasonable time; whereas the bureaux of VK, with the possible exception of VK2 and VK3, would take a long period to make up an economical package.

For members of the WIA, there is no charge made for on forwarding their QSLs to overseas or VK bureaux. It is asked only that, to ease the burden of the manager, members sort their QSLs into entities, along the lines of the DXCC list of

societies. The address of the WIA Outwards QSL bureau is Box 3073, Teralba, NSW 2284.

From time to time, private individuals have offered a type of bureau service. The QSL policy of those societies with affiliation with the International Amateur Radio Union requests that its members only despatch QSL cards to similar societies. As with any policy, there are interpretations by societies of the IARU guidelines!

The QSL policy of the WIA is printed in the Callbook published by the WIA. For the information of readers of this article, the following is part of that policy: Affiliated clubs may collect cards on behalf of its WIA members and forward them in reasonable sized batches to the WIA Outwards QSL Bureau. The Outwards Bureau Manager will confirm that the club members sending cards are WIA members. Members not requiring cards should notify their area bureau manager directly.

With the introduction of the WIA National Inwards Bureau, it will receive all incoming QSL cards to Australia from overseas societies, then sort and despatch to state bureaux. With the new Inwards Bureau receiving all cards, it is anticipated that the overseas societies will not need to hold cards for the nine Australian bureaux, and with all combined will now send more frequently to the one bureau for Australia.

Members need to make arrangements with their local manager for delivery or pick up of their cards. Non-member's cards are not handled by the WIA Bureaux. This also is the case with a number of overseas societies; those that are known here are: CT1, DL, HS, OK, SM, SP, I, and there are other societies that refuse to handle non-member's cards. As postage costs have become even higher, most societies no longer return QSL cards received for non members.

For direct QSLing, the address of most operational stations may be found on the [www.qrz.com](http://www.qrz.com) data base. This has a wealth of

information, and is available for free. The method of QSLing the station when looked up on [qrz.com](http://qrz.com) usually indicates how the operator treats QSL cards that are received. The request ranges from: bureau only to the station, via the operator's QSL manager who also needs to be looked up, QSL direct only to the operator, and so on to the note of NO eQSL.

As the desire to receive a QSL card from a rare or exotic location, or it is just one as a momento of the QSO, there has developed over the past years the desire to send a direct QSL by mail to the operator's address. This has led to the QSLing by direct mail as almost a requirement if one is to ever receive a QSL from some operators, DXpeditioners, some QSL managers, or an operator that does not employ a manager and has very few contacts. Then there are operators that simply cannot afford to print cards or even afford postage. In the latter case, the inclusion of some currency helps to obtain a card. But sending money in an envelope still invites pilfering in some countries. The International Reply Coupon does help, but not all countries will accept the IRC. The IRC currently sells at Australia Post for \$2.85. As a side issue here, Australia Post seems to have increased its mailing charges to many overseas countries in the past two or three years.

Where has all this been leading, you may be asking by now: it is an attempt to explain some of the ways that you as an individual seeking a QSL card may take in obtaining same. However, just give a thought of how many volunteers have given their time and effort to send and receive your cards within the QSLing system.

(Editor's note: For many awards, all that is required is confirmation of the contact having occurred. Asking the other operator to add his/her confirmation on your card, and then to sign the card prior to returning it back to you may be sufficient for the award you are seeking.)



# The WIA 2011 Annual Conference in Darwin

WIA

108 people were registered for the 2011 WIA Annual Conference held in Darwin on 27, 28 and 29 May 2011.

After registration at the Travelodge Mirambeena Resort on Friday afternoon, the participants enjoyed a buffet dinner at the Darwin Trailer Boat Club. Highlights of the evening were the sun setting over Fannie Bay and an address by the Lord Mayor of Darwin, Graeme Sawyer, who spoke of the top end weather and ecology and the depressing damage caused by the cane toad.

On Saturday morning the formal Annual General Meeting was followed by the Open Forum.

Papers presented to the Open Forum had been mailed to the participants before the meeting. In addition to the statutory financial, directors and audit reports, the papers submitted to the Open Forum included an additional report from the President and reports in respect of ARDF, ARISS, Assessments, Awards, Bookshop, BPL and Standards, Clubs, Contests including the John Moyle, the Remembrance Day Contest, the Ross Hull Contest, VHF-UHF Field Days and Oceania DX Contest, D-STAR, Emergency Communications, Historian, IARU Region 3, the Monitoring System,

ITU and WRC, National Technical Advisory Committee, QSL Bureau, Repeaters and Beacon Coordination, Webmaster, WIA Centenary and WIA National News.

The need to attract young people to amateur radio emerged as a theme linked to many of the issues raised in the papers presented to the Forum. Following a discussion of contests, unanimous support for the RD contest to start at around lunchtime emerged.

Saturday afternoon was devoted to a symposium, led by David Donnelly VK8DON who described the role of Bushlight in bringing renewable energy to remote communities. Darwin Amateur Radio Club President Spud Murphy VK8ZWM spoke of amateur radio and other things in the Top End.

106 people sat down to a successful dinner on Saturday night, with the highlights of Doug McArthur VK3UM telling stories of radio and amateur radio in old Darwin, and well known singer and local amateur John Mitchell VK8JM providing memorable entertainment.

On Saturday night the venue for the 2012 Annual Conference was announced as Mildura, Victoria, on the weekend of 26/27 May, supported by the Sunraysia Radio Group.

Sunday saw a visit to Litchfield National Park, the magnetic termite mounds, a visit to Florence Falls and a barbecue at Wangi Falls provided by members of the Darwin Amateur Radio Club, and Sunday evening saw the end of the conference with another sunset and a meal at the Mindil Beach Sunset Market.

WIA President Michael Owen VK3KI said that the weekend was an outstanding success thanks particularly to the dedicated band of helpers from the Darwin Amateur Radio Club, the work of WIA Manager Mal Brooks and the many others who contributed. He said that it was a laid back event that captured the atmosphere of the Territory. It was attended by amateurs from every state and territory except Tasmania and even an amateur from New Zealand.

The members of the Darwin Amateur Radio Club, its President Spud Murphy and Secretary Peter Blackadder, the drivers, the barbecue experts, those who looked after the drinks the people who looked after the partners, even meeting everyone on arrival at Darwin airport made 2011 yet another memorable year.



## Spotlight on SWLing

*Robin L Harwood VK7RH*

Yes we are still here after the failed prediction of Harold Camping that the World would end on 21 May. It certainly gained a lot of exposure on the mainstream media and generated a lot of derision and criticism. Other religious leaders were forthright and blunt before and after the non-event. It turns out that the guy really

believed the World was going to end based on his befuddled calculations. 24 hours after the Rapture failed to materialise, Camping appeared at a press conference looking very confused and shaken and then said he made a miscalculation and that it was going to happen on October 21.

His radio network was going

into overdrive before 21 May but in the days following that date, Family Radio repeated an earlier "Open Forum" and then commenced playing old style hymns continuously. I have monitored this on a variety of channels including 7004.5, 9465, 9615 and 13820. The audio was very distorted at times and there

were no announcements with the programming not synchronised, presumably due to satellite and internet feeds. 9465 was interesting on 26 May at 1259 as the hymns suddenly stopped and then there was a Russian announcement followed by time pips at 1300. The ID was "Radio Rossi" in Moscow!

Evidently Camping had booked airtime on a sender within the CIS and they just yanked the distorted audio and started relaying their own network.

It has also been announced that Deutsche Welle in Cologne is severely cutting their shortwave output from 256 hours a week to just 53. This will commence from July 1 and also see the closure of the Trincomallee relay station in Sri Lanka. This has been easily heard here in Australia, especially on 9735 at 2100 in English. Apparently the

Kigali relay station will continue because there is very poor internet coverage across Africa. Ironically Rwanda has probably the highest internet take-up in Africa judging by a recent CNN report.

Radio Netherlands in Hilversum may be the next to further slash short-wave output and a decision is expected to be made shortly. The BBC World Service has dramatically cut back their output and the realisation that they may have gone too far has prompted an internal review.

You will have heard the sender known as the Firedrake. This usually broadcasts traditional Chinese music which is heavy into percussion instruments. The senders are employed in jamming external or clandestine broadcasts directed to China and often are on odd channels usually outside of the normal

broadcasting allocations.

One recent transmission was on 13920 and some of you may be aware that this has been a long term Australian WEFAX channel, now based at Charleville in Queensland.

Firedrake popped up on 13920 in mid-May trying to jam a small Taiwanese broadcaster allied to the Falun Gong. VMC in Charleville was a casualty of this radio war. Fortunately the radio war did not last and the clandestine and its jammer retired to other pastures, leaving VMC to continue sending weather faxes.

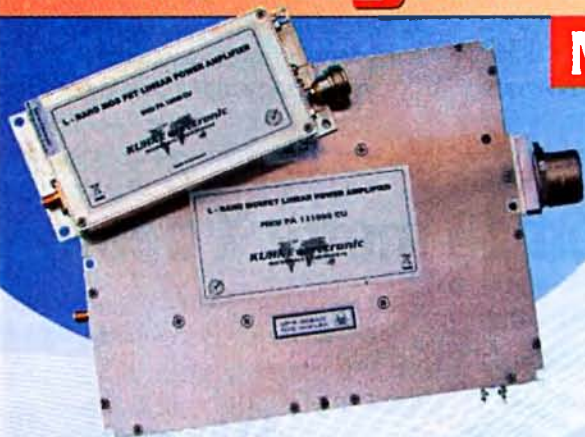
Well that is all for now. It is a pleasure being able to hear clearly once more.

Good monitoring and 73 de VK7RH.



# New High Power Amplifier

## Modules for 1.3 GHz!



The brand new power amplifiers MKU PA 131000 CU and MKU PA 13250 CU provide excellent efficiency together with brilliant linearity and are ideally suited for huge EME- and contest-operations. The used LDMOS technology represents the current state of the art and allows the development of compact amplifier modules with high output power.

### Applications

- Analog and digital operation modes e. g. SSB, CW, WSJT, (D)ATV
- High-Power EME-operations

### Features

- High linearity
- High efficiency (up to 50 %)
- 50 V LDMOS technology
- Built-in sequence controller and overheat protection (only MKU PA 131000 CU)
- Milled copper case for optimum heat transfer

Type	MKU PA 13250 CU	MKU PA 131000 CU
Frequency range	1270 ... 1300 MHz	1280 ... 1300 MHz
Input power	4 ... 6 W	20 W ... 30 W
Output power	250 W	1000 W
Efficiency	typ. 50 %	typ. 50 %
Supply voltage	+ 50 V	+ 50 V
Current consumption	max. 12 A	max. 40 A
Input connector / impedance	SMA-female, 50 ohms	SMA-female, 50 ohms
Output connector / impedance	N-female, 50 ohms	7/16-female, 50 ohms
Case	milled copper, silver-plated	milled copper, silver/nickel-plated

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MICROWAVE COMPONENTS

For further information please visit our website [www.db6nt.com](http://www.db6nt.com)

# Awards at the Annual Conference Darwin 2011

WIA

The WIA Annual Merit Awards were announced and presented at the Annual Conference in Darwin on the weekend of 28/29 May 2011.

The GA Taylor medal was presented via a voice link to Jim Linton VK3PC, for his contribution to amateur radio over many years and in particular for his contribution as a member of the WIA Centenary Committee in providing professional guidance in respect of the promotion of amateur radio to the media.

The Chris Jones Award was presented to the recently retired WIA Secretary Geoff Atkinson VK3AFA, and the Ron Wilkinson Award was presented to Phil Harman VK6APH for his contribution to amateur radio by his work in relation to digital techniques generally and the contribution of articles to amateur radio literature.

The Higginbotham Award for contribution to amateur radio generally was presented to Jack Bramham VK3WWW for his work over many years including his ongoing contribution as the WIA ARDF Coordinator.

The Al Shawsmith Award for Journalism was presented to David

Smith VK3HZ for coordinating the 'VHF/UHF – An Expanding World' column in *Amateur Radio* and in particular for his reporting of weak signal communications. The Amateur Radio Technical Award was presented to Paul McMahon VK3DIP for his technical contributions to *Amateur Radio*, and in particular his two part article 'A generic interface for the amateur experimenter' published in the September/October, 2010 editions.

A number of President's Commendations were announced, including Paul Hoffmann VK5PH for his contribution to amateur radio generally and in particular for his work in relation to the establishment of the WIA National Field Day in 2010.

President's Commendations were also announced for Mike Patterson VK4MIK for his work in relation to the promotion of amateur radio in Far North Queensland over many years and John Bishop VK2BK for his contribution to amateur radio generally and in particular for his work in relation to the representation of the WIA on Standards Committees.

Two members of the Darwin Amateur Radio Club were recognised. They were Terry Hine VK8TA and Frank Turnham VK8FT for their contribution to the club over very many years.

Eric Van De Weyer VK2VE accepted President's Commendations for himself and on behalf of the Facilitators of the Radio and Electronics School, which provides a unique and vital service in teaching those who wish to qualify as radio amateurs.

The School's Facilitators so honoured were Adam Jaroszuk VK4IM, Bryn Taylor VK4BRT, Peter Andjelkovic VK3KP, Tony Bedelph VK7AX, Lou Blasco VK3ALB, Ron Hayman VK4RH, Raff Lerro VK4KQ, Rusty McGrath VK4JM, Tim Roberts VK4YEH, Peter Rumble VK4KX, Mick Todd VK6JMA, Matthew Weatherley VK4TMW, Michael Wright VK5ARD, George Glendinning VK4AJL, Reg Emmett VK7KK, Ben Short VK7BEN, Jeff Creed VK4SE and Gail Lidden-Sandford VK4ION.



## An improvement to the hidden 40 metre X beam

Ron Holmes VK5VH

A number of amateurs have indicated interest in the 'Stealth antenna' as published in the July, 2010 edition of *Amateur Radio* magazine. They may like to see an improvement made since submitting the original article. The original drawing and the improved arrangement are placed together, respectively in Figures 1 and 2.

The centre PVC pipe has been lengthened to two metres. Originally I avoided making it longer than one metre because the portion of antenna inside the pipe was lost as far as

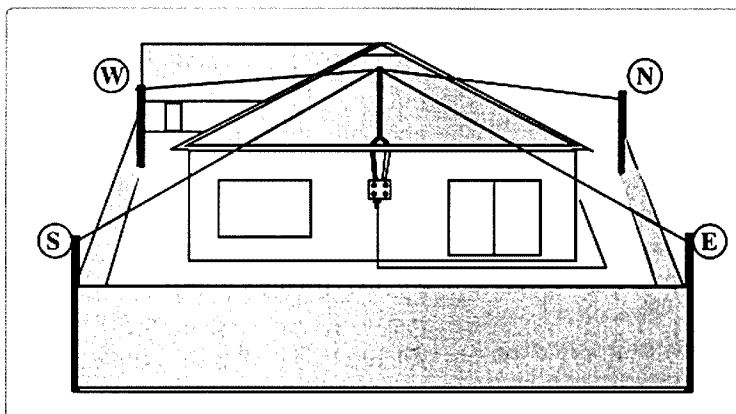


Figure 1: General view of set-up from back of unit.

Continued on page 30



## Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC



Photo 1: Barry VK3SY receiving the award from Brian Edward.

### Life Membership Award

The club house, whilst owned by the GARC, resides on a reserve owned by the Department of Sustainability and Environment, the DSE. The reserve also houses a Tennis Club and a Pigeon Club from which a joint committee was derived to administrate all three establishments.

One of the long serving members of the Reserve Committee, Barry VK3SY was presented with a life membership certificate prior to a recent GARC general meeting.

### Visitors to the club

Doron 4X6YZ is in Geelong attending the Deakin University as a PhD candidate in Public Health



Photo 2: Doron 4X6YZ.

at the School of Medicine. Doran's home town is Tel Aviv and Beer Sheva in Israel but he will be over here for a year.

Also we had a visit from Don VK5BGY, who was in Geelong with his wife Jane for the annual craft fair that takes place in Belmont.

### The GARC Club House

Over the decades since the club house was erected the roof has weathered many storms but finally repairs were necessitated due to leakage through the corrugated roof. The City of Greater Geelong Council was approached with a view to getting a grant towards the costs involved. The Council recently approved a generous grant from their **Councillor Community Grants Program** towards the overall cost of repair, for which the GARC is indebted to them. Work will take place at the same time as repairs are undertaken to one of the two towers that required a new rotator and cabling.

### Our Sister Club W4DOC

Past President Dallas VK3DJ has had many IRLP contacts (node 4550) with the W4DOC committee members and last year paid them a visit whilst touring in the USA. As a result the two clubs are now twinned and we look forward to an involvement with joint competitive activities. Dallas has taken up the role of Liaison Officer on behalf of the GARC. The Atlanta Radio Club web site can be found at [www.w4doc.org](http://www.w4doc.org)

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# Building an 80 metre magnetic loop antenna for your attic

Jim Tregellas VK5JST

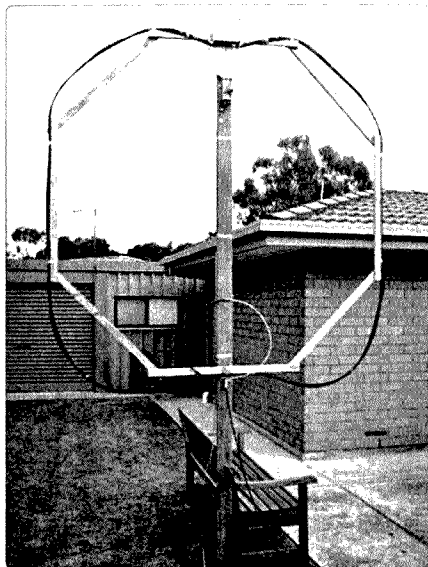


Photo 1: Testing the loop on a temporary frame.

## Part 1

Short of space in your suburban backyard or retirement village? Want a good small antenna for 80 metres? Properly built and sited, this design can perform as well, or better than G5RVs, half wave dipoles, and off-centre fed dipoles, and even better, delivers this performance at the breathtaking height of two metres above ground. And if you are prepared to substitute time for dollars, then it is cheap too. Theory and details are given about how to build one to fit your space.

### The Theory

A magnetic loop antenna typically consists of a circle (or a similar shape with a large central area) of low resistance conductor tuned to parallel resonance with a capacitor. Energy from the transmitter can be coupled into the loop using a variety of techniques and these include the gamma match, an iron dust or ferrite cored toroidal transformer, and a shielded or unshielded single turn air coupled driver coil. A loop perimeter between 0.1 and

0.2 wavelengths gives good efficiency.

If this loop is mounted so that the plane of the circle is at right angles to the ground, the result is a figure eight radiation pattern having two sharp nulls at either end of the axis of the circle. These nulls can be very useful in removing local interference. For best radiation pattern the loop should be mounted with the maximum voltage points (at the capacitor) uppermost and the current maximum which is opposite to the capacitor at the bottom.

The loop has a very low radiation angle and only has to be mounted high enough to prevent the strong magnetic field it produces from inducing significant losses in the ground. At 80 metres this means that there shall be at least 1.5 metres between the bottom of the loop and ground, and also that there is very little extra advantage to be had by mounting it much higher. Of course the loop also needs to be mounted away from metallic objects such as fences, plumbing, garage doors, or the like which will induce currents that can cause unacceptable losses and distorted radiation patterns.

The advantages gained from having such a low radiation angle at a low height cannot be overstated and in this respect a loop is like a vertical. Unlike the vertical however, the figure 8 pattern gives it more gain in some directions and it is less noisy. The 10 metre height restriction placed by city councils on the mounting of antennas means that at 80 meters, wire antennas like the G5RV and half wave dipole can only be legally mounted at a maximum of  $1/8^{\text{th}}$  of a wave length above ground and not the desired minimum of  $1/4$  wave length. This low mounting height results in an antenna that is good for local contacts but poor for DX because most of the energy is radiated almost vertically.

So in summary, the magnetic loop has a very small footprint, is relatively quiet, and is excellent for DX. With only a little extra trouble it can be mounted on a simple rotator that only needs to move through 90 degrees to give continuous coverage in all directions.

For this performance, there is a price. The antenna is really just a large parallel resonant LC circuit which only transmits efficiently when it has VERY low losses. Another way of saying this is that the quality factor of the tuned circuit (Q) must be very high, and typical figures for Q are around 1000 (0.1 % losses). Arrggghhh.....

At 3.5 MHz, a Q figure of 1000 means that the antenna has a bandwidth of just 3.5 kHz, which in turn means that the antenna will need continual retuning to cover the ham band from 3.5 -3.7 MHz. So we need a really good method of remotely tuning the antenna, and some simple and reliable method of indicating the frequency to which it is currently tuned.

The losses with which we are so concerned occur in two areas. First there is the loss in the main conductor of the loop caused by 'skin' effect. At low frequencies, current flow occurs uniformly throughout the cross section of a conductor, but as the frequency rises, the rapidly expanding and contracting AC magnetic field which surrounds the conductor forces the current carriers to near the surface. As the current carriers now only move in a much smaller area of the conductor, the apparent resistance rises too. We can lower these losses in a number of ways. First we can use a conductor that is simply bigger (greater surface area). Next we make sure that the conductor surface is smooth and continuous so that current carrier

flow is unimpeded. And last we can electroplate the conductor surface with a material with a very low resistance such as silver. There is another way too, and this is to multiply the surface area available by using a number of smaller insulated conductors in parallel. Insulation is most important because it is this that allows all of the surface area of each of the paralleled wires to be used. Without insulation, a group of wires in contact will simply act like a large single conductor of the same outside diameter as the group, because skin effect forces the current to the outside perimeter of all of the wires.

This idea of multiplying the available surface area by using many small diameter insulated wires in parallel is the basis for the production of 'Litz' wire (short for the German 'Litzendraht') which is used to wind low loss RF coils for items such as the ferrite rod antennas found in transistor radios. It allows us to use the insulated outer sheaths of several pieces of RG8 or RG213 in parallel to make up a single loop conductor with a much larger effective diameter. Being a woven structure, the outer shield of this type of coaxial cable is very rough and in this application has unacceptable RF losses. This is due to skin effect which keeps the current on the outside of the sheath, forcing it to hop from conductor to conductor as one conductor disappears under another in the weave. Each hop involves passing through a resistance where the two conductors contact each other. But with several sheaths in parallel, the losses are much reduced and we have an acceptable engineering compromise. We could use smooth copper water pipe but this is very rigid and difficult to handle. Another alternative is the smooth outer sheath of LDF4-50 or even LDF5-50 semi rigid coax. This cable is expensive and not easy to come by second-hand but of all the possible loop conductor materials it is probably the best compromise for the amateur. Like ordinary coaxial cable, it is flexible. This is an important advantage, because it allows the loop conductors to be

easily placed into the cavity of a non metallic roof where they will form an efficient invisible antenna out of the weather. Such antennas are largely immune to carping comments from wives, neighbours, and governing bodies like councils and those who oversee flats and retirement villages. They are almost free from maintenance too.

The second area of loss is in the capacitor. There are two parts to this, resistive losses and dielectric losses. For efficient operation, a typical loop must have a Q of around 1000, and if we assume that there are equal losses in the loop conductors and capacitor (an unrealistic assumption- see below) then the capacitor must have a minimum Q of around 2000. With a power input to the loop of say 100 watts, we are going to find circulating currents around the loop of maybe 35 amps and peak voltages across the capacitor of around 5000 volts. Qs of greater than 400 are very difficult to achieve, let alone 2000, and so attention must be paid to the smallest details.

Dealing with the resistive losses first, long experience by many loop constructors has shown that normal variable capacitors are useless for loop construction. The sliding mechanical contacts provided to allow RF current to flow from the capacitor frame to the moving plates have losses that are too high to allow the very high Q necessary. In extreme cases, the amount of heat generated in these contacts by the very high currents circulating around the loop can cause physical damage. The result is a poor Q and a loop that is a very poor radiator.

There are really only two types of variable capacitor that are useful, and these are the vacuum variable and butterfly capacitor structures. Both of these exhibit very high Qs, achieved in different ways. In the butterfly capacitor, resistive losses are avoided by having the RF current enter and exit the capacitor via two sets of fixed plates, which are coupled together by a common set of moving plates. No sliding mechanical contacts, and in the best of these capacitors, all the plates in

each of the three sets are welded or soldered together. In the vacuum variable, contact to the moving plates is made via a cylindrical set of copper bellows, which concertina in and out allowing movement, while keeping the capacitor interior under high vacuum. Unhappily, tuning of a reasonable size loop at 3.5 MHz needs a capacitor of around 300 pF. The butterfly capacitor needs an interplate spacing of around 2.5 mm of air to withstand the 5000 volts of RF and consists of two 600 pF capacitors in series. It consequently ends up as unacceptably large AND expensive, while the vacuum variable capacitor is just plain VERY expensive. To keep costs down we need another solution.

The other set of losses in the capacitor occur in the dielectric. These losses are normally measured in terms of the dielectric dissipation factor D, which is the inverse of Q. So if we want a capacitor with a Q of 2000 or more, we have to find a dielectric with a D of 0.0005 or less. The dielectric should also have an extremely high breakdown voltage so that we can put the plates close together and keep the capacitor small. Air and vacuum are excellent dielectrics with near zero losses but finding anything else which is good enough for this extremely demanding application is very difficult to do. To the author's amazement, glass is very poor with a D of just 0.007 or a Q of around 160 and so is utterly useless. In fact there are only two other dielectrics which go close to requirements and both of these are modern plastics. High density polyethylene (HDPE) has a dissipation factor of around 0.0004 at 1 MHz, as does polypropylene (HDPP). Unfortunately these dissipation figures are marginal, because the capacitor really needs to have a Q of much greater than 2000, to compensate for the obviously larger resistive losses that will occur in the very long loop conductors. So if we wish to use plastics at all as a dielectric then we should only do so in a small part of the total capacitance to keep our overall losses down. I have replaced

an air spaced tuning capacitor with a capacitor made up from 16 short paralleled lengths of RG213 to keep the resistive losses way down. RG213 uses pure HDPE as its dielectric. The result of this exercise was a dramatic drop in performance. In short there are no quick and dirty fixes and much of the material published on the Internet about capacitors in particular, and loop construction in general, will produce results that are not worth having.

One other consideration affects the capacitor and this is the accuracy with which it must be set. To cover the 80 metre band, the frequency must change from 3.5 to 3.7 MHz. This is a 5.5%

frequency change, which requires a capacitance change of exactly double this figure to cause it (11%). A butterfly capacitor only moves through a total of 90 degrees of rotation, and so an 11% capacitance change occurs in about 10 degrees of rotation. If the antenna has a bandwidth of 3.5 kHz (Q=1000), then to get a good SWR we will probably want to tune it with an accuracy of better than 200 Hz. If 10 degrees of rotation causes a 200 kHz frequency shift, then a 200 Hz shift is caused by shaft movement of a whole one hundredth of a degree! Even if a vacuum variable capacitor is used which typically takes 30 shaft turns to go from minimum to maximum

capacitance, we still only need to move the shaft about one degree to get a 200 Hz shift. So a highly geared slow motion drive to the tuning capacitor becomes absolutely mandatory. It also makes sense to make up the tuning capacitance from a large fixed capacitor in parallel with a small variable unit so that this tuning problem is minimised. In turn this means a monoband antenna, but these loops are small enough to allow you to have an entire antenna farm in your roof cavity. A really efficient loop for 14 MHz is just one metre in diameter! More next month.....



# Remembrance Day Contest

**0800 UTC Saturday 13 August 2011 to 0759 UTC Sunday 14 August 2011**

The RD Contest provides for amateurs in each state to obtain points for working other amateurs in Australia, PNG and New Guinea, and in so doing contributing points for his/her state – the overall aim of the contest being to see which state attains the top score in the contest'

The individual amateur can be presented with a certificate (as pictured) with their name, callsign, the category they entered, and total points scored.



The winning state will have their state's name embossed on the perpetual Trophy.

The Rules are available for download from the WIA Website:

[http://www.wia.org.au/members/contests/rdcontest/documents/2011\\_RD\\_Rules.pdf](http://www.wia.org.au/members/contests/rdcontest/documents/2011_RD_Rules.pdf)

*Peter Harding VK4OD*



## Coming Events

### 9-10 July

VK3 – GippsTech 2011 VHF/UHF and microwaves technical conference, Churchill.

### 16 July

VK3 – Gippsland Gate Radio & Electronics Club Hamfest, Cranbourne.

### 16 July

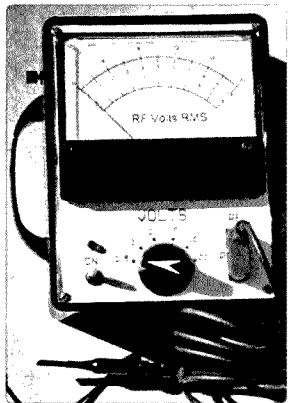
VK4 – Wide Bay Hamfest, Maryborough Electronics and Radio Group.

### 31 July

VK2 – Riverina Field Day, Albury Wodonga Amateur Radio Club Inc.

# Improvements to Jim's RF volt meter

Steve Mahony VK5AIM



The VK5JST RF volt meter as built and modified by the author. Note the 'Battery Check' button on the left hand side of the unit, just above the carrying handle.

Jim VK5TR's RF volt meter is a very useful piece of amateur radio test equipment and it is easy to build. Its other advantage is that all the components are readily available. Jim even provides the catalogue numbers for two electronic component suppliers.

Having built, calibrated and tested mine with a member of the Elizabeth Amateur Radio Club, we were trying to think of an improvement we could make to the unit. After a considerable amount of discussion, Keith, the other builder, suggested a 'battery check' function.

Many readers/builders have built a nice piece of equipment, used it then put it in a cupboard for safe storage only to get it out to use at some time in the future,

only to find the battery flat! How could this test function be added to our RF volt meters?

It is said that two heads are better than one! The circuit is so simple. All you require is a double pole push button change over switch and a resistor as a volt meter multiplier. As it is a 0 – 1 mA meter with 100 ohm internal resistance, the value would be 10 K ohms making it 1000 ohms per volt. All amateurs should remember this from their early electrical/electronic studies.

The circuit requires the positive and negative wires to be taken off the meter and taken to the NC contacts of the switch. Two wires, red and black are then connected from the meter positive and negative to the common of the switch. Two more wires, red and black are then wired from the NO contacts of the switch, the red wire with the 10 K ohm multiplier resistor in series going to the + 9 V of the battery and the black wire to the - 9 V of the battery, the ON / OFF switch is a good place. A red line at the 9 on the 10 V scale gives a reference point.

To check if the battery is OK you just press the push button switch and observe if the meter needle comes up to the red line on the 10 V scale.

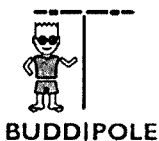


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**See you at the Albury Hamfest 31 July 2011**

# A G's visit to VK

Ian Hollingsbee G3TDT/VK3BIH



*The VK3BIH shack, in the stock yard at the Greta West farm that was the author's VK QTH during his visit.*

I would like to thank the WIA and the many radio amateurs who made my recent visit to Australia so fantastic. It is not often that I can use my VK3BIH call, perhaps every two to three years, but this trip I came well prepared and like the song "I made a hundred in the back yard at Mum's", I made more than a hundred in the stock yard at my QTH. I set my heart on working 100 VKs during my five week stay and accomplished this in just three periods of operating.

In preparation for my visit I purchased the Yaesu FT-857 which was modified to operate on the different band plans. Few amateurs in UK realise, for instance, that in Australia the two metre band plan is different from the 144 – 146 MHz allocation in UK. A lesson I learnt on a previous visit using my European specification VX7. I then made email contact with the WIA who were most helpful in providing me with the Australian repeater lists and other relevant information. Again differences between the countries in that all repeaters in UK have a CTCSS encoder/decoder tone

requirement where there are currently very few in Australia. I programmed the FT-857 memory bank with the 2 m/70 cm repeater frequencies and offsets for those that I thought I might need on my trip.

My QTH in Australia is a farm in Greta West near Glenrowan in northern Victoria, and with lots of tall mature gum trees. I came prepared with a G5RV and small ATU. With a small piece of metal pipe and a spool of nylon line and with several near misses to my head, I was able to get a line over a very tall gum tree with the G5RV attached sloping down to a nearby fence. The 300 ohm ribbon feed was then passed through the passenger seat of the hired car which was to act as my radio shack. I also bought with me a large magnetic mount and a full sized 2 m/70 cm mobile antenna as well as a home brew Slim Jim made out of a piece of 300 ohm ribbon cable. The power was provided by a 26 amp hour leisure battery kindly loaned by a family friend. The antennas, power leads, connectors and ATU all fitted neatly in a brief case placed

into my hold luggage suitcase and the FT-857 was carried in my hand luggage. No questions were asked by customs or security during my travels.

Most of my HF contacts were on 40 metres, not a band I have had much to do with in the past. Having told a few stations that I had set my heart on working 100 VK stations the word must have got about. For the first time in my amateur radio experience I was at the business end of several pile ups. Fantastic is the only word to call it as I worked up into

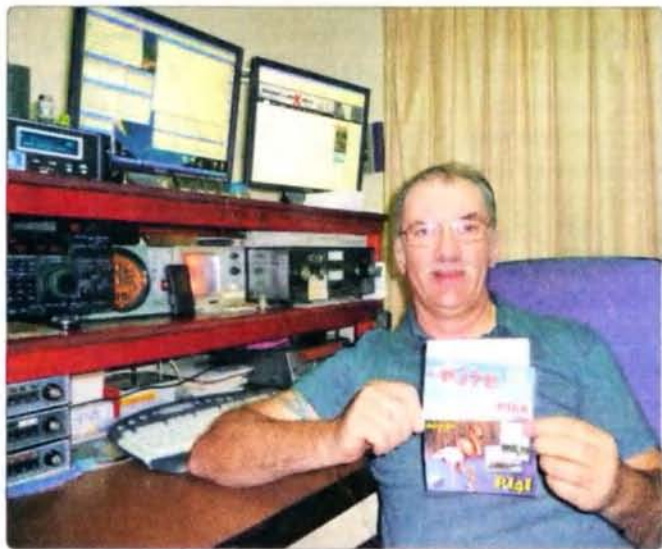
Queensland, lots in NSW, Canberra, over to South Australia and many contacts in Tasmania, not to mention the many Victorian stations. I found two metres very quiet but had several good contacts through the Wodonga and Shepparton repeaters. No contacts were recorded for 70 cm.

I would also like to thank the Albury Wodonga Radio Club who were simply great, offering me help and advice and inviting me to their Monday night meeting. I also attended their Field Day as advertised in the WIA. I got to know quite a few amateurs at these events and also via the Wodonga repeater during my frequent visits to Albury. It was with great sadness that I dismantled the station and packed it all away in my suitcases - a sadness not to have worked or heard VK100WIA but a joy to find a QSL card from Andrew VK2FAJM waiting in my mail box when I returned home and a joy to have worked nearly 200 VKs. Thank you, Australia.



# The DXer gets back on top

Jim Linton VK3PC



David VK3EW displaying his QSLs confirming the four new 'Netherland Antilles' DXCC entities.

One DXer with a close eye on the changes that happened in the former Netherland Antilles was David McAulay VK3EW, keen to add the four new DX entities created to his tally.

The ARRL DX desk had decided that QSLs for Bonaire and Curacao marked prior to 0400 UTC on 10/10/2010 would be attributed to those former entities, and deleted, while four new DXCC entities would begin from that same point in time.

Like many around the world, and thanks to a flood of DXpeditions, David VK3EW quickly gained the necessary QSLs from all four of them. What he noticed was that no-one had yet filed them with the WIA. A quick chat with WIA Director Chris Platt VK5CP confirmed the four new ones had been passed to WIA Awards Manager Keith Bainbridge VK6RK for his scrutiny and subsequent approval.

David VK3EW said 'Finally the process is complete and once again I am proud to be at the top of the Australian DXCC list.' After submitting QSL cards to prove his latest claim, he now has the WIA DXCC standing of 348/340, the difference in the numbers indicating confirmation of eight deleted entries.



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# Contests

Phil Smeaton VK4BAA

## Contest Calendar for July 2011 – September 2011

Month	Date	Contest Name	Mode
July	9/10	IARU HF World Championship	CW/SSB
	16/17	CQ Worldwide VHF Contest	All
	30/31	RSGB IOTA Contest	CW/SSB
August	6	TARA Grid Dip	PSK/RTTY
	7	Waitakere (NZART) Sprint	CW
	6/7	10-10 International QSO Party	SSB
	13/14	Worked All Europe	CW
	13/14	Remembrance Day Contest	CW/SSB/FM
Sept	27/28	ALARA Contest	CW/SSB
	2/3	All Asian DX Contest	SSB
	2/3	Region 1 Field Day	SSB
	11/12	Worked All Europe DX Contest	SSB
	24/25	CQWW RTTY DX Contest	RTTY

Note: Always check contest dates prior to the contest as they are often subject to change.

Welcome to this month's Contest Column.

### CQWPX SSB 2011 – Claimed Scores

Claimed scores for VK stations are shown in the sidebar. The write-up for the contest was in last month's AR, but as an addendum, there were a good number of logs submitted from VK for the contest. The bands are possibly enticing a few more onto the bands and for some newer licensed operators, this might be the first time that they have seen some half decent conditions on the bands as they were not licensed previously for the other sun spot cycles.

### WPX CW 2011

From VK at least, the higher bands did not seem quite as ready to play for the CW leg of the WPX contest as they were in the SSB leg a month earlier. Steve VK6IR was on 10 m as VK6HH and had a hard slog getting RF to and from EU. Patrick VK2PN netted just over 700 Qs for a score of just under 1 million, but also found the going to be tough but used 15 m and 20 m to good effect. Steve VK3TDX was also busy on the bands, managing to grab just under 1400 Qs for a score of just over 3 million, with 15 m being the money band for

VK3. 40 m propagation seemed to be quite reasonable and 20 m LP to EU is always good for a Q or two.

Allan VK2GR was active as P29CW for the contest. Allan reports that VKs were overall hard to work and often very weak signal strength, possibly due to long skip. The big EU and NA stations were much stronger than the VKs. Allan enjoyed the quiet QRN conditions – I wonder if he can get any back into his suitcase and import some home to Sydney?

No claimed scores announced at the time of writing, so I will include some detail in next month's column.

John VK4TJ had a spot of bother during the contest, with a few operators not believing his callsign. A few stations insisted that John was called Trent and subsequently his callsign was VK4TI – all because the Super Check Partial database told them so. As always, an operator should log what he or she hears, so a few stations might have a busted call in their log for not listening properly. The use of computer logging assumes that the operator knows what he or she is doing! The whole situation left John doubting the parentage of a few multi-multi operators – a quick turn of the VFO produced an an effective remedy.

Callsign	Claimed Score
VK2IM	4,065,918
VK2FHRK	13,676
VK4FJAM	168
VK4FJ	71,248
VK4DMP	66,454
VK2WTT	40,014
VK4MN	7,200
VK3VTH	2,296
VK1MAT	225
VK5FMPJ	4
VK2CA	2,099,454
VK1OO	84,799
VK2HEK	1,311
VK4NM	6,569,696
VK6NC	3,257,260
VK4WIP	1,288,656
VK6IR	2,490,840
VK4KW	27,499,572
VK9CF	634,858
VK4VDX	177,670
VK4ATH	24,552

VK claimed scores in the CQWPX contest.

Another 'difference' for this contest, was the approach taken by a small number of stations, in having two signals present on a single band. Whilst not simultaneous signals, it would seem that some operators are adopting an SO2R approach but not across two different bands. Interleaving signals across bands is common practise, but two on a single band will tend to crowd the band even more than 'usual' contest conditions. An effective interlock is required to achieve this – and the Russians have been doing it for quite some time very effectively. However, not only is this a 'game changer' which effectively pushes the multi-single category even further away from the common-sense meaning of those words, but it could come close to doubling band occupancy. During major contests 40 m and 20 m are already stuffed to overflowing and I do not think that the bands could tolerate a situation where all the big



multi-multi, multi-two and multi-single entrants routinely occupied two run frequencies. It is for this reason that I believe that consideration is being given to effectively banning the practice in the CQ WW contests and maybe other major contest organisers should follow suit.

### **CQWW RTTY 2010**

I am very happy to report that Steve VK3TDX was the Oceania winner SOAB HP for the 2010 RTTY DX contest. Steve gained 1,385,172 points with 1326 Qs, edging out YB0PAH with 1,142,407 points and 1315 Qs. This was Steve's first significant major contest win and Steve deservedly gets the plaque for Oceania HP. Due to a misunderstanding of who was going to sponsor the Oceania plaque, Steve's name did not get printed in the winners listing of CQ Magazine but the contest director confirms that Steve did actually win – much to Steve's relief no doubt. Well done Steve – an excellent achievement.

### **New RTTY Contest for 2011**

On the subject of RTTY, Muns Vineyard and rtycontesting.com are delighted to announce a new contest - The 10-Meter RTTY Contest. Nice timing, as the band can open quite nicely from time to time nowadays. The contest will be held for the first time on Sunday, December 4, 2011. The 10-Meter RTTY Contest home page is linked from rtycontesting.com or can be directly accessed at: <http://www.rtycontesting.com/the10meterrtycontest.html>.

Beside the Rules page, there is an FAQ and Blog for any comments or questions. Currently, rtycontesting.com will sponsor plaques for the winning Single and Multi-op entrants. If you are interested in sponsoring a plaque, such as continental Oceania winner, please contact Don AA5AU directly. Also, the top ten single operators will receive a bottle of Muns Vineyard California wine.

### **VKCC Contester of the Year Award**

The VKCC reflector is currently abuzz with discussion on the Contester of the Year Award proposal by Trent VK4TI. The WIA already has a 'DXer of the Year Award' but seemingly it is not awarded every year. The WIA award criteria takes into account many facets of operating, but mainly an operator's activity during the year, and their contribution to DXing, such as contest participation (not necessarily winning), contest support such as managing a contest, and so on.

DXer of the Year awards for the past few years are as follows:

2005 - VK3KE, VK5WO, VK6HD

2006 - VK4AN, VK3PA, VK3QI

2007 - VK3DYL, VK2CA, VK3EW

2008, 2009, 2010 - none awarded

Assessment criteria for a potential VKCC award could possibly encompass:

Highest number of International contests entered - OPEN (mix of all modes)

Highest number of International contests entered - CW

Highest number of International contests entered - PHONE

Highest number of International contests entered - DIGITAL

Highest number of Australian contests entered

Qualifying contests might include:

HF: Oceania SSB CW, RD, CQ WPX SSB CW RTTY, CQ WW SSB CW RTTY, VK Shires, John Moyie, Trans Tasman SSB CW RTTY, All Asian SSB CW, ARRL DX SSB CW,

VHF/UHF: John Moyle, RD, VHF UHF Field Days, Ross Hull

Maybe it could follow the WRTC type of approach with maximum points gained 1000 per contest - Points awarded as:

1st Place 1000 points

2nd 800

3rd 600

4th 400

5th and below 200

The topic is open to all for discussion, so if you have any input or feel that a given contest has been missed off the list, drop Trent VK4TI a note at [vk4ti@yahoo.com](mailto:vk4ti@yahoo.com) or get onto the VKCC reflector and join in.

### **Getting Down and Dirty in Dayton**

VK travellers to Dayton might have come across a bit of a problem at the show. The weather was fantastic, no rain all weekend, but Murphy had other things to ruin. As the Hara Arena complex was expanded over the years, the sanitary sewer line was not expanded as a consequence. Because of this oversight, at around lunchtime it plugged, backed up and resulted in a brown geyser at a vent pipe in the main aisle in the midst of the twelve acre flea market. Two septic tank trucks normally used to service the portable dunnies sucked up all the water and mess in the flea market. Then an industrial size cleaning truck was brought in to clear the plugged sewer line – no doubt with aromatic results ensuing. The flea market vendors were moved into a clean area of the flea market, which involved clearing out about 50 flea market spaces. Overall, it was a bit of a mess, but thankfully, no contesters have been reported as harmed during the process. They were probably in the bar, anyway.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au)

See you on the bands.

**73 de VK4BAA**



**2011 Remembrance Day Contest rules – see page 34.**

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

[arv@amateurradio.com.au](mailto:arv@amateurradio.com.au)

## Review of the year

The gathering at the Annual General Meeting is one of the ways the elected council gets to find out the needs and wishes of the membership.

This year has seen a focus naturally placed upon the centenary of the organisation. It began in 1911 as the Amateur Wireless Society of Victoria and quickly changed its name to the Wireless Institute of Victoria.

To help celebrate the 100 years a draft plan arising mostly from the AGM includes a special call sign and possible award, an associated activation of National Parks and an amateur television event.

November appears to be the most appropriate month to hold most of these events. The centenary branding would of course be launched much earlier and may include other activities.

The membership of the state-wide organisation and the council has until early July to finalise the plan before further steps are taken as we rapidly move towards celebrating our centenary.

## Repeaters getting repaired

Most of the repeaters in the state are maintained by Amateur Radio Victoria. The volunteers involved all have full time jobs and are to be thanked for their work to complete a commercial communications cabinet at the home of VK3RCV, Mt Alexander.

All that is required to finish the work at VK3RCV is antenna rigging and replacement with a 50 watt base station to replace the Philips 828, which has done sterling service over the years.

After building works at the Mt Macedon VK3RMM site both the 2 m and 70 cm analogue repeaters are running. The 70 cm analogue repeater will shortly have a frequency change due to an intermod problem at the site.

Extensive work has been carried out on the VK3RML 2 m and 70 cm repeaters on Mt Dandenong. Recently received is an invaluable MP3 audio file of the intermittent interference being experienced by VK3RWZ, which is at Mt William. A technical solution is now being sought.

The VK3RMK repeater serving northern Victoria is due for an antenna upgrade and a replacement 50 watt base station installed to further enhance its coverage along the Calder Highway. The AGM also mentioned work needed on a few other repeaters around the state.

## Activity in near future

With weeks to go before the International Lighthouse and Lightship Weekend, the set-up by Amateur Radio Victoria is all ready for the Williamstown Lighthouse Timeball Tower located at the Coastal Heritage Park, Williamstown.

The station VK3WI will be on the HF, VHF and UHF frequencies most of the weekend covering 20 and 21 August. If you are thinking of attending, please contact the Event Organiser, Terry Murphy VK3UP [vk3up@amateurradio.com.au](mailto:vk3up@amateurradio.com.au)

The Education Team Leader, Barry Robinson VK3PV, reports that Foundation licence courses will be held on 23 & 24 July, 10 & 11 September, and 19 & 20 November. For more information contact Barry on [vk3pv@amateurradio.com.au](mailto:vk3pv@amateurradio.com.au) or phone 0428 516 001.

## Silent Key **Paul Fox ex VK7NOX**

Paul was born in 1916 and grew up interested in all sorts of "modern" technology and inventions. He was a keen short wave listener and built many receivers, as well as other gadgets. Electronics was only one of his hobbies. He was a great photographer, and after retiring in 1981 became very interested in woodturning, with some very fine examples of crafted Huon pine to his credit.

After his son Martin left Hobart, Paul gained a Novice licence and he was

able to keep in touch, in the pre-email/Skype era, when Martin was living in other states of Australia, Papua New Guinea and Indonesia.

Paul was a late convert to computers and in 2002 bought his first PC at the age of 84. He attended a few Adult Ed classes and found out all the interesting ways he could use his new toy - digital photography and email being only a couple of the more obvious ones. Paul was given a laptop only a few weeks before he died and was reading a how-to

on Windows 7 so he could best use it.

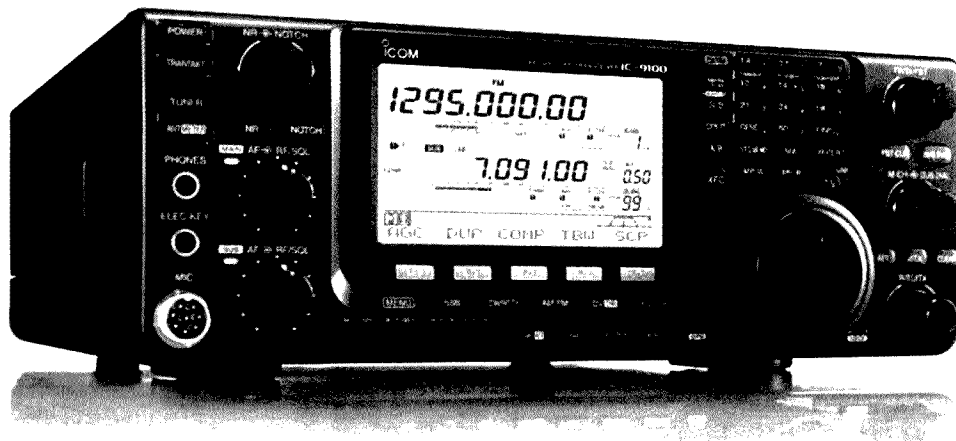
His time came however, and on 17 May 2011 he died after a short spell in hospital, aged 94.

He was a contemporary of people like Tom (7AL), Terry (7CT), Joe (7BJ) and many others who are now surely welcoming the newest member of the VK7 SK club in the big clubrooms in the sky.

Martin HB9TQX/VK7MM

# The Icom IC-9100 – The all round transceiver

Michael Coleman VK3KH and Peter Freeman VK3PF



Front view of the IC-9100.

Early in 2009, news began to filter out that Icom were planning a new radio that would pack more on board than anything they had previously offered. This radio was rumoured to be a multi mode HF/VHF/SHF radio that would combine many of the features of the IC-746pro (IC-7400) and the IC-910H, into one "box". As with all good stories, the truth never got in the way of speculation. Of course, on-line blogs (including our own VK Logger) and YouTube videos all helped build the hype.

More than two years later the new radio has reached Australia, and your reviewers were excited when offered the opportunity to assess the radio. The radio arrived from Icom, plus the UX-9100 23 cm module and UT-121 D-STAR module were sent as well. They were not installed, as we had requested the opportunity to install them ourselves, and see how easy this was. The radio is double boxed for transportation, but we quickly managed to get it out of the box to have a look at it.

## So, what is on offer?

The Icom IC-9100 is a multi band multi mode radio that offers:

- 1.8 MHz to 1300 MHz in one transceiver
- 100 W on 1.8 to 144 MHz, 75 W on 432 MHz and 10 W on 1296 MHz

- Independent dual receivers
- Modes including SSB, AM, FM, RTTY, D-STAR DV
- Satellite Mode operation
- High stability TXCO
- Two antenna connectors for HF and 50 MHz bands, with an automatic antenna selector and antenna tuner, and one each for 144 MHz, 430 MHz and 1.2 GHz\* are included in the IC-9100 (\*when the optional 1.2 GHz module is installed)
- USB connectivity
- Improved DSP filtering.

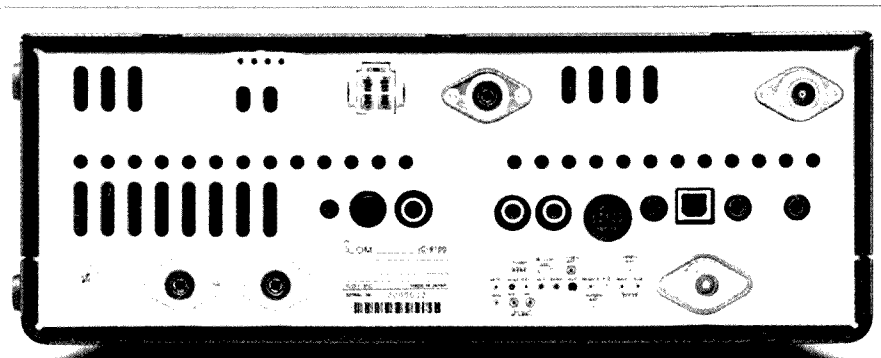
## Transceiver design overview

This offering from Icom is a medium-sized base station transceiver requiring a 13.8 V DC power supply. It is reasonably heavy, at 11 kg.

In commercially available amateur transceivers, the heart of performance is usually that of the receiver. In the case of the IC-9100, there are two receivers – Main and Sub. Both use double conversion superheterodyne layout before feeding the IF signal to either the Main or Sub IF and DSP systems. The audio outputs from the DSP systems are then fed to a common audio system. If you have installed the UX-9100 23 cm module, a triple conversion system is used.

The final IF for both Main and Sub bands is 36 kHz, each feeding directly to similar DSP units for all signal processing functions. This includes noise reduction, channel filtering, notch filters, pass band tuning and noise blanking. Optional

*View of the rear panel, with clean layout and plenty of interface options.*



roofing filters (6 kHz and 3 kHz) are optional extras available for the HF/50 MHz.

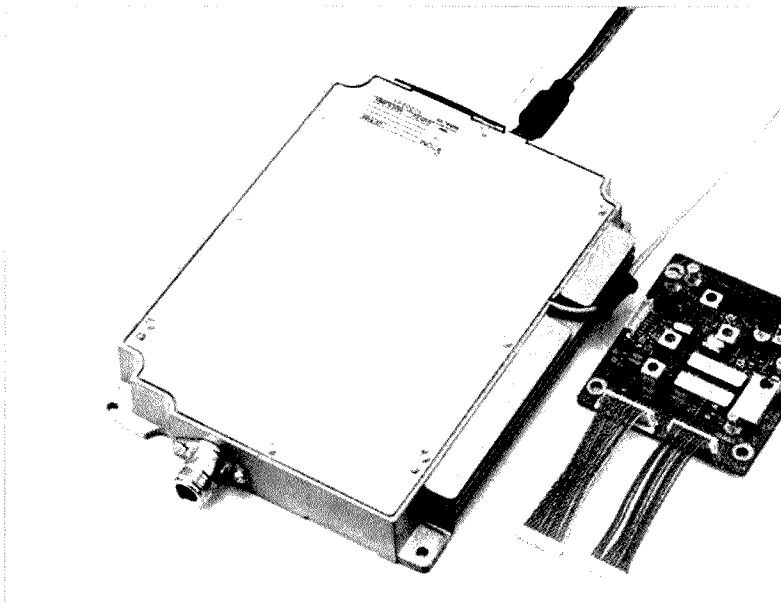
The two receivers are completely independent, allowing simultaneous reception on any two bands at a given time – but note that all the HF bands and 6 metres count as “one band”: You can listen to 50 MHz and any one of the higher bands at the same time, but not to 28 MHz and 50 MHz at the same time. It is therefore unlikely that this is the radio for a hard-core HF operator

wanting to monitor more than one band in a single radio. However, the transceiver does perform extremely well as a general transceiver and will suit many operators interested in VHF and above. For each of the Main and Sub bands, you have the choice of two VFOs, allowing rapid change between frequencies and split operation on the main channel. On the HF/50 MHz band, the receiver tunes 30 kHz to 60 MHz, making a useful general coverage receiver.

As one might expect from a modern transceiver, there are many available programmable memories – 99 per band, giving you 396 memories if you have the UX-1200 module installed. In addition, there are 6 scan edge channels per band (18 or 24), 1 call channel per band (3 or 4) and 20 channels for satellite operations.

With the dual receivers, full duplex operation between the Main and Sub bands is a breeze, together with full tracking satellite operation. Add the UT-121 and you have access to all the Digital Voice (DV) D-STAR modes on 2 m, 70 cm and 23 cm bands.

A useful inclusion is an auto antenna tuning unit for HF/50 MHz operations. It will cope with a VSWR of up to 1:3 on all the HF bands and 1:2.5 on 6 m. The transceiver will record in memory the tuner settings for each



*The UX-9100 23 cm module and its IF board.*

frequency range, in 100 kHz steps. For a broader matching range, the IC-9100 can interface with other tuners, such as the AH-4 tuner which will match a 7 m whip or long wire antenna on the bands 80 m and above.

There are many other interface options accessible from the back panel, including external amplifiers, GPS receiver and a USB port.

Those interested in further details can examine the product brochure or download the 202 page operation manual (42 MB) from the internet prior to committing your funds. Included with the radio are a set of circuit diagrams in addition to the operating manual.

### **The radio in operation**

The IC-9100 is a modern looking radio with all black cabinet and knobs. The white lettering on this background made it very easy to read the control labelling. It looks right at home in the shack, and for a radio with so much packed in, takes up minimal shelf space.

The front panel features a large LCD multifunctional display that is easy to read. It shows frequencies on both receivers, the mode in operation, a multi function bar meter, and access to the menu functions.

The manual for this radio, however, is daunting. Two hundred and two pages of necessary reading, especially if you are plan to get the

most out of your new radio. A Quick Guide, either in the front of the manual or as a separate document would make getting it on air easier. It would seem obvious that a radio with so much in it would need a big set of driving instructions! 50 pages are dedicated to the intricacies of D-STAR operations, which can be somewhat daunting for a newcomer.

On the other hand, VK3PF had no problem in exploring the basic operation of the IC-9100, as the radio

controls for band changing and other simple operations are similar to the IC-910H. Of course, a more detailed exploration of any radio will require one to explore the manual as well.

After connecting 13.8 volts and an HF 80 metre/40 metre dipole, it was time to finally tune the HF bands. This was about 11 pm at night and both 80 and 40 metres had no activity. A scan of 20 metres, however, quickly showed that it was open to Europe and the first station encountered was LZ1MS. He was a strong 5/8 (on the 80/40 dipole). The audio from the IC-9100 was really nice and a number of VKs working him gave similar reports to what was being heard.

Engaging the dual receivers and putting on headphones, it was great to be able to listen to two different bands, one in each ear. You can adjust the volumes individually, and if you want to concentrate on one band, disabling the second receiver gives you one band in both ears. Nice!

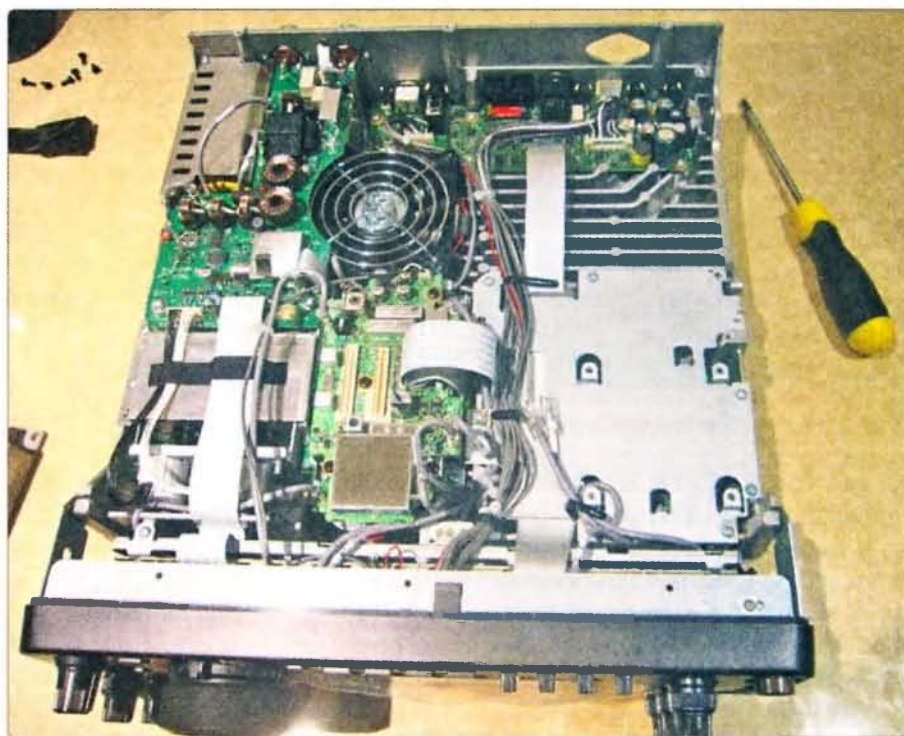
As 144 MHz was on the second receiver, it was time to look for local beacons. The VK5RSE two metre beacon at Mt Gambier was 549, a distance of over 380 km. A listen with the “usual” radio on the same antenna produced a 539 report. The audio on the IC-9100 was also more natural.

Over the next few weeks, contacts were carried out across all the bands. The noisy 3.5 MHz and 7 MHz band really showed off the improvements in the DSP on this radio. By selecting and adjusting the right filter the DSP made a big difference. It was able to pull an unreadable signal out of the S9 noise, and there seemed to be less "ring" than with the DSP on predecessor radios like the IC-7400.

Transmit audio reports were always very positive, and the default setting on the Compressor produced surprising compliments. Often compression circuits can produce an overdriven sound, but the Icom seemed to be able to produce noticeable punch without any apparent side effects. You can always get in to the radio's copious menus and adjust the audio till it overdrives, if that is what you want!

One noticeable feature was the excellent receive audio quality. The sound from the in-built speaker was clearly "rich" from the start. During later exploration of the receiver performance, the standard settings were used to feed the Spectran audio DSP software package. Listening to a weak distant 2 m beacon, it was clear that the receiver audio passband was very flat in its response, with very fast roll off at the edge of the passband – demonstrating the excellent performance of the DSP system in the receiver. Of course, one can adjust the receive passband characteristics via the DSP controls.

It should also be noted that strong signal performance was also excellent. Whilst listening to the VK3RED beacon on 144.436 MHz at about 10 dB above the noise, we heard clear key clicks from the VK3RGI beacon on 144.434 MHz. The keying on VK3RGI could be better, and VK3RGI was at least 60 dB stronger than VK3RED. We were pleasantly surprised – the receiver performed very well using the default settings, considering the characteristics of VK3RGI with its much stronger signal only 2 kHz away. If we had wished, we could have significantly reduced the



*Bottom view of the IC-9100, ready for the installation of the 23 cm unit.*

VK3RGI signal using some of the many DSP controls in the IC-9100.

As previously mentioned, the 1200 MHz module was supplied separately. We asked for it this way, as it would allow a look inside, and an opportunity to see how easy the install was. Inspection inside the unit showed extensive diecast aluminium used in the chassis for heat dissipation, plus a large fan over the Power Amp section. The only time the fan was noticed was whilst using FM on two metres.

Installation was really straight forward, and the instructions were adequate to ensure everything went smoothly. Install time was 25 minutes, although it was delayed a little as we took some photos which we have included in this report.

Once installation was complete, a pair of 36 element 23 cm Yagis were connected, and some country beacons were checked. The VK5SRE beacon was 519 at 380 km, and the Ballarat 23 cm beacon was 599 at about 100 km. The receiver definitely works well!

This radio also has a D-STAR DV option, although time did not allow this to be checked out.

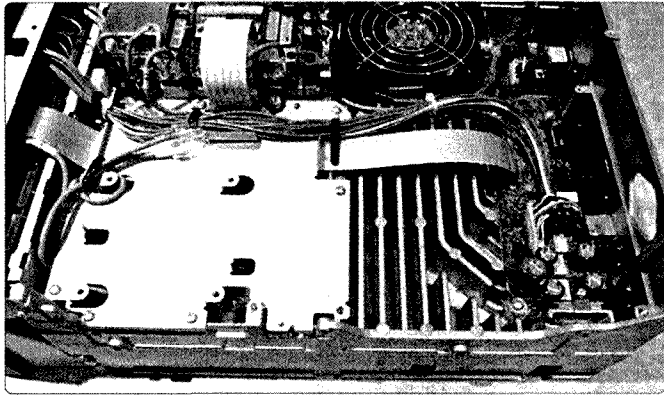
The only real disappointment with this radio was the inability to set power output at different levels on

different bands. This was the same on the IC-746 series (IC-7400) and the IC-910H, and it is frustrating if you want to follow the radio with external power amplifiers that require different drive levels. In addition to this, the Power Output meter is only calibrated as a percentage of total output power, so if you want to run QRP at 10 W on 3.5 MHz, you set the power to 10% output.

## Technology

Our hobby has become more diverse over recent years, as computer technology is embraced both in radio transceiver design and in operator's own lives. Computers and the internet have meant more operators have begun to explore how they can control their radios in ways never before possible. Also new modes, including the growing list of Digital modes, mean that amateur radio operators are finding many new means of making a QSO. The growing number of operators who now have made successful EME contacts on 2 metres using JT65b is a classic point in case.

The Icom IC-9100 incorporates this technology, and allows access to these new modes that more amateurs are exploring. It does this by incorporating a USB port



The location for the installation of the UX-9100.

for connecting your radio to your computer and the internet.

This brings up one minor issue. Frequency stability can be important for some of these weak signal digital modes. For most operators, the IC-9100 will probably be adequate for 2 m and 70 cm operations on digital modes.

Measurements on the 2 m band simulating JT65 operations (almost 50 seconds transmit time in each 2-minute period) showed a shift in frequency of only 5 Hz after each transmit period. One would therefore expect a shift of approximately 15 Hz on 70 cm and 45 Hz on 23 cm.

In the IC-9100, frequencies are generated from a single 30 MHz high stability oscillator driving the Direct Digital Synthesis units in the PLL unit. The system shows a period of drift during warm up, as do most transceivers. However, our measurements show good performance after this initial warm up period for most typical operations.

Some of us are keen to explore the limits of weak signal VHF and UHF performance using the digital modes and might seek to have better stability than the already excellent performance of this transceiver. I wonder if Icom might consider making available an optional module allowing the use of an external high quality frequency source (such as a 10 MHz source like a Rubidium oscillator or GPS-locked TCXO)? All that would be needed would be an adequate injection level (perhaps a buffer circuit) and a tripler and filter prior to injection of the 30 MHz at the appropriate place on the PLL unit. My guess is that there may be some

potential users out there willing to possibly void their warranty if they find that their requirements are not met by the existing PLL unit.

If you are looking for remote control, Icom have even covered this with optional RS-BA1 Remote Control Software, enabling the radio to be controlled from elsewhere in the house/shack, or anywhere in the world where you can access the internet. Also available is the CS-9100 cloning software package, which allows one to program settings, memory channels and set mode contents easily from a PC via the USB interface.

### Summary

It is state of the art, it is nicely set out, and once you have learnt your way around the amazingly in-depth menus and controls you will be able to enjoy whichever part of our diverse hobby you personally want from it. Whether you are a lowbander, a HFer, a VHF/UHF FM operator, a weak signaller or an aspiring microwaver,

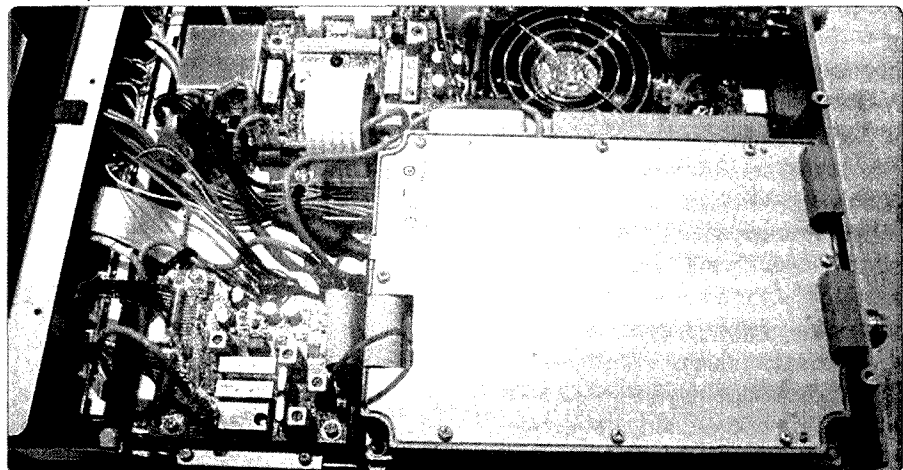
this radio will cover your needs. It will also allow you to go to other parts of our hobby you may not have previously explored.

At around \$4000 (without the 1200 MHz option, which costs approximately \$650) it will not be for everyone, but if you are looking for a base station radio that will cover all your normal operating requirements, incorporates the latest technology and gives you new frontiers to explore, then no other radio offers you what the Icom IC-9100 can offer you. Interestingly, one Australian retailer reports that 85% of purchasers were adding the 1200 MHz module and the D-STAR DV option (\$279). Covered by a five year warranty, Icom are confident that this radio will prove very reliable. Judging by the high level of take up, and the back orders for stock, it seems that many Australian amateurs have already made their decision.

We thank Icom Australia for the loan of the radio.



The UX-9100 module and IF board installed, ready for the radio bottom cover to be replaced.



Band	FM	SSB	
144 MHz		0.08 mV MDS	-148 dBm MDS
432 MHz		0.08 mV MDS	-148 dBm MDS
1296 MHz		Not measured	Approx. -150 dBm MDS

Table 1: Receive sensitivity tests on the test transceiver on the bands 2 m and above, using a calibrated HP signal generator for 2 m and 70 cm. The figure for 23 cm is estimated from the second harmonic from the signal generator. These figures are excellent for these bands.

# VHF/UHF - An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

The main activity of note this month surrounded the meteor scatter activity associated with the Eta Aquarids at the start of May. Adrian VK4OX/VK2FZ was active over this period and had some interesting contacts. He writes:

*According to the OH5IY Meteor Scatter Predictor, the Eta Aquarids this year were predicted to be active between May 1 and 8 with the maxima on the 6<sup>th</sup> at 1250 Z ± 48 hours. OH5IY predicted the best times for the VK4 to VK3 path as between 0000 Z to 0100 Z.*

*During the best time period, I started by listening for the VK3RGL 144.530 MHz beacon. I have 144.5293 MHz USB stored in a memory so it is then just a button press to get to the main operating frequency. This is not ideal but I do not have a second receiver.*

*When the beacon appears, I switch frequency and call, coming back to check to see if the beacon is still burning. Some of the beacon burns were very weak. Sometimes I was not even sure it was the beacon burning but I call just in case. I used a headset with a boom microphone and a footswitch for PTT. A second receiver would make it much more relaxing - I have to be poised over the memory button so as not to lose too much time switching between frequencies. This can be tiresome after an hour or so but all good fun!*

*This is a summary of the events over the period. Please see table above.*

*The OH5IY predictor proved quite good although the predicted max of the 6th was quite poor with days before and after much better. I believe this just to be bad luck! The predicted best time of 0000 Z to 0100 Z for the VK3 to VK4 path was spot on.*

*I worked ZL3TY on FSK441 on the 4th 1900 Z-1945 Z (2407 km) which was quite a stretch for MS. We tried again 24 hours later but no*

2011-05-01:	Hardly a ping.
2011-05-02:	Hardly a ping. 2111 Z - 144.071 CW VK2BCC 800 km
2011-05-03:	One 30 sec burn, five minburns (1 – 2 sec) and 9 pings 0044 Z - 144.200 SSB VK3HY 1420 km
2011-05-04:	Three 30 sec or longer burns, one minburn, 11 pings 0016 Z - 144.200 SSB VK3HY 0036 Z - 144.200 SSB VK3HY 0055 Z - 144.200 SSB VK3HY with incomplete VK2BCC
2011-05-05:	One 5 sec burn, two minburns 9 pings 0047 Z - 144.100 SSB Incomplete VK3HY and VK3II 2347 Z - 144.100 SSB VK3HY and incomplete VK3II
2011-05-06:	Zero burns, zero minburns, 11 pings
2011-05-07:	Two 30 sec burns, one 10 sec burn, four minburns, 14 pings 0020 Z - 144.200 SSB VK3DUT 1311 km two long burns and two excellent QSOs 2133 Z - 144.200 SSB VK3VFO 1406 km 2149 Z - 144.200 SSB VK3AMZ 1458 km
2011-05-08:	Did not clock
2011-05-09:	One 60 sec burn, one 12 sec burn. one 8 sec burn, 1 ping. 0058 Z - 144.100 SSB VK3HY and VK3II 1469 km

*go and again another 24 hours later and still no go. That was Saturday morning and ZL3TY worked quite a few VKs with distances of 2000 km - we just could not get the extra 400 km. ZL3TY commented on the long burns and many pings occurring. I was monitoring VK3RGL at this time and there was hardly a ping from it.*

*The VK3RGL 144.530 MHz beacon is a fantastic source of pings (I believe 7 watts to a 7 dBi Yagi). This takes the guesswork out of meteor scatter work. The big long burns can have a huge footprint extending as far north as Sydney (VK2BCC), east to at least VK3DUT, and west to I-don't-know-where. A pity no VK7s were on to test that path.*

*Thanks to all who took part and to those responsible for VK3RGL on 144.530 MHz.*

## VK9NA/ZL1TPH Records

The VK9NA DXpedition over summer resulted in quite a few new records. In particular, the contacts with Steve ZL1TPH over a distance of 747.5 km, reported in a previous column,

resulted in four new VK records and six new ZL records listed below:

### VK Records:

New VK9 record for 3.4 GHz  
New VK9 record for 5.7 GHz  
National 2.4 GHz Digital Modes record  
National 5.7 GHz Digital Modes record

### ZL Records:

National record for 2.4 GHz  
National record for 3.4 GHz  
National record for 5.7 GHz  
National 1.2 GHz Digital Modes record  
National 2.4 GHz Digital Modes record  
National 5.7 GHz Digital Modes record

Congratulations to all involved.

## Roof Mounted Antenna

David VK3ZJG is returning to activity on VHF after a hiatus of a few years. His current situation does not lend itself well to a tower and so he has designed a through-the-roof mounting system for the antenna

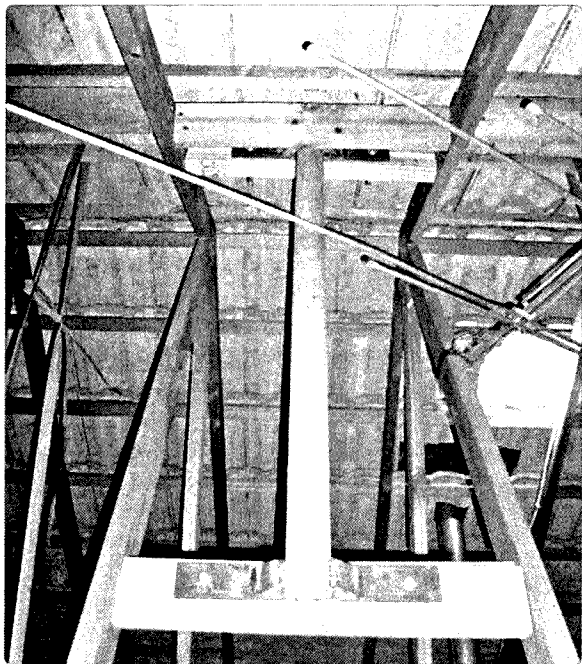


Photo 1: Antenna support pipe.

pole. The rotator is mounted on the ceiling joists and a 1.3 m sleeve of 2-inch water pipe is secured to the roof trusses and pokes through a hole in the tiles. The mast is a 6.5 m length of 48.3 mm tube with 3.2 mm wall thickness.

He had a recent antenna raising party where, with the help of a cherry-picker, the mast was put in place, complete with 10-element 2 m Yagi and coax run. A 6 m Yagi will be added in due course, which can be done with the pole in place. Of course, all work on the roof (2 storeys up) was done with the appropriate safety harnesses, anchor points, etc.

Expect to hear more from David as he develops his station, with the next step planned to be an increase in power from the current 10 W.

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

## Digital DX Modes

Rex Moncur VK7MO

### ISCAT-A Tests

David VK3HZ and Rex VK7MO have been testing a further revision, r2433, of the new experimental mode ISCAT-A, in WSJT9 for 10 GHz aircraft scatter. The test results have been very promising with 10

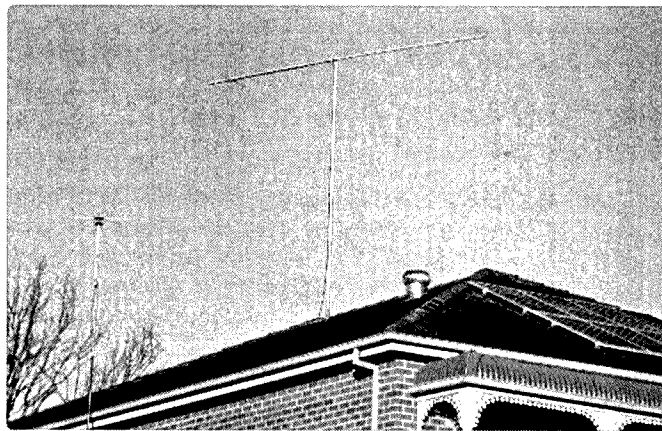


Photo 2: New antenna in place.

GHz QSOs completed from VK3ES's QTH near Mt Macedon Victoria to QF18 near Willcannia NSW (656 km), QF19 White cliffs NSW (733 km – new

10 GHz digital record) and QF48 north of Dubbo NSW (703 km). The QSOs to QF18 and QF19 used the Sydney to Adelaide flights which cross at near right angles resulting in Doppler variations of up to 1000 Hz per minute. ISCAT-A copes well with these large Doppler variations, firstly because its bandwidth is limited to 900 Hz allowing more than 1000 Hz variation in a typical SSB passband and secondly by using inbuilt Costas arrays to provide AFC correction for Doppler. Wikipedia describes Costas arrays as follows:

*"In mathematics, a Costas array (named after John P. Costas) can be regarded geometrically as a set of  $n$  points lying on the squares of a  $n \times n$  checkerboard, such that each row or column contains only one point, and that all of the  $n(n - 1)/2$  displacement vectors between each pair of dots are distinct. This results in an ideal 'thumbtack' auto-ambiguity function, making the arrays useful in applications such as sonar and radar."*

In the case of ISCAT-A, it uses a 3x3 Costas array (i.e. a sequence of three tones representing the array) transmitted approximately each second which is used to synchronize the timing of message tones and provide a frequency reference to decode the message tones and provided AFC.

A features of the new revision is that it searches each received wave file looking over periods of 2.2, 4.4 and 8.9 seconds and decodes the period that gives the most confidence. Thus if the signal gives only a short burst of 2 seconds this will decode in preference to a longer period, but if the signal gives a weaker but longer burst of around 9 seconds or more this can be averaged to decode the weaker signal. Good decodes have been achieved with weak signals of several seconds down to -15 dB.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

Brian Cleland VK5BC

I am preparing these notes from Darwin where I am attending the national WIA AGM. This has given me the opportunity to meet many of the Darwin 6 m operators including Mark VK8MS, Richie VK8RR, John VK8JM, Stuie VK8NSB and Trevor VK8TH and to hear many stories of the 6 m DX experienced from Darwin.

Mark VK8MS reports:

*The TEP season in Darwin started 12 Feb at 1308 Z with JA2IGY/b 519 50.010 and JR6YAG/b 519 50.037. Then 14 Feb Willem DU7\PA0HIP was in at 1325 Z at 5x9, we then worked Willem almost every day up until him leaving to go back to Europe on 30 April.*





Photo 3: At the WIA AGM dinner: Richie VK8RR showing David VK5KC a QSL card from 4X4DK, who he had recently worked on 6 m.

Most evenings from 15 Feb: many JAs were worked on TEP with Hide JR6EXN being the most regular.

On some exceptional days very busy we were working into JA, KH2, 9W6, VR2, DU1 and 7, BV, BA, YB, XV and by the end of March we were having regular TEP contacts with all the Asian countries. The main video we were hearing was the 49.749.6 MHz and 49.750 MHz carriers and warbler every evening with the DU TV on 55.249.6 MHz also most evenings.

Then following the equinox things started to change around 29 March, we started to hear the 48.259.7 MHz, 48.250.5 MHz and 48.251 MHz video from the Middle East with the Dubai TV on 48.250.7 MHz coming in most evenings.

Then on the afternoon of 5 April at 0756 Z, I worked KH6SX Art on 50.110 CW 519, the first time worked for seven years and then following him at 0824 Z worked Fred KH7Y on 50.106 CW 519. Early in the evening at 0916 Z 48250.7 Dubai TV came in S9 for the next hour; no amateurs. That evening many JAs, BV9BU and Eddie DU1EV were worked.

6 April at 0635 Z Fred KH7Y 5x9 SSB and also Art KH6SX 5x5 on 50.132 SSB and that evening at 1027 Z Joel KG6DX 599 CW followed by a pile of JAs also on CW and at 1058 Z worked Shin DS2KGJ 5x7. That evening typical TEP with DU1EV, BD9BU, DU7/PA0HIP, VR2XMT, YB9AY, 9W6RT, BV2NT all worked. As the many JAs and Asian stations started to disappear the 48.250.7

MHz Dubai Video started to become stronger and at 1420 Z I was just checking some mail and about to go QRT as it was getting late all of a sudden when A92IO starts calling 5x9. Of course I could not grab the mic quick enough so had the first

VK to Bahrain contact on six metres with Dave A92IO 5x9 both ways 9680 km to LL56fe (Dave commented that this is the first official VK-A92 six metre contact as they only gained privileges in 2010).

Dave was in until around 1500 Z then the Asian TEP picked up with YF1OO-B 559 and JAs starting to come back in again; the next few days saw the same TEP with many Asian stations being worked.

8 April at 1049 Z Dave A92IO was back in again but this time at 1146 Z 4X4DK, 4Z1TL.

9 April Dave A92IO was again in at 5x7.

10 April 0705 Z worked Jeff NH7RO for first time for many years at 5x1 and at 0754 Fred KH7Y at 5x8.

12 April it was good to work Chris A45XR in Oman 559 50.105 CW again. Then that evening typical TEP and regular evening chat with Willem DU7/PA0HIP and George DU1GM. The Pacific and Middle east now dropped off but most evenings TEP to Asian region except 15 April when Dave A92IO was back in 519 on 50.109 CW and 25 April Fred KH7Y 519 to 559 CW on 50.110.

Had thought that was not a bad TEP and F2(?) enhanced season but TEP stayed in most evenings and on 2 May at 0531 Z had Bert KH6HI come in on SSB 5x2 for a chat followed by Fred KH7Y.

Well after this it did drop off and noticed many stations dropping off the DX Summit sites etc.

As the sun moved further north

there has been the odd evening with 49.749.6 MHz video and 55.2496 MHz pretty quiet until today, 29 May, winter Es came with 0730 Z VK8RAS/b 599+10 50.046.7 CW with David VK5AYD in Coober Pedy 5x9+10 at times. David was in for a few hours then at 1045 Z 49.749.6 MHz video and warbler 59+10 and 48.249.7 MHz 55 and then at 1050 Z JR6EXn 5x9+10 and at 1052 Z JA4UDN 5x7.

So in concluding, TEP and winter Es still around.

Thanks Mark for the extensive report on 6 m activity into Darwin and well done with the A92, will be very interesting to see what next year brings.

Whilst in Darwin I also had a chance to catch up with Gary VK4ABW who has recently been transferred to Darwin with his employment. Gary already has a 5 element Yagi up and has managed a few TEP contacts.

Also found another keen 6 m operator in Darwin in Mike VK2BZE who says he will probably be here until early next year. Mike said that on a recent trip back to NSW he worked Willem DU7/PA0HIP while mobile south of Darwin over a 3-hour period giving Willem several new grid squares.

Looks like there will be many active 6 m operators in Darwin in the next 12 months.

Whilst in Darwin, I had a listen on 6 m using my 5/8 2 m vertical and other than working the locals did manage to work David VK5AYD in Coober Pedy during the E opening on 29 May with signals up to 5/6.

From southern VK there has been very little to report, the only major activity being a good opening from JA to VK3 and VK5 on 2 May. In VK5 many JAs were worked from call areas 1, 2, 3, 6, 9 and 0 between 0630 Z and 0730 Z.

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



# Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

I am writing these notes in Darwin after a wonderful weekend of activities at the WIA AGM. The Darwin Amateur Radio Club hosted the weekend, which has been a great success. The weather has been perfect. I am sure there will be other reports in the magazine.

The Club May meeting was presented by John VK5EV. John spoke of his work in amateur seismology. John has put together an array of equipment at home which allows him to record earthquakes, his results are much sought after by the professional bodies. Thank you John.

Our June meeting was a talk by Peter VK5TZX on solar electricity generation. The talk is considered timely as the solar rebates are to be reduced soon and this may spur others on to install solar arrays in their homes. July 3 will be the Club mid-year dinner and which will be held at the Fresh Choice restaurant, and is expected to attract over 40 members.

Last month the Club signed an agreement with the Blackwood Guides to use a shed on their premises. Work is progressing rapidly on the refurbishment. Barry



Photo 1: Barry VK5BW and Roy VK5FROY "measuring up".

VK5BW, Roy VK5FROY and a merry band of helpers have stripped the inside, placed timber battens round the wall, rewired the power, and are now ready to insulate and then Gyproc the walls. It is around 50 square metres, not large enough for monthly meetings, but will be used

for training, committee meetings, projects and a club station will be set up there. The property is on several acres in Blackwood and will allow suitable antennas to be erected. It is not very easy these days to obtain premises for exclusive use.

The Club has become involved with a group commemorating the centenary of the Titanic sinking. Their website [www.1912theevent.com.au](http://www.1912theevent.com.au) explains it well. The group approached us for a Morse code demonstration. We have obtained the call sign VK5MGY for the year - MGY being the call sign of the Titanic. Doc VK5BUG, an avid CW operator will be using the call with others over the next 12 months. A QSL card will be printed.

The club meets on the third Thursday at the Belair Community Centre, Burnell Drive Belair. Meetings commence at 7.45 pm. Visit the club website for more information [www.ahars.com.au](http://www.ahars.com.au) Or contact the president David VK5KC at [vk5kc@wia.org.au](mailto:vk5kc@wia.org.au) or the secretary, Sue VK5AYL at [vk5ayl@wia.org.au](mailto:vk5ayl@wia.org.au)



Photo 2: Rest time for the helpers.

# VK2news

Tim Mills VK2ZTM.  
vk2ztm@wia.org.au

The next major event in Sydney will be the annual auction of the **Waverley Amateur Radio Society** on Saturday morning July 9 at their club rooms in the Scout hall in Vickery Avenue, Rose Bay. Details on vk2bv.org Their AGM was held in April with little change in positions. There is to be a weekend of assessments on 10 and 11 September: [education@vk2bv.org](mailto:education@vk2bv.org) See page 36 of June AR for more details. The **Wagga Wagga & District ARC** held their AGM last month on 24 June at their club rooms in Small Street. For **WICEN** personnel, the annual Bush Walkers NavShield is on the weekend July 2 and 3.

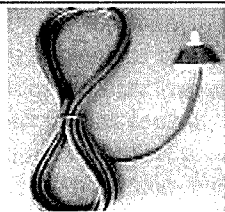
The **St. George ARS** are celebrating their 40th anniversary. Their special event callsign **VK40SGARS** runs until the end of July. Their 6800 repeater at

Heathcote in southern Sydney returned to service late May on a standby antenna until repairs to the main antenna could be carried out. The Thursday evening net has also returned to 6800 after a period on the 6650 Mt. Bindo system. For their monthly meeting in June, they paid a visit to the Sydney Telstra Museum. This museum is located at 12 Kitchener Pde, Bankstown – phone 02 9790 7624 – [tmuseum@bigpond.net.au](mailto:tmuseum@bigpond.net.au) It is open a couple of days a week. Well worth a visit.

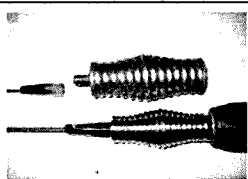
The **Oxley Region ARC** held their annual field day last month. The Club's technical team recently replaced the equipment for their **VK2RPM 6700** repeater. The **VK2RPM** site located between Port Macquarie and Taree has repeaters on 2 and 70. Improved receiver sensitivity has forced the introduction

of a 91.5 Hz CTCSS tone on 6700. The 70 cm **VK2RPM – 438.525** - repeater requires a 123 Hz CTCSS access tone. At their other repeater site – **VK2RCN** - located north west of Port Macquarie, a 70 cm repeater on 438.425 MHz has been commissioned. It also requires a 123 Hz CTCSS tone. The two metre repeater at **VK2RCN** is on 147.000 MHz. No access tone is required on this one. **ORARC** is currently celebrating their 50 years and has a special event callsign **VI40BOR** until the end of October. Early October will be the celebration of the founding of the club, based in Port Macquarie on the NSW Mid North Coast. The mid-week evening net on 6700 has been shifted to Tuesday at 7.30 pm. For more on the Oxley Region ARC and the celebrations check out [www.orarc.org](http://www.orarc.org)

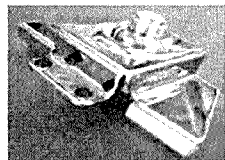
## TET-EMTRON



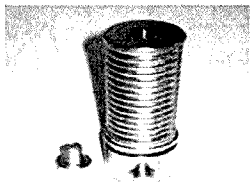
Base and Lead sets.



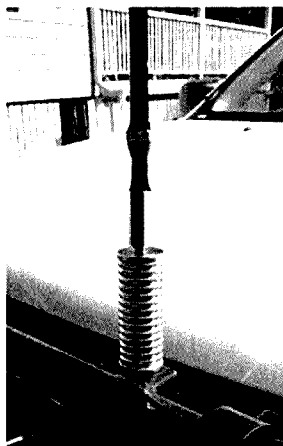
Codan Springs and Whips.



Mobile Mounts.



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The **Blue Mountains ARC** held their AGM in May with changes in the office bearers. The new President is Richard VK2WAY, who also has Education; Vice President Andrew VK2XPT and is also web master; Treasurer John VK2VJA; Secretary Felicity VK2GRR. The committee has Carl VK2HRC, Alf VK2YAC and Erik VK2MAN. Publicity and Ragchew is with Danny VK2FDAC. Tony VK2HO is the repeater manager. Historian Daniel VK2DC and HF nets Dennis VK2RM. The BMARC are still looking for a new club house and once found they will start arranging Winterfest 2011.

The **Hellenic Amateur Radio Association of Australia** will be operating the VK9HR Dxpediton on Lord Howe Island from July 24 to August 2, 160 metres through to 6 metres. More information on [www.vk9hr.com](http://www.vk9hr.com) or Tommy on 0413 005 511 or [president@haraoa.com](mailto:president@haraoa.com)

On Sunday 31 July, the **Riverina** field day will be held in Lavington (Albury). It will be provided by the **Albury Wodonga ARC** at the 1st Lavington Scout Group Hall in Mutsch Street, Lavington. Start time 10 am. A range of traders are to attend along with table sales. Need a table? Email [vk2ast@wia.org.au](mailto:vk2ast@wia.org.au) or for further details go to [www.shutupmatt.com/AWARC/](http://www.shutupmatt.com/AWARC/).

The club has a business meeting on the first Monday at 1930, a

workshop night on the third Monday. Both held in the science room of the Murray High School, corner Kaitlens Rd and Kemp St. Lavington. See June AR page 48 for information.

For decades the **Illawarra ARS** has conducted the Lawrence Hargrave Award. They will be holding a BBQ / picnic on Saturday 10 September, with some fox hunts thrown in. Don't forget the crystal set construction competition for the rest of the year. They also provide the VK2RDS D-STAR repeater from the Maddens Plains site on 2, 70 and 23 cm. It provides good Sydney and Illawarra Region coverage and is jointly sponsored by the Society, the WIA and Icom Australia. The monthly meeting is held on the second Tuesday evening. They have an extensive library for members. All their activities can be found at [www.iars.org.au](http://www.iars.org.au)

The **Hornsby & District ARC** is on the upper North Shore of Sydney. With a membership a bit over one hundred, they held their AGM late in May. President John VK2ZOI having held that position for a couple of decades, chaired the thirty fourth AGM and was re-elected as President. John said it would be his last year, some members said they had heard that comment before. Vice President is Rod VK2DAY; there is a new Secretary with Bob VK2ZRM taking over from Dot VK2DB

who stood down after many years in the position. Andrew VK2TAN continues as Treasurer. There is Justin VK2CU and Mark VK2BMW as committee members. Other positions are decided by the elected committee and will be advised in their magazine QUA. Monthly meetings are the second Tuesday (informal) and fourth Tuesday (monthly) at Mt. Colah.

On the last Sunday this month (31 July) the **ARNSW Trash & Treasure** will be conducted at the VK2WI Dural site – 63 Quarry Road – starting about 9.30 am. During the morning licence assessments will be available. You can obtain details via the ARNSW office phone 02 9651 1490 or the Secretary's mobile 0400 445 829.

The early afternoon has the Homebrew and Experimenters Group with their technical gathering. Check out the web site at [www.amsw.org.au](http://www.amsw.org.au)

There are on-going improvements at the Dural site and one project is to complete the boundary fencing. This is a call to members who might like to do a 'bit of bushwalking' and help erect the final sections round the rear of the property. This will mainly be 'belting' in the steel posts and then feeding the wire into the posts. If fencing is your calling - please get in touch with the ARNSW committee via the office telephone.

73 – Tim VK2ZTM



## An improvement to the hidden 40 metre X beam Continued from page 10

radiation was concerned. The two metre pipe is still hidden from the front of the unit. In the new arrangement the centre section of the antenna legs are far enough apart to form vertical radiators. In my present arrangement the inside end of the legs are anchored to the base of the vertical pipe and then go over the guttering but I think the way shown in the drawing may be better.

The control box is now larger, with the four sockets on top and a variable capacitor across the director sockets. To date I have not been able to discern any improvement with this arrangement but when I can organise tests to determine where the lobes are this may be possible. With the original system, tests with VK5KLT suggest that the lobes are distorted, probably by the proximity of the north and west legs to the roof of the unit.

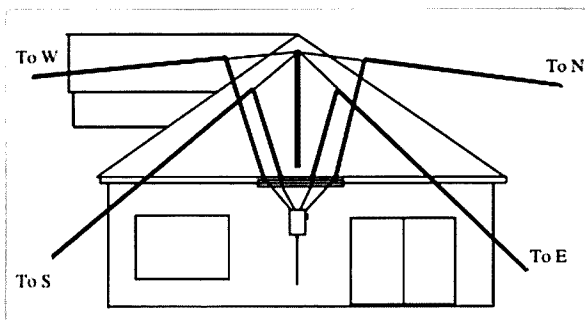


Figure 2: Detail of change with inside end of antenna legs. Heavier lines represent the antenna, the thin ones from the top of the pipe are one metre long sections of nylon fishing line. Where the wires cross the guttering a length of PVC pipe is cut length-wise and slipped over the guttering edge. The wires are attached to this by looping through small holes.



Now that we have passed the halfway mark for 2011, it is time to give some thought to the opportunity of participating in next year's YL International Meet. This is an opportunity that will not be repeated in the near future unless people are willing to travel overseas to be a part of further International Meets. A lot of work has gone into the planning of all the events which will take place over the seven days and it would be such a pity to miss the chance to meet with not only YLs from all Australian States but to greet YL visitors who will be arriving from overseas for the Meet.

Our thanks go to ALARA President Tina VK5TMC and her band of helpers who have given so much of their time to organizing the event. The following is an update of information.

## YL International 2012 Meet, Adelaide Australia

*From Tina Clogg, Organiser and ALARA president*

We already have 32 registered participants for the Meet. Expressions of Interest have been received from a further 46. If you hope to join us please let me know as there are many DX YLs who are thinking of coming but have indicated they are hesitant because their friends are not on the list of hopeful attendees.

We now have the final quote for the Adelaide portion of the YL International 2012 Meet. The total is \$730 (Made up of \$50 registration and \$680, the balance) for the Meet. Accommodation costs are in addition to that.

Some YLs have been asking for more information about the motels. They are all about the same standard except the Grand which is 5-star. The Marina Comfort Inn is the closest to restaurants and other facilities at Glenelg. Pick up from the four places organized by us and



*Photo 1: The VK5 Working Party for the International Meet.*

transfers for the conference and dinners have also been organized. Most motels and hotels charge for internet connections in Australia. They all have en-suite bathrooms, coffee and tea making facilities and a refrigerator.

Registration fees can be paid any time with a deposit of \$300 per person due by 30 September.

For the Ghan trip, a deposit of \$500 is due when you book or when we receive the final quote. I have a registration form, payment instructions and itinerary in pdf format. If you have any questions please do not hesitate to ask.

For those who are on FaceBook, I have created a FaceBook identity just for keeping in touch. I am keeping the web page up to date and it is at <http://www.ylinternational2012.com>

I look forward to receiving your registration and seeing you in 2012.

## Cost Summary

Registration fee (non-refundable) \$50.

Main Meet \$680 pp.

Motel accommodation with breakfast \$560 pp

**NB:** Quoted Price Twin Share - Can vary depending on your choice

**Adelaide Meet Only \$1290**

**Optional 9 day Ghan Tour \$5000**

Total for 15 day Meet and Tour \$6290.

## ALARA AGM held on 2 May 2011

### From the Minutes

There was a very good roll up with 20 ALARA members participating. The meeting was chaired by President Tina VK5TMC.

Nomination of office bearers: As listed in the ALARA Newsletter Moved Jenny VK5ANW, Seconded Shirley VK5YL. Accepted.

It was with regret that we accepted the resignation of Susan VK7LUV as Secretary, for personal reasons. Tina thanked Susan for her time on the committee, especially her years as President, and more recently as Secretary. For the time being Shirley VK5YL and Tina VK5TMC will share the Secretary's position which will be advertised in the next Newsletter.

Tina VK5TMC welcomed the following new members to the committee and thanked them:

Susan VK3UMM becomes the new Public Officer and Lyn VK4SWE has taken over the role of VK4 Representative.

Tina thanked the past committee, in particular outgoing Office Bearers, Lesley VK5LOL for her time as Senior Vice President; Robyn VK3WX for her times on the committee, most recently as Public Officer; and especially Margaret VK4AOE for her time as Treasurer, and all the other offices she has filled over the years. She also thanked the on-going committee members for their work over the past year. And particular thanks went to Dot VK2DB for her tireless efforts in producing the Newsletter for nearly 20 years!

## News from VK3

The VK3 ALARA members attended a luncheon which was held at the Chelsea Heights Hotel. There was a good attendance with approximately 18 people there. The meals were enjoyable and varied and the conversation flowed. These lunches provide a wonderful opportunity



Photo 2: ALARA lunch.

to catch up with friends who live some distance away or who may not have the opportunity to attend the lunches regularly owing to work commitments. Everyone looks forward to the next ALARA lunch in July.

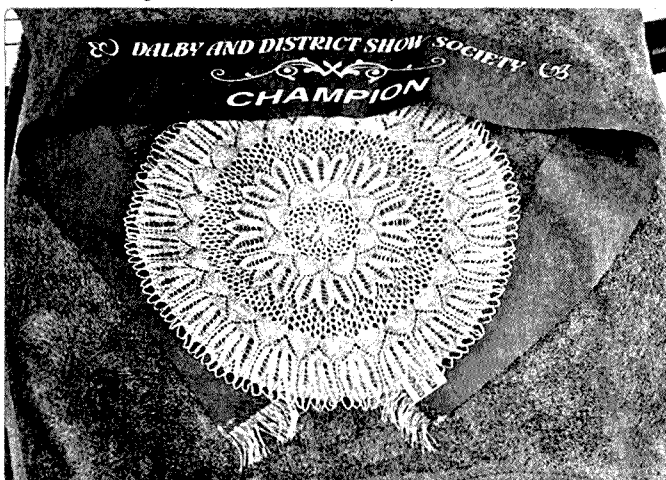
Susan VK3UMM advises that GGREC has just elected its first woman president!

The new president is Dianne Jackson VK3JDI, a long-time member of GGREC, she has been active in the club in a number of capacities including newsletter editor, and midyear dinner organizer, and for those who attend the highly regarded GGREC hamfest, Dianne, with two sons Hal VK3FTEN and Ross VK3ZAP, would have been seen running the ticket counter. Her OM Ian VK3BUF is GGREC treasurer.

### News from VK4

As mentioned previously many of ALARA's members have other hobbies outside of radio. One such

Photo 3: Margaret VK4AOE's Champion crotchet circle.



example is Margaret VK4AOE who enjoys nothing better than crafting with wool and thread. She recently entered some of her work into the Dalby Show. Margaret outlines her interest in her own words.

"My favourite spare time occupation is turning balls of threads into all sorts

of articles such as small and large doilies, tablecloths or runners of all sizes. And of course I love to show them off! Every year I enter several pieces of crochet and knitting in the local show, and this year I did exceptionally well and earned the Most Points Award, also Champion piece of knitting. I never expected so many prizes and I believe the reason this time is that because of the extent of the December/January floods which did cause so much havoc for many people, some exhibitors may not have had time to prepare as much as they normally do. As for me and the flood, I never got flooded out, but *flooded in* with water surrounding our house and surrounds for several days, not once but twice, a week or so apart. Not much else to do except needlework while watching the water rushing by..... Not all of the materials I use are new out of the shop. I made a bed throw out of recycled wool using a pattern for a doily. Then there is the occasional

doily I make using 3 strands of different coloured sewing threads.

Crocheting in particular is something I have done since I was 10 when my poor long suffering mother taught me the basics. Mum was right-handed and I am a lefty! Funny thing is I knit right-handed!"

### VK5 news - Christine VK5CTY

Shirley VK5YL won the DX section of the CLARA 2011 Contest. She has worked for years to make contacts in this contest in particular, so we are very thrilled for her that she has achieved it and done so well.

Shirley herself comments "I had lots of fun during the CLARA Contest during March this year, especially as it included EchoLink contacts. I first made contact with my CLARA sponsor (Audrey VE1PK) way back in 2003/4 after trying for a few months on HF with Audrey and then with Minnie VE3DBQ. I finally made contact with Audrey, and then Minnie the following week. We were all so excited to make the QSO so Audrey, who was moving to an apartment soon (without antennae) suggested we try to make contact via EchoLink. She guided me to the web page and answered my numerous questions and now we have an EchoLink sked every two weeks. We catch up with YLs from all over Canada, sometimes the US and the UK. I am in awe of some of the Canadian YLs who are so adept on their radios (connecting via IRLP) as three of them are white cane operators. I hope that I will be as proficient as these ladies in my 'old age'".



Photo 4: First placed DX YL in the CLARA contest was Shirley VK5YL.

### Dayton Ham Radio Meet

ALARA President Tina VK5TMC and her OM Robert travelled to the U.S.A. and included a visit to the Dayton Ham Radio Meet. She sent a brief message to ALARA members.

"Hi All,

We had a great time at Dayton Ham Radio get together. The weather at Dayton was a little warm but we were lucky with rain.



Photo 5: YLs at Dayton. Tina VK5TMC on the right.

It stopped Thursday afternoon and didn't start again until late Sunday night. Dayton was not threatened by tornadoes. We are heading east away from the major tornado threat. We are expecting some rain for all of the next week.

We will get to Washington DC tonight and are enjoying the green country side although we feel for the farmers who have soggy fields and can't plant their crops. Tina & Robert.

**Successful 2011 Annual Conference in Darwin**

There were 108 people registered for the 2011 WIA Annual Conference held in Darwin which was held on 27th- 29th May 2011.

**ALARA members in Darwin - Christine VK5CTY**

The WIA AGM was very successful. The weather was perfect, and much appreciated by the Southerners who have been having maximum temperatures like the minimums over this weekend. (The locals complained that they had to wear thick dressing gowns and Ugg boots in the mornings – everything is relative, isn't it?)

The Darwin Club had steered the activities and provided food for barbecues etc. and generally made the delegates feel very welcome.

We saw two sunsets over Fannie

as Lesley VK5LOL and OM Hans VK5YX felt they had neglected their pooch Barney enough the day before so they didn't go out to Litchfield National Park where this photo was taken. (There were a number of places where dogs were only welcome if on a lead, and not always then. I suspect they have had trouble over the years).

On the tour to Litchfield as well as the waterfalls (yes some people swam in them) we saw some of the amazing ant hills. From what we were told they supply a most important food source at the beginning of the wet season when as soon as the first rains fall they fly out of the hills in their millions

In the ALARA photo we have Megan VK2GGL, Jeanne VK5JQ, Christine VK5CTY, Dianne VK3FDIZ (who was the WIA official photographer for the weekend, too), Jenny VK3MDR who rejoined ALARA this year after about 10 years away, and Joy XYL of David VK5KC in the

Bay and quite a number of waterfalls, all of which were running well after a very wet Wet season (over 3 metres of rain!)

There were nine ALARA members in Darwin but we have only eight of them in the photo

back row and seated we have Jenny VK5FJAY and a YL I am ashamed to say I did not get a name or call sign for (my apologies to her).

The motel where most of us stayed looked after us well and provided us with a conference room and a pool (that we did not get time to swim in!!)

On the Saturday the ladies and partners were taken on a very interesting tour of Darwin and surrounds with only one disappointment - the place where pearls are cleaned and cared for was not open. They were interested to see a number of gift stalls at a market that afternoon that were also in the Mindil Sunset Markets where we had the last night of the conference. If we did not buy any gifts, it was only because we were feeling very strong!!

The bus guides for the Saturday afternoon and for the Sunday trip to Litchfield were very good and full of all sorts of stories about the places we were passing. Altogether those of us who went to Darwin had a great time and assured each other we will be seeing each other next year for the last weekend in May, in Mildura.



Photo 6: The ALARA members at the WIA Annual Conference.



Plan NOW for  
**JOTA/JOTI 2011!**

Contact your local  
**Scout or Guide** group.

# 2011 Remembrance Day Contest

Peter Harding VK4OD  
vk4od@wia.org.au

0800 UTC Saturday 13 August to 0759 UTC Sunday 14 August

## Purpose:

This contest commemorates the amateurs who died during World War II and is designed to encourage friendly participation and help improve the operating skills of participants. It is held close to 15 August, the date on which hostilities ceased in the southwest Pacific area.

The contest is preceded by a short opening address by a **Guest Speaker** transmitted on various WIA frequencies during the 15 minutes prior to the contest commencement. During this ceremony, a roll call of amateurs who paid the supreme sacrifice during WWII is read.

A perpetual trophy is awarded annually to the Australian state or territory with the best performance. The name of the winning State or Territory is inscribed on the trophy, and that State or Territory then holds the trophy for 12 months. The winning State or Territory is also given a certificate, as are leading entrants.

## Objective:

Amateurs in each VK call area will endeavour to contact amateurs in other VK call areas, ZL and P29 on all bands except WARC bands. On 1.8, 28, and 50 MHz and above, entrants may also contact other amateurs in their own call area.

## Contest Period:

0800 UTC Saturday 13 August 2011 to 0759 UTC Sunday 14 August 2011.

As a mark of respect, stations are asked to observe 15 minutes' silence prior to the start of the contest, during which the opening ceremony will be broadcast.

## Rules

### 1. Sections:

- High Frequency for operation on bands below 50 MHz;
- Very High Frequency for operation on and above 50 MHz;

Operators may enter each section, but separate logs must be submitted for each section and for each call sign used on that section by the operator.

### 2. Categories:

- Single Operator;
- Multi-operator.

Note: In the (Multi-operator Category, "many clubs work under this banner", All stations are permitted to enter in "ONE and ONE ONLY" of the following subsections:

### 3. Sub Sections:

- Transmitting Phone (FM, SSB);
- Transmitting CW (CW); Note: CW in this context means CW only; any other digital modes such as Packet, RTTY, AMTOR, PSK31, etc are specifically excluded from the contest.
- Transmitting Open (a) and (b);
- Receiving (a), (b) or (c).

### 3.1: WW2 Ex Military Transceivers and Receivers.

The use of these types of equipment is subject to the following conditions:

- To qualify we require a Photo (as most Hams have access to a digital camera) of the equipment they propose to use, and it MUST be equipment as used in WW2, and not post WW2 manufactured equipment.
- A declaration with the heading of WW2 Equipment will operate said units within the "ORIGINAL manufactures specified operating conditions", e.g. no mods to boost the output power etc. A copy of the preferred Certificate is available on the on the WIA website at:  
<http://www.wia.org.au/members/contests/rdcontest/documents/WW2%20declaration.pdf>
- As part of Para b above, the declaration will ask for
  - Make (if known)
  - Power output available
  - Type of antenna to be used, it should be of those types available in WW2 period.
  - Anticipated modes AM or CW or FM, (as SSB was not available until the fifties)
  - Frequencies they will use (I look for your guidance here)

- Scoring will be the same as in Para 13 of these rules
  - A Certificate with an addition of an area showing the WW2 Category named within.
- All amateurs licensed in Australia, and not physically within VK/P29/ZL, as VKs outside VK may enter the contest, whether their stations are fixed, portable or mobile. See Rule 16.
  - Cross-band and/or cross-mode contacts are *not* permitted.
  - Operation via any means other than those which use direct radio transmissions is banned. This includes all means such as IRLP or EchoLink, which rely on contact via the internet.
  - Contacts via satellites are also not allowed for scoring purposes.
  - Call "CO RD", "CO CONTEST" or "CQ TEST".
  - On **ALL** bands, stations may be contacted at intervals of not less than two hours since the previous contact on that band and mode.
  - No points will be awarded for contacts between stations in the same call area on HF, except on the 160 metre and the 10 metre bands, on which entrants may work stations in the same call area.
  - On the 10 metre band, contacts may also be made using the FM mode, using simplex only, on frequencies above 29.0 MHz only. This will be considered a different mode for scoring purposes, so an SSB or CW contact could immediately be made with the same station below 29.0 MHz for an additional score.
  - On **50 MHz and above**, the same station in any call area may be worked using any of the modes listed at intervals of not less than **two** hours since the previous contact on that band and mode.
  - For the VHF category, up to **three contacts** may be made with the same station consecutively on each band, but must be made using the different



allowable modes of CW, SSB and FM. However, the different modes must be within the frequency ranges stated in the text descriptions of the latest Call Book as 'mode' only. For example, on the two metre band, RD Contest CW contacts may only be made in the range 144.100 to 144.400 MHz. SSB contacts are restricted to 144.100 to 144.400, while FM contacts must be above 146.000 MHz. The national simplex calling channels (146.500 MHz on the two metre band), and the frequencies either side thereof, excluding recognised repeater frequencies, are the **suggested** frequencies. When changing modes, entrants must also change frequency.

9a. Both single and multi-operator entries are permitted. To be eligible as a single operator, one person must perform all operating and logging activities without assistance other than computer logging, using his or her own callsign. More than one person can use the same station and remain a single operator providing that each uses his or her own callsign, submits a separate log under that callsign and does not receive operating or logging assistance in any way other than computer logging during the contest.

9b. Holders of more than one licence or callsign **MUST** submit a separate entry for each callsign used.

10a. Multi-operator stations are only allowed one transmitter per band/mode at any one time. Simultaneous transmissions on different bands are permitted. Simultaneous transmissions on the same band but using different modes are permitted. Any large multi-operator stations may find it more convenient to use separate band and/or mode logs.

10b. Automated operation is not permitted. The operator must have physical control of the station for each contact. However CW and voice keys are permitted, although the use of computers is restricted to logging purposes only.

11a. For a contact to be valid, a three-digit serial number commencing at 001 and incrementing by one for each successive contact must be exchanged between stations making the contact. (RS/RST reporting is not required, but if given should be an accurate appraisal of the signal).

11b Separate logs are required for

entrants competing in both HF and VHF sections, although all allowable modes can be contained within each log.

12. Contacts via repeater, satellite or relay are not permitted for scoring purposes. Contacts may be arranged through a repeater, although contact numbers may not be aired there. Operation on repeater frequencies in simplex is not permitted.

**13. Score:**

- on 160 metres, two points per completed valid contact;
- on 23cm or higher bands, two points per completed valid contact;
- on all other bands one point;
- on CW irrespective of band, double points.
- all scores obtained between the entrant's local time hours of 0100 and 0600 are doubled. If working into an area where the time is outside those hours, the score is doubled only for the station whose local time is 0100 to 0600 hours.

14. Logs should be in the format shown below and accompanied by a Summary Sheet showing callsign; name; address; category; **subsections**; for multi-operator stations a list of the operators; total score; declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest; signed (postal mail only); date. **Please supply a contact telephone number if possible.**

15. Entrants operating on both HF and VHF are required to submit separate logs and summary sheets for both categories. Separate serial numbers for HF and VHF operation.

- **Logs must be serial numbered sequentially on any band within and below,**
- **High Frequency for operation on bands below 50 MHz,**
- **Logs must be serial numbered sequentially on any band within and above,**
- **Very High Frequency for operation on and above 50 MHz;**

16. VK entrants temporarily operating outside their allocated call area, including those outside continental Australia as defined for DXCC, can elect to have their points credited to their home state by making a statement to that effect on their summary sheet(s).

17a. Logs can be submitted by electronic

mail or postal mail: By mail, send logs and summary sheets to: RD Contest Manager. Endorse the front of the envelope "Remembrance Day Contest".

Peter Harding VK4OD, 40 Centaurus Cres, Regents Park, QLD 4118. E-mail, PLAIN TEXT logs only may be sent to [rdlogs@wia.org.au](mailto:rdlogs@wia.org.au)

17b. Electronic Logging is preferred but by no means mandatory. Those entrants with a suitable PC may wish to consider it for this year's contest. By using one of these programs, the file that is emailed to me can be imported easily into the scoring database program. Links for these programs are listed below. I have tried and tested them all and with the assistance of all the creators, they have rewritten parts of their program to assist scoring. On completion of the contest you can email the **VK?XXXX.csv**, which is a comma-delimited file format which can be imported into our database.

See *Software download links note below*

17c. In all cases, logs must be received by last mail on **Friday 16<sup>th</sup> September, 2011** **Late entries will not be eligible. Electronically sent logs will be returned with a courtesy note, also Snail Mail will be returned unopened.**

17d. If you are sending your logs by electronic means, I would recommend that you set the flag to request "confirmation of receipt" and "when the file is read". This way you will receive **two** confirmation messages. If you do not receive either return message please **send me an inquiry** mail. For users of **Snail Mail** send a self-addressed envelope with the sample reply form to request a receipt for your paper log, which is available at <http://www.wia.org.au/contests/rd/Reply%20Form.pdf> **HOWEVER** in all circumstances, the rule as in 17c above **WILL STILL APPLY**. So get the logs in early.

18. Certificates will be awarded to the leading entrants in each **sub-section**, both single and multi-operator; in each State; P2 and ZL. Entrants must make at least 10 contacts to be eligible for awards, unless otherwise ruled by the Contest Manager.

19. *Any station observed as departing from the generally accepted codes of operating ethics may be disqualified.*

## Determination of Winning State or Territory

Scoring will be achieved by taking the total number of logs for each State or Territory, divided by the total number of licences issued in that State or Territory (excluding beacons and repeaters) as published in the WIA Callbook for that year, and multiplying by the total score for that State or Territory. Points can only be considered where a station has submitted a valid log.

Unless otherwise elected by the entrant concerned, the scores of VK0 stations will be credited to VK7, and the scores of VK9 to the mainland call area which is geographically closest. Scores of P2, ZL and SWL stations will not be included in these calculations, although entrants in those areas are eligible for all certificate awards.

## Receiving Section Rules

- This section is open to all SWLs in Australia, Papua New Guinea and New Zealand. **Licensed operators may enter this section but this will make them ineligible to also compete in the Transmitting sections.**
- Rules are the same as for the Transmitting Section. The only double points will apply to ALL received CW contacts, and contacts received between 0100 K and 0600 K.
- Only completed contacts may be logged, it is not permissible to log a station calling CQ.

## Layout of logs:

The log should be in the format shown below, whether submitted electronically or via the postal mail. Sample logs are available on the WIA and local website or may be posted on request, with a stamped, self-addressed envelope.

## Sample Summary Sheet:

Remembrance Day Contest 2011  
 Callsign: VK1xxx  
 Name: Operator's full name  
 Address: Physical address of contest station  
 Category: Single or Multiple Operator  
 Section: HF or VHF  
 Sub Section: Transmitting Phone, CW or Open (both)  
 Total Score: number of points claimed  
 Declaration:  
*I hereby certify that I have operated in accordance with the rules and spirit of the Contest.*

**Note: Some software may require you to click on a button as your affirmation of operation according to the rules for this contest.**

**Signed:** Your signature if log is submitted via mail.  
**Date:** date submitted

## Sample Transmitting Log

**Remembrance Day Contest 2011**

**Callsign: VK1xxx**

**Category: HF or VHF / Single or Multiple Operator**

**Section: Transmitting Phone, CW or Open**

## Sample Receiving Log Name/SWL Nr:

**Category: HF**

Time (UTC)	Band (MHz)	Mode	Call	Number Sent	Number Rcvd	Pts
0801	14	CW	VK2QQ	001	002	2
0802	14	SSB	VK6LL	002	001	1
0806	14	SSB	VK5ANW	001	003	1
0808	14	SSB	ZL2AGQ	004	004	1

**Section:**

**Receiving Phone:**

## Links to Computerised Logging Programs

NOTE: Please check your favourite website for current versions, as most of the

Time (UTC)	Band (MHz)	Mode	Call 1st Op	Call 2Nd Op	Number 1st Op	Number 2Nd Op	Pts
0801	14	SSB	VK1XXX	VK2QQ	001	002	1
0802	14	SSB	VK1XXX	VK6LL	002	001	1
0806	14	SSB	VK5ANW	VK1XXX	001	003	1
0809	14	SSB	VK7AL	VK2PS	007	010	1

programmers are now doing a rewrite, to allow for this year's rule changes.

From Mike Subocz VK3AVV, the VK Contest Log (VKCL) can be found at the following URL:

<http://web.aanet.com.au/mnds/>

From John Drew VK5DJ RD logging program can be found at the following URL:

[http://vk5dj.mountgambier.org/Amateur\\_radio.html](http://vk5dj.mountgambier.org/Amateur_radio.html)

From James McBride VK6FJA WinRD+ logging program can be found at the following URL:

<http://www.rjmb.net/rd/index.htm>

From Paul O'Kane from Ireland, his SD logging program can be found at the following URL:

<http://www.ei5di.com/>

As shown below is a chart for the structure for this year's RD Contest, Logs can either show the numeric value or the Text for the type of operation that you are participating in.

If you are unsure what they mean please send me a message and I will explain further it can sent to [rdlogs@wia.org.au](mailto:rdlogs@wia.org.au)

A	111 112 113 114	VHF, Single, Phone VHF, Single, CW VHF, Single, Open VHF, Single, RX Only
B	121 122 123 124	VHF, Multi Op, Phone VHF, Multi Op, CW VHF, Multi Op, Open VHF, Multi Op, RX Only
C	211 212 213 214	HF, Single OP, Phone HF, Single OP, CW HF, Single OP, OPEN HF, Single OP, RX
D	221 222 223 224	HF, Multi OP, Phone HF, Multi OP, CW HF, Multi OP, Open HF, Multi OP, Rx



# AMSAT

David Giles VK5DG  
vk5dg@amsat.org

## Two more sick satellites

News of AO-51 and HO-68's condition has come to light. AO-51 is suffering from a faulty battery cell and is unable to hold enough power to keep the on-board computer alive during an eclipse. Currently one of the repeaters is on but only when commanded by a ground station. We may be fortunate for the repeater to still be on during a morning pass.

HO-68 has been stuck in beacon mode for most of the year. CEO of Camsat Alan Kung BA1DU gave a talk at the Dayton Hamvention. He said that either a relay or its driver circuit that switches between beacon and transponder modes is failing. They have not given up trying but it is unlikely that they will be able to restore the transponder. Apart from that HO-68 is in good health.

## Six-monthly review of operational OSCARs

Here is an updated review of the operational OSCARs and other satellites using amateur satellite service bands. All satellites listed here have been heard by myself during May 2011 except NO-44, AO-51, SO-67 and O/OREOS. No satellites have been added but most have been revised since the last review in January. The only failed satellite since last review is RAX-1. Its mission has ended due to low solar panel output.

The names of the satellites are given as OSCAR number, full name and (NASA catalogue number). Modes are represented by frequency bands: H=10m, V=2m, U=70cm, L=23cm, S=13cm in order of uplink/downlink.

Linear transponders use CW and SSB. With the exception of AO-7's V/H transponder, all linear transponders are 'inverting' types and use LSB for the uplink and USB on the downlink. For AO-7 mode V/H use USB for both links. Most of the activity is in the middle of the passband.

Foundation licensees are permitted to transmit SSB/CW and FM voice to any of the satellites in the 10m, 2m and 70cm bands as well as receive all the satellites. Foundation licensees are not permitted to use 23cm uplinks (e.g. AO-51 and CO-67) or AO-51's 13cm downlink (e.g. mode V/S). See the AMSAT column in September 2009 AR for more details.



## AMSAT-VK

### AMSAT Co-ordinator

Paul Paradigm VK2TXT  
email [coordinator@amsat-vk.org](mailto:coordinator@amsat-vk.org)

### Group Moderator

Judy Williams VK2TJU  
email [secretary@amsat-vk.org](mailto:secretary@amsat-vk.org)

### Website

[www.amsat-vk.org](http://www.amsat-vk.org)

### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz  
IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2m and 70cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

Telemetry decoding programs for several satellites are available from Mike Rupprecht's website at <http://www.dk3wn.info/software.shtml>

### AO-7 AMSAT OSCAR 7 (7530)

Launched: 15/11/1974

Status: Operational only when it is in sunlight. It may be in any mode. During non-eclipse periods it will alternate between modes V/H and U/V every 24 hours. Beacons are not always on.

Mode: V/H (old mode 'A'), linear, non-inverting.

Uplink: 145.850-145.950 MHz, Downlink: 29.400-29.500 MHz

Beacon: 29.502 MHz CW. Occasionally the 435.106 MHz CW or RTTY beacon may be on.

Mode: U/V (old mode 'B'), linear, inverting.

Uplink: 432.125-432.175 MHz, Downlink: 145.975-145.925 MHz

Beacon: 145.972 MHz CW at 10 or 20 wpm, intermittent operation.

Check the online log for current status at

<http://www.planetemily.com/ao7/main.php>

### UO-11 UOSAT-2 (14781)

Launched: 1/3/1984

Status: Intermittent. UO-11's 145.826 MHz beacon came back to life late 2009 after being silent for 18 months and will only work when in full sunlight. You may hear its distinctive signal while monitoring the frequency for other satellites such as ISS, NO-44 and FO-70.

Beacon: 145.826 MHz FM 1k2 AFSK

<http://www.g3cww.co.uk/oscar11.htm>

### IO-26 ITAMSAT (22826)

Launched: 26/09/1993

Status: Semi-operational. IO-26 is in Master Boot Loader (MBL) mode. It transmits continuous BPSK carrier with the occasional telemetry packet.

Beacon: 435.790 MHz 1k2 BPSK (Note: this has shifted from the original published frequency)

<http://www.amsat.dk/oz7sat/tlm/view.php?sat=io26>

### FO-29 FUJI-OSCAR 29 JAS-2 (24278)

Launched: 17/8/1996

Status: Semi-operational as linear transponder. Most activity is around 435.850 MHz. The BBS and digipeater operation have not been used since 2003. It should not be experiencing eclipse problems until 2012.

Mode: V/U linear, inverting.

Uplink: 145.900-146.000 MHz, Downlink: 435.900-435.800 MHz

Beacon: 435.795 MHz CW telemetry.

<http://www.ne.jp/asahi/hamradiolje9pell/index.htm>

### GO-32 Gurwin TechSat-1B (25397)

Launched: 10/7/1998

Status: Intermittent. Since 30/3/2009's on-board computer crash GO-32 has been sending intermittent telemetry. GO-32 has often been operating in 'emergency mode' with a 1k2 signal on 435.325 MHz.

Beacon: 435.225 MHz 9k6 FSK

Emergency Beacon: 435.325 MHz 1k2

Beacon call sign: 4XTECH-11

<http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=14&retURL=/satellites/status.php>

### NO-44 PCSAT (26931)

Launched: 30/9/2001

Status: Operational only in full sunlight.

One solar panel and the batteries are not functioning.

Mode: V/V 1k2 AFSK packet digipeater

Uplink: 145.827 MHz, Downlink 145.827 MHz

<http://pcsat.aprs.org>

### SO-50 SAUDISAT-1C (27607)

Launched: 20/12/2002

Status: Operational. SO-50 has a sensitive receiver and a transmit power of only 250mW.

Mode: V/U FM voice with 67 Hz CTCSS tone

Uplink: 145.850 MHz, Downlink 436.795 MHz (but may switch to 436.800MHz).

To switch the transmitter on you need to send a few seconds of 74.4 Hz CTCSS tone.

The order of operation is thus (allow for Doppler as necessary):

- 1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute timer on board the spacecraft.
- 2) Now transmit on 145.850 MHz FM voice using a 67 Hz CTCSS tone to access the transponder.
- 3) Sending the 74.4 Hz tone again within the 10 minute window will reset the timer. Users have reported difficulties.

### AO-51 AMSAT-OSCAR-51 ECHO (28375)

Launched: 29/6/2004

Status: Semi-operational

Mode: V/U FM voice.

As noted above AO-51 has battery problems and is going through a long period of eclipses.

Please check the website for the latest news. Either 70 cm downlink may be in operation.

Uplink: 145.920 MHz, Downlink 435.300 MHz (67 Hz PL tone may be required) FM voice

Beacon: 435.150 MHz 9k6 FSK

<http://www.amsat.org/amsat-new/echo/CTNews.php>

### VO-52 HAMSAT (28650)

Launched: 5/5/2005

Status: Operational. VO-52 has two linear transponders that use nearly the same passbands. The Indian transponder is normally on. Most activity is around 145.900 MHz.

Mode: U/V linear inverting.

Indian transponder:

Uplink: 435.220-435.280 MHz, Downlink 145.930-145.870 MHz

Beacon: 145.936 MHz continuous carrier

Dutch transponder:

Uplink: 435.225-435.275 MHz, Downlink 145.925-145.875 MHz

Beacon: 145.860 MHz CW 12 WPM preset message

<http://www.amsatindia.org>

Note: FM operation on VO-52 is permitted for QRP/handheld. In India, SSB gear is not very common and the operations team have suggested that FM operators can use this bird. If you are planning to work FM, please use another part of the passband e.g. 145.920 MHz. It would be best to arrange a sked in advance, as VO-52 is rarely used in FM mode over VK/ZL. Excessive uplink power will cause the beacon to FM. The following are mainly Cubesats. Reception reports are often well received and can result in a QSL card for your efforts. See websites for details.

### CO-55 CUTE-1 (27844)

Launched: 30/6/2003

Status: Operational. From the first cubesat launch CO-55 continues to send CW telemetry though the beacon now has an additional weak carrier.

Beacon: 436.8375 MHz CW telemetry

[http://lss.mes.titech.ac.jp/ssp/cubesat/index\\_e.html](http://lss.mes.titech.ac.jp/ssp/cubesat/index_e.html)

### CO-57 XI-IV (27848)

Launched: 30/6/2003

Status: Operational. From the first cubesat launch, CO-57 continues to send CW telemetry. It also has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 436.8475 MHz CW telemetry

<http://www.space.t.u-tokyo.ac.jp/tgs/en/index.aspx>

### CO-58 XI-V (28895)

Launched: 27/10/2005

Status: Operational. CO-58 has an on-board camera. Pictures of the Earth can be found on the website below.

Beacon: 437.465 MHz CW telemetry

<http://www.space.t.u-tokyo.ac.jp/tgs/en/index.aspx>

### DO-64 Delfi-C3 (32789)

Launched: 28/4/2008

Status: Semi-operational. The linear transponder has failed. The control team switched DO-64 back to science mode on 29/1/2009. Often by the time it has reached VK/ZL the transmitter has stopped, so it will be heard here occasionally. If they change it to basic mode then the telemetry will be heard over VK/ZL on most passes. The telemetry can be demodulated and decoded using software from the Delfi website.

Beacon: 145.870 MHz (primary) or 145.930 MHz (secondary) 1k2 BPSK telemetry  
<http://www.delfic3.nl/index.php>

### CO-65 CUTE-1.7+APDII (32785)

Launched: 28/4/2008

Status: Operational. The CW beacon is on continuously. The mode L/U APRS digipeater has been activated during weekends using 9k6 GMSK modulation. Unproto via JQ1YTC.

Mode: L/U 9k6 GMSK

Uplink: 1267.602 MHz, Downlink 437.475 MHz

Beacon: 437.275 MHz CW telemetry.  
[http://lss.mes.titech.ac.jp/ssp/cute1.7/index\\_e.html](http://lss.mes.titech.ac.jp/ssp/cute1.7/index_e.html)

### CO-66 SEEDS II (32791)

Launched: 28/4/2008

Status: Operational. CO-66 is a cubesat that transmits CW telemetry, packet telemetry and a pre-recorded message of voice and SSTV. Sometimes all three can be heard during a pass over VK/ZL as it changes modes. At 450 mW output, CO-66 has the strongest signal of the cubesats.

Beacon: 437.385 MHz CW telemetry, 1k2 AFSK packet and FM DigitaLker/SSTV  
[http://cubesat.aero.cst.nihon-u.ac.jp/english/main\\_e.html](http://cubesat.aero.cst.nihon-u.ac.jp/english/main_e.html)

### SO-67 SumbandilaSat (35870)

Launched: 17/9/2009

Status: Operational but transponder times are set by command stations. SO-67 will not be available for every pass. Its high powered transmitter (5 watts) is easily heard. There is a 3 second tail after each transmission, so pause before transmitting to the satellite. Keep your overs brief as there is also a cut-out timer. For best results set your radio to narrow FM or turn down the mic gain if your transmitter allows. SO-67 is scheduled for use over a different area each week. For VK/ZL it is usually during the last week of the month. For the current schedule see the AMSAT-SA website at <http://www.amsatsa.org.za/>

Mode: V/U FM voice

Uplink: 145.875 MHz with 233.6Hz CTCSS, Downlink: 435.345 MHz  
<http://sumbandilamission.blogspot.com>

### HO-68 XW-1 CAMSAT (36122)

Launched: 15/12/2009

Status: Semi-operational. As mentioned above a relay is stopping use of the transponders but the beacon is operating continuously.

Mode: V/U FM voice

Uplink: 145.825 MHz 67.0Hz CTCSS, downlink 435.675 MHz

Mode: V/U linear (inverting)

Uplink: 145.925 - 145.975 MHz, Downlink: 435.765 - 435.715 MHz

Mode: V/U PacSat BBS

Uplink: 145.825 MHz 1k2 AFSK packet, Downlink: 435.675 MHz 1k2 AFSK packet

Beacon: 435.790 MHz CW telemetry  
<http://www.camsat.cn>

### FO-69 FASTRAC 1 (37227)

Launched: 20/11/2010

Known as "Sara Lily". FO-69 and FO-70 are a dual system to explore inter-satellite communications.

Mode V/U FM PACKET

Uplink: 145.980 MHz 1k2 AFSK, 145.825 MHz 9k6, Downlink: 435.345 MHz

### FO-70 FASTRAC 2 (37380)

Launched: 20/11/2010

Known as "Emma".

Mode U/V FM PACKET

Uplink: 435.025 MHz 1k2 AFSK, 437.345 MHz 9k6, Downlink: 145.825 MHz

[http://fastrac.ae.utexas.edu/our\\_project/overview.php](http://fastrac.ae.utexas.edu/our_project/overview.php)

### RS-series satellites

#### RS-15 RADIO ROSTO (23439)

Launched: 26/12/1994

Status: intermittent. The beacon only comes on when satellite is in full sunlight, and is not on every pass.

Beacon: 29.352 MHz on/off carrier

#### RS-30 YUBILEINY (32953)

Launched: 23/5/2008

Status: Operational. Only the CW beacon has been heard over VK/ZL. Other transmission types are heard when it is in range of the control stations in Russia. It has been heard by AO-51 users when they share the same footprint.

Beacon: 435.315 MHz (primary), 435.215 MHz (secondary) CW telemetry

[http://www.dk3wn.info/sat/afu/sat\\_rs30.shtml](http://www.dk3wn.info/sat/afu/sat_rs30.shtml)

### Other satellites using amateur frequencies.

#### ISS (25544)

Launched: 20/11/1998

Status: Operational. The International Space Station has an amateur radio station that operates in many modes. Ultimately it depends on the manned crew's activities. Voice, digital, and SSTV modes are used. Sometimes experimental modes are tried; one example was a 23 cm FM repeater uplink on 1269.650 MHz.

Mode: U/V crossband FM repeater.

Uplink: 437.800 MHz FM, Downlink 145.800 MHz

Mode: V/V Digital / APRS 1k2 AFSK FM

Uplink: 145.825 MHz, Downlink: 145.825 MHz

Mode: V/V FM Voice, SSTV

Uplink: (Region 1) 145.200 MHz, (Region 2/3) 144.490 MHz, Downlink: 145.800 MHz

<http://www.issfanclub.com/>

<http://www.rac.ca/ariss/>

## COM-AN-TENA

### Australian made antennas setting a new standard

30/17/12 m Rot-Dipole	\$312
3 elem ea band 1 coax 10-15-20	\$680
Log-periodic 6 elem 6.4 m boom	\$725
20 m 3 elem med duty 100 km/h	\$420
Log-periodic 10-30 8 elem 10 m 1 boom	\$1245
15 m 3 elem 3.6 boom	\$314
Mb vert auto switch 10-80 m	\$360
40 m lin load 2 elem/cap hats	\$670
6 m 5 elem 3.6 m 1 boom	\$314
23 cm 36 elem 2 m 1 boom n-con	\$249
70 cm high gain Yagi 3 m boom	\$170
2 m 10 elem hi/gain Yagi	\$190
10/15/20 2 elem each boom 5.5 m l	\$459
40 m 1/4 W vert/free standing	\$270
10/15/20 vertical with radials	\$289
Rotable Dipole 10/15/20 m	\$272

### Guyed masts 13 or 21 metres

Winch up, tilt-over,  
aluminium and stainless steel  
three sided construction.  
Auto brake winches.

115 John Street  
Glenroy VIC 3046

Phone  
0419 542 437  
or send SMS

## COMPASS-1 (32787)

Launched: 28/4/2008

Status: Operational. Compass-1 has a chirpy CW telemetry beacon that is normally sent every 3 minutes. If battery voltage is low it will send every 8 minutes. COMPASS-1 can be commanded by any amateur to send telemetry on demand using DTMF codes, though the satellite may not give a response each time. Every command will give a confirmation beep on 437.275 MHz.

\*\*35## - request a test beacon CW

\*\*36## - request a test packet 1k2 AFSK FM (UI-Frame)

\*\*60## - request a housekeeping frame in 1k2 AFSK FM (KISS frame)

Mode: V/U DTMF command, 1k2 AFSK

Command: 145.980 MHz, Downlink 437.405 MHz

Beacon: 437.250 MHz CW telemetry

<http://www.cubesat.de>

## STARS (33498)

Launched: 23/1/2009

Status: Operational. STARS is two satellites tethered together. Both 'Mother' and 'Daughter' have CW and 1k2 AFSK packet telemetry on 70cm. The CW beacon of 'Mother' is on continuously, but 'Daughter' is weaker and intermittent.

Beacon: Mother 437.485 MHz, Daughter 437.465 MHz FM 1k2 AFSK

Beacon: Mother 437.305 MHz, Daughter: 437.273 MHz CW telemetry

<http://stars1.eng.kagawa-u.ac.jp/english/index.html>

## PRISM (33493)

Launched: 23/1/2009

Status: Operational. Following from the success of CO-57 and CO-58, the University of Tokyo built PRISM to carry a larger camera with a telephoto lens. The packet downlink is only available over the command stations in Japan, though the CW beacon is on world-wide. PRISM also has an uplink channel but frequency and modulation details have not been published yet. A new website has been made and pictures from PRISM are now available.

Mode: -/U 1k2 AFSK or 9k6 GMSK

Downlink: 437.425 MHz

Beacon: 437.250 MHz CW telemetry

<http://www.space.t.u-tokyo.ac.jp/prism/en/main.html>

## KKS-1 (33499)

Launched: 23/1/2009

Status: Operational. KKS-1 transmits a series of messages on its CW beacon.

Beacon: 437.385 MHz CW message

<http://www.kouku-k.ac.jp/~kks-1/kks-gs-top-e.htm>

## SWISSCUBE (35932)

Launched: 23/9/2009

Status: Operational. Transmits CW telemetry with frames every 30 seconds. Decoding software is available at their website.

Beacon: 437.505 MHz CW telemetry

<http://swisscube.epfl.ch>

## ITUpSAT (35935)

Launched: 23/9/2009

Status: Operational. This Turkish cubesat transmits a frame of CW every three minutes giving its name and callsign. Beacon: 437.325 MHz CW message

## Tlsat-1 (36799)

Launched: 12/7/2010

Status: Operational. Tlsat-1 is the first Swiss student-built satellite. Its mission is to test various materials exposed to atomic oxygen at low Earth orbit.

Downlink: 145.980 MHz FM FSK, CW

Beacon: 437.305 MHz CW at varying speeds.

<http://www.spacelab.dti.supsi.ch/tlsat1MS.php>

## O/OREOS (37224)

Launched: 20/11/2010

Organism/Organic Exposure to Orbital Stresses. O/OREOS is the next NASA scientific cubesat experiment after GeneSat and PharmaSat. This experiment monitors the growth of micro-organisms and changes in organic molecules in space. Currently the 70 cm beacon is turned off.

Beacon: 437.302 MHz 1k2 AFSK telemetry

<http://ooreos.engr.scu.edu/dashboard.htm>

## Final pass

Plenty of bad news this month with AO-51 and HO-68 in trouble. While they have not been declared dead the prognosis isn't good. Also SO-67 has had battery problems of late. AO-7, FO-29, SO-50 and VO-52 are still performing well and new satellites are in the pipeline.



# VK3news

## Eastern Zone Amateur Radio Club

Chris Morley VK3CJK



Preparations for GippsTech 2011 are in full swing.

The Proceedings

from 2010 are compiled and at the printer. The program is taking shape, and registrations are rolling in.

We will be trying some different options for lunches this year, with a spit roast on Saturday and pizza for Sunday.

Presentations confirmed include:

- Recycling crimp connectors (without need for special tools).
- Sporadic E: MUF myths, SSSP and forecasting openings.

- Chirp beacon and radar developments.
- The chirp backscatter radar: analyses of further HF and VHF propagation experiments and proposals for future use.
- Development of a solar powered remote site.
- 600 m band experimental licences & experiences
- Doppler shift estimation for 10 GHz aircraft enhancement
- Comparisons of aircraft scatter at 144, 432, 1296 and 10 GHz.
- DX strategies for 10 GHz.
- Rubidium frequency standards.

- Libration.
- Which IF for the microwave bands?
- Propagation measurements using the Tasmanian GPS stabilised beacons.

We are also planning a Partners' program, for those not interested in the technical program.

Full details can be found on the Club website: <http://www.vk3bez.org/>

Register NOW: registration closes on Sunday 3 July. The form is available on the website.



# DX-News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

Well we do seem to be having a 'bumpy ride' with band conditions, but the gurus are now predicting that conditions will peak in 2013/14 but not to expect too much. We have recently had some very good openings on 10 m but nothing like we have had in previous 'good years'.

The much anticipated 2012 DXpedition team heading to **Malpelo Island** have now added a few well known DXpeditioners to the team. The original DX Colombia Amateur Radio Club (DXARC) team included team leader Jorge HK1R, as well as HK1T and HK1X. Plans were to have eight Colombian operators and four "international" operators. The HKONA website now lists the international team members, DJ9ZB, YV5SSB and OH0XX. Also added to the list are Colombian operators HK1MW and HK1N. Current plans are to have at least three stations QRV on 1.8 through 50 MHz on CW, SSB and RTTY.

Jorge HK1R has established contact with a ship that makes "frequent authorized" diving expeditions off the coast. The Sea Wolf is capable of accommodating 16 people. "Based on the conversations with them and the 'visits schedule' by the Environmental Authority, which controls the island access, our most probable sailing date will be February 15 2012". The February 2012 Malpelo Island DXpedition team now has a Website at <http://hk0na.wordpress.com/>

The Hellenic Amateur Radio Association of Australia plans a major DXpedition to **Lord Howe Island**, July 8-17. Callsign VK9HR, the operation will be on "multiple bands simultaneously to give everyone the chance to contact Lord Howe Island." Originally scheduled for July 8-17, VK9HR Lord Howe Island has now moved back a bit, to start July 23 and running into

August so that they can participate in the RSGB IOTA Contest. [www.lordhowe2011.com](http://www.lordhowe2011.com)

The team heading to **Jan Mayen Island** in July, initially announced as JX7VPA, are pleased to report they have the privilege to activate the island under the unique, special callsign, JX5O, thanks to assistance and support of the LA5O Ringsjoen Contest Club founded by Rag LA6FJA and Svein LA5FHA. Following Norwegian regulations, the allocation of the callsign has been arranged with the Norwegian Post and Telecom Department by the Club's committee.

Stan SQ8X, the JX5O team leader, and the entire JX5O team wish to thank LA5O Ringsjoen Contest Club for the support provided and we are very thankful for the recognition received among Norwegian hams. The team will take and donate a 6 m vertical for JX7SIX – the six metre beacon on Jan Mayen Island, which went QRT in 2007 after mechanical failure. The antenna will be installed by the next maintenance team going to the island after the DXpedition. More news at: <http://janmayen2011.org/>

**JW/G3SVK** will be a one-day operation on 25 July. He will be in the shack of JW5E while making a port call during a family vacation cruise. Fred will operate mostly CW but will "make an excursion to SSB."

Howard WB4WXE is planning a return to **St. Lucia** from 25 June to 15 July. His call will be J68HS with an emphasis on 50 MHz. "However, when 6 metres is quiet, attention will be given to 12 m, 17 m, 40 m and 160 m", says Howard. He will be operating from a location (grid locator FK93) some 2,000 feet above Soufriere.

Antennas will include a 6 element Yagi on 50 MHz, 2 element Yagi for 18 MHz and a vertical for 1.8, 7 and 24 MHz. Howard will be using an Icom IC-706 with Tokyo Hy-Power

HL-550fx 550 watt 1.8-50 MHz amplifier. He will also be taking a 200 watt 6 metre amp for Tot J69MV, a local six metre operator who is QRV on the Magic Band. QSL J68HS via WB4WXE.

FP/K9OT will be on the air again from **Miquelon Island** (NA-032), as always using the famous Room 5 at Motel Miquelon. Paul K9OT and Peg KB9LIE will be arriving at the St. Pierre airport on 21 July and leaving on 4 August. They will operate CW and sideband with capability for 80-10 metres, however the main bands will be 40, 30, and 17. A few nice openings on 15, 12 and 10 are eagerly anticipated. They also plan to participate in the IOTA Contest on July 30-31. Internet access is usually available for log uploads. QSL via LOTW, buro, or direct to K9OT. Website: <http://www.hamradio.pnprfarms.com/>

Joe Musachia KH4/W5FJG arrived May second on **Midway Island** as the chief communications officer. He plans to be active on 40-6 SSB, CW and digital modes starting, he hopes, the last week of May or June 1. He will add 80 m if he can "get a good vertical to the island." He will live and work on the island at least a year. Antennas will be modest, installed to have minimal impact on the island's bird life.

The rig is an Icom IC-7000, but with no power supply and no antennas yet. Joe would love to have "a multi-band vertical or small HF Yagi" donated and wants a QSL manager. Contact him at [joeyjeepusa@yahoo.com](mailto:joeyjeepusa@yahoo.com) Joe's operating times will be weekends and off-duty times on weekdays. He is setting up a website with info on the island and his operating schedule. He hopes to set up a long-term station on the island, so the island can stay on the air after his tour is over.

Laurent F8BBL plans to be back on Corsica as TK11QRP from 23

July to 6 August. Listen for him on CW on 80 through 10 metres running QRP with an FT-817ND and an MP1 vertical. QSL via F8BBL.

Yuri N3QQ and other Russian Robinson Club members plan to operate as KL7RRC from **St. Matthew Island** (NA-232, new one) indicatively between 29 July and 5 August. "Our plans depend on weather, final permission from the US Fish and Wildlife Service and transportation availability". QSL via UA9OBA and N7RO. Check <http://www.na-234.com/> for updates.

Bill V31BG is on from Belize until October 12. QSL to his home call, VE7ISV in British Columbia, Canada.

**VP8ORK:** Don N1DG says the cards have just arrived from the printer. Expect to see these cards by the end of the month for those who submitted via the OQRS.

Vlad RA9LR, ex-S79LR and 8Q7LR, will be on **Langkawi Island**, West Malaysia, as 9M2/RA9LR, mid-May to mid-July. He plans to be on CW, PSK, RTTY and SSB, then travel

on to the **Maldiv Islands**. His total time off work is 21 June to 2 July. QSL to the QRZ.com address, via UA9LP direct or bureau.

Chris ZS6EZ is now active as **9J2RI** and expects to be active from there for up to two years. His operation will be on all HF bands using CW/SSB/Digital. He has a stateside QSL Manager. QSL to: 9J2RI, Box 333, Bethlehem, GA 30620 USA with SASE or SAE and return postage. Please do not send EXPIRED IRCs. Bureau route is OK, but do not expect fast turn-around.

Five German operators will activate **Ascension Island, ZD8D**, 24 July to 9 August. They plan to be on 160-6 m and be in the IOTA Contest the last weekend of July. They will focus on digital modes and CW but will also operate on SSB. Team members are DK1IP, DL7OR, DJ4KW, DL1CW and DJ9KH as team leader. They will have two stations on the air with Yagis, quads and verticals. They are still looking for a sponsor for amplifiers; their rigs will

be Elecraft K3s, 100 watts. A web page is under construction.

Finally world traveller Vladimir Bykov UA4WHX is currently (end of May) in **Egypt** and began activity as SU9VB. So far he has been reported QRV on 17 metres CW and SSB. No word yet on how long he will be there or if this is the beginning of another long trip round Africa. However we do know he will not be QRV on 80 or 30 metres as these bands are reserved for emergency communications only and there will be no 6 metre activity as 50 MHz is apparently not allowed. QSL via UA4WHX with IRC or his first choice PayPal. He requests that you not send cash.

Good luck in the pile-ups!

Special thanks to the authors of **The Daily DX (W3UR)**, **425 DX News (I1JQJ)** and **QRZ.DX** for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)



## Silent Key **Terry Tongs** formerly **VK7TT**

Born in 1925, Terry spent his younger years at Preston just inland from Ulverstone. In those days it was connected with Ulverstone by rail. There, on the farm, he discovered the wonder of radio by building and experimenting with crystal sets.

After attending Devonport High School, Terry joined the No. 7 Elementary Flight Training school at Evandale where his training included Morse code, before joining the RAAF. There, in the communications section, he worked in the message deciphering area and was later posted to Dutch New Guinea, where he started a draftsmanship course by correspondence. On his return home, he secured a job with the Public Works Department in Burnie.

In the 1960s Terry, an active

member of the North West Branch of The Wireless Institute of Australia, studied and gained his full call amateur licence. His knowledge of war time radios led him to acquire an army disposals 122 set and he became a familiar voice on the HF bands, particularly on 80 metres in the evenings. He took pride in improving the set's power output, and experimenting with various ways of obtaining deep amplitude modulation.

He was an expert in transmitter hunting, often taking the family along on club outings. Terry was always willing to operate the club station in the RD contest, and as a Scout Leader, he encouraged scouts to become interested in the hobby on the various jamborees he attended.

After retiring in 1982, Terry moved several times, firstly to Upper Natone,

later to Scottsdale. On returning to a unit in Ulverstone, Terry parted with most of his gear and let his call-sign lapse. Terry was very fond of collecting useful items at "Mitre 11" - his wife's name for the local tip! After taking a trailer load of rubbish to dispose of, he would return with just as much or more stuff. On one occasion he had to hitch a ride home as he had lost his car keys while scrounging. He would spend hours in his shed repairing retrieved items. His specialty seemed to be fan heaters and fluorescent lights.

Terry was farewelled at a large funeral in Ulverstone on Friday 25 March.

Vale Terry ex  
'VK7TasmanianTigers.'  
Winston VK7EM





# Philips PRM80 six metre conversion

Matt Bilston VK3VSN/VK3SMB

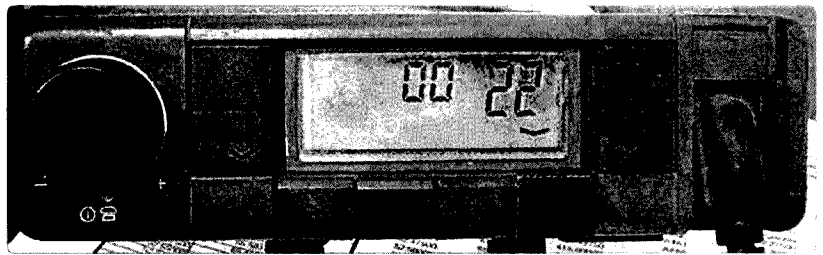
The Philips/Simoco PRM80 radio has proven itself to be a great performer on the 2 metre and 70 cm amateur bands, particularly when dealing with pager interference, and there are quite a few being used as 'high power' UHF CBs. They have up to 160 channels, are software programmable, and have too many options to list. There is also an E Band version of this radio that many have dreamed of using in the six metre amateur band for over a decade; however so far this has not been achieved, so much so that they are being thrown out.....

Until now!

I am not a writer by any means, nor am I an RF engineer, so bear with the article and if you have any suggestions, or recommended changes, please contact the author. In this article I will show not only how to convert the E band PRM80 to six metres using garden variety Jaycar, Dick Smith and Altronics components, but also the processes, formulas and errors made during the R&D process. This modification is more than just plugging a piece of commercial radio equipment into a computer and saying 'I modified a commercial two-way to the amateur bands'. Every part of the board dealing with the six metre frequencies needs to be modified in some way. While you are inside the radio, it is probably not a bad idea to replace all the surface mount electro caps as well. These can be replaced with SMD tantalum or Jaycar has electros in the correct size for a replacement.

## Parts required

- M4 x 0.5 x 12 mm F29 or F16 slugs (DSE R5030)
- 1 mm enamel covered wire (Jaycar WW4022)
- 0.8 mm enamel covered wire (Jaycar WW4020)
- 8 MHz crystal (Jaycar RQ5287)
- SMD caps, package 0805 (or you



The PRM80.

could use ceramic caps), in the following values:

- 12 pF (Altronics R8527)
- 33 pF (Altronics R8524)
- 220 pF
- 180 pF x 2
- 56 pF x 4
- 39 pF
- 47 pF (Altronics R8548)
- 22 pF (Altronics R8536)
- Ceramic caps (or SMD caps if you can find big enough ones to handle the grunt) in the following values:
  - 470 pF
  - 390 pF
  - 270 pF
  - 100 pF x 2
  - 68 pF x 2

## Hardware modifications

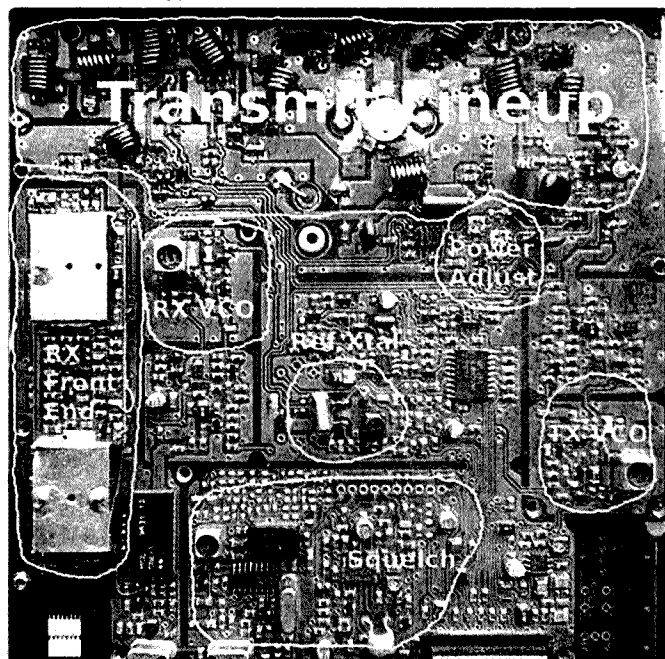
The RF board will have to be removed from the chassis to complete the modifications. Photo 1 shows the areas of the board which will need modification. Please note this photo is of the prototype and there are extra cuts in tracks and very messy component placement as the work was done from the top side

of the board while still in the chassis, so as to quickly see the results of the change.

## VCOs

Both VCOs require modifying to allow them to operate at the frequencies needed. Have a close look at both VCOs. There are two vacant solder pads for capacitors on each VCO. One is linked to ground, the other connects to the inductor. On the receive VCO place the 12 pF SMD cap on these pads and the 33 pF cap on the transmit VCO. See Photos 2 and 3.

Photo 1: Prototype six metre board.



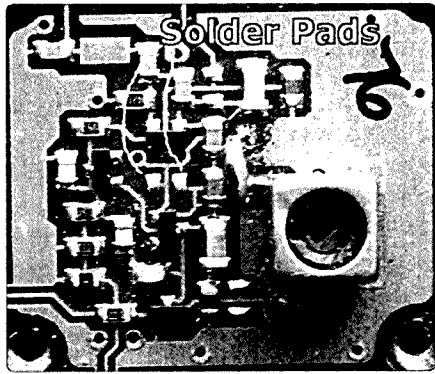


Photo 2: TX VCO.

### Receiver front end

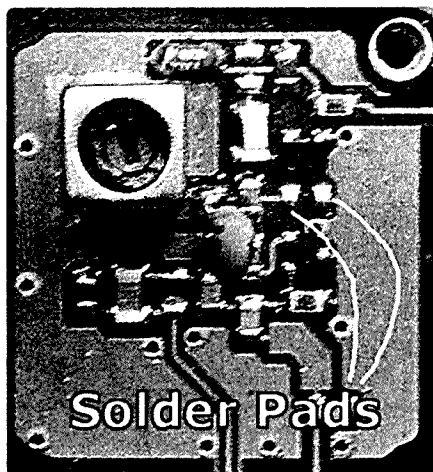
Remove the brass slugs in the four front end inductors. Chop two of the ferrite slugs in half; I used side cutters and it worked, and screw them mid way into the inductors. See Photo 4.

### PA lineup

Wind yourself the following coils:

- A. 1 mm wire, 4.5 turns, inside diameter 3.5 mm and 5.5 mm long, need 2 of these.
- B. 1 mm wire, 6.5 turns, inside diameter 5.5 mm and 7.6 mm long, need 4 of these.
- C. 1 mm wire, 2.5 turns, inside diameter 5.0 mm and 3.3 mm long, need 1 of these.
- D. 1 mm wire, 1.5 turns, inside diameter 5.5 mm and 2.2 mm long, need 1 of these.
- E. 1 mm wire, 3.5 turns, inside diameter 5.5 mm and 4.3 mm long, need 1 of these.
- F. 1 mm wire, 5.5 turns, inside diameter 5.5 mm and 6.5 mm long, need 2 of these.

Photo 3: RX VCO.



- G. 0.8 mm wire, 5.5 turns, inside diameter 6 mm and wound tightly, need 1 of these.
- H. 1 mm wire, 3/4 turns, inside diameter 6 mm, need 1 of these.

Replace the coils as per Photo 5. With the exception of coil G, they should be mounted 2 mm from the circuit board. G will need to be closer so it fits under the lid.

To fit coil H, you need to cut the strip line between the driver and the PA and install it there. About 5 mm closer to the driver from where I have put it is best, however you need to keep in mind mutual coupling between it and coils A and/or C. You can also drill two holes in the board to allow it to be through mounted for strength when operating in mobile conditions. You will need to clear out some earth pad on the other side of the board, though.

Also note with this photo, Photo 5, there is a ceramic cap on the collector of the PA. This is a no-no as there could be extra inductance with the leads. This is a junk box prototype! Photo 6 shows the correct mounting detail for coil H.

There are 17 caps that need changing:

1. 180 pF was 120 pF
2. 270 pF was 180 pF
3. 470 pF was 330 pF
4. 100 pF was 47 pF and 68 pF
5. 390 pF was 270 pF
6. 56 pF was 39 pF
7. 39 pF was 27 pF
8. 68 pF was 47 pF
9. 47 pF was 33 pF
10. 22 pF was 15 pF
11. 220 pF was 180 pF

Replace the caps as per Photo 7.

Using the caps available on the board:

- Move caps 2 and 11 to positions 1.
- Move cap 5 to position 2.
- Move one of cap 6 to position 7.
- Move cap 10 to RX VCO (close enough to 12 pF).

Photo 4: RX front end.



Move cap 9 to TX VCO.

Move one of cap 8 to position 9. From a junky A9 board, you can get two 68 pF large SMD caps from under a loop of wire at the centre rear of the board.

You may find, as I did, that adding the caps from a rubbish A9 board to the caps that need to be changed here will give you the values you need. Ignore the trimmer capacitors in Photo 7, these were installed during the R&D phase....

### Reference crystal

Remove the 10 MHz reference crystal and replace it with the garden variety 8 MHz crystal. Refer Photo 8.

### Programming the six metre frequencies

Here is the part that has had everyone stumped for over a decade.....

If you read all the information on the internet regarding programming frequencies outside the band limits in the PRM80, you can see that the lowest frequency that can be programmed is 58 MHz, using hex editing. How do we get around this? We program the radio in 6.25 kHz steps and now that we have changed the reference crystal by 4/5 the steps have also changed by 4/5, so 6.25 kHz steps become 5 kHz steps. The starting frequency of 58 MHz is 9280 6.25 kHz steps from 0 MHz. So by having 5 kHz steps and programming it as 6.25 kHz steps, we have a starting frequency of 46.4 MHz, and are able to program in 5 kHz steps from here.

As a side issue, if we change the reference crystal to 5 MHz, we change the 6.25 kHz steps to 3.125 kHz steps and the lowest frequency we could get to is 29 MHz..... Hmmm! Using the same theory, we could program a radio as a T band (400 – 440 MHz), use an A9 (VHF high band) board and give the Americans a 200 MHz PRM80.....

Programming the frequencies is

not as straight forward as you would like. The transmit frequencies are easy to

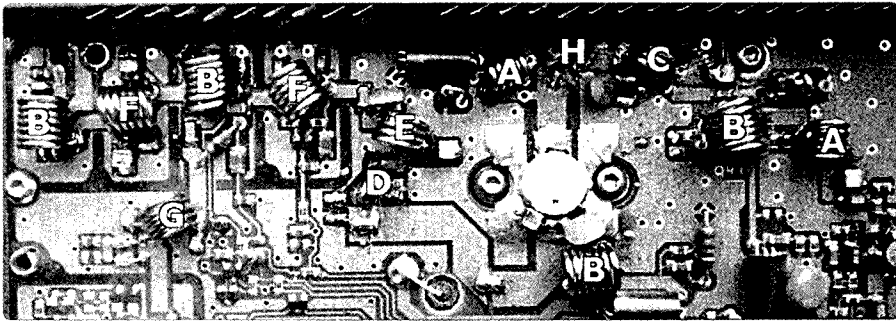
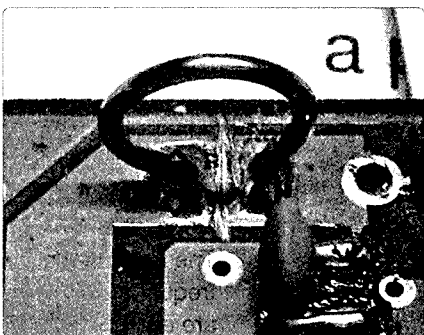


Photo 5: The coils.

calculate as they are the desired frequency multiplied by 1.25, that is, 52 MHz multiplied by 1.25 = 65 MHz. Or by doing it correctly, we divide 52 MHz by 5 kHz and then multiply the answer by 6.25 kHz. The programming software will not allow frequencies to be entered below 68 MHz so they have to be hex edited in or by using the band shift procedure in Jason's document (1). This involves changing the hardware code from E band to TU band in the Phillips programming software and entering TU frequencies. When the hardware code is changed back to E band, the frequencies will change to out of band E band frequencies. On my website (2) there is a downloadable PDF file with the conversions from 6 metres to E band to TU band and Hex Codes as well.

Programming the receive frequencies is harder to calculate again, as we have to take into account the IF (21.4 MHz). What we do here is take the desired frequency (that is, 52 MHz), add the IF to it then divide it by 5 kHz. Then multiply that by 6.25 kHz and take the IF from it. If you have calculated it correctly your frequency will end up between 70.35 MHz and 72.85

Photo 6: The correct mounting detail for coil H.



MHz for frequencies between 52 and 54 MHz. These frequencies can be directly programmed into the PRM80 software.

I will be writing a little program written in VB to allow us to enter six metre frequencies and it will spit out a converted frequency and a hex code to go with it. Again see my website (2).

### Programming hints and ideas

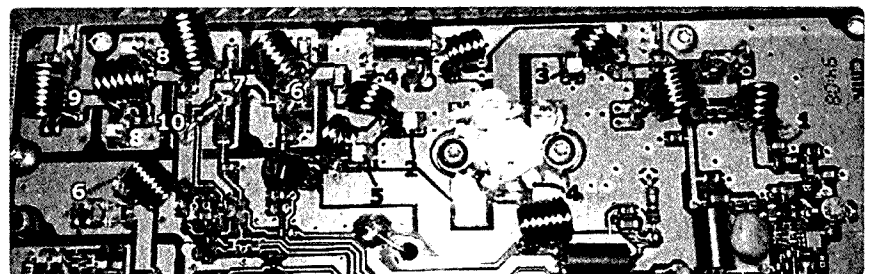
Given the nature of the six metre band, programming one of the buttons at the front to give you access to the mute without turning the radio off and on would be a good idea. Another button with the RSSI programmed in will help with alignment of the receiver. RSSI is received signal strength indicator in Phillips talk. Save your file before converting the radio between E band and TU band as you don't want to lose the last 100 channels you just typed.

### Alignment

Parts of this procedure have been extracted from the Phillips PRM8010 service manual (3). As a minimum you will need the following test equipment:

- A variable signal generator. You could get away with using the local oscillator on a scanner with

Photo 7: The coils, when replaced.



a 21.4 MHz IF and program it to 74.4 MHz and some attenuator pads.

- A dummy load.
- A frequency counter.

A service monitor would be even better.

1. Program a frequency of 53 MHz into the radio.
2. Turn the power adjustment to half way.
3. Set the radio to receive and using the VCO test point set the voltage to 7.5 volts using the slug in the Rx VCO inductor. The reason we want the voltage lower than the nominal 15 V is the varicaps on the front end use the VCO voltage to tune; if we set the voltage too high they may not tune at six metres. Check the lowest frequency of operation (52 MHz) is above 5.5 V.
4. Set the TX VCO to a similar voltage. See Photo 8 for the VCO TP.
5. Using a signal generator, adjust the slugs in the front end for maximum signal, starting at the antenna socket and working your way towards the front.
6. Repeat point 5 twice more.

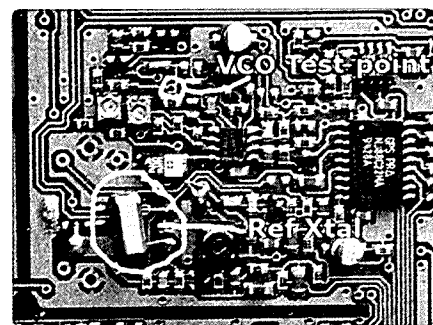


Photo 8: The VCO TP

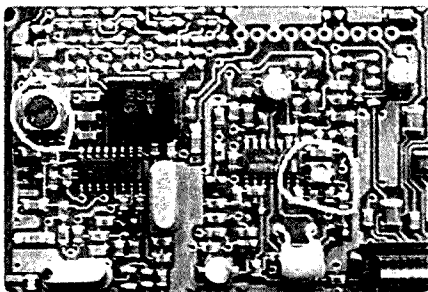


Photo 9: The audio output slug.

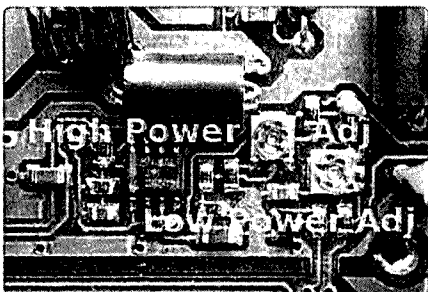
7. Adjust slug for maximum audio output (Photo 9).
8. Disable signal generator, set squelch level to two from the front panel, adjust the trimpot circled in Photo 9 to allow squelch to mute.
9. Select transmit and adjust the power out to 25 W maximum. Refer Photo 10. Check the current is less than 5.5 A. You will need to readjust with the lid on.
10. While transmitting, adjust the slug near the reference crystal to a frequency of 53 MHz. Refer Photo 8.
11. Adjust the deviation on the control board to 5 kHz. Refer Photo 11. If you cannot get enough deviation you will need to change the 68 k resistor near the modulation balance trimpot to 22 k. Refer Photo 12.

For our English friends, the above procedure will work when based on 51 MHz instead of 53 MHz.

You should now have a very sensitive, powerful and stable six metre PRM80 for minimal cost and a winter's afternoon!

Please note these were measured 25 kHz up from the frequency as microprocessor noise was evident.

Photo 10: The adjustment of power, to a maximum of 25 watts.



## Specifications I ended up with

Frequency	Rx sens (12db SINAD)	TX power	TX current
48 MHz	1.173 uV	Nil VCO lock	Nil VCO lock
49 MHz	0.268 uV	19.6 W	4.28 A
50 MHz	0.252 uV	21.7 W	4.58 A
51 MHz	0.241 uV	23.5 W	5.87 A
52 MHz	0.241 uV	24.7 W	5.11 A
53 MHz	0.239 uV	25.3 W	5.22 A
54 MHz	0.241 uV	25.1 W	5.23 A
55 MHz	0.271 uV	24.5 W	5.08 A
56 MHz	0.436 uV	Nil VCO lock	Nil VCO lock
57 MHz	0.456 uV	Nil VCO lock	Nil VCO lock
58 MHz	0.472 uV	Nil VCO lock	Nil VCO lock
59 MHz	0.492 uV	Nil VCO lock	Nil VCO lock
60 MHz	0.518 uV	Nil VCO lock	Nil VCO lock

Four of these radios have been built, one by Phil, the others by myself, we both did it with parts from the junk box, with the exception of the crystal. I had nearly every value but 8MHz! Each of the modified radios ended up with similar specifications. These measurements were taken with a Marconi 2955 service monitor.

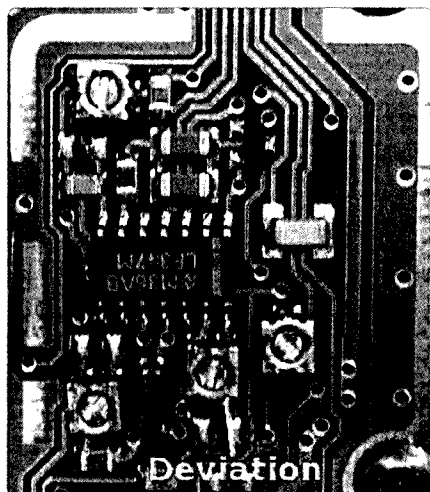
### Errors and headaches during the R&D phase

Many hours of playing has gone into this, particularly trying to work out how to break the magical 58 MHz barrier.

- I went to decompile the firmware in the PMR8030; after seeing the output, I forgot that idea straight away.
- I thought about putting a frequency tripler between the PLL and the prescaler and programming the radio to 156 MHz odd. This was shot down in flames with the availability of something small enough to fit in the radio shield and stability was also going to be an issue.
- I found some 40/41 prescalers. This worked OK at 52 MHz, but due to rounding errors in my mathematics, I was out 80 kHz at 54 MHz. And the steps were quite an odd value. But with Phil clearing the forest so I could see the trees, I found a simple crystal change would have saved me a heap of work.

- After spending around six hours rebuilding the RX front end, changing caps, and so on, I found I didn't need to do all that, all I had to do was change the slugs from brass to ferrite.
- During TX playing, I have managed to damage two PAs as the driver has a staggering amount of gain at 50 MHz.
- After a lot of hair pulling, found out the stripline between the driver and PA is too short, causing it runaway when the case was reassembled due to a mismatch and extra capacitance of the shield.

Photo 11: Adjustment of deviation on the control board.



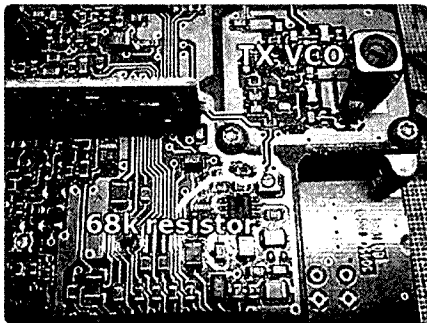


Photo 12: The 68 k resistor.

## Problems

If anyone can think of answers to these I would love to know them.

- The repeater defeat button will not work as the IF offset is different due to the 'hacked' programming. If the VCO did lock it would be transmitting above 60 MHz for frequencies programmed in for 53 MHz.
- Microprocessor noise is evident at quite a few places on the band.

## Thanks to

Jason VK7ZJA for his excellent and thorough documentation on the PRM80, and for exhausting every other avenue before I got to them.

Phil VK3ELV for his ideas and the redevelopment of the PA.

Garry VK3XYX for his donation of 'rubbish' E band RF boards.

And my better half for letting me play in the shack a little longer than usual.

Have fun.

## References

1. Jasons PRM80 documentation <http://www26.brinkster.com/mitaux80/>
2. My PRM80 information <http://www.vk3smb.com/projects/simoco.shtml>
3. Phillips service manual extracts, downloaded from yahoo groups.

## Disclaimer

While all information in this document has been tested by

myself, I offer no liability for any damage caused by using the information within. This document is Copyright and remains the property of Matt Bilston VK3VS. I give my permission for this document to be published in *Amateur Radio*, and similar publications in NZ, UK and USA so long as the original content is not modified in any way other than formatting for the magazine. Remember to identify the case in some way that it has been converted to six metres should the radio end up in commercial hands again.

## Footnote

The author is preparing a follow up article which will address the problems created by changing the reference crystal. The author also notes that he has found that E band FM900s have the correct slugs required.

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# Silent Key **Jamie ("Joey") Dabner VK7KEG**

We regret to let the amateur community know of the passing of Jamie Dabner VK7KEG on Friday 29 April 2011 after a battle with cancer.

Joey came into the hobby as a keen CBer and passed on his enthusiasm to his son Sam who later became VK7FBMX when the Foundation licence became available. Joey was an early adopter of technology and hosted an IRLP node for a long while at his QTH.

When Joey was going for the amateur licence, Chris VK7FCDW can remember for months seeing

little cards (dozens of them) on his desk all relating to the amateur exams, questions and answers. He got there in the end with his full call.

Joey worked for a long time as the gardener at St Johns Park and everyone thought he and the tractor were attached; where ever the tractor was Jamie was, they reckon it was welded to him...HIHI.

He had a love of camping and fishing.

Joey started at the Royal Hobart Hospital at a very young age and later was sent to Peacock Convalescent Hospital to look after

the ground, he used to get into trouble from the matron for eating the apricots off the tree in the grounds by the matron and then got the job of head groundsman at St Johns Park, and when they outsourced the maintenance he elected to go to Medical records at the RHH and really took to it like fish to water before he became ill.

Joey is survived by daughter Mollie and son Sam.

Vale Joey VK7KEG.

Justin VK7TW and Chris VK7FCDW

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Justin Giles-Clark VK7TW  
Email: vk7tw@wia.org.au  
Regional Web Site: <http://reast.asn.au/>

## ILLW

Jim VK3PC reminded the author that VK7 is well represented in the 2011 International Lighthouse and Lightship Weekend. The list at the time of writing was VK7DB at Sandy Cape, VK7EM at Mersey Bluff, VK7HKN at Eddystone Point, VK7NET at Table Cape, VK7KT at Bluff Hill, VK7VTX at Low Head, VK7ZM at Rocky Cape, VK7ZE at Cape Wickham who will join VK3VTH/7 at the Currie Light, both on King Island. It all happens on the weekend of 20-21 August 2011.

## Northern Tasmania Amateur Radio Club

NTARC's May gathering was a dinner presentation at Tranquillity Gardens in the beautiful Tamar Valley. Presenter was Stuart from the Australian Customs Service and by all accounts it was a great talk about how the service is protecting Australia. Stuart's talk included pictures of the vast array of people, technology and animals used to detect and prevent harmful items and illegal items from entering Australia. Thanks go to Dion VK7DB for the recent TLC to the VK7RAL repeater on Companion Hill.

During the Space Shuttle Endeavour's May trip to the International Space Station, Rick VK7HBR's EchoLink node was heard in Launceston with the mission audio feed going out on 145.425 MHz and thanks to Rick for this historic audio transmission.

## Cradle Coast Amateur Radio Club

Congratulations to Steve Terris who has successfully upgraded from VK7FUBI to VK7NZL. We look forward to hearing the new callsign on the air.



The author (left) interviewing Dave VK4ICE on air in the DATV studio (Photo courtesy of VK7DY).

## North West Tasmanian Amateur TeleVision Group

Interested in training or assessments for an amateur radio licence in the North West region of Tasmania? NWTATVG can provide this as well as facilitators from the Radio and Electronics School. For more information, please contact the Club's Learning Organizer Tony VK7AX.

## Radio and Electronics Association of Southern Tasmania

Congratulations to REAST on successfully obtaining a \$1000 grant to provide scholarships to cover Foundation training, assessment, licence fees and membership of REAST and the WIA. Discussions with a local High School are well underway and training will commence soon.

REAST's May presentation continued our Antarctic theme with a fascinating presentation by Alan VK7KAJ. Alan has wintered in Antarctica over five expeditions as a radio technician at both Mawson and Davis stations. Alan's talk and slides were focussed on the technology

used by each expedition and the maintenance and unique conditions that Antarctica presents to the radio tech. Alan also gave an idea of the living conditions and of some very humorous activities and events. Thanks Alan.

A group of interested families gathered at the clubrooms for an introduction to art and science of Geocaching

one May weekend. After a short introduction and demonstration we trekked off into the bush of the Queen's Domain to find a nearby cache. Warren VK7FEET's geo-kids Joey and Ryna pulled the hidden treasure and signed the logbook. A great afternoon was had by all.

Our DATV nights are very popular with a great crowd each Wednesday night. Some of the topics included: Review of the RSGB produced CD-ROM - 50 Years of Technical Topics from Pat Hawker G3VA, putting a second battery in a vehicle, sync generation using a commercial Tektronix unit, review of the latest Silicon Chip magazine, Arduino Duemilanove microcontroller board and On Screen Display chip enabling a DATV watermark for the studio and our new video mixer with chroma-key capability. We have also had many great video presentations that have been added to the video library. One memorable live interview was with Dave VK4ICE and XYL Cheryl who visited and Dave took the viewers through his antenna experiments.

# The 'DTMF engine'

Dale Hughes VK1DSH

This project started out as a simple 'Dual Tone Multi Frequency' (DTMF) encoder so that I could access the local IRLP node. However it turned into something more complex and interesting; for the want of something better I have called it a 'DTMF engine'. So what can it do?

1. Send DTMF tone sequences, either 'live' from the local keyboard or from previously stored number sequences. The unit can generate the 16 standard DTMF tones and can send sequences of tones much like a standard telephone. The tone output can be connected to the microphone input of a transceiver and tone sequences can be sent to access IRLP nodes or perform other tasks that might require DTMF tones.
2. Receive, decode and display DTMF tones and tone sequences.
3. Send and receive short text and/or remote control messages to addressed units. Messages may be addressed to specific call signs and may be either a text message up to 32 characters long, or the message may be to turn 'on' or 'off' a digital output on the addressed receiver. Eight digital outputs have been provided for remote control purposes. Specific 'user' call signs can be set so that only certain users have access to the remote control functions at any given receiver. The text and remote control messages are compressed and 'packetised' with source and destination addresses and 16 bit Cyclic Redundancy Code (CRC) word added to each message packet. This provides a robust and reliable messaging system similar to that available from mobile telephone handsets. The messages are sent as a sequence of DTMF tone pairs.



Figure 1: The DTMF engine with optional pick-up microphone. Connections to the radio and 12 VDC are on the back of the unit and operator connections (microphone and key) are on the front. The prototype unit was built into a small home-made enclosure that could sit adjacent to the transceiver.

4. Generate and send Morse code characters, either from a local 'paddle' type key or from previously stored message strings. In this mode a number of output options exist: the CW signal can be sent as an actual tone which can be connected to the radio microphone input, or the CW output can be sent as logic levels which can be connected to the 'key' input of most transceivers. Operator name, call sign, location and CQ messages can be stored and recalled at any time. The frequency of the generated tone and keying rate are user adjustable via menu options.

For all of the options above, the unit can provide appropriate 'Press-To-Talk' (PTT) control as well as the tone signalling output which can be

connected to your transceiver. The 16 button key pad can generate all of the alphabetic characters, numbers and a limited set of punctuation and other symbols in much the same way as that provided by the key pad on a mobile telephone. In use, all of the system options are accessed through a simple menu system and the user is prompted along the way.

The following text provides background information on DTMF signalling as well as a description of the messaging and remote control format used in the DTMF engine. A detailed description of the circuit design is also given.

## DTMF background information

DTMF signalling has been used in conventional line and radio telephone systems for many years. The system allows one of sixteen numbers to be

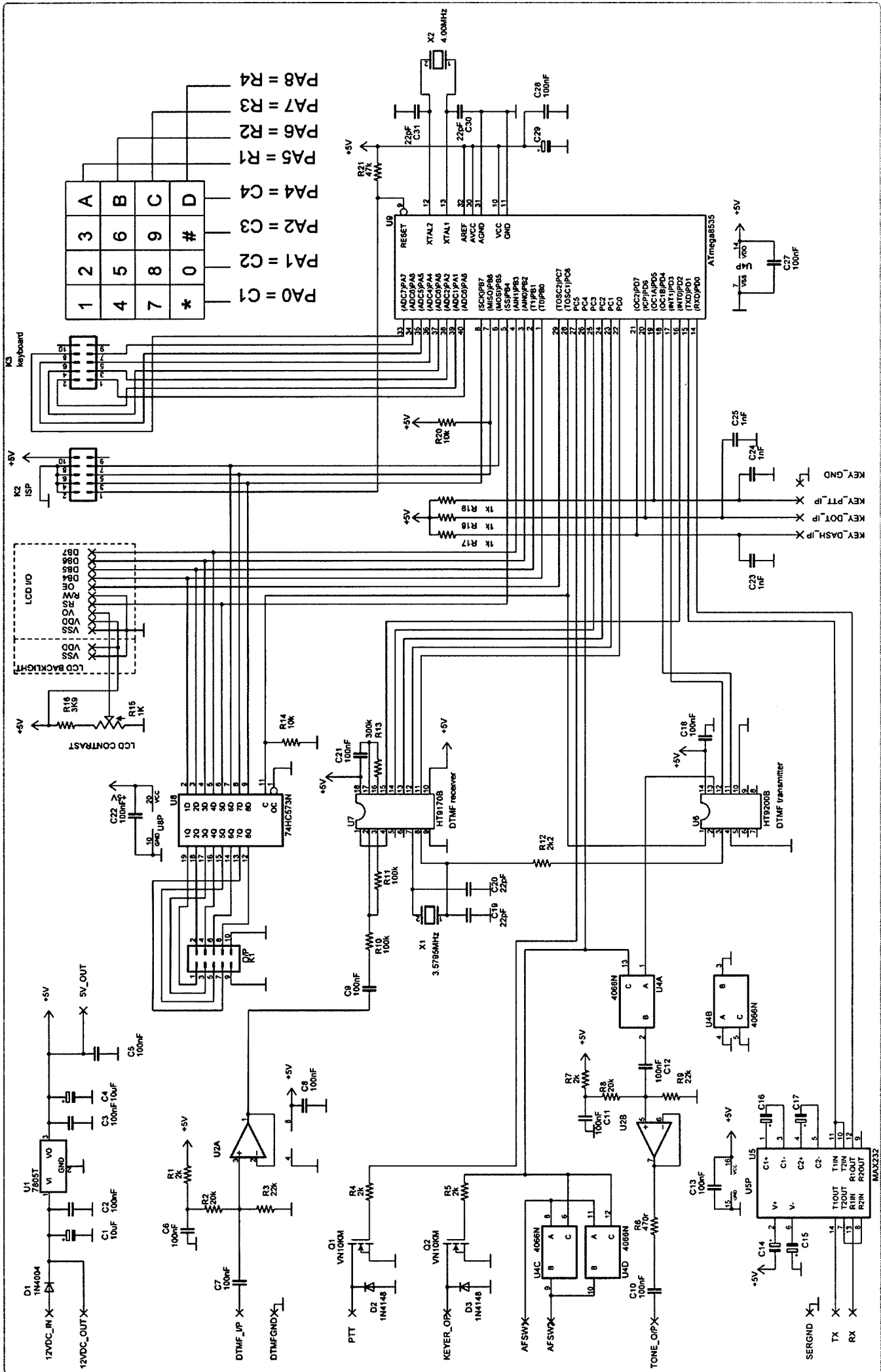


Figure 2: Schematic diagram of the DTMF engine.



sent by transmitting a combination of two tones from a specified set of tones. This is best described by viewing the tone pairs as a matrix on table below:

	1209 Hz	1336 Hz	1477 Hz	1633 Hz
697 Hz	1	2	3	A
770 Hz	4	5	6	B
852 Hz	7	8	9	C
941 Hz	*	0	#	D

Table 1: DTMF tone matrix.

It can be seen that any one of 16 characters can be made up by any two of eight possible tones. When a character is sent, two tones are simultaneously transmitted, for example, the '8' character is sent using the frequencies 1336 and 852 Hz. Note that there are four characters (A,B,C and D) that are not usually available from a standard telephone keypad but these are available from the DTMF engine.

As these tones are used in virtually every telephone system throughout the world, there are low cost chips readily available which can generate and receive/decode the DTMF signals. The stability of the generated frequency is ensured by the use of quartz crystal oscillators. There are a number of different chip-sets available from the major suppliers and I choose the Holtek HD9170 and HT9200 pair which are available from Futurlec (1). Functionally similar chips are available from other manufacturers, some of which are pin compatible with the Holtek devices. Both parallel and serial interface styles are available depending on the users need. Datasheets and application notes for the DTMF chips can be obtained from the Holtek website (2).

## Circuit description

The heart of the system is an Atmel ATmega8535 microcontroller (U9). This chip controls the DTMF chips, the display, keyboard and various inputs and outputs. The chip contains 512 bytes of static RAM which is used to store messages and volatile configuration details. It also contains 256 bytes of EEPROM which are used to hold non-volatile configuration information such as user call signs, signalling rates and so on. The user interface consists of a two line by sixteen characters Liquid Crystal Display and a sixteen button keypad. The microcontroller runs at 4 MHz and can be programmed in-situ through its ISP port.

The LCD uses the 4-bit interface mode as this saves a number of Input/Output (I/O) lines from U9. The 16 button keypad is scanned and de-bounced by software.

The two DTMF chips are clocked by a 3.5795 MHz crystal with the DTMF receiver (U7) providing the clock signal to the DTMF transmitter (U6). DTMF tones that are received from the input are decoded by U7 and passed to the microcontroller via a 4-bit buss. When a valid tone is received, U7 signals the microcontroller by asserting pin 15 which generates an interrupt causing U9 to read the received DTMF 4-bit code. The audio input to U7 is passed through voltage follower (U2a) which is one half of a dual operational amplifier. As the amplifier is running

on a single voltage supply, the bias point of the amplifier is set by the voltage divider on its input and the AC coupled output isolates the output offset voltage from the input of the DTMF receiver. The input stage is not strictly necessary but it provides a useful amount of isolation and protects the DTMF receiver from adverse situations.

The DTMF transmitter (U6) is controlled through a serial interface to the microcontroller. A clock and data line send a 5-bit code from U9 to U6; the code selects one of the sixteen possible DTMF tone pairs, or one of eight possible single tones, or can switch off the output tone altogether. When the unit is configured to operate as a CW keyer, U6 is setup to only transmit a single tone and the operator can select which tone frequency is used via a menu option.

So that the duration of the output tone (either a DTMF pair or a single frequency for CW) can be accurately controlled, a 74HC4066 analog switch (U4) is used to gate the tone through to the output amplifier (U2b). Control of U4 is by means of a digital output line from U9 and the control line also passes to a transistor (Q2) which can be connected to the 'key' input of a CW transmitter if required. Two analog gates are also switched and can be used if required. Note that this output is separate to the 'press-to-talk' (PTT) output which is asserted whenever the unit enters 'transmit' mode (either for sending DTMF tones or for sending CW messages).

An 8-bit latch (U8) is provided for remote control functions and the user can turn each output on or off remotely by sending the appropriate codes to an addressed unit. The output latch shares the I/O lines of U9 with the LCD. Separate latch-enable and LCD enable lines ensure correct operation of the different hardware. The TTL level output of the latch can be connected to relays or indicators using suitable interface transistors.

If required, a simple 'paddle' type key can be used to send Morse code; dot, dash and PTT inputs are pulled up through 1k resistors. An RS232 interface (U5 and associated components) are shown on the schematic diagram and the interface was included for possible future development, but the current software version does not support their use.

For most applications the audio input will be from a high level source, for example, a loud speaker or headphone output from a receiver, but for applications where it might be necessary to use a microphone to pick up the DTMF tones a simple audio amplifier is provided on a separate PCB. The amplifier uses a low cost op-amp and provides a gain of 100. I found that a small electret microphone was very suitable and could pick up DTMF tones from some distance away.

## Software

As is the trend in our increasingly digital world, most of the sophistication is in the software and that is hard to describe in the same way that a circuits operation may be described. The software which controls the unit is written in assembler code using the Atmel Studio4 software, the source code is available to anyone who would like to use it.

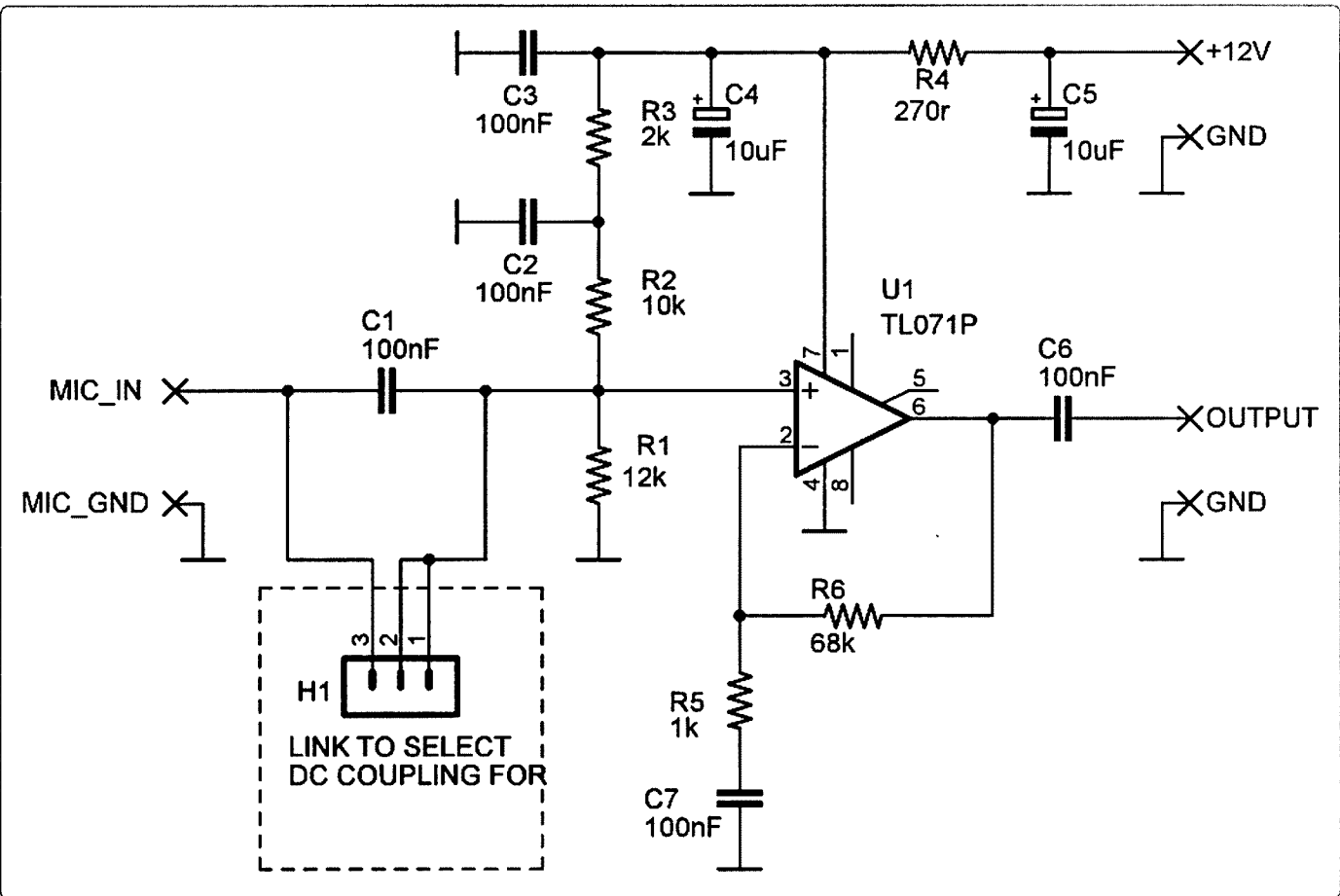


Figure 3: Schematic diagram of the optional audio pre-amplifier. If an electret microphone is used it will be necessary to link pins 2 and 3 on header H1 so that a DC bias can be applied to the microphone element. No link is required if a dynamic microphone is used.

The main functional area that is worth discussing is the messaging and remote control functions as these are the most complicated part of the software. Short text messages up to 32 characters can be sent from one unit to another. The message structure is as follows and each 'packet' contains the following:

Destination call sign:	8 bytes	(who receives the message)
Originating call sign:	8 bytes	(who sent the message)
Command field:	1 byte	(message type)
Message field:	32 bytes maximum	(text or command)
CRC word:	2 bytes	(error checking)

Each byte is transmitted as two sequential DTMF tones: one tone for the most significant four bits and another tone for the least significant four bits. However to increase the transmission speed, the message (except for the 16-bit CRC word) is compressed. This is done by squashing each eight-bit character into six bits before transmitting as follows:

Original four ASCII characters:	0123 (for example)
Hexadecimal equivalent:	30 31 32 33
Subtract 20 (hex):	10 11 12 13
Squash into 3 bytes:	41 14 93

This works because the character set has been restricted to the ASCII characters that can be represented in six bits, but this turns out to be no restriction as it covers all the 26 character alphabet (upper case only), numbers and common punctuation symbols. This range of ASCII characters spans the hexadecimal values 20 to 5f which needs seven bits for transmission, but by subtracting hexadecimal 20, the range is changed to 00 to 3f which only requires six bits. Hexadecimal 20 is added by the receiver when the message is expanded for display. The end result of all of this is that any given message can be made 25% smaller which reduces transmission time. Transmission time for a typical message is several seconds depending on the tone duration set by the user and this can be adjusted to suit propagation conditions or other factors. As opposed to other forms of serial transmission there is no requirement for the receiver and transmitter to be set for the same timing as the DTMF tone generator and receiver are completely independent.

The CRC check is a means of ensuring that the message is received without error. Using this technique each message is considered as one long 'number' and is divided by another number (usually called the CRC or generator polynomial). The division process is done by bit shift and exclusive OR operations; the result of this

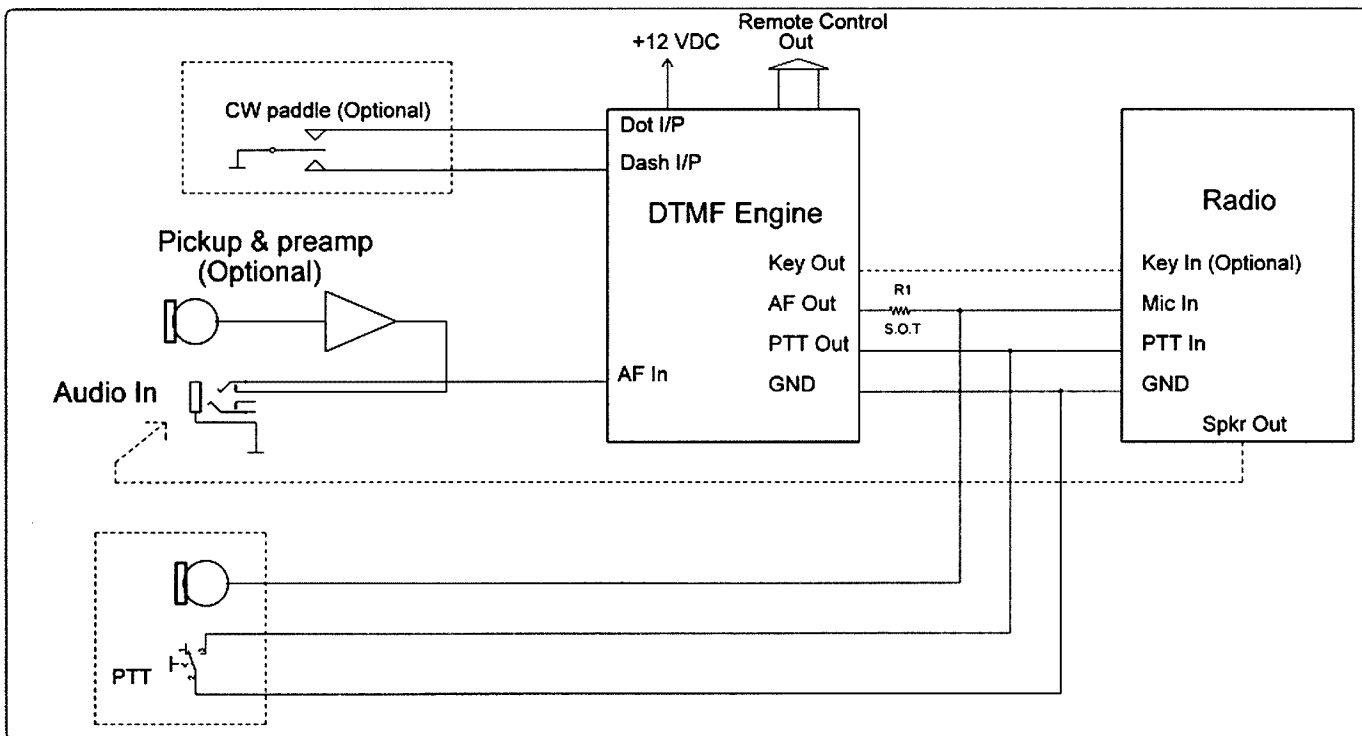


Figure 4: Interconnections between the DTMF engine and external devices. The arrangement allows flexible connection options to most transceivers. Optional connections are shown by dashed lines. The value of R1 will need to be experimentally determined so that the tone input to radio microphone input has the correct level.

calculation is a two byte 'remainder' which is called the Cyclic Redundancy Code. Before transmission the CRC is appended to the message. When the message is received the receiver calculates the CRC and compares the locally calculated version with that which was received and if they are equal the message is assumed to contain no errors. If the received and calculated CRCs are not equal the message is assumed to be corrupt; depending upon the system the receiver may ask the sender to send the message again; or as in this case, the receiver ignores the message.

So how does the user know if the message has been correctly received? The receiver checks the message and if no errors are detected the receiver transmits an acknowledgement signal – the Morse code 'R' character in this case – and the originating operator will hear the acknowledgment code and know that the message was received correctly.

If the polynomial is correctly chosen, there is a greater than 99.99% chance of detecting all possible errors: good enough for our requirements. The mathematics which underlies the CRC process is quite complex and interested readers will find a considerable amount of information is available on the internet (3). Atmel provide an application note which explains the process and provides some software examples (4).

Note that this whole process is transparent to the user and based upon well established 'packet' radio techniques except that no automatic re-transmission take place if an error is detected. The system is not designed to compete with existing packet radio or other data

transmission systems, but to simply try something new and to encourage experimentation – something fun and functional!

### Construction notes

The circuit is quite straightforward and all of the components are mounted on a double-sided printed circuit board. No surface mount components have been used in this design as all of the parts were available in leaded versions. Artwork for the printed circuit board and assembler source code are available to anyone who would like to make a unit.

### Suppliers

The DTMF generator and receiver chips and the Atmel microcontroller are available through Futurlec, as are many of the other more common components. All the other components are available through the usual suppliers.

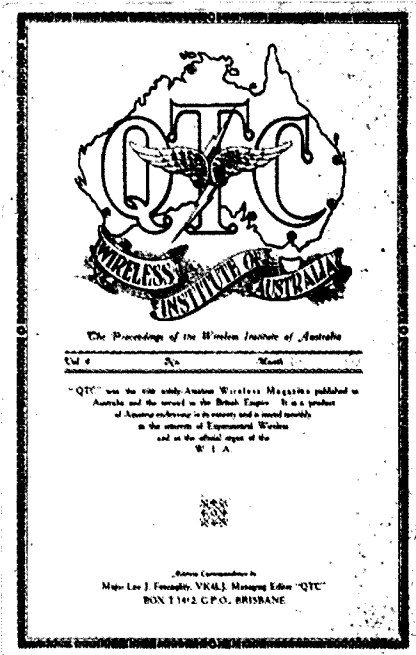
### References

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2. DTMF chip data sheet and application notes.  
<http://www.holtek.com>
3. CRC theory and information.  
[http://en.wikipedia.org/wiki/Cyclic\\_redundancy\\_check](http://en.wikipedia.org/wiki/Cyclic_redundancy_check)
4. Atmel CRC software example  
[http://www.atmel.com/dyn/resources/prod\\_documents/doc1143.pdf](http://www.atmel.com/dyn/resources/prod_documents/doc1143.pdf)



# Hamads

## WANTED – NATIONAL



Early copies of QTC magazine. The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves.

QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire!

The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only.

Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.

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## FOR SALE – SA

A short ham radio adventure book written for children and teenagers but suitable for all ages. Details are at [www.vk5sw.com](http://www.vk5sw.com) Cost is \$20, which includes postage. Contact Rob VK5SW QTHR

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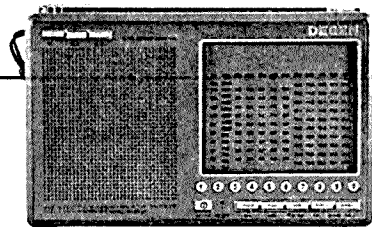
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*56 ITU Radio Regulations*

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# WIA Annual Conference in Darwin | 27 - 29 May 2011



Spud VK8ZWM and Michael VK3KI.



Another group enjoying the Friday night function.



Spud VK8ZWM with the Registration team.

At the Darwin Trailer Boat Club on Friday night.



Sunset view from Mindil Beach.



Members gathering for the AGM.



Michael VK3KI presents Spud VK8ZWM with an engraved tray.



AGM/Open Forum participants during a break in proceedings.



Trent VK4TI chatting with Director Peter VK3MV.

Local legend Frank VK8FT.



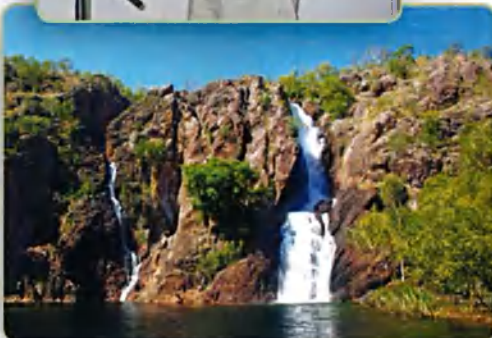
A group at Litchfield National Park.



Some views of people and places from the recent WIA Annual Conference, held in Darwin over the weekend May 27-29. A highlight of the weekend was a visit to Litchfield National Park on Sunday. Main photo is from the Darwin Trailer Boat Club (photo by John VK3PZ). Other photos by Doug McArthur VK3UM, Dianne Ashton VK3FDIZ, Clive Sait VK4ACC and John Longayroux VK3PZ.



Doug VK3UM with Terry VK8TA.



Wangi Falls in the Litchfield National Park.

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# Amateur Radio

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### This month's cover

This month our feature article is a report on Wally Green VK6WG, who is approaching his 100th birthday. The main photo shows Wally's antennas, and clearly reveals his interest in frequencies VHF and above. These dishes are permanently pointing East, in the direction of South Australia and Victoria, thousands of kilometres away. The inset photo shows Wally smiling alongside a recently constructed portable dish for 10 GHz. Both photos by Doug Friend VK4OE.

## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

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### Photostat copies

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# Editorial

Peter Freeman VK3PF

## Milestones

August sees two amateurs reach a very significant milestone – their 100th birthday.

We feature one of these amateurs on the cover – Wally Green VK6WG. As you will see from the accompanying story, Wally has been an active amateur for a long time, and has held significant distance records on VHF, UHF and microwave bands. Many of these records stood for a very long time and were made with homemade equipment. Wally is still a very sought after contact, with many stations in the eastern half of the continent looking to the west when it looks like conditions may exist for tropospheric ducting across the Great Australian Bight.

I am also aware that Pierce Healy VK2APQ also “hits the ton” in the middle of August. I am aware that Peter Wolfenden VK3RV recently paid Pierce a visit for an interview, so I am sure that we will be able to publish a story about Pierce in an upcoming issue of *AR*. Pierce has been very prominent in amateur radio matters in VK2 over the years.

Congratulations go to both of these prominent amateurs on reaching this significant milestone.

## A busy weekend

I have just returned from a local venue where around 70 amateurs gathered for a social meal prior to GippsTech 2011. The last week or so has been busy in finalising preparations for the event, for all the members of the Eastern Zone ARC committee.

We are expecting just over 100 amateurs to attend the conference this year. We have a packed program of technical presentations, but with hopefully enough breaks to facilitate the informal discussions that are an integral part of a gathering of like-minded individuals. In addition to the technical program, a number of amateurs are accompanied by their partners, who will participate in their own program.

The weather in Gippsland is looking to be bleak for the weekend

– we have a series of cold fronts coming through, with strong winds coming from the far south. These conditions may impact the partners' tour, but should not be a problem for the amateurs at the technical program – I trust that the heating system will be working correctly for the weekend!

Hopefully one of the attendees may prepare a report on the weekend's activities so that interested readers can share the experience from a distance.

During the weekend, it will be my pleasure to present our regular columnist David Smith VK3HZ with the Al Shawsmith Award for Journalism, announced at the AGM in Darwin. David writes the *VHF/UHF – An Expanding World* column, focussing on weak signal communications, with support from Brian VK5BC for 6 m activity and Rex VK7MO on matters digital.

## New arrangements for contributions to AR

At its last meeting, the Publications Committee (PubCom) decided that all articles, columns and Club news items should be submitted through a single gateway – via the PubCom Secretary. The Secretary is Ernie Walls VK3FM, who can be reached through the email address [armag@wia.org.au](mailto:armag@wia.org.au)

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Electronic submissions are preferred for all contributions, as it reduces the workload on our team of volunteers. If in doubt, look at the guidelines for contribution to the magazine, available on the WIA website at <http://www.wia.org.au/members/armag/contributing/>

Everyone is reminded that all material for an issue of *AR* must be submitted by the first day of the month prior to the cover date of the magazine when the item should appear.

Continued on page 5



# WIA comment

Michael Owen VK3KI

## The IARU

Recently we have stressed the importance of the ITU, the International Telecommunication Union, the United Nations agency responsible, among other things, for the coordination of the radio spectrum. Most countries are Member States of the ITU, which exists by way of a treaty between the countries, and by which they generally agree to be bound by ITU decisions in respect of the use of the radio spectrum.

The ITU is divided into 3 sectors, Radiocommunication (ITU-R) which is the most important sector for us, Development (ITU-D) and Standardisation (ITU-T).

The amateur services exist by virtue of the treaty between nations that is the ITU's Radio Regulations. It is the "amateur services" because the Radio Regulations defines both the "amateur service" and the "amateur-satellite service". The Radio Regulations set out the basic regulations that govern the amateur services, as well as the frequency bands the amateur services can use, though it is up to each country to apply those treaty provisions through their national laws.

The Radio Regulations are reviewed and revised by the ITU's World Radiocommunication Conferences (WRC) held every four or five years, in accordance with agendas set by previous WRCs.

Because the Radio Regulations is a treaty between countries, it is the 192 ITU Member States, the countries that are the members of the ITU, which participate in a WRC.

The process leading to a WRC is lengthy, and a little convoluted.

And, if a position is lost during that process, it is probably true to say it is not going to be recovered.

Each agenda item for a WRC is studied by one or more ITU-R Study Groups or Working Parties, ultimately leading to the formulation of the technical options that could meet the particular agenda item.

But at the same time, the Regional Telecommunication Organisations, the RTOs, such as the Asia Pacific Telecommunity, prepare through their own series of meetings of countries to adopt positions for the next WRC that are common for the countries in region.

How, in this long running and complex process, do the radio amateurs protect their interests?

The answer is, in fact, in two ways.

Critical to the representation of the amateur interest is the International Amateur Radio Union, the IARU. The IARU was formed in 1925 and its members are the national amateur radio societies in each country. It is a federation of national radio societies, with an International Secretariat provided by the US national amateur radio society, the ARRL.

The IARU is a recognised international telecommunication organisation, and as such is Sector Member of the ITU-R, and also the ITU-D.

As a Sector Member, the IARU participates in the various ITU-R and ITU-D meetings that affect directly, or could indirectly affect the amateur services. The IARU participates in ITU-D meetings because that is where emergency communications are addressed and ITU-R meetings because they directly lead to a WRC, including the ITU-R Study Groups and Working Parties that deal with agenda items for a WRC that directly or indirectly affect the amateur services.

The IARU includes the three IARU Regional organisations of IARU

member societies in each of the three ITU defined Regions.

The three IARU Regional organisations represent the amateur services to the RTOs in their region, and also provide two members each of the IARU's Administrative Council, which meets annually and which formulates broad IARU policy.

Because it is not a "country", the IARU is an observer at a WRC, where its role is to inform and, to an extent, coordinate.

It is through the regional IARU organisations that the national radio societies participate directly in the IARU, in our case through the IARU Region 3. The WIA contributes to IARU by paying a subscription, currently 65 Yen (around 75 Australian cents) for each "transmitting member". In addition, the WIA participates in the IARU Region 3 Conferences held every three years, which is the opportunity to contribute directly to IARU policy, involving the costs of its representatives.

The other way that amateurs protect their interests is directly through their own national amateur radio society.

Many countries, including Australia, accept the national amateur radio society as a participant in the national preparation process for a WRC or at least take into account the representations of their national amateur radio society in formulating their position for a WRC.

Some countries, including Australia, accept the nomination of their national amateur radio society of an appropriately qualified amateur as member of the national delegation to the RTO's meetings, the ITU preparatory meetings and a WRC.

Continued on page 5

## Change in callsign recommendation procedure

From 8 July 2011 a change has been made to the procedures for a Callsign Recommendation for a two letter callsign in Queensland, New South Wales and Victoria.

Since 1 December 2010 the procedure in respect of two letter callsigns in those states has been that no callsign recommendation can be made until seven days after a callsign is placed on the Public List, (the list of available callsigns on the WIA website) to allow someone who has inadvertently allowed a licence to lapse to claim back the callsign.

Applications for a two letter callsign were still required to be lodged by mail, but after the seven days had elapsed, if there was more than one application for a callsign and the callsign has not been claimed back, then the applications were drawn at random in the presence of a WIA Director, Secretary or Treasurer. This ensured that those living in more remote areas, without Express Post, were not disadvantaged.

Now applications for a two letter callsign in Queensland, New South Wales and Victoria may be sent by mail, facsimile, scanned and sent by email, or delivered by hand to the WIA office.

After the expiration of seven days, the ballot procedure will determine the applicant who will receive the Callsign Recommendation.

In addition, fees paid by unsuccessful applicants will be retained until the callsign has been allocated by ACMA, and if the callsign is not allocated, then the next applicant drawn would be offered the callsign and the fees will only be refunded to unsuccessful applicants after the ACMA has allocated the callsign.

The WIA cannot accept a standing application for a two letter callsign, as the application for a

Callsign Recommendation must always relate to a particular callsign.

## Renewing amateur licenses – a reminder

Recently an amateur forgot to renew his licence because he failed to advise the ACMA of his new address, and was upset when his two letter callsign was allocated to someone else.

The "Comment" in the June 2009 issue of *Amateur Radio* addressed this problem in some detail, and further information can be found on the WIA website [www.wia.org.au](http://www.wia.org.au) under the tab "Australian amateur licensing and callsigns" under the button "Get your Amateur Radio Licence".

The Radiocommunications Act does not impose on ACMA an obligation to issue a renewal notice. ACMA does so, but failure to receive a renewal notice is no excuse for not renewing a licence.

Obviously, failing to notify the ACMA of a change of address will mean that even if the ACMA does send a renewal notice, it will go the wrong address.

But the Act does provide that a licence can be renewed from 6 months before and 60 days after its expiry date. It is the licensee's responsibility to ensure that the licence is renewed in that time.

A callsign is only a condition of a licence, and if the licence is not renewed, after 60 days from the expiry date the callsign will be placed on the Public List, (the list of available callsigns on the WIA website) and after seven days the WIA will issue a Callsign Recommendation to whoever wants that callsign.

## Ham radio far from over or out

That is the headline of a lengthy well-researched article by Katie Cincotta in *The Age* newspaper published on 8 July 2011, which features many aspects of amateur radio.

It begins with a picture of Justin

Stewart VK3FLIP and Monique Golub VK3FWPZ as the youngsters take to the airwaves at Sherbrooke Community School and is peppered with personal accounts of activity. Maths teacher Edward Seeto VK3LIP of the Sherbrooke Community School, which has its own radio club VK3KID, demonstrates on a hand-held radio, typing in a code on a keypad and accessing a web-enabled local repeater to connect to a user in Dallas, Texas.

Another relative newcomer is Richard Holmes VK3TXD, keen to dispel the amateur radio stereotype of old blokes tinkering in beeping sheds. He hopes a new generation will find clever ways to evolve the hobby and embrace its global connections. One of the main things that got him into the hobby was the lure of long-distance or DX contacts.

The article touches on the serious side of things. Amateur radio proved itself to be relevant and invaluable during recent natural disasters in Australia, Japan, China, Pakistan and Haiti. It quotes veteran Doug McArthur VK3UM on his Black Saturday bushfires experiences, and even before that, the aftermath of Tropical Cyclone Tracy in 1974. Of course his moon-bounce and beyond exploits from the giant dish on his country property are featured.

Eastern and Mountain District Radio Club president Jack Bramham VK3WWW regards amateur radio as the original social network. The other pursuit of Jack is ARDF (Amateur Radio Direction Finding), an electronic version of orienteering that's also called radiosport or fox-hunting.

Wireless Institute of Australia spokesman Jim Linton VK3PC says one of the biggest things to happen to amateur radio is the removal of Morse code as a minimum requirement for an operator to obtain a licence. The Foundation licence is now simple enough for young children to acquire, although many

progress to the higher grades as Standard and Advanced which give them more privileges.

The two-page article featured in the newspaper's well-read Green

Guide and promoted on page 2 in the main editorial section, notes 20,000 Australians have amateur radio licences, with increasing interest being shown by younger

people and women. The article which involves wide research giving coverage to amateur radio, concludes with some useful links to get more information.



## Editorial

Continued from page 2

For example, for an item to appear in the September issue of *AR*, the material should be with us by August 1. Regular contributors have a more detailed schedule which does ask for regular contributions to occasionally be submitted a few days earlier. But the absolute deadline, if we are to maintain adherence to our

production schedule, must be the first of the month prior to publication.

These details are included in the left-hand column on page 1 of each issue of *AR*, with the details updated commencing with this issue.

### Editor changes email

Effective immediately, I can be

reached through a new email address: [editor@wia.org.au](mailto:editor@wia.org.au)

The old address will continue to operate for a period, but please change your address book to the new address as soon as possible.

Cheers,

Peter VK3PF



## WIA comment

Continued from page 3

Only some countries take this position, and only some national radio societies can afford to meet the quite high costs involved, because it is the society and not the government that meets the costs involved.

It is obvious that the national amateur radio societies cannot each put a position that is different from each other society. To succeed, in this whole long and complex process, national societies must put common positions, and it is through the IARU that common positions can be developed, and through the IARU

that these positions can be put to the Study Groups and Working Parties and to the different RTOs.

The WIA nominates its representatives for the Australian national preparatory processes and on Australian national delegations and meets its representative's travel and accommodation expenses.

That expense would not be justified if our representatives were working in a vacuum, without having a basic position consistent with the position being put by the amateurs in other countries.

Its Constitution defines the primary role of the WIA as being "to promote, advance and represent in any way it thinks fit Amateur Radio and the interests of Radio Amateurs". The WIA could not effectively do that in the forum that ultimately matters most, a WRC, without the IARU, as collectively we can best protect our existing spectrum access and develop common position on new spectrum allocations.



## Major Australian contests/activities for August

### 13/14 Remembrance Day Contest

See <http://www.wia.org.au/members/contests/rdcontest/>

### 20/21 International Lighthouse/Lightship Weekend

See <http://illw.net/>

### 27/28 ALARA Contest

See <http://www.alara.org.au/>

# VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY



*AHARS members hard at work on the Guide Hall refurbishment.*

This month we had a very interesting and topical talk about the installation of solar panels on our roofs. It was the solar electric panels in particular that Peter VK5TZX spoke about. He is involved in installing these panels.

It was very informative to know how the placement of the panels is planned and the good and bad ways to do this. It appears that it is necessary to have an air space between the roof and the panels.

The quality of panels can vary considerably, so the charts Peter showed us were very informative, as was his discussion about the placement of the panels on the roof. His form plots the roof lines out before they decide on the best site.

A number of our members have already had these panels installed and some of them are selling power to the grid. They have also found themselves changing the way they

use electricity in their houses when it means the difference between using and paying for electricity or having some to spare to sell back to the grid. With the end of the government subsidy in the near future this was a very up-to-date topic. There could well have been a number of people who heard the presentation and then decided to take the plunge now rather than later!

The other main activity of AHARS at the moment is the refurbishment of the Guide Hall they plan to use for various club activities. Most Saturdays there are 10 to 12 people helping and the enthusiasm seems to be continuing. At the time of writing the Gyprock has been finished and painting started the following weekend. We hope to use the shed for training courses, projects and a club station.

July 3 was the club mid-year lunch, and was held at the Fresh Choice restaurant. Over 40 people attended.

The annual Hamfest will be held on Sunday November 20 at the Goodwood Community

Centre. Contact the committee to book a table.

Our regular meetings are held on the third Thursday of each month in the Blackwood Community Hall, when 60 or more people usually gather. Visitors are always welcome so if you are in Adelaide on any third Thursday, please come to the hall and join us. The meetings start at 7.30 and the subject of the talks is advertised on the Sunday morning broadcasts. The club website is [www.ahars.com.au](http://www.ahars.com.au)





# Spotlight on SWLing

Robin L Harwood VK7RH

Well, there have been significant developments on shortwave over the past few days. Radio Netherlands is poised to stop airing broadcasts for the Dutch diaspora and alter their focus to airing "Free speech" broadcasts. Their operating budget has been slashed by 70%. The Bonaire relay station in the former Netherlands Antilles was already earmarked for closure and the Madagascar relay will be probably put up for sale. RNW has been utilising transmitters in Germany and Saipan and I expect that this also will be ending. The RNW staff are mounting a last ditch campaign just as I write this, outside the Dutch legislature. The present government is a coalition and there would be few votes in saving the organisation: it has not been a big issue domestically.

Deutsche Welle also has made significant cuts to their output and plan to exit shortwave for the Internet. Programs will continue only for central and eastern Africa, from Kigali. As reported recently, the Sri Lankan station in Tricomallee will be closed. Even MW and FM relays within Russia and the other CIS nations have ceased.

However the BBC World Service was thrown a lifeline. The Foreign Office granted additional funds for the Arabic, Hindi and Somali programming to continue on shortwave. The recent "peoples"

revolts in North Africa and Syria have highlighted the need for Arabic programs to continue. Hindi is different because, although the internet is gaining in the Indian sub-continent, penetration is still extremely low.

I have been reporting that Family Radio went to continuously broadcasting music and very rarely broadcasting speech, after Harold Camping's failed prediction of the End of the World.

The network has been cancelling shortwave relays and has been confined to broadcasting between the hours of 2200 to 0500, which is a comedown from their 24/7 output. Also Camping suffered a stroke and has been in a hospital, partially paralysed and with slurred speech. He is 89 and I do not think he will resume broadcasting. I received an email stating that Family Radio has stopped broadcasting to North America and may cease altogether by the end of June.

Also keep an ear on Greece. There has been considerable unrest due to the Global Financial Crisis and an EU bailout, requiring the Government to introduce harsh austerity measures. There have been frequent strikes at the broadcaster and program outages. Perhaps the shortwave service may close, although if Greece defaults the broadcaster could well continue.

You have probably heard about this present sunspot cycle not peaking, as predicted, in 2012. Experts are theorising that we may have entered a period very similar to the middle of the 18<sup>th</sup> century when there were very few sunspots for 50 to 60 years. This period is known as the Maunder Minimum. Coincidentally the recent proposal of the operators of WWV and WWVH, in Colorado and Hawaii, to delete the hourly sunspot numbers and predictions in September has, fortunately, been rescinded. They are heard at 18 minutes past the hour.

It is midwinter here and the usual phenomenon of signals coming across Antarctica at the local midday has not eventuated. I expect it has little to do with propagation as European broadcasters, primarily DW and the BBC, have gone from 49 metres. The only broadcaster I was getting on 41 metres was two outlets of Radio Rossi on 7270 and 7285. The latter frequency was a few seconds behind the other. I was getting a weak carrier and modulation on 7056 and straining to identify it when I heard an unmistakable commercial for a local bottleshop. Argh, the 7<sup>th</sup> harmonic of 1008, a five kilowatt sender barely 1.5 kilometres from here!

Well that is all for August. Until next time, good monitoring.



## Plan NOW for the 54th JOTA 2011

The **54th Jamboree On The Air** will take place on **15 and 16 October 2011**.

This year's theme is: **\*Peace, Environment and Natural Disasters.\***

An exciting activity that focuses on the strength of Scouting: to act and support in unforeseen circumstances. Scouts are prepared.

Radio amateurs and clubs also need to be prepared - your planning should by now be well underway. Contact your local Scout or Guide group to confirm their plans.

# Wally Green VK6WG

*Wally Howse VK6KZ*

This is a tribute to Wally Green VK6WG as he approaches his 100<sup>th</sup> birthday on 11 August, 2011. He is a man to be admired for his openness and willingness to help others and for his achievements in life and in amateur radio. A real gentleman!

He placed Albany on the world map of amateur radio. Not only are his amateur radio achievements widely recognised in Australia but also in the United States and in Europe. He was welcomed by Charlie Suckling G3WDG, another of the world's leading amateur radio microwave proponents, when visiting the United Kingdom and by the many enthusiasts at the 1996 Microwave Update conference in the United States. People were amazed that a man of his age, self-taught and living in such an isolated (from VHF/UHF and microwave enthusiasts) town such as Albany could build and operate equipment that he used to create history.

He was one of the Australian pioneers of the microwave bands along with his close friend the late Reg Galle VK5QR, of similar age to him and living nearly 2000 km away in Adelaide. The pair did not accept the general theory that signals at frequencies of 144 MHz and upwards could not be heard much beyond line-of-sight distances.

Radio contacts between the two on these bands showed that the theory was wrong and that once they had built the necessary transmitters, receivers and antennas then, with patience and observation of weather conditions, it was possible for them to communicate between Albany and Adelaide, not only on 144 MHz but also 432, 1296, 2304 and 3456 MHz. Contacts Wally made on the last four frequencies were world record distances. Although the distances have since been exceeded elsewhere in the world, Wally retains the Australian records for 1296 and 3456 MHz.



*Wally VK6WG in his shack.*

Building the transmitters and receivers and ensuring that they were on the correct frequencies was an achievement in itself in the 1970s. Very few commercial operators had seen the value of these bands and developed specialised components for them. Test equipment was almost non-existent. Wally used ingenuity to adapt or obtain rare components and skill to construct the high precision metal parts needed for these frequencies.

He developed his own silver-plating equipment to reduce the signal losses resulting from using copper or brass alone. His skill and reputation led some amateurs in the United States to ask him to make some microwave equipment for them – which he did.

Long before parabolic dishes (antennas) were readily available for satellite and Pay TV, he built his own, painstakingly bending straight pieces of metal into the necessary parabolic shape, holding them at the centre and at the circumference and filling the gaps with wire mesh to

provide the antennas necessary for microwaves.

On the local scene in Western Australia, Wally's enthusiasm to explore these higher frequencies over the 400 km path between Albany and Perth provided an incentive for radio amateurs in Perth to improve their equipment and skills. From the mid-1950s, despite the outside, un-insulated shack in the Albany weather, Wally was there at 0645 almost every morning to carry out checks with Perth, initially



*A 23 cm receive converter, entirely built and silver plated by Wally VK6WG.*



A view of the VK6WG antenna farm in Albany.



Wally's original Amateur Operator's Certificate of Proficiency, issued 3 June 1936.

with Rolo Everingham VK6BO, until Rolo's death in 1976. Prior to, and after Rolo's death, others joined in such as the late Cec Andrews VK6AO, Don Graham VK6HK, Percy Becher VK6DD and myself. This continued into his late 90s. This contribution of over 50 years to Perth amateurs is unlikely to be ever matched by others.

Wally provides a further inspiration in showing that age is not a barrier to adapting to advancing technologies.

I express my utmost appreciation for his pioneering efforts and gratitude for the many discussions with him and the help he has given me and many others in their amateur radio activities.

We trust he remains in good health and continues in amateur radio for many more years.

All photos by Bob Elms VK6BE.



Wally VK6WG with an old Leydon Jar.



Another view of the VK6WG antenna farm.

# DX-News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

Well conditions certainly have not been very good of late, but if you are prepared to “scrape the barrel” then there are still a few “nuggets” to find. At the time of writing News & Views, the SFI is 87. Looking back a year ago the maximum predicted for the end of June was 82! In the meantime we have seen some real improvements; the trouble is that they do not seem to last very long!

But...

The American Astronomical Society meeting in Austin, Texas has just made a major announcement on the state of the sun. Sunspots may be on the way out and an extended solar minimum may be on the horizon.

“Some unusual solar readings, including fading sunspots and weakening magnetic activity near the poles, could be indications that our sun is preparing to be less active in the coming years. The results of three separate studies seem to show that even as the current sunspot cycle swells toward the solar maximum, the sun could be heading into a more-dormant period, with activity during the next 11 year sunspot cycle greatly reduced or even eliminated. The results of the new studies were announced on 14 June at the annual meeting of the solar physics division of the American Astronomical Society, which was held at The New Mexico State University in Las Cruces.

Currently, the sun is in the midst of the period designated as Cycle 24 and is ramping up toward the cycle's period of maximum activity. However, the recent findings indicate that the activity in the next 11 year solar cycle, Cycle 25, could be greatly reduced. In fact, some scientists are questioning whether this drop in activity could lead to a second Maunder Minimum, which was a 70-year period from 1645 to 1715 when the sun showed virtually no sunspots.

We expected to see the start of the zonal flow for Cycle 25 by now, but we see no sign of it. This indicates that the start of Cycle 25 may be delayed to 2021 or 2022, or may not happen at all.

If the models prove accurate and the trends continue, the implications could be far-reaching. If we are right, this could be the last solar maximum we'll see for a few decades. That would affect everything from space exploration to the Earth's climate.”

So back to 2011!

Mike KF6RCP is currently vacationing for the next few months from the United Kingdom Sovereign Base Areas on **Cyprus** and plans to operate as ZC4MIS. He will be using an FT-817ND into a LDG Z817 antenna tuner and Buddistick, mostly from the beach. Listen for him primarily on 20 metres on SSB, PSK31 and JT65. He is open to skeds and you can email him as his email address is listed on his QRZ.COM page. QSL via KF6RCP, LoTW or eQSL.

ZD8D – **Ascension Island**. Gerd DJ4KW, Werner DJ9KH, Wolf DK1IP, Arno DL1CW and Rainer DL7OR will be active from 24 July to 9 August, including the IOTA contest. They are planning to operate 160-6 with two stations, mostly digital & CW with some SSB. QSL via DL9HO. Also, see the web: <http://www.zd8d.de>

ON6ZK has announced he will be in **Turkey** and QRV as TA4/ON6ZK from 22 to 30 August. Activity will be holiday style on CW, mostly on 14.060 MHz. QSL via ON6ZK.

It is good to hear news from the DXCC desk that QSL cards for the current VK0KEV activity from **Macquarie Island** are now accepted for DXCC credit. The same applies to the QSL cards for TJ9PF, **Cameroon**, 2011. Due to a software bug, the QSL labels for TJ9PF show the year 2001 instead of 2011. The DXCC Desk has been informed and will accept these QSLs. The TJ9PF logs are now loaded onto LoTW.

As a reminder, in January of last year Russia went through some callsign prefix changes. The changes affected both **European Russia** and **Asiatic Russia**. Details can be found at [www.qrz.com/db/rw2l](http://www.qrz.com/db/rw2l)

A more simplified explanation Roman Thomas R5AA (ex RZ3AA) President of the SRR, has recently been posted at <http://www.arrl.org/news/new-russian-prefix-system-in-use>

Jean-Francois F4FUC is heading to **Djibouti** in July where he plans to be staying until the summer of 2013. He plans to be QRV as J28UC using a TS-480 running 100 watts into a vertical for activity on 10, 15 and 20 metres. He will also have a dipole for 40, 20 and 10 metres. QSL via F4FUC.

In September Frosty K5LBU will be traveling to **South Africa** and **Botswana** with planned activity in the latter for about a week to 10 days. If anyone is interested in tagging along you can contact him. Plans are to set up antennas at a new lodge ([www.lotsane.com](http://www.lotsane.com)). The current plan would be to “be there or going there” around 17 September. His email is listed on QRZ.COM - <http://www.qrz.com/db/k5lbu>

Steve W6EOD reports there has been a change to his Afghani callsign. Originally he was issued T6EOD, however GIROA (the Government of the Islamic Republic of Afghanistan) has changed his call to T6SH. As a reminder Steve is in the Garmsir District of Helmand Province, **Afghanistan** until November. No details yet of his QSL plans.

Ronald WA8LOW plans for the upcoming August DXpedition to **American Samoa**. “All the equipment has arrived on Tutuila, American Samoa and is in storage” he says. There will be five team members and four stations QRV from two different locations on the island. “The North location near Vatia will be on 160 - 10 metres with two kW

stations using three element beams on 40 - 10 and large verticals on 160 - 80. This site will be set up for all modes. The South location near Fogagago will be on 20 - 6 SSB only with two kW stations using tribanders and a three element six metre beam. Two operators will be arriving on the island on 28 July and the remainder on 1 August. They may try to get one station on line for the IOTA contest. The dates for this DXpedition will be from 1 to 17 August.

The Five Star DXers Association are organising a major DXpedition to **Kiritimati** (Christmas Island, T32, OC-024), Eastern Kiribati in September-October 2011. A very large group of experienced operators from 13 different DXCC entities will be active as T32C (requested callsign) on all bands and modes, with up to 16 stations on the air, using amplifiers along with

monoband beams and vertical dipole arrays, 24 hours a day, for almost four weeks, including four weekends. The primary objective is to give as many DXers as possible a first contact with this rare DXCC entity and, as a secondary objective, to give as many band-slots as possible. At this time the organizers are seeking contributions from sponsors to help defray the very significant logistics costs of this DXpedition. Details on how to donate and further information can be found at [www.t32c.com](http://www.t32c.com)

A large multi-national team will be active from **Rotuma Island** OC-060 in late September, early October. Hrane Milosevic YT1AD recently visited Fiji and says "We have obtained the licence of 3D2R and a landing permit. We have received the Rotuma Island Council's official approval as well as from the Prime Minister's Office. The team of

19 operators will meet in Fiji on 24 September and sail to Rotuma with an arrival slated for the 27th. We will be active on all bands and modes from 27 September to 7 October. We will focus on the low bands at this time of the year and will make every effort to satisfy the needs of EU operators".

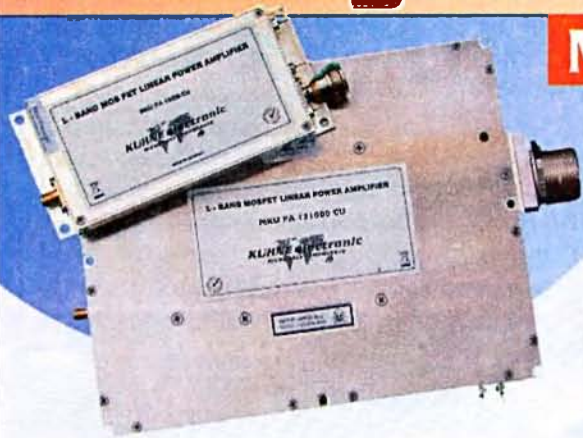
At this time, they are seeking foundation, club and individual sponsors to help defray the costs of carrying out this DXpedition. QSL via YT1AD. The website for the expedition is at <http://www.yt1ad.info/3d2r/index.html>

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (11JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)



# New High Power Amplifier

## Modules for 1.3 GHz!



The brand new power amplifiers MKU PA 131000 CU and MKU PA 13250 CU provide excellent efficiency together with brilliant linearity and are ideally suited for huge EME- and contest-operations. The used LDMOS technology represents the current state of the art and allows the development of compact amplifier modules with high output power.

### Applications

- Analog and digital operation modes e. g. SSB, CW, WSJT, (D)ATV
- High-Power EME-operations

### Features

- High linearity
- High efficiency (up to 50 %)
- 50 V LDMOS technology
- Built-in sequence controller and overheat protection (only MKU PA 131000 CU)
- Milled copper case for optimum heat transfer

Type	MKU PA 13250 CU	MKU PA 131000 CU
Frequency range	1270 ... 1300 MHz	1280 ... 1300 MHz
Input power	4 ... 6 W	20 W ... 30 W
Output power	250 W	1000 W
Efficiency	typ. 50 %	typ. 50 %
Supply voltage	+ 50 V	+ 50 V
Current consumption	max. 12 A	max. 40 A
Input connector / impedance	SMA-female, 50 ohms	SMA-female, 50 ohms
Output connector / impedance	N-female, 50 ohms	7/16-female, 50 ohms
Case	milled copper, silver-plated	milled copper, silver-/nickel-plated

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For further information please visit our website [www.db6nt.com](http://www.db6nt.com)

# VK3 news Amateur Radio Victoria

Jim Linton VK3PC

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## Council for 2011-12 announced

The first Council meeting held since the Annual General Meeting determined the office-bearers and other portfolios. The President is Barry Robinson VK3PV and the Vice-President is Peter Mill VK3APO. The Secretary is Keith Proctor VK3FT and retaining the Treasurer position is Ross Pittard VK3CE.

Appointed is Tony Hambling VK3VTH as Award Manager. The posts of Event Coordinator Terry Murphy VK3UP, Education Team Leader Barry Robinson VK3PV and Repeaters to Peter Mill VK3APO remain unchanged.

Also on the eight-member committee is Peter Cossins VK3BFG, who is our Videographer and

DATV person, and Immediate Past President Jim Linton VK3PC, who also is attending to the Centenary celebration of Amateur Radio Victoria. Outside the Council sits the On-line Project Coordinator Gary Furr VK3FX, and volunteers for the Office and QSL Bureau.

## Centenary details advised

This year is the 100th for the state-wide organisation, which began in 1911 as the Amateur Wireless Society of Victoria, quickly changing its name to the Wireless Institute of Victoria and ultimately, with nationalisation, began trading as Amateur Radio Victoria.

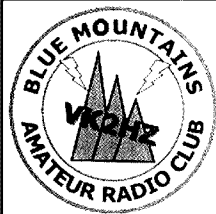
To mark the occasion a celebratory period from 1 August through to 30 November was chosen. Parts of the celebration,

involving the world's first international DATV QSO Party, and a weekend in the National Parks are outlined below. It was decided by the membership that a special callsign be obtained for use on a rostered basis throughout November.

The centre of the celebration will be a Centenary Award, with rules to be posted under the Award section of our website.

Basically a total of 100 points is required to qualify. Contact with each member is worth two points, and 10 bonus points is available by contacting either VK3WI or the yet to be obtained special callsign. The limitation is that only one contact per band per UTC day is allowed.

The callsign VK3WI will be on air at least during the Remembrance Day Contest on 13/14 August,



# WINTERFEST 2011

<http://bluemountainswinterfest.org/>

The Blue Mountains Amateur Radio Club invites you to Winterfest 2011, on Sunday August 28 at Mount Riverview Public School 2774. There will be commercial vendors, a flea market, displays, prizes and a sausage sizzle. If you would like to run a stall or a display, check <http://bluemountainswinterfest.org/> or email [winterfest2011@bmarc.org](mailto:winterfest2011@bmarc.org)

BMARC would like to thank the following companies for their support

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NBS Antennas & Masts

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## YAESU

<http://www.vxstd.com.au/>

the International Lighthouse and Lightship Weekend on 20/21 August, and the Oceania DX Phone Contest on 1/2 October.

Club stations signing VK3WI will be heard during the two contests and also during the ILLW from the Timeball Tower at Point Gellibrand, Williamstown.

Stations that operate from National Parks under the Keith Roget Memorial National Parks Award conditions on the third weekend of November will qualify for ten bonus points per each valid contact, thus adding incentive for them to support the day.

### A world first for Amateur TV

The first Digital Amateur Television QSO Party, expected as early as this month, involves primarily Amateur Radio Victoria's VK3RTV DATV repeater that services Melbourne and Geelong.

As part of the Centenary activity, Peter Cossins VK3BFG has a bold plan to link VK3RTV via California and the internet using the excellent BATC website that would have the

advantage of a wider audience and the ability to have two repeaters on line at the one time.

The transmission is also planned to be aired via the VK3RBO television repeater in central Victoria. News of the event has resulted in at least one station declaring it has enough going for it that a project based DATV transmitter will be fast-tracked in time. More details can be expected on this one from Peter VK3BFG as final details are still being worked through at this stage.

### National Park weekend

A special focus for the Keith Roget Memorial National Parks Award, and the Centenary, will be held on the weekend of 19/20 November.

Award Manager Tony Hambling VK3VTH reminds us that the award is to encourage portable operation in Victoria's designated National Parks.

Plenty of activity has already occurred, but activity on 19/20 November will hopefully see a number of the parks put on air over a single weekend.

With so many parks it's not too far for people to travel and reach one, or even more. Registrations including the day/time and preferred frequency(ies) are welcome. The best starting points are [www.amateurradio.com.au/awards](http://www.amateurradio.com.au/awards) and [vk3vth@amateurradio.com.au](mailto:vk3vth@amateurradio.com.au)

### Foundation class on offer

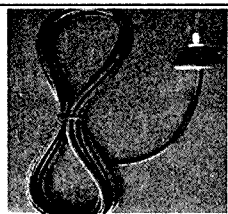
The next quality Foundation licence weekend is on 10/11 September. Training both for the written multiple-choice paper and the practical test happens on the Saturday. Apart from some revision, Sunday is when candidates undergo their assessments of competency.

All this happens at the Amateur Radio Victoria office, 40g Victory Boulevard, Ashburton. For more details contact Barry Robinson VK3PV at 0428 516 001 or [vk3pv@amateurradio.com.au](mailto:vk3pv@amateurradio.com.au)

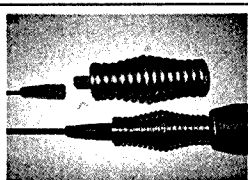


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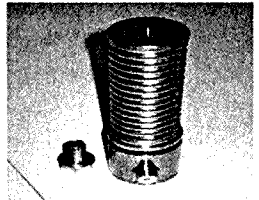
Base and Lead sets.



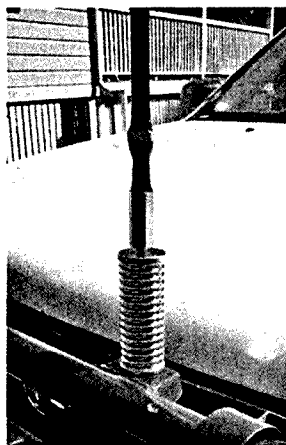
Codan Springs and Whips.



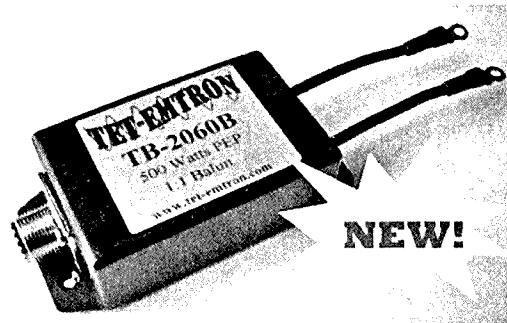
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# G'day Old Timer! What's in a name - plenty or nothing?

Ian Godsil VK3JS,  
Secretary, RAOTC Australia Inc

All through the ages people have coined nicknames for other people and things. Sometimes they are quite descriptive names, sometimes just nonsense. What is an 'oozit'? Who is 'what'shisname'? What is a 'thingamajig'? There are many much later names which older people may have never heard.

Names have always been important, for without one we and all objects have no definition and no status. How would you define a cat, or a dog, or a desk if you had no reference point in your language for such objects?

It is the same with people. Our parents gave us a name - Bill, Don, Betty and so on - by which we became established members of society. Sometimes those people will be given different names, for example Digger, Shorty, Macca or names in keeping with their positions or jobs, for example Gopher, Boss, Sparky, and Mr Fixit.

The term 'Old Timer' could easily conjure up an image of a member of a past generation or someone involved in the early history of Australia. 'Old Timer' in general usage is a friendly appellation not unlike 'Mate' but with reference to someone who is experienced and has been around for a while.

In our hobby of amateur radio, the term 'Old Timer' is a term of respect for one's ability and years of service. It has nothing to do with age.

If you have been licensed for 25 years or more, you earn the name 'Old Timer' because of your years in



the hobby. You may not have been very active and you may not be very old, but you have held the licence for 25 or more years and gained some experience in that time.

The Radio Amateurs' Old Timers' Club of Australia Inc (RAOTC) adopts the criterion of being licensed for 25 years as its entry point for Full Membership of the club. It does not imply that one must be of vast age, just licensed a long time. Often when amateurs, even septuagenarians, are invited to join the RAOTC their first response is, "Oh, I'm too young for that!" It is entirely possible that there are many forty-year-olds who qualify for full membership.

The RAOTC is always happy to welcome new members and, if you have been licensed, or qualified to hold an amateur licence for 25 years or more, then you are invited to join us. There is also an Associate membership for those who have been licensed between 10 and 25 years.

The club focuses on historical aspects of the use of radio over the

century or more since it all began. In particular we want to record the personal histories of Australian radio amateurs and their involvement in the history of radio. This does not mean to say that there is no interest in present developments as today's research becomes tomorrow's history. We do like to record, and remember, the work and progress that has helped us all to enjoy the hobby of amateur radio.

The club magazine *Old Timers' News (OTN)* is published twice per year and is one of the best club magazines anywhere in amateur radio. In keeping with its historical bent it is not a coloured glossy but a professional-quality black and white journal printed on good quality paper with feature-packed articles. *OTN* is most ably edited and published by Bill Roper VK3BR who is well-known to many older radio amateurs around Australia.

In addition to the magazine, the RAOTC conducts monthly news and information broadcasts throughout Australia on a multitude of frequencies, holds regular luncheons and also has an annual old-rigs-on-air activity.

We would love to have you on board as members of our club and we invite you to have a look at our web site [www.raotc.org.au](http://www.raotc.org.au). There you will find information about the club, be able to listen to some of the monthly news broadcasts, and download a membership application form.

Why not give it a go Old Timer? Membership fees are quite low.

## Coming Events

**15 – 18 August**

VK3 – Bogong High Plains Winter Expedition.

**28 August**

VK2 – Blue Mountains Amateur Radio Club WINTERFEST.





# VK7news

Justin Giles-Clark VK7TW  
Email: vk7tw@wia.org.au  
Regional Web Site: <http://reast.asn.au>

Congratulations to David VK3HZ/3 and Rex VK7MO/2 having set a new national 10 GHz digital modes record of 731.0 km on 14 May, 2011. Congratulations also to the VK7 Radio and Electronics School facilitators - Tony Bedelph VK7AX, Peter Rumble VK7IY, Reg Emmett VK7KK and Ben Short VK7BEN who received a mention from WIA President Michael Owen at the Darwin WIA AGM. We also welcome our new VK7 Regional News Broadcast reader Peter Dowd VK7PD who has volunteered to read our local VK7 Regional News each month. On ya Peter!

In repeater news, unfortunately a silent key notice for VK7RNE 146.725 MHz on Tower Hill in north east Tasmania. Joe VK7JG lets us know that following severe storms, the hut

housing the repeater equipment was blown off its foundations and landed upside down a little way down the side of the mountain. The equipment has been retrieved and there are no plans at this time to reinstate the repeater.

## Northern Tasmania Amateur Radio Club

June 8, 2011 saw a great presentation from Mark VK7FMWT and Joe VK7JG on the Tamar Coast Guard. Mark, who is a volunteer with the TCG, gave a brief outline of the history and the role of the organisation, which is the day to day safety of maritime vessels, along with some interesting stories. Joe then outlined the radio installations that he maintains for TCG and the frequencies used. By all accounts an excellent presentation, thanks to Mark and Joe. At this meeting Jason VK7ZJA resigned as NTARC Secretary and was thanked for his huge contribution over the years as Secretary and Vice-President. We welcome Yvonne Maxwell VK7FYM who has volunteered to take on the role of

Secretary for the balance of the year.

A reminder from Yvonne that NTARC meets informally for coffee each Monday and Friday at Friends Cafe, in Jimmy's shopping complex off Charles Street, Launceston.

On the last Monday of each month, the coffee venue switches to Lilydale, where we visit David VK7YUM and Norma VK7FOOD at their cafe in the main street. Love those callsigns!

## Cradle Coast Amateur Radio Club

In May, CCARC visited the Wynyard Aero Club at Wynyard airport, and which included a tour of the hangars and joy flights around the very picturesque Wynyard and Boat Harbour areas. Attendees were treated to a great BBQ from host Eric VK7NFI cooking the snags and burgers to perfection. A big thank you to Eric and the Wynyard Aero Club members for the use of their facilities, and providing flights.

## North West Tasmanian Amateur TeleVision Group

Tony VK7AX has added a new audio stream to his broadcasts entitled

[www.vk7tw.com.au](http://www.vk7tw.com.au)

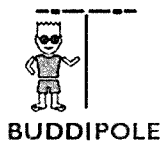


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**See you at the Shepparton Hamfest 11 September 2011**

John Ferrington VK6HZ  
vk6hz@wia.org.au



Photo 1: HARG at the Pickering Brook Agricultural Show.

Greetings all from VK6! Finally we are having some rain! I know that most of you on the east coast will not understand why we get excited about rain over here, but trust me, after months of nothing but blue sky it is nice to have some rain!

A few things have been going on around here over the last few months.

First, over to HARG for an update.

**The Hills Amateur Radio Group** (HARG) was once again busy out in the field during May. On Saturday 7 May, the club put on a display at the Pickering Brook Agricultural Show. Club members attending were Bill VK6WJ, Richard VK6BMW, Martin VK6ZMS, Marty VK6FDX, Allan VK6PWD, Onno VK6FLAB, Craig VK6FLAM, John VK6FJON and Steve VK6IR. Other visitors were Jim VK6JIM, Steve VK6CS and Phil VK6ZKO. We did not have many visitors from the general public but Phil from the Army Vintage Vehicle Display was very interested and amazed at the small size of our rigs as he had just been learning how to operate a No 19 set!

We operated VHF, UHF and HF despite the considerable RF and PA noise. HF antenna was Onno's 12 metre squid pole with remote antenna tuner at the base and using a neighbour's long trailer as a

counterpoise. Richard set up his SDR receiver with interesting spectrum displays on a laptop and we put up a number of static display panels. Next time we will need something more to attract

the public and Richard has suggested a fox hunt. Could be fun!

As I was writing this I received the sad news that Dennis Muldownie VK6KAD had passed away. Dennis ran the weekly WIA news service in WA for many years. He was also a regular in the RD contest each year. He will be missed by all in VK6. Vale Dennis.

Up at **NCRG** we have recently installed a new 3 kW solar power system. Here's an update from Wayne VK6EH.

Recently the NCRG had a solar power system fitted to our

clubrooms; this was funded to a large extent by our now departed friend Neil Penfold VK6NE SK, who passed away in the latter part of 2010.

The system has a power rating of 3 kW and a recent check of the output record showed that it had output some 4.8 MW since being installed during November last year. The system will be fully up and running as soon as a digital meter is installed to track usage and in-feed values. The power consumption can be quite high, particularly in contest season where we can run 24 and 48 hour stints with lights, air conditioners, radios and whatever all contributing to a high power bill each quarter and we are confident the very generous contribution by Neil will serve us well into the future.

Do not forget the NCRG HAMFEST on 7 August at the Cyril Jackson Recreation Centre in Ashfield. It will be a great day as usual! I look forward to seeing you all there.

If you have something to submit for the VK6news, please email me at [vk6hz@wia.org.au](mailto:vk6hz@wia.org.au)

73 for now.



Photo 2: The solar panels on the NCRG clubrooms roof.

# VK4news

## Bundaberg Amateur Radio Club

Gail Lidden-Sandford VK4ION  
Secretary

Yes, Bundaberg is in the news again with details of another special event.

The Bundaberg Amateur Radio Club has been a WIA member for 50 years and it seemed appropriate that we host the Queensland President's Luncheon. We were already planning our 50th Anniversary Reunion for October so it was no trouble to extend the celebrations over the whole weekend. The President's Luncheon will be a working day on Sunday, 9 October and will commence with the news broadcast from the clubrooms in the SES Headquarters. While the Presidents get down to business, we will whisk the wives and partners away to some thriving markets to soak up the atmosphere and sunshine in Bundy.

WIA President Michael Owen will be in attendance along with Queensland WIA representatives Ewan McLeod VK4ERM and Mike Charteris VK4QS and invitations have been sent to all the Queensland clubs. We are hoping for a strong turnout of Presidents, Executive and interested members from far and wide.

Our technical director Ross Orpin VK4JRO will organise tours to some of our repeater sites for those visitors who want to see how we cover this extensive and geographically diverse region. Please indicate your interest in the tours when you make your bookings so we can accommodate everyone. The club also wants to locate past members who have moved away and hope that by making it a full weekend of activities many will decide to make the journey.

We are ideally located and promise to show all our visitors a good time so please check the club's website [www.barc.asn.au](http://www.barc.asn.au) and follow the 50th anniversary links for information on both the reunion luncheon and the Queensland President's Luncheon.



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- Suitable for RG58/59/62/6 and 3C2V 75 ohm cable TH-1820

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### Heavy Duty Ratchet Crimping Tool

This tool is manufactured from quality carbon steel and fitted with hardened and tempered jaws. Suitable for crimping insulated terminals from 0.5mm<sup>2</sup> to 6.0mm<sup>2</sup> in size.

- Dimensions: 220(L)mm TH-1829

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### Autoranging Pocket DMM

A handy pocket DMM with plenty of features. Large LCD display with 4000 count, autoranging measurement with data hold and relative function. Replaceable leads make this a perfect companion to any technician, field engineer, mechanic, or even a handyman. Also measures frequency, capacitance, and duty cycle. See website for full specifications.

- Dimensions: 115(H) x 60(W) x 16(D)mm QM-132B

\$29<sup>95</sup>



### Gas Soldering Tool Kit



This kit features an adjustable tip temperature up to 580°C & ignition is achieved by the internal piezo crystal mechanism. Run-time is around 2 hours on a 30 sec refill. The protective end cap also acts as a safety gas shut off when replaced. The kit includes all of the following parts;

- Storage case
- 2.4mm double flat tip
- 4.8mm double flat tip
- Hot knife tip and air deflector TS-1328

\$159<sup>00</sup>

### Super Long-Life Low Noise Maglev Bearing Case Fans

Featuring a patented Nanoflux bearing that incorporates magnetic levitation technology, these premium quality fans ensure an extremely long operational life, extremely low noise levels compared to traditional ball bearings, and also offers the ability for the fan impeller to be removed for cleaning. Dust and water proof to IP54, these fans are sure to last even in harsh conditions. See our website for full specifications.

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- Flylead with 3 pin molex connector
- Polycarbonate housing
- UV reactive polycarbonate impellers

12VDC 80mm YX-2580 \$24.95  
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12VDC 120mm YX-2584 \$34.95

From \$24<sup>95</sup>

NEW 2011



### 12VDC 100A Adjustable Dual Battery Isolator - VSR

This dual battery isolator, or voltage sensitive relay (VSR), is the link that allows both batteries to charge whilst your engine is running, but keeps your main engine cranking battery isolated from being discharged by your 12V accessories once camped. Cut-in and cut-out voltages are independently user adjustable and it also features a manual override/jumpstart function.

- 100% solid state technology with extremely low standby current and voltage drop
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- Emergency over-ride feature
- Dimensions: 162(L) x 75(W) x 50(D)mm MB-3680

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# Parkes Radio Club and VK2BPK are back

Phil Derbyshire VK2FIL



Photo 1: The general set up of the station.

The Parkes Radio Club has now reformed after a number of years of inactivity.

There are now plans to extend the range of the club 2 m and 70 cm repeaters, VK2RWM, via linking to additional club repeaters to cover the central west. This is a facility sadly lacking in the region. The area west of Orange, while covered by the Orange repeater, does have areas where there is no coverage. Additional 2 m repeaters are planned to be located so as to increase the coverage along the Mid West Highway, Cowra, Young, Canowindra and similar areas.

The revamped club has taken a slightly different approach from the past and other clubs. Instead of being a club for just one locality or town, it now represents a region, in this case the central west of NSW. The members come from Young in the south, West Wyalong in the west and from Bathurst and Orange in the east, not to mention Forbes and Parkes. The original club call sign, VK2BPK, has been reassigned to the club and was used for the first time in many years in the 2011 John Moyle Field Day Contest.

On the week end of 19 and 20 March we held our first official gathering, this being the JMFD week end. We were active on all bands from 80 m to 23 cm. Four members took part in the activities and we set up two stations, one per tent, to cover all the bands.

The location was the Grenfell repeater site, which is located just north of the town of Grenfell.

The activities were somewhat stopped for a few hours on Saturday afternoon when a rather large (and cranky) brown snake, about 1.8 m long, decided to crawl under one of the tent's floors. Even though we saw the snake poke its head out from the under the tent floor, we never saw it leave the area. This was despite us lifting the floor, removing the car which was attached, and making a lot of noise banging the ground and tent. When we felt that all was clear, a rather nervous crew manned the HF part of the contest station.

Most points were gained on 2 m and 70 cm – the tent not disturbed by the snake! The HF bands (tent) were interrupted by the proceedings with the snake. Conditions were not brilliant on any bands although contacts were made all over the nation on the HF bands. 23 cm was fairly disappointing with only a hand



Photo 2: Tim VK2ZTH, Bob VK2ABP, Phil VK2FIL and Paul VK2WPT.

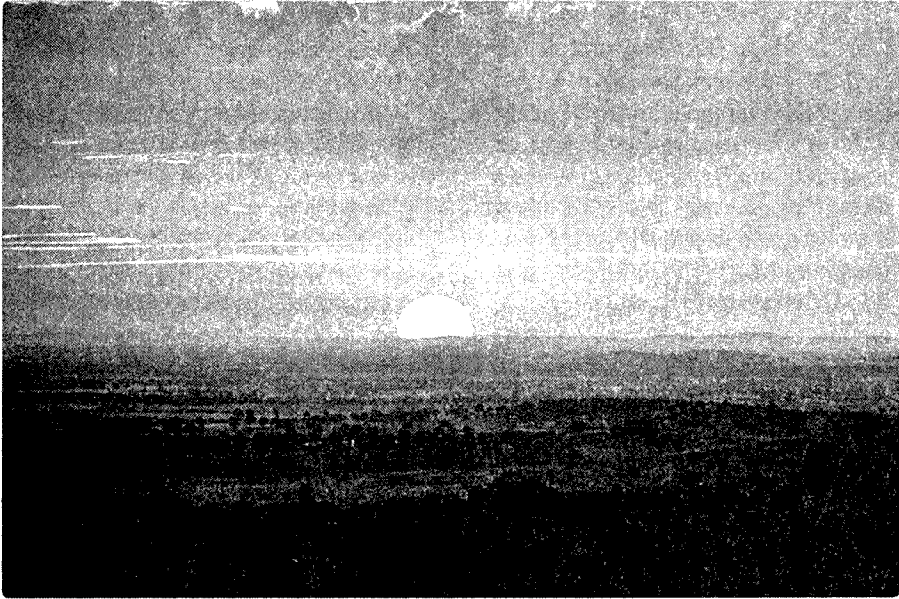


Photo 3: Just the end of a great day – a view from the site on Saturday evening.

full of contacts being made.

During the night a fairly strong wind developed and caused the mast with the 6 m and 23 cm dish to fall over. This was repaired first thing in the morning and was back in

action fairly soon after the repairs.

All things considered it was a successful event; if nothing else we all had a good, and at times exciting, time.

Photos by Bob Paton VK2ABP and Phil Derbyshire VK2FIL.

## CCARC at Mersey Bluff Lighthouse

Keith Winkler VK7KW

For the ILLW in 2010, the Cradle Coast ARC activated the Mersey Bluff Lighthouse AU0040 at Devonport. Arriving mid-morning Saturday, Winston VK7EM and Dick VK7FORF erected Winston's mast and wires for his inverted V 80, 40 and 20 metre antennas, as well as Winston's squid pole vertical for 40 and 20 metres.

We nearly froze as the wind was very strong and cold! That weather lasted all day and well into the evening. The operating station used a FT-857D with battery bank providing some 160 amp/hours capacity. Dick remained both for company and as second operator. We kicked proceedings off about 10.30 local on 40 metres with several AU contacts. We switched to the 20 metre squid pole and again had several contacts. Throughout the day

we operated on 40 and 80 metres with quite a few Australian stations.

During the evening Dick had to return to his QTH, so I carried on making good contacts in AU and one only from NZ. Contacts continued Sunday morning - and the weather had improved, delivering a glorious morning.

The station was dismantled about 11 am, luckily, just before rain came from nowhere. In all 41 contacts were made with Lighthouse stations and other interested parties. Amateurs who visited were Brian VK7KBE and Kevin VK7HKN, and various members of the public enquired of our presence there. It was a most enjoyable weekend. Look for Winston VK7EM and myself (as second operator) from the same site this year.

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Log-periodic 7/30 13.7 m boom	call
15 m 3 el. 3.6 m boom	\$314
M/b vert auto switch 10-80 m	\$360
40 m lin load 2 el./cap hats	\$670
6 m 5el. 3.6 m boom	\$314
23 cm 36 el. 2 m boom N-conn	\$249
70 cm hi gain Yagi 3 m boom	\$170
2 m 10 el. hi gain Yagi	\$190
Quad 2el. 20 m h/duty	\$596
Quad 3el. 10/11 m h/duty	\$494
10/15/20 vert with radials	\$289
Rotatable dipole 40 m	\$298

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This month the **Oxley Region ARC** will be holding their AGM at 2 pm on Saturday 6 August 2011 at the SES HQ in Central Road, Port Macquarie. Besides the AGM business there is a Notice of Motion to adopt a new Constitution which has been amended to comply with the requirements of the Associations Incorporation Act 2009. Oxley Region ARC will be activating special event callsign VI40BOR during the RD and Lighthouse weekends. Also during the anniversary of the club in early October.

On Sunday 7 August the **Summerland ARC** will be holding their annual SARCFEST at the club rooms. On Sunday 28 August the **Blue Mountains ARC** will be holding their annual WINTERFEST; the location was not known when these notes were compiled. Also to hold their AGM will be the **Illawarra ARS** on Tuesday 9 August. The **Mid South Coast ARC** have their AGM planned for Saturday 13 August.

The **Central Coast ARC** have advised that the 2012 Wyong Field Day will be on Sunday 26 February 2012. This month members of the CCARC will be operating from Nobby's Head Lighthouse in Newcastle. More details on all their activities at [www.ccarc.org.au](http://www.ccarc.org.au) or 02 4340 2500.

Having just been on Lord Howe Island with VK9HR the **HARAOA Group** will activate Montague Island OC-223 during the Lighthouse weekend 19 to 22 August - using the club call VK2CL. They are seeking more operators: contact Tommy VK2IR by email or 0413 005 511.

Last month the **Waverley ARS** held their annual auction. At month's end the **Albury Wodonga ARC** held the Riverina Field Day and **ARNSW** had their bi-monthly T&T at VK2WI Dural. In June the **Oxley Region ARC**, as part of their 40th anniversary conducted their annual field day. Despite the wet and windy weather that rolled into Port

Macquarie, as well as other parts of the mid north coast, the event was a great success with 80 registrations and a full program of activities. Congratulations to Ashley VK2XSO from Tamworth on winning the coveted title of Fox Hunt Champion. Craig VK2ZCM was the runner up. Well done to all eight hounds who braved the elements to contest the seven foxhunts over the two days. Lyle VK2FCVI took out the award for the Best Presented Amateur Vehicle and Bill VK2ZCV was winner of the Home Brew Display. The Tacking Point Surf Club Hall was an excellent venue. The traders, which included Amateur Radio NSW and ALARA, were very popular. As usual there was intense activity around the disposals tables. Everybody was well fed over the two days by the hard working barbeque and kitchen volunteers. 42 people enjoyed the Field Day dinner at the Tacking Point Golf Club on the Saturday night. ORARC President Henry VK2ZHE thanked everyone who contributed to the success of the weekend. As part of ORARC celebrations they have the special callsign VI40BOR which was operated during the weekend and will be operated at intervals until the end of October. The next major part of the celebrations will be over the holiday weekend of 2 October, the date of the club's formation. Also in June the **Wagga Wagga & District ARC** held their AGM.

Some of the VK2 clubs planning to operate during the International Lighthouse and Lightship Weekend on 20/21 August will be the **Central Coast ARC** from the surrounds of Nobby's Head Lighthouse in Newcastle, **HARAOA** from Montague Island, **Oxley Region ARC** from Tacking Point Lighthouse at Port Macquarie and **Illawarra ARS** will be at Point Perpendicular at Jervis Bay. Usually the **Manly Warringah RS** go to the Barrenjoey Head lighthouse at Palm Beach. **Waverley ARS** will

pick one of the eastern suburbs lighthouses. **Summerland ARC** have several to choose from on the far north coast. There are plenty more sites in VK2. If your club or group plans to activate a location, register and put a news item into VK2WI and VK1WIA News. Do not forget the weekend before, 13/14 August, is the annual RD. The rules were in July AR, and VK2 needs your submitted log.

The annual picnic of the **Illawarra ARS** will be held on Saturday 10 September at Blackbutt Reserve, Barrack Heights. There will be fox hunts, the BBQ and the HF radio booth will be set up. Members of the **Illawarra ARS** are planning a visit to the Dayton Hamvention in May 2012, advises Secretary Ross VK2VVV. Do not forget the crystal set construction project due by year's end. More can be found at [www.iars.org.au](http://www.iars.org.au)

Many repeater groups often have difficulties accessing their systems at shared sites. OH&S and management requirements now often create long delays for access. This happened with **St. George ARS** with their Heatcote 6800 system when an antenna fault developed. **Orana ARC** at Dubbo are planning to shift their VK2RCD 6725, advises David VK2AYO, to a location of easy private access.

**HADARC** at their recent AGM increased annual dues from \$22 to \$25 to help offset the rising costs that all groups face. At their June monthly meeting Phil VK2ASD, WIA Vice President was the guest speaker. HADARC have also taken the VK2RNS packet out of service. **St. George ARS** have obtained a batch of AWA RT-85's which have been modified for two metre operation and programmed with a large number of channels. Some were reduced in power for Foundation licence holders.

**ARNSW** is currently conducting an upgrade course at the VK2WI site,

which has recently passed the half way mark, advised Terry VK2UX, who is the instructor. Terry is interested in conducting a Foundation course. If you know anyone in the Sydney region interested in attending such a course, suggest they register their interest with a phone call to the office, telephone 02 9651 1490 or 0400 445 829 with contact details.

ARNSW provides a T&T service on the last Sunday of the odd numbered months, the next being 25 September. There is also a service

for deceased estates along with sales of surplus equipment and details can be found on the ARNSW web site at [www.arnsw.org.au](http://www.arnsw.org.au) On these Sundays, licence assessments for all grades are conducted in the morning. In the afternoon the Radio and Homebrew Group meet at the VK2WI Dural site following the T&T in the morning. The weekly VK2WI news is aired twice on Sunday and is available for all forms of news and happenings from clubs, groups and individuals. Email your item by

Friday afternoon to [news@arnsw.org.au](mailto:news@arnsw.org.au) If you are sending an item off to National News then include a CC to VK2WI for the additional coverage provided by VK2WI on most HF frequencies and VHF/UHF through many centres. We are always interested in additional relay stations throughout VK2. For details email [callbacks@arnsw.org.au](mailto:callbacks@arnsw.org.au)

**73 TimVK2ZTM**

## VK3news Geelong Amateur Radio Club - The GARC

*Tony Collis VK3JGC*



*Carlo VK3BCL, David K1ZZ, David VK3QM and Harold WJ1B.*

### New Licensees

The GARC extends its congratulations to three new licensees, two Foundation level and one Standard level.

This is also a testament to the training scheme run by Peter VK3ZAV, Colin VK3NCC and Lee VK3PK and the GARC assessors Ken VK3NW, Andre VK3AVZ and Rex VK3ARG.



*Dana VK3FDJV, who is only 12 years old.*

### Visit by GARC members to ARRL Headquarters

David VK3QM and Carlo VK3BCL recently spent several weeks touring in the USA. The tour included a visit to the ARRL HQ at Newington, Connecticut, and also the witnessing of the last launch of the Endeavour shuttle, mission STS-134, which was carried out at 8.56 am on May 16. They also attended the Dayton Hamvention, and ended up buying several Kg's of gear that is difficult to source in Australia.

On Friday, May 13, David VK3QM and Carlo VK3BCL drove to the ARRL HQ in Hartford, Connecticut. There they met briefly with the CEO Dave Sumner K1ZZ and COO Harold Kramer WJ1B. Founded in 1914, and with more than 156,000 members, ARRL is the largest organization of radio amateurs in the United States.



*Colin VK3NCC.*



*Andrew VK3FATM.*



*Photo 2: Carlo VK3BCL pictured outside the ARRL HQ.*

# Foundation Corner 16 – Test equipment (for the F-call) in the 21st century: Home brewing revisited!

Geoff Emery VK4ZPP - vk4zpp@wia.org.au

One of the restrictions on the holder of a Foundation licence holder in VK-land is that they cannot legally open the covers of their radio(s) to make adjustments. However, with the newer generations of radios that come from the major manufacturing stables, the menu systems allow almost infinite adjustments of operating parameters by pushing front panel buttons.

A difficulty that has been observed with some rigs that cover both HF and VHF/UHF is setting the audio characteristics for good intelligibility on SSB and FM. A better method than doing multiple adjustments and getting verbal reports from other operators must be available. Sometimes it is a case that a picture is really worth a thousand words.

It has been the practice over the last century to provide ways of visualising what happens with electric/electronic signals. There were methods of printing Morse code before we had wireless. The cathode ray oscilloscope has been around for over half a century. One way of seeing what is happening, as it happens, has been to display signals on the screen of a CRO.

Photo 1: The completed resistive tap.

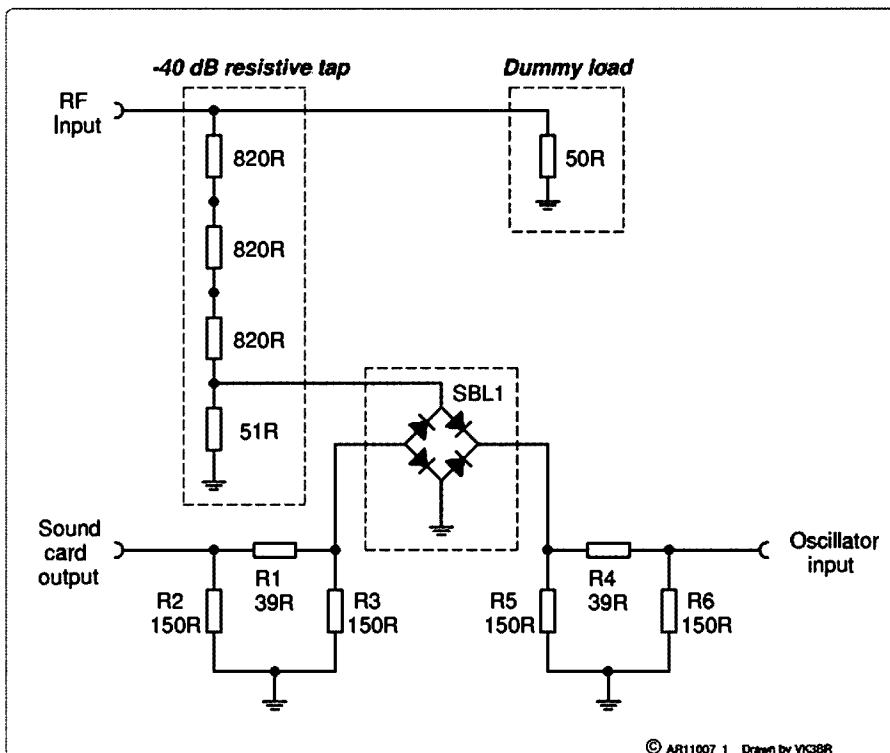
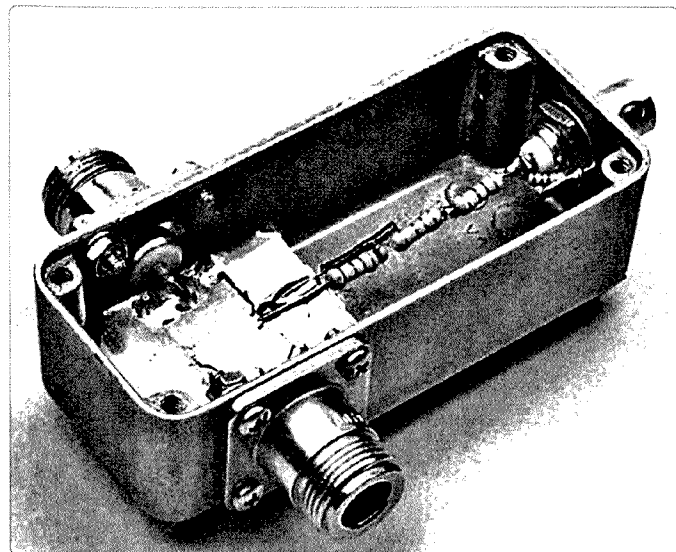


Figure 1: 40 dB power divider, from <http://astromag.co.uk/ssa/>

At the high end of the market are the instruments known as spectrum analysers and even on the second hand market good brand name RF spectrum analysers can be worth more than a good second hand

car. These days there are many software applications for using the ubiquitous computer sound card for displaying audio and supersonic signals on the PC.

I suggest for further reading, a look at page 22 of the Foundation Manual for

an explanation of the modern oscilloscope and spectrum analyser and their uses.

Several years back, Jim Rowe, from *Electronics Australia*, produced a home brew spectrum analyser based around a TV tuner module and followed this with the design of a comb (marker) generator and a mixer for viewing HF signals.

Since Jim Rowe's article, there have been many designs published and available from the internet. It was from the internet that this project was gleaned, refer Reference 1. From *Dave's Astronomy Magazine* comes the design that combines some basic home brewing and some free software – 'A Simple Spectrum Analyser by G4AON'. This project uses a part of a project 'Simple RF-Power Measurement' published in *QST*, June 2001, refer Reference 2. This part is a resistive 40 dB power



divider which allows the signal from a 100 watt transmitter to be used with low power measuring equipment.

Figure 1: 40 dB power divider, from <http://astromag.co.uk/ssa/>

For me this has been a happy co-incidence, as I have finished the VK5JST RF antenna bridge, refer Reference 3, and I was looking for convenient methods of getting a suitable source of low level RF. I built my bridge without the dummy load/attenuator with the hope of using the grid dipper and signal generator. Use of a 50 ohm termination with sniffer tap was rattling around in the head before I found these articles. Just proves that other people have probably thought of it too.

The power tap is constructed in a suitable die-cast enclosure and uses:

1. Small die cast box, Jaycar PN HB-5062 or similar.
2. 2 off N series bulkhead mounting connectors.
3. 1 off 50 ohm BNC bulkhead connector.
4. 1 brass shim 25 mm x 32 mm approx.
5. 3 off 820 ohm 0.5 W carbon film resistors.
6. 1 off 51 ohm 0.25 W carbon film resistor.
7. 1 piece 22 swg wire approx 15 mm.

As part of the spectrum analyser, we need a termination, dummy load, and some radio clubs are promoting building these using precision 50 ohm resistors mounted with adequate heat sinking. The mobile phone service is providing quality terminations which can be bought at hamfests and on-line sales/auction

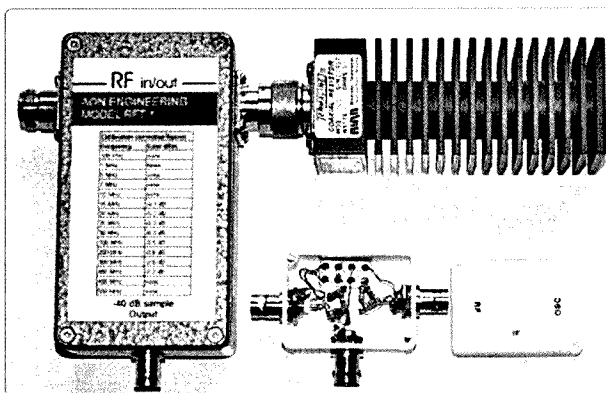


Photo 2: The complete test set up, showing the mixer at bottom right.

sites. Remember to choose your load to handle the power you intend to use. A precision 30 watt load will cook into a paper weight if fed 100 watts for too long.

Now this brings us to the last item of the spectrum analyser to build. The original part used is the Mini-Circuits SBL-1 which is an obsolete diode ring mixer; not to despair, this part has been replaced with the smaller (for surface mount boards) ADE-1, refer Reference 4 and 6, which actually has slightly improved specifications.

What this project does is allow a signal generator to mix with a fixed frequency signal and by the heterodyne (mixing) process produce an audio frequency which can be processed by a computer sound card and displayed on the monitor. Think of this in the same light as a TRF receiver with a visual rather than an auditory output.

To protect against overload and distortion, the diode ring mixer is buffered by 6 dB attenuators from the signal source and to the sound card. As noted in the article, if the signal generator is designed

to operate into 50 ohms, the attenuator pad may be dispensed with and similarly with some sound cards the pad on that side may be replaced with a 50 ohm terminating resistor instead.

In order that we get the nicely coloured graphics, we need some software to accomplish the processing and the recommended program is DL4YHF's *Spectrum Lab*, refer Reference 5.

In putting together this piece of equipment, we have constructed a RF attenuator usable to over 500 MHz; a RF mixing module usable to about 500 MHz and possibly made a termination also usable over a similar frequency range. By combining suitable testing modules, we have the capacity to expand the equipment into more configurations of use to the home brewer.

In summary, by building an RF tap, using a dummy load and a signal source such as a signal generator, even a dip oscillator in combination with the shack computer, today's amateur can look for ways of improving the transmitted signal from his station and monitor other signals.

## References

1. <http://www.astromag.co.uk/ssa/>
2. <http://rfplus.jonwright.org/data/qst200106.pdf>
3. <http://www.users.on.net/~endsodds/vhfuhfan.htm>  
AR June 2006
4. <http://www.minicircuits.com/pdfs/ADE-1.pdf>
5. <http://www.qls.net/dl4yhf/spectra1.html>
6. <http://www.minikits.com.au/doc/section10.pdf>

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# Home brewing a mobile HF antenna

John McLean VK2KC

After a long discussion with local amateur radio operator Paul VK2DEL on the merits of different types of HF mobile antennas and, after reading an article in the July edition of *Amateur Radio* by David VK5DWC, covering his experiences with a very long mobile HF antenna, various types of mobile antenna and their efficiencies were discussed at length. Further, having noted the success of my High Sierra HS1800 motorised antenna during a trans-Australian trip last year, it was decided that a reasonably efficient tapped mobile antenna could be home brewed, using the junk box as a source for parts.

This project led me into a lot of research on the subject. My extensive library, plus the internet's limitless resources, led me to design what I figured should be a very efficient HF mobile antenna. It was found that if the loading coil diameter was maximised, and fitting of a 600 mm diameter capacity hat at the very top of the antenna, then the end result should be a reasonably efficient radiator. Weight and wind resistance were a consideration, so every effort was made to keep these factors in mind. Further research showed that for maximum antenna efficiency, the loading coil should be placed at the top of the antenna, but this was ruled out due to the fact that the coil would have to be almost twice the length of one mounted midway, and the excessive wind resistance would be a problem.

An article by Mark Lowell N1LO, of a tapped mobile HF antenna, complete with a diagram, showed

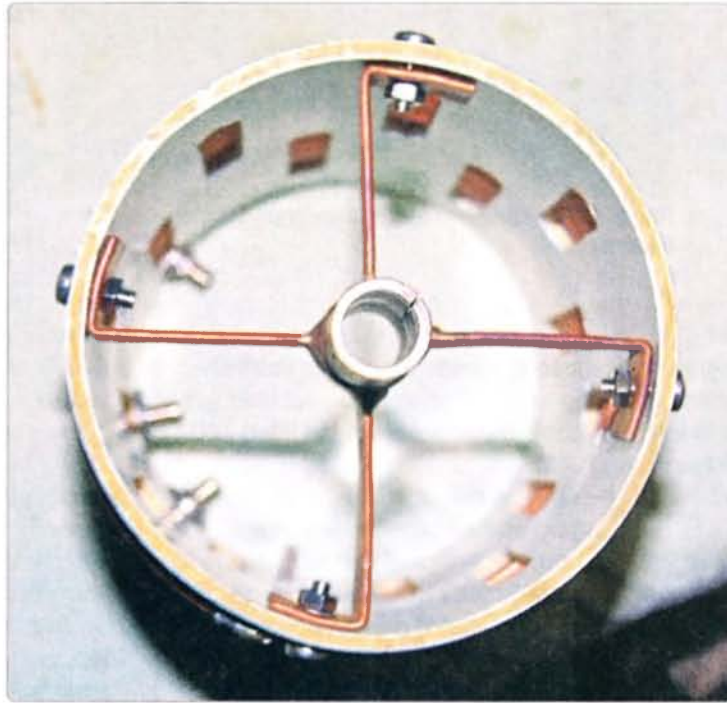


Photo 1: The coil under construction – showing the two fabricated 'spiders'.

a lot of promise and, with reports of outstanding on-air performance from those who had built one, led us to believe that with what resources we had on hand, the N1LO design was the best option.

N1LO's antenna looks very much like the renowned 'Texas Bugcatcher', produced for 30 years in the USA. Sadly, as of 31 October, 2009, Henry Allen, the builder, retired with no one to take over the business.

The fibreglass rod used for the mast was an old HF whip of unknown origin being just over 2400 mm long and 15.9 mm in diameter. The top brass ferrule

was removed using a heat gun and then 50 mm long brass sleeves were machined up and slotted radially in four places to take four lengths of 15 mm wide copper strap. These were bent at right angles on one end to allow them to be bolted to the inside of the coil former. These copper straps were silver soldered to the sleeves, making up a four-legged spider, and the sleeve body slotted vertically to enable them to be clamped firmly to the fibreglass rod.

A piece of 100 mm diameter PVC stormwater pipe was selected for the coil former and a 250 mm length cut, and an eight-

threads-per-inch groove machined in it on the lathe for 40 turns. At this stage we were flying blind as to how many turns would be required, as the dimensions differed from the antenna built by N1LO. A series of overlapping slots was machined longitudinally in the PVC coil former to allow the taps to be soldered to the coil at the resonant points later on; also to reduce the wind drag at highway speed.

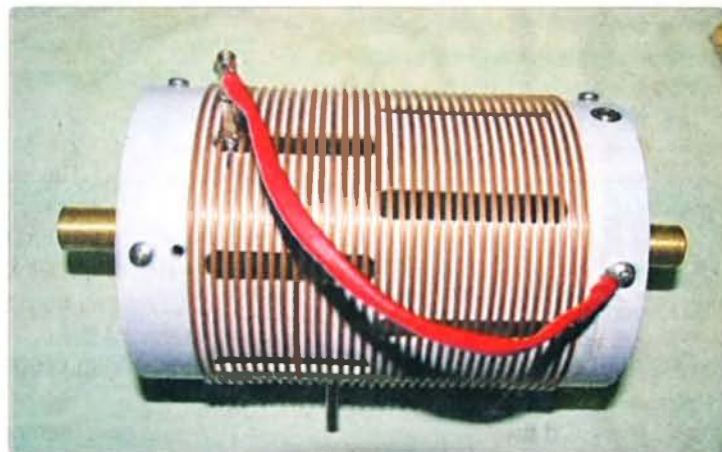


Photo 2: The completed coil.

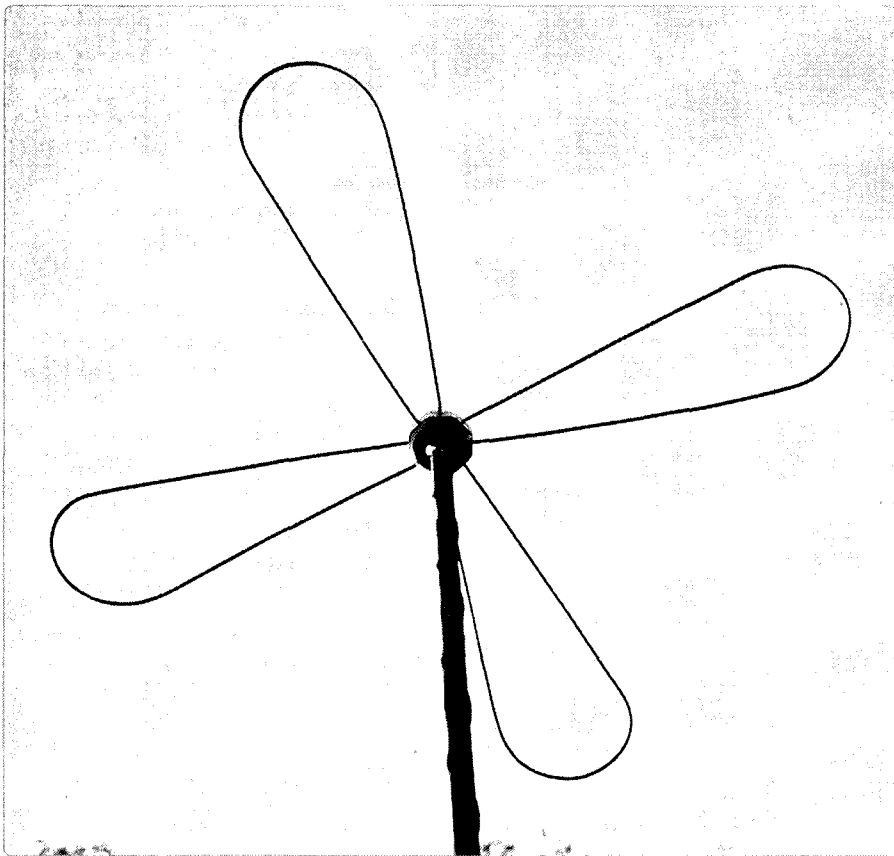


Photo 3: The four-leaf configuration capacity hat.

The two fabricated 'spiders' were then bolted to the top and bottom of the coil former. Then 40 turns of 2 mm diameter hard drawn copper wire were wound on the former and secured with bolts. This allowed a short jumper wire from the bottom of the coil to connect with the top of a 1200 mm length of 2 mm copper wire which had been wound on the lower part of the rod. This in turn was soldered to the bottom-mounting ferrule and terminated on one of the arms of the bottom of the coil support. A further 1200 mm of 2 mm copper wire was wound around the fibreglass rod above the loading coil, and then bolted to the top of the coil spider and soldered to the top ferrule that had been removed earlier.

Then a capacity hat mounting hub was machined to allow 8 x 3 mm aluminium radials 300 mm long to be fitted. This assembly in turn was fitted to the top ferrule, locking it into place using two 4 mm grub screws. It was decided to use four 600 mm pieces of 3 mm hardened aluminium wire and bend each one into a 'U' and they were fitted

to the hub. This gave a four-leaf configuration. Allowance was made for a 200 mm stinger to protrude above the capacity hat. As it turned out, this allowance proved to be very fortuitous. Further research has revealed that a 300 mm diameter full circle capacity hat has the same capacity as the 600 mm cloverleaf type. This idea will be utilised on the Mk2 version at a much later date!

Now it was time to fit the antenna to the vehicle. In this case it was a Nissan Patrol, which has the standard 4WD HF mount fitted at the rear of the vehicle close to the spare tyre.

Using an MFJ antenna analyser, a resonant point was established at the desired operating frequency of 3.6 MHz, and this was found at the 37<sup>th</sup> winding. The antenna was removed and another coil former was manufactured; this time a lot shorter than the prototype as we were able to cut three turns from the original coil and mount the coil 'spiders' within 5 mm of the end of the coil windings.

The unit was then reassembled

and rechecked for resonance at 80 metres. Having achieved this, 40 metre and 20 metre taps were then found and once those points were established, the antenna was removed and banana jacks were then modified to enable them to be soldered to the coil for the 40 metre and 20 metre bands.

To make the sockets, binding posts (Jaycar PT0640) were stripped of all their hardware and then cut with a mini hacksaw across the hole, leaving a semi circular indent to mate with the coil winding. A chamfer was filed on both sides parallel to the half hole so that they would clear the adjacent coil windings. Then the modified sockets were soldered in the correct position on the coil. A small wander lead was made up to allow the taps to be selected using, naturally, a banana plug on one end. It was interesting to note that as a result of the High Q of the coil, the positioning of each tap was critical and even an eighth of a turn made quite a difference with respect to antenna resonance.

The final assembly included fitting of heat shrink over the top and bottom sections. The top ferrule was then epoxyed into position, the loading coil assembly was fixed in position on the fibreglass mast using two stainless steel hose clamps, the capacity hat hub assembly fitted to the top ferrule, and the antenna was then fitted to the vehicle.

Much to our annoyance, it was found that the heat shrink had lowered the resonant points of the antenna. After some thought, this was remedied with the removal of the 200 mm stinger and this brought the antenna back into resonance. Thank goodness that the initial design, and tuning, included the 200 mm stinger! Murphy had lost this battle!

In building the antenna it was found that the feed point radiation resistance on 80 metres was 21 ohms, with a resultant VSWR of 2.5:1, but the reactance was almost zero. As the vehicle has an ATU fitted, the high VSWR was ignored. The most interesting part was that on the 20 metre band, the feed impedance was 45 ohms, with the reactance almost zero again.

This project certainly absorbed a lot of man hours, but both of us were determined to home-brew a decent performing HF mobile antenna, and this objective was definitely achieved. Many hours of frustration were experienced, but all obstacles were overcome with time and careful thought and, at times, re-engineering. The most costly item was the stainless steel hardware, as most of the components used were available in our junk boxes!

The antenna can be tapped at other points of interest, as the length of the antenna allows for any frequency of operation between 10 metres to 80 metres. It is just a matter of finding the resonant point and soldering another socket on the coil, even at commercial frequencies.

The downside of the antenna is that it is not at all portable. Being 2400 mm long, Mk2 plans are already on the drawing board. It is planned to make the antenna in

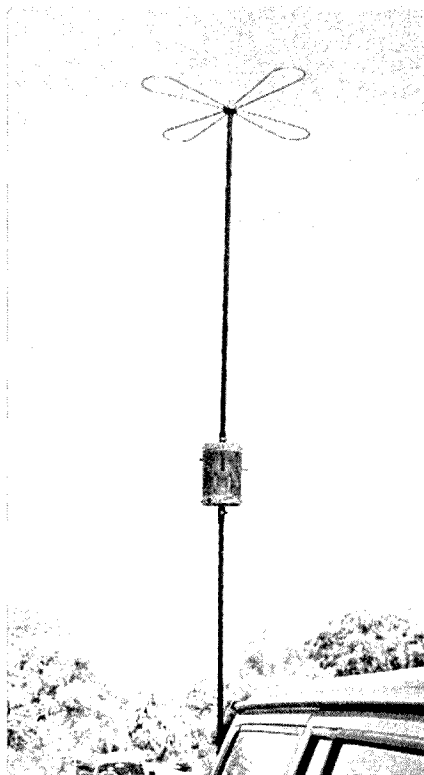


Photo 4: The completed antenna mounted on the Nissan patrol.

three parts. Top and bottom of the mast will screw into the loading coil, utilising some custom machined adaptors, making the longest part approximately 1000 mm long when disassembled. This will enable undercover parking lots to be negotiated without the dreaded scraping noise!

Paul has reported some very good contacts. One I know of is an 80 metre contact, at 1 pm local, into Sydney, with a signal strength of 10 over 9. He also found it performed extremely well on 40 metres and 20 metres in the car park at the local Town Beach, and it created a lot of interest with other amateur operators.

Overall it was a very interesting, albeit at times frustrating project!

## References

<http://www.qsl.net/n1lo/mobilhf.pdf>  
2010 ARRL Handbook  
[www.k0bg.com](http://www.k0bg.com)



# Silent Key **Cmdr. Dennis A Smith ex VK5LS, 1920-2011**

To those of you who have read "The Secret Wireless War" or "Edgar Harrison" (Winston Churchill's wireless operator) by Geoffrey Pidgeon, the name Dennis Smith may ring a bell. In Edgar Harrison's biography there was a chapter describing how Dennis led the R & D team of MI6 (Sect VIII) where, beside designing special wireless sets for the Army, Navy and Air Force, they also designed equipment for clandestine agents and special wireless intercept sets, etc. He wore many hats and many uniforms depending on his mission. Post WW II he was also known as G3AIS.

Dennis was born at Wimbledon in 1920. As a teenager he enjoyed classical music, was active as a Rover Scout and was enthusiastic about the new wireless technology that was evolving in the 1930s and built his first crystal set. He left school at age 15. His enthusiasm with wireless led to employment with Eddystone Radio where he embraced the communications technology.

When WW II broke out in 1939 Dennis was sent to Paris to set up the

Free Czech and Polish Radio Stations. From 1940 to 1946 Dennis and his team were located at Whaddon Hall, five miles west of Bletchley Park, where they undertook their clandestine work. In 1943 he was instructed to form a new unit that involved fitting specialized equipment into MTBs and MGBs.

Post WW II MI6 recruited Dennis into the Royal Navy and he was posted to Malta. Dennis and family left Malta in 1952. In 1955 Dennis reverted to general service and served on HMS "Protector" in the south Atlantic. In 1957 until 1961 he served at the Weapons Research Establishment at Edinburgh in South Australia. On his return to the UK he had many more overseas appointments including Weapons and Electrical Officer with the 5th Frigate Squadron in the Far East based in Singapore. This led to a further posting to Melbourne, Australia where he was the General Overseer of Engineering and Chairman of the Post Design Services for the IKARA missile – an anti-submarine guided weapon. During this time he was active as VK3DIS.

In 1969 he transferred to the Royal

Australian Navy as Commander Dennis Smith RAN.

In 1984 he was appointed Chairman of the Veterans' Affairs Review Board. He retired in 1985 and spent the past 26 years enjoying his many hobbies that included amateur radio and model ship building. He was a member of the Seven Seas Club.

I am sure there are members who may remember this great man. Not many people served in four uniforms! His contribution to his country will not be forgotten.

Dennis became a silent key on 16 May, 2011, aged 90.

Some of you may have served with Dennis or worked him on the air. Check your logs. He was a keen CW operator. Look for G3AIS, ZB1AIS, VP8AIS, VK3DIS and VK5LS. I would be delighted to hear from you to complete the picture of this brilliant man.

Contributed by David A Pilley  
VK2AYD  
[dvdply@midcoast.com.au](mailto:dvdply@midcoast.com.au)



# Building an 80 metre magnetic loop antenna for your attic

Jim Tregellas VK5JST



Photo 1: Testing the loop on a temporary frame.

## Part 2

### The practical antenna

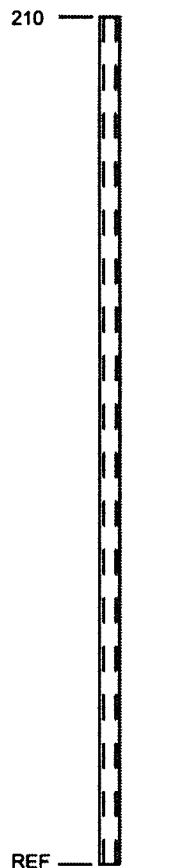
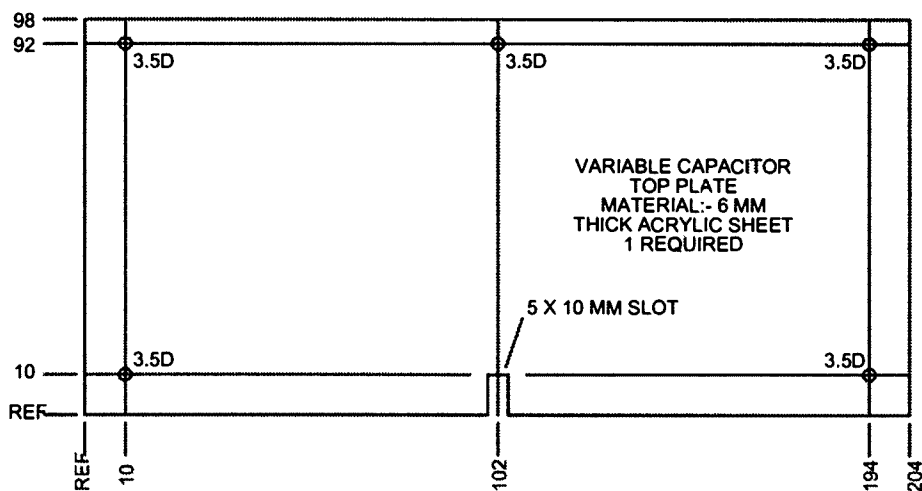
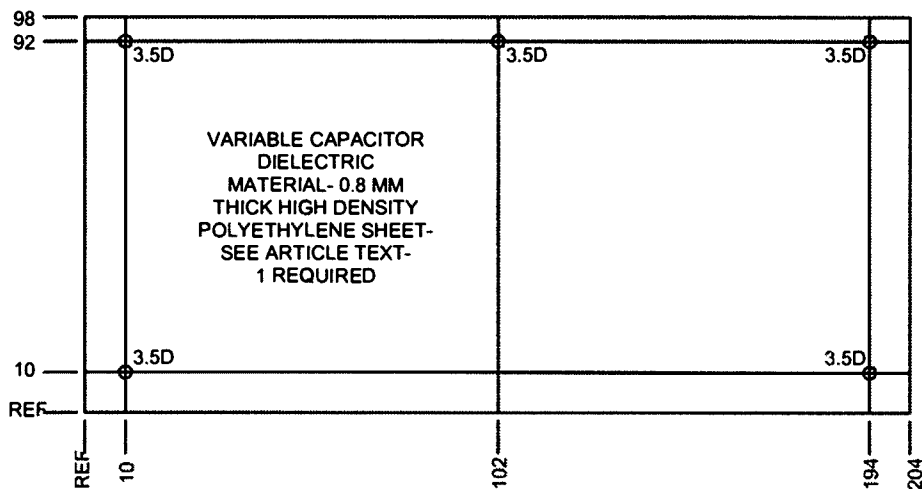
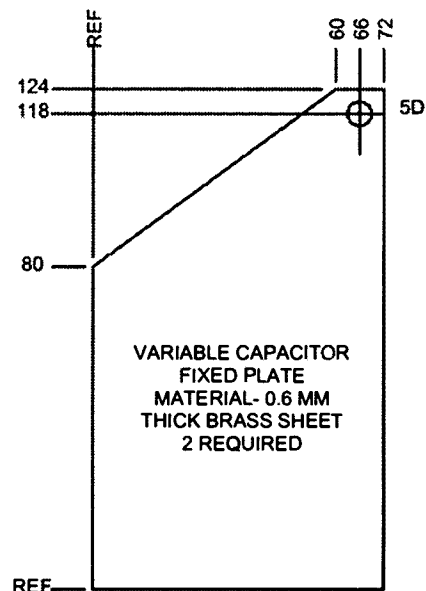
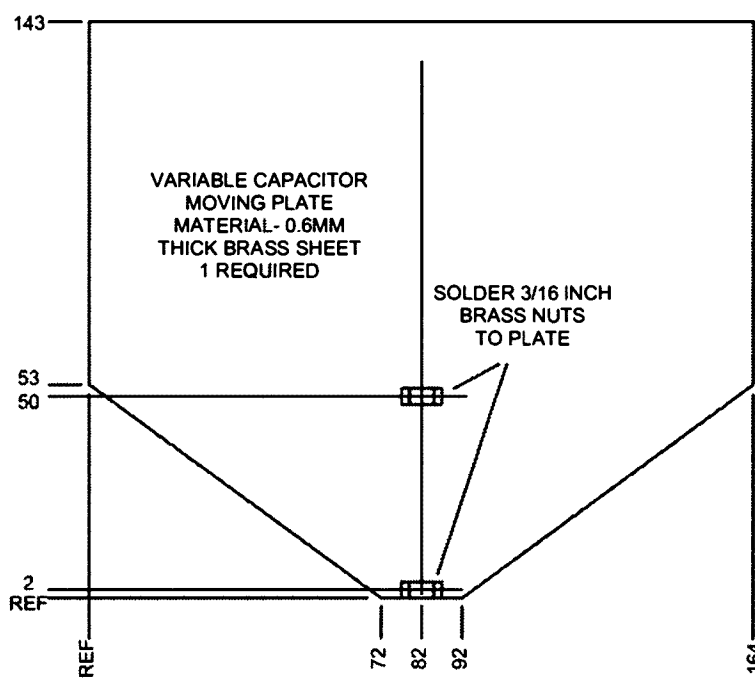
I settled on a loop with a perimeter of 0.1 wavelengths or 8.3 metres (2.6 metres diameter) after a careful look at my attic. Some calculation (see the website of KI6GD for the file loopcalc.zip) with an assumed loop conductor diameter of 18 mm

(copper water pipe) showed that I would need a tuning capacitor of around 280 pF to tune the loop down to 3.5 MHz and this capacitor would have to withstand around 4000 volts and several tens of amps. If the loop was operating with the predicted 18 to 20% efficiency, it would exhibit a Q on transmit of about 880.

Next step was to price the

loop conductor. I went to my local plumbing supplier and priced 8.5 metres of 18 mm diameter copper pipe. The figure quoted caused a rapid rethink. I checked the price of LDF4-50 and it was the same as the water pipe. LDF5-50 was not even funny. So back to the drawing board. At this point I was anything but sure that an antenna with a calculated efficiency of 20% was even worth having, and so I wanted a cost free method to prove the concept. After looking around under some benches I found enough short lengths of RG213 to make up three parallel turns of conductor. This was equivalent to having a single turn of a conductor with a diameter of 27 mm - which would have higher than normal losses due to the rough surface of the coax outer sheaths. I also had several Jennings vacuum variable capacitors which would fit requirements, and using one of these I made up my first loop. The results were very encouraging. The loop Q was around 1100, which clearly demonstrated that the coax losses were not as bad as first thought. I then removed one strand of the RG213 and the loop Q dropped to 810. So far, so good.

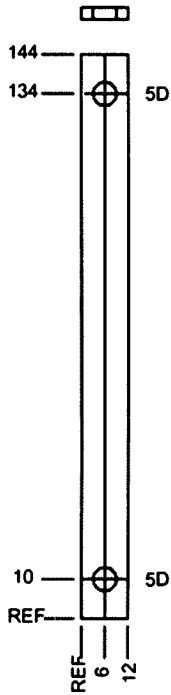
The next step was to get rid of the very expensive vacuum variable capacitor and simultaneously make the tuning less critical. This took about two weeks of fooling about. What finally evolved was a fixed 240 pF air spaced capacitor with super low losses in parallel with a 50 pF trimmer capacitor to allow tuning across the band. This structure rivals the vacuum variable in performance. The trimmer uses HDPE as the dielectric which keeps it physically small. It is driven via a screw thread from a low power stepper motor, and because the trimmer is only a small part of the total capacitance and the screw thread is fine, tuning is easy.



**VARIABLE CAPACITOR DETAILS**  
DRAWN VK5JST MAY 2010

Figure 1: The variable capacitor.

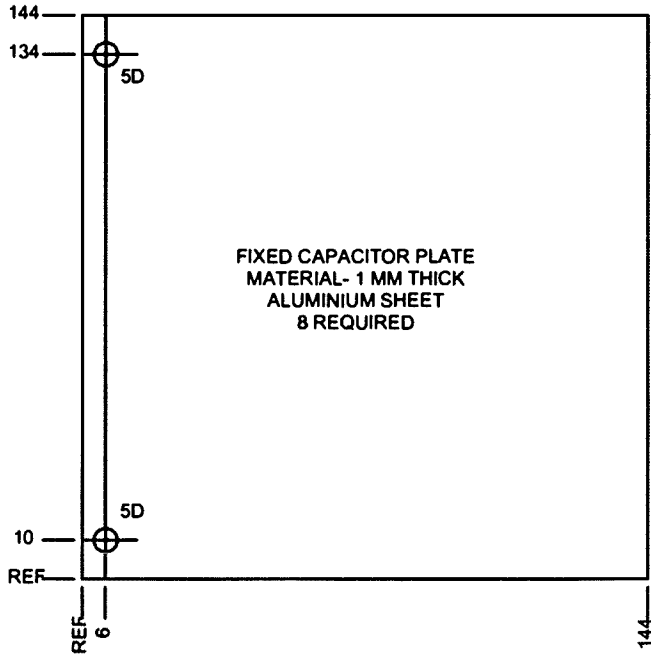
FIXED CAPACITOR SPACER  
 MATERIAL- 12 X 3 MM  
 ALUMINIUM FLAT  
 2 REQUIRED



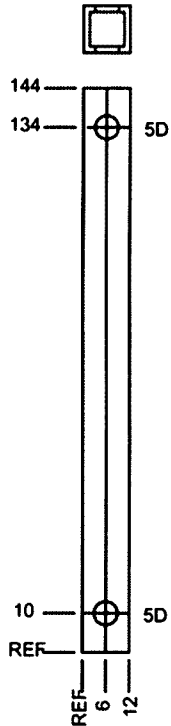
FIXED CAPACITOR SCREW COLUMN  
 MATERIAL-  
 3/16 INCH BSW  
 THREADED ROD  
 4 REQUIRED



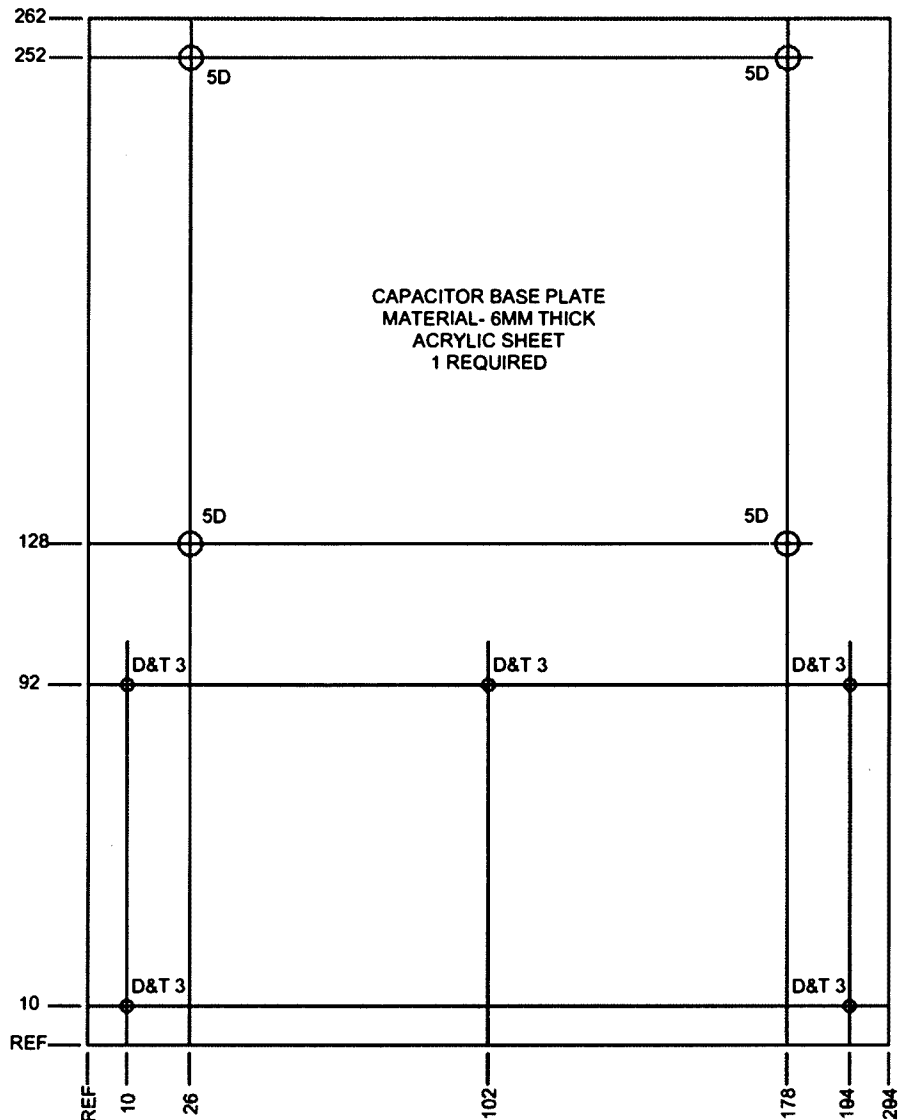
FIXED CAPACITOR PLATE  
 MATERIAL- 1 MM THICK  
 ALUMINIUM SHEET  
 8 REQUIRED



FIXED CAPACITOR SPACER  
 MATERIAL- 12 MM  
 SQUARE ALUMINIUM  
 TUBE- 7 REQUIRED



CAPACITOR BASE PLATE  
 MATERIAL- 6MM THICK  
 ACRYLIC SHEET  
 1 REQUIRED



BASE PLATE AND FIXED CAPACITOR DETAILS

DRAWN VK5JST MAY 2010

Figure 2: The fixed capacitor.

It is a modified butterfly capacitor where the two fixed plates are positioned side by side on an acrylic backing sheet and a moving plate slides over the pair coupling them together. Finding the dielectric was not easy. After hunting around the local plastics suppliers, it became clear that the thinnest HDPE sheet they had was 3 mm thick. This is way too thick to make a trimmer capacitor of reasonable size. I nearly gave up at this point, but a shopping trip to Woolworths saved the day. There I found some kitchen cutting mats (Chef Craft Flexible Cutting Mats - pack of 4-305 x 380 mm - \$5) which were ideal, and even better, are a standard stock line. These mats are pure HDPE 0.8 mm thick. HDPE has a breakdown potential of 17 kV/mm minimum and so these mats can be used to make capacitors with 13,000 volt ratings (or 26000 volts in this case as there are two layers in series). HDPE has a dielectric constant of 2.2 but because one side of these mats is very finely patterned, the actual dielectric constant turns out at about 1.5 due to the small included layer of air. The trimmer ends up having two sets of plates with a working area of 72 x 80 mm spaced apart with 0.8 mm thick HDPE, making up two capacitors of around 100 pF maximum in series to form a 50 pF adjustable capacitor. The fixed plates are held in position side by side 20 mm apart with two of the retaining screws for the fixed plates. They are attached to the acrylic backing with standard double sided adhesive tape. Note that all brass plates in the variable capacitor must be very flat so that there are no significant air gaps in the assembly. The edges of all three plates must be carefully rounded and smoothed. The whole capacitor is held together with light spring pressure from springs on the shafts of five 25 mm long 3 mm diameter retaining screws. These screws pass through the top plate and dielectric separator to the backing plate and the springs bear down on the 6 mm thick top plate.

The fixed air spaced capacitor of around 240 pF is made with 1 mm thick aluminium plates spaced

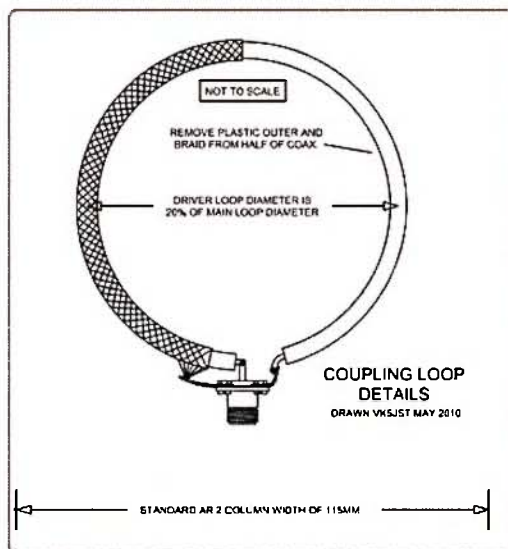


Figure 3: The coupling loop details.

apart using 12 mm square aluminium tube, giving a 5.5 mm interplate spacing. As air has a breakdown potential of around 3000 volts/mm this means that the fixed capacitor should work happily up to 11000 volts rms.

My final design is as follows. The loop has a circumference of 8.3 metres and is made of two parallel turns of RG213 or RG8 outer sheath (do not remove the plastic outer insulation). Slightly better alternatives are one turn of 18 mm copper water pipe, or LDF4-50, or LDF5-50 if you want to spend the money or have it handy. These conductors can be attached to your internal roof structure in any reasonable shape which has a large internal area. This could be a circle, an octagon, or a square/rectangle/triangle with very rounded corners. Note that the antenna becomes more efficient as the perfect circular shape is approached and as the perimeter is increased. With a perimeter of 8.3 metres, the efficiency is around 20%. Even an antenna this small can compete with and sometimes out perform the typical inefficient wire antenna mounted at 10 metres. If the perimeter can be increased to around 15 metres (0.2 wavelengths), the efficiency rises to some 60% and you will have a 'big signal' on 80 metres. If your loop perimeter is bigger than 8.3 metres then you must reduce the size of fixed and

variable capacitors. Plates are easily removed from the fixed capacitor to allow this (part plates can also be used) and the plate sizes of the trimmer capacitor are easy to scale down too.

### Feeding the loop

There are a number of ways energy from the transmitter can be coupled into the main loop. These include transformer coupling, the gamma match, and single turn shielded and unshielded coupling loops of around 20% of the diameter of the main loop. I like the last two methods because they are

simplest to make and adjust. A single turn coupling loop, half of which is covered with a Faraday shield to limit noise pickup, is easily made from a length of RG213 - refer Photo 1. When properly set up, the SWR of the antenna can be easily adjusted by flattening or stretching the circular shape of the coupling loop. An alternative technique is to slightly overlap the main and coupling loops.



Photo 2: The tuning capacitor and feedback potentiometer assembly.



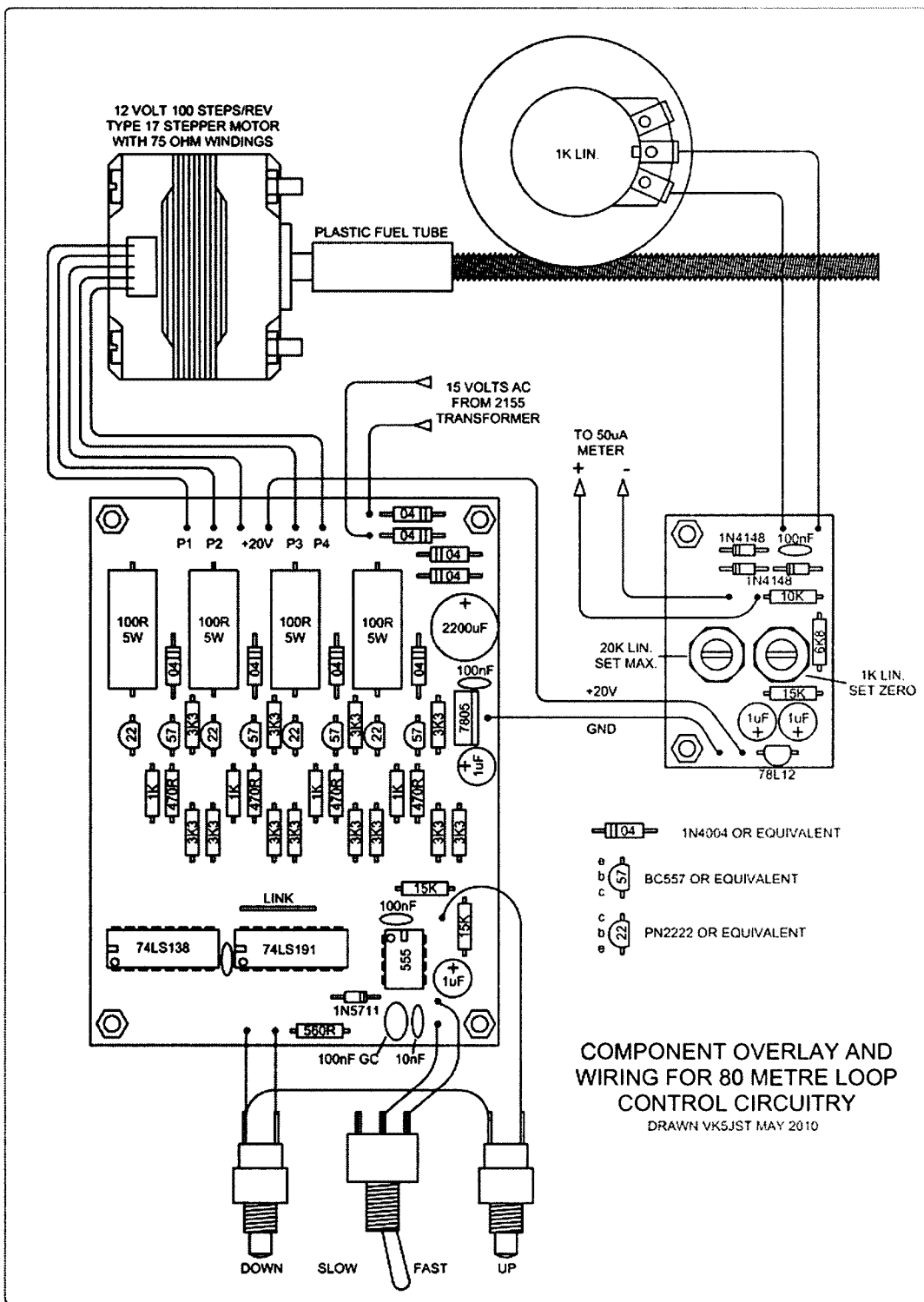


Figure 4: The component overlay and wiring for the loop control circuitry and hardware.

Getting an SWR under 1.1:1 is not difficult.

### Tuning the loop

Loop tuning is done from a remote control unit which provides forward and reverse drive to a stepper motor at either a 27 Hz or 300 Hz rate (8 or 90 rpm). To tune across the band requires a capacitance variation

of around 31 pf. This corresponds with a 47 mm movement (out of a possible 80 mm) for the moving plate of the 50 pf trimmer capacitor. If we use a 3/16 inch BSW screw thread (24 TPI) to match the stepper motor shaft diameter and drive the capacitor, the stepper motor must move through about 50 turns or 5000 steps to cover the band. This

gives around 60 Hz per step which is more than fine enough to give excellent tuning. It also means that tuning right across the band will take around 17 seconds at the high step rate. The stepper motor is a type 17 12 volt 75 ohm unit (or thereabouts) that is best obtained free from an old 5.25 inch floppy disc drive unit. The clock circuit is a two speed 555 circuit which drives a 74LS191 binary up down counter. The least two significant bits from this counter are decoded in a 74LS138 to provide a one out of four output on pins 12, 13, 14 and 15 of this chip. Each output is then OR connected to drivers connected to each motor phase to provide a two phase drive. An indication of the frequency to which the loop is tuned is fed back to the operator on an analog meter. This meter is powered from a simple potentiometer coupled via worm wheel to the trimmer capacitor drive screw. Refer to Photo 3 showing how to make this worm wheel using a tap and a bench drill. Any soft material about 10 mm thick such as plastic, five ply, Bakelite or acrylic sheet can be used. A fly cutter is used to cut out a 38 mm diameter disc of material. Place a drill through the central hole in the disc to use as an axle. On the edge of the disc grind a shallow semi circular trench by allowing the disc to spin against one corner of a rotating bench grinder wheel. This trench should be sufficiently deep to allow contact from two of the flutes on the tap, causing the disc to spin and cut a

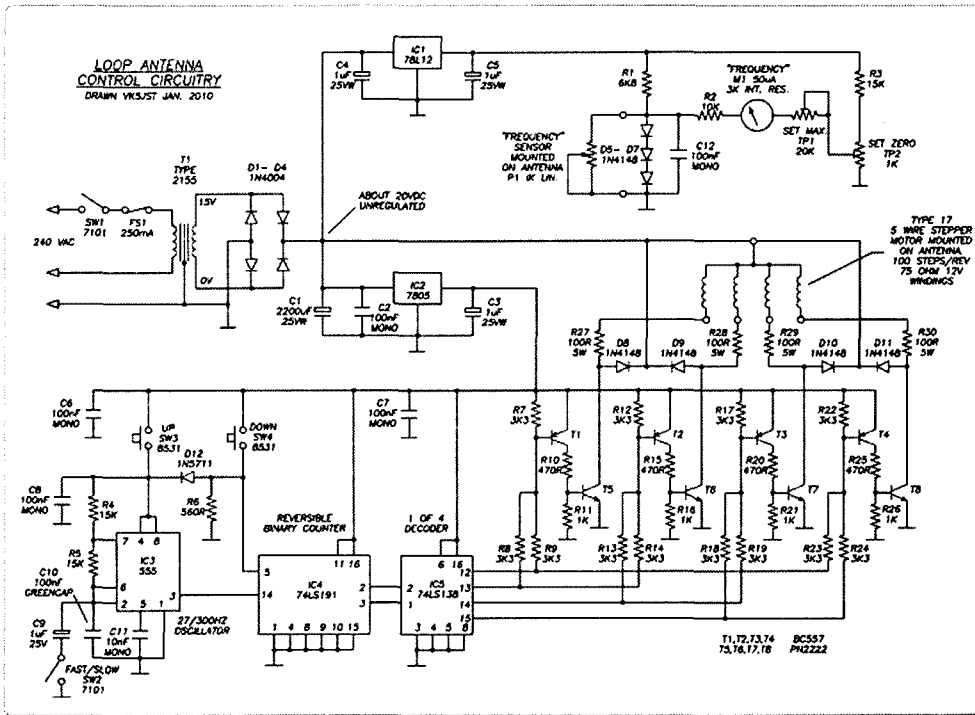


Figure 7: The copper pattern for the stepper control electronics.

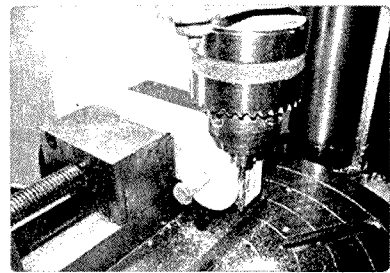


Photo 3: How to make a worm wheel in a drill press.

in 360 degrees. This gave a circumference of about 120 mm or a diameter of 38 mm. This worm wheel is fixed to the pot shaft with a blob of silicon sealant. The analog meter can be roughly calibrated in frequency terms using the two trim pots provided in the control unit.

**And Finally.....**

When you have mounted the antenna in your attic enclose the entire capacitor assembly in a plastic bag to prevent dust ingress. If you want to mount it outside then put the capacitor assembly inside an upside down plastic bucket and take the loop conductors up into this to keep everything waterproof.

**References**

1. *An Overview of the Underestimated Magnetic Loop HF Antenna.* Leigh Turner VK5KLT, AR May 2009.
2. *ARRL Antenna Handbook.*
3. Discussions and emails with Leigh Turner VK5KLT.

thread from the moment it contacts the spinning tap in the drill. Make sure that the tap forces the worm wheel against the backing plate when cutting the thread! Clamp the backing plate to the drill table, and gently swing the drill table around the drill post to make cutting easy. If you use plastic, keep the tap cool

otherwise you will end up with no thread on the worm wheel, and a tap buried in melted plastic. I used a carbon pot with about 270 degrees of rotation and so I needed a worm wheel with about 75 teeth (75 revs from maximum to minimum capacitance) in around 240 degrees, or around 112 teeth

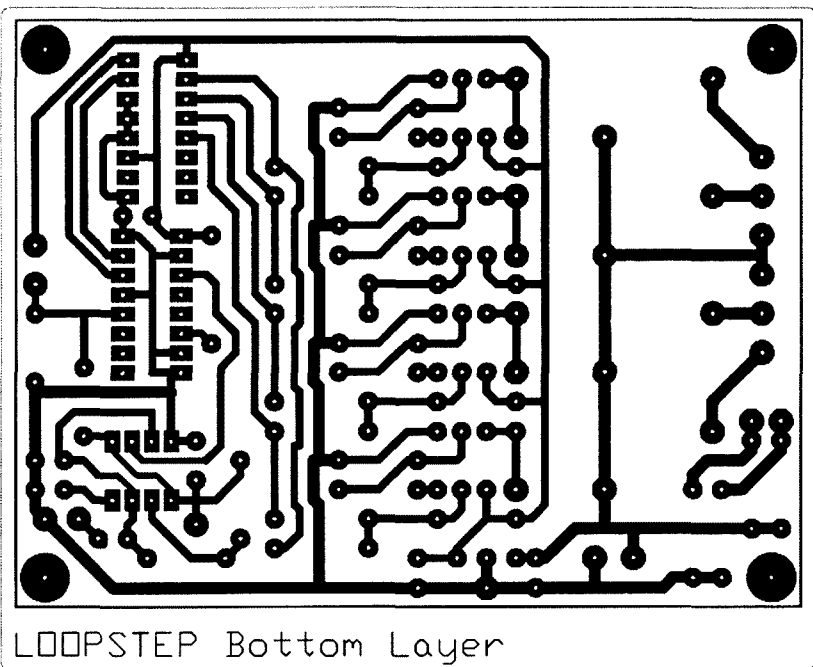


Figure 6: The control electronics circuit diagram.

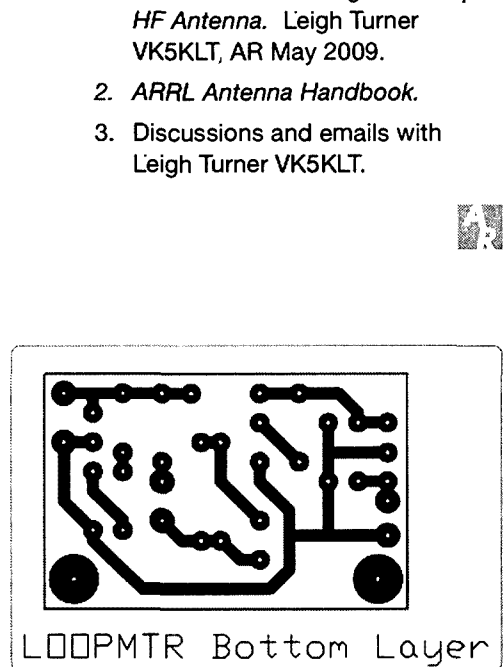


Figure 5: The pattern for the meter PCB.

# Six months on Willis Island

David Burton VK4DAV/ VK9WBM

Most DXpeditions are undertaken by teams of experienced operators with months of planning before departure. They result in many thousands of contacts, and thus are normally considered successful. My trip to Willis Island was not like this.

I will start with a bit about myself. Twenty years ago I was a professional radio operator in Africa, working mainly for UN agencies like the World Health Organisation where I gained experience in field operations. I had enough interest in amateur radio to pass the British CGLI test but returned home before getting a licence. About twenty years passed until things changed.

In mid September 2009 an email arrived in my work mailbox at the Cairns Weather Office; it was almost a begging letter asking for someone please to fill the vacant officer-in-charge position on Willis Island for six months beginning in the coming November. I printed it out to discuss it with my wife but I did not expect the reaction I got. With a three year old son and a six month old daughter, I expected a flat rejection of the idea of me disappearing for six months to a desert island without her. Instead



Photo 2: Willis Island. It is about 125 metres by 400 metres of coral rubble with a reef around it.

she said 'Great, my brother is getting married in December, we will go to Tashkent while you go to the island'. I applied for the post on the Friday and was told I was successful by Monday lunchtime; it helps to be the only applicant! Then started a mad rush to

get tickets and visas for our children, pack our possessions for storage and for me to get a licence for operating from Willis Island.

As Willis Island (refer to Photo 4) is a rare DX location, I contacted John VK4JKL at the Cairns club who arranged for me to take the Advanced test and helped with supplying me with the addresses of web sites for practice tests. On 4 October I took and passed the test; it seems that there are some things you just do not forget, even with a twenty year break.

Dale VK4DMC offered to be my QSL manager, a task which he has done superbly and John VK4TL offered the loan of a HF/6 m rig and a two element 6 metre quad, which I gladly accepted. The other equipment I had consisted of some 300 ohm ribbon, a couple of reels of 7/0.2 wire, connectors, an old 12 V PSU and an Icom IC-718 with AH4 ATU which I picked up from Barry Dionysus' shop in Townsville just hours before setting sail.



Photo 1: Dave VK9WBM with the station equipment.

The only other preparation I made was to get a licence for the island. I applied for and got VK9WBM for eight months. A few people even managed to work it!

The first week after arrival on the island is spent with maintenance since we had specialists come out with us to fix things like plumbing and similar. They returned with the crew we were replacing. No radio got done then, but I did manage to grab a six metre long stainless steel pole for use as a mast before it got loaded onto the boat heading back to the mainland.

When things settled down and the four of us who were to run the weather station for the next six months were on our own I climbed the RADAR tower and strung a longwire from just below the top, at about 8 metres AGL and 16 metres ASL; this was the highest point on the island. The plan was to put the mast up in the clear and have a sloping longwire or G5RV to the pole. Things did not go according to plan.

Willis Island is a pile of coral rubble only staying in place because of the surrounding reef and the roots of the fringing bushes. If you think of those piles of gravel you see by the side of the road then you have an idea of the structural strength of the 'soil'. I hammered in three star posts until a quarter of a metre was left out of the ground, using the correct sloping technique and raised the pole. As soon as any tension was applied two of the posts pulled free. I extracted the remaining one with one hand!

So, no guyed masts! I tied the mast to a drain pipe and got the G5RV up about a metre above a metal roof. It sort of worked but not very well. I replaced it with a longwire inverted 'L' connected to the AH4 and got marginally better results (refer to Photo 3). On the ANZA net I worked my first stations and VK9WBM was in business.

A plastic pipe five metres long was liberated from stores with a three metre length of steel conduit for use as a stub mast and a six metre Slim Jim antenna was built using 300 ohm ribbon. The bottom

of the ribbon stuck out of the pipe but I put it up on another drainpipe using the conduit and immediately it worked! This was the best antenna I made in six months on the island (refer to Photo 3). Victoria, New South Wales and south east Queensland were worked when conditions allowed and I was not doing the work for which the Bureau was paying me.

As OIC I had to work as an observer as well as doing the paperwork, monitoring safety, stocktaking, writing operations reports and such things. I had less time for radio than I expected but I tried to operate at least once a week, more often if possible.

With no antenna rotator or mast for the six metre beam some ingenuity was going to be needed to get it into operation. Photo 1 shows what I ended up with. Supplies to the island are landed using a LARC or duck amphibious vehicle. There is a 'dock' for unloading and some time in the past a flagpole had been erected next to this. Unfortunately the pulley rope had broken and there was no ladder long enough to make a repair as the pole could not be lowered. Another pole was at the other end of the dock for no apparent reason and this three metre high mast had to do for me. I put the beam on a stub mast and dropped it into the hollow pipe

with string intended for tying RADAR reflectors to our weather balloons tied to the bottom ends of the driven element and two slabs of coral as anchors and I had a rotatable beam. To turn it I had to move the coral blocks but that was not too hard (refer to Photo 4).

Operation was by using an extension cable from the refrigerator compressor enclosure to my PSU and then into the Alinco DX70. I had to sit on hot concrete to operate and get sunburn at the same time. When the Slim Jim, which terminated in my bedroom (refer to Photo 1) showed that the Sporadic E was switched on I hastily dismantled everything and headed out to the beam. The result surprised me. This simple and rather crude system was able to work most states with good to excellent reports.

I had stated I was not available for planned skeds but simple good manners meant I had to try to set up contacts with VK4DMC, my QSL manager, and VK4TL whose rig I was using. Dale proved to be fairly easy and was the first north Queensland station I worked. For some reason I could not find any time of day that gave me a suitable skip to work the nearest part of the mainland. Working John was far more difficult. We got together with Dale setting up the time and frequency but John gave a signal which was strong but



Photo 3: The six metre Slim Jim and part of the HF longwire in the background.



*Photo 4: The six metre beam with the unique coral block rotator system. The dish in the background is for digital satcomms.*

totally unreadable. A very unusual QSB effect was apparent with deep fading at about 2 Hz cutting up his audio. QSB is normally due to multipath propagation so I swung the beam fifteen degrees away from him and lost one of the signal paths. The QSB was cured but I now had a station six hundred kilometres away in Queensland being drowned out by stations the other side of the continent in Perth!

With several requests to wait as they could not hear me in contact with John we eventually made the required exchanges after 15 minutes of hard effort. I spent the next half hour getting 59 contacts with VK6 until I had to close to prepare the balloon for the early afternoon flight. In the next three hours while I was busy working the band died. I could raise no one when I tried again at about 0700 UTC.

This was the last significant six metre operation I was able to do. The first problem was with the Slim Jim. The local bird life had chosen it for a perch and the PVC pipe was not up to it. For those who have not lived on an island I had better introduce the Booby Bird. Think of a seagull and multiply by four. You now have four to six kilograms of bird wanting somewhere to roost for the night. To begin with the SJ took on a slanted polarisation which did not affect the

signal, when the slope passed beyond the horizontal the antenna began to blow into the building and I had to run around at midnight in a rising gale taking it down.

This gale was the start of the cyclone season. With TC Olga threatening to hit the island I took down the beam as well. It may have survived but it was a borrowed antenna and I was not going to take risks. The HF antenna was left in place as a bit of wire could not do much damage and was easily replaced. TC Olga hit us squarely with the eye passing right over the island. Most of the damage was from wind-blown salt spray corroding everything in sight – balloon filling equipment, generator switchgear and such things. With work-arounds for the problems in place during the working day I had no time to put any antenna back up.

With the HF end fed longwire still in place I tried to get back on the air and found I had made a stupid mistake. The AH4 was outside my room window, half under the raised building. I had had to mount it on the side to fit the space, with the coax feed going out the slightly open window and into one side of the ATU, the long wire coming out the other side. When the rain and salt spray hit the coax it drained down into the ATU. Not knowing this I tried to tune the antenna and it would not stop tuning.

Investigations soon found that the ATU box was a third full of water with the CPU submerged. It was a write off.

I will stress the failure was entirely my own fault. The AH4 had worked well with several poor antennae to get some signal out even though the wire was under two metres above a steel roof, Icom is not to blame for the failure, indeed all the commercial equipment I had from both Icom and Alinco performed well in a poor operating environment. I would recommend them to anyone going on a light weight DXpedition.

With the failure of several bits of the weather station it was decided to send out an extra boat with spares. The seasonal storms caused several delays and allowed me to order an AT180 from Barry who was very helpful and had it delivered to Cairns for despatch to the island. I also got a reel of the heaviest wire I could find off the shelf in Cairns picked up by Phil, the Cairns technician with the hope it would act both as an antenna and a bird roost without falling down. In the mean time I had no ATU, no antenna and little time to spare.

These problems did not stop me trying to get something to work. I reasoned that a folded dipole would be best but how to feed the 300 ohm beast? I decided to use a Slim Jim like feeder with both ends of the ribbon going to the 20 metre dipole. It did not load up on any band and I gave up and went to bed. Next morning I thought of finding out if the dipole was the wrong length by comparing the VSWR at each end of the 20 metre band. I was amazed when it immediately had a VSWR of better than 1:1.5. I had done nothing since the night before when it had seemed to be greater than infinity!

I gave up and went for breakfast. I was greeted by Nick, our technician, commenting that my new antenna had not survived the night. If he had waited until I had a cup of coffee he may have got a more intelligent reply than 'UH'? Looking out I could see that Booby Birds had broken the antenna at the coupling point and it was now open circuit on the unfed side of the SJ type feeder.

Area	Contacts	Band
A35	1	HF
E51	2	HF
FK1	1	HF
JA1	2	HF
JA2	4	HF
JA3	1	HF
JA6	1	HF
JA7	1	HF
K6	1	HF
KH6	2	HF
KH7	1	HF
KHO	1	HF
N0	1	HF
N7	1	HF
P29	1	HF
VE7	1	HF
VK2	3	HF
VK3	3	HF
VK4	19	HF
VK5	2	HF
VK6	2	HF
VK7	3	HF
VK8	1	HF
W9	1	HF
ZL1	5	HF
ZL2	1	HF
ZL4	1	HF
<b>TOTAL</b>	<b>63</b>	<b>HF</b>

Area	Contacts	Band
VK1	1	6M
VK2	21	6M
VK3	8	6M
VK4	21	6M
VK5	6	6M
VK6	4	6M
VK7	2	6M
VK4/M	1	6M
VK5/P	1	6M
ZL3	3	6M
ZL4	1	6M
<b>TOTAL</b>	<b>69</b>	<b>6M</b>

to leave. With the impending end of the tour of duty the work load was too high to allow much in the way of radio. HF work on the ANZA net was all I could manage and even then few could hear me. With my weak signal I was often heartened by the effort of far better set up stations to make contact with me; often they eventually succeeded more due to their effort than mine.

During the times when I was able to coax a signal out I managed just over 60 contacts on both the HF and six metre bands. The majority of the HF contacts were on 20 metres. A few of the more interesting contacts were with stations with connections to Willis Island. Five years ago the station was closed for a year to be totally rebuilt. At that time the permanently established amateur radio station was dismantled and the parts, which belonged to the Bureau, sold at auction. I worked one Victorian station on six metres

who was using one of the old masts bought at that auction and another who had the old HF transmitter. I also worked several stations with operators who had been to the island, one who had worked there long ago and some who had visited for a DXpedition a few years ago.

The summary tables are showing the contacts I made. I actually worked more contacts than is shown as I have deleted duplicates.

With the experience behind me I have to say it was a trying but enjoyable experience. I would offer this advice to anyone doing anything similar, whether on an island or inland – carry plenty of spares and try everything out before you go to an isolated area. I do not expect to return to Willis Island but if I did I would bring light weight masts to about eight metres high with broad angle iron posts for stays, a rotator and a commercially made trapped dipole for HF plus a spare HF antenna of a different design, spare ATU and plenty of spare coax.

Where to next? I do not know, but working for the Bureau of Meteorology makes remote area work postings always a possibility. We have weather stations on islands like Norfolk, Lord Howe, Macquarie and Cocos, as well as in Antarctica. Perhaps I will be VK9xxx again some time soon; if I am then I will be better prepared this time and hopefully work more stations. Keep listening out for me.



The next day the rest of the antenna broke so I was not able to test the 'new' antenna. Maybe one day I will make it again and publish details of an antenna jointly designed by me and a sea bird.

The replacement ATU and some very heavy duty wire finally arrived about six weeks before I was due

## WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the

WIA Contest Website at:

**[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)**

# AMSAT

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## All you need is cash

This month is an update on two satellite missions nearing completion and focussing on their greatest financial challenge. Also, there is a new satellite on the way from AMSAT-India.

## Kiwisat

After a decade of hard work Kiwisat is nearly finished. All the hardware has been finished to flight ready standard. The final stage of putting everything in place will be done just prior to launch. The software is still in development and will probably be worked on until it's ready to be boxed up for delivery to the launch pad. Which brings us to the last big hurdle: raising the launch funds. Kiwisat is a microsat sized satellite similar to AO-51 and has a mass around 10 kg. Getting a satellite of this size into orbit costs around the order of \$1 million.

AMSAT-ZL is negotiating a launch with ISC Kosmatras on one of their DNEPR rockets. These rockets are decommissioned SS-18 inter-continental ballistic missiles (ICBM) and will replace their nuclear warheads for low Earth orbit satellites – turning swords into ploughshares. ISC Kosmatras are scheduling their next DNEPR launch in 2013 [1]. So far seven OSCAR microsat class satellites (UO-36, SO-41, SO-42, MO-46, AO-49, SO-50, and AO-51) and several cubesats (CO-55, CO-57 among others) have been launched using DNEPR rockets.

Kiwisat is going to be a versatile satellite. It will have both linear and FM transponders using 70 cm and 23 cm uplinks and 2 m downlinks. There will be beacons on 2 m and 70 cm. Kiwisat will have a science package that is for attitude determination and control. Using a GPS receiver, Earth/horizon sensor, Sun sensors, and a 3-axis magnetometer to measure the Earth's magnetic field, Kiwisat

will be able to determine which way it is pointing and moving. It also has three coils to interact with Earth's magnetic field to point it in the desired direction. No permanent magnets will be on-board. Systems like this have been used on the high Earth orbit satellites before. Kiwisat also has a CMOS colour camera similar to the one used on CO-57 to verify the attitude system is working.

The only part of Kiwisat that has me wondering is the 70 cm beacon. It is designed to be used as a propagation tool to measure Faraday rotation and total electron count. History has shown that putting a transmitter on the same band as the command and control receiver can cause a few problems. UO-9 was out of control for six months when a software fault commanded on both beacon transmitters for 2 m and 70 cm. These beacons desensed both of the command receivers and it took a 46 m dish and at least 12 Megawatts ERP to get through to the 70 cm receiver and turn them off. Kiwisat's beacon is only 100 mW compared to UO-9's 650 mW and hopefully has better frequency separation, just in case [2]. More details at their website [3].

## P3E

If someone offered AMSAT enough to launch one high Earth orbit satellite or ten low Earth orbit satellites then it would be a fair bet that the former would be selected. Even if the LEOs had similar or better specifications they just cannot compete with the ability to reach a whole hemisphere for hours at a time.

Peter Guelzow DB2OS sent details of a presentation given to the AMSAT-DL symposium earlier this year. The presentation was on the current status of the P3E high Earth orbit satellite.

All the mechanical work has been completed for some time. IHU-3 is the computer that controls it all and

has been completed. An updated version, IHU-4, is currently under construction.

To fly the 150 kg P3E to a Geostationary Transfer Orbit (GTO) at commercial rates would cost in the order of \$13 million (2010 price) on an Ariane-5 rocket. Other alternative launches were discussed. Hitching a ride to a medium Earth orbit (around 20000 km high) with the Galileo constellation satellites was not an option as there is very little spare launch mass to play with. Similarly with a Soyuz rocket, there is not the spare mass, or available launches planned. AMSAT-DL has also been in negotiations with private space firms such as SpaceX as well as national operators.

Since its inception P3E has been proposed as a test bed for AMSAT-DL's ambitious P5A mission to Mars. P5A will be an AO-40 size spacecraft with a mass around 500 kg. The symposium presentation did come up with an alternative plan of sending it around the Moon instead. Despite raising membership fees and plenty of donations, AMSAT-DL is well short of the amount needed to launch P3E.

They are ready in other areas though. AMSAT-DL has a 20 m dish at Bochum in Germany for their use. They have previously demonstrated its abilities by receiving signals from Voyager-1 in 2006 and bouncing 2.4 GHz signal off the planet Venus in 2009. This year they hooked the dish up via an 8.4 GHz to 1280 MHz converter to a Funcube dongle receiver on a laptop and received signals from the Stereo B spacecraft. Stereo B follows the Earth in its orbit around the Sun and was 219 million km away with signals taking 12 minutes to reach the Earth [4, 5]. James Miller G3RUH has an article detailing the permanent configuration they have been using for decoding both of the Stereo spacecraft since 2010. Instead of the dongle and laptop they use an AR5000

receiver with a specially designed demodulator to feed a computer to decode the telemetry. This all came about from an invitation from NASA and NOAA to download space weather data [6].

### AMSAT-India

AMSAT India is currently constructing their second satellite. This time it is a cubesat with a simplex digital transponder in the 70 cm band. The uplink and downlink will be on the same frequency. The transponder is designed for 1k2 to 9k6 operation with a transmit power of one watt. It also has its own CW beacon when

idling between packets. At this stage two transponders have been constructed and are being tested [7].

### Final Pass

After some years without any substantial news it's good that P3E is still 'alive'. But without some large donations both of these satellites are staying earthbound. 'Buddy can you spare ten million?'

### References

Idle, Eric, "All you need is cash" (or "The Rutles")

[1] <http://www.kosmotras.ru/en/>

[2] "UoSAT is back" AMSAT satellite report #42, 22 Sep 1982

[3] <http://www.kiwisat.org.nz/index.html>

[4] [http://www.southgatearc.org/news/may2011/funcube\\_dongle\\_distance\\_record.htm](http://www.southgatearc.org/news/may2011/funcube_dongle_distance_record.htm)

[5] <http://stereo.gsfc.nasa.gov/>

[6] <http://www.amsat.org/amsat/articles/g3ruh/127.html>

[7] <http://www.amsatindia.org/Newsletter/>



## AMSAT-VK

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### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.

AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

## The Elizabeth Amateur Radio Club

has secured a display booth at the *Science Alive! Event*, being held for Science Week at the Adelaide Show Grounds – **Friday 5 to Sunday 7, August.**

We are looking for range of hands on and interactive radio and communication displays for the event which present our hobby to the public in an interesting and engaging manner.

Displays at last year's event included: stations for sending and receiving Morse, two stations for radio communications using SSB, the Project Horus weather balloon and payload, a 'bionic ear' (parabolic dish) and voice communications via IR LED modulation.

If interested, or would like more information, please contact Paul Schulz ([VK5FPAW@wia.org.au](mailto:VK5FPAW@wia.org.au))



"Ham Nation". This show is hosted by Bob Heil K9EID of Heil Sounds and is also available as a download from the Spectrum website. It can be heard on the VK7RTV 146.775 MHz repeaters on Friday nights at 8:00 pm local time and Saturday mornings at 11:00 am local time. Tony also streams a broad range of the broadcasts that he hosts and links are available at: <http://www.vk7ax.id.au/spectrum/>

## Radio and Electronics Association of Southern Tasmania

REAST's June presentation was from Patrick Burns VK7FPJB who is



undertaking his Computer Science PhD project and is sponsored by the CSIRO. Patrick is researching how to use technology to be more physically

Photo 1: Patrick VK7FPJB, shown demonstrating his ambient interactive wrist band and clock.

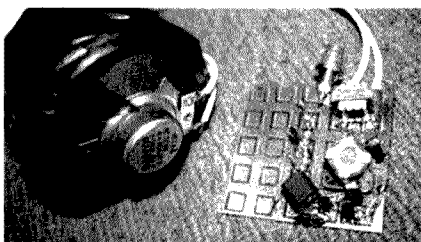


Photo 2: 80 metre voice powered CW transmitter built by the author.

active. He took the attendees through what is currently available like the Wii, Pokewalker, gaming interfaces, persuasive computing and ambient displays. Patrick then took us through the development and use of his creation called ActivMON or the wearable Ambient Activity Display which is the size of a large wrist watch and has accelerometers, Bluetooth and an ultra low power microcomputer with a lithium ion thin film battery. This was a fascinating presentation, thanks Patrick and we look forward to hearing about how it progresses over the coming years. The presentation was videoed and has been placed into the DATV video library.

Our DATV Experimenter's nights have been well attended and we

have had a host of activities and guests who have featured on digital amateur television around Hobart. We have a new video mixer that has enabled us to do chroma-keying behind the presenters and has seen many interesting effects during our presentations. We had a talk from Peter VK7KPC on his work with Air Services Australia and Brian VK7NHJ who is involved with the Tasmanian Woodcraft Guild and his fascinating "other hobby". One show and tell segment involved the demonstration of a design by Michael Rainey AA1TJ for a voice powered 80 metre CW transmitter which was built by the author. This design was featured in the CW Operators QRP Club magazine Lo-Key of September 2010. A lot of fun was had by all when we connected it to the clubroom's dipole and received signal reports from all over Hobart. Interested? Why not come along on a Wednesday night from 7:30 pm and see what we get up to – you never know you might end up behind the camera or driving the mixing desk.



## Shepparton and District Amateur Radio Club

P.O.Box. 692 Shepparton3630

# HAMFEST 2011

Sunday 11th SEPTEMBER

Venue: St. Augustines Hall Orr St. Shepparton  
Vic Roads Directory. Map 273 Ref. M8

Entry Only \$5.00.

Doors open to Traders  
at 8 am.

Public at 10 am.

Tables Available  
\$10.00 each.

First class catering

Entry Ticket includes Door Prize Raffle

**Sales New: Importers and Suppliers Of Amateur  
Equipment/Accessories**

**USED. Preloved Ham Gear and Accessories**

All inside undercover

Table bookings. Alan VK3AO.

Email [alan.ransley@bigpond.com](mailto:alan.ransley@bigpond.com)

President Ed. Email [vk3bg@wia.org.au](mailto:vk3bg@wia.org.au)

# VHF/UHF - An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

## Weak Signal

An old friend of mine recently became active again after a long absence from amateur radio. He was first licensed in the mid 70s and became a keen VHF SSB operator when crystal-locked AM operation was in its last days. Then family and work took away any spare time and radio was pushed to one side. With recent semi-retirement, he has regained his old callsign, borrowed an old 2 metre rig and set up a Yagi.

When speaking to him recently he asked, "Where is everybody?" He had been calling and calling on the low end of 2 m without a great deal of response. He had also tried the FM part of the band, but beat a hasty retreat when he heard some of the goings-on up that end. I told him that there are people around, but you need to pick your time – time of day, time of week and time of the year!

There is no doubt that now is a quiet time of year. A number of the more active stations have either taken holidays in warmer climes or pulled their towers down to work on antennas in preparation for next summer. It is also hard to be attracted to the dark depths of the cold shack when the option is to sit in front of the warm fire/central heating wasting brain cells on what little the TV offers or surfing the web. Hmm, it is a toss-up really!

However, the pressure is on from commercial users of RF spectrum and there is a great risk of us losing out substantially here – as has already happened with the lowest 10 MHz of the 70 cm band. The authorities do not care that there is little activity right now due to the lack of extended propagation. If they monitor a valuable slab of spectrum like the 2 m or 70 cm bands and find virtually no activity, then they will obviously be very receptive to applications for other uses of that spectrum.

So, we need to generate some activity. And activity begets activity. How many times have I

previously heard people questioning the usefulness of a 2 m SSB rig/horizontal Yagi, on the basis that there is no one there to work? But, there is!

So what regular activity is there currently? Well, the morning Aircraft Enhancement net would probably be one of the busiest times on 2 m at the moment – although even that can be fairly quiet. Most activity centres on 144.2 between 8 am and 9 am. It is relatively easy to work from Melbourne into Canberra and beyond if the aircraft do the right thing. Jim VK3II is a regular on this, and often reports contacts into the Sydney area.

In VK3, Rob VK3MQ assisted by Mike VK3KH conducts a weekly net on Wednesday nights at 8.30 pm on 144.150. The net regularly attracts up to a dozen stations from around the state, and further afield if the conditions are there.

Then to reach those sitting in the warmth surfing the net, there is always the VK Logger – [www.vklogger.com](http://www.vklogger.com) – which can be used to arrange contacts.

If you have a regular sked with another local station on, say, 80 m or 2 m FM, why not move down to the lower end of 2 m and liven up that end of the band a little. I hear there is a much nicer breed of amateur on the low end of the band (I would add a "smiley" here, but I do not think it would survive the printing process).

Anyway, as they say: Use it or lose it.

## Not aircraft enhancement

Speaking of the Aircraft Enhancement net, Jim VK3II reports on conditions on Monday, 13 June when there was almost no air traffic due to a volcanic ash cloud over Victoria and Tasmania: *There were some QSOs to be made, but signals from the Canberra area were substantially down from usual strength and very fluttery, probably just scatter propagation. VK1BG, VK1KW and VK2DO were contacted mostly at R3 to R4, S1.*

## Microwave Blog

Roy VK4ZQ has created a rather nice portable VHF/UHF/microwave set-up covering all bands from 6 m to 10 GHz. A description of it, as well as the history of its development, is well worth reading and can be found at: <http://vk4zq.wordpress.com/2011/06/21/amateur-radio-in-the-field/>



*The VK4UH/p station operating on 24 GHz at Mount Glorious Qld working to Alan VK3XPD/p4 at Maleny. L-R: John VK4YJV, Colin VK5DK and Kevin VK4UH. Photo by Kevin Johnston VK4UH.*

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

## Digital DX Modes

Rex Moncur VK7MO

### New national microwave digital records

Alan VK3XPD reports as follows that his trip north to VK4 and VK2 with Colin VK5DK has resulted in two new digital records:

*The first was for 24 GHz digital mode where no previous record existed.*

*This record was initially set at circa 9 km, then 39 km, 59 km, 76 km and, finally, 153 km. A subsequent attempt over a longer path later in the day failed due to poor propagation.*

*Using WSJT, our 153 km record distance on 24,048.1 MHz was set with "huge rock crushing" signals from McCarthy's Lookout near Maleny to Beachmont, inland SSW of the Gold Coast. Colin VK5DK, with John Maudsley VK4YJV assisting, were at the Beachmont site and Alan VK3XPD was at the McCarthy Lookout site.*

*The next digital record we extended was for the 3.4 GHz band. This is now 162 km. Using WSJT, on 3400.1 MHz we had solid signals from Mt Coramba, NE of Coffs Harbour, NSW down to North Brother, a high point a few km south of Port Macquarie. Colin VK5DK and Alan VK3XPD, with two full sets of microwave gear covering 1296 MHz thru to 24 GHz, operated from Mt Coramba. At the distant end of the path was Mark VK2AMS with his newly completed 3.4 GHz gear. Also on site was Neil VK2EI with his microwave transverters, with Ross VK2DVZ assisting. This QSO attempt took about 40 minutes to complete. Mark being a newbie to both microwaves and WSJT had a few teething problems but with both Ross and Neil assisting with the finer points of WSJT operations, we were finally successful. After completing with Mark, Colin and I rapidly repeated this digital QSO to Neil using his equipment.*

Congratulations to all who were involved.

### FSK activity sessions on 144 MHz

Welcome to Arie VK3AMZ who puts out an excellent signal and is regularly working into VK4. David VK4SKY, Phil VK4CDI and Robert VK4LHD have been holding up the VK4 end in the absence of John VK4JMC. Rhett VK3VHF and Waldis VK1WJ are regularly working Bob ZL3TY and Rhett has copied Peter ZL4LV over the mountains into Dunedin.

### Arietids meteor shower

Adrian VK4OX has been running tests during the Arietids meteor shower which peaked from around 6 to 10 June, from about 0000 UTC to 0200 UTC. These have produced excellent results with very quick contacts to VK3HY, VK3II and VK3AMZ using FSK441 in 15 second periods. There was no evidence of enhanced pings as far south as VK7 which may be explained by the fact that the Arietids are well to the north. Adrian reports: *the Arietids meteor shower has been very good since about the 6th of June. OH5IY Predictor program has been very good too, predicting the optimum time for VK4 to VK3. OH5IY also comments that this shower is full of small partials and from what I have observed that has been spot on... hardly a 10 second burn in over a week but many, many one to five second burns which are no good for SSB but ideal for FSK441.*

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

## The Magic Band – 6 m DX

Brian Cleland VK5BC

June provided many good winter Sporadic E openings, probably the best winter E season for some years, particularly down the east coast.

1 June Rob VK1KW worked John VK4FNQ in Charters Towers and then on the 2nd Joe VK7JG and Frank VK7DX worked several VK4s. Then,

on the 4<sup>th</sup>, the band opened between ZL and VK2, 3 and 4.

On 5 June the band opened for some hours between VK2, 3, 4, 5 and 7. Phil VK4FIL in Brisbane reported working VK3DUT, VK3KH, VK2ADR, VK7DX, VK3FZ, VK5GF and David VK5AYD in Coober Pedy with most signals around 5/9. Again on the 6<sup>th</sup> the band opened all down the east coast and to VK5 and ZL. Garry VK5ZK reported working VK4FIL, VK4EK and Mark ZL2WHO. Also Andy VK6OX reported hearing the VK5RBV beacon but no contacts. On the 7<sup>th</sup> Garry VK5ZK again worked VK4FIL and Rod ZL3NW worked several VK2s.

On the 8<sup>th</sup>, northern VK4s worked VK2 and 3 with Brian VK4EK in Sapphire working southern VK4s and VK5ZK, ZL2WHO and Garry VK5ZK again working ZL2WHO. 9 June was a short opening, Wayne VK4WTN worked Rob VK1KW and Brian VK4DDC worked ZL50GH.

On 10 June the band opened for several hours between ZL3 and 4 and VK2, 3 and 7. Ross ZL3ADT worked Steve VK3ZAZ, Frank VK7DX and Norm VK3DUT. Peter ZL4LV worked VK3DUT and Brian VK2BX with Norm VK7AC working ZL3AAU. A short opening on the 11<sup>th</sup> when Frank VK7DX worked Glen VK4BG and Wayne VK4WTN worked Norm VK3DUT.

On 12 June Frank VK7DX worked several VK4s including VK4EK, VK4BG and VK4WTN and Quentin VK4AQF worked Peter VK5PJ and Daryl VK3ADR. In the evening Gary VK4ABW/8 in Darwin reported hearing several JA beacons and working BA4SI.

On 13 June Andrew VK3OE worked Keith VK5AKM and Rob VK1KW worked VK5ZPS during brief openings. The 14<sup>th</sup> saw the band again open for several hours with many contacts being completed. Phil VK4FIL reports working VK2BX, VK1DJA, VK1KW, VK2FAD and Mark VK2EMA (short skip 780 km). Same day Garry VK5ZK also worked VK1KW and Brian VK2BX.

Continued on page 46

# Cradle Coast Amateur Radio Club activation of Table Cape Lighthouse AU0039 near Wynyard, Tasmania

Wayne Hays VK7FWAY and Eric Edwards VK7FEJE

On Friday Eric VK7FEJE picked up the key for the access road to the Table Cape Lighthouse as pre arranged with the Wynyard Council while Wayne VK7FWAY went ahead. The access road is normally locked after hours.

Just as Eric was leaving Wynyard, he received a call from Wayne stating that he could not get into the access road to the lighthouse to set up for the weekend. Eric made a quick turnaround back up to Wayne and found the road barricaded, with five huge bales of silage across the road, and the boom gate wrecked.

Eric made a trip back to the Wynyard Council Chambers and found a distraught civil celebrant in the office of the Engineering Department wanting to know why she could not get up to the lighthouse to perform a wedding on Saturday afternoon. The office staff were trying their best to explain that there had been some vandalism in the lighthouse area, and also that the Cradle Coast Amateur Radio Club, that is, Wayne and Eric, had first access to the area.

Eric received a phone call from Ashley, the Wynyard council engineer, and they decided to leave the lighthouse road blocked. Permission was granted to use the nearby Table Cape lookout car park that was about 800 metres from the lighthouse, providing there was enough room available for cars coming up to turn around. Ashley also notified the local police that Eric and Wayne had permission to operate their radio station and camp in the car park.

Eric also passed on that the wedding could go ahead in the car park and they would not interfere with the ceremony. With this information, Wayne proceeded to set up camp for the weekend with his work truck come radio shack, and some DXing was done on Friday

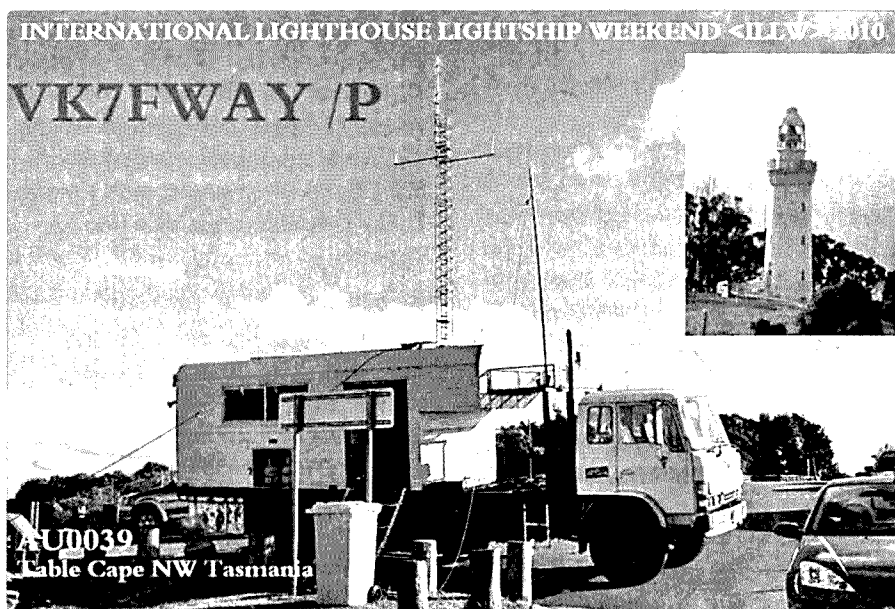


Photo 1: Table Cape Lighthouse AU0039, near Wynyard, Tasmania.

night, with Scott VK7FTTT assisting.

On Saturday a few visitors and club members turned up, including Steve VK7FWWF, Graeme VK7KT, Scott VK7FTTT, and most importantly Laurie VK7ZE, who came late in the afternoon to see if his generator was being put to good use. A lot of contacts were made between 11 am and 4 pm, at which time the generator was shut down for the wedding to proceed as planned. After the brief nuptial interruption the intrepid operators were quickly back on air.

The furthest lighthouse station that was worked was VO1SA in Cape Spear, Canada, along with several ZL lighthouses. Contacts included our Australian lighthouses from Cape York, around the eastern seaboard and including WA. Contact was also made with the lighthouse tender and supply vessel, Cape Don, at anchor in Sydney Harbour.

With the RD contest not clashing this year, and good band conditions during the time that they were at the Table Cape Lookout car park,

some 200 plus contacts were made up until early on Saturday evening when Wayne suffered a computer glitch and lost the log on his laptop computer. Luckily he was able to recover it very late on Sunday evening.

Scott VK7FTTT later returned from his nearby home with sandwiches which were really appreciated, and stayed until late Saturday night. That night, Wayne was working DX on 40 metres when he created a dog-pile unlike anything he had heard before on that band. At approximately midnight they ceased operations and shut down everything until 6 am Sunday.

Wayne had the luxury of his official chef, Karen, arriving late Saturday evening and she set about cooking up a storm of eggs, bacon, sausages and chops, what a feed for breakfast. They had the best radio spot on the north-west coast, with room service, as they started contacting other lighthouses and stations around Australia.

Winston VK7EM paid a visit on



Photo 2: Eric VK7FEJE and Wayne VK7FWAY inside the mobile shack.

Sunday morning, as did Ashley the council engineer, who informed the crew that they will be able to use the actual lighthouse structure next year for the lighthouse weekend. In previous years, ILLW operation had been conducted by Eric and Wayne while camped beside the lighthouse and having to use their own masts. The lighthouse is in the order of 15 metres high and will make a useful

antenna support. By the way, the Table Cape lighthouse is still operational and will soon be opened up to the public with access via privately run guided tours.

At midday the station was shut down and dismantled, and we both set off for home. Another great and successful weekend was had by all.



Photo 3: Wayne VK7FWAY at the operating position at Table Cape lighthouse.



Photo 4: The front section of the mobile shack used at Table Cape lighthouse.

# Contests

Phil Smeaton VK4BAA

## Contest Calendar for August – October 2011

August	6	TARA Grid Dip	PSK/RTTY
	7	Waitakere (NZART) Sprint	CW
	6/7	10-10 International QSO Party	SSB
	13/14	Worked All Europe	CW
	13/14	Remembrance Day Contest	CW/SSB/FM
	27/28	ALARA Contest	CW/SSB
September	2/3	All Asian DX Contest	SSB
	2/3	Region 1 Field Day	SSB
	11/12	Worked All Europe DX Contest	SSB
	24/25	CQWW RTTY DX Contest	RTTY
October	1/2	Oceania DX Contest	SSB
	8/9	Oceania DX Contest	CW
	15/19	Worked All Germany Contest	CW/SSB
	29/30	CQWW DX Contest	SSB
	29/30	ARRL International EME Competition	CW/SSB
	29/30	CQWW SWL Challenge	SSB

Note: Always check contest dates prior to the contest as they are often subject to change.

Welcome to this month's Contest column.

Firstly, I need to document an apology. I managed to miss the VK Shires contest from the contest calendar. I hope this did not spoil your enjoyment of the contest – assuming that you knew it was on! The WIA website lists contests such as the VK Shires, so hopefully this omission did not curtail participation too much.

A whole bevy of contest results released this month. No further words needed from me – except to say that not a single VK5 entrant is in the list, which is a bit of a surprise as there are plenty of active testers in SA. Well, I *thought* there were anyway. Congratulations to all VK entrants!

### 2010 ARRL International DX Contest CW scores

VK2AYD 140,790; VK4TT 58,308; VK3IO 56,544; VK2DAG 11,826; VK3VT 10,578; VK2IM 350,280; VK7GN 166,380; VK4BUI 27,432; VK2GR 25,185; VK4TJF 9,396; VK3TDX 42,312; VK3TZ 5,952.

### 2010 ARRL International DX Contest Phone scores

VK4ATH 2,310; VK4HAM 22,152; VK2HBG 5,145; VK4XES 2,442; VK2VTH 1,914; VK6FDX 966; VK7AD 420; VK3IO 115,416; VK4GH 1,539; VK4EJ 28,659; VK4FJ 8,928; VK3NI 90,072; VK3VTH 2,166.

### 2010 IARU HF World Championships scores

VK4AN 26,158; VK4LDX 5,720; VK4GH 17,507; VK4TT 17,056; VK4EMM 357,555; VK4XES 1,955; VK3TDX 456,048; VK7ZE 105,984; VK3IO 101,380; VK7AD 1,581; VK2WAY 324; VK3VTH 70; VK2GR 35,165; VK3FM 22,101; VK2PN 144; VK7GN 135,744.

### 2010 ARRL 10 Meter Contest scores

Z21DXI (VK6DXI, op) 177,848; VK4TJF 33,528; VK4FJ 12,880; VK4MON 168; VK4IU (VK4EMM, op) 424,780; VK3TDX 166,950; VK6FDX 1,710; VK4ATH 1,118; VK4LAT 37,026; VK4EJ 19,800; VK2HBG 1,440; VK3ZGP 4; VK6IR 10,974; VK3AVV 368; VK4SN 44,480; VK2BJ 16,308;

VK2PN 7,416; VK4TT 1,920; VK2IA 200; VK2RSG 256; VK3GK 780.

### Norfolk Island

VK9NN (IK1PMR & N6TQS, ops) 42,168.

### All Asian CW Contest

Steve VK3TDX was part time on the bands as a single operator all band high power entry, netting just over 300 QSOs and a claimed score of 66,552. Steve noticed that the average age of the operator is increasing as the years go by (the operator age is part of the exchange) but there was an 18 year old in there as well – just to bring the average down a little to 56.

Mirek VK6DXI was also in the melee, but suffered from a 'blue screen of death' computer problem that chose to hiccup during the contest. Mirek put just under 1,200 Qs into the log, with over half the tally gained on 10 m and 15 m, for a claimed score of 674,424.

John VK4EMM was in the contest as VK4CT, operating from a friend's QTH, putting his skills at SO2R to good use to grab just under 1,200 QSOs for a claimed score of 519,948, with a slightly more 20 m emphasis than Mirek. John reported that the 10 m band opened for only one hour on day one and that he heard nothing on 10 m on day two from VK4. Band conditions on 80 m were excellent; he just needed more Asian stations to work.

Allan VK2GR operated as P29CW from Papua New Guinea and had some fun in the contest, amassing 773 QSOs for a claimed score of 263,886. Fun was being had until the Sunday afternoon, when Allan was involved with managing a medical emergency in the Western Province, organising the communications and logistics for an international Medivac. The couple involved are now recovering in Cairns Base Hospital. Nice going Allan!

## The Contesters Lament: 10 and 15 m – where for art thou?

The sun has graciously shown signs of life in recent months, but a new report from the U.S. National Solar Observatory raises the question of whether the next solar cycle might be even less active than many had been forecasting in recent years. In other words, it could bring on an extended period of solar inactivity - bad for the higher HF bands like 10 and 15 metres, but great news for the low bands on 80 and 160 metres.

A joint report issued by the NSO and the Air Force Research Laboratory found “that the next 11-year solar sunspot cycle, Cycle 25, will be greatly reduced or may not happen at all. But the fact that three completely different views of the Sun point in the same direction is a powerful indicator that the sunspot cycle may be going into hibernation.” The results were announced this past week at a solar physics gathering of the American Astronomical Society in New Mexico - as phrases like “Maunder Minimum” were used by those with expertise about the sun. To be honest I had never heard of it before, but apparently the Maunder Minimum was a period between 1645 and 1715 where there were almost no sunspots. If that were to happen again for an extended period of time, it would certainly have a dramatic impact on amateur radio contesting, which recently saw a two year period where the low bands were intensely active, while contacts on the higher bands became a struggle and often leaving the higher bands unused. “This could be the last solar maximum we’ll see for a few decades,” said Dr. Hill. “That would affect everything from space exploration to Earth’s climate.” Amateur radio contesting might change a little, too!

## Have you got wood?

Many an OM would be delighted with it and there are just as many YLs excited about the prospect, too. Happy is a contester who has wood – and the bigger the better.

I watched a recent ‘lifestyle’

TV program the other day, called something like ‘Better Homes than Yours’. A segment of the program concentrated on a 40 m tall tree that was engulfed with another plant creeping up it, which was damaging the tree. The experts were called and an interesting floor mounted catapult type of gadget for flinging rope over the tallest bows was utilised to establish a method of gaining access to the very top of the tree for the protagonists wishing to do battle with the offending foliage. An arborist swiftly climbed up to the top and proceeded to hack away at the offending growth. With the tree suitably stripped of its unwanted covering, the owners of the tree took a look at its newly shorn magnificence and proclaimed the work to be a success and completed to their satisfaction. To my mind the job was only half finished, as a 40 m high tree is crying-out for a halyard and pulley to be attached at the very top and a pull-rope for an antenna of some sort to be installed!

If you have got wood, I would recommend not being bashful and to use it fully and to your best advantage!

## The Level Playing Field

One thing I find interesting about the recent spate of “Lets level the playing field” discussion that has been on the net is that every serious contester works hard to make sure it is *not* a level playing field. We try to gain the upper hand through better/higher/more antennas, beams and anything else we can buy or build that will “give us the edge we need” over the competition. Same thing in the shack - newer/better/quieter radios, magic boxes that we think will help that little bit - all in an effort to win. Certainly, geography plays a part, but so does operator skill, the ionosphere and a myriad of other variables - some under our control and others not. Add it all up, and even despite our best efforts - sometimes we don’t or can’t win a certain competition. Life’s just not fair sometimes.

To state the obvious, by the laws of physics, the playing field

is *not* level. It is far too complex to ever be rendered level by any artificial means, for instance, by scoring adjustments. Any attempt to do so will undoubtedly result in somebody somewhere claiming reverse discrimination. For those of you clever souls with a mathematical aptitude (which I haven’t) the problem is that there are too many independent variables.

If a contester feels that winning really is *that* important and feel that geography is preventing a winning entry, then maybe that contester should either:

- a) move;
- b) build a remote station;
- c) be a guest op;
- d) go on a DXpedition
- e) enter a less hotly contested category
- f) change the definition of winning - for example, you can decide that if you had the highest score in your category within 200 kilometres of your QTH, then you won.

But a word of warning - even if you choose to do one of the above, the playing field still will not be level. That is the nature of the game we are in - there is an element of skill, an element of good station engineering, an element of geography, and an element of luck. Many factors contribute to what we might categorise as luck, including ionospheric conditions, local storms, power outages, computer malfunctions, who spotted you versus spotting your competitor, how wide a signal does a neighbouring run station have, and so on.

If you really want to compete with a level playing field, or at least as level as it can get as a practical matter, then you need to get all the ops with whom you want to compete to submit their high scores on RUFZ or Morse Runner or other similar programs. Just make sure everybody has the same level of background noise in the room (or, better yet, everybody is in the same room), and everybody uses the same pair of headphones, and uses the same settings in the program, or else the playing field still won’t be level.

What else to do? Well, we can give up, but that's too easy! A quitter can never win. From where I usually operate, I know that no matter what I do or how many antennas I install, there are certain contests that I cannot win. Instead, I choose to still get on, do my best and have fun. The bottom line is to compete on your own terms. Changing the rules to hobble the competition in order to "level the playing field" will not change that, and if it did, I am not sure I would want to 'win' that way.

### ARRL contest rule changes?

Within recent weeks it is reported that the ARRL Contest Advisory Committee (CAC) voted 10 to two to recommend some form of distance based scoring system for the ARRL DX Contest. This is clearly a fundamental and radical proposition that will significantly impact contest results, both domestically and internationally, if ultimately approved. The precise way such a scoring methodology will be implemented is still under investigation by the CAC. Reportedly, they plan to back test various scoring algorithms to determine potential impact in comparison to prior results before getting more specific. Currently, the Stew Perry 160 contest is the only major international event that presently uses some form of distance based scoring.

There are several scoring algorithm choices, but regardless of which is selected, the impact

of distance based scoring will unavoidably result in a re-arranging of the order of finish for the top twenty or thirty competitors in all Single Op entry classes. It is likely that a change in scoring formula will delight certain US participants and produce a wail of protest from other US contesters, depending on where they live no doubt, but distance based scoring virtually assures victory to those operating from northern Africa in high sunspot years. It is unlikely that a Caribbean station will be able to overcome the distance/points per Q advantage with contact volume.

The CAC is also considering the question of operating time limits for single operator entries. A few options have been discussed and apparently as of this week, a movement to eliminate the existing 48 hour time limit for single op entrants has ended. But still on the table is consideration and possible creation of a new Single Op entry class based upon some shorter time frame. The CAC has discussed a number of options including 24, 36, 40 and 44 hours, but apparently a proposal for a 24 hour class has thus far seen little support from CAC members. The time limit could possibly make it no longer practical to watch for those short band openings. They just will not be productive enough for operators to worry about. The contest may change somewhat and become a 'run' type of contest – much like the WPX contest currently is.

The CAC is still in discussion and study mode on ARRL DX. They have had some preliminary votes, on various issues, to get a sense of where CAC members stand, but they have not come to any final conclusions and have made no recommendations to the ARRL Board committee with authority to change rules. So, it would appear that this is nothing more than a report of a discussion - there is no rule change planned, recommended, or pending.

US stations tend to have their antenna systems pointed towards EU to try and maximise rate, but a tweak in the rules to take into account distance might make VK and ZL stations more 'valuable' run QSOs as a result. Under the current rules, there really is no reason to concentrate on Pacific stations other than working a multiplier because the contest activity level is perceived by many stateside stations as poor or declining. It'll be interesting to see the outcome of these discussions over the coming months as Pacific stations may benefit greatly as a result.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au)

See you on the bands.



## VHF/UHF - An Expanding World Continued from page 41

The band was quiet on the 15th but the VK5RBU beacon was reported by Andy VK6OX and John VK6JJ.

After a couple of quiet days the band came to life with good openings on 18 June, particularly from ZL to VK2 and 4. Scott VK4CZ worked several ZLs including ZL4DK, ZL4LV, ZL3MH and ZL3ADT. Kerry VK2BXT also reported working ZL3ADT and ZL3MH and hearing the FK8 beacon. The band again opened from ZL to VK2 and 4 on the 19th with John VK2BHO working several ZLs.

On the 20th during a short opening Jeff VK5GF worked Frank VK7DX and on the 21st another opening from VK4 to VK3 and 7 with Brian VK4EK working several stations and Phil VK4FIL working VK7DX and VK3YHT.

On 24 June there was a good opening from far north VK4 to southern VK4 with Dale VK4SIX in Atherton, Ross VK4RO in Ayr and Brian VK5BC/4 near Pt Douglas working several southern VK4s including VK4FIL, VK4WTN and VK4EK. On the 25th around the same

time (0500 UTC) Brian VK5BC/4 again worked VK4WTN and Glen VK4BG with 5/9 signals from the car using a 2 m 5/8 vertical.

In summary all states have had a good winter E's season with, unfortunately, only VK6 missing out.

I apologise for any missed information but I am presently holidaying in far northern VK4 and have had limited time to gather and collate info.

Please send any six metre information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)





# COQC QRP Day contest 2011 – Rules

Mike Gower VK2IG

Sponsored by the CW Operators' QRP Club (COQC) in Australia and open to all amateur radio operators, the QRP Day contest has the following objectives:

- To work as many stations as possible in each hour.
- To encourage contacts between VK, ZL and P29 stations.
- To encourage the use and enjoyment of low power equipment, whether commercial or home-brewed.
- To test the efficiency of your station under QRP operation, and
- To compete for a certificate for best hour and/or best three hours.

Date/Time:	Saturday, 3 September, 2011, from 0800 UTC–1200 UTC. Entrants are encouraged to compete for all four hours and submit their logs on the basis of "best three hours"
Frequency Bands:	HF bands are 80, 40 and 20 metres. Please observe the band plans and only use your mode(s) of choice within the designated sub-band(s).
Category:	Single Operator only.
Modes:	CW, Phone, Mixed (CW and Phone).
Power:	Any station claiming to operate QRP MUST NOT exceed a maximum transmitter output power of five watts average power (CW) or five watts PEP, and should add /QRP after the callsign.
Exchange:	A three-digit serial number beginning at 001 and incrementing by one for each contact. Please note: RS(T) is not required, but if given should be an accurate statement of readability, signal strength and tone.
Repeat Contacts:	In order to make greater use of available band space and time, repeat contacts with the same station will be allowed once each hour of the contest on each mode, that is, a station may be worked each hour on CW and Phone.

## Scoring

- The final score is the sum of the individual points per QSO given in the Scoring Table below.
- No multipliers apply.
- QRP stations can count contacts with QRO stations towards their final score.

Scoring Table		Your Call Area			
		VK	ZL	P29	DX
Other Station's Call Area	VK	1 point	3 points	3 points	5 points
	ZL	3 points	1 point	3 points	5 points
	P29	3 points	3 points	1 point	5 points
	DX	5 points	5 points	5 points	-

## Logs

- Logs must show full details for each QSO, namely, time (UTC), station worked, band, mode, exchange serial sent, exchange serial received, and points claimed.
- Please use separate logs for CW, Phone or Mixed modes.
- Arrange logs so that each hour is clearly distinguishable.
- Logs should be submitted for "best three hours" and scores will be automatically considered for highest score for each separate hour.
- A Summary Sheet showing operator's callsign, name, address and points claimed must accompany the log.

- The preferred method of sending the log is email, but entrants must still include their postal address as per the Summary Sheet.
- Send logs and summary sheet to the Contest Manager, Mike Dower VK2IG, email: [qrphours@exemail.com.au](mailto:qrphours@exemail.com.au) (the same address as used for the QRP Hours Contest), or via snail mail to Box 8013, Gundaroo, NSW, 2620.
- Emailed logs must be postmarked no later than 2359 AEST on Friday, 16 September, 2011, while snail mailed logs must be postmarked no later than Friday, 16 September, 2011.

- Feel free to include information about your station and band conditions, and any comments on what you liked, what you'd like to see included or improved, and so on.

## Certificates

Will be awarded to the following:

- The first three (3) place-getters in each mode who submit "best three hours" entries, and
- The highest place-getter in each mode for the highest score in any individual hour.



**ALARA Contest 2011**

**Saturday 27 August and Sunday 28 August**

0400 to 1359 UTC both days.

Rules available at <http://www.alara.org.au/>

# Results: Harry Angel Sprint 2011

Ian Godsil VK3JS

## Mixed

1st Place	VK4SN	Alan	78 points
2nd Place	VK4KY	Andy	66
3rd Place	VK4NP	Norm	57
4th Place	VK4WM	Wade	53
5th Place	VK4PL	Reg	26

## Comments

Thank you all for your entries in the Harry Angel Sprint for 2011. It was most pleasing to receive a total of 35 logs (32 by email and three by postal mail). And I acknowledge that, as always, there were those who took part but did not submit a log.

I am very pleased to note that there were three entries in the Mixed Section, that is, a few of you had some CW contacts. (Those who know me will remember my passion for the CW mode). Also it was most heartening to see some new callsigns in the list and certainly one operator trying his hand for the first time. Congratulations Grahame VK4FAAB. It is not easy the first few times, but the old adage 'Practice makes Perfect' certainly applies here.

My apologies for any mix-up in dates this year. Things had not gone all that well for me, then Easter and ANZAC occurred at what should have been the normal time for the Sprint, so things got moved. Fortunately, you all caught up with that.

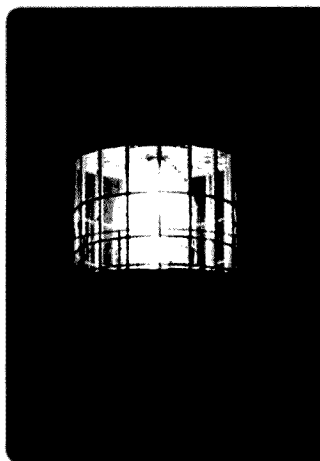
Sadly, this is the last time that I shall be managing this event, as my wife's state of health now takes up a lot of my time. I thank everyone who has supported the event during its 14 years' history and hope that all of you will continue to support the new manager. This will be the Redcliffe ARC and I thank them for offering to take on this task.

73 Ian Godsil VK3JS

## Phone

1st Place	VK4UH	Kevin	76 points
2nd Place	VK4VDX	Roland	67
3rd Place	VK4KRX	Rik	66
	VK4QH	Ken	61
	VK4GH	Catherine	58
	VK4FJ	Warren	49
	VK4FY	Shaun	48
	VK7VH	Vince	44
	VK4HS	Wayne	41
	VK4KUS	Steve	40
	VK4AMG	George	36
	VK4XZ	Bill	36
	VK7JGD	Garry	30
	VK3ZPF	Peter	27
	VK4TAA	Reg	26
	VK4JRO	Ross	24
	VK2BOZ	Cris.	23
	VK4UD	Robert	21
	VK4MAX	Dan	21
	VK2VJA	John	21
	VK4SR	Graham	20
	VK2ACD	Chris.	20
	VK4ARW	Russell	20
	VK4BRG	Ronald	19
	VK4FDHS	David	18
	VK4YL	Jenny	18
	VK4YQ	John	16
	VK4JM	Rusty	15
	VK4AHR	Johann	13
	VK4FAAB	Grahame	12

Check Log  
VK2PN Patrick



## International Lighthouse/Lightship Weekend

20 – 21 August 2011

Foster appreciation of lighthouses and lightships by operating an amateur station at a lighthouse during the weekend and have fun contacting other amateurs around the world (propagation permitting).

Full details of this year's event and previous activity weekends can be found at <http://illw.net/>

# Gridsquare Standings at 17 June 2011

Guy Fletcher VK2KU

144 MHz	Terrestrial	
VK2FLR	Mike	116
VK3NX	Charlie	107
VK2KU	Guy	102
VK3PF	Peter	90
VK3HZ	David	89
VK2ZT	Steve	82 SSB
VK5AKK	Phil	82 SSB
VK2ZAB	Gordon	78 SSB
VK2DVZ	Ross	77 SSB
VK3PY	Chas	77 SSB
VK3BDL	Mike	68 SSB
VK3II	Jim	66
VK3QM	David	66 SSB
VK2EI	Neil	65
VK7MO	Rex	65
VK3BJM	Barry	64 SSB
VK2AMS	Mark	63 SSB
VK2TK	John	62
VK3II	Jim	62 SSB
VK2MER	Kirk	61 SSB
VK4FNQ	John	59
VK3WRE	Ralph	58 SSB
VK4FNQ	John	58 SSB
VK3PF	Peter	56 SSB
VK5BC/p	Brian	55 SSB
VK5BC	Brian	53 SSB
VK3KH	Michael	51 SSB
VK3ZLS	Les	51 SSB
VK3HY	Gavin	49
VK4CDI	Phil	49
VK3VG	Trevor	46 SSB
VK7MO	Rex	46 SSB
VK3AKK	Ken	45 SSB
VK4CDI	Phil	45 SSB
VK7MO	Rex	45 Digi
VK4KZR	Rod	43
VK4TJ	John	41 SSB
VK3EJ	Gordon	40 SSB
VK3PF	Peter	40 Digi
VK2TG	Bob	39 SSB
ZL3TY	Bob	37
VK3UH	Ken	36
VK2TK	John	35 SSB
VK2KOL	Colin	34 SSB
VK6HK	Don	34
VK3II	Jim	33 Digi
VK3ZUX	Denis	33 SSB
VK1DA/p	Andrew	31

VK1WJ	Waldis	28
VK2TK	John	27 Digi
VK1WJ	Waldis	23 Digi
VK3TLW	Mark	23 SSB
VK4CDI	Phil	23 Digi
VK4EME	Allan	23
VK3ALB/p	GARC Team	22 SSB
VK3BG	Ed	22 SSB
VK3ECH	Rob	20 SSB
VK6KZ	Wally	20
VK2ZT	Steve	19 Digi
VK3KH	Michael	19 Digi
VK4EME	Allan	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
VK2EI	Neil	12 Digi
VK4EME	Allan	12 Digi
VK5APN	Wayne	12
VK2DVZ	Ross	9 Digi
VK2KOL	Colin	9 Digi
VK2AMS	Mark	8 Digi
VK1WJ	Waldis	7 SSB
VK5APN	Wayne	7 Digi
VK5APN	Wayne	6 SSB
VK6HK	Don	6 Digi
VK1WJ	Waldis	5 CW
VK4AE	Denis	5 SSB
VK4JAZ	Grant	4 FM
VK2GG	Dan	3
VK3QM	David	1 Digi
VK4FNQ	John	1 FM

144 MHz	EME	
VK2KU	Guy	434
VK2KU	Guy	420 Digi
ZL3TY	Bob	392
VK3AXH	Ian	265 Digi
VK4CDI	Phil	241 Digi
VK5APN	Wayne	192
VK5APN	Wayne	189 Digi
VK7MO	Rex	157 Digi
VK2FLR	Mike	120
VK3II	Jim	87 Digi
VK2DVZ	Ross	81 Digi
VK3KH	Michael	49 Digi
VK2KU	Guy	43 CW
VK3DDU	Paul	39 Digi
VK2ZT	Steve	28 Digi

VK3HZ	David	19
VK5APN	Wayne	8 CW
VK3NX	Charlie	5 CW
VK4EME	Allan	5 Digi
VK3AXH	Ian	3 CW
VK2DVZ	Ross	2 CW
VK3AXH	Ian	1 SSB

432 MHz	Terrestrial	
VK2ZAB	Gordon	57 SSB
VK3PY	Chas	51 SSB
VK3NX	Charlie	50 SSB
VK3QM	David	50 SSB
VK3ZLS	Les	40 SSB
VK3BJM	Barry	39 SSB
VK3HZ	David	39
VK5AKK	Phil	39 SSB
VK2KU	Guy	38
VK2DVZ	Ross	34 SSB
VK2ZT	Steve	34 SSB
VK3BDL	Mike	33 SSB
VK3WRE	Ralph	33 SSB
VK3PF	Peter	32
VK3PF	Peter	30 SSB
VK5BC	Brian	26 SSB
VK1DA/p	Andrew	24
VK2MER	Kirk	24 SSB
VK3KH	Michael	21 SSB
VK3VG	Trevor	20 SSB
VK5BC/p	Brian	20 SSB
VK7MO	Rex	20
VK2AMS	Mark	18 SSB
VK2TK	John	18
VK3ALB/p	GARC Team	18 SSB
VK7MO	Rex	18 SSB
VK2TK	John	17 SSB
VK3AKK	Ken	15 SSB
VK3BG	Ed	15 SSB
VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4KZR	Rod	15
VK4CDI	Phil	14
VK4CDI	Phil	14 SSB
VK6KZ	Wally	13
VK2EI	Neil	12 SSB
VK2KOL	Colin	12 SSB
VK4TJ	John	11 SSB
VK2TG	Bob	10 SSB
VK3AL	Alan	10 SSB

VK3ECH	Rob	10 SSB
VK4FNQ	John	10 SSB
VK6KZ/p	Wally	8
VK3UH	Ken	7
VK7MO	Rex	7 Digi
VK4EME	Allan	6 SSB
VK1WJ	Waldis	5 SSB
VK3KH	Michael	5 Digi
VK4CDI	Phil	5 Digi
VK2DVZ	Ross	4 Digi
VK2ZT	Steve	4 Digi
VK3PF	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK2AMS	Mark	3 Digi
VK4AIG	Denis	3 SSB
VK4JAZ	Grant	3 FM
VK2GG	Dan	2
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi

432 MHz	EME	
VK4EME	Allan	50
VK4EME	Allan	45 Digi
VK4CDI	Phil	37 Digi
VK7MO	Rex	10
VK7MO	Rex	9 Digi
VK4EME	Allan	8 CW
VK3NX	Charlie	5 CW
VK3AXH	Ian	4 Digi
VK3HZ	David	4
VK3KH	Michael	3 Digi
VK3NX	Charlie	3 Digi
VK2ZT	Steve	2 Digi
VK5BC	Brian	1

1296 MHz	Terrestrial	
VK3PY	Chas	41 SSB
VK3QM	David	41 SSB
VK3NX	Charlie	37 SSB
VK2ZAB	Gordon	29 SSB
VK2DVZ	Ross	26 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK5AKK	Phil	25 SSB
VK3BJM	Barry	22 SSB
VK3PF	Peter	22
VK3PF	Peter	20 SSB
VK3WRE	Ralph	20 SSB
VK3KWA	John	19
VK3BDL	Mike	18 SSB
VK3HZ	David	18

VK3ALB/p	GARC Team	16 SSB
VK3KH	Michael	16 SSB
VK2ZT	Steve	13 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK7MO	Rex	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK5BC/p	Brian	9 SSB
VK2AMS	Mark	8 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UH	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4CDI	Phil	5
VK4CDI	Phil	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK6KZ	Wally	4
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK2GG	Dan	2
VK2TG	Bob	2
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4AIG	Denis	2 SSB
VK4CDI	Phil	2 Digi
VK4FNQ	John	2 SSB
VK2DVZ	Ross	1 Digi
VK2EI	Neil	1 SSB
VK2ZT	Steve	1 Digi
VK3KH	Michael	1 Digi
ZL3TY	Bob	1 SSB

1296 MHz	EME	
VK4CDI	Phil	66
VK3NX	Charlie	54 CW
VK4CDI	Phil	53 Digi
VK7MO	Rex	41
VK7MO	Rex	36 Digi
VK4CDI	Phil	20 CW
VK4CDI	Phil	2 SSB

2.4 GHz	Terrestrial	
VK3PY	Chas	18 SSB
VK3NX	Charlie	17 SSB
VK3QM	David	17 SSB
VK3AKK	Ken	15 SSB
VK3WRE	Ralph	11 SSB
VK3ALB/p	GARC Team	7 SSB
VK3PF	Peter	7 SSB
VK3KH	Michael	6 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK3BJM	Barry	3 SSB
VK3KH	Michael	3 Digi
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB

2.4 GHz	EME	
VK3NX	Charlie	39 CW
VK7MO	Rex	14
VK7MO	Rex	10 Digi

3.4 GHz	Terrestrial	
VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	8 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	2
VK2AMS	Mark	1 SSB
VK2EI	Neil	1 SSB

3.4 GHz	EME	
VK3NX	Charlie	16 CW

## What is a grid square?

A grid square is an alternative locator system which is simpler to exchange over radio under weak signal conditions. At Australian latitudes, the squares are more a rectangle. Each square is 2° longitude by 1° latitude. Google "Maidenhead Locator System".

5.7 GHz	Terrestrial	
VK3NX	Charlie	14 SSB
VK3QM	David	12 SSB
VK3PY	Chas	10 SSB
VK3WRE	Ralph	9 SSB
VK3PF	Peter	7 SSB
VK3ALB/p	GARC Team	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	3
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK2AMS	Mark	1 SSB
VK2EI	Neil	1 SSB
VK3ZUX	Denis	1 SSB

5.7 GHz	EME	
VK3NX	Charlie	23 CW

10 GHz	Terrestrial	
VK3HZ	David	61
VK3HZ	David	22 SSB
VK3PY	Chas	17 SSB
VK3AKK	Ken	16 SSB
VK3QM	David	15 SSB
VK3NX	Charlie	14 SSB
VK3PF	Peter	11 SSB
VK3WRE	Ralph	11 SSB
VK6BHT	Neil	9 SSB

VK3ALB/p	GARC Team	7 SSB
VK2EI	Neil	6
VK6KZ	Wally	5
VK2EI	Neil	3 Digi
VK3KH	Michael	3 SSB
VK3TLW	Mark	3 SSB
VK7MO	Rex	3
VK2GG	Dan	2
VK3BJM	Barry	2 SSB
VK3KH	Michael	2 Digi
VK3UH	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK1DA/p	Andrew	1
VK2AMS	Mark	1 SSB
VK3BG	Ed	1 SSB
VK3NX	Charlie	1 Digi

10 GHz	EME	
VK3NX	Charlie	16 CW

24 GHz	Terrestrial	
VK3NX	Charlie	4 SSB
VK3QM	David	3 SSB
VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK6KZ	Wally	2
VK3WRE	Ralph	1 SSB

47 GHz	Terrestrial	
VK3NX	Charlie	4 SSB
VK3QM	David	4 SSB
VK2GG	Dan	2

474 THz		
VK3WRE	Ralph	3
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at <http://vhfdx.radiocorner.net> - click on Gridsquares.

Next update of this table will close on or about 14 October 2011.

Stations who do not confirm their status for more than 12 months may be dropped from the table.



## Silent Key **Wayne Kilpatrick VK5ZX**

It is with great sadness that the South East Radio Group (SERG) wishes to inform the amateur radio community of the passing of Wayne Kilpatrick VK5ZX. Wayne was a long time member of the SERG and was enthusiastic and passionate about everything he took on. He was first licensed in 1987 as VK5ZDX, then as VK5KWK when he attained his five word Morse code, and finally as VK5ZX in 1988. He was active on all HF, VHF and UHF bands and also had a strong interest in amateur television.

Wayne held a number of positions in the club, as President, Secretary and Convention Coordinator right up until this

year. The club recognized his achievements and his efforts by awarding him Life Membership at Christmas in 2010.

Wayne's passion for radio direction finding, and all things GPS and mapping, had him involved in the SES in many roles, particularly around search and rescue activities. He was called on many times to locate EPIRBs, on behalf of the Police Department, but fortunately none of them required a formal rescue.

He was also the main organizer behind the annual Fox Hunting competition held in Mount Gambier every Queen's Birthday weekend and the success of the event was reflected by his close attention to

detail and knowledge of the local topography.

Wayne's other life was tennis. He was fortunate enough to be able to make it his career and in becoming a coach was able to inspire many to take up the sport.

Wayne is survived by his wife Bronwyn and his daughters Kate and Jess. Our heartfelt sympathies go out to them. Wayne Kilpatrick VK5ZX will be sadly missed by everybody who knew him; his enthusiastic and contagious manner touched so many people.

Contributed by the SERG.



# VK4news The Tableland Radio Club

Ross Anderson VK4AQ, Mike Patterson VK4MIK and Pat Edmunds VK4FUY

## Radio active holidays in north Queensland 2011

The Tableland Radio Group (TRG) has had a busy but enjoyable time operating during various locations in far north Queensland during May and June and trying various modes and equipment as the Group is wont to do during these excursions.

Our first trip this year saw us at Mount Fox, inland from Ingham and at an altitude of nearly 600 metres. The small community has a 'Cricket Club' which boasts rudimentary toilets/showers and a large undercover area for socializing, not to mention the most magnificent camping area. Wilf VK4ZNZ and XYL Helen arrived on the Thursday only to be greeted by frost on the ground on the Friday morning which had Helen set to 'up bag and hammock' and head for home. Not long after, RosscO VK4AQ and XYL Bev and a newcomer to amateur radio Peter VK4FZAB arrived and successfully persuaded Helen to do a rethink. By Saturday morning seven of us had gathered including Keith VK4BKS and XYL Barb and Mike VK4MIK. It was not long before the 'Lord Mayor of Mount Fox' and well popular local raconteur Rob VK4ARQ, and XYL Carolyn joined us.

Mt Fox had been very heavily impacted by Cyclone Yasi recently and the severe damage was still quite evident. Rob VK4ARQ suffered quite significant damage to his extensive plantation holdings and it was quite tragic to see how years of hard and painstaking work could be so quickly undone by Mother Nature. However, there is not a man on the face of this earth more resilient than Rob and I am sure he will quickly pick himself up again. The only 'upside' to this dreadful damage was the unlimited fuel source for the donkey boiler at the Cricket Club. Certainly no shortage of hot showers before the cold of the evening set in. Boy, were the mornings cold!

Our Mt Fox antenna farm comprised a vertical based on a squid pole, an inverted V and a four element horizontally orientated two metre beam tied to a rope and pulled up a tree, thereby saving a pole being included. Good sideband contact on the two metre beam was achieved with John VK4FNQ near Charters Towers.

On Saturday night we had a BBQ where we had about a dozen locals come and join us, which gave good PR for our hobby of amateur radio. Mario VK4MS and XYL Colleen, also Mt Fox weekenders, joined us as well. This developed into a long night with some partying on until the early hours.

RosscO's camp oven leg of lamb, with mint sauce and baked vegetables proved to be a hit the following evening – we had four chefs drop by on a sightseeing trip and they gave RosscO guidance on cooking lamb! Wilf and Mike did some instruction and practicals with Peter FZAB. A pity, though, about Mike's box kite/antenna experiment, hi. Another highlight of the trip was perfect daily vision of the four planets which seemed to be aligned 'especially for us'. We also witnessed a fly-by of the International Space Station which was extremely bright in the bush setting. Despite some drizzle and cold we managed to join various Nets and made many contacts and enjoyed the experience.

After a brief return home it was repack and off to Charters Towers to repeat the exercise in a new location



Photo 1: The group at John VK4FNQ's QTH at Charters Towers, including members of the Townsville ARC. L-R Blue VK4FBLU, Gavin VK4ZZ, Peter VK4APE, John VK4FNQ, Richard VK4FRJG, Mike VK4MIK, Wendy xyl Ray. Ray VK4NET and RosscO VK4AQ.

with Ross and XYL Bev and Mike. This time we had some excellent socializing with the Townsville Amateur Radio Club (TARC) when about ten of their members and XYLS joined us at the QTH of John VK4FNQ, and our camp site for a monster morning tea. The Tarcadians gave our camp site a good going over and, as ever, it is good to be able to have these eye-ball contacts and be able to put faces to callsigns. Included in the visit were Gavin VK4ZZ, Ray VK4NET and XYL Wendy, Blue VK4FBLU, Richard VK4FRJG, Peter VK4APE, Mai VK4MSS and, of course, John VK4FNQ and XYL Cheryl VK4FRYL. Chris VK4FR joined us later in the afternoon and it was lovely to catch up with him again.

During our stay we operated CW, SSB and digital into various nets and on 40 metres it was interesting seeing the late afternoon net fall apart locally but still permit long haul contacts. Murphy paid us a visit and saw a keyboard become intermittent and a few finger problems with menus and sub menus needing re-inputs and setting changes. We used a long wire and dipole plus a two metre beam and battery power and had solar panels for charging.

RosscO had very good success with his especially made camping FNQ Special. A little Santa Gertrudis bull quite fancied the antenna's counterpoise as something tasty on which to chew, too. Over a beer that evening, RosscO was heard to wonder if the bull's ribs hurt — because the top of his bare bloody foot certainly did. The skills we practice on these camps are vital in emergency type situations and as Ross had recently completed the Emergency Communications Course with WIA and as he had been through Cyclones Winifred, Joy, Larry and Yasi, we were able to kick many ideas around on the subject. Radio operated from battery can be vital although operating during 200 kph plus winds isn't ideal as antennas tend to break and cause more missiles and whipping wire.

### **Trip to Normanton - Pat VK4MUY**

Sunday, 23 May saw four intrepid TRG members head off for Undara. Sleeping accommodation was in beautifully restored QR railway carriages. On the Monday morning Wilf VK4ZNZ and Dave VK4FUY headed off on a two hour tour of two of the famous Undara Lava Tubes. Besides viewing the spectacular underground formations, Wilf also braved a dip in an underground stream which he reckoned was 'quite invigorating'. In the meantime Wilf's XYL Helen and Dave's XYL Pat VK4MUY kept themselves amused playing 'Upwards'.

The following day the team headed for Normanton near the south-eastern coast of the Gulf of Carpentaria, where the local tourist park was ready for their arrival. Following the heavy wet season an abundance of wildlife was spotted in the lush greenery on the trip into Normanton, among which included the majestic brolgas.

Tuesday saw the four setting off on the old RM60 train for a memorable trip on the iron sleeper railway. Wilf was excited to hear of one of the few surviving telegraph poles in the region and was extremely fortunate to get up close

and personal with it - climbing up about a quarter the height. After chatting to a local about the pole, he was given two original insulators — one even printed 'Made in Occupied Japan'. Later that day, Wilf and Dave attempted to fly a box kite which it was hoped would carry an antenna aloft, but unfortunately the wind was unpredictable and the kite spent more time on the ground than in the air!

Things warmed up radio wise with the arrival on Wednesday of Mike VK4MIK, Billy VK4WL and Stan VK4MBA with XYL Val. Mike very quickly set up a long wire for HF, making lots of contacts, including local nets. Thursday morning found Billy busy figuring out how to assemble and set up his new 'Buddi' pole, with assistance from Wilf, watched by Dave, with Mike making an inspection once it was erected. In the evening, the Group visited the Purple Pub which was close to the tourist park for a pleasant meal.

On Friday while Mike and Billy played radio and Helen and Wilf visited friends, Stan, Val, Dave and Pat drove to Karumba where Stan and Val had lived for several years. Catching up with old friends and buying locally caught fresh fish, was well worth the drive. To round off a fantastic week, all remaining food and drink was 'pooled' for an evening get-together rounded off with a few comedy poems penned by Pat VK4MUY. Next morning we left in convoy for the seven hour return trip.

In the final analysis it was unanimously agreed that it had been a great trip, wonderful scenery, exciting experiences and some good radio contacts, particularly with Lyn VK4SWE who lives on Sweers Island in the Gulf of Carpentaria the best of all — with a group of fantastic

friends united by the commonality of amateur radio.

The last adventure saw a day trip to the Cardwell Bush Telegraph Heritage Centre by Bill VK4WL and Mike VK4MIK to see how it was coming along post Cyclone Yasi. It was great to see that the old post office/telegraph station, that was built in 1870 as a telegraph office and operated as such until 1983, when, in 2003, it was converted to its present status, was still intact with little damage sustained. There is much to see and interact within the many displays at the Centre and the volunteer staff are very informative and friendly and are justly proud of their displays and history. In the early days it was the other end of the telegraph that ran to Normanton and Karumba. We enjoyed it immensely and a visit can be highly recommended to any enthusiast travelling up the coast in future.

It was great to enjoy the various camping spots and the friendship of the many hams we visited, connected with via radio or who, indeed, visited us, together with the closeness of the friends within the Tableland Radio Group. The success of these types of activities require a balance between the overwhelming urge to 'play radio' with the social aspects and visiting the local history and attractions, but it can be done to the benefit and enjoyment of all!



*Photo 2: Mike VK4MIK makes up a batch of croquettes in the five star camp kitchen.*

# Hamads

## FOR SALE – VIC

Radio Projects for the Amateur - Volumes 1 - 4 are back in print by popular demand. Practicable plans for the construction of receivers, transmitters, antennas and couplers, test equipment, with lots of workshop notes, prepared by Drew Diamond, VK3XU. Available from the WIA Online bookshop, [www.wia.org.au](http://www.wia.org.au)

## WANTED – VIC

Wanted dead or alive, but preferably alive. "Multi-channel unit" for an AWA CR-6A communication receiver, preferably with matching front panel and double knob. (Please see "Freq. Control" knob on the panel, above the RF Gain control, here - <http://www.ling.mq.edu.au/~robinson/museum/CR6/>)

This unit was an "optional oscillator unit that allows the receiver to operate as a fixed frequency receiver. A front panel switch turns the mixer oscillator off and switches in one of 6 crystals. This uses half of a 12AU7 as the local oscillator."

"An optional control, which is fitted to this receiver is the FREQ. CONTROL. This may be covered by a plate on some receivers. The knob has 2 concentric controls. The outer one called CRYSTAL is a 7 position switch that selects one of 6 crystals for fixed channel reception, or a MANUAL position for normal reception. The centre knob is a trimmer which provides fine control of the optional oscillator frequency." (Quotes from Ray Robinson, VK2ILV's excellent website - link above).

In the radio in question here, there is actually no cover plate. Instead, there is an indicator lamp on a simplified panel without the necessary labels. Please call Mike VK3KRO, QTHR on 0417 358 751 or email [vk3kro@yahoo.com](mailto:vk3kro@yahoo.com)

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Transport is additional in each case. Please call Harry VK4EL on 07 5445 2647 or email [glenviewinfo@optusnet.com.au](mailto:glenviewinfo@optusnet.com.au) Going to retirement village where antennas are taboo.

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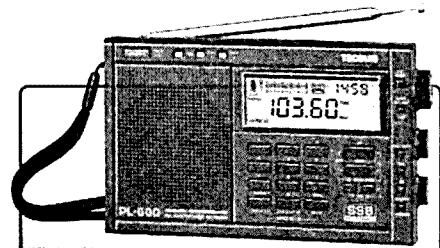
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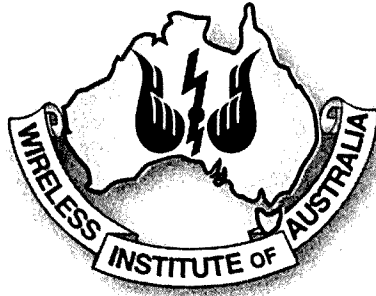
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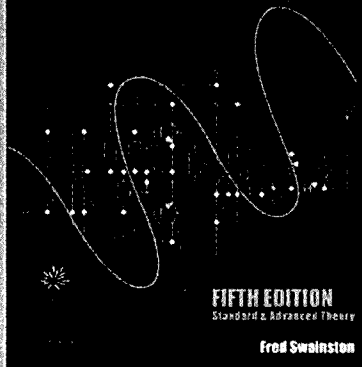
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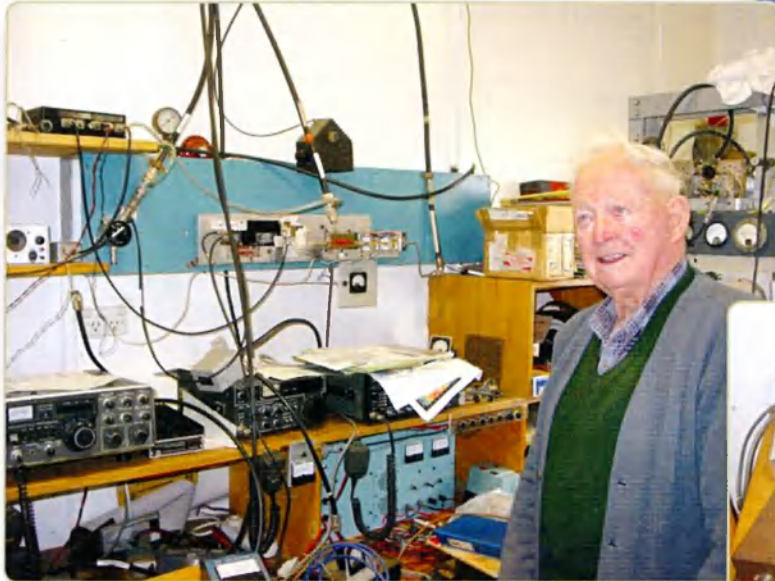
# Wally Green VK6WG and some of his amateur radio equipment

Wally is quite active on many bands, particularly still when tropospheric propagation exists across the Great Australian Bight.

Images taken by Doug Friend VK4OE when visiting Wally in September 2005.



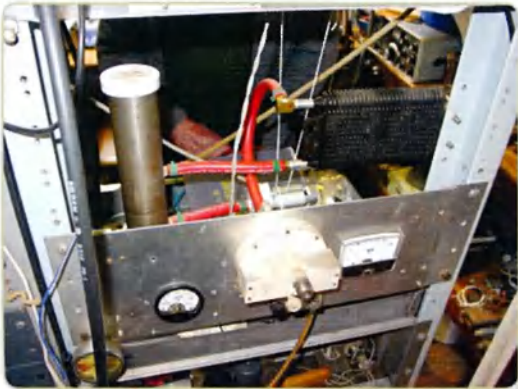
*Microwave antennas close up – fixed pointing at Adelaide!*



*Wally in his shack – various VHF-and-above gear around, including on the wall a home-made transverter for 3456 MHz used for early across-the-Bight QSOs.*

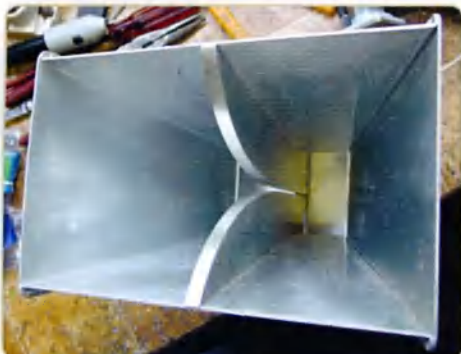


*Work in progress – a home-made transverter for the 10 GHz band.*

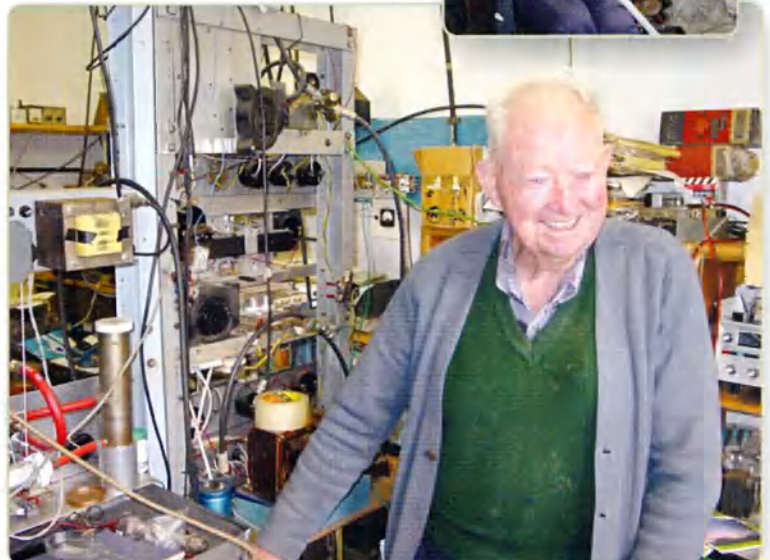


*A home-made power amplifier for 1296 MHz with (strikingly!) the use of oil cooling of the power tubes.*

*Wally also has quite a few good stories to tell!*



*Wally is very good at making things. Here is a broadband microwave horn antenna/feed that he has constructed from a published German design.*



*Wally and the back of the 1296 MHz rack – he's always ready for a laugh!*

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Peter Wolfenden VK3RV

### This month's cover

The background for this month is the new 20 m beam added to the mast at the Northern Corridor Radio Group station in VK6 – see the VK6 News on page 16 for further details. In this issue we also have some relatively simple projects to build, with two of them featuring as the inset photographs on the cover.

On the left we have the heart of the tuning indicator for a 100 W HF transmitter, by Warren VK3XSW – the project starts on page 33.

On the right is the band pass filter unit described by Roderick VK3YC. This article starts on page 8.



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	Ewan McLeod	VK4ERM
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<i>John Moyle Field Day</i>	Denis Johnstone	VK4AE
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	Peter Young	VK3MV

# Editorial

Peter Freeman VK3PF

## More milestones

As I mentioned last month, Pierce Healy VK2APQ reached his 100th birthday on the middle of August – I understand that the big day is on the weekend that the proof reading team will be checking out this issue of *AR*. Wally Green VK6WG also reached the milestone this month, with a report of his radio activities appearing last month. This month we have a report from Peter Wolfenden VK3RV about Pierce and his past activities. ARNSW is also planning a celebration at the Dural property in early September, so check out the ARNSW website or listen to their broadcast for details.

Amateur Radio Victoria is gearing up for its own centenary celebrations in November. Jim VK3PC gives us an overview in this month's ARV news, with opportunities to work VK3WI to earn points towards the Amateur Radio Victoria Centenary Award during the RD and ILLW weekends (this news will probably be too late for most readers I suspect, but I am sure ARV will have been promoting the award via the WIA News broadcasts).

## Articles for AR

As I have indicated in the past, last year produced a flood of contributions for publication in *AR* covering various aspects relating to the history of our hobby in Australia. Some of these contributions are still being worked on by Publications Committee (PubCom) or others who have been drafted to assist. The plan is that most will eventually be published and all material will be added to the WIA Archive for use by future historians.

This flood has caused some headaches, as many other articles are still awaiting publication, delayed by the need to publish many of the historical articles during the centenary year. We are now slowly catching up on some of the

backlog, with three excellent simple construction articles finally published in this issue, having been submitted in August or September last year.

We currently have a maximum delay of twelve months for most articles, with only a few remaining in our stockpile of material ready for publication. I will be endeavouring to publish the few remaining very old articles in the next couple of issues and I thank the contributors for their patience and understanding.

I always have a challenge at the start of each month – what articles do I include in the coming issue? Some articles will need to be published almost immediately, especially general articles which contain time sensitive material.

At the last meeting of PubCom, we discussed the need for the technical editor team members to please process the articles that they have for review as quickly as possible. Of course, this raises another issue – the PubCom team members are all volunteers, doing the work to support your magazine in their spare time. Even so, as a team we will be working hard to move new contributions through the review and preparation steps as quickly as possible.

That will mean that I will have more articles from which to choose for each issue, with a buffer of around six to twelve months. How can the delay be reduced? One option would be to increase the size of the magazine each month from March to November, increasing it to the 64 pages used for the December and January/February issues. It is a simple but expensive solution. We have ruled out that option, as it would destroy our budget.

Another option would be to decrease the number of pages allocated to Club News items.

Continued on page 5





# WIA comment

Michael Owen VK3KI

## Station Inspections and "Possession"

In the April 2011 issue of *Amateur Radio* magazine I described the WIA's concerns arising from some station inspections in relation to the question of the possession by amateurs of some transmitters and the manner in which some station inspections had been undertaken.

It had emerged that the ACMA field staff were taking the relevant legislation into account but also that the ACMA did not have formal policies or operational procedures addressing either issue. The WIA strongly urged the ACMA to develop appropriate policies and procedures to assist both amateurs and its own staff in the interpretation and application of the legislation.

The ACMA responded by indicating its willingness to do so and to work with the WIA.

As has been reported in the News items in this issue, the ACMA has undertaken a careful examination of both issues, and I have indicated that we are satisfied with the progress that has been made so far.

In particular, our major concerns about the manner in which station inspections are undertaken have been accepted, and we expect the process will be expressed in the ACMA's internal documents in a way that will meet our concerns.

It has been a little more difficult to find an appropriate form of words to deal with the question of possession of radio equipment.

That issue arises because of sections 47 and 48 of the *Radiocommunications Act 1992*. As I said previously, section 47 provides that "... a person must not have a radiocommunications device in his or her possession for the purpose of operating the device otherwise than as authorised by: (a) a spectrum

licence; or (b) an apparatus licence; or (c) a class licence."

Section 48 is a series of rebuttable presumptions, that apply in the absence of any evidence to the contrary, that the transmitter is possessed "for the purpose of operation" (but not otherwise than as authorised by a licence).

We are very anxious to ensure that those provisions do not become a barrier to legitimate amateur activities.

However, one matter has emerged that has surprised me, and one which I would like to address here.

I should say that in making the observations I do, I rely on my discussions with a number of amateurs and ACMA staff.

Many commercial amateur transceivers (that is, equipment made specifically for the amateur market) are capable of being modified to transmit on frequencies outside the amateur bands, sometimes by no more than removing a single diode.

I should stress that my comments are confined to exactly that, equipment made specifically for the amateur service. Other equipment that complies with standards, for example for land mobile stations, may also be lawfully used on amateur frequencies.

I started to write this Comment on the basis that an amateur could never modify a commercial amateur transceiver so that it could "operate" (whatever that may mean) on a frequency outside the amateur bands. I do not think that simple solution provides the right answer.

What about using a low power transceiver as a VFO with output on a non amateur frequency for translation to an amateur frequency?

Provided adequate care is taken

to ensure that such equipment cannot radiate sufficient energy during transmit periods that would interfere with other services - it would be simply providing a low level signal to be translated to a different amateur allocated/authorised frequency band.

That would seem to me to be legitimate.

On the other hand, I know that a number of amateurs believe that, as their commercial amateur transceiver is of a high technical standard, it can be operated on frequencies covered by Class Licences, such as the Maritime Ship Stations 27 MHz and VHF class licence and the Citizen Band Radio Station class licence.

I know a number of amateurs have in fact used their equipment on frequencies covered by those class licences.

The class licences have power restrictions and the like that may not have been taken into account.

But, much more significantly, the class licences have provision that provide, in effect, that a person must not operate a station under the class licence unless the station complies with each standard made under section 162 of the Act that applies to the station. Section 162 gives the ACMA the power to make "standards".

The ACMA has made standards for most transmitters covered by a class licence, other than the class licence in relation to overseas amateurs visiting Australia.

Section 157 makes it an offence, in effect, to transmit from a "non-standard transmitter" and section 158 makes it an offence to possess for the purpose of operation a

Continued on page 5

## Work on station inspections continues

Early this year the WIA raised with the ACMA issues relating to the inspection of stations and the background and the WIA position was set out in the Comment published in the April 2011 issue of *Amateur Radio* magazine.

Since then, the WIA has met with the ACMA, the last time being Friday 6 August 2011, when WIA President Michael Owen and WIA government liaison Peter Young attended a meeting in Melbourne.

The issues have been refined to two basic issues – the way inspections are arranged and conducted and, secondly, what equipment an amateur may possess.

There is effective agreement between the WIA and the ACMA on the first issue and substantial agreement in principle on the second issue.

The real difficulty in respect of the second issue is to find an adequate expression of the position in principle that is not simply confusing.

WIA President Michael Owen said that he was very satisfied with the approach being taken to date by the ACMA officers involved and appreciated that some of the issues did raise complicated issues in the legislative framework.

Further information will be contained in the "Comment" section of the September issue of *AR* magazine. This is important information that all amateurs should read.

## Extension of time for Club Grant Scheme applications

Applications for Club Grants for 2011 closed on 25 July.

In its release of 27 July, the WIA reported that only a disappointing three applications had been received.

After that one club has asked whether a late entry would be accepted, and offered very legitimate

reasons for the lateness of the lodgement of the application.

The WIA Board has decided to accept that application.

It is also conscious of the fact that other clubs may be in a similar position and so it decided to also accept any other late application that was lodged at the WIA office by not later than 4 pm Victorian time, on Tuesday 9 August 2011. Reasons for the lateness of the lodgement are not required.

As a result, six additional applications for a Club Grant were lodged within the extended time.

## WIA at Northern Corridor Radio Group Hamfest and Riverina Field Day

The WIA was represented at the Northern Corridor Radio Group Hamfest in Ashfield WA.

WIA Board member Bob Bristow VK6POP manned the WIA stand.

The week before, WIA Manager Mai Brooks VK3FDSL and Dianne Ashton VK3FDIZ welcomed seven new members to the WIA at the Riverina Field Day at Lavington. Over one hundred people attended the very well-run event.

## VK6APH receives Award

On Sunday 7 August at the NCRG Hamfest, WIA Director Bob Bristow VK6POP presented Phil Harman VK6APH with the Ron Wilkinson Award certificate.

The award was announced at the recent WIA Annual Conference in Darwin.

Phil was presented the award in recognition of his contribution to amateur radio, especially in digital techniques, and for his contributions to amateur radio literature.

Phil said he was honoured to receive the award.

## IARU Region 3 Directors meet

The IARU Region 3 Directors – Chairman Michael Owen VK3KI, Directors Peter Lake ZL2AZ, Shizuo Endo JE1MUI, Prof. Rhee HL1AQQ

and Gopal Madhavan VU2GMN met at the offices of JARL in Sugamo, Tokyo Japan on 14, 15 and 16 July 2011. Also participating in his first meeting of Directors since his appointment last March as IARU Region 3 Secretary was Ken Yamamoto JA1CJP, and all were assisted by Keigo Komuro JA1KAB, Special Advisor to the Directors.

IARU President, Timothy Ellam VE6SH, IARU Region 1 President Hans Blondeel Timmerman, PB2T, and IARU Region 2 President Reinaldo Leandro, YV5AMH also participated in the meeting.

The IARU Region 3 Directors were enthusiastic about the planning of the 15th Regional Conference which will, it is expected, commence on 5 November 2012 in Ho Chi Minh City, Vietnam.

It is hoped the Conference will assist the growth of amateur radio in Vietnam.

The Directors agreed that emergency communications would be an appropriate theme for the 15th Regional Conference in Ho Chi Minh City.

The Directors spent much of their time in three working groups investigating the factual situation and exploring the options to be presented to the Member Societies in the report they were asked to present before the next Conference addressing the financial issues facing the Region that had caused such concern at the Christchurch Conference. They were reassured by the Secretary's report that they were currently working comfortably within the budget set by the Christchurch Conference.

Among many matters, the Directors discussed the future of the Monitoring System, and after hearing the comments of IARU President Tim Ellam hope that a satisfactory solution to the concerns identified in Christchurch will be found at the next Administrative Council meeting, to be held in Sun City, South Africa in August 2011.



Such a step would make more pages available for general and technical articles, but at the expense of less news from around the country. Such news helps us all to understand what is happening in the various corners of this vast continent. We have not taken any decision and I would welcome the views of readers on this issue.

Some readers have asked for an electronic version of the magazine. PubCom has discussed this at length and has decided that we will produce an annual collation of material at the end of this year. This would be similar to the approach taken by the ARRL in some respects – they produce an annual CD containing all the issues of QST, QEX and NCJ. ARRL members can choose to only

receive the electronic version of QST, but they must wait for a whole year to receive the “magazine” on CD at the end of the year. I suspect that we are unlikely to follow this approach. We are likely to offer the annual collation as an extra to the printed magazine, available for sale through the WIA Bookshop.

Remember that we always need good high quality photos that we can use on the cover and inside back cover of the magazine – keep the camera handy and send in your high resolution digital photos! Just make sure that you send in a story to go with the photo.

Cheers,

Peter VK3PF



## WIA comment

Continued from page 3

device the person knows to be a non standard device, and section 159 is a series of rebuttable presumptions as to the possession being for the purpose of operation.

So, the amateur transceiver modified to operate on the CB or 27 MHz maritime bands cannot be operated on those bands, or indeed, on any other band. In fact, the modification has turned the amateur transmitter into an unlawful non-standard transmitter.

I know that some amateurs have modified their equipment as I have described.

I know that some amateurs have valued such “opened” equipment, and indeed, some equipment has been advertised as “opened”.

But I also know that some people have purchased equipment, perhaps even apparently in the ordinary course of trade, not even knowing that it

has been modified and is capable of operating on non-amateur frequencies.

All of this is part of the problem that has to be addressed. It is really the reverse of modifying non-amateur equipment to operate lawfully on the amateur licensee’s permitted frequencies.

In the end the legislation is clear. We cannot modify commercial amateur transceivers to transmit on non-amateur frequencies.

What is surprising is that some amateurs have not appreciated that it is unlawful to use their amateur equipment to transmit on non amateur frequencies, particularly on the CBRS and maritime 27 MHz frequencies.

Perhaps all of this is saying something about what we cover in the “regulations” component of the amateur qualification?



## Major Australian activities for September

### 11 SADARC COMMS DAY Annual SADARC Hamfest

Northern Victoria’s premier Hamfest held at St Augustine’s Hall Orr St Shepparton.

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# GippsTech 2011 - A personal review

Roger Harrison VK2ZRH

## What was on

This year's itinerary of topics is listed below, in more-or-less alphabetical order by presenters' first names.



*The other side of GippsTech: out-of-session get-togethers ~ friends with beverages ~ swapping elaborated "war stories". From L-R: David VK3HZ, Andrew VK3OE, Joe VK7JG, Michael VK3KH and Guy VK2KU.*

GippsTech 'is like a box of chocolates; you never know what you're gonna get', to paraphrase a now-famous aphorism.

2011 was the 14th GippsTech (15th if you count the "Special Edition" in conjunction with the 2009 WIA AGM) and my fifth year attending the conferences. My, how time flies when you're having fun!

This year's conference was held over 9-10 July at the usual venue, the Monash University campus in Churchill, Victoria.

## Preamble

There is a good reason why GippsTech rightly claims to be 'the premier technical conference in VK.' It is well organised, well run, attracts interesting presenters who cover wide-ranging topics, and draws an eclectic crowd of practitioners, enthusiasts, dabblers and fanatics, all eager to learn, discuss, critique and be entertained. While GippsTech's primary focus is 'on techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts', the conference's scope has broadened in recent years to include presentations on some of the newer frontiers in amateur radio, such as digital interfaces for transceivers, SDR technologies and LF technologies and techniques, experiments and related propagation phenomena. GippsTech also attracts a small coterie of traders offering useful components, kits, hardware and other paraphernalia of likely interest to the audience.

GippsTech is truly a 'product' of which the Eastern Zone Amateur Radio Club can be justly proud. The 'face' of GippsTech, for those who have not made the excursion, is the redoubtable Peter VK3PF (the erstwhile editor of

- ▶ Andrew VK1DA, Kevin VK4UH, Michael VK3KH, Alan VK3XPD: **VK9NA 2011**
- ▶ Andrew VK1DA: **Which IF for microwave bands?**
- ▶ Andrew VK3OE: **Propagation measurements using the Tasmanian GPS stabilised beacons.**
- ▶ Andrew VK3OE: **Chirp beacon and radar developments.**
- ▶ Andrew VK3OE: **Development of a solar powered remote site.**
- ▶ Chris VK5MC: **Softrock SDR & JT 144 MHz EME.**
- ▶ Dale VK1DSH: **600 m band experimental licences & experiences.**
- ▶ Doug VK3UM: **Rubidium frequency standards.**
- ▶ Doug VK3UM: **2012 EME Conference, Cambridge, UK.**
- ▶ Doug VK3UM: **Libration.**
- ▶ Jack VK3WWW: **IARU Region 3 ARDF Championships, Maldon.**
- ▶ Neil VK2EI: **Recycling Crimp Connectors - without need for special tools.**
- ▶ Rex VK7MO: **Comparisons of aircraft scatter at 144, 432, 1296 and 10 GHz.**
- ▶ Rex VK7MO: **DX strategies for 10 GHz.**
- ▶ Ron VK3AFW: **Doppler shift estimation for 10 GHz aircraft enhancement.**
- ▶ VK2ZRH: **Chirp backscatter radar: analyses of further HF and VHF propagation experiments and proposals for future use.**
- ▶ VK2ZRH: **Sporadic E: MUF myths, SSSP and forecasting openings.**

*Amateur Radio* magazine). Just how he does it, holds down a job, manages family life and even a few amateur field day excursions is truly a wonder. More power to his elbow(s)!

## My views

The VK9NA DXpeditions to Norfolk Island (2010 and 2011) have 'set the bar' for concentrated VHF-to-microwave events. They have certainly stirred up a lot of activity, effort and interest, not just around VK-ZL, but worldwide with this year's addition of 2 m EME to the mix. The account by Andrew VK1DA and Kevin VK4UH on Sunday morning was one of GippsTech's highlights, I have to say. Recounting the trials and tribulations that the crew experienced

resulting from tropical cyclone activity in the region was not only entertaining but instructive. While 'planning is everything', execution is open to the perversity of Murphy! The DXpeditioners clearly rose to the challenge. I particularly liked the illustrated explanation of how to nudge a running slip knot in guy ropes using a fibreglass pole with a fork lashed on top.

The topic of 'Which IF for microwave bands?' is a perennial one for anyone venturing above 70 cm. Andrew VK1DA neatly summarised the conflicting issues that have to be considered and offered some potential solutions (or paths to a solution). As often happens, members of the audience found a few more issues to consider! I have to say I learned a few things from this one.

The VK7RAE beacons near Devonport in Tasmania became GPS stabilised in 2010, which set Andrew VK3OE pondering about the propagation vagaries affecting the 2 m and 70 cm signals - would they, or would they not, correlate. Andrew described his experimental setup and detailed the quite intriguing results he found. Out of it all, the exercise raised at least as many questions as it answered.

Andrew VK3OE's Chirp Backscatter Radar for Amateur Use is a significant development for amateur radio, published last year in DUBUS No.2/2010 and detailed at GippsTech 2010. Applications of the concept and the technology have developed apace over the past 14 months. Andrew's Chirp application has been taken up by the global High Performance Software Defined Radio (HPSDR) development project under the Griffin project (see <http://openhpsdr.org/wiki/index.php?title=GRIFFIN>). A 50 watt Chirp beacon will readily stand in for those stalwarts of 6 m propagation indicators - low band TV stations, which are disappearing the world over at a rate of knots. You better believe it! All the gain is in the Chirp receiver software. Since HPSDR developer Phil Harmon VK6APH gave a presentation on the subject at the Dayton Hamvention in May, a bunch of US amateurs are working on deploying 6 m Chirp beacons in strategic places. Andrew has also set up a remote station near Harcourt in VK3 and is using it to run Chirp radar propagation experiments, and getting some surprising results. In furthering development of the Chirp radar, Andrew has developed a plan-position indicator ('radarscope') display, showing propagation around all points of the compass. Neat!

Remote operation of amateur transceivers has been available for a while and fully-equipped remote stations have sprung up, predominantly in the northern hemisphere. Andrew VK3OE described the trials and tribulations of planning a wholly solar powered remote station, of finding a suitable site, negotiating with the site owners, assembling all the required equipment and facilities, getting it on-air, and the performance to date. I think this sort of thing heralds a new facet in amateur radio that will lead to some significant achievements.

Software defined radio (SDR) is a burgeoning class of technology that is transforming the core system used by amateurs - the transceiver. SDR is being used across many spheres of amateur radio and a host of kits is being offered for the DIYer, while a number of plug-and-

play transceiver manufacturers have emerged. One of Australia's moonbounce pioneers, Chris VK5MC, gave the GippsTech audience the benefit of his experience with a Softrock kit rig (see: <http://www.wb5rvz.com/sdr/>) put to work on 144 MHz EME, teamed with WSJT software and his 'dirty-great dish'.

Down the other end of the spectrum, Dale VK1DSH, detailed the series of experiments carried out on the 600 metre band over 2010 through the benefit of Scientific Licences obtained by the WIA. Digging signals out of the noise is just as important at 500 kHz as it is for weak signals on the microwave bands, although different impediments have to be overcome.

The redoubtable Doug VK3UM regaled us with his experiences of locking-up his shed (well, all the rigs and test gear) with 10 MHz 'Rubidium frequency standards', discards from cellphone networks. It seems that commonly available units, while looking the same have differences to trap the unwary. Doug highlighted the traps for newbies, including photos of one unit inadvertently destroyed. That's what 'learning by experience' is all about. Now we know where to go, and where not to go: 'do not apply 15 V to pin ...'

The 15th International EME Conference will be held in Cambridge, the University town, in the UK next year. For committed moonbouncers, this is the event to attend. Doug VK3UM gave a short exposition promoting the bi-annual event. Those considering imbibing in the spirit of EME (and other libations) should check out <http://www.eme2012.com/>

Doug's suite of EME software is legendary among moonbouncers. New features and functionality are added at ever-decreasing intervals (or, so it seems!). At this year's GippsTech, Doug demonstrated the latest developments: one for planning operations to avoid severe Doppler arising from the moon's libration ('wobble'), the other for planning 24 GHz EME operations, to avoid or mitigate atmospheric losses. A visit to <http://www.vk3um.com> is a 'must see'.

ARDF - amateur radio direction finding could be likened to 'finding weak (or not-so-weak) signals from a series of transmitters hidden around a course in the bush, without getting lost or losing your temper.' Perhaps 'orienteering with radio steroids' is a better description. Master exponent of the Art of ARDF, Jack VK3WWW, gave the audience a rundown, in his dryly amusing style, on the sport and preparation for the IARU Region 3 Championships to be held near Maldon in September this year. Remarkably, or perhaps unremarkably, ARDF is popular with people of all ages. Check out <http://www.iaru-r3.org/ardf/r3ardf.htm>

One of the master craftsmen of homebrew amateur radio is Neil VK2EI. His presentation on 'Recycling Crimp Connectors - without need for special tools' was typical of his series of papers given at GippsTech over the years - short, sharp and totally practical, unlike some of mine, which tend to lean towards long, blunt and detailed.

**Continued on page 56**

# Build your own 200 watt 50 Ohm band- pass filters

Roderick Wall VK3YC

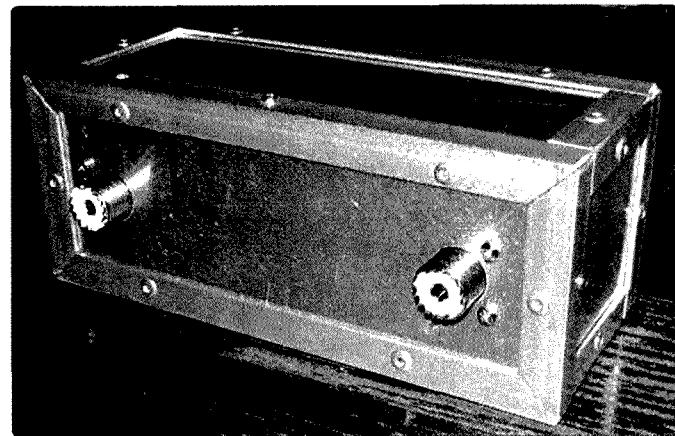


Photo 1: 160 metre 200 watt BPF.

## Clean up your signals with band-pass filters.

During a contest or field day, are multiple transmitters at a signal site causing QRM? Or do you find that the low pass filter on your solid state transceiver is letting splatter through to the linear amplifier?

If so, then this set of six band-pass filters (BPFs) will help to keep your signal clean. Because the filters are also connected in receive mode, they may also help to keep your receive signals clean. The six BPFs are for the 160 metre, 80 metre, 40 metre, 20 metre, 15 metre and 10 metre bands. Insertion loss is around 0.3 dB and 0.7 dB. Refer to the N2PK VNA plots below. The 50  $\Omega$  BPFs are designed to be used with up to a 200 watt transceiver and before the antenna or linear amplifier.

## Warning!

The BPFs are not designed to be used after a high power linear amplifier; they are rated for 200 watts. You must also remember to have the correct BPF installed for the band that you are operating on. If you don't you will be asking the BPF to reject and dissipate 200 watts of RF power and you will be left with nothing more than a smoking box. But at least you'll be able to repair it, because you built it. BPF impedance is 50  $\Omega$  and should only be connected to 50  $\Omega$  transceivers etc.

## What the BPFs will not fix

The BPFs are designed to filter the signal on the centre wire of the coax. If RF from an adjacent transceiver is coming down the coax shield or via the 240 VAC mains supply into the transceiver,

then the BPFs will not cure this problem. You need to fix this problem before using the BPFs.

To determine how RF is getting into the transceiver. Connect a 50  $\Omega$  dummy load or a 50  $\Omega$  resistor onto the transceiver antenna connector. If interference is present when the coax shield is not connected to the transceiver, then RF feedback is via the 240 V mains or directly from the antennas. The antennas may be too close to the operating area. A good earthing system may help this situation. Then connect the antenna coax shield to the transceiver ground terminal and check if the interference is present. If present then RF feedback is coming down the coax shield. Another slight possibility if you use an antenna tuner is that the antenna tuner is picking up an adjacent band signal, and is converting this into in band

interference that the BPF will allow through to the transceiver.

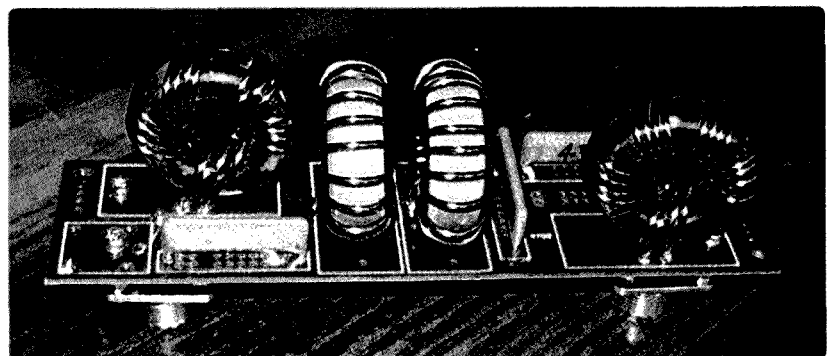
This project came about because Roy Seabridge VK3GB/G4SEA indicated that our FAMPARC amateur radio club needed BPFs during contests. Two sets of parts were ordered and our project was under way.

## Ed Wetherhold W3NQN design

I claim no credit for designing the BPFs as I used Ed Wetherhold's W3NQN excellent 1998 QST article. Refer to the references at the end of this article. This article is about how I built Ed Wetherhold's BPFs. You should use Ed's article in conjunction with this article to build your own BPFs.

The components are mounted on Bob Henderson's 5B4AGN BPF boards. They are of excellent quality, reasonably priced and make building the BPFs a lot easier, I would not do it any other way. Bob has calculated the capacitor values to suit the stray capacitance on his boards. Bob sells the BPF boards and two other boards that contain a binary coded decimal (BCD) decode circuit and connectors. Automatic filter selection can then be accomplished through the use of BCD Band data with transceivers such as Yaesu or the Elecraft K3, or with band select line outputs from transceivers like the PicaStar.

Photo 2: 15 metre BPF.



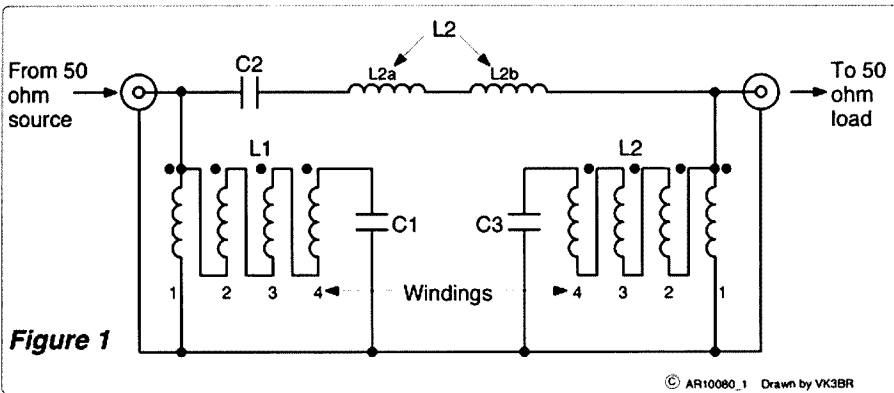


Figure 1: Quadrifilar winding.

All the BPF boards are the same and have pads for mounting relays or SO-239 connectors. Two sets were purchased, one set for Roy and the other set for myself. Both sets have been built and tested. The BPF boards can be mounted side by side inside one box with coax cable running between the relays. Or they can be mounted inside their own box with SO-239 connectors. Shielding and performance may be better when they are mounted in their own separate box. Another advantage with separate BPFs is that they can be moved and used on different transceivers as required during a contest. Refer to Bob's web site for his layout.

The silver mica capacitors were purchased from Tab Components in the United Kingdom. The SHB series radial dipped capacitors are specially made for transmit filters up to 1 kW and are rated for 750 V RMS or 500 V RMS with 8.5 or 10 amps AC. Capacitance tolerance is +/- 1 pF up

to 100 pF and +/- 1% over 100 pF. Tab Components indicated that our capacitor order was the first from down under Australia.

Using Bob's boards and Tab Component capacitors meant that I did not have to match hard to find high voltage capacitors to resonate the tune circuits. For L1 and L3, I only had to reduce the spacing of the turns to increase the inductance to make them resonant at the correct centre frequency (Fc). When winding L1 and L3, make sure the turns are evenly spaced for minimum inductance. For L2, I changed the spacing and removed one or two turns on three bands. Changing L2 is not a problem as it only has one winding on the core. Bob has indicated that over 100 filters have been built using his boards with his Tab Component capacitor values.

Toroidal cores were purchased as a kit for the W3NQN BPFs from Kits and Parts dot Com.

## The W3NQN BPFs

Note: For trifilar winding, winding four is deleted, and C1 and C3 are connected to the top of winding three.

The W3NQN BPFs are shunt-series-shunt topology Chebyshev filters that have a tapped parallel resonant circuit at each port. A series resonant circuit is connected between the taps and ports. The parallel resonant circuits are labelled L1/C1 and L3/C3, the series resonant circuit is labelled L2/C2.

## Winding the toroidal inductors

L1 and L3 are either quadrifilar or trifilar wound depending on which band, refer to Table 1. Quadrifilar is four windings wound in parallel, trifilar is three windings wound in parallel. Normally you would cut four or three lengths of enamel coated wire and wind them onto the toroid at the same time. You then connect and solder the end and start of each winding until they are connected as in Figure 1.

Ed's L1 and L3 are wound with just two lengths of wire. A short length for winding 1 and a longer length for windings 2 and 3 (trifilar) or two, three and four (quadrifilar). Winding 1 is first wound onto the toroid, winding 2 is wound on, winding 3 is wound, and winding 4 if it is quadrifilar. Notice that as windings 2, 3 and 4 are all connected in series it is possible to wind them as one continuous winding, making sure that each section winds in the correct sequence and layout as if they were individually wound. To group the turns together, each winding is wound next to the last winding as in Figure 2. Make sure the windings are wound in the correct direction to allow them to connect to the pads on the board. I marked the position of each turn on one side of the toroid, this makes it easier to evenly space the turns. That is, for the 40 metre seven turn quadrifilar windings, a mark was made on the toroid every  $51.5^\circ$ .  $360^\circ \div 7 \text{ turns} = 51.5^\circ$ . Refer to Table 1 for winding details.

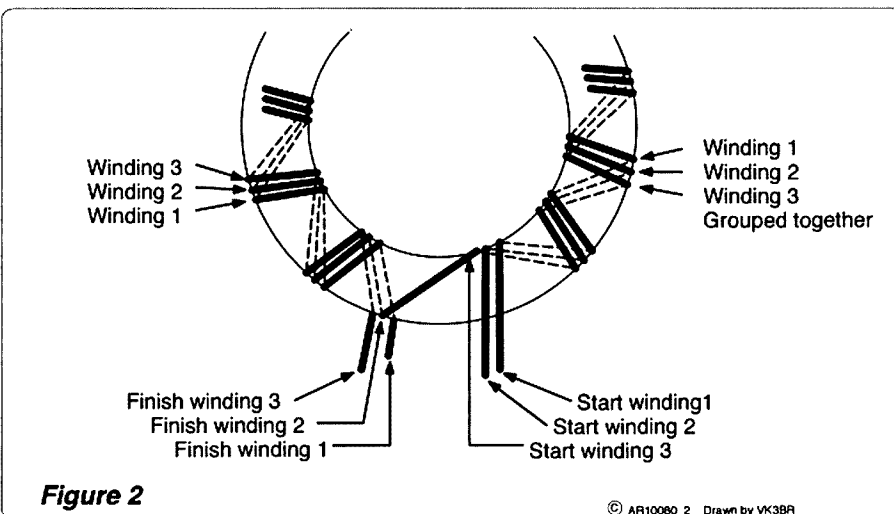


Figure 2: Trifilar winding – L1, L3.

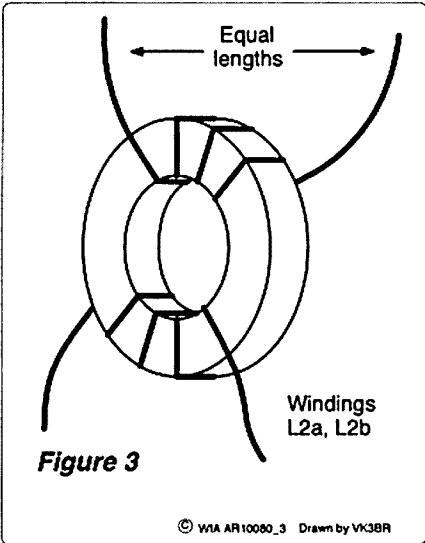


Figure 3: Winding L2a/L2b.

L2 is made by connecting two toroids L2a and L2b in series. They are easier to wind as there is only one winding on each toroid. Refer to Figure 3. Make sure they are wound in the correct direction to allow them to connect to the pads on the board. The wire length is divided into two and each end of the wire is wound onto the toroid until the ends end up as shown at the bottom of the toroid. Thanks Roy for the hint to divide the wire in half and to wind each end onto the toroid, this saves you from dragging the full length of the wire through the toroid for each turn.

I used 1 mm and 1.5 mm diameter enamel coated wire. These sizes are slightly different to what was used in the original article. Refer to Ed's article for wire size and lengths in inches.

**Construction sequence**

I started with the 40 metre BPF. The order does not matter so long as you remember that the wire sizes change for the 20 metre band and above. Do not forget: both Roy and myself did. Construction for each BPF is in four parts.

- (1) Build L1 and C1 onto the board and tune to resonate at Fc. Note: refer to Table 1 for "Fc" for each band.
- (2) Build L3 and C3 onto the board and tune to resonate at Fc.
- (3) Build L2a, L2b and C2 into the board and tune to resonate at Fc.
- (4) Using a VNA or other suitable

instrument, check the insertion loss and bandwidth of the completed BPF.

Note: depending on the box size it may be a good idea to tune each BPF inside its box. I found that the box size that Roy made did not affect the tuning after the BPFs were installed.

Because the BPF through power can be as high as 200 watts, the currents flowing in the BPF will be high. When soldering the inductors, capacitors and connectors onto the board, make sure the solder connections are able to carry the high currents.

**Assembling - L1/C1, L3/C3**

Using M3 x 6 mm screws and spring washers, mount the connector stand-offs onto the board. Wind L1 and solder L1 onto the board. Make sure that L1 is inserted the correct way around with winding 1 connected between ground and the 50 Ω tap point. Note, winding 1 is no longer the thicker wire for 20 metre band and above. Solder C1 onto the board. Use M3 x 10 mm screws and spring washers to mount the SO 239 connectors onto the stand-offs and solder the centre pin connection to the board.

To tune L1/C1, the connector centre pin (tap of L1) is connected via a 3k3 Ω series resistor to the

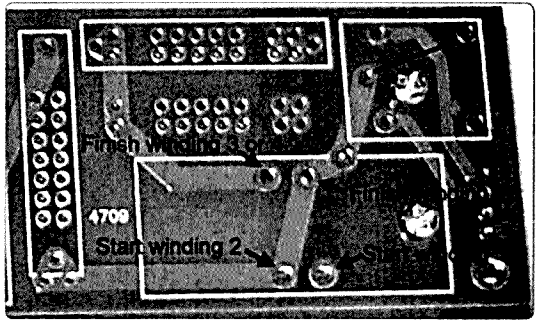
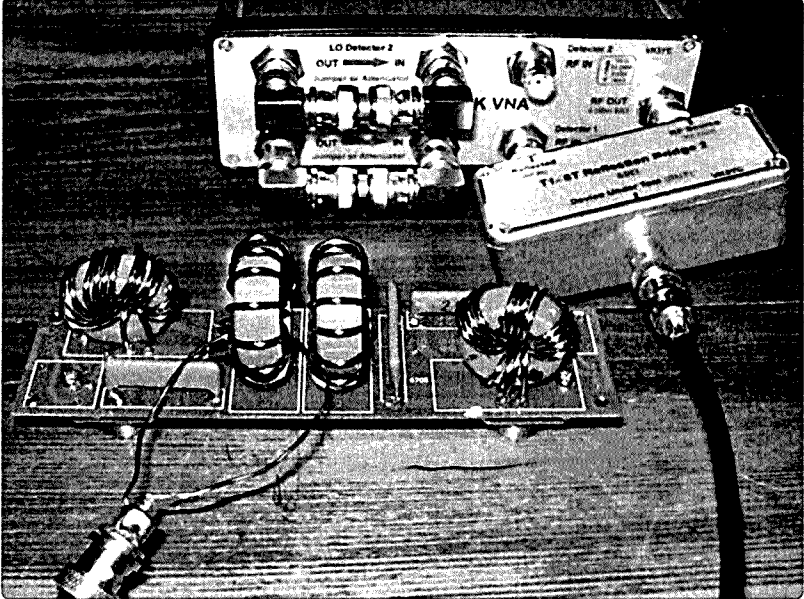


Photo 3: L1/L3 connection detail.

bridge of the N2PK VNA, with BPF ground connected to the VNA ground. MyVNA, the software that I use with my VNA is selected to use reflection mode and to measure/display impedance magnitude (Zs). The scan/display centre frequency is set to Fc for the BPF that is being built. The starting resonant frequency should be above Fc. The turns on L1 are adjusted (squeezed together) to increase the inductance and reduce the resonant frequency until it is the same as Fc. If you haven't wound L1 evenly, then you may have to spread the turns to reduce the inductance and increase the resonant frequency until it is the same as Fc. Ed's article also shows how he made a detector that he used with a signal generator to tune the circuits.

The above procedure is the same for L3/C3 that is connected to the other port.

Photo 4: N2PK VNA tuning L2/C2.





## Assembling - L2/C2

Wind L2a and L2b and solder onto the board. Solder C2 onto the board. To tune L2/C2, a short is placed across each port connector. Instead of shorting the connectors, I placed a short between two unused pads of both relays as shown in Photo 3. Note that relays were not installed because I used SO-239 connectors. Connecting both ends of the L2/C2 series resonant circuit to ground disables L1/C1 and L3/C3 from affecting the tuning of L2/C2.

Connect the VNA bridge to L2a or L2b via a loosely coupled one turn coupling link as shown in Photo 4. Use the same VNA software settings that were used for L1/C1 and L3/C3. Change the turns spacing and/or adjust the number of turns on L2a/L2b until the resonant frequency is the same as Fc. Remove the shorts across L1 and L3. If possible, balance the total number of turns

between L2a and L2b. Ed's article also describes how he used a bridge and three-peak return-loss response measurements to tune L2/C2.

For my BPFs I ended up with: 38 turns (-1 turn) for 160 metre L2a, 8 turns (-1 turn) for 15 metre L2a, 13 turns (-2 turns) for 10 metre L2b.

The number of turns on your toroidal cores may be different depending on the tolerance spread.

### An interesting fault

While testing Roy's 15 metre BPF, we found that the insertion loss within the band was reasonable, but the adjacent band rejection was not good.

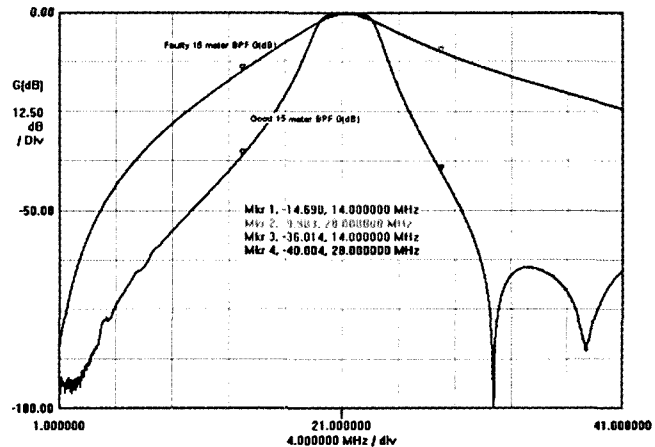


Figure 4: Faulty 15 metre L1/L3.

Refer to Figure 5. The Return Loss for the good BPF was higher and had three peaks, while the faulty BPF had a lower Return Loss with only one peak.

The problem was that L1 and L3 were installed the incorrect way around on the board. Instead of having winding 1 between ground

Table 1 – Toroidal inductors

160 m	80 m	40 m	20 m	15 m	10 m
L1/L3:	L1/L3:	L1/L3:	L1/L3:	L1/L3:	L1/L3:
Fc = 1.87 MHz	Fc = 3.7 MHz	Fc = 7.15 MHz	Fc = 14.88 MHz	Fc = 21.22 MHz	Fc = 28.84 MHz
T130-6	T130-17	T130-17	T130-17	T30-0	T106-0
10 turns quadrifilar.	11 turns trifilar.	7 turns quadrifilar.	5 turns trifilar.	5 turns quadrifilar.	4 turns quadrifilar.
Winding 1 1.5 mm dia 407 mm length	Winding 1 1.5 mm dia 480 mm length	Winding 1 1.5 mm dia 330 mm length	Winding 1 1.5 mm dia 280 mm length	Winding 1 1.5 mm dia 280 mm length	Winding 1 1.5 mm dia 204 mm length
Winding 2, 3, 4. 1 mm dia 1.170 m length	Winding 2, 3. 1 mm dia 860 mm length	Winding 2, 3, 4. 1 mm dia 840 mm length	Winding 2, 3. 1.5 mm dia 460 mm length	Winding 2, 3, 4. 1.5 mm dia 640 mm length	Winding 2, 3, 4. 1.5 mm dia 510 mm length
C1, C3, 415 pF	C1, C3, 370 pF	C1, C3, 120 pF	C1, C3, 85 pF	C1, C3, 43 pF	C1, C3, 29 pF
160 m	80 m	40 m	20 m	15 m	10 m
L2:	L2:	L2:	L2:	L2:	L2:
Fc = 1.87 MHz	Fc = 3.7 MHz	Fc = 7.15 MHz	Fc = 14.88 MHz	Fc = 21.22 MHz	Fc = 28.84 MHz
L2a:	L2a:	L2a:	L2a:	L2a:	L2a:
T130-6	T130-17	T130-17	T30-17	T30-17	T30-17
39 turns 1 mm dia 1.525 m length	37 turns 1 mm dia 1.5 m length	30 turns 1 mm dia 1.22 m length	18 turns 1.5 mm dia 760 mm length	19 turns 1.5 mm dia 790 mm length	14 turns 1.5 mm dia 610 mm length
L2b:	L2b:	L2b:	L2b:	L2b:	L2b:
T130-6	T130-17	T130-17	T30-17	T30-17	T30-17
38 turns 1 mm dia 1.5 m length	37 turns 1 mm dia 1.5 m length	30 turns 1 mm dia 1.22 m length	17 turns 1.5 mm dia 740 mm length	19 turns 1.5 mm dia 790 mm length	15 turns 1.5 mm dia 660 mm length
C2, 250 pF	C2, 155 pF	C2, 60 pF	C2, 35 pF	C2, 14 pF	C2, 12 pF

Notes: Bold wire sizes are to remind you to use a different size wire. The above information was taken from Tables 2A/2B in Ed's article. C1, C3 and C2 capacitance values are for Bob's 5B4AGN BPF PC Boards. Refer to Ed's Tables for wire lengths in inches.

and the 50 Ω tap, windings 2, 3 and 4 were between ground and the 50 Ω tap. Winding 1 was at the top between the 50 Ω tap and C1 or C3. L1/L3 tapping points were no longer 50 Ω. This is interesting because we were still able to tune L1 and L3 because the total inductance was correct, only the tapping points were incorrect.

Solution, unsolder L1 and L3 and install them the correct way around.

### BPFs in their boxes

Roy was kind enough to make some nice home-made aluminium boxes, 70 mm x 70 mm x 170 mm. 10 mm x 10 mm aluminium angle was pop riveted to the sides to hold them together. The BPF is mounted on the front panel with four M3 x 10 mm metal screws. Four lengths of aluminium angle is fixed to the front panel with six pop rivets. To allow access, four self tapping screws were used to mount the front panel to the box. Refer to Photo 1.

### Final testing

I used my N2PK VNA to test and plot the insertion loss and bandwidth for each BPF. Refer to the BPF plots below. A final test was also completed using the FT-301 transceiver to check the SWR at 100 watt RF power into a 150 W dummy load. Warning! Remember to use the correct BPF for the band that you are testing, or you will let the smoke out.

### Label each BPF

Label each BPF to indicate what band it is for. Add a warning label to each BPF.

When using the BPFs, attach a warning label to the transceiver band switch.

#### WARNING!

- Maximum on band through power is 200 watts.
- The **CORRECT BPF MUST BE INSTALLED** for the band that the transceiver is on. If you don't, you'll be asking the BPF to reject and dissipate 200 watts – something the BPF is not able to do. You will be left with a smoking box.
- If receiver noise level drops **DO NOT TRANSMIT**. The installed BPF is **NOT** for the band that the transceiver is on.
- BPF should only be used with transceivers that have a 50 Ω antenna impedance.

To ensure the correct label is used for each BPF, use a long piece of string or plastic chain to also attach the band switch warning label to the BPF.

#### WARNING!

Transceiver band switch **MUST NOT BE CHANGED!** from \_\_\_\_\_ metres unless the BPF is also changed. If receiver noise level drops **DO NOT TRANSMIT**. The installed BPF is not for the band that the transceiver is on. This label **MUST** be attached to the transceiver band switch.

MyVNA, the software for the N2PK VNA now has a feature where different marker parameters can be displayed inside a Marker Measurement window. Snagit was used to capture and print a label that is then mounted on the side of the BPF boxes.

Parameter	Marker 1	Marker 2	Marker 3	Marker 4
Frequency	1800000.000000	1880000.000000	3480000.000000	7000000.000000
VSWR	1.124106	1.065898	257.849649	266.524457
RL	24.667657	29.924722	0.067372	0.065179
G(dB)	-0.290836	-0.274997	-46.043026	-104.592576

Figure 5: Roy's 160 metre measurement parameter.

### Test Equipment

I used a home-brew N2PK VNA (Vector Network Analyser) designed by Paul Kiciak N2PK. This is an excellent piece of home-brew test equipment. Dave Roberts G8KBB has produced free software called myVNA to control and display the results from the N2PK VNA.

Tom Baier DG8SAQ also has a home-brew VNA called the VNWA. Tom sells the VNWA only as an assembled unit. See <http://www.sdr-kits.net/>

If you do not have a VNA or other suitable test equipment, Ed Wetherhold's article describes how he used a detector, signal generator and Return Loss bridge to tune the circuits.

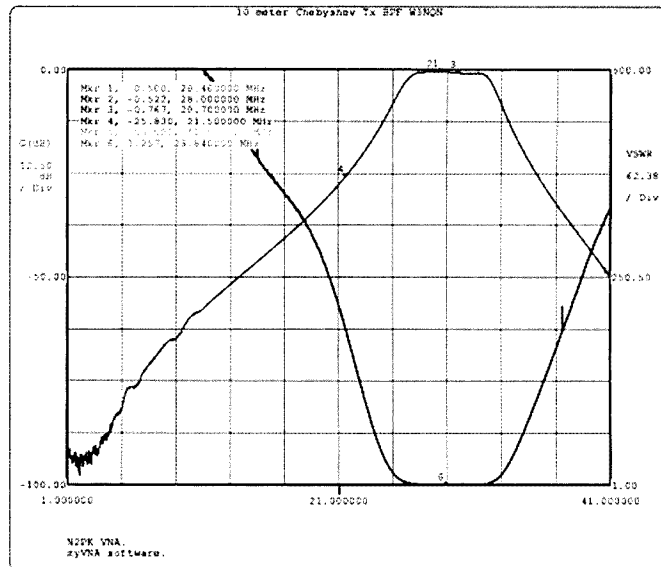


Figure 6: 10 metre performance plot.

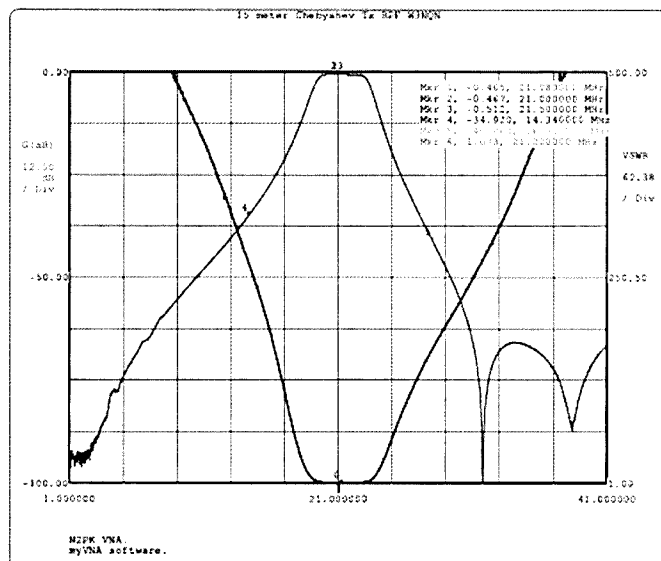


Figure 7: 15 metre performance plot.

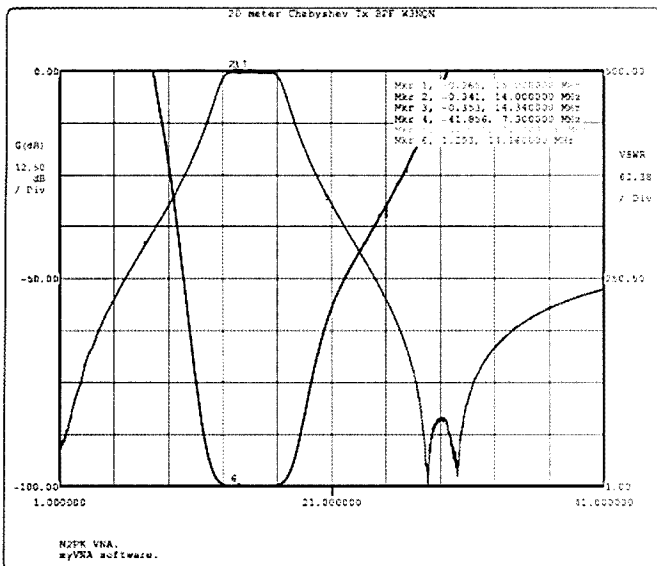


Figure 8: 20 metre performance plot.

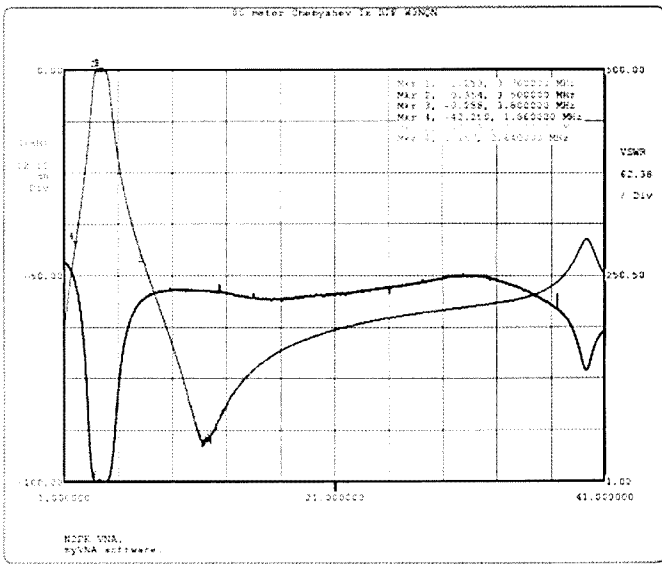


Figure 10: 80 metre performance plot.

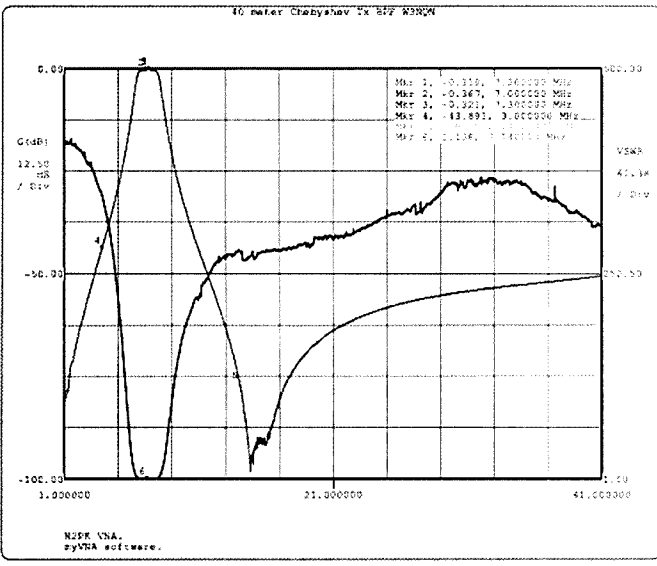


Figure 9: 40 metre performance plot.

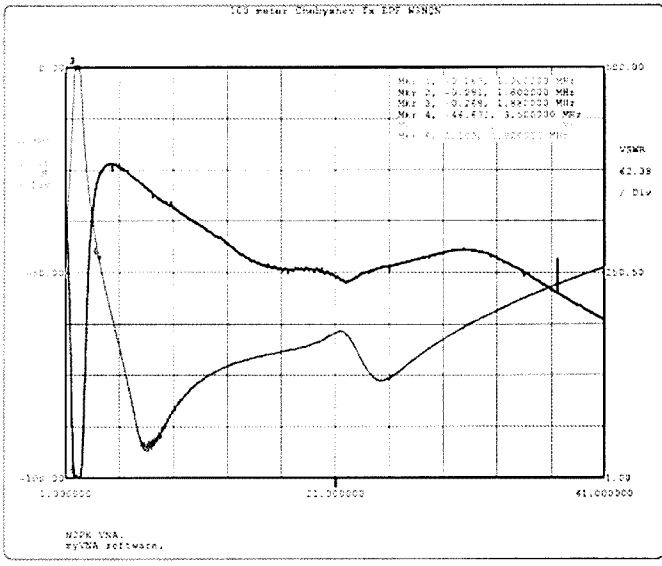



Figure 11: 160 metre performance plot.

**References**

1. Ed Wetherhold W3NQN BPF article, Clean up your signals with BPFs: [http://www.kitsandparts.com/W3NQN\\_May\\_June\\_1998\\_QST.pdf](http://www.kitsandparts.com/W3NQN_May_June_1998_QST.pdf)
2. Ed Wetherhold W3NQN Receiver BPF article: <http://www.arrl.org/files/file/Technology/tis/info/pdf/990708qex027.pdf>
3. Bob Henderson BPF boards: <http://www.5b4agn.net>, email: [Bob@5b4agn.net](mailto:Bob@5b4agn.net)
4. Tab Components – Silver mica transmit capacitors: <http://www.tabmica.co.uk/page7.html>
5. W3NQN BPF Toroidal core Kit: <http://www.kitsandparts.com>
6. N2PK VNA: [n2pk.com](http://n2pk.com)
7. myVNA Software: <http://g8kbb.roberts-family-home.co.uk/>
8. VNWA VNA: <http://www.sdr-kits.net/>

Continued on page 14



## Plan NOW for the 54th JOTA 2011

The **54th Jamboree On The Air** will take place on **15 and 16 October 2011**.

This year's theme is: **\*Peace, Environment and Natural Disasters.\***

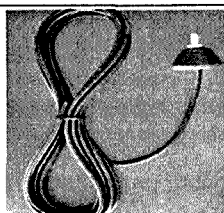
**Bill of materials**

Reference	Part No	Quantity	Purchased from/comments
L1, L2a, L2b, L3	24 toroidal cores for W3NQN BPFs	1 set of 24	Kit and Parts dot Com
C1, C3	160 m SHB-415 pF	2	Tab Components. <a href="http://www.tabmica.co.uk">http://www.tabmica.co.uk</a>
C2,	160 m SHB-250 pF	1	
C1, C3	80 m SHB-370 pF	2	
C2,	80 m SHB-155 pF	1	
C1, C3	40 m SHB-120 pF	2	
C2,	40 m SHB-60 pF	1	
C1, C3	20 m SHB-85 pF	2	
C2,	20 m SHB-35 pF	1	
C1, C3	15 m SHB-43 pF	2	
C2,	15 m SHB-14 pF	1	
C1, C3	10 m SHB-29 pF	2	
C2,	10 m SHB-12 pF	1	
BPF Board	PC Board - BPF - 5B4AGN	6	<a href="mailto:Bob@5b4agn.net">Bob@5b4agn.net</a>
Magnet wire	1 mm enamel coated wire		Refer to Table 1 and this article
Magnet wire	1.5 mm or 1.25 mm enamel coated wire		Refer to Table 1 and this article
Connectors	PL239 four hole panel mount connector	12	Altronics S/No: PO509
Connector mount	M3-metal spacers threaded x 10 mm	24	
Connector mount	M3 metal screws x 6 mm	24	Spacer to PCB
Connector mount	M3 metal screws x 10 mm	24	Box/Connector to Spacer
Connector mount	M3-spring washers	48	
Box	Aluminium 70 mm x 70 mm x 170 mm	6	Home made

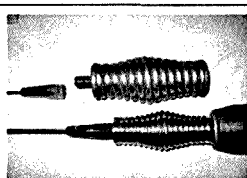


# TET-EMTRON

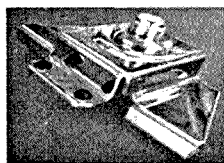
Check out our new range of baluns at:-  
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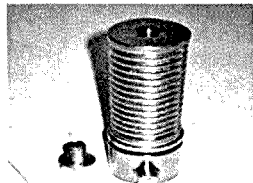
Base and Lead sets.



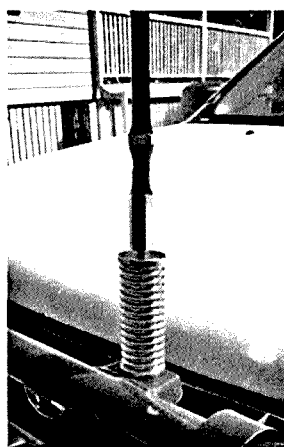
Codan Springs and Whips.



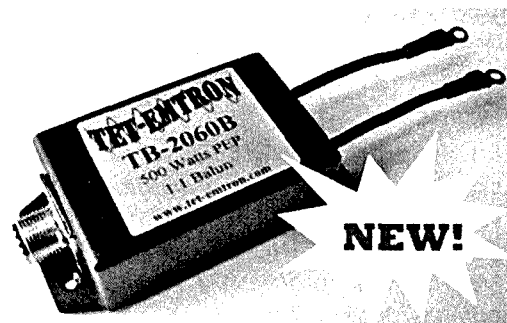
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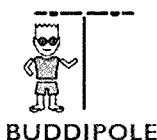


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See you at the Shepparton Hamfest 11 September 2011



Photo 1: The new 20 metre beam.

Welcome to VK6news for September. So much has been happening here in WA. Firstly, congratulations to NCRG for another well organized and well run Hamfest. As always, a great turn out. A full report will follow in the next issue of AR.

What has been happening around VK6? Northern Corridor Radio Group (NCRG) has been very busy not only with planning a Hamfest but a stack of great projects.

A major revamp of the antenna installation is on its way. It all started

with our 20 metre antenna having structural issues and being replaced by another high performance five element Yagi from TET-Emtron. Mark from TET-Emtron came to the rescue when the club needed a quick replacement in order not to be off the air for too long. An excellent antenna was put together by Mark and mounted on the 18 metre tower. The NCRG now has three big Yagis from TET-Emtron and is using these antennas with great success. Yesterday VK6ANC had a QSO with

ST0R, from the 'new' entity of South Sudan. Check out the SWR across the band!

The rotator of our 15 metre antenna was swapped to a digital remote controllable rotator as a first step to a fully remote controllable station. We are trying out different concepts of remote control and are discussing the issues involved at this stage. It is not going to be solved quickly but is a major target for the next few years.

The current 80 metre broadcast antenna has been relocated to eliminate interference with some other gear and giving us better broadcast quality on 80 metres again. Currently we are running an interim solution with a 100 watt Icom and already have had some improvement over the old setup. At this stage we are dropping 30 metres as a broadcast frequency and will concentrate on 80 and 40 metres.

We also made room on a mast which was dedicated for the 2 metre beacon. A few organisational issues had to be resolved until this project could finally proceed. After Hamfest it is intended to mount the antennas at their target destination and work on the transmitter and computer behind it. This is well under way and will hopefully be working by the end of the year.

Hamfest is one week away at the time of writing this and we all look forward with anticipation. The NCRG decided to have a special offer for Hamfest this year for amateurs who would like to join the club. A reduced membership rate was offered for anyone signing up at the day of Hamfest. Also special junior memberships are available on request. The NCRG is looking forward to welcoming new members.

A new committee will be elected at this year's AGM on 14 August with a focus on more public relations work in the future. The NCRG is focused on growth and improving its offerings to the community.

## And from the Hills Amateur Radio Group - HARG

The Hills Amateur Radio Group (HARG) is based in Lesmurdie and has a comprehensive website at [www.harg.org.au](http://www.harg.org.au). The club can be contacted via [secretary@harg.org.au](mailto:secretary@harg.org.au). HARG held their Annual General Meeting on Saturday, 30 July; a new, keen as mustard committee was elected for 2011/2012 and has already come up with some exciting ideas for the coming year.

President: Onno Benschop VK6FLAB  
 Vice President: Richard Grocott VK6BMW  
 Secretary: Allan Wood VK6AN  
 Treasurer: Alan Usher VK6PWD  
 Shack Manager: Marty Martin VK6FDX  
 QSL Bureau: Graham Rogers VK6RO  
 Publicity: Bill Rose VK6WJ  
 Contest Manager: Marty Martin VK6FDX  
 Technical Officer: Heath Walder VK6TWO  
 Webmaster: John Breen VK6FB

One of the first decisions of the new committee was to hold subscriptions at a very affordable \$30 per year.

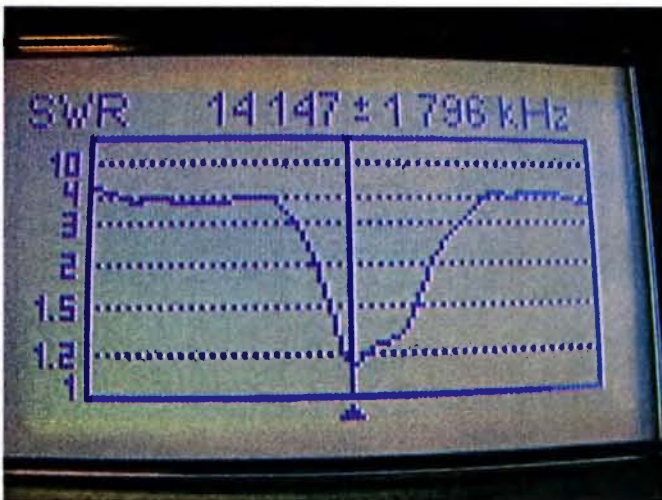
HARG will have a table at the NCRG Hamfest on 7 August where we will have available a range of items for sale plus information about Club activities for the coming year. An important addition to club meetings this year will be a series of talks of interest to amateurs at all levels of proficiency. Some subjects proposed are APRS, D-STAR, digital modes, EchoLink, IRLP, contesting, portable and mobile operation, computers in amateur radio, building simple VHF antennas, modern QSL systems, fox hunting, visits to repeater and broadcast sites and many more.

HARG would also like to welcome our latest members: Simon Hall VK6FBMW and John Trimmer VK6JAT.

Well done to all at HARG and we look forward to watching the club grow.

That's it from me this month. If you have anything that you would like included in the VK6news column, please email me [vk6hz@wia.org.au](mailto:vk6hz@wia.org.au) 73.

Photo 2: The SWR curve across the 20 metre band on the new 20 m beam.



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NEW 2011

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 Open: 445(L) x 237(W) x 17(H)mm  
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#### 12V 7W Charger

Dimensions: Closed: 335(L) x 250(W) x 36(H)mm  
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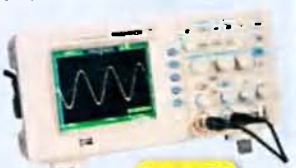
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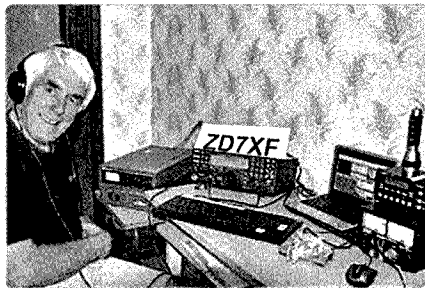


# DX-News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

By the time you read this edition, the new entity of **Southern Sudan**, ST0R, will have had a major DXpedition, multi band, multi station which should have ensured that all who 'chase' new entities will have managed at least one QSO! For those readers that would like more background information, Wolf Harranth OE1WHC, of Vienna's Documentary Archives has written an overview of Sudan's amateur radio history at [www.dokufunk.org/sudan](http://www.dokufunk.org/sudan) Well worth looking at.

On the subject of DXpeditions there has always been a lot of discussion on whether beams are really worth all the trouble, considering that, not only do you need the antenna, but also some form of support and means of rotating it. One can imagine that if you are in a 'hostile' environment it is no fun going out into a howling, freezing wind, to find out if the Long Path is open! The recent JX50 is a typical example, and I had hoped, before the closing date, to have had a photograph showing one of the operating tents and the beam! The alternative! Verticals, the antenna that has for many years been described as the antenna that radiates equally badly in all directions! But views, and results, have changed in recent years. Many years ago, Marty OH2BH, said that for an all-time new one, there should always be one station using a well installed vertical on 20 m operating round the clock. Then everyone had a chance, and you picked up the 'odd' propagation openings. I think the pros and cons for this have been illustrated quite recently with two DXpeditions. One operated by Nigel G3TXF to ZD7, rare on CW, who used verticals for 40 through to 10 and the ST0R operation that used beams on 20/17/15 and a vertical on 30 m. ZD7 should have been the hardest having, as far as VK/ZL was concerned, to operate on the long polar path, as Nigel had a high mountain behind him! On the other hand the ST0R operation should have been easier as it offered short path to VK/ZL. Up to the time of writing, a lot of VK/ZL



*The station of Nigel ZD7XF: K3 transceiver, THP HL-550X amplifier, Big-IR Antenna controller for 40 m to 10 m, 12 V PSU, ETM-Paddle, laptop with WinTest and keyboard.*

stations have worked the ST0R station on 20 m, but only on the LP.

The Five Star DXers Association of 9M0C, D68C, 3B9C and 3B7C fame will conduct a major DXpedition to Kiritimati T32 - (Christmas Island, OC-024), **Eastern Kiribati** in September-October, 2011. A very large group of experienced operators from 13 different DXCC entities will be active as T32C, the requested callsign, on all bands and modes, with up to 16 stations on the air, using amplifiers along with monoband beams and vertical dipole arrays, 24 hours a day, for almost four weeks, including four weekends. The primary objective is to give as many DXers as possible a first contact with this rare DXCC entity and, as a secondary objective, to give as many band-slots as possible. At this time the organizers are seeking contributions from sponsors to help defray the very significant logistics cost of this DXpedition. Details on how to donate and further information can be found at [www.t32c.com](http://www.t32c.com)

Ron SV9/WB2GAI/P, will be on the air 29 August - 30 September, from **Crete**. He will be on Chaina Island, IOTA EU-015. As always, Ron will be on 80-10 m CW. He still has his logs for his 2001, 2005 and 2009 operations. U.S. stations should QSL direct, he says. DX stations should send via the bureau.

Randy N0TG reports the logs for the March, 2011 **Sable Island** DXpedition were uploaded to LOTW on Monday, 11 July. Logs/callsigns

uploaded were: N0TG/CY0, K8LEE/CY0 and N1SNB/CY0.

Jacob Fields J28FJ, home call KB0ZIA, is an American working in **Djibouti** on the eastern 'Horn of Africa.' He has a Yaesu FT-857D and ATAS-120 portable type antenna. He will be making special QSL cards for his stay in Africa, he says. QSL to his U.S. address, KB0ZIA.

4W6A in **Timore-Leste** (East Timor) is an expedition planned for 16 - 26 September. See <http://www.4w6a.com> Bernd Langer VK2IA has joined the team, the seventh and final member. He will bring more CW strength to the team, plus much operating experience in previous DXpeditions. Col McGowan MM0NDX is joining the team as a pilot. Kev Haworth M0TNX of DX World, is joining as assistant QSL manager, assigned to get feedback to the operators while they are on Atauro Island. Reach him at [dxer59@gmail.com](mailto:dxer59@gmail.com) The UK DX Foundation, RSGB DXpedition Fund, German DX Foundation, the Northern California DX Foundation, European DX Foundation, Nippon DX Association and Northern Illinois DX Association have joined as sponsors. Atauro is OC-232. Activity will be 160-10 m CW, SSB and RTTY. Please QSL direct with the standard guidelines, an SAE plus one IRC or US\$2 or via bureau to M0URX. The log will be on LOTW as quickly as possible after the operation, or even while it's still going. There is a QSL request form on the website.

Craig Thompson KI0SO, and his XYL Dawn will be housesitting for A35A (Paul A35RK), in Ha'apai OC-169, **Tonga** starting 29 July. Craig will probably be there through May 2012 and will be taking 'new coax, a Force-12 C3S, and an M2 6 metre antenna'. Plans are to renew his A35CT licence and to be QRV on SSB and digital modes on 14 through 50 MHz. The QSL route is expected to be announced later this month.



P29FR in Papua New Guinea is Renzo I2KRR, volunteering technical support to the Catholic mission in Vanimo, on the north coast of the main island. Renzo was also active as 9J2FR from 1989-2000. In PNG, Renzo is working on improving antennas at the mission. He has an FT-857 due to its light weight. For antennas, the materials available around Vanimo are wood and wire. He may build a quad, even a one-element loop. Presently the antennas are dipoles for all bands, 12 m high. He does not think he will be putting out the big signal he did at 9J2FR. His time available for radio is generally in the local evenings, plus Saturday and Sunday afternoons. Renzo's licence is 'full and unlimited' and he plans to be there until March 2012. His email is slow so he requests, 'Please, no heavy files.' Renzo is on 40, 20 and 15 primarily, SSB only. QSL via I2RFJ direct or bureau.

DX World.net reports Arnold WB6OJB is heading back to Lesotho where he will be operating again as 7P8JK from 15th to 22nd September. QSL via his home call.

Chris TL0A is currently back in France on leave until the beginning of August. His next stay in Central Africa will be from 3 August to 4 September, and again from 25 September to 31 October, or so. He will be QRV with 100 watts and a five element beam.

ZG3M is a special Gibraltar callsign for Mike ZB3M from 5-11 September to celebrate 'Gibraltar's National Day,' which is 10 September. QSL to the QRZ.COM address.

Jean-Pascal FY5LH (F5TND) will remain in French Guiana until 29 July, 2012. He is QRV on 7 through 28 MHz using a vertical antenna (DX77A) and active on PSK, RTTY and SSB. QSL via F5KDH.

Larry N0QM (ex VQ9LA) is on his way back to the Philippines for a three month stay. While there he will be QRV as DU3/N0QM using an FT-450 and a 10 m tall vertical for activity on 7 through 50 MHz. He plans to put an emphasis on RTTY but will also be on CW and some

SSB. QSL cards go via N0QM and will be answered in November, after he gets back home.

Phil F6GNT is now on Mayotte Island for the next two years. He told The Daily DX that his temporary callsign will be FH/F6GNT and that he has applied for a full FH callsign, which he expects to have within a few weeks. Phil tells us he will be operating on SSB only on all bands.

Gab HA3JB has received his renewed licence to operate in Egypt as SU/HA3JB from 1 September until 30 November. He plans to be QRV CW, SSB, RTTY, PSK and some SSTV. Gab was QRV in 2010 using the same call and prefers no dupes this year. Activity will be on 1.8 through 28 MHz. QSL via HA3JB.

Rob Hurd T6RH has chosen Buzz NI5DX as the QSL manager for his upcoming tour in Afghanistan. Rob leaves the U.S. on 20 August for Afghanistan, taking several days to get there. He will be there until 20 December and plans to operate mostly PSK and CW, with some SSB. He may call 'CQ NA' from time to time, looking for North America.

Take JG8NQJ/JD1 is now active from Marcus Island, Minami Torishima, OC-073. He will be on until mid-October, then return to Marcus in December. He has been on 30 and 17 m so far. Starting in December, he expects to be on all bands. QSL to his home callsign, either bureau or direct. Here is his address: Susumu 'Sin' Sanada, 5-17, 5-4, Shin-Ei, Toyohira, Sapporo 004, Japan. There will be an online log? <http://dx.qsl.net/cgi-bin/logform.cgi?jd1-jg8nqj>

And finally – at the 15/16 July ARRL Board of Directors meeting, 'The Board accepted a recommendation to change the name of the RTTY DXCC Award to Digital DXCC Award'.

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (I1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)

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Tim Mills VK2ZTM  
vk2ztm@wia.org.au

**Amateur Radio NSW** will be conducting a one day Foundation course at VK2WI in Quarry Road, Dural, advises Education Officer Terry VK2UX. It will be on Sunday, 11 September, 2011 commencing at 0830 hours. Would any readers who know of anyone wishing to utilize this course and assessment have them telephone 02 9651 1490 or 0400 445 829 and leave a message with contact details. At the end of the month, on 25 September, it will be the bi-monthly Trash & Treasure, licence assessments and home brew meeting. Les from ATRC has advised that he will attend with a selection of his wares. The July T&T was well attended on a fine winter's day. Four candidates sat and passed their assessments. The home brew in the afternoon had a wide range of show and tell along with various lectures.

**ARNSW** is pleased to advise that Life Member Pierce Healy VK2APQ reached his 100th birthday on Sunday, 14 August last. There was a family arranged function which many amateurs attended. Pierce was much involved with the NSW Division of the WIA in the late 1950s into the 1960s before he became the contributor of the amateur radio notes in Radio Television and Hobbies. WIA Historian Peter VK3RV has prepared a story about Pierce for this issue. ARNSW is planning a BBQ at VK2WI on Sunday morning, 4 September with an invitation for all to attend. Details will be advised on the VK2WI News broadcasts.

The **Oxley Region ARC** will be celebrating the 40th anniversary of the club on Sunday, 2 October 2011. The Club was formed at a meeting at the Port Macquarie home of Owen Bested VK2AEB (SK) on Saturday afternoon, 2 October, 1971. The 2011 celebration will be in the form of a lunch at the Port Macquarie Golf Club in Ocean Drive - at the southern edge of Port Macquarie as you head down the coast towards Laurieton.

The lunch time gathering will allow many out of town attendees, as well as the locals, to get home in daylight and with this in mind an invitation is extended to all amateurs on the mid north coast and beyond to attend. October is also the final month of operation of special event call sign VI40BOR, which the Club has for the anniversary. You can find more in this month's edition of Oxtails, the Clubs newsletter which can be read at [www.orarc.org](http://www.orarc.org) ORARC held their AGM last month.

**WICEN (NSW) Inc** has a new postal address from the end of July. It is Box 535, Regents Park DC, 2143. Early this month (September) they will be conducting their AGM. Location and time will be notified to WICEN members as well as via VK2WI News bulletins. This month they have operations in the Trek for Timor, on 24 September, and in October the weekend operation with the Hawkesbury Canoe Classic. For this they require operators for the various checkpoints as well as help in the set up and pull down tasks surrounding the event. The HCC is a major fund raising event for the Arrow Bone Marrow Transplant Foundation, a small charitable foundation that raises money for leukaemia research and provides support to people undergoing leukaemia treatment. WICEN Sydney North held their AGM on Sunday, 24 July. At this meeting there was a change in several positions. The new Regional Co-ordinator is David Harvey VK2DMH and new Secretary/Treasurer Leah Heggie VK2FREE. Barry White remains Liaison Officer with the region's emergency planners and Julian Sortland VK2YJS remains Deputy RCO. The Regional Committee thanks John Veters VK2JV for his work as RCO and Neale Imrie VK2CNI for his many years of service as Secretary/Treasurer. Contact WICEN via email at [operations@nsw.wicen.org.au](mailto:operations@nsw.wicen.org.au) or

the web site [www.nsw.wicen.org.au](http://www.nsw.wicen.org.au)

There is a lot of activity in this month of September with the clubs - it must be spring - the St. George ARS will be conducting the annual Bill Shakespeare Memorial auction on Saturday, 17 September at their meeting venue, the Kyle Bay Scout Hall. **Waverley ARS** have a Foundation weekend on 11/12 September. Contact via [education@vk2bv.org](mailto:education@vk2bv.org) **Illawarra ARS** will be holding their annual picnic, BBQ and foxhunting at Blackbutt Reserve on Saturday, 10 September. The Crystal Set competition entries close in November. Check out their URL at [www.iars.org.au](http://www.iars.org.au) **HADARC** have assessments planned for 1 October. Details at [www.hadarc.org.au](http://www.hadarc.org.au) They can also be found on Facebook and Twitter by a search for VK2MA. **Fishers Ghost ARC** advise of a new web site to be found at [www.fgarc.net](http://www.fgarc.net) They meet at various locations round Campbelltown on the last Wednesday evening of the month, advises Ian VK2MCI, their Publicity Officer.

The **Waicha Radio Group** is a small group of eight with several repeaters under their supervision. They conducted a fund raising operation with New England amateurs as Jeff VK4XJJ walked through their region on his trek to the Indian Ocean from the east coast. This is Jeff's second walk that he has done for NETS. They would like to thank all who donated to Jeff's Walk.

The **Manly Warringah RS** has a grant for prospective amateurs under the age of 18. Check out [www.mwrs.org.au](http://www.mwrs.org.au) They meet every Wednesday evening at the 1st Terrey Hills Guide Hall, Beltana Ave, Terrey Hills. Directions on their repeater 146.875 if needed. Twitter fans can follow the Society with news and events at [twitter.com/vk2mb](http://twitter.com/vk2mb)

Port Stephens **ARC** conducted a Foundation weekend class in June, advised Leigh VK2KAL which

resulted in four new amateurs for their region. Congratulations to Bruce VK2FKNN, Jarrod VK2FZRO, Stuart VK2FOOO and Tony VK2FACK. The Club meets on the first Sunday of the month at 10 am at the Marine Rescue building, Whitbread Drive, Lemon Tree Passage. You can find out more at [portstephenarc.org](http://portstephenarc.org) or from the President Richard VK2FRKO on 02 4982 4951.

The Blue Mountains ARC had WINTERFEST at the end of August. They conduct an HF net on Tuesday at 2000 hours on 3543 kHz. Then there is the two metre net on Wednesday at 1930 hours on VK2RBM 7050 which requires a 123 Hz tone. Check them out at [www.bmarc.org](http://www.bmarc.org)

Summberland ARC held their SARCfest early in August.

Amateur radio has been receiving wide ranging mention through Column 8 in the Sydney Morning Herald. Two regular contributors are Richard VK2SKY and Dave VK2KFU who are often able to respond to technical topics raised. Richard did well late July when a contributor inquired why the car radio on the morning trip to work could only receive ABC AM stations, yet in the afternoon all Sydney stations AM and FM could be heard. Richard got a reply in with a possible explanation but continued by saying he would refer the problem to members of the Manly Warringah RS at their weekly meeting. A few days later Richard

again reported that he had conferred with his colleague Mark VK2XOF who was the VK2WI station engineer. Mark thought that the problem could have been water getting in overnight to the car's antenna or preamp used in some models which dried out during the day, only to have the problem return next morning. Richard concluded by saying he had referred the problem to his MWRS members who responded with lots of opinions. While to some readers it would have gone over their heads, others may have picked up on the amateur radio mention. So without directly requesting publicity we may have gained some. Thanks Richard. Keep up the contributions.

73 - Tim VK2ZTM



## VK3 news Amateur Radio Victoria News

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

[arv@amateurradio.com.au](mailto:arv@amateurradio.com.au)

### Centenary activities galore

The next opportunities to gain the prized ten bonus points toward the operating award are available during October and November. Listen for VK3WI to be active during the Oceania DX Phone Contest on 1/2 October and the nominated special callsign VK100ARV throughout November, the latter to be activated via a roster of members.

Already the callsign VK3WI has been very active on the Remembrance Day Contest and the International Lighthouse and Lightship weekends, with each valid contact earning ten points.

The rules of the Amateur Radio Victoria Centenary Award have been posted on the website under the Award section. Basically throughout the celebratory period of 1 August through to 30 November, logged contacts with members are worth two points for valid contacts, and on three occasions ten bonus points can be gained.

While VK stations need 100 points to qualify, DX stations only require 25 points. To see the full rules and update reports visit the website.

The Centenary also involves the world's first DATV QSO Party from VK3RTV and across the world. By accounts the program for this event were set to go well including through the streaming media portal of the British Amateur Television Club and the Amateur Television Network and the USA.

The weekend of 19/20 November has become a special focus for the Keith Roget Memorial National Parks Award. Already four amateurs are registered to be a National Park station, the contact to do so being Tony Hambling VK3VTH, [vk3vth@amateurradio.com.au](mailto:vk3vth@amateurradio.com.au)

### End of HF broadcasts

The high frequency outlets for the Sunday broadcast through VK3BWI have been suspended due to loss of the usual venue that housed the remotely controlled transmission

equipment. When the use of the venue ended recently the equipment and commercially made antennas for 80, 40 and 10 metres were stored away while further deliberation was made on the desirability of having the facility.

The Sunday 10 am broadcast, which originates from VK1WIA, will continue to be heard through the VK3RMM Mt Macedon and VK3RML Mt Dandenong two metre repeaters as well as VK3RMU Mt St Leonard on UHF.

### Foundation classes

Enrolments are now open for the quality training experience on 10 and 11 September that is available at 40g Victory Boulevard, Ashburton.

The weekend begins at 9 am on the Saturday for instruction, which finishes around 4 pm, then back at 9 am Sunday for some revision, whereby the written and practical assessments are held.

To enrol or obtain more information contact Barry Robinson VK3PV 0428 516 001 or [foundation@amateurradio.com.au](mailto:foundation@amateurradio.com.au)



# VK3news Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC



Photo 1: View of the Signal Tower from the road.

## VHF / UHF Field Day

The VK3ALB/P established field day team participated in the 2011 Winter VHF/UHF Field Day weekend. The operators were Lou VK3ALB, Jenni VK3FJEN, Michael VK3FMIC, Peter VK3APW and Nik VK3BA. The location chosen was the original Point Henry Signal Station, grid locator QF21fu, near the Alcoa plant at Geelong; they operated out there for 24 hours. Access to the building was courtesy of Alcoa and Jim Friend VK3VBC.

All bands were worked from 6 m through to 10 GHz. Significant distances were worked on 2 m (275km to Wangaratta), on 70 cm (275 km to Wangaratta) and on 23 cm (398 km to Wagga). All other contacts were within 100 km on

all bands. Despite the poor weather and the small number of stations available, they rated it an overall excellent weekend.

## Solstice Dinner

This year it fell to the GARC to host the *Winter Solstice Dinner* at their club house, with invitations extended to members' wives and partners and the Geelong Radio and Electronic Society, the GRES.

The Dinner was arranged by Jenni VK3FJEN and Vanessa VK3FUNY, in liaison with the GRES. As is the custom at these events, those attending brought food and drink to share with the other attendees. At the conclusion of the "eatfest", the guest speaker Mike Trickett VK3ASQ gave a talk in the presentation room.



Photo 3: The Presidents of the GARC and the GRES: Tony VK3JGC and Bill VK3YTH.

Mike, who was President of the GARC five times between 1963 and 1982, talked about his experiences during his long association with the Club. The talk was very interesting, holding the audience's attention, and also being a revelation for newer members, that currently enjoy the premises and facilities, without realising some of the issues that prevailed in the club's early history. Mike is a life member of the GARC. At the conclusion of the presentation Secretary Jenni VK3FJEN presented Mike with a GARC cap as a gesture of thanks.



Photo 2: Jenni VK3FJEN operating.



Photo 4: Guest speaker Mike Trickett VK3ASQ.

Paul Beales VK4XPB

## Central Highlands ARC AGM Weekend – from Gavin VK4ZZ

The famous and popular Central Highlands Amateur Radio Club AGM weekend at Camp Fairbairn near Emerald will be held from Friday, 30 September, at 3.30 pm to midday Sunday 2, October 2011.

The basic costs are the same as last year, that is, \$13.20 per person per night or \$6.60 for day visitors.

Caravaners please book into Lake Maraboon Holiday Village, as soon as possible.

CHARC secretary Gordon VK4KAL needs to know from you if you are attending to allow catering for the acclaimed Saturday Night Gastronomic Feed Up.

Find out more by:

- contacting Gordon on [vk4kal@wia.org.au](mailto:vk4kal@wia.org.au)
- search for Central Highlands Amateur Radio Club on Facebook
- go to the CHARC Yahoo page at <http://au.groups.yahoo.com/group/charc/>

## The Sunshine Coast Amateur Radio Club's annual HAMFEST – from Richard VK4RY

SUNFEST 2011 is an event for amateur radio operators, CB radio users, radio and electronics enthusiasts, with computer bits and pieces also available. New gear as well as pre-loved bits of everything will be on sale.

Doors open at 0900, Saturday, 10 September, 2011. Sellers entry will be from 0700. The location is the Woombye School of Arts, Blackall Street, Woombye. (UBD Map 66 F12).

For reservations for table space contact Richard Philp VK4RY on 07 5492 9898 or mobile 0417 366 773, or via email: [vk4ry@wia.org.au](mailto:vk4ry@wia.org.au) Tables are \$20 each, which includes two persons. Entry fee is \$5.00 plus \$2.00 for each additional family member.

## Wide Bay Hamfest 2011 – from Dawn VK4FTBA

16 July was chosen by the Maryborough Electronics and Radio Club for its third annual Hamfest. Last year the event was run later and in conjunction with the VK100WIA operation.

This year, the catering for the Hamfest was done on behalf of the local scouts and the warm drinks and food were appreciated by many. Murphy seems never to be far away and it was no real surprise when the midweek weather forecast said rain for Saturday. Friday evening saw a small contingent from MERG do the basic set-up of the Scout Hall and on Saturday the finishing touches were completed before the doors opened to some anxious bargain hunters.

Apart from the donation of a dual band H/T for the raffle, David from VK4-ICE Communications had donated a two metre antenna for the permanent JOTA station at the Aldershot Scout Camp. This is the 3rd year that David and XYL Cheryl have attended the Hamfest and the support of this business is very much appreciated.

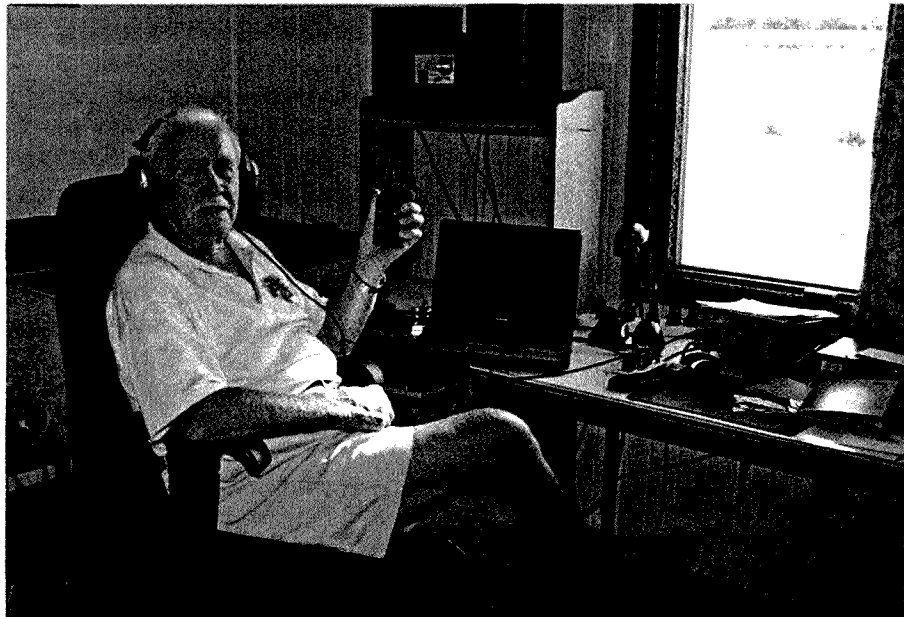
Amateurs from the Wide Bay areas of Bundaberg, Gin Gin, Hervey Bay and Maryborough were supported by visitors from Gympie, Sunshine Coast, Kingaroy, Brisbane and a sole VK7. A range of brochures was supplied by ICOM Australia and at the end of the day there were many less to put away than had been put on the table.

Various pre-loved items found new homes and the VK4-ICE table always seemed to have people around. Just to round off the day, our training and assessment team of Kathy VK4KJ and Ray VK4TPT ran an assessment for a visiting amateur. The local newspaper sent their photographer and the event has helped to spread the word of amateur radio.

## Biography: Peter George VK4FZAB - From an article in 'TrecNews' ex VK4DMC

I was born in Adelaide in 1922. After leaving school aged 14 in the depression I obtained my first job as general dog's body at a radio repair business called Brisbane's Radio Ambulance. My pay was twelve

Photo 1 - Peter VK4FZAB



shillings per week (\$1.20). This business would travel to any home in the metropolitan area and repair the home radio for five shillings plus cost of parts. This was generally a glass valve.

At 14 I put my age up to 16 and joined the senior cadets until I was able, two years later, to join the CMF. At the true age of 17, I enlisted in the 2nd AIF as an infanteer. Having been a clerk at Myer, I was asked by Signals if I would like to be a wireless operator. When I found out that I would get a peak hat instead of a slouch hat, plus light-heavy boots for driving a wireless vehicle, my fate was sealed!

I was put into 7th Div Signals and after six months of learning the Morse code, semaphore flags, Aldis lamps and heliograph, my section was attached to the 2/5th Field Regiment (Sir Arthur Roden Cutler VC's unit). We travelled in 1940 to India on the Queen Mary. Then it was on to Palestine, the Western Desert and Syria. After returning home and given seven days leave

for nearly three years overseas duty, we did the landings at Milne Bay, Buna, Sanananda, Lae, Morobe and Finschafen.

I returned to Australia, married and was promoted to Corporal. I was then seconded as Corporal wireless operator to an RAAF unit, No. 4 Mobile Meteorological Unit who collected data from radio stations around Asia and the Pacific. In addition to being the Met office for the 7th Division, they released gas-filled balloons every few hours and tracked their path and flight with a theodolite. This information indicated the winds which affected the aim of 25 pounder gun-howitzer shells, which had a high trajectory.

I vividly recall the evening of the Japanese surrender. To celebrate, we released our biggest 1.8 metre (6 foot) diameter balloon under which was suspended a huge blazing bundle of rags and cotton waste. When this fire-ball was floating across the Borneo jungle it attracted all sorts of fire from the celebrating troops. Machine-guns firing tracers,

Bofor guns and search-lights all joined in until our fireball eventually sank somewhere in the Borneo jungle.

After discharge I was employed in my wife's family refrigeration business. We then travelled to Cairns where I worked in refrigeration and then to Darwin. After several jobs in the NT I joined the NT Police Force. When the Korean conflict started, I re-enlisted, got my war-time rank (Cpl) back and subsequently made commissioned rank. I served two tours in Korea with 3 RAR and before I took up my new Australian job as 2 I/C Canungra Jungle Training School, resigned my commission as Captain and, after a few more interesting jobs operating a large health business on the Gold Coast and a photographic shop in Cairns, retired.

After a further 20 years of 'hobbying', I decided to re-learn my Morse code and become a 'Ham'. I am now a Foundation Licence operator and at 88 wonder what might be next.



## VK4news Radio communications vital for state rally event

Les Unwin VK4VIL



Photo 1: One of the repeaters commissioned. L to R: Dave VK4FWDM, Les VK4VIL, Mike VK4LMB and Leon VK4KLL.

Recently, the Rockhampton and District Amateur Radio Club (RADAR) continued their annual collaboration with the Central Queensland Motor Sporting Club, providing communications for round two of the Queensland Rally Championships held at the Capricorn Resort near Yeppoon, in central Queensland.

On the day, twelve operators from the club completed field relay of information as well as conducting emergency communications for accidents, injuries and recoveries. Youngest radio operator on the day was 16 year old Cory Pedder VK4FCMP, now a veteran of three rallies.

This year, three courses up to 26 km in length were utilized within an overall area of approximately 300 square kilometres and vehicles completed a total of eight events.

To avoid confusion, it was decided to set up two radio bases, with the headquarters in one of the Capricorn Resort buildings and a remote base controlled by John VK4AJS.

Leon VK4KLL, at the resort's headquarters, was kept particularly busy on four radios, a VHF frequency, one WICEN UHF frequency and two UHF CB channels, as well as coordinating with the Clerk of the Course and the Scorekeeper.

Although some operators worked in relatively comfortable conditions others, including Len VK4WAL, Bruce VK4VRO, Dave VK4FWDM, Marcel VK4TMH, Jim VK4JYM and John VK4AHB were in isolated conditions and subjected to a bit of precipitation and wind during the day, but are keen to return.



Photo 2: Mike VK4LMB station set-up. No, Mike did not build this – it is normally used as a bird viewing station.

With the course classed as very slippery, bingles were common and only 16 of the initial 28 cars entered remained operational at the completion of the event. Luckily no major injuries occurred. Overall conditions and incidents provided good emergency training and although transmissions were kept concise, radio communications were virtually continuous for a 12 hour stint.

To allow early results to be collated in time for the dinner and presentations, operators were busy between other tasks, reporting all result times for the several stages over each of the three courses.

During the dinner, the motor sporting club acknowledged the RADAR club's operations as professional, and certainly essential for the conduct of the event. Of particular interest to the organizers was the construction, operation and worth of the repeater stations.

Congratulations to RADAR Club President Mike VK4LMB and Clive VK4ACC, who were heavily involved in preparations.

Already there is an undertaking for continued collaboration in 2012.



Photo 4: Work for the communications and recovery vehicle.

It was great to see our newest recruit, Rod Cecil, who was previously involved in car racing in the 70's, operating UHF CB 1 channel at the start of the stages. Rod bumped into some of his old mates during the event.

As VHF and UHF bands were required in the hilly and heavily wooded terrain, headquarter and repeater stations were built and activated the day before the event.

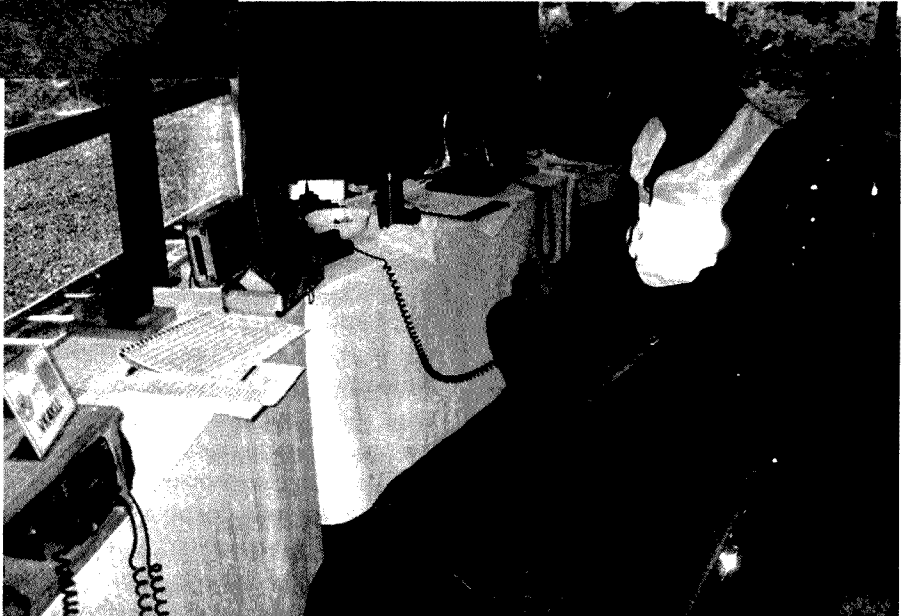


Photo 3: Leon VK4KLL, in front, and Ross, Clerk of Course at Rally HQ.

# Spotlight on SWLing

Robin L Harwood VK7RH

Well Spring has arrived and hopefully the propagation will have improved, particularly on the higher bands. More broadcasters are rapidly exiting shortwave for the Internet and even more gaps are appearing within the broadcasting allocations. Monitors are reporting the increasing presence of smaller domestic senders, who have often been masked by the huge international broadcasting outfits. Some are telling me that they are hearing Brazilian stations yet there seems to be a dead spot for me. One Brazilian is reportedly easy to hear on 15190. It is R. Inconfidencia but I have no idea where it is yet; it is also reportedly on other shortwave channels. Many of the shortwave senders from Brazil relay networked programming from Rio or Sao Paulo although commercials are often local and may give some indication where the sender is located.

The exodus of shortwave stations does not seem to be worrying the Chinese as there seems to be either CRI or one of the domestic networks easily heard around the clock. They also don't seem to like other countries or broadcasters broadcasting into China in the standard language or in local dialects. As a result they jam programming by blanketing channels with programming from domestic networks. One trick is to have two or three senders co-channel yet

each will have delayed audio giving a deliberate echo effect. Some clandestine broadcasters get the Firedrake treatment.

This is the name given to a continuous program of traditional ethnic music with emphasis on percussion instruments. Lately Firedrake has appeared on higher channels, including one reserved here in Australia for VMC in Charleville for WEFAX charts. 13920 suffers from 1300 UTC and apparently the clandestine sender said to be based in Taiwan has popped up on this channel and is immediately drowned out by the Firedrake senders in various locations within the PRC. Sometimes the Firedrake jammers are switched off, usually on the hour for about five to ten minutes, revealing the weaker clandestine sender.

The station located in Myanmar, formerly called Burma, has returned to 7185.7 and is audible easily because it operates within the exclusive amateur allocation on 7 MHz. One never knows from day to day what will happen, as the sender can sometimes pop up on 7200.05. Lately it has been signing off at around 1230 which seems to be the time of the local sunset. A second station is on 5986 but is often buried beneath a Japanese-backed clandestine broadcasting to North Korea. The latter is mainly in Japanese

yet does have occasional notices in English. These notices are about the unknown number of Japanese who have allegedly been abducted by North Korea.

You will probably have encountered some OTHR pulses as you monitor the bands. In the 70's and 80's we had the Soviet Woodpecker, which used to wipe huge chunks of the spectrum. This was located in the Ukraine, not far from the infamous Chernobyl nuclear power station. Not long after the Chernobyl accident, this signal disappeared. Lately we have heard a softer OTHR pulse usually in 30 kHz segments yet thankfully not within amateur allocations. Some monitors are claiming to have located the source to be at Akotiri in Cyprus, at a NATO base. In mid-July there was a huge explosion at a power station as a result of seized Iranian ordnance catching fire. This resulted in serious damage to the power grid especially for the BBC Cyprus relay at Zygi. Programming had to be hastily relocated to other senders until power could be restored. The power outages also seem to have affected these Akotiri OTHR pulses.

Well that is all for now. Don't forget you can email me with news and comments to [vk7rh@wia.org.au](mailto:vk7rh@wia.org.au)

73



## GippsTech 2011

Peter Freeman VK3PF

The Eastern Zone Amateur Radio Club (Inc) thanks all who made our recent GippsTech 2011 event another success. We had over 100 amateurs present and around ten on the partners' tour. We had only one minor issue – our planning for the partners' tour was incomplete. We give Dean VK3NFI hearty thanks for accepting the challenge of driving the minibus for the two days. From

what we heard back from the ladies, they had a great time.

Roger VK2ZRH has provided a thorough report elsewhere in this issue. All of the presenters deserve special thanks for their contributions.

The Club also thanks the following for their donations to the raffle: Graham VK3XDK, Chris VK2DO, Icom Australia, Alan VK3XP, Doug VK3UM and the

other contributors. 21 prizes were distributed, with Jenny VK3JEN clearly delighted in winning the FT-2900R transceiver. Stephen VK3FSJW will need to upgrade soon if he hopes to use the 2.4 GHz transverter kit he won. Transverter kits also went to Ralph VK3WRE (3.4 GHz) and Andrew VK1DO (10.3 GHz).

The dates for next year are July 7 and 8 – pencil them in the diary now.





Justin Giles-Clark VKTW

Email: vk7tw@wia.org.au

Regional Web Site: <http://groups.yahoo.com/group/vk7regionalnews/>

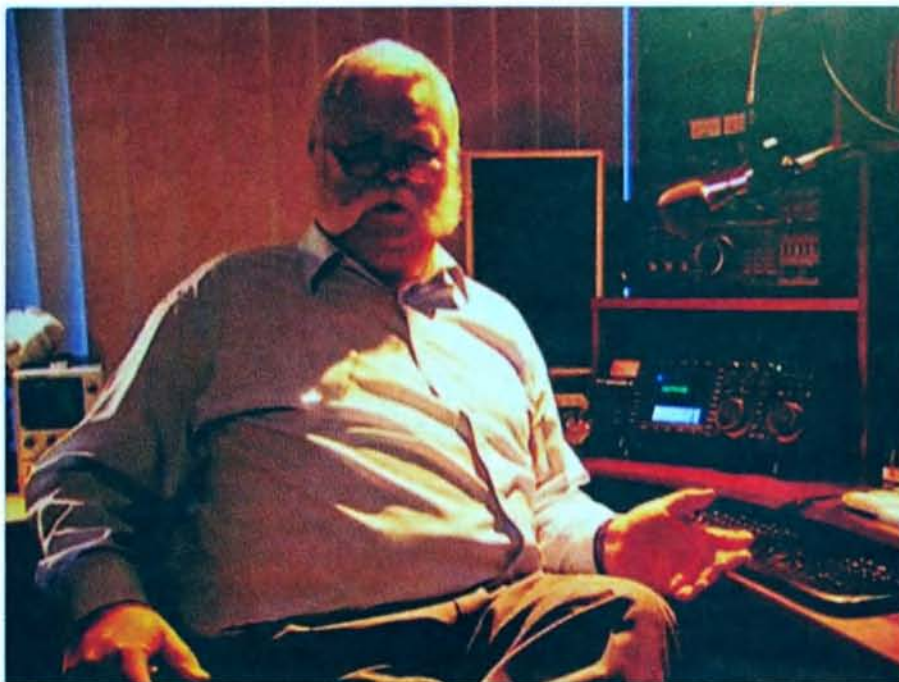


Photo 1: Martin VK7GN in the Shack (Courtesy of ABC Collectors).

It was great to see the ABC Collectors program feature the QSL collection of Martin Luther VK7GN on 29 July. This was not only a great promotion of QSL card collecting but it was a fantastic promotion of the hobby of amateur radio. Thanks to Martin and the ABC.

Winston VK7EM is looking for historical information on the Green House at Stanley in the far NW of VK7. From 1939 to 1966 the PMG operated a radio telephony station at Stanley, known as The Green House. It acted as a back-up to the only submarine cable to Victoria at the time and operated around 40 MHz to a station at Tanybryn, near Apollo Bay in VK3. If you have any information then please contact Winston at email: [wnickols@westnet.com.au](mailto:wnickols@westnet.com.au)

David VK7YUM lets us know that from 3-7 November, 2011, King Island is celebrating the 150th anniversary of the Cape Wickham lighthouse that has operated continuously for 150 years.

The King Island Council is organising a week of celebrations around the island and has invited radio amateurs to join them in the celebration of this notable maritime sesquicentenary. If you are interested then take a look at the website for contact details: <http://www.kingisland.tas.gov.au/>

There was a respectable contingent from VK7 at the annual GippsTech technical conference in VK3. It included Rex VK7MO, Joe VK7JG, Peter VK7PD and the author. As always this was a fantastic event with many interesting presentations about the 'bleeding edge' of microwave and radio experimentation. The author stayed on in Melbourne and caught up with Mal VK3FDSL and Dianne VK3FDIZ at the WIA Bayswater office and thanks both for their hospitality. The author also attended the morning social meeting of the Moorabbin and District Radio Club and thanks to all who made me feel very welcome, especially Noel VK3BMU.

## VK7 Repeater News

Hayden VK7HA and Michael VK7FMRS have tracked down the interference on VK7RCH, Grey Mountain; it appears to be caused by a 'remote' operated boat crane operating on 433.575 MHz. By the time this goes to print it, hopefully, will have been resolved. There is a digipeater also planned for this site so, watch this space! The batteries have been replaced on VK7RBH on the snow covered Ben Lomond thanks to Joe VK7JG, Ian VK7IH and Errol Williams from Alpine Enterprises who supplied the snow transport. At the time of writing the weekly broadcast repeater VK7RIN on Barren Tier is still undergoing some TLC!

## Northern Tasmania Amateur Radio Club

The NTARC meeting on 13 July saw a keen band of radio amateurs at the soldering and desoldering workshop. NTARC meets in the wonderful facilities of the Alanvale Campus of the Skill Institute and this does have many advantages including tools, workbenches and expert instructors! A big thank you to Peter VK7KPC, Idris VK7ZIR, Peter VK7PD and David Welland.

Advanced notice is given of Northern JOTA arrangements from Peter who is NTARC JOTA Coordinator. JOTA in the North will be held on Sunday, 16 October at the Kings Meadows Scout Hall, from 10.00 am. Setup is on Saturday so if you can spare some time it would be much appreciated.

## Cradle Coast Amateur Radio Club

23 July saw CCARC focus on Squid Pole antennas at their monthly meeting. David VK7DC lets us know that there was a great roll-up with three different versions of Squid Poles being demonstrated and

tested on the lawns. Thanks to Peter VK7KPC and Winston VK7EM with their vehicle mounted versions and Dion VK7DB for his lawn mounted version. CCARC make a huge contribution to the International Lighthouse and Lightship Weekend each year and 2011 is no exception. At Mersey Bluff lighthouse will be Winston VK7EM and Scott VK7NWT. At Table Cape lighthouse will be Eric VK7NFI and Wayne VK7NET, and Dion VK7DB will be doing a first time activation of the Sandy Cape lighthouse.

### WICEN Tasmania (South)

On 24-25 June WICEN South members, CCARC members Dave VK7DC and Ross VK7RW, and NTARC member Peter VK7KPC converged on St Helens to supply communications support for an equine endurance ride. The 2012 Tom Quilty National Championships are being held in St Helens and so these events are dress rehearsals for the championships. WICEN are looking for more communications volunteers as support will need to be scaled up for the championships. If interested in helping then contact the WICEN committee and their details can be found at: <http://tas.wicen.org.au/>

### Radio and Electronics Association of Southern Tasmania

Congratulations to Paul Kirby for successfully passing his Standard assessment and Theo Klop VK7FTAK who passed his foundation assessment. We look forward to hearing you both on the air. Sunday, 4 September is the date for the REAST Car Boot Sale. So, bring along your items and turn them into cash. There will be a BBQ throughout the day. Starts after the VK7 Regional News broadcast on the Sunday.

6 July was the REAST monthly presentation and it was a wonderful 'random walk' from Mike VK7MJ titled the three 'Rs' – 'Resonance, Reactance and Resistance'. Mike started with resistance and Ohms Law and then gradually added the concept of alternating current, then capacitors are added to the circuit, then inductors, creating resonance

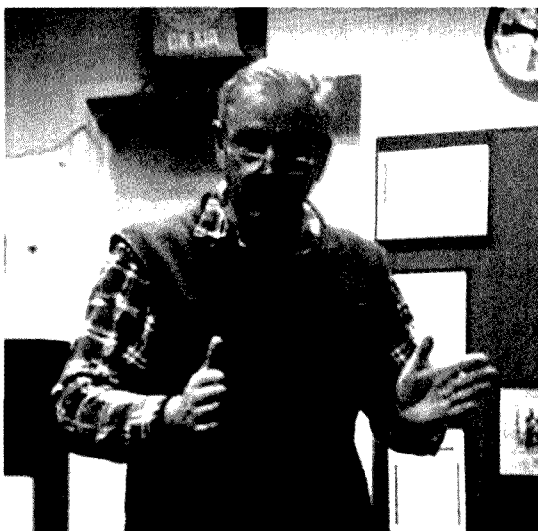


Photo 2: Mike VK7MJ during the 'Resonance, Reactance and Resistance presentation'.

and reactance, add in transformers, the concept of Q, and finishing with some RF examples of all these in band pass networks. A big thank you to Mike who put hours and hours into this presentation and it was very much appreciated.

The Wednesday DATV nights are going strong with a distinctly hobby robotics feel to them. Mobile motorised platforms, Arduino and TI microcontrollers, Arduino shields, motor control circuits, sensors, iBots, solar radio astronomy, tour of GippsTech 2011 and WIA offices and Paul VK7PAH with his recently purchased Funcube Dongle SDR radio. As you can see we get up to all sorts of things, why not come along and join in. See you there.

### John McCulloch VK7CCC - SK

It is my sad duty to inform you of the passing of my very good friend and fishing buddy, John McCulloch VK7CCC.

Only days before his crippling stroke that left him paralyzed and unable to speak, his daughter gave birth to his first grand children, a beautiful set of twins, a boy and girl.

Our thoughts are with his wife Joan, son Colin and daughter Palentina. Tight Lines John.

Contributed by Joe Gelston VK7JG.

### Alan Mouzon VK3BUM - SK

My long term radio and internet buddy, Alan Mouzon, lost his battle with cancer last Sunday, 5 June,

just a few days before his 77th birthday. Several VK7 amateurs will remember Alan and the conversations we used to have about Flight Sim and other subjects. A memorial service was held for Alan in Kilsyth, Melbourne on Friday, 10 June, 2011. Condolences were passed on to Nora, his widow, on behalf of his Tasmanian friends. Keep flying my friend.

Contributed by Mike Jenner VK7FB.

### Clifford Victor de Plater VK7CD - SK

The Northern Tasmanian ARC is sad to report the passing of one of VK7's most senior amateur radio operators, Clifford Victor de Plater VK7CD, on 29 June, 2011, just 29 days short of his 99th birthday.

Cliff had moved to Tasmania to live with family on a tourist host farm at Lilydale some years ago. He had previously lived at Narrawallee on the NSW south coast, following retirement in 1979 from a long and very distinguished career as a botanical scientist with the CSIRO in Canberra. Prior to his CSIRO career, Cliff had served during World War 2 with the RAAF.

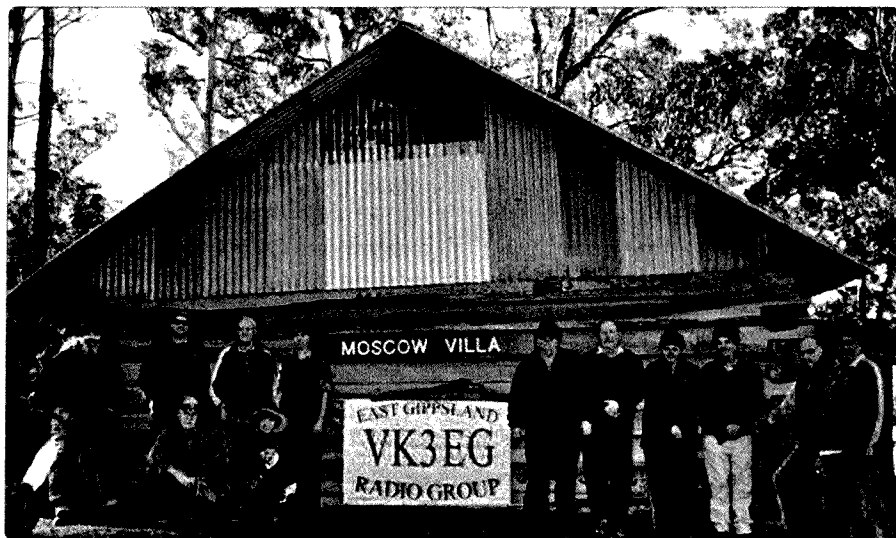
While failing health and mobility had much reduced his activity of late, Cliff had been interested and involved with radio and electronics from boyhood. He had long enjoyed his amateur radio hobby, both in VK1 and VK2; and over the past few years had re-equipped his station to mark its return on air, from his new VK7 QTH at Lilydale.

His passing leaves a wide circle of on-air acquaintances, all of who will miss his friendly voice and readiness to engage in discussion on many subjects but none more deeply than those touching his scientific training. Our sympathies are extended to Cliff's wife Hazel and family.

Contributed by Yvonne VK7FYM, NTARC Inc. Secretary.

# VK3news East Gippsland Radio Group (EGRG)

Rob Ashlin VK3EK, President EGRG



From L to R: Ralph VK3FRJK of Newmerella, Peter VK3PRF of Bairnsdale, Keiran VK3BTV of Melbourne, Gerard VK3GER of Melbourne, Bernardita and Eckie of Bairnsdale, John VK3MGZ of Melbourne, Rob VK3EK of Bairnsdale, Jim VK3UFO of Melbourne, Peter VK3NPI of Boolara, George VK3QP of Melbourne, John of Traralgon and Mike VK3XL of Melbourne.

The Omeo Winter Classic may be long gone but the challenges it brought still remain and continue in the heart and spirit of this radio group. The group's objective of getting together annually is to keep them in readiness for emergency services with the use of portable radio communications. These amateur radio operators absolutely love going up into

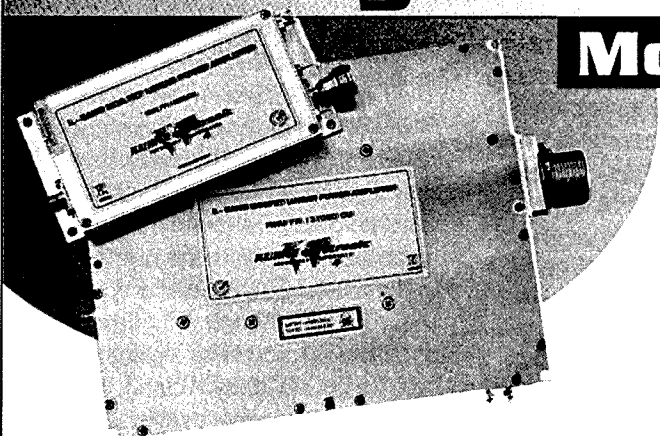
the bush, camping and doing radio communications and they are already planning next year's trip to Timbarra.

The next event for the EGRG is the International Light House Weekend at Point Hicks on 19-20 August, 2011. The EGRG would like to thank the Department of Sustainability & Environment and the people responsible for providing the accommodation at Moscow Villa.

The East Gippsland Radio Group VK3EG relived its Annual Winter Classic Camping Trip at Moscow Villa in the mountains near Swifts Creek on the last weekend of July, 2011. This camping weekend evolved from a number of the amateur radio operators who provided emergency communications for St. John Ambulance Brigade in the Omeo Winter Classic during the 1990s.

## New High Power Amplifier

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### Applications

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- High-Power EME-operations

### Features

- High linearity
- High efficiency (up to 50 %)
- 50 V LDMOS technology
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Type	MKU PA 13250 CU	MKU PA 131000 CU
Frequency range	1270 ... 1300 MHz	1280 ... 1300 MHz
Input power	4 ... 6 W	20 W ... 30 W
Output power	250 W	1000 W
Efficiency	typ. 50 %	typ. 50 %
Supply voltage	+ 50 V	+ 50 V
Current consumption	max. 12 A	max. 40 A
Input connector / impedance	SMA-female, 50 ohms	SMA-female, 50 ohms
Output connector / impedance	N-female, 50 ohms	7/16-female, 50 ohms
Case	milled copper, silver-plated	milled copper, silver-/nickel-plated

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# The Simple SDR: a basic software defined radio anyone can build – Part One

Peter Parker VK3YE



Photo 1: A simple SDR in use (dual band tunable version pictured).

## Introduction

Have you wanted to build a software defined radio but do not know where to start? Or hoped to make a simple receiver but found it difficult to get the parts? If so, this three transistor project could be for you.

About \$25 worth of available components and a few hours construction will get a receiver covering the busiest part of 80 metres, with an option of 40 metres as well. Unlike other simple sets this one includes easy tuning, variable selectivity, a spectrum display and more.

These features are possible because the radio is software defined for use with a soundcard-equipped home or laptop computer. Most signal selection, amplification and detection is done by the computer driven by freeware software. The unit described here merely converts incoming RF signals to a low frequency (under 50 kHz) and the computer does the rest.

There is only one major catch with this arrangement. Because the receiver is so simple it receives all signals on two spots of the 'dial' and may pick up more interference. More advanced SDRs (including virtually all commercial and kit models)

overcome this but need a soundcard with stereo input.

The cheap netbook used for this project has a mono audio input only so a 'proper' SDR would be of little benefit. Instead a 'bare bones' SDR was developed and the lack of image rejection tolerated. A simple workaround for this is possible

and will be described in Part Two.

## SDRs: how they work and what they can do

If you understand how a direct conversion receiver operates, you will know how this set works. Incoming RF signals are mixed with a locally generated RF signal to produce a difference frequency in the audio range which is amplified and fed to a speaker.

This receiver is similar except that the difference frequency is over a wider range, including frequencies above human hearing. This is fed to a sound card, which amplifies and processes the signal to audio like a conventional receiver but using software and computing power. A mouse is used to tune the receiver over a section of the band limited by the soundcard's bandwidth.

As the name suggests, software defined radios have features and flexibility not found on the cheaper conventional hardware-based receivers. Examples include variable bandwidth, allowing selectivity to be optimised for different modes. SDR users can 'see' band activity with a spectrum display. Digital noise reduction, used to dull interference, is also available. Increased

computing power and software are likely to lead to more features in the future.

For the homebrewer software defined radios reduce the need for expensive mechanical tuning mechanisms, dials or frequency displays. Frequency stability is also improved, especially if they can be used to cover a band segment with a simple crystal oscillator or synthesiser.

As mentioned before, 'proper' SDRs require a stereo sound card for full performance. This is because, unlike this design, they offer single signal reception by presenting two signals slightly different from one another to the sound card.

While the analogy is not perfect, using this receiver is like having one ear. You will still hear signals, but there is not the extra discrimination or selectivity available with two ears. The workaround, to be described next month, will be like moving your head around and in most cases will reduce interference but not band noise.

## Software

SDR software can be quite demanding and some programs may not run on slower machines. This was found true with the author's machine, which is a limited power Asus N10E netbook.

Several programs were tried. 'SDRadio' v0.99 by Alberto I2PHD was the most satisfactory and easiest to use. This can be downloaded from Reference One.

Before building the receiver it is worth trying various SDR programs to get a feel for how they work. This can be done by feeding audio from an SSB transceiver into the sound card to use the SDR as an audio filter with variable bandwidth. Only a small amount of audio will be required, so turn the volume way down, build

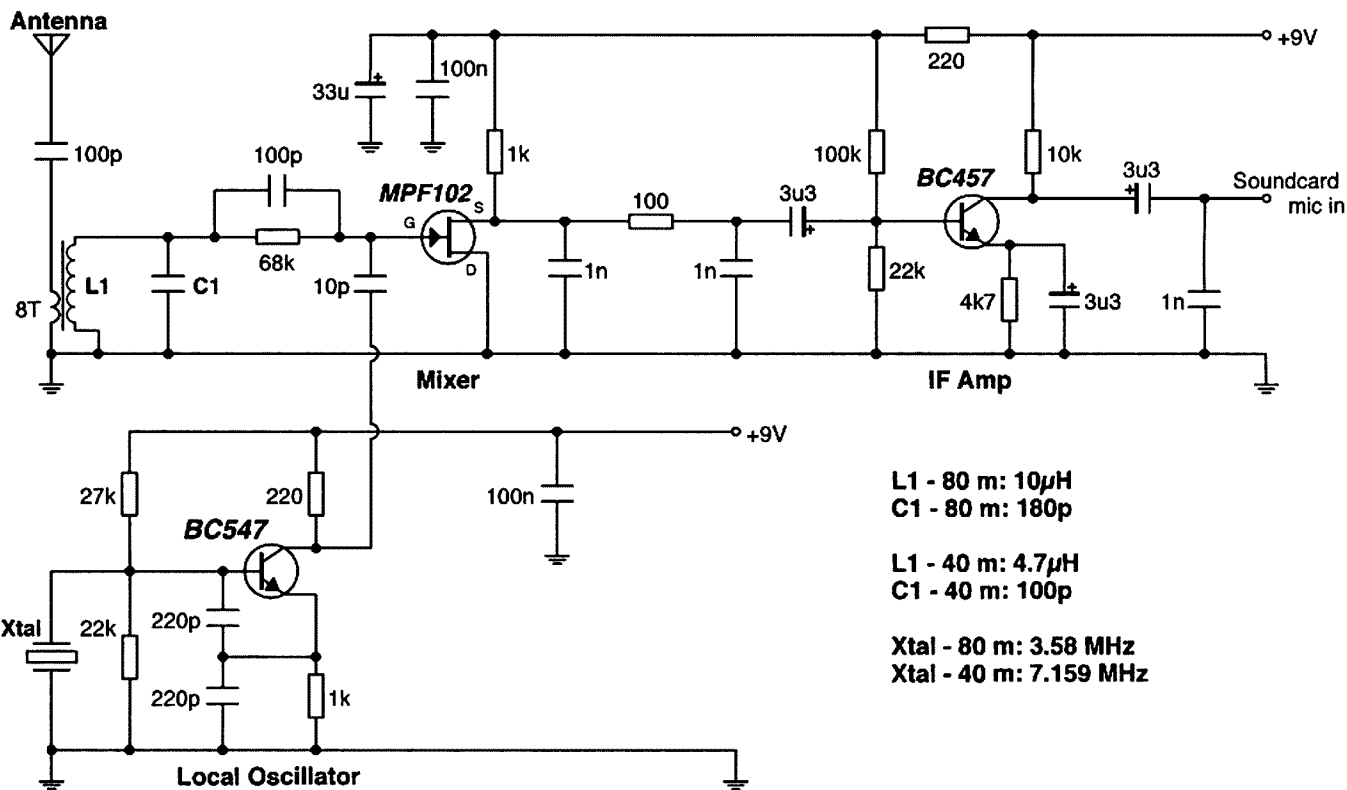


Figure 1

© WIA AR10085\_1 Drawn by VK3BR

Figure 1: Simple SDR circuit diagram.

an audio attenuator and/or use an interface unit similar to that used for slow scan TV or digital modes such as PSK31.

### Circuit description

The receiver presented here is the simplest possible that provides adequate performance. Every attempt was made to design for available parts and simple construction. Variations with greater frequency agility, dual band operation and USB port power will be described in Part Two.

Incoming signals on 3.5 or 7 MHz go via a simple bandpass filter. A commercially-available RF choke and fixed value capacitor avoids the need for critical coil winding or alignment.

Signals pass to a MPF102 FET mixer (Reference Two) which mixes them with a locally-generated signal from a crystal oscillator centred on the band segment you wish to receive.

The mixer's output contains two bands of frequencies; a high frequency sum and a low frequency

difference. The former is not required so is suppressed after the mixer.

The low frequency difference signals (which are in the audio range to just above) are boosted by the intermediate frequency amplifier (Reference Three) before being presented to the computer's sound card via the microphone input (which provides additional amplification).

Signals from the sound card are displayed as a spectrum display centred on the crystal oscillator's frequency. For example if the receiver has a 3580 kHz crystal an incoming signal on 3600 kHz will produce spikes at 20 kHz above and below the centre frequency. Similarly a 3590 kHz signal will produce spikes 10 kHz above and below.

Tuning uses the mouse to pick off the desired signal from the several that may be displayed. Bandwidth and noise reduction are then varied to taste.

The available tuning range from a single crystal is determined by the sound card. A basic sound card with 48 kHz sampling allows coverage

24 kHz above and below the centre frequency. In other words the 80 metre version of this receiver will tune about 3556 to 3604 kHz and the 40 metre version will cover 7135 to 7183 kHz. More advanced sound cards have 96 kHz sampling, which should double the range tunable. Wider excursions require a variable local oscillator, to be covered in Part Two.

A nine volt battery powers the unit. These are not cheap but are fine for casual use. Not using the USB port lessens the chance of interference from the computer or even damaging it if you get a connection wrong.

### Obtaining parts

All parts, including the 3.58 MHz crystal can be obtained from suppliers such as Jaycar and Altronics. 7.159 MHz crystals for the 40 metre version are much less available but may still be obtainable from specialist suppliers or old electronic equipment.

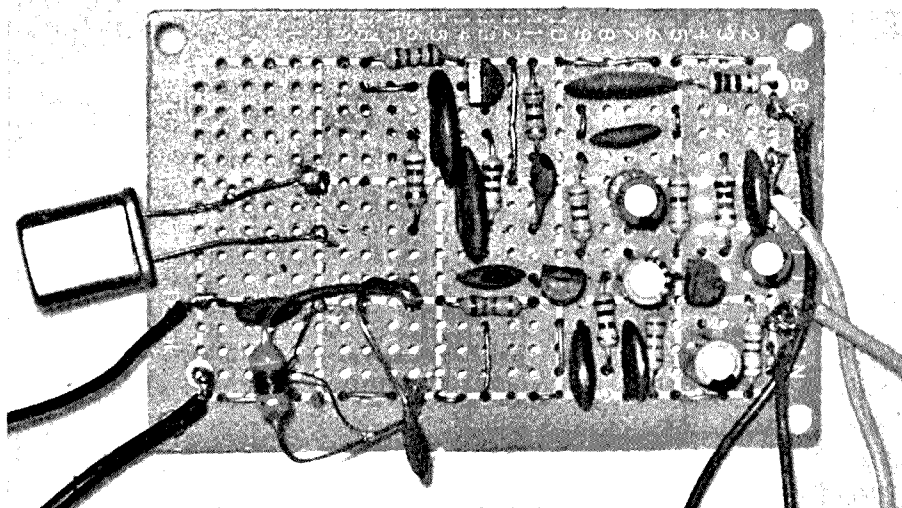


Photo 2: A simple SDR circuit board (7 MHz crystal controlled version pictured).

## Construction

The first decision is to choose a band – 80 or 40 metres. For the beginner 80 metres is recommended as 3.58 MHz crystals are readily available and the tuning range includes an active part of the band.

7.159 MHz is another mass-produced (but less common) crystal frequency so a 40 metre version is also possible. This is above the busiest part of 40 metres, but some stations will still be heard, notably the VK2WI Sunday broadcast on 7.146 MHz and North American DX activity around 7.160 MHz in the early evening.

Apart from the crystal the only other difference between the 80 and 40 metre versions is the value of the RF choke (10 or 4.7  $\mu$ H) and companion capacitor (180 or 100 pF). Unlike other parts of the circuit, these values are critical as substitutes will harm sensitivity.

Provided component leads are kept short, a wide variety of construction styles can be used. The first version of this receiver had the parts simply soldered together with no circuit board. 'Dead-bug' style on a piece of circuit board material worked for another. Matrix board was used for the model presented here, with the component leads soldered underneath.

The most fiddly part of construction is probably winding the antenna coil around the body of the front end RF choke. This requires a few centimetres of fine enamelled copper wire (say 0.2 mm). This is available new or salvaged

from old transformers or toroids in power supplies, etc. The number of turns is not critical, but too few will lessen sensitivity.

Initially no case was used, but the receiver was eventually put into a plastic box. However if radiated interference from the computer or monitor is a problem a metal box would be worth trying.

Finally you will also need a lead for the soundcard input. This can be made from a 3.5 mm stereo plug (connect tip and earth) and some shielded audio cable. Alternatively you may have some faulty headphones whose lead can be salvaged.

The computer's internal speaker can be used but either headphones or an external speaker provide increased volume and clarity.

## Testing and use

The local oscillator can be tested by checking its output on a nearby HF receiver (even if it is only a broadcast set with a shortwave band). Alternatively an RF probe or field strength meter will produce an indication if touched on the collector of the oscillator transistor.

With the software loaded, plug the receiver into the sound card's microphone input and monitor the display. Connect an antenna (20 metres of wire outdoors should be sufficient). Assuming a noisy suburban location the 'grass' display should rise to indicate that ambient

noise is being picked up. Enter the centre frequency (either 3579 or 7159 kHz) to make the frequency display accurate.

From the menu set the sampling to 48 kHz (96 kHz can be tried later). Select 'LSB' and click the mouse on any spikes on the display. A thin spike is a carrier signal while a varying cluster of nearby spikes is likely to be an SSB signal. The receiver's gain (labelled 'AGC Gain' on *SDRadio*) should be set to maximum.

Try to tune in the signal. If you hear what is obviously speech but cannot resolve it, notice that there will be a 'mirror' spike a similar distance from the centre of the display. Click on that and tune this one in instead.

If you cannot hear anything it could mean there is no activity (very likely during the day on 80 metres), the connections or soundcard input volume settings are incorrect (should be maximum), or noise generated by the computer swamps incoming signals.

I have found that laptops can be quieter than home computers, but if noise is still a problem experimentation with shielding the receiver may help. An RF signal generator, dip oscillator or HF transceiver is useful to provide a test signal to troubleshoot if required.

## Conclusion

Described here is about the simplest possible software defined radio for worthwhile amateur reception. Designed to be reproducible with available components it should make a fine beginner or club project. Its main limitations are a limited frequency coverage and interference from image signals. Part Two next month will present some improved designs that overcome these problems.

## References

1. I2PHD's website [www.sdradio.eu](http://www.sdradio.eu)
2. CF Rockey, W9SCH *Rock's Fishing Box, Low Power Scrapbook*, RSGB, 2001, page 72.
3. J Young, BRS3339 *A simple 29 MHz direct conversion receiver*, Low Power Scrapbook, RSGB, 2001, page 102.



# A simple and reliable tuning indicator for a 100 watt HF transmitter

Warren Stirling VK3XSW

This tuning indicator is a by-product from my rebuilding an old military antenna coupler which was designed to match short vertical or short wire antennae at HF. Unfortunately for me, the antenna coupler had been modified somewhere in its history; the original tuning indicator and its associated components had been removed. So I needed a replacement.

## Requirements

The requirements were:

- to allow the controls of the antenna coupler to be adjusted to present the best match possible to a 100 W class HF transceiver with a minimal level of RF applied, probably starting from a really bad mismatch, say 20:1 SWR.
- to work *without user intervention* on 3.5 MHz, 7 MHz, 10 MHz and 14 MHz at RF levels from five watts or so being required to adjust the antenna coupler, to the 100 watts or so of RF from the HF rig, with the carrier level control wound flat out, that is, no range switch or 'calibration' control, it just works from five watts to 100 watts, 3.5 MHz to 14 MHz, all on the same meter scale.
- to be as simple and as reliable as possible.

The indicator I finished with needs around five watts of RF for a reliable indication, at that level a 20:1 SWR is not going to bother a 100 watt HF PA for the few minutes I would need to adjust the antenna coupler for best match. It is basically an RF ammeter, but modified to suit the listed requirements.

The current transformer and meter circuitry are copied from an RF ammeter described by Drew Diamond in one of his books, *Radio Projects for the Amateur - Volume 3*, page 113, *RF ammeters for high*

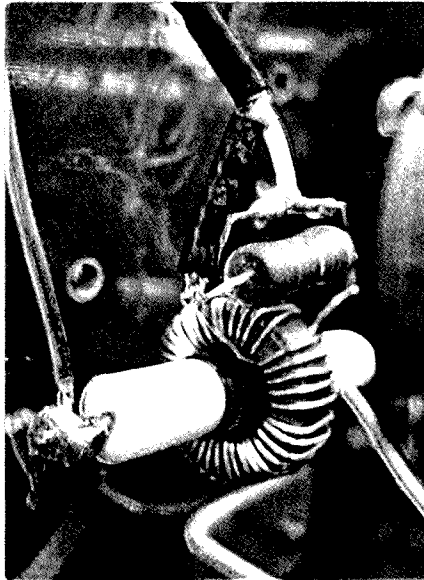


Photo 1: The tuning indicator current transformer close up.

frequency measurements, while the concept of compressing the meter scale came from reverse engineering the circuit of the tuning indicator used in the PCM Electronics MTU100 antenna tuner, as suggested in various discussions on the VK3RMU repeater drive-time net.

My only originality in implementing this tuning indicator was to combine the separate circuits and experiment with the component values for the meter compression circuit until I had a tuning indicator that worked the way I wanted. The circuit that resulted indicates current flow into the attached antenna and as scale compression is employed in the meter circuit a 'tune for peak' method of adjusting the antenna coupler is employed. As such, the meter scale is NOT calibrated, nor does it need to be.

## Arriving at the final circuit

The current transformer for the meter circuit was constructed in similar fashion to the Drew Diamond article, with the load resistor, rectifier diode and filter capacitor mounted

directly to the ends of the secondary winding. The primary in my case was a piece of one millimetre diameter, approximately, enamelled copper wire threaded through a piece of the inner insulation taken from a short piece of RG213 from which the core, braid and outer insulation had been removed. The inner was then wrapped in electrical tape to pack it out to the point where the toroid was a neat fit.

The current transformer was then wired into the output circuit of the antenna coupler. A thin coaxial cable wired to the current transformer was then led out through the casing of the antenna coupler and connected to a digital voltmeter. The coupler was connected to a short vertical antenna and ground stake together with a HF transceiver set for CW. Several readings were taken, with the antenna coupler adjusted for best match, as indicated by a maximum voltage reading on the digital voltmeter and verified with an inline SWR bridge connected between the HF radio and the antenna coupler.

The results are tabulated below:

Frequency	Carrier level	
	5 watts	80 watts
3.650 MHz	3.16 V	13.8 V
7.095 MHz	4.34 V	18.2 V
10.140 MHz	6.20 V	18.0 V
14.125 MHz	6.20 V	24.0 V

Only four spot frequencies were chosen, one per band, as I only wanted to know roughly what voltages I could expect the current transformer to produce; that way I could test the meter and scale compression circuit using a variable voltage DC supply instead of using the 100 watt HF rig and the antenna coupler. So, in knowing what sort of voltage I'd have to allow for, the movement of the meter I had to hand was confirmed as a 50 mA

movement with full scale deflection measured at 203 mV.

Using ohms law to calculate the series resistor required for full scale deflection at the minimum voltage produced by the current transformer with no scale compression circuit present, that is, 3.16 V. gave me an answer of 45.9 kΩ. I picked 47 kΩ as the nearest higher equivalent resistance value as a higher value resistance meant that the meter needle stayed on the scale, which makes it easier to read.

The scale compression circuit is formed by adding extra resistors and a silicon diode between the current transformer and the meter circuit in such a way that as the voltage from the current transformer increases the meter circuit is presented with a proportionally smaller increase.

**The circuit**

The current transformer has a fully floating secondary winding formed by 42 turns of 0.42 mm diameter enamelled copper wire wound on a Jaycar LO-1230 toroid. The primary of the transformer is assembled as previously described. There is no shield, electrostatic or otherwise, between the primary and secondary windings.

A 470 Ω 3 W metal film resistor paralleled with a 1N4148 diode in series with a 10 nF monolithic capacitor are wired across the secondary of the current transformer such that the end of the winding connected to the diode is 'closer' to the antenna coupler; these three components, with minimal lead length, are supported by the ends of the 42 turn secondary winding. A length of RG174 coax feeds the voltage from the 10 nF capacitor, coax centre to the diode/capacitor junction and coax shield to the other side of the capacitor, to the meter circuit.

I installed the current transformer to detect current flow into the antenna, that is, the primary winding is connected between the antenna terminal and the output of the antenna coupler, as measuring current flow into an antenna is, I feel, the single easiest way to adjust an antenna coupler.

The centre of the coax cable from the current transformer connects to one end of two paralleled 180 kW 0.25 W metal film resistors. The other end of the parallel resistors is connected in series with a 47 kW 0.25 W metal film resistor to the positive side of the meter. The meter negative is connected to the shield of the coax. A 1N4148 diode is connected across the meter coil as overload protection, such that the diode is forward biased if the voltage applied to the meter coil exceeds 600 mV; the meter FSD is 203 mV. A 10 nF monolithic capacitor is connected across the protection diode and the meter to prevent secondary RF rectification which would cause errors in the meter reading.

Scale compression is achieved by wiring yet another 1N4148 diode, in series with a paralleled 15 kΩ 0.25 W metal film resistor, from the junction of the 180 kΩ resistors and the 47 kΩ resistor, to meter negative; so that as the voltage from the current transformer increases

this diode starts to conduct, increasing the voltage drop across the paralleled 180 kΩ resistors and thereby reducing the voltage applied to the meter circuit.

All of these components are mounted 'dead-bug' style on a homebrew circuit board which mounts on the back of the meter. Instead of etching the board I drew the connection points onto the copper with a pencil and then used a metal rule and scribe to cut through the copper to the laminate underneath. The narrow slots made by the scribe were then widened with a needle file of square cross section. It's a rough and ready approach to making simple one off boards, but it works!

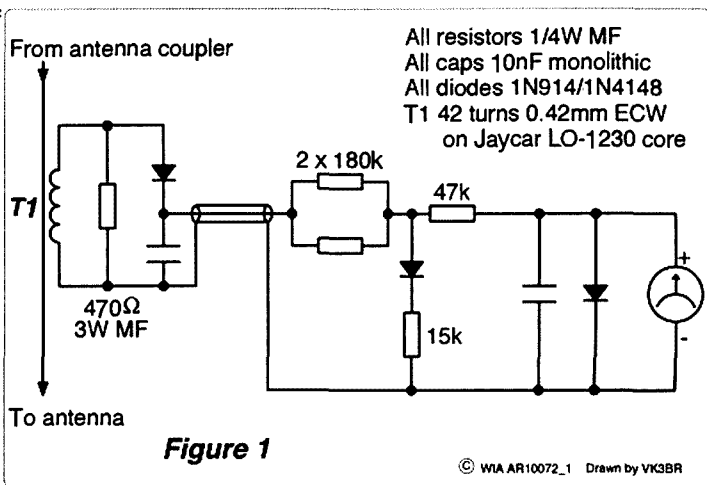


Figure 1: The tuning indicator original circuit.

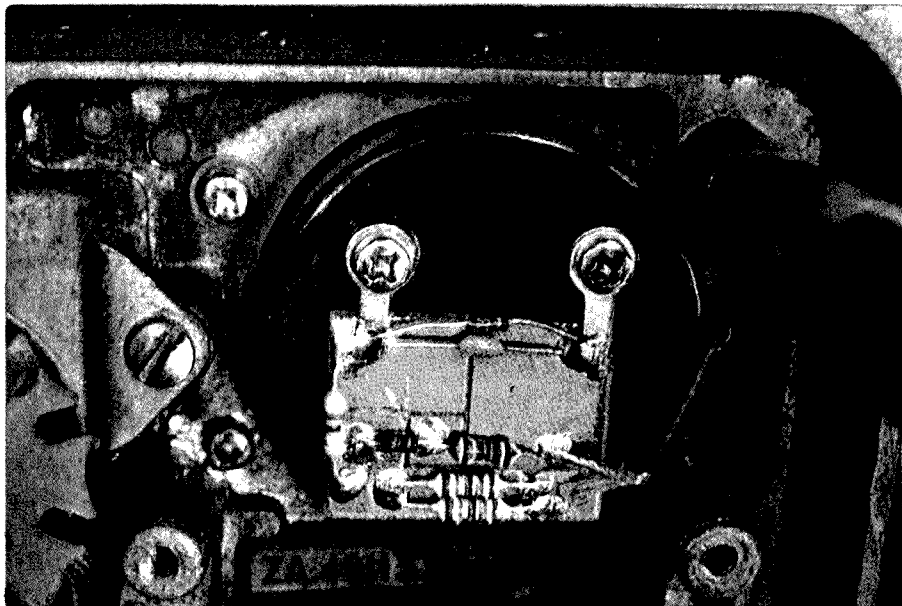


Photo 2: The tuning indicator original meter board close up.



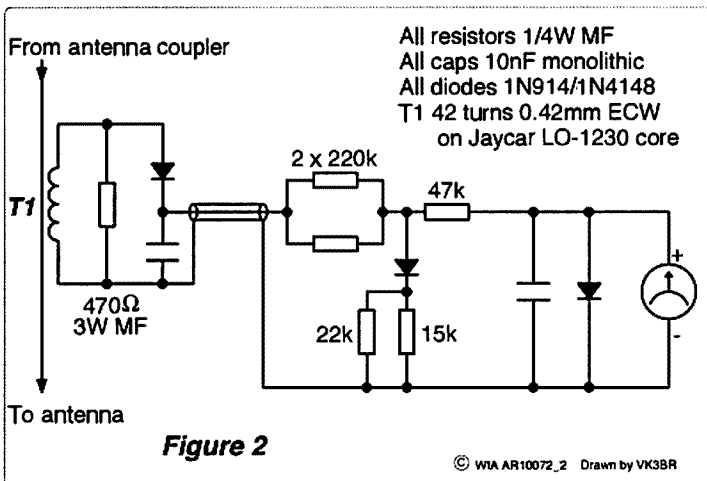


Figure 2: The tuning indicator final circuit.

## Choosing the scale compression resistors

The values of the meter scale compression resistors, the 90 kΩ in series, that is, the two paralleled 180 kΩ resistors, and the 15 kΩ in parallel, were found by trial and error using two resistor wheels and a variable voltage DC supply to arrive at the meter response I wanted, given the voltages produced by the current transformer.

The scale of the meter I had to hand has five primary divisions, numbered one to five with four un-numbered secondary divisions between each primary division. Initially the shunt resistor and diode are left unconnected and an initial value is chosen for the series resistor so that with the minimum voltage from the current transformer applied, 3.16 V, the meter needle deflects to somewhere between the first and second primary scale divisions; when the shunt resistor and diode are connected this deflection will drop to somewhere closer to the first primary scale division.

Once an initial value for the series resistor is found the shunt resistor, with an initial resistance approximately one sixth that of the series resistor, is connected and the maximum voltage from the current

this increase the value of the shunt resistor, if the meter deflection is, say, half a primary scale division more than this decrease the value of the shunt resistor. If the meter needle is off the scale increase the value of the series resistor.

The values of the shunt and series resistors are adjusted so that when the minimum voltage from the current transformer (3.16 V) is applied, the meter needle deflection is close to the first primary scale division and when the maximum voltage from the current transformer (24 V) is applied the meter needle deflection is close to, but does not reach, the fifth primary scale division.

In the case of the military antenna coupler its 'tune' and 'match' controls can be adjusted with only five watts of carrier applied and then fine tuned with a higher carrier level. At 80 watts carrier the meter is only approximately 80% full scale.

## Field testing

With the meter circuit assembled and bench tested it was fitted to the antenna coupler. The coupler was tested with two antennae; a 3.6 metre (12 ft) three section ex-military whip and a nine metre (30 ft) end fed wire. In both cases four 4.9 metre (16 ft) ground radials, spaced 90 degrees apart and an earth stake were

transformer, 24 V, is applied. The meter needle should deflect to somewhere between the fourth and the fifth primary scale divisions. If the meter deflection is, say, half a primary scale division less than

employed as an RF earth.

To my surprise and interest, the meter needle went off the scale during testing. After reviewing my notes on the initial testing of the current transformer I found the cause; the initial testing set up did *not* include ground radials, only an earth stake. Proof positive that ground radials are worth the effort, especially with short verticals!

After more testing the resistors in the scale compression circuit were changed, the two paralleled 180 kΩ 0.25 W metal film resistors were replaced with two paralleled 220 kΩ 0.25W metal film resistors and a 22 kΩ 0.25 W metal film resistor was added in parallel to the existing 15 kΩ 0.25 W metal film resistor.

## Note

The meter scale for this tuning indicator was not intended to be calibrated as scale compression is employed. Instead, the 'tune' and 'match' controls of the antenna coupler are adjusted for maximum meter deflection, tune for peak, which equates to maximum current flow into the antenna.

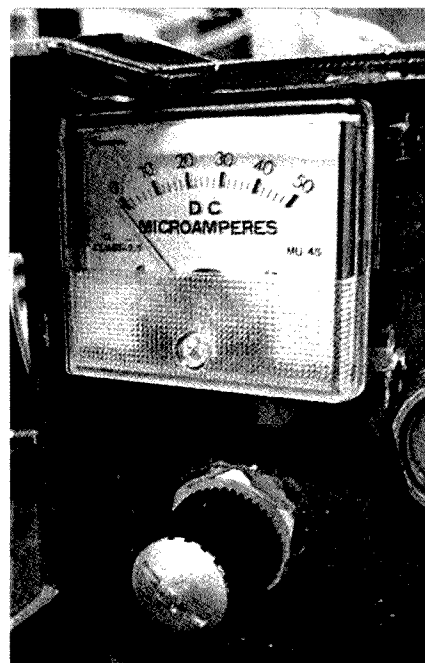


Photo 3: The tuning indicator meter itself.

Plan NOW for JOTA/JOTI 2011!

Contact your local Scout or Guide group.

# VK5news Adelaide Hills Amateur Radio Society

David Clegg VK5KC, AHARS President

Much is happening at the club.

The July meeting was a talk by Andrew Russell VK5CV. Andrew works as a cardiologist and spoke of the similarities between the human cardiovascular system and radio transmission. It is amazing to see how the heart and vascular system looks like a radio transmitter and feedlines even down to blood pressure which can be likened to VSWR.

It has become a regular activity at our meetings to invite a member to talk on their life in amateur radio. July's presenter was Wally, VK5TW. Wally has been on the air since the 1960s and had a great story to tell.

Several of our members were successful at recent licence upgrades. Paul VK5PH conducted a course over several weeks and all candidates were successful in moving to Standard or Advanced. We also have one new F call awaiting his licence. Congratulations all. Club membership now stands at 140, which is about average for this time of year.

Back in January the Club started negotiations with the Blackwood Guides to have use of a vacant shed on their property. The lease was signed in early May and renovations commenced then. The place was rewired, insulated, walls and ceiling Gyprocked, and an airconditioner installed. Not forgetting two 75 mm pipes in the ceiling for coax feeds or, as some suggested, 'exhaust outlets for the V8 generator'. Recently carpet tiles were laid and paving completed outside under the verandah. Many hours of volunteer labour has gone in to the renovations. We have received several cash donations along with donations of such things as lights, first aid kit and a refrigerator.

We want to use the Shack for training, committee meetings, club projects and activities. The adjacent Guide Hall is unfortunately not large enough for our regular meetings which will continue to be held at the Belair Community Centre. The official opening will be on Saturday, 3 September. This will be carried out by a local club identity. All amateurs,

spouses, friends and relatives are invited to be present at 2 pm, at Hannaford Road, Blackwood. Parking is a little tight, so we suggest that visitors park on Main Road and walk the short distance to the hall. The official name is 'The Shack'. The original Blackwood Radio Club, which operated in the 1920s and 1930s had a club station by the same name, so we thought it right to carry this on. The site of the old Blackwood Radio Club 'Shack' was only about 500 metres from where we are now. They sometimes had a Saturday night dance, but I do not think we will follow this tradition.

The club August meeting will be a show and tell night.



Photo 2: Barry VK5TW tiling at the 'Shack'.

Members can bring along their favourite project and be prepared talk about it. September will be a talk on vector analysis by Graham Dicker, and October will be our construction night.

A reminder that Sunday, 20 November will be the club Hamfest, held at the Goodwood Community Centre, Rosa Street, Goodwood. All the usual commercial vendors will be in attendance along with much pre loved equipment. NERC will provide their usual BBQ and ALARA will feed the hungry hordes as well.

The Club holds an extensive library of DVDs recorded at meetings. These are presently being re catalogued, please check the website [www.ahars.com.au](http://www.ahars.com.au) for details. DVDs can be purchased for \$10 posted in VK.

AHARS has undertaken a sister club relationship with the Darwin Amateur Radio Club. The idea is to foster closer ties, as VK5 and VK8 were once part of the same division of the WIA. AHARS members are asked to listen out for DARC operators and have a contact and vice versa; perhaps improve your station so you can make it on to the DARC callback after the Sunday broadcast. We will be providing some DVDs of our lectures to the Darwin group to supplement their meetings.

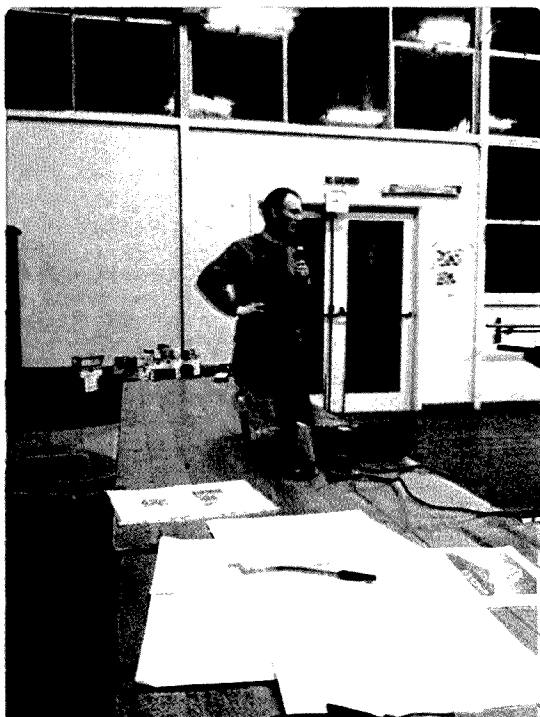


Photo 1: Andrew VK5CV.

# AMSAT

David Giles VK5DG  
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## Space shuttle satellites

At 0157 UTC on 20 July, the space shuttle Atlantis landed at Kennedy Space Centre. It was the end of a 30 year era of space travel of triumph and tragedy. Seeing as this is the AMSAT column, we will be looking at some of the shuttle's satellite missions.

I will leave it to others to chronicle the 37 missions to build the International Space Station, the tragedies of Challenger and Columbia, and ignore the secret missions for the Department Of Defence. Most of the early shuttle mission's main goals were to launch commercial and government satellites. After the Challenger explosion in 1986 the commercial market went elsewhere and the shuttle was used for scientific

missions. Of these, the Hubble space telescope took up six missions with the initial launch and five grease and oil changes [1].

## Versatility

The space shuttle or, more properly, the 'Space Transport System', was in many ways a utility vehicle - it transported stuff to space. It also retrieved stuff from space. It was used to work on stuff in space as well. With the big cargo hold it was more like a ute or delivery van than a sports car or people mover. The space shuttle carried many commercial, government and military satellites into orbit. Since the shuttle could only go to relatively low altitudes, most of these satellites needed a booster rocket to get them to geostationary orbit.

During the science phase, roughly between Challenger and building the ISS, many experiments were carried in the cargo hold. But some were made satellites in their own right. SPARTAN was a 1.5 m cube used for solar observations that lifted out of the cargo bay by the remote arm and set free. After being a satellite for a few days it was retrieved and stowed back in the cargo bay. Another was the LDEF (Long Duration Exposure Facility) [2]. This bus sized craft contained 57 experiments and had to be repaired in space before leaving Challenger in 1984 (STS-41C). In 1990, with only one month left before re-entry, the LDEF was retrieved by Columbia (STS-32). In 1995 Japan launched their SFU (Space Flyer Unit) using an H-2 rocket from Tanegashima.



## AMSAT-VK

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**Group site:**  
[group.amsat-vk.org](http://group.amsat-vk.org)

## About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

## AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

**In New South Wales**  
VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

**In Queensland**  
VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

**In South Australia**  
VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

**In Tasmania**  
VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

**In the Northern Territory**  
VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

## Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

It had an infra-red telescope as well as other experiments. After 10 months in space it was retrieved by Endeavour (STS-72).

In 1984 Challenger (STS-41B) had the first untethered space-walks where Bruce McCandless and Robert Stewart became the first men to become satellites.

The last big satellite carried by a shuttle was the Chandra X-ray telescope by Columbia in 1999 (STS-93) [3]. Chandra is still in use and has an elliptical orbit that takes it 133,000 km away. Apart from the Hubble Space Telescope and Chandra, the Compton Gamma Ray Observatory was launched in 1991 by Atlantis (STS-37). At a mass of 17,000 kg, it was the heaviest payload flown at the time. It also has the reputation as the NASA's first intentionally controlled de-orbit.

### Interplanetary Satellites

NASA launched three interplanetary probes from the shuttle. In 1989 Atlantis (STS-30) launched the Magellan probe to Venus. Magellan had only one instrument – a synthetic aperture radar that was used to create a three dimensional map of Venus' surface [4]. Also in 1989 Atlantis (STS-34) launched Galileo to explore Jupiter [5]. The story of Galileo could fill a book with its trials of getting a launch and antenna problems and eventual success. It was originally scheduled to be launched in 1982 and again in 1986 but the Challenger incident stopped that. In 1989 it was launched, but by using a smaller boost rocket it had to make a fly-by past Venus. This brought Galileo closer to the Sun than designed. Also the main antenna did not unfurl properly for reasons that will never be known. Despite being crippled Galileo achieved most of its goals and spent eight years around Jupiter and its moons. In 1990 Discovery (STS-41) launched the Ulysses probe to go around the Sun's polar regions [6]. The Ulysses mission was different in many ways. First Ulysses was sent to Jupiter to use Jupiter's enormous gravity to flip it from orbiting around the Sun's equator (like the planets

do) to the Sun's south pole. Then it would orbit over the north pole then back out to Jupiter's orbit. Ulysses did this three times so was able to measure the sun during solar maxima and minima. But Ulysses didn't have any cameras. It also didn't have any solar panels. Since both Galileo and Ulysses went out as far as Jupiter where the Sun's intensity is 1/25th of that we get on Earth, solar panels would be impractical. Like the Pioneer and Voyager spacecraft before, Galileo and Ulysses were powered by radioactive thermal generators, using decaying plutonium to provide heat and electricity. After 19 years of operation the generator output was too low to keep Ulysses warm so its mission ended. Imagine putting a machine with 8 kg of Plutonium in a space shuttle today.

### Amateur Satellites

Now, moving onto all the amateur related satellites launched. The first was the Petite Amateur Naval SATellite PANSAT (PO-34) [7]. Launched from Discovery in 1998 (mission STS-95) PANSAT was a digital microsat that used spread spectrum techniques. Unfortunately the details of the special modem to use the satellite were not widely published and so very few would have been able to use it. In 2005 Discovery took to the ISS a suitcase shaped object called the MISSE (Materials International Space Station Experiment). The MISSE was attached to the outside of the ISS to expose various materials to the harsh space environment. Part of this suitcase was an amateur radio communications package called PCSat2 [8]. Like PCSat (NO-44) PCSAT2 was a digital APRS transponder with uplinks on 10 m and 2 m and a downlink on 70 cm. The whole MISSE experiment was autonomous with PCSAT2 providing telemetry. After about a year in space the package was retrieved and brought back to Earth on the shuttle Atlantis (STS-115). While not a separate satellite as such, PCSAT2 was used by many amateurs worldwide.

The same people that created PCSat and PCSAT2 also were involved with the next amateur satellites from the shuttle. In 2006 Discovery (mission STS-116) launched RAFT (NO-60), ANDE (NO-61) and FCal (NO-62) after visiting the ISS [9, 10, 11]. RAFT was a cubesat with an APRS transponder on 10 m and 2 m. Its main mission was to receive radar pulses on 217 MHz to aid in its tracking. RAFT lasted about five months before re-entry. ANDE (Atmospheric Neutral Drag Experiment) was a 48 cm diameter aluminium sphere with no solar panels or antennas. It was designed to be tracked using lasers and telescopes to determine the atmospheric density as it de-orbited. It had reflectors and six on-board lasers. They managed to wrap a slot antenna around the circumference and fit it with a TNC similar to PCSAT. FCal was also a spherical satellite similar to ANDE but had a cubesat inside it. After a quick look through my log book notes, I heard RAFT and ANDE but not FCal.

In 2009 Endeavour (STS-127) launched a cluster of satellites using amateur frequencies [11]. Castor and Pollux were similar to ANDE in that they were spherical satellites used to measure Earth's upper atmosphere. They were the same size as ANDE but Castor had a mass of 50 kg and Pollux only 25 kg. The different masses gave different orbit characteristics. Both sent telemetry using 2 m packet. DRAGONsat consisted of two satellites, AggieSat2 and BEVO-1. The mission was to have these separate and then rendezvous using GPS for navigation. The mission was only partially successful.

### Last Journeys

So where will they rest? Discovery will go to the Smithsonian's National Air and Space Museum at Dulles International Airport, Washington DC. It will replace the space shuttle Enterprise which will move to the Intrepid Sea-Air-Space museum in New York City. The Enterprise was the test shuttle that was used for atmospheric test flights and was

never flown in space. Atlantis will remain at the Kennedy Space Centre in Florida and Endeavour will go to the California Science Centre in Los Angeles.

### Final Pass

I have no doubt that some of you reading this may have been to the USA and seen shuttle memorabilia or even witnessed a shuttle launch. Also you may have been saddened by the end of the shuttle era. The only object that I have seen up close from the above column is the

Japanese SFU. It now resides in the National Museum of Nature and Science in Tokyo.

### References

- [1] [http://www.nasa.gov/mission\\_pages/shuttle/shuttlemissions/index.html](http://www.nasa.gov/mission_pages/shuttle/shuttlemissions/index.html)
- [2] <http://setas-www.larc.nasa.gov/LDEF/index.html>
- [3] <http://chandra.si.edu/>
- [4] <http://www2.jpl.nasa.gov/magellan/>
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- [7] <http://sp.nps.edu/pansat/>
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# VHF/UHF - An Expanding World

David Smith VK3HZ  
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## Weak Signal

### Aircraft enhancement

Even though the band conditions are fairly quiet, aircraft enhancement will always be a possibility for long distance contacts. Barry VK3BJM writes of his recent experiences:

*I wanted to let you know about the experiment Colin VK2BCC, Arie VK3AMZ and I have been conducting over the last month. Working into the Blue Mountains area, using the Melbourne > Sydney aircraft track, has been almost impossible from here in Kyneton - the track is too far to the east of our signal path to support AE. Well, a combination of observations by Colin and myself has revealed the method.*

*Back on the morning of 9 June, towards the end of the morning AEP 'window', I noticed that an Airbus A330 (QFA575) flying from Sydney to Perth had tracked down the Sydney > Melbourne path to the ACT. It then changed course to 263 degrees. This takes it across just north of Holbrook, Yarrawonga, Echuca, exiting VK3 between Kaniva and Bordertown. The flights to Perth do this occasionally, not constantly. I had observed this path in use before, and made observations on the resultant*

*enhancement window created for the Mildura and Adelaide two metre beacons - described in 'VHF/UHF An Expanding World' in November, 2008. The track also provided me with my first two metre contact with Peter VK5ZPG, documented in the Jan/Feb, 2009 edition of the column.*

*The aircraft had only just changed course and looking at my ADS-B screen, I thought it would be worth trying to work Colin, who was logged into the VK Logger at the time. I sent him a few messages, but as luck would have it he was away from his computer and so we missed the opportunity. The aircraft did provide a 56 contact at 2347 UTC with Peter VK5PJ on 144.100, so it wasn't completely wasted.*

*There followed an email discussion between Colin, Arie VK3AMZ and I about trying this out with more intent. It was agreed that when an aircraft was seen on the path, Colin would run a CW keyer.*



Figure 1: Aircraft enhancement paths.

*The keyer would send a short burst of CW, then pause for Colin to listen for responses. Over the next couple of weeks though, the aircraft flew a number of paths to Perth - any path, it seemed, except the one we wanted. Mostly they tracked west out over Katoomba and West Wyalong; sometimes it was down the track to Melbourne, only changing course when they neared Mansfield, bringing them across a little to the south of my QTH.*

*Whilst we were being frustrated by this, Colin identified exactly how and why the route changes were taking place, and how we could be as informed as the pilots. I had*

suspected that the decision was based on a meteorological factor, but Colin identified that it was the location of favourable (read fuel/dollar-saving) winds that was 'sealing the deal'. This BOM link gives us the map to monitor what is going on, and whether it is worthwhile getting up in the morning:

<http://www.bom.gov.au/australia/charts/viewer/index.shtml?type=windbarb&level=200hPa&tz=AEDT&area=Au&model=A>

1 July was our first chance with a favourable chart. Sure enough, VOZ553 and QFA575 took off from Sydney within 10-15 minutes of each other, and turned right at the ACT. Colin ran a keyer, which appeared out of the noise as the aircraft moved from 56 to 55 degrees from me. (The Logger has Colin at 54.9 degrees from me.) The enhancement lasts about a minute and a half - Colin's signal drops out when the aircraft is at about 53 degrees from me. (My ADS-B receiver will not resolve down to minutes and seconds, so I cannot be any more precise than that.) Both VOZ553 and QFA575 flights use A330, so they are a decent size - better than a B737, for sure. In fact, I think almost all the Sydney-Perth QANTAS and Virgin flights run A330s. QANTAS also runs a 747 on the route, once daily, which is even better for those who might be in the shack around midday. A Jetstar B737 that took the route only generated 41 signals, at the same height as the A330.

The two flights were at 40000', and most of the flights along the path are at that height. We have had one day where they flew at 32000', and it seems we do not have mutual visibility at that altitude. Our path is 666 km, if the calculator on the Logger is to be believed.

Colin runs 100 watts to a single 12-element Yagi (unsure of his feedline/loss), and appears as a reasonably consistent 51 signal. My signal appears mostly at the 52 mark.

We have now repeated this exercise a number of times, all with the same favourable result, except for the day when the A330 was tree-hopping at 32000'.

The enhancement also works for

Arie VK3AMZ, who is a little bit south of Melton. Arie naturally sees Colin a few minutes before I do and, due to the path geometry, Arie's AE window to Colin is quite separate to mine. The 'hotspot' is around Cookardinia, just NNW of Holbrook.

Weather permitting, it would be well worth others to the west of Melbourne, Ballarat, Geelong and Bendigo, for instance, giving this a try out. I am interested in getting Ian VK3AXH to attempt it - Colin tells me Ian is on the same beam heading from Blackheath as myself. The big question is whether Ian is too far over the Great Divide to see the aircraft.

I would also like to see if the same aircraft would support AE into the area to the west of the Blue Mountains, to Orange, Bathurst, etc.

### Aircraft enhancement paths

It is good to see Barry and company investigating the use of AE for paths where a contact would not otherwise be possible. Rex VK7MO is carrying out similar AE experiments looking at aircraft flying across the path between him and VK3. The only flight that is visible to both ends and flies across the path is an Air New Zealand flight that goes directly from Auckland to Perth once per day, but not every day. Unfortunately, the flight path of the aircraft varies significantly from day to day, one day flying as far north as Tullamarine Airport and another day sneaking through by flying almost directly over Rex's QTH in Hobart. In about two weeks of attempts, only once has the aircraft been a) flying; b) with ADS-B so we could 'see' it; and c) flying down the middle of Bass Strait. Much patience required!

### GippsTech 2011

Another GippsTech has been held and, once again, it has shown itself to be one of the premier events for VHF/UHF/Microwave enthusiasts. Many excellent presentations were given ranging across the most diverse aspects of the hobby covering bands from six metres to 10 GHz and beyond. Thanks to those volunteers who gave their time to organise and run the event, and thanks to all the presenters who have

provided much food for thought!

One aspect of GippsTech that I do enjoy is the chance to catch up face-to-face with like-minded people. The informal Friday night dinner, Saturday dinner and the breaks during the day provide a chance to exchange ideas and hear about people's projects. This year, it seems that many people are working on microwave transverters, many based on the no-tune kits from Graham VK3XDK. Many are also talking about frequency locking of rigs and transverters, hoping to eliminate one uncertainty when trying to make a microwave contact.

If you have not attended a GippsTech, then pencil in the second week in July, 2012 (date to be confirmed) for a visit to Gippsland.

### Beacons

One piece of information gleaned from the discussions at GippsTech is that the local Gippsland beacons have been getting a major makeover in recent times. Ralph VK3WRE writes:

*Some information on the VK3RGI beacons in Gippsland QF31ip. Recently, Jim VK3ZYC, Michael VK3ALZ and I completed the antenna work at our beacon site. We now have new antennas on all bands from two metres to 3 cm at a height of 15 metres.*

*The microwave beacons are up and running with the exception of the 3.4 GHz unit which is still under construction.*

*The two metre beacon runs 10 watts into a Halo. 70 cm has 10 watts into 4 phased Yagis. 23 cm has 10 watts into an Alford slot. 13 cm runs 10 watts into a slotted waveguide.*

*5.7 GHz is a one watt unit locked to a 10 MHz rubidium reference with waveguide feeding the slotted waveguide antenna. 10 GHz is running 1.2 watts locked to the 10 MHz rubidium reference with waveguide feeding a slotted waveguide antenna. The 5.7 and 10 GHz beacons are CW keyed with a one minute key down period and 30 seconds of CW.*

*All the beacons have the allocation .434 e.g. 2403.434 MHz, 5760.434 MHz.*

*The 10 GHz beacon has been*

'seen' by Colin VK5DK over a 500 km path. Hopefully many more DX reports will come in.

We also have VK3RED on two metres in east Gippsland, at Donalds Knob, which has been running nicely for the past two years. VK3RED was installed to encourage ZL operators to look a bit further south to Victoria. VK3RED is on 144.436 MHz 10 watts CW.

### Home microwave activity

There are an increasing number of stations who now have a permanent microwave setup at their home QTH. Alan VK3XPD, Russell VK3ZQB and Colin VK5DK have been having regular QSOs on 10 GHz for over a year, and they are now working on 24 GHz systems.

In Gippsland, Rod VK3BQJ is now operational on 10 GHz and 5.7 GHz. He writes:

*After endless problems with rain and wind and more rain and more wind, I finally have the new 10 GHz gear up. It is running five watts to an 850 mm dish and GPS locked. The IF is an (unlocked) FT-290R. The VK3RGI beacon is pushing S9 since the recent rework.*

*With encouragement from Ralph VK3WRE and Jim VK3ZYC, I have got JT65c going and have worked Ralph over a 125 km path. Signals were almost SSB level on the night we tried two-way, shack to shack - I had seen him before one way. I am also seeing Jim but no two-way as yet - dish pointing problem at Jim's end and big pine trees. I am still learning the finer points of JT65c but starting to look at working a bit further.*

*I also have 5.7 GHz running - 10 W. to a one metre dish, GPS locked.*

### Stop press: Activity on 76 GHz

Michael VK3KH and Alan VK3XPD set what is believed to be the first VK 76/78 GHz distance record over a path of 1.51 kilometres in the Melbourne suburb of Cranbourne on

the morning of Wednesday August 3, 2011. I am sure that we will have more details in due course.

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

## Digital DX Modes

Rex Moncur VK7MO

### 432 MHz FSK441

Congratulations to Adrian VK4OX and Arie VK3AMZ on completing a 432 MHz QSO using meteor scatter propagation on 31 July over a distance of 1447 km, which is believed to be the longest distance 432 MHz meteor scatter contact in VK and probably only the second 432 MHz meteor scatter contact in VK. Adrian VK4OX reports as follows:

*On 30 July between 1830 UTC and 1910 UTC (Sunday, 31 July, 0430-0510 local time) I completed a successful FSK441A QSO with Arie VK3AMZ on 432.360 MHz. We used WSJT4 FSK441A because I believe it decodes shorter pings better than WSJT9.*

*We started at 1828 UTC and I was well on the way with a 900 ms burst at 1831 UTC. A few more pings and then an incredible 1500 ms 24 dB burst at 1857 UTC. Finally, a solid ping at 1909 UTC. Arie received my RRR at 1910.30 UTC.*

*The Delta Aquarids is hardly a great shower. We were just using it as preparation for the Orionids in October. I was not at all confident. We started on the previous Thursday morning, but Arie was having trouble receiving. On Friday morning I got 10 pings in an hour and a half but Arie was still in trouble. Saturday morning I received 7 pings in an hour and a half but still we could not complete. By Sunday morning Arie had things under control and we completed in about 40 minutes.*

*When I was in Sydney signing VK2FZ, I did have a 432MHz FSK441*

*QSO with Rex VK7MO, on 12 December, 2004, (Geminids). I think that was the first ever FSK441 QSO on 432MHz in Australia. I don't know if any other 432MHz meteor scatter QSOs on any other mode have ever been made. I would be interested to know. This QSO with VK3AMZ, QRB 1457 km, is my best distance so far.*

*Clearly, 432MHz FSK441 is a realistic proposition during shower activity.*

### 144 MHz FSK441

Welcome to Kevin VK4UH who has joined in the weekend 144 MHz meteor scatter activity sessions on 144.230 MHz and completed with Arie VK3AMZ.

### ISCAT-A

While ISCAT-A is still an experimental mode it can be downloaded at the following URL:

[http://www.physics.princeton.edu/pulsar/K1JT/WSJT9\\_r2433.EXE](http://www.physics.princeton.edu/pulsar/K1JT/WSJT9_r2433.EXE)

The original version of ISCAT is now called ISCAT-B. ISCAT-B is designed for ion-scatter and meteor scatter on six metres. ISCAT-A is specifically designed for microwave aircraft scatter and works well up to 10 GHz.

### JT65a - Tropo-Scatter

JT65a is the most sensitive mode for tropo-scatter on VHF, being 1.2 dB more sensitive than JT65b. Rex VK7MO in Hobart runs JT65a skeds on 144.225 MHz most weekday mornings beaming towards Melbourne at 07:30 am Vic/Tas local time with Jim VK3II and Peter VK3SO. Peter VK3TPR and Richard VK3RR also join in. Other stations are welcome to join in, just call up or down 500 Hz to clear any contact in progress and once you are seen you will be called in.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)



## WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)

# Contests

Phil Smeaton VK4BAA

## Contest Calendar for September 2011 – December 2011

September	2/3	All Asian DX Contest	SSB
	2/3	Region 1 Field Day	SSB
	11/12	Worked All Europe DX Contest	SSB
	17	Westlakes Cup	SSB, DSB, AM
	24/25	CQWW RTTY DX Contest	RTTY
October	1/2	Oceania DX Contest	SSB
	8/9	Oceania DX Contest	CW
	22/23	ARRL International EME Competition	CW/SSB
	29/30	CQWW DX Contest	SSB
	29/30	CQWW SWL Challenge	SSB
November	12/13	Japan Intl. DX Contest	SSB
	12/13	Worked All Europe DX Contest	RTTY
	19/20	ARRL International EME Contest	All
	26/27	Spring VHF/UHF Field Day	CW / SSB / FM
	26/27	CQWW DX Contest	CW
	26/27	CQWW SWL Challenge	CW
December	2/4	ARRL 160m Contest	CW
	4	RTTY Melee	RTTY
	10/11	ARRL 10m Contest	CW/SSB
	17	OK DX RTTY Contest	RTTY
	Dec 2011 to Jan 2012	Ross Hull Memorial VHF Contest (VHF/UHF)	CW / SSB / FM

### SOSB40 Low Power

VK8AV 131,716

### IARU Contest

The bands were not the best I have seen for a while during this contest. 10 m did not seem to do anything noteworthy, whilst 15 m periodically raised a myopic eyelid but did not open hugely for prolonged periods. 20 m was reportedly either 'dire' or 'wonderful' according to where the reporter was located and when the band was utilised.

Steve VK3TDX made just under 700 Qs for a claimed score of about 652,000. Steve found 40 m to be nice and quiet for a change and put it to good use towards the end of the contest. VK5WIA (VK5CP) snared around 600 QSOs for a claimed score of just over 193,000.

Laurie VK7ZE was in the contest and had a weekend of mixed feelings to say the least. Laurie's main antenna could not be raised above 6 m as winds in excess of 100 kmh prevented this. The temperature did not help either, as the shack remodelling made for a larger space that required heating. Maybe if the ACMA could see their way to raising the VK licence power limit for CW, waste heat from an amplifier could be employed to thaw out Laurie's fingers! Laurie bagged just over 1200 Qs for a claimed score of a little over 740,000 points. A superb effort.

Steve VK6IR was in the contest, experiencing some strange band conditions over the weekend. 40 m was reportedly very poor on Saturday evening, but there was a good, short to EU on 20 m. By 0000 UTC Steve had managed to get to 460,000 points and thought that the contest was looking very promising. Unfortunately however, Steve spent Sunday working a few JAs on 15 m and listening to Laurie working long path EU stations that he could not even hear. The secret appears to be temperature related Steve – try contesting in the nude and locate the

Welcome to this month's Contest column.

### Westlakes Cup

Hot on the heels of the All Asian DX Contest, Region 1 Field Day and Worked All Europe, the Westlakes Cup is scheduled to spark up the 80 m band with some inter-VK RF on 17 September. The full rules are elsewhere in this magazine, but this year features two bonus stations – one in VK2 and one in VK4. Sitting on a frequency and calling 'CQ' is not the go for this contest as a QSY of at least 5 kHz is required before calling 'CQ' again. The contest is only an hour's duration, so QSO time is limited. A 'cloud warmer' antenna is likely to be the best for this contest, so do not bother climbing the tower to tweak the twin five element 80 m beam stack as it is likely to be time poorly spent.

### 2011 WPX CW Contest – Claimed Scores

The claimed scores are out! VK has featured nicely in the listings, with an excellent smattering of VK CW being put to good use. Well done – I might see you in the melee in 2012, if I can polish my CW skills a bit.

SOAB High Power

VK4CT 5,531,242 (VK4EMM)

VK2IM 4,909,116

VK3TDX 3,088,416

VK2PN 952,840

VK7GN 692,545

### SOAB Low Power

P29CW 1,392,516 (VK2GR)

VK3FM 148,716

VK4TT 79,980

VK7NET 715

### SOSB15 Low Power

VK4EJ 35,192

### SOSB40 QRP

VK2CCC 133,446



station within a chest freezer to simulate Laurie's VK7 conditions. Don't bother emailing a picture of the station though Steve. Thanks.

Catherine VK4GH was on briefly and grabbed 64 QSOs but the tally featured a bevy of 21 HQ stations.

John VK4EMM was operating as VK4CT and netted over 1200 Qs for a claimed score of a bit over 1,122,000 points. John reported suffering from strong winds during the contest. John also reported mixed band conditions, but 40 m was the pick of the crop. 80 m provided good openings to NA and Asia, but only a few takers for Zone 55. John just needed a small opening on 10 m the reach a personal best for this contest, set in 2002, but that was not to be.

### BERU results

The Radio Society of Great Britain (RSGB) created the British Empire Radio Union (BERU) in the late 1920s to support radio amateurs in the Empire. In 1930 a New Zealand radio amateur suggested that a week should be set aside as an 'Empire Radio Week' and that this should be held in February, 1931. This was the first BERU Contest. The contest proved to be very popular and has been held annually since then. It became known as the Commonwealth Contest in 1973. The 2012 contest will be the 75th.

No entry from Team New Zealand this year and, of the others, only Team Rest of the Commonwealth managed to field all their registered players.

### Open Section VKs

Pos	Callsign	Score	QSO	BCA	80 m	40 m	20 m	15 m	10 m
11	VK2BJ	6285	557	99	34 25	149 48	248 47	109 40	17 15
34	VK6DXI	4205	389	79	37 14	107 41	144 28	94 23	7 7
42	VK4XY	3685	233	79	12 12	62 32	103 37	33 27	23 18
43	VK4BUI	3615	207	86	9 9	44 32	88 35	45 34	21 19
47	VK2NU*	3375	295	57	19 18	59 34	165 19	47 20	5 4
52	VK6BN	2920	188	67	29 17	103 40	44 30	9 9	3 3
79	VK4SN*	1900	144	35	13 12	40 33	91 14	0 0	0 0
84	VK6AJ	1760	88	47	0 0	31 26	29 16	22 18	6 6

\*=12 hour section

### Restricted Section VKs

Pos	Callsign	Score	QSO	BCA	80 m	40 m	20 m	15 m	10 m
13	VK4OQ*	2540	144	67	8 8	41 29	58 31	36 22	1 1
16	VK6HG	2350	118	61	11 10	42 30	38 25	23 19	4 4
69	VK8AV*	915	51	22	0 0	51 33	0 0	0 0	0 0
80	VK2EL*	640	32	17	2 2	6 6	19 11	5 5	0 0
105	VK4TGL*	200	8	6	0 0	4 4	4 4	0 0	0 0

\*=12 hour section

### Team Contest

1	Rest of the Commonwealth	65572	C4Z, J68PJ, J88DR, P3J, VP2MXF, VP2V/G3PHO, VP8NO, ZB2EO, ZC4LI, 8P6DR						
2	Canada	63055	VO2AC, VE3EJ, VE3KI, VE3OI, VE3ZI, VE3KZ, VO1TA, VY2SS						
3	Australia	46508	VK2BJ, VK2IM, VK4BUI, VK4SN, VK4XY, VK6BN, VK6DXI, VK8AV						
4	UK	45485	G0IVZ, G6MC, G3LET, G3WPH, G5LP, G6PZ, GM0GAV, GM3POI, G0KPW						
5	Africa	36899	V51YJ, 5X1NH, 9J2BO, ZS1EL, ZS6KR, ZS6C, 5H3EE, 5N7M						
6	Asia	6215	9M6/VO1AU and VU2UR						

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share,

then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au). See you on the bands.

73 de VK4BAA.



# The Westlakes Cup 2011

*Leonie McGuinness VK2FHRK, Contest Manager, Westlakes Amateur Radio Club Inc.*

**Date:** 17 September, 2011.

**Time:** 1030 UTC to 11.30 UTC

**Band:** 3.535 to 3.620 MHz

**Mode:** SSB, DSB, AM.

**Maximum Power:** 100 watts, Standard and Advanced licensees, 10 watts Foundation licensees.

**Rules:** All stations to call "CQ Westlakes Cup." Exchange shall be operator's name and a signal report. After a contact is made and reports exchanged, the station that had called "CQ" must QSY at least 5 kHz before calling again. There will be no sitting on a frequency and working a "pile up."

**Valid Contacts:** Only VK or special prefix (AX, VI) Australian stations may be worked.

**Points A:** There will be two BONUS stations operating in the contest. The BONUS stations are those that hold the cup from last year's contest. The BONUS stations are worth one point

for the QSO plus three bonus points and may be worked twice, once in each half hour. For 2011 the BONUS stations will be VK4ZD/BONUS and VK2FHRK/BONUS.

**Points B:** Amateur radio club stations taking part are worth one point for the QSO plus one bonus point. Club stations may only be worked once.

**Points C:** All other stations are worth one point and may only be worked once.

**Points D:** SWLs can claim the same points as transmitting stations.

**Contest Procedure:** At 1015 UTC on 3.585 MHz +/-QRM, BONUS

station VK2FHRK shall make an announcement outlining the contest rules and greeting participants. Any questions will be answered at this stage.

**Contest Logs:** Should contain the following: **Cover Sheet** showing the entrant's call, name, station address, email address (optional), points claimed, and the declaration, "I declare I have operated within the rules and spirit of the contest and in compliance with my licence conditions."

**The Log** should show: UTC time, station worked, call, the name of the operator of the station worked, and

exchanged signal reports.

**Awards:** Inscribed cups shall go to the stations with the highest points - one cup for the Standard/Advanced section winner and one cup for the Foundation section winner. The two winners will be the BONUS stations for next year's contest. Certificates will be awarded to first, second, and third place getters in each section, Standard/Advanced, Foundation and SWL.

**Logs should be sent to:** The Contest Manager, Westlakes Amateur Radio Club Inc, Box 3001, Teralba, NSW, 2284. The closing date for logs is Saturday, 29 October, 2011.



# Winter VHF-UHF Field Day 2011: Results

Contest manager: John Martin VK3KM

The Winter Field Day saw a good level of activity, although participation was down in some of the colder parts of the country!

An interesting feature is that three of the sections have been won by VK5 stations, and this time the rover section was dominated by VK2

stations. Congratulations to all for braving the elements.

Call	Name	Location	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
<b>Section A: Single Operator, 24 Hours</b>													
VK5ZD	Iain Crawford	PF95, PF96	33	339	585	912	770	840	610	930	320	-	5339
VK5TX	Ben Hennessy	PF95	25	366	500	432	-	-	340	-	-	-	1663
VK3VCL	Wayne Bruce	QF22	-	525	495	512	-	-	-	-	-	-	1532
VK4TGL	Gerard Lawler	QG61, QG62	65	270	425	-	-	-	-	-	-	-	760
VK5AR	Alan Raftery	PF95	56	279	370	-	-	-	-	-	-	-	705
VK3VL	David Harms	QF33	-	186	165	-	-	-	-	-	-	-	351
VK2FWB	Fred Baker	QG50	-	204	135	-	-	-	-	-	-	-	339
<b>Section B: Single Operator, 8 Hours</b>													
VK5KK	Dsvid Minchin	PF95	27	231	315	632	210	700	460	560	-	-	3135
VK3XPD/4	Alan Devlin	QG62	21	153	175	392	330	220	220	220	210	-	1941
VK5NI	John Ross	PF85, PF95	34	198	250	272	330	320	220	210	-	-	1834
VK3QM	David Learmonth	QF21	33	207	280	304	220	220	220	330	-	-	1814
VK3KH	Michael Coleman	QF21	-	357	280	400	340	-	-	220	-	-	1597
VK5TX	Ben Hennessy	PF95	23	297	440	400	-	-	330	-	-	-	1490
VK4GHZ	Adam Maurer	QG61	37	252	260	312	340	-	-	-	-	-	1201
VK3YFL	Bryon Dunkley-Smith	QF22	48	183	220	304	-	-	-	340	-	-	1095
VK3HY	Gavin Brain	QF22	60	111	175	272	-	-	-	320	-	-	938
VK4ADC	Doug Hunter	QG61	64	168	265	312	-	-	-	-	-	-	809
VK4CZ	Scott Watson	QG62	-	222	215	-	-	-	-	-	-	-	437
VK4JAZ	Grant McDuling	QG62	-	61	45	-	-	-	-	-	-	-	106

<b>Section C: Multi Operator, 24 Hours</b>													
VK5LZ	Elizabeth ARC	PF94, PF95	40	432	480	728	-	730	590	690	-	-	3690
VK3ALB		QF21	57	558	555	680	410	220	220	380	-	-	3080
VK4WIS	SCARC	QG63	133	549	470	552	-	-	-	-	-	-	1704
VK4WIE	CBRS	QG62	103	408	510	528	-	-	-	-	-	-	1549
VK2BOZ		QF68	98	405	530	304	-	-	-	-	-	-	1337
VK3YVG	Yarra Valley ARG	QF22	84	219	295	-	-	-	-	-	-	-	598
VK1MAT		QF44	28	195	180	-	-	-	-	-	-	-	403
<b>Section D: Multi Operator, 8 Hours</b>													
VK3ALB		QF21	46	384	330	448	340	220	220	330	-	-	2318
VK4IZ	RDRC	QG62	52	168	260	320	340	210	220	210	220	-	2000
VK3BJA	GGREC	QF21	21	174	180	-	-	-	-	-	-	-	375
<b>Section E: Home Station, 24 Hours</b>													
VK3MY	Ross Keogh	QF22	78	393	465	592	380	-	-	-	-	-	1908
VK3VFO	Nick Kraehe	QF31	62	588	670	384	-	-	-	-	-	-	1704
VK4VDX	Roland Lang	QG62	47	396	520	528	-	-	-	-	-	-	1491
VK5NE	Paul Roehrs	PF95	66	312	475	536	-	-	-	-	-	-	1389
VK5AKM	Keith Minchin	PF95	36	69	210	424	-	590	-	-	-	-	1329
VK5TE	Simon Brandenburg	PF94	-	252	365	392	-	-	-	-	-	-	1009
VK5LD	Dale Loffler	PF96	43	288	315	344	-	-	-	-	-	-	990
VK2NR	David Porter	QF56	40	198	300	440	-	-	-	-	-	-	978
VK3BQ	Andrew Scott	QF22	22	219	280	360	-	-	-	-	-	-	881
VK5AIM	Steve Mahony	PF95	41	174	255	384	-	-	-	-	-	-	854
VK2EI	Neil Sandford	QF68	38	192	150	184	210	-	-	-	-	-	774
VK4KLC	Ron Melton	QG62	63	282	390	-	-	-	-	-	-	-	735
VK3NFI	Dean Webster	QF31	31	243	175	200	-	-	-	-	-	-	649
VK1JA	Jayson Meli	QF44	27	306	170	-	-	-	-	-	-	-	503
VK5FPAW	Paul Schulz	PF95	-	204	285	-	-	-	-	-	-	-	492
VK3WAM	Wayne Merry	QF22	-	198	265	-	-	-	-	-	-	-	463
VK5VAB	Bruce Gauci	PF95	35	183	225	-	-	-	-	-	-	-	443
VK3TOM	Tom Steadman	QF31	32	183	215	-	-	-	-	-	-	-	430
VK2AWX	Hunter Radio Group	QF57	51	171	180	-	-	-	-	-	-	-	402
VK1PAR	Al Long	QF44	15	213	120	-	-	-	-	-	-	-	348
VK4ZW	Raymond Buck	QG62	23	108	190	-	-	-	-	-	-	-	321
VK4EV	Ron Everingham	QG62	37	141	-	-	-	-	-	-	-	-	178
<b>Section F: Rover Station, 24 Hours</b>													
VK2GG	Dan Joyce	QF56, QF57, QF58, QF67, QF68	117	354	590	936	-	1170	1170	1170	1170	1170	7847
VK2TRF	Jack Swart	QF56, QF57, QF58, QF67, QF68	117	354	590	936	-	1170	1170	1170	1170	1170	7847
VK5ZT	Tim Dixon	PF84, PF85, PF86, PF94, PF95, PF96	33	375	615	888	760	1040	320	930	320	-	5281
VK2TDN	Dave Nelson	QF55, QF56	82	348	565	688	560	-	-	470	-	-	2713
VK2CQ	Dave Maloney	QF55, QF56	73	330	530	640	560	-	-	460	-	-	2593

**Notes**

- VK1MAT Matthew Bowman VK1MAT, Shane Goodwin VK1MAD
- VK2AWX Hunter Radio Group: VK2SH Geoff Wrightson, VK2FWJL Wayne Lawrence, VK2FERM Craig Murnane, VK2OI Michael Clarke, VK2FA Grahame O'Brien, VK2VV Graham Brice, VK2CLH Charles Hunt
- VK2BOZ Cris Perrett VK2BOZ, Doug Tufrey VK2FWWD, Brenda Taylor VK2FSMI
- VK3ALB Lou Blasco VK3ALB, Nik Presser VK3BA, Peter Westgarth VK3APW, Jenni Blasco VK3FJEN, Michael Blasco VK3FMIC
- VK3YVG Yarra Valley Amateur Radio Group: VK3ABJ, VK3PPC, VK3DAC, VK3VWW, VK3HKB
- VK3BJA Gippsland Gate ARC: Mike Ide VK3KTO, Graham Brown VK3BXG
- VK4IZ Redcliffe and District Radio Club: Kevin Johnston VK4UH, Colin Hutchesson VK5DK/4
- VK4WIE City of Brisbane Radio Society: VK4MJF, VK4KSY, VK4CRO, VK4NE, VK4FABD
- VK4WIS Sunshine Coast ARC: Glenn VK4FSCC, Richard VK4RY, Ches VK4WT, Bill VK4XZ, Geoff VK4KEL, David Carr
- VK5LZ Elizabeth ARC: VK5ADE, VK5KX, VK5AKH



# ALARA

Margaret Blight VK3FMAB – Publicity Officer

Some of you may wonder why sections of the news in this article seem a little dated. I can only extend my apologies to everyone who missed the ALARA column in last month's magazine. We rely so much on technology these days and when something as simple as sending an email becomes fraught, then the commonplace begins to crumble. I have learned, to my horror, that while emails and responses to emails have been flying off my computer at their usual rate, none of the messages were actually arriving at their destination. As a result, last month's ALARA news left its home address and disappeared into some mysterious place in cyber space. Information technicians have yet to discover the cause and/or the cure for this peculiar symptom. So I have my fingers crossed about the next column arriving and have taken steps to ensure all goes well this time.

So dear readers you are being given a combination of the last and the present month's ALARA column. I hope you enjoy it.

Recently the OM and I enjoyed a brief trip to Bright which was beautiful in late autumn, and later travelled on to Alexandra to stay with friends. We both noted how lovely the countryside looked and how enjoyable it was to see the greening of the landscape after so much drought in country Victoria. While in Alexandra we were taken to visit the town of Marysville. This was the first time we had been there since the terrible bushfires of 2009. It is possible to watch the regrowth struggling to emerge in the surrounding countryside while some signs of renewal are evident in the centre of the town. However, it is very much a work in progress. We should not forget how much such disasters are affecting our country cousins.

I learnt that although there are still day visitors arriving, few are

staying overnight. The Bakery Café offers a good place to stop for a drink and snack and it is interesting to note the efforts being made to rebuild some of the homes that were lost. We were given the information that over 350 houses were lost during the fire and at present 144 houses are somewhere between foundation to completion. We could see the temporary accommodation that many families were still living in and realize there is much more to be accomplished to return Marysville to a semblance of what it once was, a very popular tourist destination.

We met up with the local Postman who also runs the Post Office and adjoining gift shop. He can even rustle up a nice cup of coffee. Sadly he could not recall seeing any signs of radio amateurs on his rounds (no aerials, apparently) even before the fires.

We would like to encourage anyone thinking of visiting this area to call in to Marysville and support the local businesses.

## News from VK2, from Dot VK2DB

Dot informs us that she and her OM John VK2ZOI went to the Port Macquarie Field Day over the weekend. What a wet and sloppy time they had there! 'It rained, actually bucketed down all the way up and, although driving straight, the car aquaplaned a few times. Thank goodness we had a nice warm, cosy motel room to bunk down in on arrival. I'd guess that over 50 Field-dayers attended the dinner at the golf club on Saturday night; beaut meal, great company with lots of chatter and laughs. On Sunday, the ALARA table was set up at the Tacking Point Surf Club right beside two very nice OMs from VK4 ICE Communications. They had a beautiful purple aerial, not my frequencies but I would have loved it anyway! Purple is my colour, which I

demonstrated by showing them my purple mobile phone.

Carol VK2FCRS was on her table on the opposite side of the room and we were able to have the occasional chat, always great to meet up with Carol. The 'lady at the door' was Ailsa Brooke VK2FABJ who is extremely good at CW. I would like her to meet Pat VK3OZ and Lyn VK4SWE on air one day. I am sure they would all enjoy the contact - maybe the ALARA Contest. Ailsa used to live in WA and sends her good wishes to Bev VK6DE.

From the surf club we could look out across the ocean, and watched a pod of whales frolicking as they went north. Oh, they were gorgeous! They spouted, belly flopped and turned circles. Missed getting photos, was too slow, so stopped trying and just enjoyed watching them.

Coming home on Monday we left in heavy rain and aquaplaned down to Taree. About 10 km south of Taree the rain stopped, the road was dry and there were shadows, not exactly sunshine but very close. Rain started again near Newcastle and we arrived home in a torrential downpour. We had thought of continuing up to Queensland to see our son and our grandchildren after the meet as we usually do, gee I'm glad we didn't.



Photo 1: The ALARA table and Maria VK5BMT.

Ian would have been delighted to have us until the floods cleared and would have found a lot of work for us to do - digging trenches.

Maria VK5BMT was in Sydney to see her grandchildren and we managed to squeeze in a day together. I took her to Brooklyn to sit and watch the boat traffic on the Hawkesbury River while we ate hot salty fish and chips. The weather was terrible and we sat fogging up the car, plus there was not a lot of activity on the river. After lunch we were able to go for a short walk between showers.

For the last few weeks I have frequently been taking my step father-in-law to doctors and hospitals. At one visit, while in the doctor's surgery I tried to ring OM John to look up some paperwork for the doctor but he did not answer the phone. I had 2 m in my handbag so called him on the local repeater. He answered straight away, found the information and boy, was the doctor impressed! The next 10 minutes were spent explaining about amateur radio.<sup>1</sup>

*Well congratulations Dot, not only have you given us a great example of how true radio enthusiasts will persist in their activities despite inclement weather, you also give a great example of creating an opportunity to demonstrate the practical use of amateur radio.*

### News from VK3

At the recent AGM of the Eastern & Mountain District Radio Club, Jean VK3VIP received a Certificate in appreciation of her ongoing contribution in providing drinks and refreshment at the Club's meetings. We certainly agree Jean deserves recognition for her dedication.

### News from VK5

Christine VK5CTY has sent news about further volunteer community work by radio operators. The June long week-end brings the Marathon Canoe Club of SA premier event, the Riverland Paddling Marathon (RPM). The RPM incorporates the Murray 200, the Murray 200 Relay, the Murray 100 and the Riverland mini-marathon. The three day event runs from Berri to Morgan with a portage each night.

Jenny VK5FJAY takes part along with other radio amateurs. She finds it very useful for the radio exams they are struggling to prepare for. Lea VK5FKSA is the YL who started the Scout Radio Activity group several years ago and is the caretaker of ALARA'S Florence McKenzie Trophy.

The Scout Radio Activities Group (SA) (SRAG) provided hand held radio communication at water level along the 200 km stretch of the river. Typically the SRAG team consists of about 20 people who provide radio checkpoints as well as setting up and operating a communications system and van.

Four ladies helped run the communication van, and also at check points - getting up very early (0500) to be on the water's edge by 0600 to 0630 to send back the boat numbers to the communications van, which was based at Waikerie until the last day when it was moved to Morgan for the finish.

### EchoLink - The radio you're using when you've got no antennae

*Shirley VK5YL*

Like a lot of amateurs I didn't find this wonderful hobby until later in life, long after full time work and twins. Others of our ilk found this hobby very early in life and now live in homes where it is impossible or impractical to erect an antenna of any kind. How to keep our licence and still talk to the world?

I'm fortunate in that we have a G5RV antenna stretched across our block and am able to contact people world-wide, but had a problem when I first tried to contact my sponsor in Canada (who belongs to CLARA, of course). I belong to ALARA and joined back in 2001 when the air waves were not much good, so my friend June told me. 'They will get better' she kept telling me until now the sun spots seem to be in our favour. I eventually made HF contact with VE1PK Audrey and VE3DBQ Minnie after four months of trying every week. Audrey then suggested that I try EchoLink. Well, as Audrey is many years my senior and was able to give me some help, I thought 'if she can do it then so can I'. So

I finally downloaded the EchoLink programme.

You have to have a current licence as your name and credentials are checked with a real person, not a computer. This website will take you directly to the EchoLink information and download page - <http://www.echolink.org/> You now have the means of communicating world-wide with any amateur via the computer and/or a two metre station. The link via computer is very easy and all you need is a microphone and speakers. If you prefer to use a two meter radio, it must have a DTMF keypad. This keypad allows you type in the IRLP node number which will connect you to a repeater somewhere in the world, hence locally to any user operating on that station (CQ Chicago, CQ Chicago...). We once had a QSO with a friend in the UK via that medium.

Like HF, one can only contact another station if they happen to be logged in to the software, the same as switching on your own rig. Only call signs and the QTH are displayed on the EchoLink screen which is more information than via HF normally. Oh yes, EchoLink or IRLP does not cost anything to join and use, so just download the programme on to your computer.

So, have a go and join in the fun. Catch you further down the log.

*Thanks for the information Shirley I hope a number of our readers do follow your advice and 'Give it a go'.*

### Handy workshop hints

My OM Andrew VK3FBA has for a number of years been an Electronics Service Technician, now recently retired. Readers might be interested in some of the suggestions and hints he has gathered to make life a little easier when attempting any repairs to equipment.

- Nothing has ever been fixed by randomly twiddling preset pots, trimmers or coils. If you have the overwhelming urge to do so, then mark the initial position with a fine felt tip pen so some sort of order can be restored when you finally decide to start looking for the real reason it doesn't work.



Photo 2: Soldering class at EMDRC.

- Use plastic caps from aerosol cans as temporary screw holders while you are working on something. If they are all kept together it saves the loss of that one vital screw.
- Acetone and cotton buds are a good way to clean circuit boards and they are cheap as well. Much less expensive than commercial flux remover.
- If it isn't broken, don't fix it.
- If you don't know how to solder, then learn before you decide to start on your \$1000 radio. Soldering is a trade skill, it is not intuitive. Get some old circuit boards from a scrap TV or VCR and practice soldering and de-soldering using solder wick. (Enquire at your radio club if/when they may be running a demonstration course on soldering. A course was run at the EMDRC in Melbourne which was very well received and half the participants were female operators).
- A small plastic fruit juice bottle makes an ideal soldering sponge water container. The type I refer to has a push down locking top, so if it goes over sideways it doesn't spill. I suggest keeping it behind the soldering iron so the tip-wiping sponge can always be wet.
- If it's too hot to touch, it's too hot!
- The first rule of fault finding is "check the power supply".
- The second rule of fault finding is "check the power supply" etc. etc.
- If your VCR or DVD doesn't work and you have young children (or grandchildren visiting) then remove the top cover and have a look inside – there's a good

chance you will find a foreign object. I have found coins, plastic toys from McDonalds, vegemite and peanut butter toast, fruit sticks, teething rusks, and sundry other items.

- Remember, it is only a hobby. There is great satisfaction in completing a successful repair, so good luck.

## News from the ALARA President

Tina VK5TMC and OM Robert VK5ZHW have just returned from a six week trip to the United States and the Bahamas.

*Our trip was fairly busy, starting in Atlanta, Georgia and driving to Dayton for the Hamvention. The Dayton Hamvention was amazing, as always. We caught up with lots of friends and made many others. Of particular note were Connie DF8FM and Horst DL2GA from Germany and Lois WB3EFQ, president of YLRL and Anne WB1ARU, past president and organiser of the YLRL convention in Boston this July, Ann Nutter VE3HAI, president of CLARA and Nancy KC4IYD who I sponsor into ALARA. We shopped until we dropped but did not find much that was worth risking excess luggage charges to buy. We had dinner every night at various local eateries with different groups. It was a fun three days.*

*In Chattanooga, Georgia we saw Ruby Caves, a cave with a 44.5 metre water fall which is 335 metres under the surface. The cave had lots of stalactite and stalagmite formations which were beautiful.*

*We visited Glen Ridge, Tennessee which was the Second World War secret site where a lot of the design work was done on the atomic bomb. At one time there were 70,000 people working at a secret site and they pretty much keep it a secret. The museum was very well presented.*

*We headed for Washington DC next using minor highways to see a bit more of the countryside than you do on the freeways. We used the Metro train system to get into the centre of Washington DC the next two days. The weather was very*

*hot but we did manage to see the Aerospace Museum and do a tour of the area. We also went into Union Station for lunch one day. Two days of city were enough for us and we headed out to Chesapeake Bay for a bit of sightseeing on our last day in the area.*

*We stopped at Shenandoah Caverns on Saturday which was another magnificent cave. There is also a Float Museum with lots of floats from parades around America at the caverns which was very interesting.*

*The Sunday found us on the Blue Ridge Parkway which is a scenic byway from Shenandoah National Park in Virginia to Smoky Mount Park, Tennessee built as part of the recovery efforts during the depression. A lot of the parkway is on top of the range of mountains that run between the two parks. We didn't get very far in a day but we were amazed by the constant dark green of the area and the beauty*

*We arrived back in Atlanta on the Monday evening and happily returned the car early. Driving through Atlanta there was, at times, 12 lanes of traffic going in one direction and we hit the city about 5.30 pm. Talk about a hick from Australia being out of her depth. We again used the public transport, this time called MARTA, to go into the city going to the World of Coca-Cola and the aquarium. How many flavours of Coke are there and we could try them all if we wished and the aquarium was amazing, being the largest in the world, so the Yanks say! The weather continued to be hot.*

*Orlando was our next stop. We headed for the west coast of Florida which was an interesting drive making for DisneyWorld Hollywood Studios on the Monday, which was also one of the hottest days we had. Tuesday we headed for Kennedy Space Center early so we could see as much as possible. We were not disappointed! We chose the longer tour and were able to get just a mile from the launch site with a space shuttle sitting on it ready for the last shuttle launch in July. We put in a full day enjoying the two IMAX*

3D shows about the Space Station and the Hubble Telescope and the launch simulation. We decided to return the next day on our way to Fort Lauderdale to see what we had missed, including the Astronaut Hall of Fame. It was a little out of our way but well worth the diversion.

Our next stop was Fort Lauderdale for two nights. We went to downtown Miami to do a cruise around the port seeing some of the homes of the rich and famous. They were certainly impressive but all I could think of was why anyone would pay up to 58 million for a place where people ride past in tour boats every few minutes to gawk at you. Most were totally exposed to the water and nose people like us.

We arrived in good time for the cruise and after what seemed like a million checks and sign-ins we were on board. Nassau was interesting and the Pirates Museum was very well presented. But it was very hot and humid. I said before we left we would buy no white t-shirts as we have far too many but we each bought three for \$10 because the heat was getting to us and we needed cooler clothes.

Next we were off to Las Vegas. We walked down the Las Vegas Boulevard to Casino Royale and then took the monorail back to close to the hotel. It was really hot - over 38. I set out to lose \$1 on the slot machines and with Robert's help we won \$3.

Our trip finished with a week in Seattle for a family reunion and visiting a friend from Adelaide who had moved there 10 years ago. The weather in Washington state was quite a bit cooler and we were thankful of the cool change.

Now, for the September news...

### Update on YL International Meet 2012 – from ALARA President TINA VK5TMC

We now have the final price for the YL International Meet next year in Adelaide. The price of the Ghan tours are less than the estimates: \$4500 per person for the nine day adventure and \$3100 for the seven day adventure. All prices are now

firm. If for some reason you are unable or just do not want to do all of the meet just let me know which parts you want to do and we will organise everything from this end.

I believe I have sent an updated invoice to everyone who has registered. If you did not receive the invoice please contact me as my computer system is running really badly at the moment.

I have been asked to get a price for the motels without breakfast, which is a saving of \$15 or \$16 per person for a full cooked breakfast, depending on the motel.

I am in the process of trying to work out a time(s) to have an EchoLink sked(s) using the ALARA station to allow us to chat. I am thinking that we would have to have several times to allow most people to be able to get in at a reasonable local time. I have decided on the second Tuesday of the month, which is 9 August, at the three times listed in the chart below. Hopefully that will give a time which is suitable for most who want to touch base with those attending the meet. You don't have to have questions or concerns although we will certainly deal with any that come up in conversation. If no one is there after 10 minutes we probably won't be there by a quarter past the hour.

The times, all UTC, are 0500, 1100 and 2200.

If you are thinking about what else you can/will do in Australia while you are here there are some free travel brochures to download at [www.travelbrochures.com.au](http://www.travelbrochures.com.au) You can check everything out at <http://www.ylinternational2012.com> I hope you are all working on your plans for the meet and looking forward to it as much as I am.

### News from VK3

The Eastern and Mountain District Radio Club (EMDRC) enabled an educational workshop to be run at the clubrooms on Sunday, 10 July. The topic was to learn how to make an antenna using the most basic materials. On the day the participants learnt how to make a working antenna using wire coat hangers and a broom handle or tomato stake. Jean VK3VIP and Margaret VK3FMAB were present and very interested in what was taking place and listened with interest to the experiences of members who had put such antennas successfully to work.

On 16 July Gippsland Gate Radio & Electronics Club (GGREC) held their annual HamFest at the Cranbourne Public Hall. This is an event that draws a good attendance



Photo 3: L to R - Susan VK3UMM, Pat VK3OZ, Michi VK3FMGE, Jean VK3VIP, Diane VK3FDIZ, Maree VK3FSAT, and Naree.

and in a gesture of goodwill a number of ALARA members volunteered for kitchen duty. The weather was fine which encourages even more friendly contact. A camera opportunity managed to capture some of the ALARA members on the day.

A number of ALARA members and their OM's from the EMDRC club attended a 'Christmas in July' evening at the Mountain View Hotel. A good time was had by all and it is gratifying to be able to eat traditional Christmas Fare when the weather was cold.

## News from VK2, from Dot VK2DB

Dot sends us information on an interesting ALARA member. She says in her own words...

'I think Joan VK3BJB has been a great ambassador for YLs in radio. Earlier this year Joan received a letter from Japan and was pleasantly surprised to find it was from a friend she hadn't heard from for almost 20 years. Atsumi Haraguchi, 72, and Joan had their first contact in the early 1970s but over the years had lost contact. In fact when she received the letter, although the name felt familiar, she had to go through her

log to work out who he was. Their last contact was in 1994 and as Atsumi was working overseas and couldn't be on radio, they had not communicated since. Atsumi had heard of the terrible floods earlier this year and was so worried that he decided to write to make sure she was OK.

Joan's radio life has been anything but dull. Over twenty years ago she heard a distress call from a Japanese yachtsman off the coast of north Queensland. She kept in contact with him almost non-stop for three days while a rescue helicopter organised a tow-line to a game fishing boat which towed him to safety. The yachtie and Joan made world news then and again four years later when he visited Melbourne and was able to meet her.

Joan learnt to speak Japanese because she spoke to so many Japanese fishermen and others on the maritime mobile net on air. She even became a full-time Japanese maritime net controller. One of Joan's memorable contacts was with Ray 9M2TR and because her OM was Ray, this new Ray was called Ray Junior. Later she found out that Ray Junior was actually His



Photo 4: L to R - Jean VK3VIP, Micheline VK3FMGE, Cristina VK3FCRS, Margaret VK3FMAB and Carla.

Royal Highness Prince Tunku Abdul Rahman, one of the sons of the Sultan of Johore.

One of her regular Japanese radio contacts wanted to have a full white Australian wedding and asked Joan to arrange it in Mildura where she lives - most Japanese who come to Australia for their wedding want it held in Cairns or the Gold Coast. Joan arranged the whole lot, even the wedding dress and the local council put on a special civic reception for the newlyweds.

Joan spent so much time talking to ships captains, airline pilots and policemen that she was made an honorary member of the Salt Lake City, Utah, Police Department.'



## Silent Key Neil Trainor VK3IJ

Neil was born at Jeparit in 1924. He died on 22 July, 2011 just a few days after his eighty-seventh birthday.

Neil was an enthusiastic member of the Wireless Institute and of the Old Timers. Apart from amateur radio, one of his main interests was the design and building of pipe organs.

I quote a contribution from Bill Magnusson VK3JT, who has had a longstanding association with Neil: "We first met at the then Footscray Technical College, later to become the Footscray Institute of Technology and still later the Victoria University. Neil was working as a technician in the audio/visual department and we became firm friends at our first meeting.

Neil was heavily involved at a technical level in the first experiments using redundant US communication

satellites as vehicles for interactive classroom lectures between US Colleges and the FIT. That was in the late 1960s and was, I believe, an Australian first. His WW-2 radar experience fitted him very well for this exercise.

In later years Neil and I spent time heavily involved in the radio club at RAAF Williams Base, Laverton. Neil started and ran the AOC classes for many years. I was helping him to run the Novice classes at that time when Brenda VK3KT, the then WIA Education Officer asked us to help in what became a long-term project to completely revamp the AOC examination question database. Neil was always a stickler for theoretical accuracy and his input was vital to that project.

Since retiring to Milawa in north-east Victoria, Neil and I retained our friendship via amateur radio and many personal

meetings with him and his wife Anne on my visits to Melbourne. Sadly Neil's health had not been the best for a number of years and a series of strokes ended his active amateur days earlier this year. We kept in touch by phone until shortly before his confinement to 24 hour care. Neil will surely be missed for his warm friendship, his dogged pursuing of fine technical detail and above all his readiness to help others".

Neil leaves a wife, Anna, sons Bart and John, and a daughter Marianne. We extend our condolences to them all.

Vale Neil.

Contributed by Brenda Edmonds VK3KT and Bill Magnusson VK3JT.





# Pierce Healy VK2APQ, Honorary Life Member of the WIA, is 100 years old!

*Peter Wolfenden VK3RV – WIA Historian*



*Photo 1: Pierce Healy at VK2MZ, the Hurstville Amateur Radio Club station, c. 1936. Courtesy of Pierce Healy VK2APQ.*

VK2APQ and the name Pierce Healy are well known within Australian amateur radio circles.

In the past, Pierce was very active in the WIA at both State and National levels, but perhaps he is best remembered amongst the 'old-timers' for his regular 'Amateur Radio Notes' which were published monthly in *Radio and Hobbies* (Est. 1939) – changing name in the 1950s to *Radio, Television and Hobbies* and still later becoming *Electronics Australia* (1965). The column, originally written by Bill Moore VK2HZ, was continued by Pierce for about 20 years resulting in his notoriety not only within Australia but by virtue of the magazine, he was also well recognised overseas, often being greeted as a well-known friend by foreign amateurs on the air.

Prior to WWII, Pierce was an associate member of the WIA. The Hurstville District Amateur Radio Club had difficulties finding a suitable home for its station VK2MZ and Pierce offered the use of a shed in his back yard. The war intervened, all amateur stations were closed

down and Pierce became deeply involved in aircraft design and production at Hawker De-Havilland where he remained for some 30 years, finally ending up in planning and management.

Although having sat for an amateur licence prior to the war, Pierce never actually received it due to the outbreak of WWII. It was not until 1958 that time permitted him to re-sit the licence exams and as VK2APQ he became quite active, initially on VHF. He designed and built his own equipment which was proudly used on many field days and for working two metre DX.

Pierce joined the NSW VHF and TV Experimenters Group and the rest, as they say, is 'history'! After a two year term as WIA NSW President and VK2WI newsreader, Pierce went on to be VK2 Federal Councillor attending some 10 Federal Conventions. He was also involved in the Disposals Committee activities of the NSW Division which made surplus WWII equipment available to many Australian amateurs. Pierce was a proponent for establishing the IARU Region 3 organisation in 1968 and was also heavily involved with the Youth Radio Club Scheme.

*Photo 2: VK2APQ April, 2011. Photograph by Peter Wolfenden VK3RV.*



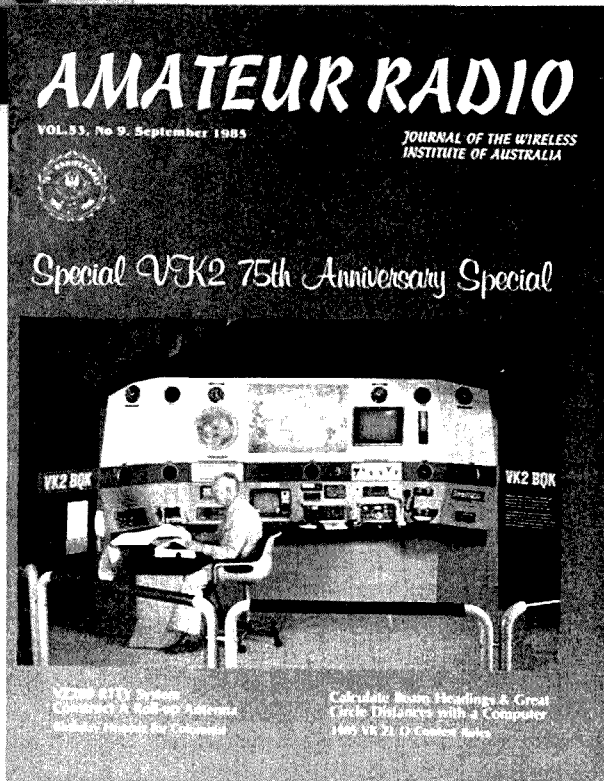


Photo 3: WIA 32nd Federal Convention and Inaugural Meeting of IARU Region III at Sydney, April, 1968. Pierce Healy VK2APQ had just welcomed delegates, including those from overseas, to Sydney. He is standing to the left of Federal President, Maxwell Hull VK3ZS. Source WIA Archive.

He also had an interest in RTTY and the ANARTS (RTTY) group.

A friendship developed between Pierce and Dick Smith resulting in involvement with the 1981/1982 Dick Smith Explorer Mawson operation and other Dick Smith activities. Pierce was also involved with the amateur radio station VK2BQK at the Museum of Applied Arts and Sciences. In 1985 VK2BQK moved from Ultimo to the new Power House Museum. A major re-design of the station took place and Pierce became the station's custodian, overseeing the extensive works carried out by museum staff and volunteers that were necessary to re-establish the popular station.

Photo 4: Front cover of AR, September, 1985 featuring Power House Museum Station VK2BQK.



## THE WIRELESS INSTITUTE OF NEW SOUTH WALES.

WIRELESS CALLS. 1ST OCTOBER, 1912.

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A A C Cooma	D Z N Zieten	M K R Beltana	P O M Melbourne L.S.	W H L Ventura
A A G Peregrine	I D I Warilda	M K V Remoura	P O P Fremantle L.S.	W H J Sierra
A A K Kyarra	I D J Wangilla	M M D Maiwa	P O S Sydney L.S.	Members of the Wireless Institute of N.S.W. licensed stations
A A L Levuka	I D K Willochra	M M E Mantua	Q P K Cambrian	X Q General Call for Amateurs
A A N Kanowna	I D N Waimana	M M F Morea	Q R D Challenger	X A B Arnold, A. S.
A A R Riverina	I D O Pakeha	M M G Egypt	R F C Drake	X A D Bostock, W.
A A S Westralia	I D P Rangatira	M M H Moldavia	R J K Encounter	X A E Elliott, A.
A A U Ulimaroa	I D Q Kiaora	M M J Mongolia	S A D Dorset	X A R Miani A.
A A V Victoria	I D R Mamari	M M L Macedonia	S A G Argyllshire	W H I Sonoma
A A W Wimmera	I D S Matatua	M M R Mooltan	S A I A.S.W.	W H L Ventura
A A Y Wyreema	...	M M U China	P O H Hobart L.S.	
A A B Bombala	DWR Wismar	M K Q Ballarat	P O M Melbourne L.S.	
		M K R Beltana		

Photo 5: 1912 Wireless Institute of NSW Wireless Calls listing. Courtesy of Pierce Healy VK2APQ and Ian O'Toole VK2ZIO - Kurrajong Radio Museum.

Regrettably the station has now closed and has been replaced by a computer display!

Pierce has contributed a great deal to the progress and documentation of our hobby not only through his magazine articles but in a number of other very positive ways. Perhaps one of his more interesting and significant contributions goes back to the time he joined *Radio and Hobbies*. Neville Williams VK2XV was Editor and when clearing out an office previously occupied by John Moyle - but earlier by Ross Hull, Technical Editor of the pre-cursor to *R&H, Wireless Weekly* (Est. 1922) - Neville discovered behind a filing cabinet, a framed listing of Wireless Stations. This was produced by the Wireless Institute of NSW in 1912 - our first printed list which included amateur stations in NSW. Neville gave it to Pierce and recently Pierce handed it on to the Kurradjong Radio Museum for safe keeping. Ian O'Toole VK2ZIO of the museum, has supplied a scanned copy of this first known published listing of Australian Wireless Stations to the WIA Archive; a significant contribution by Pierce to our history.



Photo 6: Pierce at Kurradjong Radio Museum 15 August, 2009. Courtesy of Ian O'Toole VK2ZIO - Kurradjong Radio Museum.

Pierce is a man who had (and still has) definite views about amateur radio, its significance and where the hobby is heading. So if you happen to hear VK2APQ on the air, wish him well and thank him for his significant contributions to amateur radio in this country.

*Author's note: The article is based on an interview with Pierce Healy VK2APQ in April, 2011. Additional information was supplied by Ian VK2ZIO, Tim VK2ZTM and David VK3ADW. His actual birthday is believed to be 14 August.*

Photo 7: VK2APQ was custodian of the Power House Museum Station VK2BQK. Courtesy of Ian O'Toole VK2ZIO - Kurradjong Radio Museum.

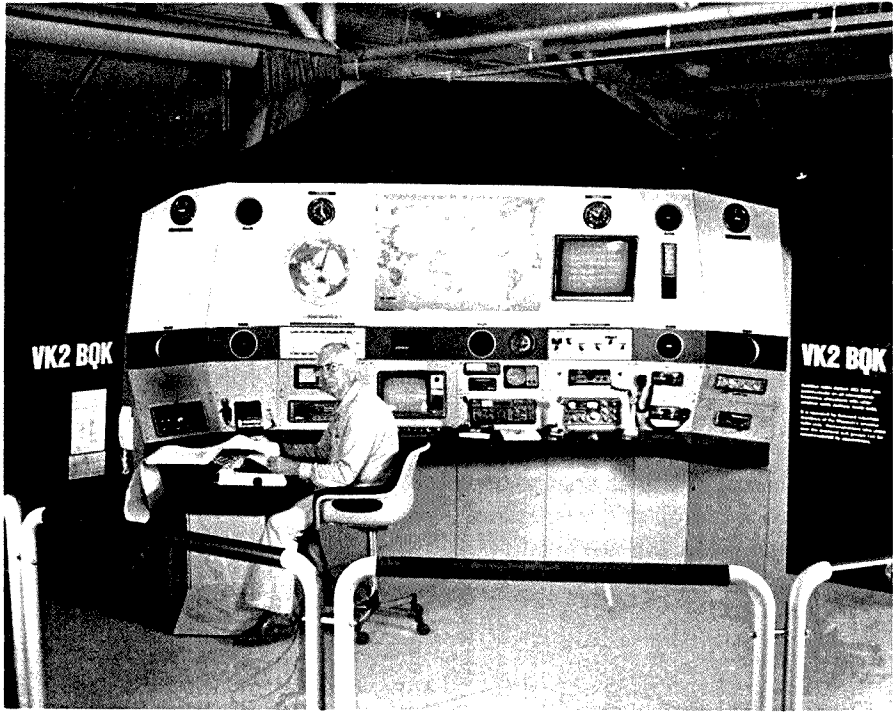
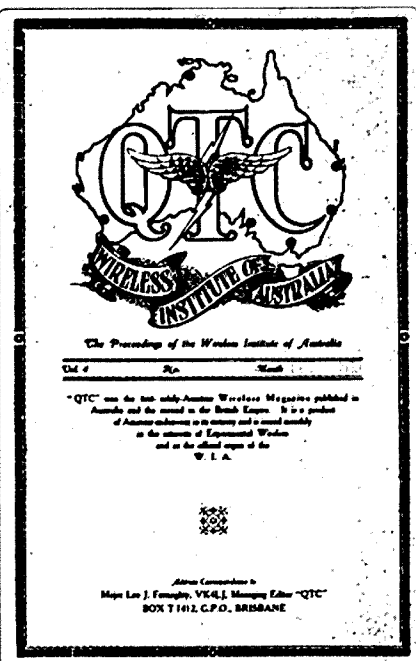


Photo 8: First page of article on Power House Museum Amateur Radio Station.



# Hamads

## WANTED – NATIONAL



**Early copies of QTC magazine.**  
The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves.

QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire!

The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only.

Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.

## FOR SALE – VIC

Radio Projects for the Amateur - Volumes 1 - 4 are back in print by popular demand. Practicable plans for the construction of receivers, transmitters, antennas and couplers, test equipment, with lots of workshop notes, prepared by Drew Diamond, VK3XU.

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## FOR SALE – NSW

Tilt tower, 11 metres to the top of centre pole. Has 144, 432 and 1296 long yagis, rotator and some cable. Contact Glen Jennings VK1GL, on 02 6254 8002.

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YAESU FT-107 circuit diagram. Contact Malcolm Sinclair VK2BMS, phone 02 9958 1114 or email [vk2bms@bigpond.com](mailto:vk2bms@bigpond.com)

## FOR SALE – SA

The popular VK5JST Antenna Analyser kits are still available through the South Coast Amateur Radio Club. Improve your HF antenna efficiency by building yourself, arguably, the most useful item for your shack.

See [www.scarc.org.au](http://www.scarc.org.au) or contact SCARC, PO Box 333, Morphett Vale, SA. 5162. Alternatively email [kits@scarc.org.au](mailto:kits@scarc.org.au)

## WANTED – WA

An 'old' mechanical CW bug key, whether working or not. This bug uses a piece of weighted spring steel. Alternatively does anyone have the article which gives construction details and plans to make one from metal?

Bill VK6LT QTHR or [vk6lt@wia.org.au](mailto:vk6lt@wia.org.au)

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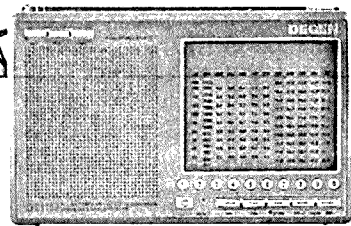
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*56 ITU Radio Regulations*

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("Nominated Member")*

## GippsTech 2011 - A personal review

Continued from page 7

Coax 'fly leads' for interconnecting UHF-SHF gear, in both flexible and hardline models, are obtainable at really cheap prices by the handful at field days, GippsTech events and from sellers on the web. I have accumulated a considerable assortment in recent years and Neil's presentation not only taught me a lot, but has given me the confidence to tackle the job of modifying my coax fly leads to suit my purposes.

'Mr Digital', Rex VK7MO, has done a lot of work chasing aircraft enhanced contacts in sorties up and down the eastern states. Rex's presentation on 'Comparisons of aircraft scatter at 144, 432, 1296 and 10 GHz' detailed his well-considered investigations and observations, and offered some sage advice on pursuing multi-band portable contacts on the VHF and microwave bands via this mode.

Rex's lecture on 'DX strategies for 10 GHz' shared the thinking behind the attempts that he and partner stations

went through to gain some remarkable (even 'world-ranked') DX successes. This should serve as a 'see this before starting down this road' kind of roadmap for 3 cm tyros.

Ron VK3AFW's presentation on 'Doppler shift estimation for 10 GHz aircraft enhancement' proved quite an eye-opener. While both voice and digital modes can be used successfully for 10 GHz AE, digital modes offer greater opportunities ... if Doppler is taken into account, especially if the aircraft path crosses at an angle to the direct path between station locations. Geometrically, it is a rather more complex problem than it appears at first glance. However, knowing what to expect under a range of circumstances has a bearing on choice of modes to succeed in making contacts.

I leave the review of my two presentations for others.

I am still poring through the Proceedings of the 2010 GippsTech Conference, which I picked up over the weekend.

## Some extracts from ALARA News by Margaret Blight VK3FMAB – Publicity Officer



Jean VK3VIP with certificate.

At the recent AGM of the Eastern & Mountain District Radio Club, Jean VK3VIP received a Certificate in appreciation of her ongoing contribution in providing drinks and refreshment at the Club's meetings. We certainly agree Jean deserves recognition for her dedication.



Four ladies helped run the communications van during the Scout Radio Activities Group (SA) effort in support of the Riverland Paddling Marathon. The team members were up very early (0500).

Left to right: Lea VK5FKSA, Jenny VK5FJAY and Bia.



Antenna workshop at EMDRC.

Margaret VK3FMAB and Jean VK3VIP enjoying the antenna building workshop held at the Eastern & Mountain District ARC clubrooms. The task was to build an antenna using very basic materials – wire coat hangers and a broom handle or garden stake. Jean is busy hammering the kinks out of the coat hanger wire, with the assistance of some of the other club members.

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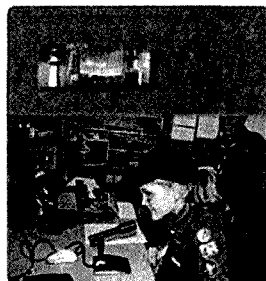
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### *This month's cover*

*The JOTA/JOTI event is almost upon us, scheduled for 15 and 16 October. Bob VK6POP gives some important tips for the event in his story on page 6. Our cover this month features a young Scout at the microphone being watched by another member of her Troop. From their expressions, it is clear that they are having fun using amateur radio. Photograph by Bob Bristow VK6POP. We also have a small*



*selection of photographs from the International Lighthouse and Lightship Weekend. Read the reports inside this issue.*

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Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome.

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*Examination Officer* Dianne Ashton VK3FDIZ

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Ewan McLeod VK4ERM

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*Clubs* Ted Thrift VK2ARA

*Contests* Craig Edwards VK8PDX

*John Moyle Field Day* Denis Johnstone VK4AE

*Editor 'AR'* Peter Freeman VK3PF

*EMC/EMR* Gilbert Hughes VK1GH

Keith Malcolm VK1ZKM

*Standards* Gilbert Hughes VK1GH

David Wardlaw VK3ADW

John Bishop VK2ZOI

*NTAC* John Martin VK3KM

*Historian* Peter Wolfenden VK3RV

*IARU Region 3 Liaison* Chris Platt VK5CP

*Monitoring Service* Peter Young VK3MV

*International Travel Host* John Miller VK3DJM

#### ITU Conference & Study Group

David Wardlaw VK3ADW

Keith Malcolm VK1ZKM

Brett Dawson VK2CBD

Dale Hughes VK1DSH

*QSL Curator* National Office

*Repeater* Peter Mill VK3ZPP

*Webpage* Robert Broomhead VK3DN

#### Emergency Communications Group

*Coordinator* Phil Wait VK2ASD

*Members* Ewan McLeod VK4ERM

Peter Young VK3MV

# Editorial

Peter Freeman VK3PF

## Callbook 2012

It is early September as this issue of *Amateur Radio* is prepared and Greg Williams VK3VT is currently hard at work collating the information from the many people who contribute material to the annual Callbook. Details of radio clubs around the country will have been collected, together with the latest known information about beacons and repeaters. All the other information will have been checked and updated. And all of this work is undertaken by volunteers, each making his/her contribution to benefit us all.

The snapshot of the ACMA database will have been ordered and forwarded to the production house for conversion into the printed version contained in the Callbook. This means that any changes in the database after the date the database was sampled will not appear in the 2012 Callbook. This is always the case when any printed item is prepared – there must be a cut-off date. Of course, if you need to check on the status of a callsign, the ACMA database can always be accessed on-line via the ACMA web site.

The Publications Committee and the WIA office aim to have the Callbook completed and delivered by early October. This issue of *Amateur Radio* will contain an advertisement inviting individuals and clubs to place their orders in advance. The Bookshop will then process and send the orders as quickly as possible after the Callbooks are delivered.

## ILLW

Several clubs have been very prompt in submitting reports on their activities over the International Lighthouse and Lightship Weekend (ILLW). The activity was held on the third full weekend in August, so there was only a short period between the weekend and our production deadline.

The ILLW is not a contest; rather it is an activity weekend.

The event is gaining popularity, with many accepting the challenge of activating lighthouses that present logistical challenges. An example of this can be found in the report on the activation of the Sandy Cape lighthouse on Fraser Island by the VI4FI team. Personally, I found their account an entertaining read – I hope that you agree. The official ILLW website (<http://illw.net/>) shows the 2011 event had 66 lighthouses activated around Australia, with a total of 470 entries across 55 countries.

Given the coverage of the event in this issue, I would expect few additional reports to be published this year. However, I may try to fit in another report early next year, if only to stimulate amateurs to consider planning for next year's event, scheduled for 18 and 19 August 2012.

## JOTA/JOTI

Bob Bristow VK6POP reminds us that the Jamboree On The Air - Jamboree On The Internet (JOTA/JOTI) event is fast approaching. Hopefully many individuals and clubs will be assisting Scout and or Guide groups locally with the provision of operators and equipment for this weekend. JOTA/JOTI provides an excellent opportunity to showcase our hobby to young people. Hopefully propagation will be kind over the weekend and allow contacts far and wide.

Whilst supervising amateurs involved attempt to maintain operational standards at all times, other operators and listeners may need to display a little tolerance if procedures are not always "spot on".

Most amateurs involved will already have their plans almost complete by now. However, there may be scope for you to assist, especially if your local club is involved. Read Bob's article to find out more about the event.

Cheers,

Peter VK3PF



# WIA comment

Michael Owen VK3KI

## The Wireless Institute of Australia Foundation

Over the years I have had quite a number of conversations with people who were thinking about making a gift to the WIA, either directly or from their estate.

I recall one such discussion where the donor's desire could not be achieved simply because the costs of administration associated with creating a special trust to achieve the objective would have cost most of what was to be given.

Other persons who were considering leaving a bequest to the WIA were concerned that a change of WIA Board direction could result in their bequest being expended in a manner contrary to the intentions of the donor. Donors wanted confidence that their wishes would be respected on an on-going basis.

Gifts for a defined purpose may create their own problems. Take a bequest to fund research into solving a particular medical problem. What do you do with the funds for that purpose when the problem is fully solved by someone else?

The Board of the WIA has given considerable thought to these issues and for some time have been working on the creation of a legal entity which is capable of receiving donations and/or bequests, is capable of applying them in the intended manner (or as a default in a manner which furthers amateur radio) and is administered in a professional and consistent manner, so that donors can be confident that their contributions are managed carefully.

The Board has sought the advice of a leading firm of independent lawyers.

We now announce the creation of the Wireless Institute of Australia Foundation.

The principal objects of the Foundation as expressed in its Constitution are:

- (a) to promote, advance, preserve and represent in any way amateur radio (where amateur radio includes activities by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest) and all other branches of knowledge and activity having application to amateur radio;
- (b) to apply the proceeds of any gift or bequest made to the Company for the purposes set out in clause 2.1(a), in compliance with any terms and conditions stipulated by a donor but, in the absence of any stipulated terms and conditions by a donor or, if the donor's stipulated terms and conditions are inconsistent with the purposes set out in clause 2.1(a), in any manner which the Board considers appropriate to achieve the objects of the Company set out in clause 2.1(a); and
- (c) to administer one or more funds into which all gifts, contributions, donations and bequests to the Company for the purposes of the Company will be credited.

The reference to the "Board" is a reference to the Board of the Foundation, not the Board of the WIA. In effect, the Board of the Foundation act in respect of gifts as trustees.

Our object was to make the Foundation a continuing entity, set up in such a way that it would have sufficient independence from the WIA to reassure those who were concerned about the effect of short term changes in those responsible for the management of the WIA.

We have done this in three ways:

First, while the WIA is the Founder Member of the Foundation, and will appoint the first directors, there will be a second group of members and the WIA will not be able to change the Constitution of the Foundation unless the members of the second group also agree.

Second, at least half of the Foundation's Board will have to have specific qualifications. At least one member of the Board must be a lawyer, and at least one member must be an accountant or financial adviser. Not more than one member may be a radio amateur without any of those qualifications and the chair will be the President of the WIA from time to time.

Third, the term of office of the Directors of the Foundation is for five (5) years, (other than the President of the WIA as Chair of the Foundation) and so operation of the Foundation is insulated against short term changes in the WIA Board.

Initially the Board of the Foundation will consist of myself as President of the WIA, and WIA Director Chris Platt, a lawyer, WIA Treasurer John Longayroux, an accountant and former WIA Director, Peter Young as a radio amateur.

Initially gifts to the Foundation will not be tax deductible, which will not be relevant for any bequests, but the Foundation will seek to have a separate fund within the Foundation accepted as a charity and so gifts to that fund will be tax deductible.

Some of the WIA's most important activities are, in law, not charitable and so funds for these purposes cannot be a gift to a charity and therefore tax deductible.

Continued on page 5

## APT Meeting concludes in Busan

Dale Hughes VK1DSH was a member of the Australian delegation to the fifth APG2012 meeting ("APG2011-5") in the series of conference meetings organised by the Asia-Pacific Telecommunity (APT), preparing for WRC-2012, held in Busan, Korea.

Dale was nominated and supported by the WIA.

APG2011-5 concluded on Saturday 3 September 2011.

The meeting was attended by more than 370 people from 25 APT Members, Associate Members, Affiliate Members and International Organizations.

Directors Peter Lake ZL2AZ and Shizuo Endo JE1MUI participated as observers on behalf of IARU Region 3 and IARU Region 3 Secretary, Ken Yamamoto JA1CJP, was a member of the Japanese delegation.

Dale was appointed chair of the Drafting Group dealing with Agenda Item 1.23, the proposal to "consider an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services."

While a number of countries supported the proposal, Iran, China and Korea opposed it.

After four Drafting Group Meetings, a Working Group Meeting and a Plenary Meeting the following draft APT position will be put to a vote of the member countries as a common position:

*"At the 5<sup>th</sup> meeting of the APT preparatory group for WRC-12 members, when considering agenda item 1.23, support an allocation of about 15 kHz in parts of the band 415-526.5 kHz to the amateur service on a secondary basis, taking into account the need to protect existing services. In particular Method A (472-487 kHz) of the CPM report is supported provided that appropriate protection and regulatory provisions are in place."*

For that to become a common position it must be *supported by* at least 25% of all the APT Members and *not opposed by* more than 50% of the number of Members who support it. Currently 36 countries are members of the APT, and so it requires at least 9 votes in favour.

Obviously, an APT common position will greatly assist the amateur cause.

## EMCOM Network (EMCOMNET)

A new Emergency Communications Network (EMCOMNET) has recently been set up by the architects of Red Cross Emergency Communications (RECOM). The RECOM organisational and technical model adopted in 1997 has been extremely successful in its work with Red Cross, and RECOM would now like to offer the new network infrastructure to other similarly setup amateur emergency communications organisations.

The RECOM operational model relies on embedding trained amateurs within a Non-Government Organisation (NGO) or Emergency Services Organisation (ESO). The operators are expected to belong to the NGO/ESO and become familiar with its operation. In the case of RECOM, the operators actually belong to the Australian Red Cross and are considered an integral part of that organisation. In order to help facilitate the formation of more similar entities to RECOM, EMCOMNET will provide access to the existing technical infrastructure and software that RECOM now use. EMCOMNET will also provide advice to amateur groups who wish to embed trained operators into other NGO and ESOs. Access to EMCOMNET will be restricted to operators who have WIA National Emergency Communications training qualifications and who are also members of an amateur emergency communications entity embedded in an NGO or ESO. A significant personal commitment is required.

The existing EMCOMNET stations operate as HF Radio Data Gateways to the Internet. They operate 24/7/365 and are geographically separated to enhance the spatial diversity of the Network. The client/customer is able to access secure messaging, text and spreadsheets, images, emails and GPS mapped position data from the activated stations simply by viewing an internet page which can be accessed with passwords. EMCOMNET will be adding two extra strategically placed Network stations to the system during 2011, 2012. A similar network has been used by RECOM for the past 14 years and has worked flawlessly during major Australian disaster activations. The proposed enhancement of the new Network will provide greater redundancy, greater spatial diversity, and an increase in the traffic carrying capacity for when other entities join the Network.

## New WIA Director

Peter Young VK3MV has resigned as a director of the WIA, wishing to reduce his commitments. However, the Board is delighted that Peter will continue to be deeply involved with the WIA's work with the ACMA and government generally.

Under the WIA Constitution, the Board is obliged to appoint a new director for the balance of a retiring director's term. The Board has appointed Trent Sampson VK4TI a director for the balance of Peter's term.

Trent was first licensed as a result of the CB boom on the 70s, as VK2NDK/VK2YHA, in Tamworth, NSW. He moved through a series of callsigns, VK2KTS, then VK2ZI until moving to Queensland in 1999 where he acquired his current callsign VK4TI. Trent is an Insurance Adviser and also a qualified Financial Planner.



In particular, gifts to support lobbying are not charitable, and so gifts to support the WIA's participation in Australian delegations to APT and ITU meetings may not be for what is in law a charitable purpose.

The second part of the principal objects I have quoted above deals with the problem of a gift for a purpose where the purpose ceases to be relevant or meaningful. If the

person making the gift uses the right language, the Foundation will be able to change the purpose so it can still support amateur radio.

We are hopeful that any donors bear that in mind in formulating the terms of their gift or bequest. Our legal advisers will provide a 'model bequest' to assist intending donors.

The WIA has benefitted greatly in the past from the generosity of some

wonderful people. Andersson House and the generosity of the late Henry Andersson is sufficient evidence of that.

The Board hopes that the creation of the Wireless Institute of Australia Foundation will make it a little easier for those who wish to support amateur radio and the WIA in its important functions.



## Silent Key A E 'Ed' Dyring VK2ED

Alfred Edgar Dyring was born on 9 February, 1921 in Albury, NSW. He grew up in Breadalbane, 20 km SW of Goulburn, in NSW and attended high school at St. Patrick's College, Goulburn.

By this time he had built numerous crystal sets as well as one, two and three valve receivers. He left school in 1935 to work in Crookwell as a telegram boy for the PMG. By September, 1939 he was a postman in a small country town, doing a job that suited him, because it left him time for surfing and repairing his motorbikes. When war was declared in 1939 he sent off an application to join the air force as a wireless operator. As he knew Ohm's Law and could send and receive Morse he was accepted and finally posted to Melbourne. Eventually the time came to do his Morse sending and receiving tests and he easily received his set piece at 22.5 wpm.

He married his fiancé Helen on 1 November, 1941. Their honeymoon consisted of a four day pass, because of the Melbourne Cup holiday on the Tuesday, but on return to base he was informed of his overseas posting to Malaya. He arrived in Kota Bhama at 2230 hours on

7 December, 1941. The Japanese attacked at 0130 hours on the 8th, one hour and twenty minutes before the attack on Pearl Harbour. Not long after, Ed became a prisoner of war. His time in the camps is a story that he recently committed to paper and hopefully will be told at a later time. In August, 1945 he and the other prisoners walked out of their latest camp and Ed managed to hitch a plane ride to Darwin via Borneo with his old squadron. He arrived back home before the authorities knew where he was.

After being discharged in February, 1946, it was back to work for the PMG.

He worked in Newcastle until he gained promotion as Postmaster in Yenda, NSW. In Yenda he used to send the daily metrological readings to Sydney on one of the last Morse telegraph circuits in the state. Various moves to other country towns followed, including Wyong, Gundagai, Corowa, Griffith and, finally, Gosford. Through all this, he also became deeply involved in 'Rotary'.

Ed retired about 1980 and then life became very busy. He built the interior fittings of his new house, and of course his radio shack underneath, because by this time he had obtained his amateur radio licence and received his first call-sign, VK2BED. This was later to be exchanged for VK2ED when it became available.

He and Helen started touring Australia, visiting friends and relatives along the way. Sadly he lost his lifelong friend and companion when Helen passed away in January, 1993. While he always felt the loss deeply, he did not give up living his life to the fullest. There were many more trips to be done. These places included Perth many times to visit his brother-in-law, Tasmania, Hervey Bay, Cairns, Daintree, Darwin, Adelaide (for reunions) and his big one, a guided camping trip up Cape York to the top, plus a trip to Thursday Island.

Somewhere during all this he learned to fly light aircraft. He did his first area solo flight in June, 1999, at age 78 years and 5 months, and passed his General Purpose flying test in March, 2000. A few years later his health started to betray him a bit so he gave up his flying without regrets. A bit later he stopped attending meetings at night due to eyesight problems, but passed his Older Persons driving tests without too many problems and was driving down to the shops once a week right till the last. Vale Ed.

Contributed by Ed's nephew, Chris Newton VK2JCN.



# JOTA-JOTI 2011

Bob Bristow VK6POP, JOTA-JOTI Coordinator, Scouts Australia



Photo 1: A young Scout on the microphone, watched by her companion.

The 54th Jamboree on the Air (JOTA) and 15th Jamboree on the Internet (JOTI) take place on the third weekend of October, Friday 14<sup>th</sup> to Sunday 16<sup>th</sup>. Although the event officially runs on Saturday and Sunday, due to time zone differences there is always activity on the Friday night and Monday morning.

The purpose of this article is to give information to amateurs who will be assisting Scouts and Guides with their JOTA-JOTI activity.

One of the first things an amateur should be doing is giving advice to Scout/Guide groups about location, current radio conditions and what help the amateur may need to erect appropriate antennas for the conditions. You also need to talk about the times of day/night that HF propagation occurs so that the activity will be open at the right times to work DX if indeed DX is being sought.

You could, for instance, set up a station utilizing a repeater, or simplex VHF or UHF for younger members

who are usually happy to have a short QSO with someone on the other end of the radio, and operate HF for the older Scouts/Guides who can apply themselves to working HF. These older children would also be able to operate at later hours.

The Scout/Guide Leaders should be preparing their youth members for JOTA-JOTI; however, unfortunately, some neglect to do this. In your discussions with them, remind them about the resources available at [www.international.scouts.com.au](http://www.international.scouts.com.au) Among the resources available are templates for 'cheat sheets' that the person can use to make their QSO easier.

Your role as an amateur operator is to supervise the operation of the station and prepare/operate any other related activities you may agree to assist with. It would help if you could co-opt one or more others to help you.

There is information about JOTA-JOTI, as well as programme resources, at [www.international.scouts.com.au](http://www.international.scouts.com.au)

## Important information for operators:

Australian voice calling frequencies:  
3.650, 7.090, 7.190, 14.190, 14.290, 21.190, 28.590 and 52.160 MHz.

Calling frequencies for Slow Scan TV (SSTV):  
3.630, 7.033 and 14.227 MHz.

Calling Frequencies for PSK31:  
14.070 MHz.

## National address broadcast

The address to Scouts and Guides by the Governor General should be broadcast at 1300 hours local time. Each State has its own arrangements about who

performs the broadcast. State JOTA-JOTI coordinators are listed on the website. The address will be available for download from the website about a week before the event. Where a broadcast is not available, the address can be delivered locally using an amplified source.

I wish you all the best for JOTA-JOTI 2011. I hope you enjoy what you do, and that the coffee keeps flowing. On behalf of all Scouts and Guides, thank you for your participation.



Photo 2: The JOTA-JOTI 2011 logo.



# Whyalla Amateur Radio Club at ILLW 2011

Alex Glinski VK5ALX - President, Whyalla Amateur Radio Club

The Whyalla Amateur Radio Club (WARC) station VK5BWR took to the air from Point Lowly Lighthouse over the International Lighthouse and Lightship weekend on 20/21 August. Point Lowly is about a twenty minute drive from Whyalla and the decommissioned but still activated lighthouse is owned by the Whyalla City Council, who kindly gave permission for us to operate from the backup generator room some 60 metres away from the lighthouse.

Pat VK5HAE, Larry VK5HBG, Jim VK5JW and the youngest of the group Damien VK5FDSB were the first to arrive at the lighthouse. Damien, being the most athletic, was sent up the 18 metre high spiral staircase inside the tower to make fast a rope which would support one end of an OCF dipole. Pat, Larry and myself had done a reconnaissance of the site a week earlier and decided that climbing up the tower was a job for younger bones.

The OCF antenna was computer modelled a few days earlier using actual site data but something went a little wrong with the calculations. What was expected to be an average antenna height of 12 metres turned out to be closer to half the height because the generator shed was a lot higher than the bottom of the lighthouse, and a nearby flagpole not quite as high as it first looked. But a quick scan with a MiniVNA Pro showed that things were not so bad that an antenna coupler could not put right.

On powering up the radio we were greeted with strong signals on both the 40 metre and 20 metre bands. The almost complete absence of noise at the location made even the weakest signals sound like S9. What a difference to the S9+10 noise levels we have to battle with back home.

But that Murphy guy was hanging about somewhere. Good signals were coming in but nothing was coming out of Jim's IC-7000. With a dummy load we saw a few watts on CW but no amount of whistling or shouting into the microphone

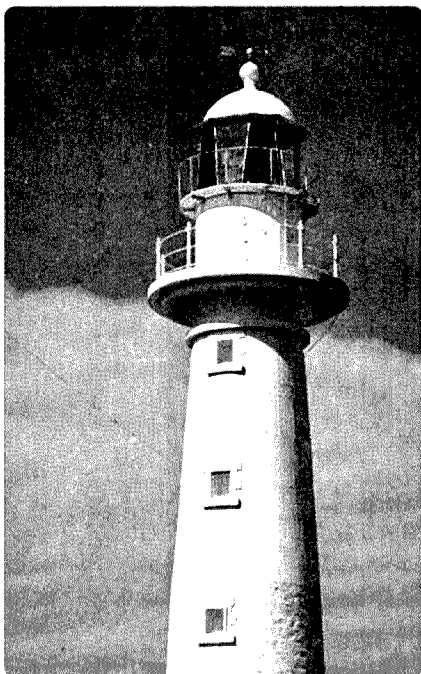


Photo 1: The top part of the light with a cable hanging out a window.

and pushing buttons, the purpose of which were not particularly clear to us, would make the power meter kick. Luckily though, Larry had brought along his Kenwood TS-450 for backup and the station was up and running in no time, just in time for a good handful of lighthouse contacts before lunch.

The weather at Point Lowly was just magnificent. From our operating position near the door to our 'shack'



Photo 2: Larry and Pat enjoy a chat with an interstate lighthouse.

we watched a pair of dolphins frolicking a short distance offshore and large birds catching more fish than the poor fishing enthusiasts that were trying their luck off the rocky shoreline.

Those of us who were not operating were kept busy talking to a stream of visitors who came across to see what was going on. Hopefully they went away with a better understanding of amateur radio and a condensed history of the Point Lowly light.

Larry, Pat, Jim and Damien camped at the lighthouse overnight and got an early start on Sunday morning. Without the hiccups that delayed the start of Saturday's session the group managed around 50 contacts before dismantling the station early in the afternoon.

The decision to take part was made just a few weeks before the event and it probably would not have happened if it were not for the generosity of the city council in allowing us access to the lighthouse and the generator room. It was a terrific fun weekend, and those that took part already are planning for next year.



Photo 3: The club's QSL card, specially made for the event.

# VI4FI Sandy Cape Lighthouse 'AU0043, Fraser Island IOTA OC-142, ILLW 2011

Derek Toreaux VK4MIA, President IDRC



Photo 1: The Sandy Cape Lightstation. An aerial view of Sandy Cape Lighthouse with Cottage #1 (left) and Cottage #2 (right) our QTH for ILLW'2011.

WOW. What a weekend!

For the first time in the club's 49 year history, four members of the Ipswich & District Radio Club (IDRC) embarked on a four day mini DXpedition to Sandy Cape Lighthouse AU0043, Fraser Island OC-142.

Club members Paul VK4FPDW, Mike VK4QS, Graham VK4GRA and Derek VK4MIA departed Springfield Lakes on the Friday morning at 8:15 am for the three hour journey north to Rainbow Beach. Regular contact was made with operators both on Twitter and Facebook during the 280 km journey and we were making great time on the road with little or no hold ups on the Bruce Highway.

Upon arriving at Rainbow Beach at 11:10 am, the team refuelled themselves before boarding the Manta Ray barge to Fraser Island at approximately 12:30 pm. The weather was beautiful to say the least and the pristine waters of the Coral Sea at Inskip Point were a crystal clear green filled with fish and

a few dolphins for good measure.

The barge touched down at Hook Point on the southern end of Fraser Island around 1 pm and now we were ready to travel the entire length of the Island (all 120 km of it). Upon checking with a few returning travellers it was evident that we would have to use the inland track as the southern point of Fraser was impassable due to the high tide.

After a rickety and bone shaking 30 km drive along the corrugated inland track we finally hit the white sandy beaches of Fraser Island and there was nothing between us but sea breezes and beautiful coast line. Our first stop along the way was at Eurong to make sure nothing of what was tied down had moved or shifted and it was another good opportunity to stretch the legs for about 15 minutes.

On the move again... Our next destination was Dundubara to meet up with Ranger Steve Nicol of the Queensland Parks & Wildlife Service and we had plenty of time

up our sleeves to get there before our deadline of 3 pm. We crossed at Eli Creek with no issues, one of the 'tricky' spots along the east coast of the island, especially if the tide is not in your favour.

Further up the beach we came across the Maheno Shipwreck that has been a feature on the beach since its grounding in 1935 due to a cyclone (apparently) but reports vary on why she landed here at Fraser. Not many washouts were encountered along the journey north but there still were a couple that needed some precision driving in order for us to make it through safely.

After enjoying the views of the gorgeous beaches along '75 Mile Beach' as it is known, we were now at Cathedral, about 10 minutes from our rendezvous point at Dundubara.

Just prior to 3 pm (great timing once again) we met up with Ranger Steve Nicol and his good lady Robyn at Dundubara Station. It was decided by Steve that we would continue the journey north as quickly as possible as the tide was now heading out and we needed to catch low tide to travel the western beach of Fraser Island from Wathumba to Sandy Cape.

Continuing north along 75 Mile Beach, after 30 minutes we could see Indian Head approaching which would be the turning point in our journey to Sandy Cape. Instead of taking the inland access road around Indian Head we continued west of Orchid Beach along Wathumba Road for what was to be a first for our team and also Paul VK4FPDW our experienced driver who had been to the Cape many times but via the eastern beaches.

After what seemed like an eternity we arrived at the locked gate to Wathumba on the western side of Fraser Island. The journey now from this point onwards was to be an experience for all of us as this side



*Photo 2: Team VI4FI overlooking the Coral Sea. Views to die for, this is the view we woke up to each day. L-R: Paul VK4FPDW, Graham VK4GRA, Mike VK4QS and Derek VK4MIA. With our major sponsor VK4ICE Communications.*

of Fraser Island is closed to all traffic from our present location to Sandy Cape.

If anyone has managed to visit the western side of the island near Platypus Bay then you will know that if the tide is high we would have no-where to go, hence the reason for the 'no go zone' for all traffic. There are no inland tracks, diversions or anywhere to go should the tides not be in your favour, you would be at the mercy of the Coral Sea.

It was now 4:26 pm Friday afternoon, one hour before the expected low tide and we are making great time to reach the Lighthouse by 5 pm. As I record a couple of videos for our website, the smell of the fresh seaweed that has been dumped on the beach is overpowering but we soldier on, and to all our surprises as we reach the halfway point across Platypus Bay we are greeted by at least 10 or so whales just off shore. The team will remember the eagle that flew with us along this journey, from Wathumba until we neared the Cape. I guess even though we had our experienced guide north, we also had 'eyes in the sky' as well.

It was now 4:49 pm: The final stretch as we cornered around Rooney Point along Sandy Strait, the northern beach of Fraser Island, our destination now only 15 minutes away. We could make out the Lighthouse in the distance but it still seemed so far away as we continued

along what was now Sandy Strait. Before we knew it we were at the gate to the Sandy Cape Lighthouse, at 5:05 pm.

After a short 1.7 km twisting, climbing journey up the Sandy Cape Lighthouse track we had finally reached our destination and the lighthouse was in sight. The Sandy Cape Light stands at 26 metres tall with an overall

height of 116 metres above sea level.

Our location was the second cottage, closest to the Lighthouse, and after unpacking the 4WD and stocking the cupboards and fridge full of food for the next three days, we set up station in the lounge room with the Yaesu FTDX-5000 fitting perfectly on the coffee table. We then ventured back outside to set up the Butternut HF6V ground mounted vertical in the dark.

With torches glowing and what looked like miners walking around the cliff edge with their headlights on, the team quickly erected the vertical and laid out the ground radials for 20, 40 and 80 for the time being, as the other bands would have already been closed.

A quick check of the SWR showed 1.5:1 or less on all three bands so VI4FI was ready to make its first call. Of course we wanted to make sure everything was 100% and that the station would be heard, so we dialled up on 14.215 and worked John ZL2JBR for a brief radio check before he headed off for the night and it seemed that everything was GO!

At 1133 Z VI4FI made its first call on 14.260 with a quick response from Jesse K4MSS from South Carolina and received a 55 report to the east coast of the USA. We talked with Jesse for a few minutes so others would find us on the band and once we said our goodbyes to Jesse and let the button go we knew we were in for a wild ride.

After making a quick decision

to work split due to the QRM, the contacts came thick and fast from North America and Japan. As internet coverage was limited Paul VK4FPDW managed to see the spots on the cluster from the Europeans that we could not hear through the JAs and then of course asking the JAs to QRX for a few minutes we started to log Europe at 1201 Z. First European in the log was Lee G0DBE from Liverpool which followed with other European stations from England, Russia, Scotland, Sweden, Kazakhstan, Ukraine, Belgium, Finland, Denmark, Netherlands, Germany and France.

Along the way we also managed to log stations from Canada, Hawaii, South Korea, Asiatic Russia and of course more USA from the west coast to the east coast. All up on the opening night we logged 121 stations within the two hour opening on 20 m, a success? We think so!

The next morning we awoke around 7 am (2100 Z) and at 2113 Z we worked our first VK, Denis VK4ACE from our home town in Ipswich on 20 m with 59 reports back and forth. He was more surprised than we were of the signal on 20 m considering the distance for ground wave was approximately 400 km. Prior to the event kicking off at 10 am we raised the Clark Mast with our full sized G5RV to work the additional bands over the course of the weekend.

Throughout the day and into the late afternoon we worked more Aussie stations plus quite a few lighthouses; we also managed to log QSOs in New Zealand, Papua New Guinea, New Caledonia, USA, South Cook Islands, Japan and Hawaii.

Saturday night we made our first appearance on 80 m and what an opening into the VK call areas of VK2, VK3, VK4, VK5 and VK7. We managed to work the band all night until 1332 Z when things started to fade for the night. During our time on 80 m we also worked a handful of ZLs that were still awake and also Victor E51CG from Rarotonga in the South Cooks.

After a 30 minute break we changed to 40 m at 1400 Z and

worked quite a few Americans including our first USA Light, K6A at US0033 Point Vincente Lighthouse and Juergen VE7FE/P at CA0028 Nootka Island Lighthouse.

Returning to 80 m at 1530 Z we met up with Tommy VK2CL at AU0071 Montague Island Lighthouse and decided to sit with Tommy for just a few minutes as he worked other stations who then in turn worked us as well. Within 15 minutes we managed to have a group of four Lighthouses all working in sync on one frequency: they were Sandy Cape AU0043, Montague AU0071, Point Perpendicular AU0030 and Grassy Hill AU0019. We managed to keep the eyes open and work a few VK nightowls until 1630 Z when it was decided to go QRT for the night/morning.

Sunday morning started off slowly with only 13 QSOs logged within VK and ZL, but from lunchtime onwards we managed to find a surprise opening on 15 m with North America and Asia. First station logged in the pile up at 0208 Z was Masa JE1LET with a beautiful 59 +20 dB from Kanagawa prefecture in Japan. A total of 77 stations were logged all over the USA, Japan, Alaska, Indonesia, New Zealand and China, finishing up our opening on 15 m with Zhu BD4CZX in Shanghai.

Sunday afternoon and evening were not as successful as the previous days but we did manage to work into North America, Asia and we picked up what we thought was the highlight of the ILLW, our first South African Light ZS1CT with Greenpoint Lighthouse ZA0006 in Cape Town with a beautiful 59 via the long path.

Later Sunday evening, due to the other bands being quiet, we dialled up on 40 m and noticed the signals from USA were very strong but no-one seemed to return our calls, so with that we checked into one of the US Nets and gave Sandy Cape Lighthouse and Fraser Island to those who wanted to work us. Seemed to be a success with our friends across the Pacific and beyond as we worked 20+ stations in the US and a few JAs even dropped

in to say hello and exchange a report or two.

After a quick search around the bands at 1200 Z it was a foregone conclusion that not many QSOs would be made so it was decided that VI4FI would now be QRT for 2011.

Throughout the Sunday night and early hours of the Monday morning the weather changed for the worse as high winds and heavy rain hit the island. As our departure had to be precisely 6:15 am Monday morning it was going to be a very early morning for the team to take down the antennas regardless of the weather conditions.

At 4.30 am, with coffees in hand, the first antenna, the G5RV on the 10 m Clark mast - was lowered during a break in the heavy showers. With one antenna down and one to go, we quickly moved onto the Butternut with all the ground radials, as this was going to take a significant amount of time to disassemble properly and pack away. With Paul VK4FPDW loading the Clark Mast onto the 4WD, both Graham VK4GRA and myself (Derek VK4MIA) started to work on the Butternut while Mike VK4QS packed up the FTDX-5000 and other radio equipment inside the cottage. With the rain holding off we made the best of it and moved quickly and managed to get it all packed away within about 30 minutes or so.

With 6 am nearing, Ranger Steve Nicol dropped in to check our progress and said we would have to leave by 6:20 am to catch the



*Photo 3: The Butternut HF6V. Our magic antenna for the weekend with ground radials for 10, 15, 20, 40 and 80 m (20 ground radials in total).*

low tide at Ngkala Rocks at 7.30 am. This section of the island is the most treacherous and is very tide dependent; should we miss our targeted window then it would be disastrous for us all as there would be no-where to go.

At 6:20 am, with the 4WD packed and everybody accounted for, we set off on the return journey and said goodbye to the Sandy Cape Lighthouse for 2011. Upon arriving at the beach at Sandy Cape it was evident that we would have quite a challenging trip back home with south easterly winds battering the east coast of the island. On more than one occasion we had a few near misses with washouts and sections of the beach being gouged out from the pounding waves and heavy

winds. Hats off to Paul VK4FPDW for the precision driving on the beaches of Fraser, and in particular on the return trip. On one occasion he just managed to turn the 4WD around before dropping off a half metre drop that was only visible within a few metres. Had he not been on the ball the 4WD would certainly have flipped for sure.

We made only two stops along the return journey, the first at Champagne Pools near Indian Head for a photo opportunity and the second at the Maheno Shipwreck for Mike VK4QS to jump out and grab his photo opportunity - being ex-Navy!

After over four hours travelling down the east coast of Fraser Island in atrocious conditions, we were glad to reach the barge at Hook Point around 10:45 am for the trip across the very choppy Coral Sea back to Inskip Point at Rainbow Beach. With an early lunch being had at Rainbow Beach, we set off for home around midday, non-stop, and returned home around 3 pm.

We look forward to making the trip again next year to Sandy Cape Lighthouse to once again put the VI4FI callsign on the air. Special thanks to the staff at QWPS, Ranger Steve Nicol for the assisted journey on the western beach of Fraser and making sure everything ran smoothly with the electricity at the Lighthouse. Trischelle Lowry, thank you so much for the extraordinary effort in making sure our trip to the Lighthouse would be a reality and also taking the time out of your busy schedule to keep in contact with us - even on Sundays!

Extra special thanks to our sponsors, first and foremost Dave Tavener from VK4ICE Communications for supplying our antennas while on the island; you certainly outdid yourself and we look forward to working with you again next year when we do it all again.

Ipswich City Council, to Paul Pisasale and Andrew Antonioli, thanks so much for your continued support of the IDRC and all of our ventures to come in the near future. You guys are a significant part of

our club and without your continued support we would not be where we are today.

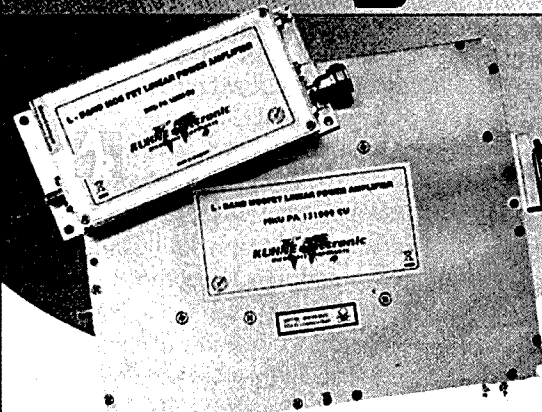
With all that said I would like to take the opportunity to thank all the stations that worked us, in particular Graeme (Doug) Semmens VK7KT for letting everyone know of our limited to nothing internet and mobile coverage while on the island, cheers mate!

In total we made 414 QSOs into 30 DXCC entities with a total of 43 lighthouses worked. Further information and updates on the QSL card status will be posted on the official website at [www.sandycap2011.com](http://www.sandycap2011.com) The printer of our cards is Gennady UX5UO who kindly offered his services to us once he read about our trip. The online log has been uploaded to Club Log and if you worked us using a /P callsign, make sure to enter that into the log search.

Best 73 and we look forward to working you next year!



# New High Power Amplifier Modules for 1.3 GHz!



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Current consumption	max. 12 A	max. 40 A
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Output connector / impedance	N-female, 50 ohms	7/16-female, 50 ohms
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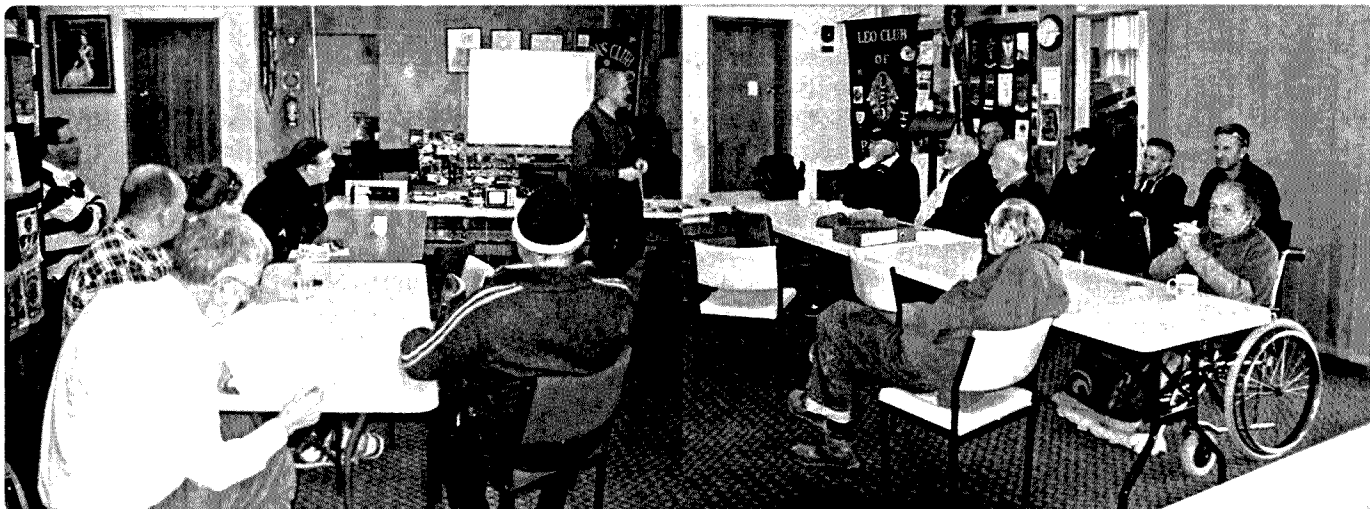


Photo 1: CCARC members at the DATV presentation.

## International Lighthouse and Lightship Weekend

The ILLW saw a record number of lighthouses activated around VK7. On the west coast Dion VK7DB undertook a first time activation of the Sandy Cape lighthouse and Graeme VK7KT and VK7MAJ activated Bluff Hill lighthouse. In the north west at Devonport, Winston VK7EM and Scott VK7NWT activated Mersey Bluff lighthouse. At Rocky Cape lighthouse was Stuart VK7ZM and at Table Cape was Wayne VK7NET, Eric VK7NFI and Rex VK7MO. In the north east, Kevin VK7HKN and Peter VK7KPC intended to activate the Eddystone lighthouse, however the weather made the road impassable. Planning is underway for 2012! In the north at Low Head a team consisting of Gavin VK7VTX, Ray VK7VKV, Albert VK7LH (VK3KLB), Steve VK3DAG and Ben VK7FBGS activated that lighthouse. In the south near Triabunna/Spring Bay the WICEN South crew of Roger VK7ARN, Garry VK7JGD and Peter VK7TPE activated VK7WCN at the Point Home Lookout and on King Island from Currie Light was Tony VK3VTH/7.

## World's first DATV QSO Party

Congratulations to Peter VK3BFG and the crew that organised a fantastic night of DATV on Friday, 26 August. Taking part from VK7 was Winston VK7EM from Penguin and it was very apt that Winston took part as he was the first VK7 to receive the signal from the Mt Dandenong VK3RTV digital ATV repeater. VK7OTC the club station of the Radio & Electronics Association of Southern Tasmania Inc. also took part with many members in the DATV studio being Skyped into VK3BFG, who then relayed onto the VK3RTV-2 repeater through the wonderful British Amateur TV Club streaming service at <http://batc.tv/>. There were many others and overseas stations who took part in the DATV QSO/Net. Congratulations Peter and Happy Centenary to AR Victoria!

## Northern Tasmania Amateur Radio Club

By the time you read this JOTA will be upon us on October 15th and 16th. In the north Peter VK7KPC will be setting up a station on Sunday 16th from 10 am at the Kings Meadow Scout Hall and it will run through to late afternoon. Peter would love

to hear from anyone willing to give him a hand. The August NTARC meeting was a social gathering at the historic Queen's Head Hotel in Perth (in northern Tasmania!) for a dinner meeting. Even though the flood waters surrounded the town, 22 members and guests managed to navigate their way and enjoyed a great night.

Bill VK7MX on a recent VK7 regional broadcast planted the seed of a possible ILLW reactivation of one of the three lighthouse tenders, one of which still exists – the MV Cape Don. These ships were in the Lighthouse service up until the 1980s and sailed from lighthouse to lighthouse with deliveries of goods and lighthouse keepers and their families and performed a maintenance role with their well-equipped workshops. Bill 'floated' the idea of an ILLW activation on the Cape Don that now resides at Waverton in Sydney Harbour. I am sure Bill would like to hear from you if you are interested.

## Cradle Coast Amateur Radio Club

Congratulations to Maurice VK7ZMR who was granted the first life membership of the CCARC recently. The August meeting was

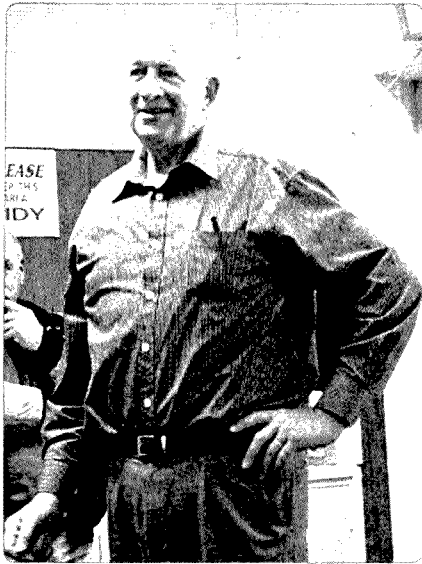


Photo 2: Barry VK7TBM OAM.

a presentation given by the author and was entitled a 'Practical Look at DATV'. The presentation was well attended and many great questions were asked. Thanks to CCARC for their hospitality.

### North West Tasmanian ATV Group (NWTATVG)

Congratulations to Graham VK7FGAA who has successfully upgraded to his standard licence; we look forward to hearing Graham on the air with his new callsign. Tony VK7AX lets us know that he has upgraded his video and audio

streaming to the British Amateur Television Club streaming service at: <http://batc.tv> and go to the member stream - VK7AX.

### Radio and Electronics Association of Southern Tasmania

Last month I reported that Theo Klop was successful in gaining his Foundation licence. Theo now has his callsign, which is VK7FTAK; welcome Theo. The August REAST presentation night was given by Barry VK7TBM who was a founding member of the Tasmanian Small Marine Radio Group that became Coast Radio Hobart, which now monitors the maritime HF and VHF frequencies and provides a range of other services to maritime users in southern Australia. Last year Barry received a Medal of the Order of Australia for his services to Maritime Communications. Thanks Barry.

Our DATV nights continue to be very popular with presentations on GippsTech 2011, hobby robotics, cryptography, Enigma, Arduinos, Lego Mindstorms, wind powered Strandbeests, converting surplus equipment, ultrasonic distance detection, CSIRAC, along with many great video presentations from the DATV Library. We now stream to the internet the Wednesday night

presentations from 7:30 pm AEST thanks to the British Amateur Television Club. Go to <http://batc.tv/> and select member streams and look for VK7OTC. We have also been hearing and seeing the SSTV from the ARISS Sat1 satellite here in VK7 and below are two of the SSTV images received by the author.

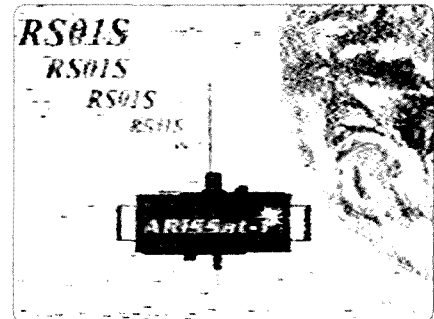


Photo 3: An SSTV image from ARISS Sat 1.

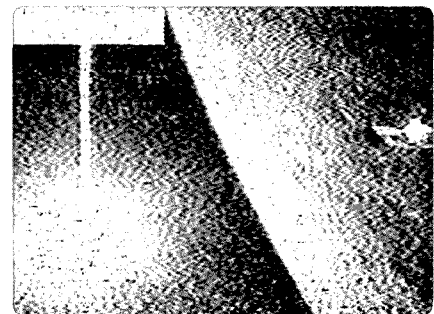


Photo 4: A second SSTV image from ARISS Sat 1.

## Silent Key James (Jim) Glegg Davis VK7OW

It is our sad duty to inform you of the death of Jim Davis VK7OW at 98 years of age, on 4 August, 2011.

Jim got hooked on wireless in 1923 with the local postmaster, who had a two valve battery set! Jim got his own radio in 1926 but never really got serious until 1976 when he passed his Novice licence.

During the war Jim worked as a maintenance mechanic in a Tasmanian flax mill in Latrobe

that was used to make parachute material. Jim was also a projectionist at the local cinema. Jim went back into the motor trade after the war and also into selling cars. One of his claims to fame was that he personally wrote to Sir William Lyon at Jaguar cars with a suggestion about padding on the dash to prevent serious injury in the event of an accident, and from the 420G there were new dash designs.

Jim contacted many famous people around the world, among

them Grote Reber, and talked fondly of his work mapping the Milky Way. He even bought Grote lunch one day at the Bothwell pub.

Jim is survived by wife Betty and family. He will be sadly missed.

Vale Jim.

Contributed by Winston Nickols VK7EM, Ian Ellings VK7QF and the RAOTC.

John Ferrington VK6HZ  
vk6hz@wia.org.au



Photo 1: The HARG RD contest crew.

G'day from WA! Sorry, I couldn't resist! What a great few months we have had here in VK6. Hamfest at the beginning of August, the ILLW in mid-August, preparations for the Oceania contest in early October. It's all go over in Zone 29!

This month I have been in contact with Rick VK6XLR from the Mid West ARG in Geraldton. The Mid West Amateur Radio Group (MWARG), established in 2005, is based in the mid-west region of Western Australia, with Geraldton as the main regional centre. We have a small group of keen amateurs who participate in just about every single facet of the amateur hobby, from CW to advanced digital modes, from HF right through to satellite, and to digital communications via the Internet.

MWARG's repeater VK6ROO on 146.775 MHz is active but is showing its age. Due to kind donations, it will be upgraded in the near future. The IRLP node 6262 on 439.150 MHz is available for all to use. The node also relays news broadcasts from around the world. These play automatically on Friday to Monday nights at 1900 hours local. VK1WIA News and NewsWest is relayed at 0900 and 1900 hours local on Sundays. All news broadcasts can be transmitted on-demand.

On behalf of the Wireless Institute of Australia Exam Service, MWARG in conjunction with Ham College, can conduct examinations for all licence levels on an as-required basis. To find out more about the club and its activities, please follow the various links on the website at [www.mwarg.org.au](http://www.mwarg.org.au)

As usual, the Hills ARG has been very busy over the last few months.

From Bill VK6WJ, the Publicity Officer at HARG:

*The Hills Amateur Radio Group, affectionately known as HARG, has been very busy again during August. We were represented at Hamfest and everyone had a really good time. Thanks to NCRG for organising a great event. We gave away a number*

*of leaflets explaining the aims and future plans for the club and now have some new members as a result.*

*HARG took part in the RD contest with a barbecue at the club's headquarters in Lesmurdie. One of the ideas was to show the new recruits to amateur radio how a contest worked and Marty, our Contest Manager, was on hand to show them the ropes. Some members stayed late to keep the club station going while others raced home to get extra points for WA from their home stations. Heath VK6TWO and Monique VK6FMON set up a portable station not far from the club and once again braved the cold and rain overnight to get those extra points.*

*During August we kicked off our monthly series of technical talks with a discussion and demonstration of home brew VHF/UHF antennas by Bill Rose VK6WJ. The next talk, on 24 September, will be on Software Defined Radio by Richard Grocott VK6BMW followed by Data Modes on 29 October, by Steve Hyland VK6ST.*

Photo 2: The new NCRG tower trailer in refurbishment mode.





HARG also operated portable for the ILLW from North Mole lighthouse in Fremantle. More on that next edition.

Now over to NCRG who, at the beginning of August, hosted another successful Hamfest. Thanks guys for organizing this annual event. Over 350 hams from all over VK attended the event.

Here is the latest from NCRG:

A couple of weeks ago the NCRG had the opportunity to collect an old light trailer from a mining service and supply company, after some time of lobbying by Keith VK6RK, vice president of the NCRG. It was a heavy piece of equipment especially with the diesel generator

and the counter weight for the mast still attached. With the generous help from the supply company, the diesel generator was removed and the trailer was brought to the club premises. So far cleaning, de-rusting and undercoating has commenced. The plan is to have the trailer ready for our traditional field day at Muresk for the Oceania DX contest in October.

As usual NCRG will travel to Muresk Agricultural College near Northam, which is approximately 100 km east of Perth, to participate in the Oceania DX contest. This year we want to use the new trailer instead of an aluminium tower for a tri-band Yagi. The wind up mast is 9 metres and the plan is to slide an extension

tube inside the mast to bring the antenna to around 12 metres, and include a rotator. This will be a change from past years where the 'Armstrong' method was employed to swing the beam! The trailer will be made street legal and the plan is to use it on other occasions and to show the presence of the ham radio operators in the community at popular occasions.

As you can see it is all go here in VK6! Thanks to all who contributed this month. If you have something you would like included in the next edition, please email it to me at [vk6hz@wia.org.au](mailto:vk6hz@wia.org.au)

73 John VK6HZ



## Erratum

**A simple and reliable tuning indicator for a 100 watt HF transmitter** by Warren Stirling VK3XSW.

Please note that there was a typographical error at the end of the last paragraph on page 33 of this article, published in the September 2011 issue. The text as printed reads "... was confirmed as a 50 mA movement ....". The text should read "... was confirmed as a 50  $\mu$ A movement ....". i.e. a 50 microamp movement. The proofing team missed this error and we apologise for the error.

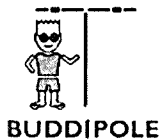


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**See you at the Ballarat Hamvention 23 October 2011**

# How to manufacture a double sided PCB

Murray Lang VK6HL

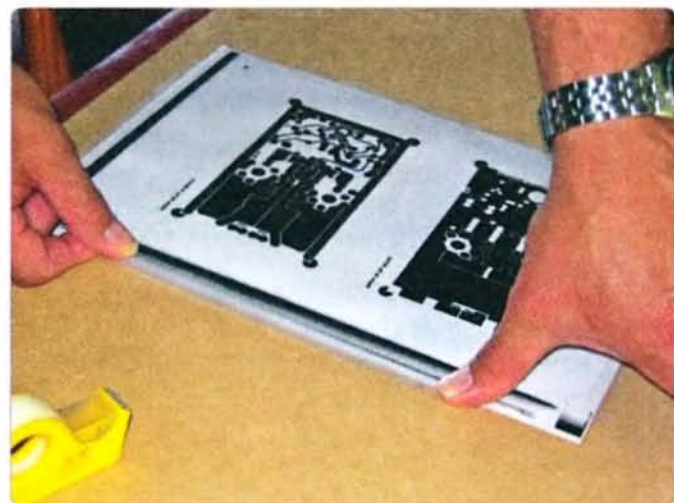


Photo 1: For all photos, refer to text.

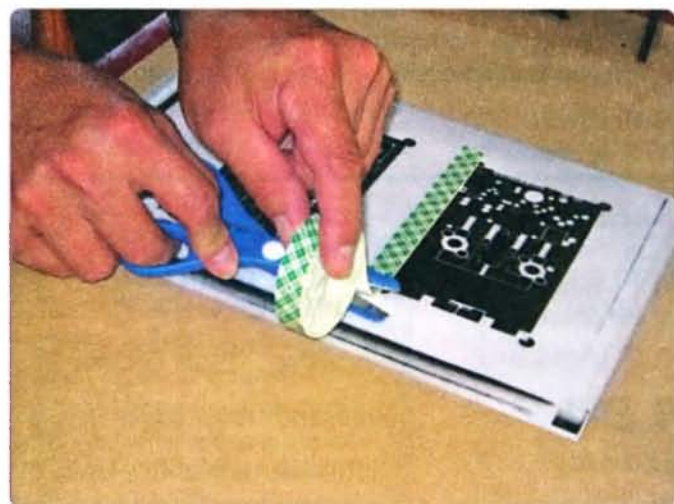


Photo 2.



Photo 3.

Some years ago I wanted to produce a double-sided PCB, but felt certain that an approach to setting up double-sided artwork involving guide pins and drilling was going to go badly for me. After some pondering I came up with a solution described here, which employs double-sided adhesive tape.

Tape down the artwork transparency of one side with a blank sheet as backing (for contrast). I like to do this on a board in case I need to move. Refer Photo 1.

Apply a length of double-sided adhesive tape to one edge of the artwork. Refer Photo 2.

Apply another length of tape along an adjacent edge. I like to use the blank PCB as a guide. Refer Photo 3.

Now carefully overlay the other transparency such that everything aligns properly.

With the fingers of one hand firmly pressing down on the top transparency (well back from the tape), lift it up and hold it with your lips, then remove the backing from the longer of the two lengths of tape. The backing stays on the adjacent length. Refer Photo 4.

Carefully lower the top transparency down onto the exposed tape. Re-check alignment before pressing the transparency gently onto the tape (to avoid distortion). Then press a little harder to get full adhesion.

Cut away the excess transparency to make things more manageable. Refer Photo 5.

You now have a sort of booklet into which you can snugly place your sensitised PCB blank for exposure. Refer Photo 6.

I only have a simple one-sided UV exposure box, but have not had any problems with flipping the package over to expose both sides. Reasonable care is all that is required because the boards tend to fit quite snugly into the package.

This technique is useful even for single-sided PCB exposures. It is uncanny how boards and artwork can move around in exposure boxes, despite great care.

Note however that it might be unsuitable for many PCB designs that rely on plated-through holes. Of course you can use hook-up wire to complete a 'via' connection, but the problem comes when a hole is for a fat component that prevents you from soldering both sides. If you are designing your own board then you can account for this.

Otherwise I believe that double-sided PCBs are as easy to produce at home as single-sided ones. I hope that some of you are encouraged to consider a double-sided PCB design for your next project.





Photo 4.

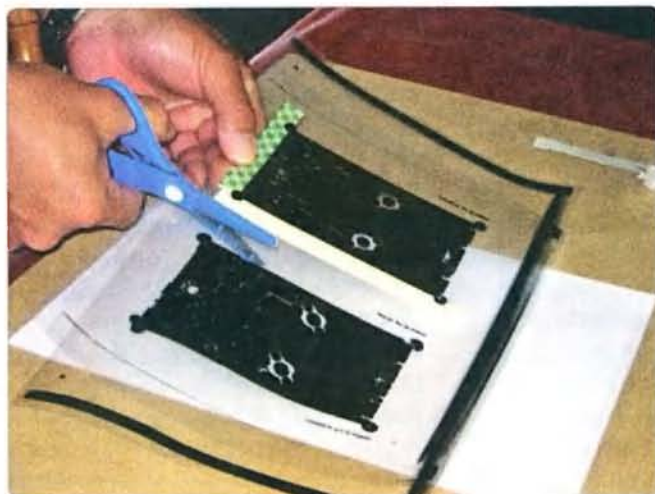


Photo 5.

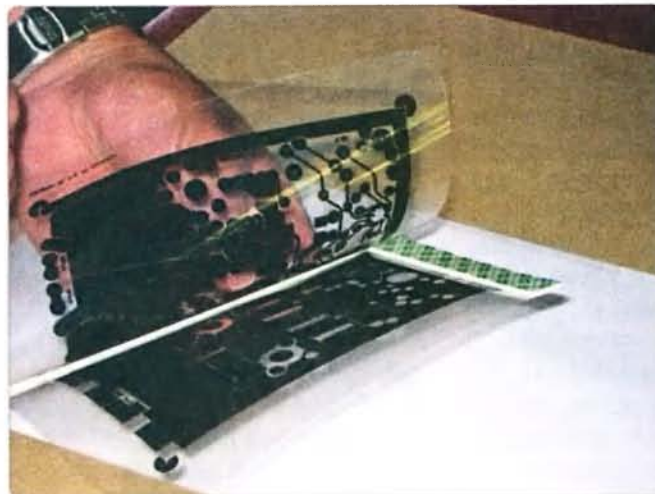


Photo 6.

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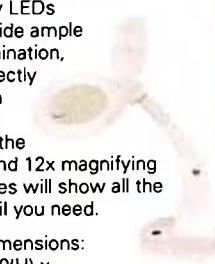


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# DX-News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

As reported in DX Bulletin 28 from ARRL Headquarters, Newington, CT on 14 July, 2011, the Republic of **South Sudan** is now a member of the United Nations; the new country is a new DXCC entity by way of Section II, 1(a) of the DXCC rules. The DXCC Desk will begin immediately accepting QSOs for this new entity, with a start date of 14 July, 2011. According to DXCC Manager Bill Moore NC1L, the Honor Roll numbers move from 340 to 341 for the Top of the Honor Roll, and for Honor Roll it becomes 332. *'The deadline for the Honor Roll and annual listings is 31 December, so you must submit the new entity to DXCC by then in order to retain your Honor Roll status,'* Moore explained.

The operation from South Sudan ended last week with 121,286 Qs, 27,994 unique callsigns and 176 countries in all 40 CQ zones. Mode totals were CW 55,458, SSB 47696 and RTTY 18,132. The RTTY total was a new world record.

T32C - The container of equipment for the T32C expedition to Kiritimati, **Eastern Kiribati**, from 28 September-26 October, has reached Fiji and is due to ship soon to T32. *'The team is now pretty much complete, with no less than 41 operators, some of whom will be there for the whole period, others will be there for the first or second half. At any one time there will be around 30 operators on the island, permitting us to operate round the clock on all bands with, propagation and other factors permitting, two stations QRV on each of 80 through 10'.* The latest Press Bulletin, issued on 2 August, and extensive information on the DXpedition can be found at [www.t32c.com](http://www.t32c.com)

It will be interesting to see the final number of QSOs that they make, taking into account the number of operators and the time that they will be on the island.

JD1 - **Minami Torishima**: Take JG8NQJ/JD1 will be active from Marcus Island until mid-October and will return in December. Current activity is only

on 30 and 17 but when he returns in December he will be working all bands. QSL to home call, by the bureau, or direct to JA8CJY. He also has an on-line log available at <http://dx.qsl.net/cgi-bin/logform.cgi?jd1-jg8nqj>

KH5 - **Jarvis Island**: OPDX reports the previously announced DXpedition to Jarvis Island has been postponed to November or December, 2012 due to a scheduling conflict with the Braveheart.

V47JA, operator John Abbruscato, will again operate from his Calypso Bay, **St. Kitts** vacation home, 90 metres from the water's edge. The dates this time are 10 October-5 November. John plans to be on 80-6 m SSB, including 60 m, and the CQWW SSB Contest on 29-30 October, single operator all band. He is equipped with a Kenwood TS-590S, Yaesu FT-857D, and an SB200 amplifier. For antennas, it is an 80-10 m dipole, metal roof mounted verticals and a three-element Yagi on 6. His XYL Cathy W5HAM will occasionally operate as V47HAM. QSL all to his home call, W5JON.

RI1FJ, operator Evgenij UA4RX left **Franz Josef Land** early this month, replaced by RI1FJL, operator Viktor UA3ME. Also there is RI1FJA, operator Andrey RA3MD. He is equipped with a SteppIR Yagi. Both of these new operators will be there on station until September, 2012. QSL both via RX3MM. Leaving FJL, outgoing operators UA4RX/0 and UA1PBA/0 operated for a few hours on 11 August from **Vize Island**, AS-055, on their way home.

Tom TZ6TR, a German amateur radio operator, has been QRV in the Tomboutou region of **Mali** since March of last year. He is running an IC-706MKIIG running 100 watts. His antennas include a commercial 40 metre long dipole with 9:1 balun and a full wave triangle for 17 and 6 metres. Activity is on 80, 40, 20, 17, 15, 12, 10 and 6 metres on SSB

as well as FM on 10. Tom is there working for a development agency until 2013. So far he has only been confirming QSOs on eQSL, which is not accepted for DXCC. He plans to post an address, on QRZ.COM, for those needing a paper QSL. Also he has agreed to send a copy of his licence to Newington to be accredited for DXCC. His German call is being withheld to avoid QSL cards being sent to a wrong address.

Chris GM3WOJ (GM2V/ZL1CT) has had to push back his DXpedition to **Niue Island** (OC-040). Originally he was going to be QRV as ZK2V starting 15 October. The new dates are 21 October until the end of the year. Joining him for two weeks will be Keith GM4YXI (GM5X), probably signing ZK2X. Chris has a website at <http://www.zk2v.com/>

To celebrate the 2011 Rugby World Cup being held in **New Zealand**, special call ZL4RUGBY will be activated by Paul ZL4PW from 19 August to 31 October.

Gay N4SF and Steve AA4V plan to join Jan 4X1VF/4X0A in this year's CQ World Wide Phone Contest. They will be in the multi-two category from **Bermuda** using AA4V/VP9 in the contest and home calls /VP9 before and after the test. Activity will be on SSB, CW and RTTY on 1.8 through 50 MHz outside the weekend. Plans are to arrive on the island on 26 October and depart on 11 November.

There has been a change of callsigns for the upcoming PA6Z Dutch DXpedition and Contest Group's October DXpedition to **Guernsey Island**. Originally they were going to use MU/PA6Z, but now they will be operating as MU/PA9M, from 23 to 30 October, including the CQ WW SSB DX Contest. Activity will be on 1.8 through 50 MHz on CW and SSB. They have a web page at [www.pa6z.nl](http://www.pa6z.nl) QSL via PA9M.

Due to difficulties in organizing and making arrangement for the transportation to **Banaba**, a decision was made to reschedule the HA

South Pacific Tour DXpedition to January/February 2012.

Gab HA3JB has received his renewed licence to operate in **Egypt** as SU/HA3JB from 1 September until 30 November. He plans to be QRV on CW, SSB, RTTY, PSK and some SSTV. Gab was QRV in 2010 using the same call and prefers no dupes this year. Activity will be on 1.8 through 28 MHz. QSL via HA3JB.

**J28FJ - Djibouti:** This call belongs to Jacob KBØZIA who is in Djibouti City until next spring. He is new to DXing and this is his first operation outside the states. He is operating 40-10 mostly SSB but may try digital if he can get the equipment for it. QSL to his home call.

Starting 25 August Harry G0JMU will be back at Club Makokola in **Malawi** and QRV for three months as 7Q7HB. Ely IN3VZE will be joining him in mid-September for a two week stay as 7Q7CE. Harry is taking a new 17 metre antenna and plans to be active on 20, 17 and 15 metres CW and RTTY. Ely operates on SSB and the digital modes. QSL 7Q7HB via G0IAS and 7Q7CE via IN3VZE.

9N1FE is the Nepal licence for Fernando Cardona WP4FE from Puerto Rico. He is in Nepal working in a mission hospital, the Scheer Memorial Hospital of the Seventh-Day Adventist Church in Banepa, 30 km east of Kathmandu. Fernando says he will be active occasionally, only on 20 m, in his free time. He has a Kenwood TS-120S to a Comet H422 antenna in a V configuration, 25 to 30 metres high, supported by a water tank. QSL to Fernando A. Cardona, PO Box 88, Kathmandu, Nepal.

Members of the **United Arab Emirates (UAE)** contest group and the South East Europe Contest Club will team up to put A61K on the air from the UAE during the CQ World Wide SSB DX Contest on 29-30 October. Team members include A61BK, A61K, DK6XZ, S52RU, YT2T and YU2M. This is expected to be a multi-two effort.

Gerard ZS6KX has been working at the SANAE IV Base on **Antarctica** since late last year and is now QRV. Listen for ZS6KX/7 on 20 metres, between 14175 and 14190 kHz, between 1400 and 1700 Z.

DL8OBF, DJ7JC, EC8AFM, DL2SAX, DL5OCR, DL1QW, DF3FS and DF7ZS will be teaming up to put CR3L on the air from the **Madeira Islands** in this year's CQ WW Phone contest. This will be a multi-multi effort.

CN1C will be a CQWW SSB operation from the **CN8PA** station. HB9EOU, HB9CVC, HB9HLI, HB9HLM and F5VLY will join their host, CN8PA, to operate. The special CN1C contest call will continue to be used by CN8PA and any other guest operators for another three months after that. QSL via EA7FTR.

C5A in **The Gambia** will be multi-multi in the CQWW DX SSB Contest 29-30 October. Operating will be OK8WW/OM2TW, OK1RI, OM6NM, OM5AW, OK1DIG, OK1NY, OK1FFU and OK1DO.

During the CQWW DX CW Contest 26-27 November, OK8WW/OM2TW, OK1RI, OM6NM, OM5AW, OK1DIG, OK1NY, OK1FFU, OK1DO and OM2IB will also put C5A in the MM category. They have a website at [www.om0c.com](http://www.om0c.com) QSL via OM2FY.

II9T will be multi-2 in the CQWW SSB and CW, from IT9, **Sicily**. Operators IT9CHU, IT9CJC, IT9EQO and IT9BUN say they are looking for additional operators, 'the best operators in Europe. Contact IT9GSF for details.' Another station will be single op 20 m and single op 160 m.

Finally, some QSL information regarding PJ2T. 'Following the untimely passing of long-time PJ2T QSL manager Scott Lehman N9AG, the Caribbean Contesting Consortium (CCC) is very pleased to announce that the QSLing legend Joe Arcure W3HMK will serve as the new PJ2T QSL Manager. QSLs sent to N9AG and awaiting response will be transferred to W3HMK: no need to re-send any requests. All PJ2T logs are current on Logbook of the World (LoTW), and new logs are uploaded promptly following each PJ2T contest operation.'

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (1JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)

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## Amateur Radio Victoria Centenary

This year marks the 100th anniversary of what began in November, 1911 as the Amateur Wireless Society of Victoria, quickly changing to the Wireless Institute of Victoria, and today is known as Amateur Radio Victoria. Its members hope all radio amateurs will join in the celebration. Part of the activity includes an operating award, with the rules now available under the Award section of the Amateur Radio Victoria web site.

During the celebratory period, from 1 August to 30 November 30, contact with ARV members gains two points. A bonus of ten points is available by working VK3WI during the Remembrance Day and International Lighthouse and Lightship weekends in August, and the Oceania DX Phone Contest on 1-2 October.

## Special event call sign VK100ARV

Amateur Radio Victoria special event call sign VK100ARV will be used throughout the month of November to help celebrate ARV's Centenary.

## VK3WI on air at ARV Office for RD contest

A working bee consisting of members of the ARV Council gathered on the weekend prior to the RD contest and installed an HF five band vertical antenna at the ARV office in Ashburton. The antenna was utilised during the RD contest the following weekend and many excellent reports were received.

## VK3WI on air for the International Lighthouse and Lightship Weekend

Amateur Radio Victoria again participated in the ILLW event on

20-21 August by setting up a station at the Lighthouse / Time Ball Tower in Williamstown and using the call sign VK3WI. Active bands were 20, 40 and 80 metres, plus 2 metres and 70 cm.

The crew consisted of Barry Robinson VK3PV, Ian Downie VK3XID, Michele Grant VK3FEAT and the Event Coordinator Terry Murphy VK3UP. Some of the visitors to the station over the weekend were Jim Linton VK3PC, Derek McNeil VK3XY, Ed Seeto VK3LIP, Phil Ryan VK3PJR, Wayne Bruce VK3VCL, Philip Johnstone VK3YAZ, Jonno Karr VK3FMPB plus several others as well as Colleen Hartland MLC who popped in for a brief chat.

## The world's first DATV QSO Party

The world's first DATV QSO Party will be on Melbourne's VK3RTV repeater later this month. The QSO Party has been organised by Peter Cossins VK3BFG as control station and will include the Amateur Television Network of California and the British Amateur Television Club (BATC).

Peter VK3BFG said that 8 pm AEST Friday, 26 August is quite good timing to kick off the two-day event as part of the Amateur Radio Victoria's celebration of its centenary.

Current arrangements include VK7TW (Hobart), VK7EM (Penguin), VK3CE (Bendigo) and VK4XRL (Brisbane). Their video will come via Skype which then be put on DVB-S to VK3RTV2. Melbourne stations will respond via VK3RTV1. VK3BCU is in Thailand and expects also to be Skype-linked.

On Saturday 27 August at 1 pm AEST there will be a link up with

Don Hill KE6BXT in California and also a connection with the W6ATN ATV repeater. As on Friday, VK3BFG will take the Skype feed through to VK3RTV2. Anyone anywhere in the world can watch the proceedings via the BATC streaming website. Note that AEST is plus 10 hours UTC.

## Upcoming activities and events

VK3WI will be active during the Oceania DX Contest October 1/2. Special event call sign VK100ARV will be active throughout the month of November.

Members of ARV will be activating a selected number of National Parks on the weekend of 19-20 November. A valid contact with a National Park during this activation is worth 10 points towards the ARV Centenary award. For more information visit <http://www.amateurradio.com.au/awards> or if you wish to activate a National Park please contact Tony Hambling VK3VTH, [vk3vth@amateurradio.com.au](mailto:vk3vth@amateurradio.com.au)

## Foundation classes

Enrolments are now open for the quality training experience on 10-11 September, and 19-20 November, that is available at 40g Victory Boulevard, Ashburton. The weekend begins at 9 am on the Saturday for instruction, which finishes around 4 pm, then back at 9 am Sunday for some revision before the written and practical assessments are held. To enrol or obtain more information contact Barry Robinson VK3PV on 0428 516 001 or [foundation@amateurradio.com.au](mailto:foundation@amateurradio.com.au)



**Plan NOW for JOTA/JOTI 2011!**

Contact your local **Scout** or **Guide** group.

# Amateur Radio Victoria-VK3WI participation in ILLW 2011

Terry Murphy VK3UP, Event Coordinator, Amateur Radio Victoria



Photo 1: The well organized and resourced ARV ILLW station, VK3WI, literally in the shadow of the Time Ball Tower in Williamstown.

facilities also made the preparation of meals and refreshments a lot easier as well.

The HF station consisted of a Kenwood TS-2000 running 100 watts operating on either a 40 metre inverted vee, an 80 metre inverted vee or a ground mounted multi band vertical. Two Yaesu transceivers covered both the two metre and 70 centimetre bands using a Diamond duplexer and a Diamond X50 dual band antenna mounted on a tripod mast.

The noise floor is quite considerable at this location and sometimes can be as high as 10 dB over S9 on 80 metres and an S8 on 40 metres but with perseverance we still managed to log about 220 contacts Australia wide, some DX and 30 lighthouses.

The station was dismantled around 4.00 pm Sunday afternoon after a very enjoyable weekend was had by all. Amateur Radio Victoria will participate in the ILLW in 2012 by activating the Time Ball Tower again and planning has already commenced.

Amateur Radio Victoria activated the Time Ball Tower in Williamstown again this year for the International Lighthouse and Lightship Weekend event, having done so each year since 2005. Normally the weather is not very kind to us being the middle of winter but this weekend was the exception to the rule. The skies were clear and sunny with the temperature around 20 degrees on both days, with little or no wind, which made for a perfect event weather wise. The members of the public were out in force and the ice cream van parked nearby did a roaring trade.

The initial set up of the station commenced around 07.30 am Saturday morning local time. The first contact was made on 20 metres at 00.07 UTC (10.07 AEST) with VK4WIR at Cape Capricorn Lighthouse AU-0059.

The team consisted of Ian Downie VK3XID, Barry Robinson VK3PV, Michele Grant VK3FEAT and myself Terry Murphy VK3UP. There were numerous visitors to the station

over the course of the weekend and some hams as well which included, but were not limited to, Jim Linton VK3PC, Derek McNeil VK3XY, Ed Seeto VK3LIP, Phil Ryan VK3PJR, Wayne Bruce VK3VCL, Philip Johnstone VK3YAZ and Joseph (Jonno) Karr VK3FMPB. Colleen Hartland MLC even popped in for a look see and a brief chat.

Adding to the creature comforts this year was the addition of a caravan which allowed for a warmer operating environment than the otherwise usually cold and cramped basement of the Tower. The kitchen

Photo 2: Michele VK3FEAT working the ARV station in the ILLW 2011 event.



# The RADAR club returns to Cape Capricorn Lighthouse for ILLW 2011

Les Unwin VK4VIL



Photo 1: The Cape Capricorn lighthouse, and the array of antennas for the RADAR ILLW 2011 activation.

Rockhampton and District Amateur Radio Club (RADAR) returned to Cape Capricorn on the east coast of Curtis Island for the 2011 International Lighthouse and Lightship Weekend. Each year, amateur radio operators visit lights to showcase the history and worth of lighthouses and the role they have played in global development. Effort required to reach the lighthouses varies greatly.

Cape Capricorn Lighthouse is quite remote and necessitates a five hour trip each way between the Cape and Rosslyn Bay, near Yeppoon. This year, conditions were great for the journey out, but winds of 25 to 30 knots developed for the return trip in good following seas. An APRS system was installed on one of the vessels, which allowed club members and friends to monitor the trip.

Those involved stayed in the old light keeper's cottage, with antennas at the same position as the original communications mast.

As well as the usual array of wires and beams erected at the lighthouse for long distance work, a cross band repeater was also installed in an elevated position to allow those sightseeing and fishing to maintain communications in the hilly terrain.

During the weekend, operators spoke with over 400 other radio stations in about 30 countries including

Germany, Namibia, USA, Japan, Spain, England, Chile and Northern Marianas. In excess of 40 lighthouse stations were contacted, including a good number for the third consecutive year that the club has participated in the event.

The fish were also on the bite in big numbers and the club has booked the site and registered with the Lighthouse Association for 2012.

AR

Photo 2: Dave VK4FWD at the operating position at Cape Capricorn lighthouse. Note the view!





# An 'SGC-230' autocoupler repair

Warren Stirling VK3XSW

At one of our recent radio meetings I was handed an autocoupler and asked if I could have a look at it. The supplied information was that there was 'a relay problem'. It was labelled as a Barrett 511, but on opening it I found it to be an SGC model 230. I know that Codan also badge engineer the SGC-230 as well and call it a Codan 9103, so it was not surprising to find Barrett doing the same.



Photo 1: The 'SGC-230', showing the Barrett label.

The first thing to do was to gather some information about the unit so I downloaded the user manual, refer Reference 1, and also the troubleshooting guide, refer Reference 2, from SGC's website. The user guide does not contain any schematics, so I sent an email to SGC, describing the coupler including the internal panel. I also asked about a replacement for the broken ceramic feedthrough insulator

Photo 2: The board of the auto tuner, detailing specifications.



for the antenna connection and what the correct power fuse was since the broken 3AG fuseholder had been 'repaired' by soldering a PCB mounting fuse across it.

A return email included the schematics, details for the fuse and the part number for a replacement insulator. Also mentioned was the fact that the unit was over 10 years old. I removed the broken fuse clips and fuse, replacing them with the correct fuse clips and fuse, which were sourced from Jaycar. Power was applied without anything else connected and I was gratified to see the five volt

LED come on and all of the relays operated, with the inductor relays staying operated while the capacitor relays released. This was a good sign as it meant that the microprocessor was probably working.

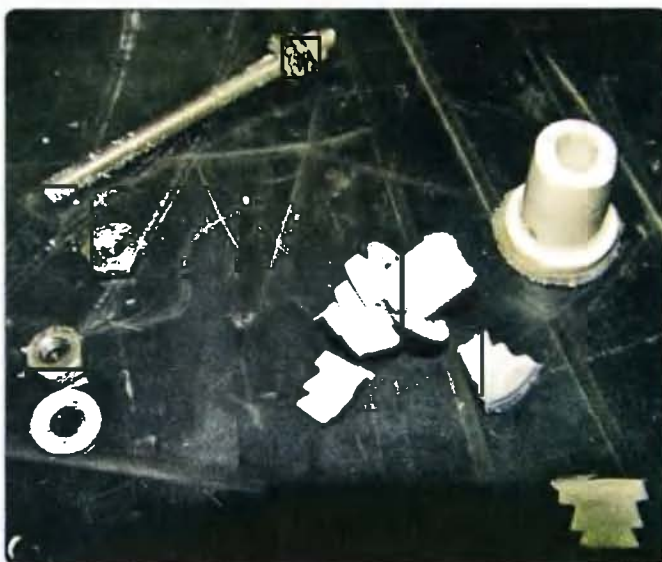
A new insulator was ordered and while waiting for it to arrive I had another look at the SGC website and found a link to a diagnostic ROM, written by Dave Dunfield, refer

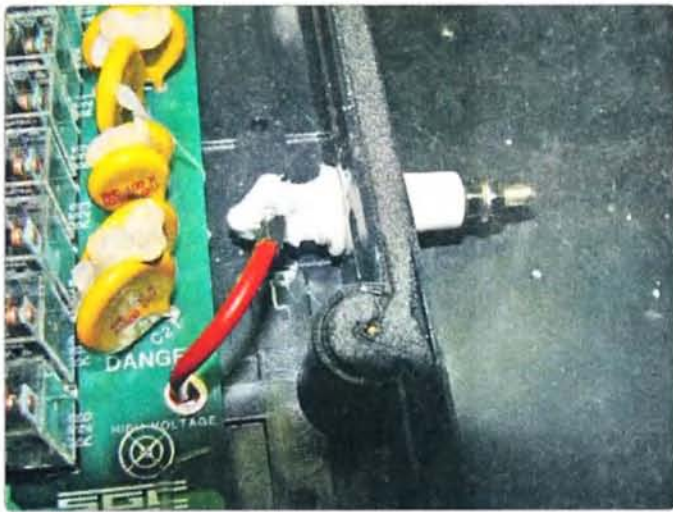
Reference 3, for his SGC-230, and which happened to be the same version as the one I was working on. This ROM would allow me to function test it without having to apply RF. I built an RS232 to TTL converter, similar to the one Dave details in his article, which is required so that a computer running a terminal program could communicate with the SGC-230. I also programmed a test EPROM from the image file included with the article.

The new feedthrough insulator arrived and was fitted, so I started testing. The RS232 to TTL converter was connected to the SGC-230 and the SGC EPROM was replaced with the one I had programmed. A PC running Hyperterminal was connected and then the coupler was turned on. The result was a prompt from the test program in the EPROM which confirmed that at least the microprocessor in the SGC-230 was working, so it was onwards with further testing.

Dave's program allows you to operate the relays in any combination and also reports the status of the various detectors in the RF deck. A quick run through all the relays showed that, at the least, they worked so the next step was

Photo 3: The broken feedthrough insulator.

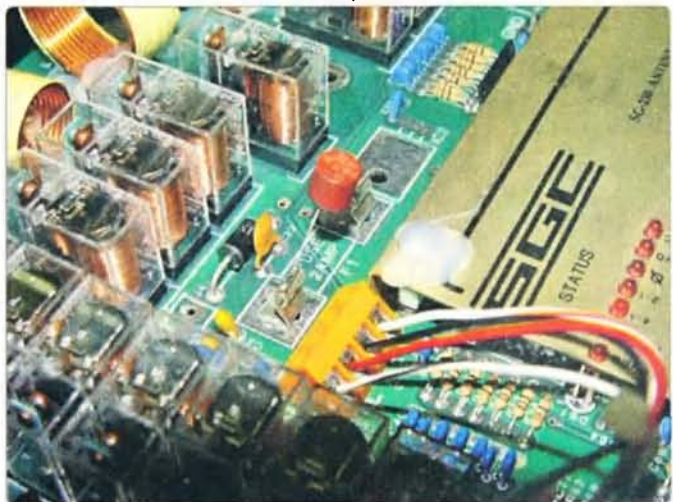




to test the inductors and capacitors associated with the relays. A look at the schematic for the RF section showed the SGC-230 to be a 'pi' type coupler with capacitors to ground on the RF input and RF output with a number of inductors in series connecting the RF input to the RF output.

Using Dave's program I made sure that all of the capacitor relays were released, to switch them out of circuit, and all of the inductor relays were operated, to switch them out of circuit. An LC meter was connected to the circuit board at the RF input and then zeroed to compensate for any stray capacitance. The transmitter capacitor relays were operated individually and the measured capacitance was checked against the appropriate capacitance value on the schematic. The same procedure was followed to test

Photo 5: The fuseholder, after repair.



the antenna capacitors and all were found to be of the correct value. A point to watch is one side of the LC meter has to be connected to the ground trace on the circuit board, not the RF ground terminal which has two paralleled capacitors isolating it from the circuit board

ground; there is also a high value resistor across these capacitors which functions as a static bleed for the antenna connection.

To test the inductors the LC meter was connected from the RF input on the circuit board to the RF output at the ceramic feedthrough, then all of the capacitor relays were released and all of the inductor relays were operated to switch the capacitors and inductors out of circuit. The LC meter was again zeroed to allow for stray inductance and then each

inductor relay was released in turn and the measured inductance was checked against the value on the schematic.

Since basic testing of the inductors and capacitors showed them to be OK the next step was to apply RF, using a test load instead of a real antenna. I happened to have

a 2.2  $\Omega$  100 watt high power resistor to hand, one of the gold coloured aluminium clad units. A resistor like this is ideal for testing antenna couplers as it presents both a resistance and an inductance, while being able to dissipate a fair amount of power.

Admittedly a 2.2  $\Omega$  load is a severe test but HF antennas that are electrically very short, which the SGC-230 is intended to be used with, will present a similar and often worse load. Farnell stock resistors like the one I used, with a 1900 VAC voltage rating, refer Reference 4, which is important as a reactive load can present quite a high voltage as evidenced by the type of antenna connection on the SGC-230.

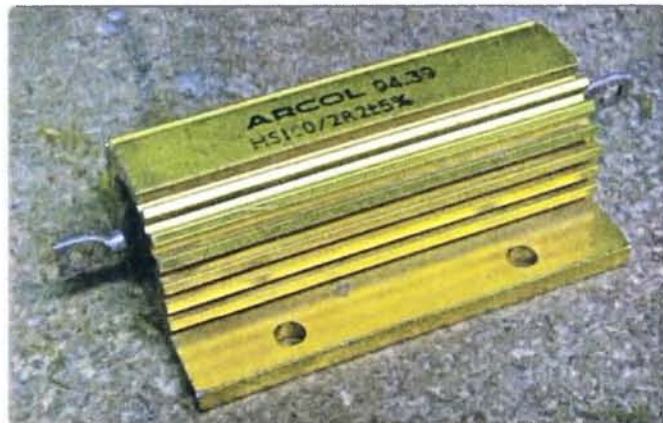


Photo 6: The Arcol 100 watt resistor.

The diagnostic ROM was replaced with the SGC EPROM and the RS232 to TTL converter was disconnected from the board.

I connected the 2.2  $\Omega$  resistor between the antenna and RF ground connections and applied about 10 watts of RF but there was no response from the unit apart from the power up action of the relays. Several different frequencies between 80 metres and 10 metres were tried and I saw that the detector LEDs lit up in different combinations at different frequencies, so the various RF detectors were probably OK.

With this in mind I had another look at the schematics supplied by SGC and decided that the frequency counter section that the microprocessor uses to measure the frequency of the applied RF signal was likely to be the culprit

given the various detectors seemed to be working and the counter circuit is the only other input to the microprocessor. The counter is made up of a resistive divider and a diode voltage limiter, connected to the RF input, which feeds a 74LS93 divide by 16 counter, followed by a 4020 divide by 32 counter which is connected to the microprocessor.

The resistive divider at the input of the frequency counter section consists of two resistors, both of which tested OK but I found a short to ground at the divider junction. The voltage clamp at the input of the 74LS93 counter consists of a series string of forward biased diodes to ground and one reverse biased diode to clamp any negative signal excursion and it was this diode that was shorted. These diodes are in a 16 pin package, a TND908, which is obsolete so yet another email was sent off to SGC. The response recommended replacing the TND908 with 1N4148 diodes which I did. Another test with RF ended with

the same response as before so I removed the RF source and broke out the logic pulser and logic probe. Applying a 100 Hz pulse train from the logic pulser to the input of the 74LS93 and looking at its output with a logic probe showed it was not working, so I replaced it and then retested. Both counters now worked although it took a bit of time to prove this as both dividers cascaded work as a divide by 512 counter and the maximum pulse train frequency from my pulser is 100 Hz; So, for a 100 Hz pulse train on the input the output changes state once every 5.12 seconds.

With the RF and resistor reconnected I tested the unit again and was happy to find it working as I expected it should, so it was time for an on air test. For the on air test I used a 2.75 metre (nine foot) long whip with eight ground radials, each 4.9 metre (16 feet) long. The initial testing went well until I accidentally selected a pre-programmed frequency around 2 MHz. At that point I noticed one of the relays, which turned out to be K12, producing

magic smoke. This relay switches an 8 uH inductor in and out of circuit.

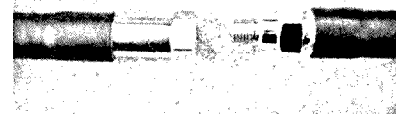
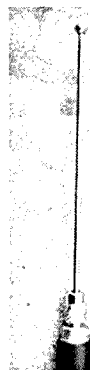
A read of the manual (!) confirmed my mistake. At the frequency I had been using the antenna should have been no shorter than seven metres (23 feet - minimum length at 1.8 MHz, not the 2.75 metre length I was using, which would have been OK down to 3.5 MHz. Yet another email to SGC resulted in a replacement relay, and some spares, arriving. With the replacement relay fitted careful testing confirmed the unit was again fully functional, but not foolproof.

## References

1. <http://www.sgcworld.com/PubInfoPage.html>
2. <http://www.sgcworld.com/technicalInfoPage.html>
3. <http://www.sgcworld.com/productupdates.html>
4. <http://au.farnell.com/tyco-electronics/hsc1002r2j/resistor-100w-5-2r2/dp/1174284?Ntt=hsc100>



# TET-EMTRON



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- Comes with its own drawstring storage bag.
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- Does not include HF base and spring.

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# Spotlight on SWLing

Robin L Harwood VK7RH

At last spring has arrived and with it the annual clock changeover from standard to summer time as well. Except WA and Queensland, of course, who do not alter their time at all. But of course it really matters little as we use UTC as our standard.

At the end of this month, the northern hemisphere reverts back to standard time, usually on the last Sunday of the month, although continental North America opts for the first Sunday in November. However the Russian Federation has decided not to revert back and to adopt summer time as standard. I do not know if other CIS nations will be following suit. This means that Moscow will now be UTC +4 permanently.

Babcock, which owns and operates the major shortwave senders in the UK, recently announced that they are phasing out the Rampisham site in southern England before Christmas. This is primarily due to both the BBC World Service and DW severely cutting back their needs for shortwave. Also part of the Wofferton site in the English Midlands will be curtailed. This will leave Skelton in Cumbria in operation. Presumably the overseas sites owned or leased by Babcock will be continuing, probably with other clients.

Rampisham and Wofferton go back 70 years and the former was

only upgraded in recent years. This means that we will no longer be able to easily hear signals from British sites. I well remember hearing Daventry when I commenced listening to shortwave as a young boy. It used to be easily heard on 7150 from 0545 till 0730 and was known as the Pacific Service. When my parents took me to Britain in 1979, I was able to see in the distance the antenna farm from the coach.

I do expect that there will be further cutbacks to shortwave from the end of the a-11 period from the major broadcasters but what is being revealed is the emergence of domestic senders, long masked by the major players. Sadly they too have been in decline as they either switch to FM or internet streaming.

The Gaddafi Libyan regime collapsed in late August after NATO imposed an air and sea blockade as well as conducting missions in support of the insurgents. Shortwave was used in psychological warfare broadcasts and mainly targeted Libyan troops, operating on known channels but not on broadcasting frequencies. These finished as the rebel movement completed their uprising. Two channels were observed in Europe, 10405 and 10125 kHz.

The Libyan shortwave senders at Sabrata went silent in mid-August. A

pro-Gaddafi station was irregularly heard on 8500, a highly unusual choice of frequency. This was in Magreb, a north African Arabic dialect spoken from Morocco to western Egypt.

I was tuning across the 40 metre amateur band one night around 1300 and came across N2GG calling CQ. I thought it was late for an east coast signal to be coming through but he stated he was in New Mexico. Looks like call areas have been abandoned! It is more difficult trying to work out callsign prefixes and they increasingly do not tally with propagation. Please do state your QTH when calling CQ. I have even heard a ZL2 calling CQ but he was in VK7! Confused?

Shortwave is changing but it is not disappearing. The utility sector is increasingly becoming digitalised, making it difficult to identify who they are or where they are located. Remember packet, AMTOR, RTTY? These are modes that have swiftly disappeared. There was a brief RTTY 50/170 transmission on an 8 MHz channel from WLO and the aim was to restart a daily news feed to try and gauge if there would be sufficient interest. However the sender was low power and they apparently had some teething problems and I am unaware if they will continue.

Well that is all for now. Wonder what will be happening next?



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# The Simple SDR: a basic software defined radio anyone can build – Part Two

Peter Parker VK3YE

## Introduction

Last month we described a 'bare bones' software defined radio that allowed reception of a segment of 40 or 80 metres on a basic laptop (or other) computer. Its tuning ease, frequency stability and selectivity beat stand-alone receivers of similar simplicity.

The set had limited tuning range and no rejection of interfering image signals. Modifications that lessen these problems and cover two bands are presented here. Also described is a slimmer model that uses a stronger diode mixer and saves batteries by being USB powered. This is fiddlier to build but preferred for portable use.

## Frequency agility

The first shortcoming of last month's receiver was its limited frequency range. With a 48 kHz sample rate, coverage was the crystal frequency +/- 24 kHz.

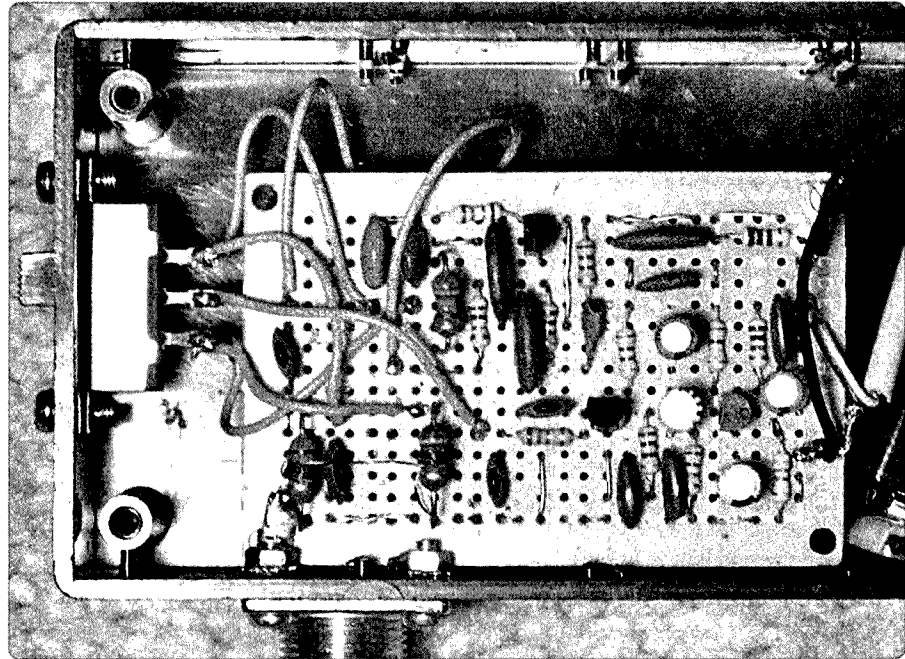


Photo 1: Inside the dual-band SDR.

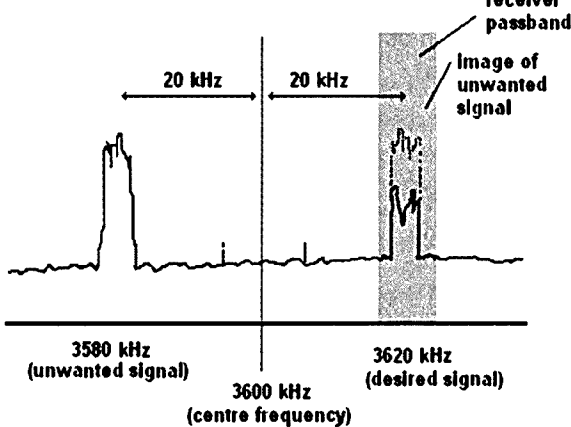
This was overcome by making the local oscillator tunable. You could use a VFO (10  $\mu$ H and 4.7  $\mu$ H inductors are good starting points for 80 and 40 metre coverage, respectively) but ceramic resonators

were used here. These are like crystals but are less stable. Their main advantage is that they can be pulled to cover much of the band by wiring in a series variable capacitor and (optionally) an inductor.

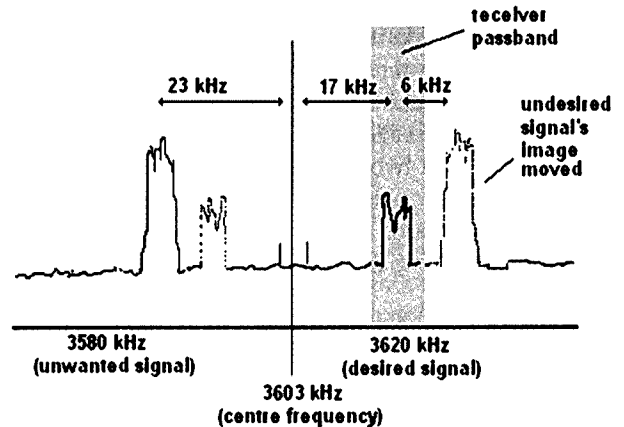
Figure 1: Dodging image interference with a simple SDR.

## Dodging image interference with a simple SDR

Centre frequency at 3600 kHz

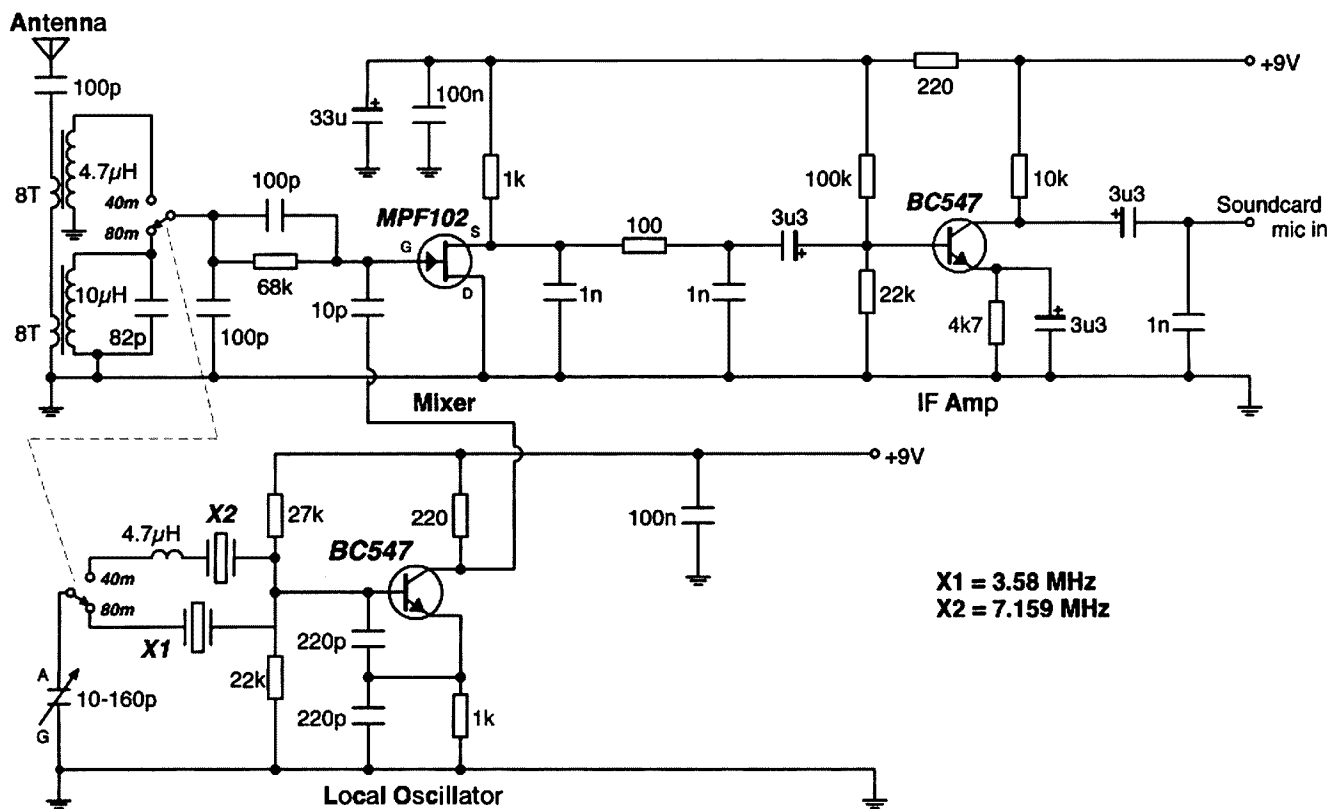


After retuning to 3603 kHz



Undesired signal interferes with desired signal as both are 20 kHz away from the centre frequency and there is no opposite sideband rejection.

Shifting the centre frequency allows the desired signal to be heard clearly as the undesired signal's image is moved away from the receiver's passband.



X1 = 3.58 MHz  
X2 = 7.159 MHz

Figure 2

© WIA AR10088\_2 Drawn by VK3BR

Figure 2: The Simple SDR – dual-band version.

A 3.58 MHz ceramic resonator allows the centre frequency to be varied between 3.515 and 3.615 MHz, allowing a tuning range of between approximately 3.500 and 3.640 MHz. On 40 metres with a 7.2 MHz resonator the range is even greater, covering the entire 7.0 to 7.3 MHz band.

While the top end of 80 metres remains uncovered by this single-resonator arrangement, it wins for simplicity and easy construction. Switching in a second resonator above 3.6 MHz (stocked by Farnell Components) should allow full band coverage over two ranges. Alternatively a VFO could allow wider coverage, though at the cost of more difficult tuning and possible frequency drift.

The tuning capacitor used was a transistor radio variable available from suppliers such as Jaycar. For maximum frequency range use the 'A' and 'G' tabs – leave 'O' unused. A small RF choke in series was required on 40 metres to cover the lower 100 kHz of the band and

some experimentation with values (approximately 1 to 4.7 µH) is suggested.

The dial shows the receiver's centre frequency. Calibration is by spotting the oscillator's frequency on an HF receiver or transceiver. Frequencies are written on small pieces of paper glued to the front panel or the rim of the tuning knob. If space is tight it's useful to abbreviate these (for example, 3540 kHz = 54) so that more frequency points can be added and dial accuracy improved.

Operate by setting the local oscillator to the desired centre frequency, observing activity on the display and fine tuning with the mouse. Making a dial for the tuning knob allows the centre frequency to be entered into the computer and the display to function as an accurate dial.

**Dodging interference**

Image interference was a problem with the receiver described, especially when the band was busy. There are two ways to fix this issue.

The first method is to construct a more complex SDR and use with a stereo soundcard. This is the best solution and allows true 'single-signal' reception with reduced background noise. Built-up and kit SDRs are obtainable from local and international suppliers.

Alternatively, skilful retuning of a simple SDR can move the interfering image signal away from the desired signal. This requires a receiver with a local oscillator that can be shifted by at least a few kilohertz. Unless the band is very crowded, this should be sufficient to dodge interference and allow clear reception.

Figure 1 shows how it works. If the local oscillator is on 3600 kHz and the desired signal is on 3620 kHz, the SDR will produce a 20 kHz output difference frequency that is converted to audio. However if someone were to transmit on 3580 kHz the difference frequency would also be 20 kHz. Because the receiver cannot reject image signals this interferes with reception of the desired signal.



Photo 2: A slimmer SDR in use.

The solution is to slightly adjust the receiver's local oscillator (for example, to 3603 kHz) and retune the desired signal on the computer. The desired 3620 kHz signal is now a 17 kHz difference, so can still be received. However the undesired 3580 kHz transmission is now 23 kHz away from the centre frequency. This is easily separable from the desired signal (6 kHz away) so will no longer interfere.

Of course if someone came up on 3586 kHz (3603 kHz – 17 kHz) the interference would reoccur and a further adjustment of the centre frequency (possibly to 3597 kHz) would be required to dodge it. Another shortcoming is that even if there are no signals on the receiver's image, there is still band noise, and this can make weak signals less readable. Hence this method is a compromise, though still adequate for all but the most crowded bands and the weakest of signals.

### An extra band

Once the basic receiver is operating, an extra band is easy to add - if you have the parts. Candidates include 160 metres (making use of 1.843 MHz crystals) or 40 metres (either a 7.159 MHz crystal or 7.2 MHz ceramic resonator). Alternatively

you could try WWV on 2.5, 5, 10 or 15 MHz or part of a shortwave broadcast band if you have suitable crystals or resonators.

The unit pictured here covers 80 and 40 metres. The latter was made possible by the use of 7.2 MHz ceramic resonators. These were obtained from the CW Operators

QRP Club but a current commercial Australian supplier is not known. Alternatives include using the 3.58 MHz resonator on both bands by adding a switchable frequency doubler circuit or constructing a free-running oscillator.

Band switching is easy to arrange. Only the front end and crystal or ceramic resonator need to be switched. The antenna primary coils are wired in series so no switching was needed there.

Figure 2 shows the circuit diagram for the modified unit, with frequency agility and two bands.

### A slimmer SDR

The circuit presented in Part One (and the refinements above) were designed more for a beginner. It avoided the use of toroidal transformers and USB power, which if wrongly connected, risked damaging the computer.

The unit in Photos 2 and 3 is an alternative. It is slightly less sensitive than the above design, has a stronger front-end and is USB powered. Not having the battery means a smaller case, making it more suitable for portable use.

Figure 3 shows the circuit. Because a passive diode detector

is used, this version needs a front-end RF preamplifier. Overall gain is sufficient not to need an IF amplifier.

The local oscillator is fairly similar to the original circuit. Either a crystal or ceramic resonator can be used. A buffer amplifier has been added to sufficiently drive the diode detector. This may also assist stability if you wish to remove the crystal and make it a VFO to increase frequency agility or cover bands for which you lack crystals.

The most critical parts of construction are winding the toroid for the mixer and properly connecting the USB power connection.

The toroid requires three lengths of approximately 25 cm of thin enamelled copper wire (as used in transformers) to be twisted together. This can be done with one group of ends locked in a vice or pliers and the other end in a drill chuck. Slowly turning the drill while holding the wires taut should allow them to be evenly twisted.

Approximately ten turns are looped around the ferrite toroid and pulled to be reasonably tight (without damaging the wire or enamel insulation). A continuity tester or multimeter is used to identify each winding. These are connected to other components as per the circuit (the black dots identify one end).

The USB connection could use either a purchased plug or cut-up USB cable. This is used for power purposes only; the data in and out contacts are left unconnected. Pin 1 is +5 volts while Pin 4 is the ground.

Testing and operation is similar to the first SDR presented last month. A demonstration of this set appears on the author's YouTube channel.

### Further work

Both circuits lend themselves to refinement and experimentation. Other frequencies can be covered by substituting a different crystal and front-end values. For example crystals around 2.3 MHz allow evening reception of the ABC's Northern Territory domestic service. Similarly a 6 MHz crystal includes a segment of the 49 metre band, including some frequencies used by Radio Australia.

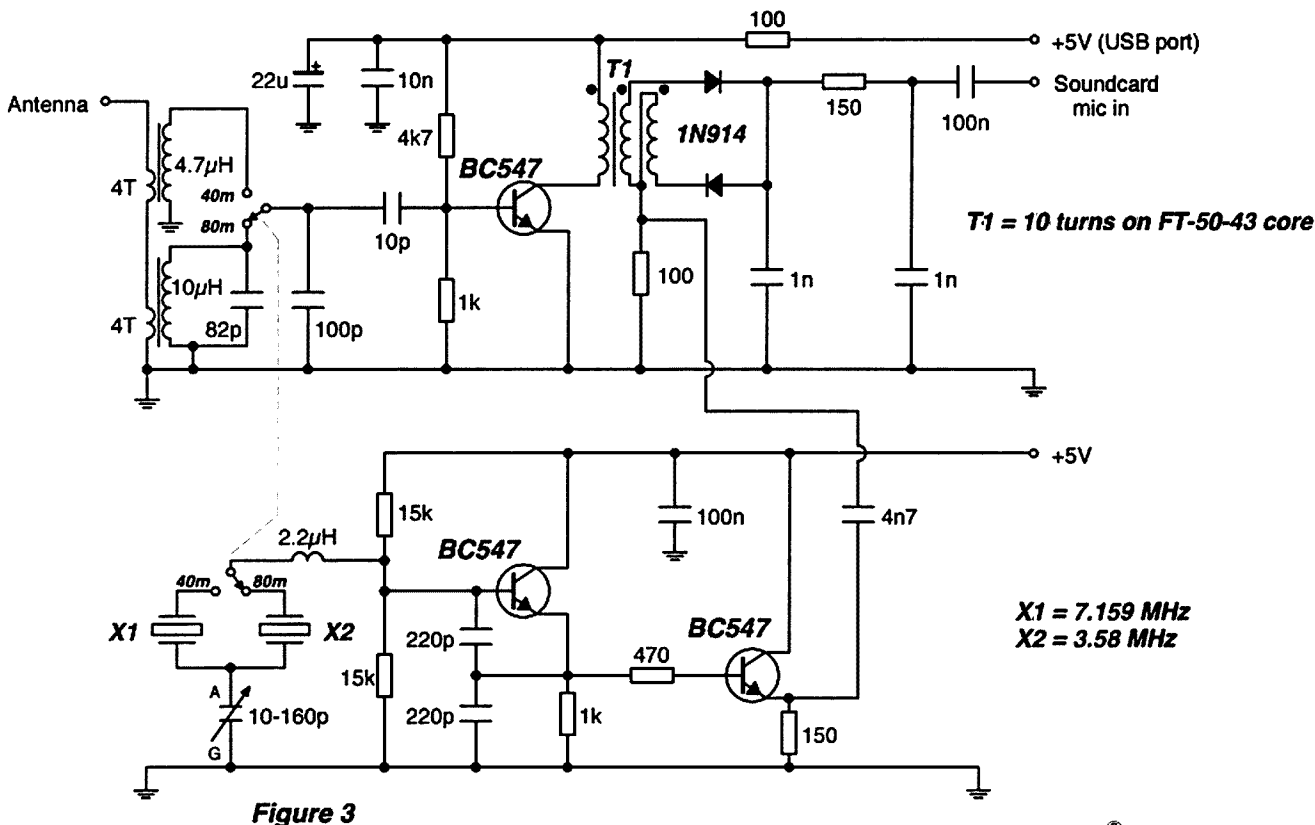


Figure 3

© W1A AR03040\_3 Drawn by VK3BR

Figure 3: The slimmer SDR.

A frequency synthesizer, or bank of switched capacitors with 'channels' every 30 or 40 kHz, could provide easier 'resetability' than a variable frequency or ceramic resonator oscillator.

A crystal oscillator module, such as used on computer boards, can allow an extremely simple receiver to be built, but frequency flexibility is limited. Alternatively, those with a signal generator or QRP transmitter can skip building the local oscillator circuitry and just build the mixer and RF/IF amplifiers only to provide a receive function.

### Conclusion

These articles have demonstrated that basic SDRs can be extremely simple to build. No computer programming or advanced electronics construction knowledge is required. Although the receivers here have limitations, on a performance for dollar basis they compare well with non-SDR designs of comparable simplicity.

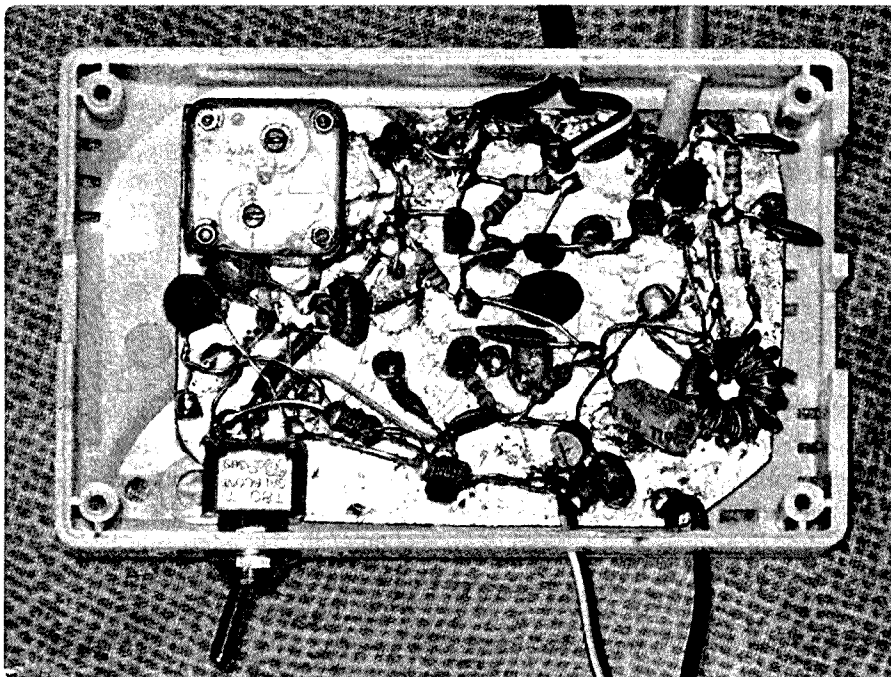


### Erratum

In Part 1 of this article, published in the September issue of AR, there are two small errors in the schematic (Figure 1 on page 31). Please note:

1. S and D labels of the MPF102 are reversed.
2. The IF amp transistor is a BC547 (not BC457).

Photo 3: A slimmer SDR inside.





# AMSAT

David Giles VK5DG  
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## ARISSat-1 has left the building

After months of delay ARISSat-1 has finally been tossed out of the ISS. Apart from a few issues ARISSat-1 is healthy and almost fully functional. As I type this (at the end of August) ARISSat-1 is working well. The battery has held up better than expected but has almost lost its capacity and may be going open circuit. By the time you read this it will be a daylight only satellite like AO-7 and DO-64. But the launch did not all go perfectly...

## Launch problems

The launch proved to be troublesome. There was a live video feed for the launch and many commented on the AMSAT-BB mailing list about the rough handling the cosmonauts were giving it.

A copy of the video is available at the ARISSat website [1]. The cosmonauts noticed the 70 cm antenna was missing and this delayed deployment to sort this issue out. Nerves were frayed and there was a tense discussion during and after the launch. But as Bob Burunga WB4APR pointed out, this is a typical example of how difficult it is to work in space and that anything should be designed to be hit by a 150 kg man in a spacesuit. Tempers flared again with a press release from the Russia Today news service claiming that the 'cosmonauts will launch a microsatellite made entirely by Russian university students' [2]. The truth is otherwise – the Russian students built an experiment for it, the Russians took the 30 kg spacecraft to the space station, gave a name to it (Kedr) and Russian cosmonauts sent it into space.

Originally they were going to supply the spacesuit for it as well. Another case of not letting the facts get in the way of a good story. NASA has given more credit where credit is due and cited AMSAT and ARISSAT-1 in several news releases.

In the end I feel that ARISSat-1 itself has the final word with its regular announcements of 'Hi this is ARISSat -1 amateur radio satellite RS01S'.

Another point to note is that because of the delays involved with launching ARISSat-1 they ran out of time to perform the main task of the space-walk. This was to relocate a boom structure to aid in future space-walks. If ARISSat-1 was the last job to be done then it is very likely it would still be on the ISS for another six months.

## 70 cm antenna

This has caused some controversy too. Is it missing? Is it connected but damaged? Is the transponder usable? Can command stations control ARISSat-1? There was some confusion here at the launch. The 70 cm antenna was reported as seen by some when ARISSat-1 was taken to the ISS but also reported as missing by others. Unofficially it seems the 70 cm antenna was attached to ARISSat-1 but has been damaged. There is a 4 cm stub of antenna blade embedded in the epoxy instead of the full 17 cm. Despite this the transponder has proven to be usable. The first report by Drew KO4MA was he was able to hear his uplink using only 1 watt. Others have reported using 40-100 W into 10 element antennas to give sufficient signal for SSB. So QSOs can be made but you may need a larger station to get into it. I have not tried it yet. The other good news is that command stations have control over ARISSat-1.

## Battery

The silver-zinc battery is designed to last only six deep discharge cycles and has never been used in an application like ARISSat-1 where it will go through thousands of charge/discharge cycles. The main advantage of a silver-zinc battery is safety as well as high power density to weight ratio. It can be short

circuited indefinitely and not catch fire. Its disadvantages are high cost, it does not like cold temperatures (needs 6 to 45° C), limited shelf life and very limited charge/discharge cycles. The designers of ARISSat-1 wrapped it in a thermal blanket to capture any heat it lost while charging and discharging. During 11th August the battery is suspected of losing the electrolyte in one or more of its cells, dramatically reducing its total capacity. By the end of August the battery capacity had dropped so far that ARISSat-1 was shutting down during eclipse. It looks like the battery will fail open-circuit so it can be used on all of the daylight passes. This has shown up in the telemetry in that the clock (Mission Elapsed Time or MET) has been resetting every time it comes out of eclipse.

## So what works?

In summary – everything is or has been operational. The FM voice/SSTV transmissions are loud and clear, the CW telemetry and BPSK are working and the Kursk experiment has been sent data. The SSTV pictures received around the world show the cameras and picture software are both doing a terrific job. The IHU is working and the battery management worked for as long as the battery had capacity. The transmit power is divided up as FM 250 mW, BPSK 100 mW, CW 25 mW and 125 mW for the transponder (a total of 500 mW).

## Lifespan

One bit of good news from delaying the launch is that the ISS was boosted to higher altitude during June. To give some idea of the estimated lifespan James DeYoung N8OQ wrote an article 'Predictions of The Orbital Lifetime of ARISSat-1' in the March/April, 2011 issue of the AMSAT journal. He predicted a range between 129 and 152 days (with an uncertainty of +/- 10%)

after deployment with the ISS at an altitude of 370 km. If it was launched in February at a height of 352 km then the lifetime prediction range would have been around 94 to 110 days. So it looks like ARISSat-1 may still be up at Christmas and re-enter sometime during January/February.

Back in 1979 there was a newspaper cartoon featuring Chicken Little crying 'The Skylab is falling!' AMSAT are having their own Chicken Little competition for anyone

to predict the date and time that ARISSat-1 will reach the point of no return.

### Final Pass

If you have not done so yet, check the AMSAT website for the current location of ARISSAT-1 [3] and tune your radio to 145.950 MHz FM. It can be easily heard on a ¼ wave whip. They also have a 'How-to' page to receive all that ARISSat-1 has to offer. Also take a look at the

collection of SSTV pictures at the AMSAT website [4].

### References

- [1] The main website for ARISSat-1 is [www.arissat1.org](http://www.arissat1.org)
- [2] <http://rt.com/news/first-space-flight-satellite/>
- [3] <http://www.amsat.org/amsat-new/tools/predict/satloc.php?lang=en&satellite=ARISSat-1>
- [4] <http://www.amsat.org/amsat/ariss/SSTV/>



## AMSAT-VK

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### Group site:

[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

## Over to you

### Letter to the Editor

#### AR magazine

House fire at VK3FDAS, Edenhope Victoria

On 1/08/2011 between 7 pm - 7.30 pm, our three dogs alerted us to a fire inside the roof of our house. It was burning and the flames outside were very dangerous.

Upon calling 000 and following instructions, experience previously learnt had taught to me to have a communications back up. I put out a Mayday call on 1146.950 Mt William repeater

but sadly no-one came to my assistance. I then switched to the South Australian Mt Gambler repeater and again gave the Mayday call to which gratefully VK5FAJS Alan came to my assistance. Alan stayed faithfully throughout the entire event. We could have lost everything as we were extremely close to that thin blue line separating an unpleasant incident and a disaster.

After the CFA arrived, the OIC got up into the ceiling/roof area but his torch failed and I had to lend him one (oh dear). After all the fire was put out, we had a very restless night and next day. I

guess the shock really set in. If we had gone out that Monday night 1/08/2011 we surely would not have a house at all.

So it is with grateful appreciation to Alan VK5FAJS, the CFA and our three dogs we still have our home today.

Alan VK5FAJS - huge thanks for the assistance.

Sincerely grateful,

**Den VK3FDAS**

WICEN Vic



# An exquisite situation... on short unloaded whip antennas and the effect of shunt capacitance at their base

Dale Hughes VK1DSH and Andrew Davis VK1DA/VK2UH

In a recently published article (Reference 1) there was a description of a typical high frequency whip antenna installation on a vehicle. The author concluded that the parasitic capacitance of a standard antenna base was the cause of significant signal loss and inability to tune on the lower HF bands, and that when the antenna base was replaced by a piece of wood that the problem disappeared and that the antenna could be used as expected. You would normally expect the shunt capacitance of a well made antenna base to be small, maybe a few tens of pF, and that this would have no impact on the operation of the antenna. The author's conclusion and solution caused considerable discussion among locals in Canberra as it seemed that the author's claims seemed unlikely to be true. There appear to be two alternatives:

1. The antenna base contained an inbuilt RF choke to provide a DC path to ground and this was shunting the lower HF frequencies to ground.
2. The author had made some sort of error, especially since no measurements of the base capacitance appear to have been made.

So what is the answer? Andrew checked with the author by email and it was confirmed that there was no in-built inductor present, so we had to look further...The analysis that followed is presented here.

First we need to understand what a 'short' whip is in an electrical sense. Short here means a small fraction of the operational wavelength; typically less than 10 % of a wavelength (see Reference 2). At both 40 m and 80 m, a 2.7 m whip is short; at 6.75 % and 3.4 % of  $\lambda$  respectively. So it is 'short' and has certain electrical characteristics which dictate how well (or not) it will work. Such an antenna may be 'modelled' as shown in Figure 1.

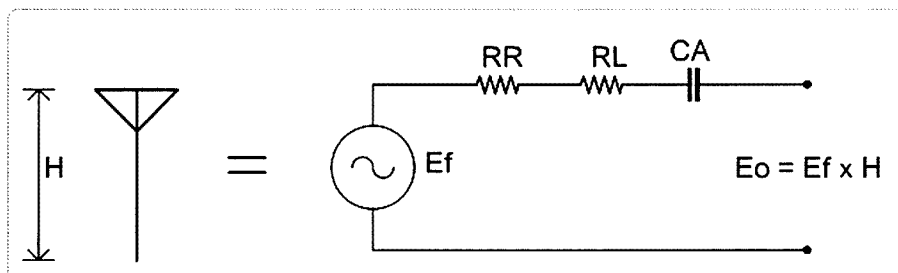


Figure 1: The electrical equivalent of a short whip antenna.  $RR$  is the radiation resistance,  $RL$  is the loss resistance and  $CA$  is the antenna capacitance.

The simplest equivalent circuit consists of a number of components:

1.  $RL$  is the 'loss' resistance of the antenna, made up of resistive and dielectric losses. This component depends on the details of the antenna location with respect to the vehicle, people, vegetation, insulation leakage resistance etc. and is typically about 15 ohms for a short whip antenna (see Reference 4). For most of the following discussion  $RL$  is ignored as it is not an essential component in the issue. However it should be reduced to a minimum if the antenna efficiency is to be maximised as the overall transmission efficiency of the antenna is proportional to  $RR/RL$  for this sort of antenna.
2.  $RR$  is the 'radiation resistance' which is the virtual resistance which accounts for power radiated when transmitting or power picked up when receiving. The value of  $RR$  is primarily dependent on the square of the ratio of antenna height to operating wavelength, that is, is frequency dependent. The power radiated from any antenna is  $P = I^2/RR$ .
3.  $CA$  is the antenna capacitance and, for a short whip, is determined by the basic geometry of the antenna - its height and diameter - and therefore is not frequency dependent. There are two points to note here:

- a. The equation given in the following section is only applicable to short whip antennas.
- b. The reactance of a resonant antenna, for example, quarter or half-wave is zero at its resonant frequency.

Values for  $RR$  and  $CA$  can be easily calculated for an ideal case, and while the case in question is not ideal, it is worth calculating the values as it will assist with the explanation of the problem.

From Reference 3, the radiation resistance of short vertical whip over a perfect conducting plane is given by:

$$RR = 40\pi^2 \left( \frac{H}{\lambda} \right)^2$$

Similarly from Reference 3, the associated antenna capacitance (in pF) is estimated by:

$$CA = \frac{24.2H}{\log \left( \frac{2H}{A} \right) - 0.7353}$$

Where  $H$  is the antenna height in metres,  $\lambda$  is the operating wavelength in metres and  $A$  is the whip diameter in metres.

Using the above equations, the values for  $RR$  and  $CA$  can be calculated for operating wavelengths of 40 and 80 metres and the values are shown in Table 1 along with the calculated antenna impedance.

	3.55 MHz	7.05 MHz	
RR	0.4	1.6	Ohms
CA	25.9	25.9	pF
XCA	1729	870	Ohms
Zant	0.4 - j1637	1.8 - j818	Ohms

Table 1: Calculated values of radiation resistance (RR), antenna capacitance (CA) and associated capacitive reactance (XCA) for a 2.7 m by 3 mm whip antenna at operating wavelengths of 80 and 40 metres.

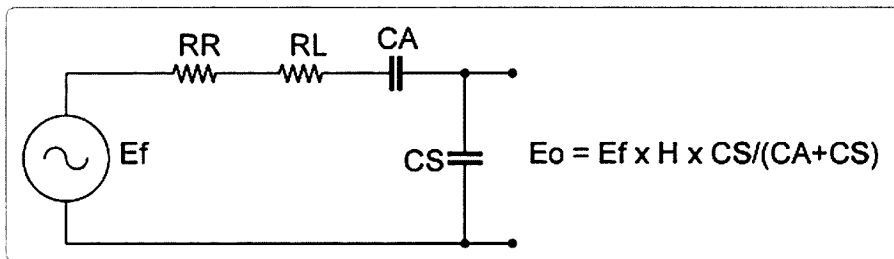


Figure 2: Equivalent antenna with additional shunt capacitance. The shunt capacitance may be from the antenna base, coaxial cable, the antenna tuning unit, etc. In all cases it has an adverse affect on the situation, especially since the radiation resistance is so low at the chosen operating wavelengths.

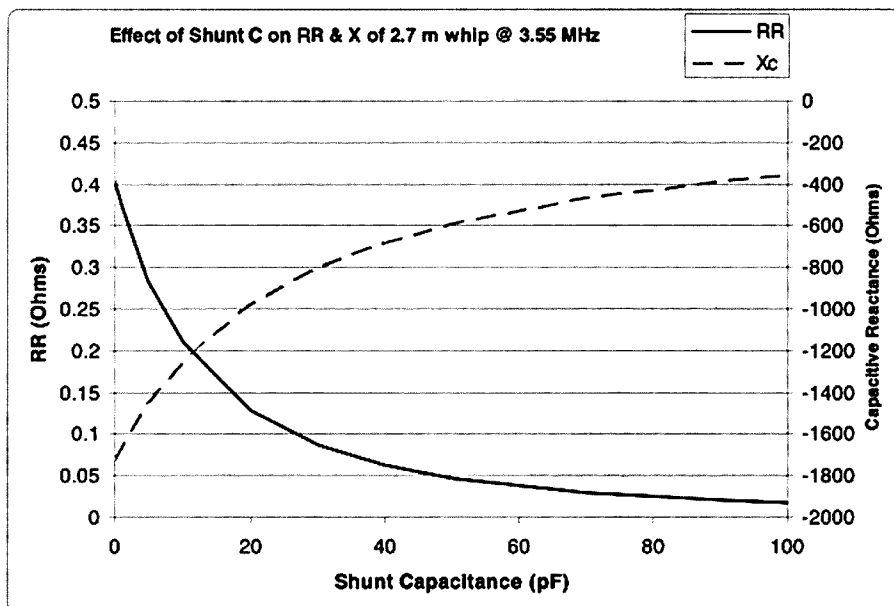


Figure 3: This graph shows the adverse effect of shunt capacitance on the radiation resistance (RR). Increasing shunt capacitance reduces the resistance seen by the transmitter. While the overall capacitive reactance decreases as the shunt capacitance is increased (a good thing), RR is reduced (a bad thing). Adding a shunt capacitance of 25 pF reduces the radiation resistance to approximately one quarter of the non-shunted value significantly reducing transmission efficiency. SWR is not plotted in this case as it is a more-or-less meaningless number of many thousands to one! The inclusion of loss resistance will reduce the SWR but will do nothing to improve antenna efficiency.

It can be clearly seen that the antenna equivalent consists of a very low radiation resistance in series with a small valued capacitor which has a correspondingly high capacitive

reactance. This ignores the loss resistance (RL) which will be in series with both RR and CA, but its presence while possibly improving the apparent VSWR, will do nothing to improve

the efficiency of the antenna. This clearly shows why electrically short whip antenna are so very inefficient; their convenience has a high price! To match such a load, any ATU must add significant series inductance to cancel the capacitive reactance of the antenna and the component losses within the ATU will absorb a significant fraction of the applied power.

The addition of any shunt capacitance at the antenna base, by the creation of a capacitive voltage divider, further reduces the effectiveness of the antenna, possibly by a significant amount. Figure 2 shows the equivalent circuit including shunt capacitance.

While the author of the original article does not provide any indication of what the shunt capacitance was, it is easy to imagine that it might be a few tens of pF; for example, two disks 60 mm in diameter, spaced by 5 mm using material with relative permittivity of 5 (typical of many plastics) forms a capacitance of about 25 pF. Even using coaxial cable can degrade the situation: typical RG58 cable has a capacitance of approximately 90 pF per metre. In short, the situation is *exquisitely* sensitive to any stray capacitance!

Doing some circuit analysis (see Reference 2, chapter 24 for the details of the required calculations) and some spreadsheet algebra it can be shown that the radiation resistance (RR) seen by the transmitter is reduced as shunt capacitance (CS) is increased, and that although the overall capacitive reactance decreases, this is clearly offset by the reduction on RR. To put it another way, the additional capacitance, in conjunction with the antenna capacitance is transforming the impedance in an undesirable way. Figure 3 shows the results of the calculations and the effect of the shunt capacitance.

Even if all shunt capacitance could be eliminated, connection directly to a 50 ohm transmitter or receiver would result in very poor performance due to the very high series capacitive reactance. Under these circumstances, placing the ATU at the base of the antenna with a short connecting cable was the correct decision. However,

a better solution is to load the antenna with some inductance which will increase the base impedance, significantly improving the efficiency of the antenna and ATU.

By way of comparison a similar calculation was done for a nominal 'quarter wave' whip antenna with a nominal base impedance of 35 ohms which is typical of a well tuned installation. Figures 4 and 5 show that even significant shunt capacitance has minimal effect on antenna performance. However such a HF antenna would be impractical for mobile use...

**Conclusion**

The original suggestion that there was a shunt inductance present was discarded once the author had checked and found no evidence of an inductor.

We have concluded that the author of the original article was correct to conclude that additional capacitance affected the antenna performance by making the impedance out of range for the ATU. However it was the combination of the antenna capacitance and shunt capacitance at the base rather than just simply the effect of additional shunt capacitance which created the adverse situation.

A short unloaded whip mounted on a vehicle which is intended to be used on the lower HF bands – 160 m, 80 m and 40 m – is an antenna which is exceptionally sensitive to shunt capacitance of any sort due to the small intrinsic capacitance of the antenna. Such an antenna will always perform more poorly than an inductively loaded whip of similar dimension. If there is no other choice and such a short whip must be used, then shunt capacitance must be reduced to a minimum and the poor antenna efficiency accepted as due payment for operational convenience!

While the calculations used in this article have focused on use at 80 m and ignore 'real world' losses, and actual SWR measurements of a similar antenna installation may show a more favourable situation; the fact remains that the radiation resistance of a short whip antenna will always

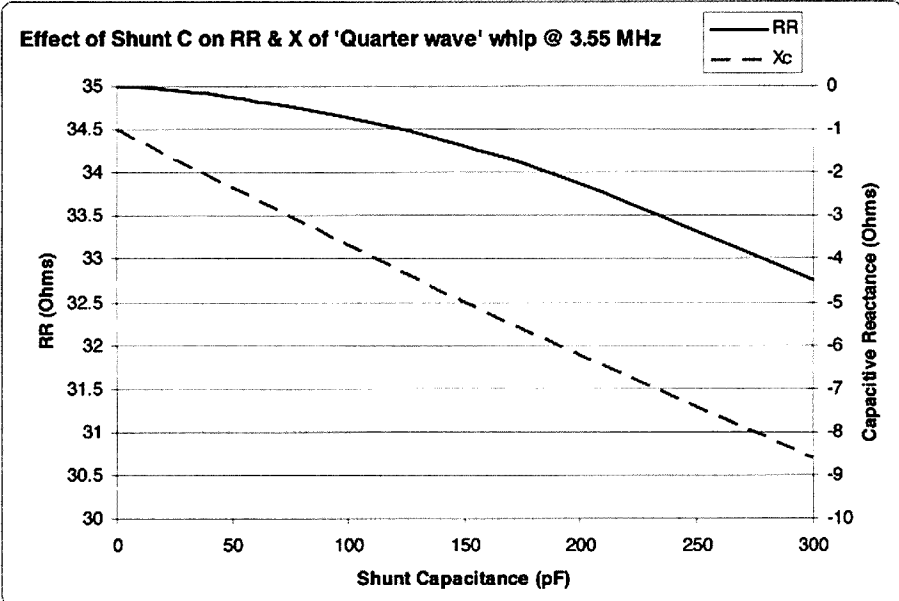


Figure 4: The effect of shunt capacitance on a nominal quarter-wave whip antenna with a typical base impedance of 35 ohms and a small amount of capacitive reactance (-j1 ohms). Even significant shunt capacitance has minimal effect on the antenna impedance. Similar results would be obtained for calculations assuming operation at 40 m.

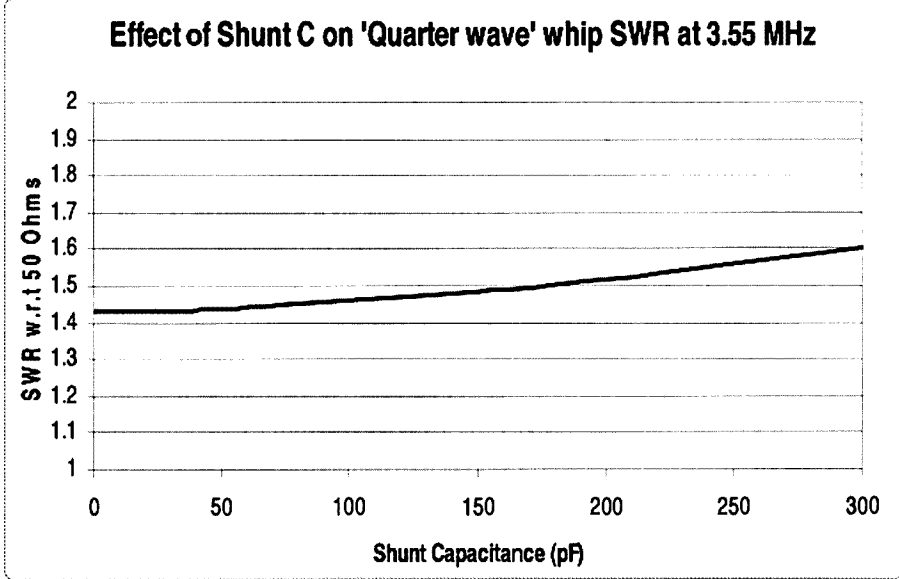


Figure 5: The data from Figure 4 plotted in the form of SWR, again showing the minimal effect of shunt capacitance.

be very low and that any additional loss resistance will simply absorb power – much like a dummy load. It is easy to get a perfect SWR with a dummy load!

**References**

1. Corlis, R. *A basic trap for young players*. Amateur Radio, August 2010, Volume 78, Number 8.
2. *The ARRL Antenna Book, 20th edition*. The ARRL Inc. ISBN 0-87259-904-3. In particular

chapter 16: Mobile and Maritime Antennas.

3. Rohde, U. and Whitaker, J. *Communications Receivers DSP, Software Radios, and Design*. Third edition 2001. McGraw-Hill. ISBN 0-07-120168-8
4. Orr, W. I. *Radio Handbook 21st edition* 1978. Howard W Sams & Company Inc. ISBN 0-672-24034-3 See page 27.10.



# VK3news VK3WI active in Remembrance Day Contest

Terry Murphy VK3UP



Photo 1: Tony VK3VTH, operating the station, and Terry VK3UP, doing the logging chores, at VK3WI during the RD contest.

Amateur Radio Victoria's office in Ashburton saw some HF activity for the first time when it activated VK3WI during the Remembrance Day contest, after the recent installation of a multi-band vertical on the roof of the premises.

The operators were Michele Grant VK3FEAT, Tony Hambling VK3VTH and Terry Murphy VK3UP. This was the first time the antenna was used from this location and judging by the excellent reports received, it looks like it has a great take off point. Keep an ear out for future activations from the ARV office. If you worked VK3WI during the RD contest, you have earned 10 points towards the 100 points required to qualify for the ARV Centenary Award.



Photo 2: Michelle VK3FEAT at the VK3WI operating desk during the RD contest.

# VK3news Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

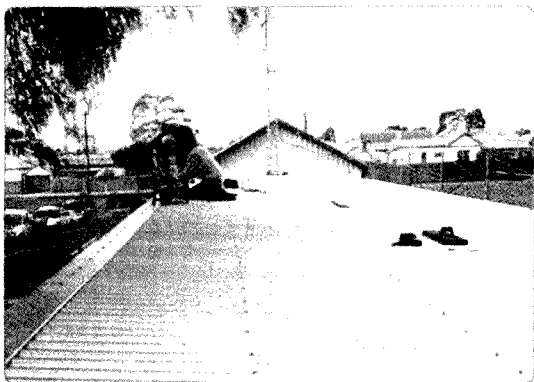


Photo 1: Some of the working bee party.

## The clubhouse roof replacement

For some time now there has been an awareness that the "flat" roofing on the club house was letting in water, causing problems with the ceiling below in the presentation room. This work was undertaken with a grant from the City of Greater Geelong and a generous donation by Ray Cowling VK3ACR towards the overall cost of replacement.

The Saturday morning, roofing day, started early; the delivery of the roofing materials had taken place at 7 am the day before. By 8 am

the roofer and most of the dozen GARC members who had volunteered had turned up; they would be under the direction of the club's maintenance manager Dallas VK3DJ.

The previous week the guyed mast supporting the 40/80 metre dipole had been removed from the roof and a considerable amount of tree pruning had taken place. In addition the east tower had been dismantled, in part to accommodate a new rotator, although the intention was to also replace the steel cable on both Nally towers. In addition to assisting the roofer, a petrol driven chipper was in almost permanent use, reducing the tree pruning's to mulch for the front garden. Around early afternoon Jenni VK3FJEN set up a barbeque for the working bee team, which was gratefully received.

The weather was remarkably good, for the most

part there was warm sunshine and a light wind. Bob VK3CSR had brought his trailer along, which was duly filled with rubbish destined for consignment to the local tip. The old roof tiles were stowed away at the side of the hut for future replacement of rusted ones on the lounge roof and also to, possibly, provide an awning at the side of the club house for an undercover barbeque area. Work finally finished at around 3 pm, the end of a very long day, at the end of which the front of the club house was left in pristine condition.



Photo 2: The shiny new roof on the Storrer Street clubhouse.

# VK5news Adelaide Hills Amateur Radio Society

David Clegg VK5KC

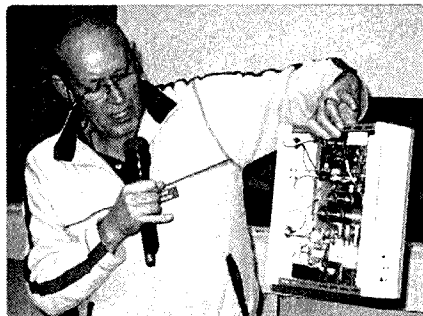


Photo 1: Eric VK5LP with David VK5KC, Rob VK5RG and Barry VK5BW.

The Club shack is nearing completion and was officially opened on 3 September by Christine Taylor VK5CTY, wife of Geoff VK5TY, who was the longest serving club President. A longer report in next month's notes.

Recently several members made the trip to Meningie to catch up with Eric VK5LP. Eric lives in a nursing home at the Meningie Hospital, but makes the daily trip to his nearby house in his electric wheelchair. Eric kindly donated some equipment to the Club for use in the shack. Eric will be remembered by many as he wrote the VHF – UHF notes in *Amateur Radio* for 30 years. Our sincere thanks go to Eric for his kind donation. Many contacts have been made already on the Kenwood TS-680S.

Photo 2: Iain VK5ZD with his 3.4 GHz transverter.



The August meeting was a show and tell night. Many members displayed their projects, both current and from a past time. The September meeting will be a talk on vector analysis by Barry VK5BW and Jim VK5TR. October will be the annual construction night, with another great project from Graham Dicker VK5ZFZ.

A reminder now of the annual Hamfest to be held on Sunday, 20<sup>th</sup> November at the Goodwood Community Centre. Doors open at 9.30 am. All the usual vendors will be there selling both new and pre-loved goods. ALARA and the North East Radio Club will make sure we do not go hungry.

Sunday, 4<sup>th</sup> December will be the club Christmas get together at the Mt Osmond Golf Club.

Richard Southcott, the club Treasurer will take payment in full for anyone wishing to attend.

Help is needed from members as we are about to take over assembly and distribution of the VK5JST aerial analyser. This was previously done by the South Coast Radio Club. They reluctantly have to let it go to another Club. AHARS will need volunteers to purchase parts, assemble the kits and despatch to purchasers. The committee is looking to the membership to help out with the project.



Photo 3: Tony VK5FTA and his portable antenna.



Photo 4: Alf VK5AJF with his loop antenna.

## ADELAIDE HILLS AMATEUR RADIO SOCIETY

**Annual Buy and Sell Day**  
Sunday November 20th 2011

Goodwood Community Centre, Rosa St Goodwood  
New and pre loved equipment for sale.

Doors open at 0900, selling commences at 0930.  
Contact David Clegg VK5KC to book a table

[www.ahars.com.au](http://www.ahars.com.au)

# Cape Schanck activated for ILLW 2011

Joe Magee VK3BKI

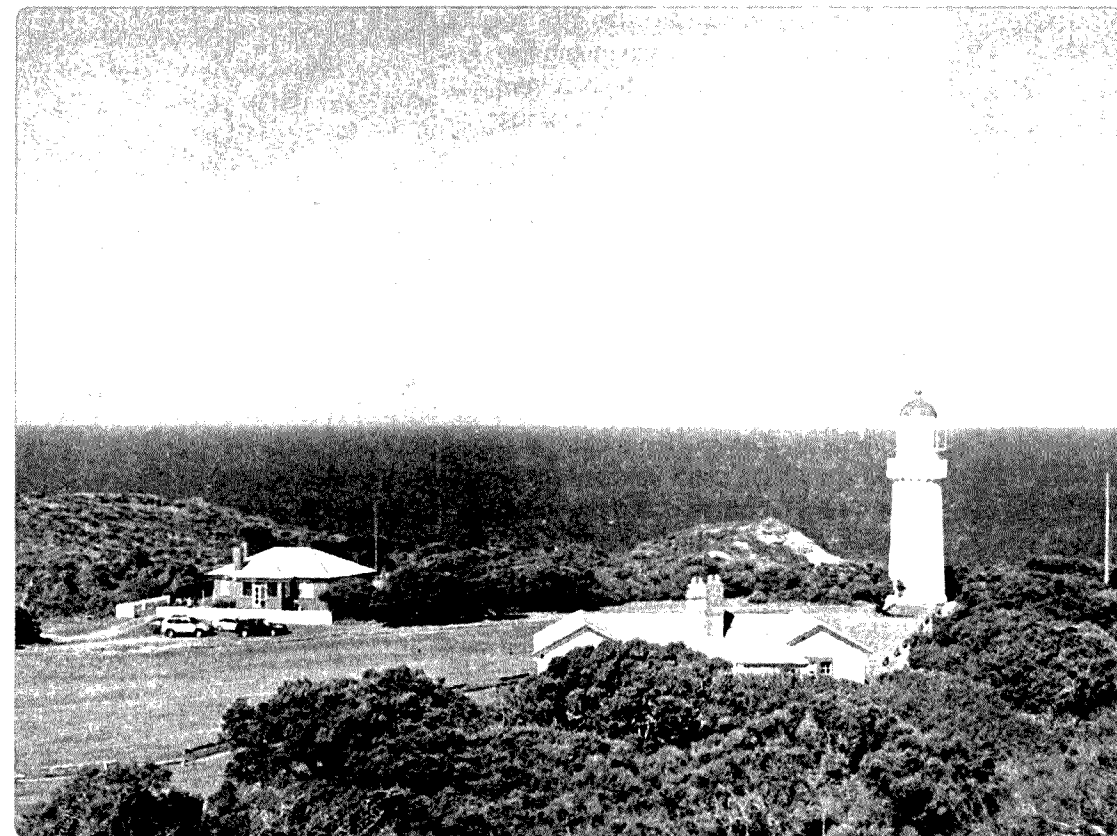


Photo 1: Cape Schanck Lighthouse and the Keepers Cottages.

As I pen this I am at 10,000 metres (35,000 ft for the metrically challenged), crossing the Arafura Sea, headed for Tokyo for a two week visit. For work, of course. The excitement of this trip was not as high as the trip undertaken last weekend to the beautiful Cape Schanck, when the ILLW was in full swing.

Photo 2: Raising the mast for 2 m and 70 cm.



Photo 3: Joe VK3BKI and Damian VK3KQ calculating the satellite paths.



The participants were as usual, Carl VK3EMF, Damian VK3KQ and myself Joe VK3BKI. We were host to a number of visitors, John VK3PZ And his XYL Susan VK3FSSB. We also had a number of other visitors on the Saturday, including a couple of very young children and parents of course, along with Carl's brother John.

Last year Damian had avoided doing any work putting up the antennas by sitting on a nearby hill watching the comedy until it finished and then arrived as the last tools were being stowed.



I took a more creative approach this year by double booking myself and so arrived after 11.30 pm. This was noted by Carl as he was socially bound to wait until I arrived before retiring for the evening. Loud and long were the complaints.

Cape Schanck is known for its radio noise and this year did not disappoint, with levels staying high all over the HF bands until the morning we were leaving. But this year we had a surprise in store for Cape Schanck. Early Saturday morning, the radios were manned and both Carl and Damian did a splendid job of pulling stations from the noise and much fun was had and poked during this period.

Sue and John arrived, bringing with them glorious weather. Normally the Cape is described as beautiful but freezing. This weekend the weather was magnificent. Wall to wall blue sky and the temperature was in the high teens.

Saturday afternoon came and we made ready the noise beating antenna for Cape Schanck. No, it was not Carl's long promised and much designed magnetic loop. Instead we pulled out the Arrow antenna system and handheld radio. This antenna is a crossed Yagi for 70 cm and two metres.



Photo 4: Carl VK3EMF working the Lighthouses.



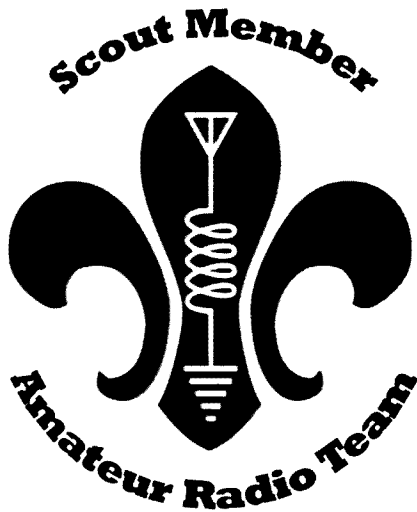
Photo 5: Is it a bird - is it a plane - No it's AO51

Photo 6: Possible World First for the ILLW, Carl VK3EMF contact through AO51.



This system was used to talk into AO51. This satellite is in a low earth orbit and is accessible by a hand held setup. We had contacts into VK2, VK1 and VK6. A first for the ILLW? We are fairly sure that it is a first for Cape Schanck. Copy was armchair mostly, with a bit of QSB but the overall glee from being successful was magnificent.

So there it is. Another hilarious weekend and perhaps a world first. Who could ask for more?



# VI6CHOGM Scouts on air

The Scout Member Amateur Radio Team is hosting a special amateur radio event using the callsign **VI6CHOGM**  
**Friday 28 to Sunday 30 October**

The Scout Member Amateur Radio Team (SMART) in Perth has secured the special event callsign **VI6CHOGM** to celebrate the 22nd Commonwealth Heads of Government Meeting which takes place in October, 2011 in Perth, Western Australia.

The activity is at the Peter Hughes Scout Communications Centre, in Perth, and will operate from the first tick-o-the-clock on Friday morning 28th October to midnight Sunday 30th October (Western Standard Time, UTC +8).

The aim of the activity is an on-air continuous presence for 72 hours, making radio contact with as many amateur radio operators in as many countries as possible.

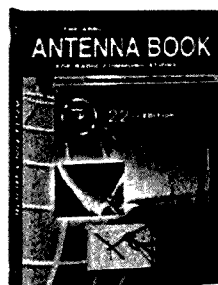
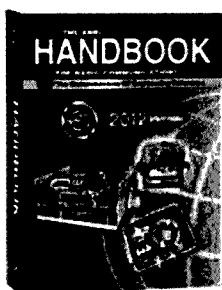
A special QSL card is being produced, and every contact will be acknowledged via the Bureau.

Locals have been invited to attend either as participants or as onlookers. SMART will be running an 'open house' over the weekend. Tea/coffee is available via donation to the honesty box. A small range of other refreshments will be on sale as will BBQ packs at meal times.

Please visit <http://vi6chogm.com/> for more information and to find out how to participate.

*Bob Bristow VK6POP*

*Scout Member Amateur Radio Team*



## The ARRL HANDBOOK The ARRL ANTENNA BOOK

These two new edition texts will soon be available in both hard and soft cover format from our online bookstore.

For more details, head to [www.wia.org.au/members/bookshop/about/](http://www.wia.org.au/members/bookshop/about/) or contact the WIA office on 03 9729 0400 between 10.00 am and 4.00 pm (EST).

# IARS activates Point Perpendicular Lighthouse VK2AMW for the ILLW

Rob McKnight VK2MT

Point Perpendicular Lighthouse was built in 1898 and is located on the northern entrance to Jervis Bay, on the south coast of NSW. It was decommissioned and replaced by a more modern solar-powered beacon back in the early 1990s. However, for many years now 'Lighthouses of Australia' has been granted special permission to relight the original lighthouse for the ILLW, while at the same time the Illawarra Amateur Radio Society (IARS), in conjunction with the Blue Mountains Amateur Radio Club (BMARC), have for many years been also 'lighting' the RF from the site!

About 15 members attended the site from Friday through to Sunday, with eight hardy souls toughing it out in the old Lighthouse Keeper residence. Under the IARS callsign VK2AMW, two stations were put on the air using a Kenwood TS-2000X and a Kenwood TS-440 with four different antennas available, they being a G5RV, two helically wound verticals on 40 m and 80 m, plus a 13 m tall non-resonant vertical fed from an SG-230 antenna coupler which was remotely controlled from the operating position.

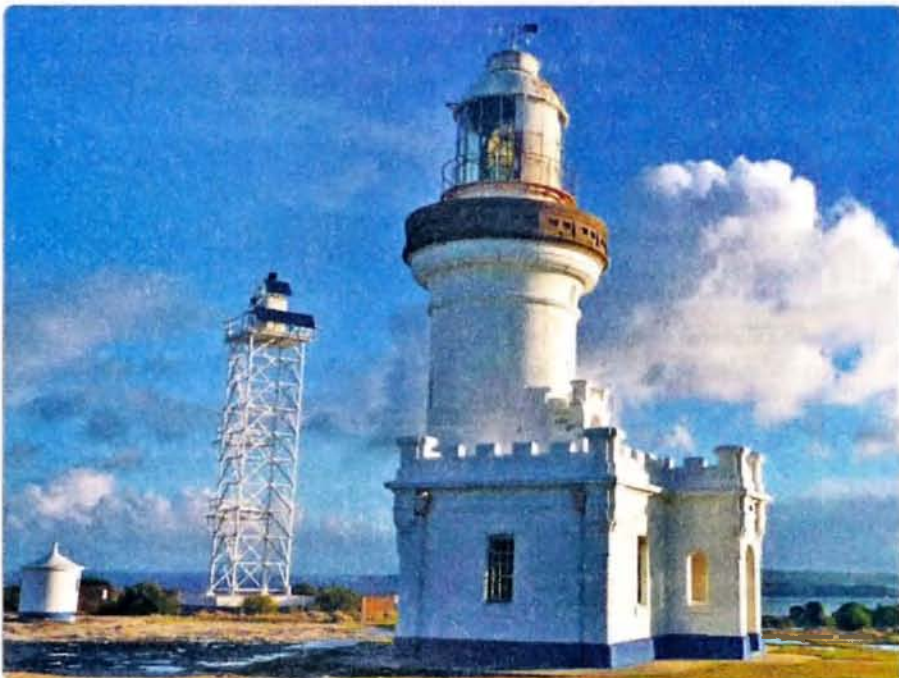
Much media publicity had let the local communities know of the lighting of the old girl and there was a steady stream of visitors on both days, plus quite a few on Saturday night, when the piercing beams from the light's Fresnel lenses were mesmerizing as they rotated around hitting the sea mist coming up from the Pacific Ocean down the sheer-walled cliffs 100 metres below, the reason for the point's name.

From this high coastal vantage point, a total of 265 contacts were made. Just about all Australian and New Zealand Lighthouse stations were contacted, plus many VK, ZL and overseas stations were worked including France, Italy and the US.



Photo 1: The Point Perpendicular lighthouse in silhouette.

Photo 2: At Point Perpendicular – the old, on the right, and the new, on the left.



All the bands from 20 to 80 metres were used and they also provided very good propagation making the weekend even more enjoyable; plus the RF quiet environment was an absolute pleasure!

Overall, it was a really fun and friendly event to be involved in and our two clubs will definitely be involved in the future.



# Contests

Phil Smeaton VK4BAA

## Contest Calendar for October 2011 – December 2011

October	1/2	Oceania DX Contest	SSB
	8/9	Oceania DX Contest	CW
	22	Jack Files Memorial Contest	SSB
	22/23	ARRL International EME Competition	CW/SSB
	29/30	CQWW DX Contest	SSB
	29/30	CQWW SWL Challenge	SSB
November	12/13	Japan International DX Contest	SSB
	12/13	Worked All Europe DX Contest	RTTY
	19/20	ARRL International EME Contest	All
	26/27	Spring VHF/UHF Field Day	CW / SSB / FM
	26/27	CQWW DX Contest	CW
	26/27	CQWW SWL Challenge	CW
December	2/4	ARRL 160 m Contest	CW
	4	RTTY Melee	RTTY
	10/11	ARRL 10 m Contest	CW/SSB
	17	OK DX RTTY Contest	RTTY
	Dec 2011 to Jan 2012	Ross Hull Memorial VHF Contest (VHF/UHF)	CW / SSB / FM

Welcome to this month's Contest Column. A plethora of contest results this month, so without much more ado...

### Oceania 2010 contest results

The 2010 results for the flagship contest of this region have been recently issued. The results for the VK phone section are:

#### Single Operator, All Band, Low Power

VK8NSB 278,720; VK4MIA 185,459; VK4ADC 150,308; VK3IO 122,346; VK4MDX 106,446; VK4CAG 106,403; VK5NPR/3 93,024; VK4ATH 79,950; VK2HBG 69,360; VK4PTO 52,245; VK7JGD 46,620; VK6HZ 32,528; VK7FWAY 32,340; VK4HEC 23,855; VK4XES 23,310; VK4GQ 20,345; VK3ZPF 20,191; VK7ARN 12,987; VK3NRW 11,984; VK4CCV 11,520; VK6HAD 9,702; VK1MAT 8,505; VK3AKT 7,954; VK3FASW 6,720; VK6FDX 5,406; VK3FDI 5,348; VK4BL 4,674; VK3KTM 4,225; VK3TDX 2,835; VK4KLC 2,664; VK2POP 1,443; VK3VT 390.

#### Single Operator, All Band, High Power

VK6DXI 1,548,790; VK7GN 705,600; VK4GH 511,285; VK3TZ 321,216; VK4BUI 289,640; VK2IM 194,955; VK3AVV 130,734; VK8JM 93,328; VK1HW 58,824; VK2ACC 50,320; VK3AFK 38,352; VK3QI 28,645; VK3DOG 28,475; VK3AVZ 902.

#### Single Operator, Single Band, Low Power

80 m VK3FCAC 320; 40 m VK3VTH 48,510; 40 m VK4VDX 20,865; 40 m VK4KRX 9,250; 40 m VK3FBBA 5,320; 40 m VK4JAZ 4,400; 20 m VK4AN 46,854; 20 m VK8AA ,6351; 15 m VK4LDX 122,838.

#### Single Operator, Single Band, High Power

40 m VK3GK 330,960; 20 m VK7ZE 460,167; 20 m VK2XN 171,972; 20 m VK2EKY 306; 15 m VK4FJ 76,704; 15 m VK2ZQ 23,936.

#### M/2

VK4KW 7,044,877; VK4HH 1,627,717; VK2AWA 488,392; VK2CL 320,458.

## M/S

VK6NC 2,810,295; VK4HAM 1,672,386; VK4TI 1,170,864; VK3HR 113,360; VK2HAK 34,780; VK2IO 34,060; VK3ALB 24,726; VK2GR 912.

A total of 1092 logs were processed which is a new record and a good step up from the previous record of 999 logs in 2009. The overall number of QSOs logged in 2010 is approximately 21% greater than that logged in 2009. This increase can be attributed to the growth in participation as well as improved conditions on the higher bands. As the top entrant from Australia in the SSB Single Operator All Band category *and* the top entrant from Australia in the CW Single Operator All Band category, VK6DXI wins both the Single-Op ALL Band PHONE Plaque and the Frank Hine VK2QL Memorial Trophy. Excellent stuff!

The results for the VK CW section are:

#### Single Operator, All Band, Low Power

VK4TT 361,036; VK3TZ 233,680; VK2GR 115,928; VK3CTN 56,628; DF4TD/VK5 17,732; VK4XY 11,045; VK4FJ 2,592; VK2EL 1,050.

#### Single Operator, All Band, High Power

VK6DXI 4,046,136; VK2IM 2,393,588; VK3TDX 2,086,030; VK7GN 1,037,760; VK3IO 826,086; VK2PN 566,384; VK4BUI 477,214.

#### Single Operator, Single Band, High Power

160 m HP VK3HJ 4,800; 15 m HP VK4SN 206,336.

#### Single Operator, Single Band, Low Power

80 m LP VK2CCC 324,120; 40 m LP VK8AV 51,330; 20 m LP VK4TJF 29,949; 20 m LP VK3QI 24,300; 20 m LP VK5SW 285, 15 m LP VK4AN 292,336; 15 m LP VK4DX 79,002; 10 m LP VK4KW 168.

The Australia Club Plaque is awarded to the local club from Australia with the greatest number of member stations participating in the contest. In order for a club to be eligible there must be at least five logs submitted by member stations, with each log containing a minimum of 50 valid QSOs. Only the Eastern and Mountain District Radio Club met this requirement in 2010, with a total of eight logs submitted (VK3AKT PH, VK3AVV PH, VK3DOG PH, VK3FBBA PH, VK3QI PH, VK3TZ PH, VK3QI CW, VK3TZ CW). The rules state that there must be three or more clubs competing in order for the plaque to be awarded but the plaque sponsor (VKCC) has decided to waive this requirement for the 2010 contest.

The 75th Oceania DX contest will be held on the first two full weekends of October, 2011 as follows:

**PHONE:** 0800 UTC Saturday, 1 October to 0800 UTC Sunday, 2 October.

**CW:** 08:00 UTC Saturday, 8 October to 0800 UTC Sunday, 9 October.

More information about the contest, including the rules, is available from the Oceania DX Contest web site at [www.oceaniadxcontest.com](http://www.oceaniadxcontest.com) Specific inquiries should be addressed to [info@oceaniadxcontest.com](mailto:info@oceaniadxcontest.com)

## **CQWW SSB 2010 contest results**

### **Single Operator**

VK3TDX 1,435,790; VK4EMM 1,109,016; VK7GN 158,158; VK3AVV 156,692; VK4CAG 134,575; VK4GH 36,418; VK1MJ 17,982; VK2WAY 12,388; VK2ACC 9,729; VK2ERP 9,447; VK4QH 3,434; VK4BUI 10 m 17,010; VK3AVZ 211,550; VK7AD 145,632; VK5JDS 6; VK8AA 40 m 215,280; VK2KJJ 120; VK4ATH 135,315; VK4BL 124,016; VK2HBG 40,290; VK6HAD 23,562; VK7FWAY 21,924; VK4XES 20,790; VK6FDX 17,010; VK4TU 15,576; VK3NRW 12,172; VK4QC 10,797; VK2PDX 9,804; VK4VDX 6,270; VK5MWH 6,000; VK2NR 4,752; VK2IO 3,168; VK2GR 320; VK6GD 240; VK4FJ 15 m 102,432; VK3VTH 40 m 9,159;

VK1SV 80 m 110; VK7XX 116,725; VK3FM 63,720; VK4NEF 11,648; VK4LDX 299,250; VK1OO 20,800; VK6DXI 1,380; VK4EJ 15 m 85,170.

### **M/S**

VK6NC 2,680,507; VK2GGC 181,170.

### **M/2**

VK4KW 6,999,635; VK1CC 3,121,248; VK4HH 450,660.

### **M/M**

VK4UC 3,225,156; VK3FRC 302,868

## **CQWW Multi-Op rule changes**

The CQWW Contest Committee has recently announced a rule change for multi-ops in CQWW. When two or more transmitters are present on a band, either a software or hardware device *must* be used to prevent more than one signal at any one time. Interlocking two or more transmitters on a band with alternating CQs (soliciting contacts) is not allowed. Those who have the capabilities of creating such a station that allows alternate CQ's on the same band and the skills to use it efficiently might be somewhat miffed as they are no longer permitted to do it. So, what is behind this rule?

The rule is in place to ensure that two signals cannot occur simultaneously on a given band. Dueling CQs is already forbidden in the rules for many reasons. It is quite apparent in the recent CQWW and RDXS results with disqualifications that many stations are not managing one signal on a band properly. It is encouraging to see the sponsors of the RDXC taking measures to discover and discourage the cheats. In addition to the RBN monitoring they added a requirement in their rules that Cabrillo logs show the QRG for each QSO for any entrant who is vying for a top spot. Use of cluster is now a busted flush, skimmers and the like are not yet detectable but ambitious cheats looking for a highly placed finish will be detectable by their behaviour patterns.

I suspect that they introduced this new rule to avoid overcrowding bands with a lot of strong signals. There is only so much spectrum available for us. In contests it is

much less than we would like to have. Those who are capable of alternating CQs on the same band in fact occupy two frequencies. Usually they are big gun MS or MM with big antennas who seldom resort to S&P unless the conditions dictate. That approach leaves no space for little pistols to call CQ and get heard. Look at the Reverse Beacon Network data and you can readily see how much alternate CQing is already going on. If you care to use that data as an index to SDR recordings, you could positively prove violations of two signals at a time or alternate CQing.

So, if a running station gets an answer to their CQ on a frequency, can they launch a CQ on another frequency while the other station is transmitting? That is not 'alternating CQs'. In fact, it was standard operating procedure at WRTC-2010. But, if CQWW CC did not want this type of activity, the rule should apply to all categories, not just multi operator stations? I contest for fun. If I can win even better but I do it with integrity and it is not a win at all costs attitude. When the fun stops the radio on/off button is pressed and it is time to move on to another hobby.

## **Open Logs**

Private logs may be a thing of the past if and when certain contest organisers require live stream logging in the future. This requirement might exclude a whole subset of contesters who simply do not have the facility to do so, of course. An argument as to why to keep a log private might have a lot more to do with one's region having typical openings on bands most would assume closed yet known only to the most seasoned contesters. Perhaps the DX clusters, skimmers and so on have made this once interesting knowledge of band strategy an advantage of the past, but I can understand why certain contesters would like to keep their plans their own.

However, it has been mooted that UBNs might go public too. The UBN report is a private tool provided by the contest sponsor,

which enumerates where a hiccup or two might have occurred in his contest. It is a good tool which allows me to learn from my mistakes. I prefer my mistakes to be my own and a learning experience for me and nobody else. But what is the big deal? We all know that we all make mistakes. No need to keep that private. It is like hanging out on a nude beach. Unless your UBN is much, much bigger than everyone else's, nobody will even notice. Making your log public is a condition of entry for some contests. In essence, they are asking you if it is OK to make your log public, and I guess that you are saying 'no' by not submitting it.

### **RDXC 2011 Results**

VK6AA SOAB-MIX 9,542; VK4EMM SOAB-MIX 3,759; VK2IM SOAB-CW 3,773; VK4IU SOAB-SSB 83; VK8AV SOSB 40 m 657; VK4TT SOSB 40 m 11.

Starting in 2011, the organisers of the RDXC implemented SDR

recordings of the Top Ten stations in each category to check for rule violations. After the SDR recordings were checked, it transpired that a number of MS and M2 stations broke contest rules by having two signals at the same time on the same band for many hours. This discovery led to the disqualification of the following stations: RT3F, RF4M, RF8C, RA3DXU and RK4WWQ. It is rumoured however that in the 2012 Russian DX test 'complete stereo recordings of every QSO in the contest' will be required. I wonder how many entrants will bother?

Anyway, the good news is that not one VK station appeared on the 'naughty boy' list!

### **JIDX 2010 SSB contest results**

VK2ACC AB 3,212; VK3AVV AB 3,120; VK2HBG ABL 910; VK3NRW ABL 132; VK3ZGP ABL 4; VK4NEF 10 m L 10,062; VK4LDX 15 m L 9,680; VK4FJ 15 m L 9,114; VK4QH 20 m L 450; VK3ZPF 20 m 88.

### **Trent VK4TI - Director of WIA**

Peter Young VK3MV has resigned as a director of the WIA and the Board has appointed Trent Sampson VK4TI a director for the balance of Peter's term.

Trent is a keen contester and a member of the VK Contest Club, but he is also a member of the VK4KW Lambda Contest Group team. I have had the pleasure of contesting with Trent for some years now – and the additional pleasure of giving him a whipping as opposition too! All the best in your new role Trent, as I am sure that your dynamic style will add great value to the future endeavours of the WIA.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au) See you on the bands. 73 de VK4BAA.



# Spring VHF-UHF Field Day 2011

Contest manager: John Martin VK3KM

## **Dates: Saturday and Sunday 26 and 27 November 2011**

Duration in all call areas other than VK6:	0100 UTC Saturday to 0100 UTC Sunday.
Duration in VK6 only:	0400 UTC Saturday to 0400 UTC Sunday.

Please note that there is now a 3 hour difference between the eastern states and Western Australia, due to daylight saving time in the east.

### **Sections**

- A: Portable station, single operator, 24 hours.
- B: Portable station, single operator, 8 hours.
- C: Portable station, multiple operator, 24 hours.
- D: Portable station, multiple operator, 8 hours.
- E: Home station, 24 hours.
- F: Rover station, 24 hours.

**Operating periods:** Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

**Entering more than one section:** If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8. hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station,

he may also enter the home station section.

**Two operators:** If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

**Multi-operator stations:** Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

**Rover stations:** The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

## General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

## Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

## Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Band	Locators Activated (10 points each)	+	Locators Worked (10 points each)	+	QSOs (1 point each)	x	Multiplier =	=	Band Total
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
Etc									
Overall Total									680

## Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

## Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

## Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table above. In this

example the operator has operated from one locator and worked four locators on each band.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

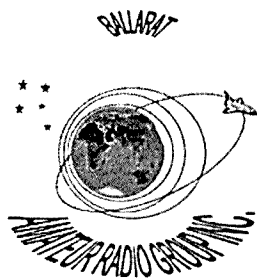
## Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to [vhfuhf@wia.org.au](mailto:vhfuhf@wia.org.au) (please note the change of email address). Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by **Monday, 12 December 2011**. Early logs would be appreciated.

## Field Day Web site:

<http://www.wia.org.au/members/contests/vhfuhf/>

This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.



**Entry: \$6.00 per person**  
Trade displays & pre-loved equipment for sale. Food & drinks available on site.

# Ballarat Amateur Radio Group Inc. (BARG) 2011 HAMVENTION

**Sunday 23rd October, 10:00 am onwards**  
**Ballarat Greyhound Racing Club's Function Room**

Corner Rubicon & Sutton Streets, Ballarat 3350  
Adjacent to Bray Raceway Harness Racing Track, Morshead Park  
Lat -37.580618, Long 143.83024

Coordinators: Craig VK3CMC, Doug VK3VBA, Bob VK3NBV, Gordon VK3FGC,  
Doug VK3FDRE, Warren VK3FWJW, Bill VK3PAL and John VK3CFH

**INFORMATION & BOOKINGS:** [hamvention2011@barg.org.au](mailto:hamvention2011@barg.org.au) or Box 1261, Mail Centre, Ballarat 3354

# WIA VHF-UHF FIELD DAY

Section entered:

- A Single operator 24 hours
- B Single operator 8 hours
- C Multi operator 24 hours
- D Multi operator 8 hours
- E Home station 24 hours
- F Rover station 24 hours

*If entering more than one section, please use a separate copy of this sheet for each section.*

For Section B or D, time period to be scored:

The station operated from the following grid locators:


Contest date:

Station callsign:

Names and callsigns of all operators:

Postal address for notification of results:

Postcode:

The station was operated in accordance with the rules of the contest and in the spirit of fair and friendly competition. I/We agree to accept the Contest Manager's decision as final.

Signed:

## SCORING TABLE

Band	Locators Activated 10 points each	Locators Worked 10 points each	QSOs made 1 point each	Total	Band Multiplier	Band Total
50 MHz	+	+	=	x	1	=
144 MHz	+	+	=	x	3	=
432 MHz	+	+	=	x	5	=
1296 MHz	+	+	=	x	8	=
2.4 GHz	+	+	=	x	10	=
3.4 GHz	+	+	=	x	10	=
5.7 GHz	+	+	=	x	10	=
10 GHz	+	+	=	x	10	=
24 GHz	+	+	=	x	10	=
47 GHz	+	+	=	x	10	=
Higher	+	+	=	x	10	=

**FINAL TOTAL** = \_\_\_\_\_



# Jack Files Memorial Contest - 22 October 2011

Derek Toreaux VK4MIA, Contest Manager, President Ipswich & District Radio Club  
[www.jackfilesvk.blogspot.com](http://www.jackfilesvk.blogspot.com)

The Jack Files Contest is sponsored by the QAC and will be administered by the Ipswich & District Radio Club.

## Aim of the Contest

The object is for amateurs to work as many other amateur stations, and particularly as many different VK4 shires, towns and as many different states and territories as possible within each one hour block of the contest.

**Date:** The contest date for 2011 is 22 October 2011.

It runs for six hours: 0800 UTC – 1400 UTC in six one-hour blocks for the purpose of duplicate contacts.

**Power Output:** Limited as per your licence specifications i.e.: Foundation 10 W, Standard 100 W, Advanced 400 W.

**Band of Operation:** Contest is open ONLY on 80 metres: 3.550 MHz – 3.700 MHz to put all licence grades on an equal footing.

**Mode:** Mode is SSB ONLY. Previous years have seen the decline in the use of CW and due to lack of participation and log submission this mode has now been removed.

**Categories:** Single Operator or Club Station.

**Exchange:** Non-VK4 stations will send RS plus serial number starting at 001 and incrementing by one for each contact. VK4 stations will send RS, serial number and two-letter shire or town code for purposes of multipliers.

In order to make best use of the band, stations may be contacted once in each hour. Repeat contacts with stations may be counted within the same one hour block ONLY if the station is mobile and crosses from different shires, towns, states or territories to another. All repeat contacts must not be consecutive.

**Scoring:** One point per contact.

**Multipliers:** Each VK4 Shire or Town counts as a multiplier only once over the entire duration of the contest. All participants may also count the first contact in each state or territory as a multiplier and these may be counted within each hour block during the contest.

**Final Score:** The final score is the total QSO points multiplied by the total number of multipliers.

**Log Submission:** Logs must show full details of all QSOs and must be accompanied by a Summary Sheet showing operator's name; address; callsign; category; claimed score and a declaration that the rules and spirit of the contest were observed. All logs to be submitted by 30 November 2011.

Send logs by mail to:

**Jack Files Contest Manager**  
**P.O. Box 250**  
**Ipswich**  
**OLD 4305**

Logs may be sent by e-mail in text format to:

**[vk4wip@gmail.com](mailto:vk4wip@gmail.com)**

**Contest Awards:** First Overall Winner in VK or any other DX location to be awarded a plaque, in addition to their name being added to a perpetual shield for the contest. This shield will be held perpetually at The Ipswich & District Radio Club Clubhouse.

Second Overall will be awarded a special medallion and certificate.

Third Overall will be awarded a special medallion and certificate.

First in each VK State to be awarded a certificate.

First, second and third overall Foundation licenced operators will be awarded a Special Medallion and certificate.

First Overall ZL will be awarded a special medallion and certificate.

**Logging Software:** Any logging software may be used, as long as the log includes all of the details required by the rules. VK Contest Log has been updated since last year, is a great logging tool and can be downloaded at <http://web.aanet.com.au/~mnds/index.htm>

## Silent Key John Herbert Ruston ex VK5ARK

It is with deep regret that we report the passing of John Herbert Ruston, formerly VK5ARK, who passed away peacefully in the Renmark Nursing Home on 15 May, 2011 in his 81st year.

John obtained his licence in 1979 and was a foundation member of the Riverland Amateur Radio Club when established in 1989. 'Rusty', as he was known to everyone held an A class Industrial Electricians licence.

John was instrumental in establishing the two metre Riverland VK5RLD repeater, as well as passing on his valuable knowledge to any member wishing to obtain their licence.

John's shack come workshop saw many radios in for repairs as he serviced all the 'Liba Liba' houseboat fleet's UHF radios.

John was involved with the WIA slow Morse practise sessions on a weekly basis, helping novice and other amateurs to upgrade

their licence to 10 wpm.

'Rusty' had a great passion for amateur radio but relinquished his licence in 1999 to pursue his other passion, Classic and Vintage cars. He also enjoyed many a day out duck shooting on the Murray River.

John is survived by his wife Joy, son Peter and daughter Anne.

Contributed by Doug VK5GA.

# ALARA

Margaret Blight VK3FMAB – Publicity Officer



Photo 1: Dianne VKFDIZ – the ice cream girl.

## YLs celebrate ALARA'S birthday

It was time to celebrate yet another birthday for ALARA in late July. For those in VK3 it was an opportunity for members of various clubs in Victoria to get together for an enjoyable day. This year we met up in Sunbury where we shared a delicious meal of soup, sandwiches and as many sweets as people could



Photo 2: Jean VK3VIP and Jenny VK3WQ cutting the birthday cake.

manage. Our host for the day was Jenny VK3WQ, and her OM Peter VK3RV. Some entertainment was provided during the afternoon and a highlight was the appearance of the ice-cream and refreshments girl during the interval.

There were representatives from a number of radio clubs including Macedon Radio Club, Midlands' Radio Club, Gippsland Gate

Radio Club and Eastern & Mountain Districts Radio Club.

From VK5 Christine VK5CTY wrote: *This year there were only seven YLs (and five OMs) to celebrate the ALARA birthday in VK5, as many of the VK5 YLs are scattered over Australia and the world at the moment. We hope they are having a good time. It was very nice to have Somkit and her OM with us this year. Somkit used to be heard regularly on the Monday night nets but her OM had a nasty car accident about 18 months ago which kept both of them busy with hospitals and doctors. Despite the small number it was a very pleasant meal and good company.*

## Sponsorship

ALARA has a sponsorship scheme in place which enables ALARA members to sponsor overseas friends. Many friendships are made this way and when radio conditions are good you may get to speak to your sponsor on air. In fact a number of sponsorships are decided



Photo 3: VK5 birthday luncheon attendees were, from L to R: Bea, Shirley, Somkit, Jenny, Tina, Myrna, Jean and Christine.

after meeting on air. If you travel overseas, some sponsors can meet you and show you the sights, others may be able to offer accommodation. If/when your sponsor comes to Australia you may be able to do the same. Some of the countries involved in this scheme are: Great Britain, America, New Zealand, Japan, Germany, Greece, Italy, Sweden, South Africa, India and France.

The ALARA member pays the subscription for a female radio amateur in another country to belong to ALARA and she in turn pays a subscription to the women's radio club in her country. This method saves a lot of money changing hassles. They receive our newsletter and you receive a copy of their newsletter. Many of the DX members being sponsored receive their newsletter by email as it arrives 'hot off the presses' and they can read it the same time as their sponsor.

Some ALARA members have one sponsor and some have several. Many keep in touch regularly while others may only keep in touch on occasions such as Christmas and birthdays. If you are interested in sponsoring a DX YL or being sponsored into an overseas club, contact the Sponsorship Secretary Maria VK5BMT for more information.

I recently heard about a personal sponsorship from an ALARA member which illustrates, once again, how the simple decision to sponsor a female member of an overseas Radio Club can lead to a long term friendship. In this case the member is Robyn VK3WX and this is her story:

Alma Wills ZL1WA and I first met on air in 1989. Alma came up on the ALARA Monday night net, and asked if a YL in Victoria would like to correspond with her, as her son lived near Melbourne. I responded, and we have been friends ever since. Our 'on air' activities over the years have been occasional contacts on the Monday 222 YL net. However, we have also had the luxury of visiting each other's homes many times. Alma stayed with me while visiting her son, and she returned the hospitality when I was coming back from seeing my daughter, who lives in the US. Alma and I attended the wonderful YL 2000, which was organised by WARO in Hamilton. We hired a car and had a ball.

We attended ALARAMEETS together in Castlemaine, Murray Bridge and Mildura. Celia ZL1ALK also stayed at my home on the way to Mildura. In 2004, I was in New Zealand for Alma's 80th birthday. In the past seven years, Alma has called me on the phone every Saturday morning, as she found maintaining her aerials too difficult. She would not let me share the cost. She said it was her treat. During those years, I have sent her mail every week. Recently she has moved from her home to live in a retirement

Photo 4: Alma ZL1WA and Robyn VK3WX.



lodge in the same town, and I decided it was time to see her in person. This time we also had a hire car and we had a ball! I really value the special connection Alma and I have. Thank you, ALARA, for making our friendship possible.

Jenny VK3WQ writes: *A week's holiday in Melbourne for a family birthday saw Christine VK5CTY with some spare time on her hands, so it was arranged that she would come and visit Peter VK3RV and I for the day. We picked her up from the train at Sunbury station, which looked as though it was in the process of being demolished, but we are assured that it's called 'Progress' with the electrification of the line taking place!*

*First stop was a nearby café for a warming cup of coffee, followed by a quick tour of Sunbury and some of its places of historical interest. Did you know that the very first 'Ashes' cricket match was played at Rupertswood Mansion in Sunbury and that's where the bails were burnt?*

*Back home, and after the mandatory garden inspection, we were joined for lunch by Pam VK3NK and Graeme VK3NE. Later, John VK3IC also joined us. As Peter and I had recently arrived back from the UK, the conversation naturally revolved around everyone's travel experiences – both highs and lows! Finally we had to break up the party to get Christine back to the station after a pleasant interlude on a cold, wet, Melbourne winter's day.*

Thanks for the news Jenny and we hope to hear more about your own overseas trip soon.

### What was your State Representative doing at the weekend?

In her never ending search for new ALARA members, Victoria's own State Representative Jean VK3VIP took to the water on a wet and windy day recently. She deserves a medal for stamina.

If readers have any stories of ALARA members going above and beyond the call of duty we would love to hear from you. Look up the ALARA Newsletter and in the committee column is the email address of the publicity officer Margaret VK3FMAB.



Photo 5: Jean VK3VIP at the helm.

### Sympathy for Celia Zlialk ZL1ALK

ALARA members extend their sincere sympathy to Celia ZL1ALK that her OM Geoff has become an SK. Celia has been a long term member of ALARA and was a foundation member off WARO. She is well known around the world through her DX activities and we want her to know we are thinking of her at this time.

And finally...The VK5 YLS are now meeting at the Grand Chancellor Hotel in Currie Street on the second Friday of each month, at 12 noon. For the last few months we have only had a small group but now that some of our travelling members are returning the size of the group should increase again. Any YLs visiting Adelaide on or near to the second Friday should contact one of the regulars for further details. We are always happy to have family and friends attend our luncheons. The venue is pleasant, the food is good and the prices are reasonable. Of course the company is great!

Photo 6: Celebrating ALARA Birthday.



# VHF/UHF - An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

## Weak Signal

It is still only winter and it seems too early yet to call it a new 'season' for VHF/UHF operations, but regardless of that, the bridge from VK to ZL has been crossed already on 2 m – the first for the season!

On August 23rd, at about 0500 Z, Nick ZL1IU reported hearing the VK2RSY Dural 2 m beacon at 559. At 0546 Z, Ross VK2DVZ managed to work Nick over a distance of 2010 km, with a report of 5x2 and only a few brief overs. At 0810 Z, Colin VK2BCC worked Nick with 5x9+ reports. They worked again at 0905 Z with signals down to 5x5.

The Hepburn chart for the day showed medium level Tropo enhancement for the path. It just goes to show that you should keep an eye on the propagation indicators even in the so-called off-season, as you never know what you might be missing.

## New microwave records

As reported in the 'Stop Press' last month, Alan VK3XPD and Michael VK3KH have been dabbling in the upper microwave regions, setting new records in the process. Their work has continued as explained by Alan: *On August 21st, Michael VK3KH and myself, Alan VK3XPD set the first VK 122 GHz distance record over a path of 1.51 km in the Melbourne suburb of Cranbourne.*

*Our signal reports were somewhat generous at 5x1 both ways with fast QSB and even faster frequency drift. Since the transverter design allows for operation on either 78 or 122 GHz by simply changing an oscillator frequency, our first test QSO over 400 metres was on 78 GHz. Once we had confirmed the transverters were working and the dish pointing had been optimised, we then changed the master oscillator frequency on each transverter for our 122 GHz attempt.*

*Signal Reports for our SSB*



*Photo 1: From left Peter VK4APG, Alan VK4WR, Scott VK4CZ, Campbell (junior VK4CZ), Phil VK4FIL and Brian VK5BC.*

*QSO were an excellent 5x7 both ways for this shorter path. I then relocated and set up the gear for a 1.51 km path. Unlike our previous 76/78 GHz record, this contact was not easy. Despite thinking our dish pointing and the Rx mixer bias were set correctly, we initially could not find any sign of our 122.25015 GHz Signal. However, after a few more tweaks, we finally found our elusive signal with ident way down in the noise. Further optimisation raised it to a workable signal strength.*

*Both of us have noticed that the pointing of a relatively small 300 mm dish at this frequency is extremely sharp in both planes! Weather conditions were sunny and warm with light winds - nice for amateur radio but not good for 122 GHz propagation due to the rising humidity. The construction techniques used in these transverters is all homebrew – not DB6NT-based.*

Alan and Michael then went on to extend their 78 GHz record as Alan describes:

*On Monday, 22 August, beginning at 1000 hours EST, Michael and I extended our 78 GHz record twice. The first QSO was conducted over a 2.8 km path along the Berwick-Cranbourne Rd. Signals were 5x6 both ways. We then decided to try and push the limits a bit so Michael drove to a hill on Old Coach Road in*

*Berwick. This is a path of 11.88 km.*

*Our initial dish pointing (visual) was straightforward and easy but there was no sign of our 78 GHz signal. However, after repeated fiddling with Rx bias and dish pointing we finally found our signal with ident just above the noise floor. After more specific tweaking to optimise the signal, we finally completed with 5x1 reports both ways. With the changing conditions of late morning, Michael later amended his report to 5x2. Having extended this record twice, we then had a bit of a rag chew over our 78 GHz link.*

*The distances of 1.5 km on 122 GHz and almost 12 km on 78 GHz would seem to be the limit for the current equipment using Melbourne suburban paths. The local Melbourne weather is now heading for the more humid months of summer. To achieve any distance increase in either of the 78 GHz or the 122 GHz records, we will need lower levels of relative humidity. This of course means very early mornings, a trip to the snow or the drier areas of VK - none of which are greatly appealing in the short term. So, for the moment, we will now watch the progress of others.*

*I will shortly be publishing a technical paper on how we achieved both these records using a simple transverter that does not cost an arm and a leg. The hope is that our recent activities on these bands will inspire a few of you to have a go! I am already looking at the options for 134 GHz - homebrew of course!*

For those wanting to find out a little more about the sort of techniques used by Alan in building the transverter, have a look at the following article by Kerry Banke N6IZW: <http://www.ham-radio.com/sbms/sd/47ghzmxr1.pdf>

Of course, signals at these frequencies are extremely hard to measure without very exotic test equipment. Alan has built homebrew harmonic mixers for testing but

'guessestimates' that the transverter is emitting well below 1 mW of power.

The transverter design is based on a sub-harmonic mixer, so the other question that is sometimes asked is how do you know which harmonic you are hearing, or indeed if you are hearing the direct IF leakthrough? Alan overcomes this by using a local oscillator that is not exactly on frequency. So, as he goes up in frequency (and hence harmonic), the frequency offset also rises. For example, if the (12 GHz range) LO is 10 kHz low, then the IF signal at 78 GHz which uses LO x 6 will be 60 kHz high. The IF signal at 122 GHz which uses LO x 10 will be found 100 kHz high. Note: as explained by Alan, the LO frequency is different for the 78 and 122 contacts.

### **VK3 Microwave Activity Day – Sunday, 16 October, 2011**

With the success in VK3 of the Easter Monday 2.4 GHz activities over the last two years, there has been some interest in organising other days focusing on other microwave bands. So it has been decided that Sunday, 16 October, 2011 will be 1296 MHz morning.

The weather is starting to improve by this time of the year, and it is six weeks before the Spring FD. It is a good opportunity to test your gear out before the field day.

Any operator with 23 cm capability is encouraged and welcome to take part. This band has been chosen because it is the easiest microwave band to access. Whether you operate from home, or take your gear to a high hill somewhere, everyone is welcome.

A number of operators have already indicated their keenness to be involved, and some will be taking other bands as well.

The operational plan will be:

1. Activity will aim to commence at 0830 eastern daylight savings time (2130 Z).
2. The first hour and a half the focus will be on 1296 MHz, than after 10 am activity will progress to other bands
3. 144.150 MHz will be the liaison frequency

4. 1296.150 MHz will be the calling frequency. Operation will focus on SSB.

The organiser, Michael VK3KH, will be operational from Arthur's Seat on the Mornington Peninsula, and would welcome a visit from any operator who would like to come and see microwaves in action. You can contact him via email at: [mdc@cranbournemusic.com.au](mailto:mdc@cranbournemusic.com.au)

### **VK4 Microwave Activity Days**

The Brisbane VHF Group is proud to announce they will be conducting more microwave activity days.

Sunday, 25 September, 2011 - Microwave 'Tune up day'.

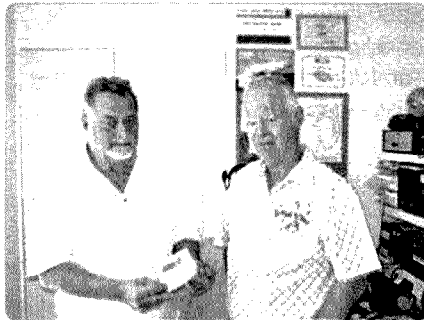
Sunday, 16 October, 2011 - Microwave 'Demonstration day'.

With the warmer weather approaching, operators will start thinking about getting their equipment prepared for the Spring and Summer VHF/UHF Field Days.

You know what usually happens... these field days (and Christmas activities) creep up on you, and it is a mad rush to get things sorted in time. We are seeing an increased interest in microwave activity, with many new participants on the microwave bands, or operators adding extra bands to their existing capabilities. The tune up day will allow microwave enthusiasts to bring their gear along, for comparisons, tests, and tweaks. This will be a great opportunity to test things out, compare, and have time to rectify any issues, before the Spring Field Day.

Apart from putting a face to the callsign, you will be able to see what

*Photo 2: Wade VK4WM shows Wayne VK4WTN the QSL card he received from UX0UN for his contact with him on six metres in March.*



others have been building, and no doubt bounce some great ideas off one another. Operators interested in becoming active on the microwave band are more than welcome to join in as well, and see what these guys get up to. More details may be found on the VK Logger ([www.vklogger.com](http://www.vklogger.com)) in the Forum area in the Brisbane Microwave Activity Days thread.

### **'VHF/UHF – An Expanding World' archive update**

For those of you who might want to browse through news of past years, a reminder that the archive of these columns going back to mid-2003 can be found at: [http://www.vk3hz.net/vhf\\_column/](http://www.vk3hz.net/vhf_column/)

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

## **Digital DX Modes**

*Rex Moncur VK7MO*

### **QE29 activation**

As part of the international lighthouse weekend activities on 20 and 21 August, Rex VK7MO joined Eric VK7NFI and Wayne VK7NET to add a digital VHF and microwave dimension to the activity. Operations were from Table Cape in north west Tasmania from grid square QE29 and provided the opportunity for many in VK3 to gain this relatively rare grid square. Signals across Bass Strait were sufficiently strong that most contacts were completed on SSB, with 5/9 signals to the Geelong group of Chas VK3PY, Ken VK3AKK, Charlie VK3NX, David VK3QM and Lou VK3ALB on 144, 432, 1296 and 10368 MHz.

Digital proved its value with Michael VK3KH at Berwick working Rex at -15 dB on JT65c on 10 GHz with just 200 mW.

Gavin VK3HY worked Rex from Johns Hill lookout at -22 dB on 10 GHz for his first VK7 contact on this band. David VK3HZ noted that Gavin's offset dish seemed to be set to beam too low to the ground and after adjustment upwards by some 10 degrees it was found that signals improved sufficiently to allow an SSB

contact. (Rex has been caught the same way with his offset dish!) David VK3HZ also completed on 10 GHz digital at -6 dB and on SSB at 5/3.

Overall some 60 contacts were made across Bass Strait and many stations can now add QE29 to their grid square totals.

Thanks to Eric VK7NFI and Wayne VK7NET for inviting Rex to take part in their weekend.

### Portable EME from QE29

Ardent Grid Square chaser Bernd DL9APV worked Rex on 432 MHz JT65b EME at QE29 when the moon was clearly visible early during the Sunday morning and could be tracked manually with Rex's 16 element Yagi. This brings Bernd's total to 485 grid squares on 432 MHz. Bernd is keen to make 500 and he welcomes stations who can work him with a single Yagi and 100 watts. Bernd watches the VK logger for potential contacts and skeds can be arranged with him by email [d17apv@gmx.de](mailto:d17apv@gmx.de)

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

### The Magic Band – 6 m DX

*Brian Cleland – VK5BC*

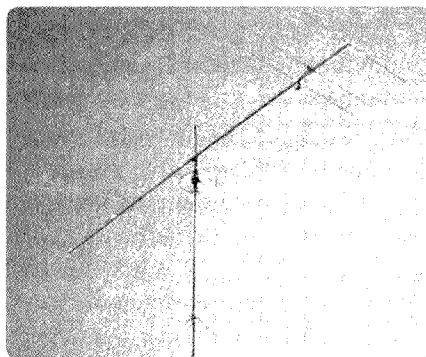
After a good winter 'E' season in June and July the band went quiet in August with very few E openings. The openings are summarized below.

1st August John VK2BHO worked Rod ZL3NW.

7th August produces the best E's for August with openings occurring all over VK, ZL and FK8. VK6s reporting VK5 beacons with Graham VK6SIX working David VK5AYD in Coober Pedy. Scott VK4CZ worked Bob ZL1RS and Mark ZL2WHO while Brian VK4IK in Sapphire completed a contact with Remi FK8CP. John VK2BHO also worked ZL1RS and Wayne VK4WTN in Hervey Bay worked Frank VK7DX.

21st August Wade VK4WM in Hervey Bay worked FK8CP.

With the sunspot cycle slowly improving there have been signs of some TEP propagation. Gary VK8AW (ex VK4ABW) in Darwin reports;



*Photo 3: Wayne's VK4WTN seven element YU7EF design Yagi.*

The C1 TV has been coming in virtually every afternoon/evening. Sometimes it barely lifts the needle, other times its 20/30 dB over.

On 2 August I worked George DU1GM on 50.110 MHz at 5/3 around 0740 Z, who was the only station to appear that night.

The VR2SIX beacon was 5/1 on the 4th August at 1250 Z and I also heard DU1EV beacon at 5/3 around 1303 Z that night. The 12th August saw lots of beacons coming in from 1200 Z. JA2IGY 5/2, JA6YBR 4/1 and JR6YAG 5/3 for around one hour. The 16th August was a bumper night with the C1 around 20 dB over from 1142 Z and JA2IGY at 5/3, JA6YBR at 5/1 also. Joe KG6DX made it into the log at 20 over on 50.110 MHz at 1200 Z that night. I then had a good chat with Dave KH2/N2NL who was 5/7 and said I was his first VK in a long time. Li BA4SI was 5/5 on 50.110 MHz at 1205 Z and the AH2G/B beacon was switched on at this time too and was S7 here in Darwin.

The 24th August saw my first WSPR contact with JE3AKE on 50.293 MHz with my CP10/6 vertical at nine metres. On 25th August at 1249 Z I spotted the BV2YA beacon 5/2 for the first time in a while. The usual beacons were coming in too, JA6YBR 5/3, JR6YAG 5/5 and Hong Kong VR2SIX 5/1 made an appearance at 1300 Z. I spotted BA4SI on 50.110, who was 5/3 but I did not transmit as my WSPR was running on 50.293 MHz at the same time.

On 26th August I had a WSPR contact on 50.293MHz with VK4EK at 0736Z at a distance of 2161 km.

Not bad for 10 W to a vertical!

On 26th August Brian VK4EK worked JG2TSL and on the 27th John VK4ZJB in Gympie worked Joel KG6DX.

Brad VK2QO reports that many meteor scatter contacts are being made most morning on 50.200 MHz SSB and 50.230 MHz for digital modes. The group coordinates activity on VKChat and reports contacts on VKLOGGER. Here is a list of up and coming meteor showers for October; the major class1 for this month will be the Orionids and the rest will vary from class 2 to class 4. Showers are: Eta Cetids peak around 3/4 October, Sextantids peak around 4 October, October Cygnids peak around 4/5 October, Arietids peak around 8/9 October, Draconids peak around 9/10 October, Delta Aurigids peak around 9/10 October, Northern Piscids peak around 12/13 October, Epsilon Geminids peak around 18/19 October, Orionids peak around 20-23 October, Leo Minorids peak around 22/23 October. There are many more showers for the month of October but they are mainly in the northern hemisphere. A lot of these showers will peak in the early hours of the morning but should produce some good contacts at the early time of 6 am (5 am in VK4).

I have been travelling Queensland for the last three months, which has given me the opportunity to meet some of the regular VK4 six metre operators including John VK4FNQ in Charters Towers, Wade VK4WM and Wayne VK4WTN in Hervey Bay, Brian VK4EK in Sapphire, Scott VK4CZ, Phil VK4FIL, Allan VK4WR and Peter VK4APG in Brisbane. A special thanks to Scott who arranged for the other Brisbane operators to be at his QTH for drinks and BBQ as well as providing us with a free camping site for the caravan (needed to be able to walk home). The photos were all taken at Scott's VK4CZ QTH.

Please send any six metre information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



Tim Mills VK2ZTM  
vk2ztm@wia.org.au

The Oxley Region ARC will have its 40th anniversary lunch on Sunday, 2nd October at the Port Macquarie Golf Club, which is in Ocean Drive at the southern edge of town. The function will commence at noon. There is no charge to attend the lunch, other than to pay for your food and drinks at menu prices. An attractive commemorative certificate will be presented to all radio operators who attend. Bookings are being taken so that certificates can be printed and seating arranged. Check out club details at [www.orarc.org](http://www.orarc.org) Visitors and their families will be made very welcome. Updates are given from Oxley in the Club news on VK2WI.

October will also be the final month of special event anniversary callsign VI40BOR. The ORARC club held its well-attended AGM on 6th August. The committee for 2011/2012 has Henry Lundell VK2ZHE as President, Bruce Walker VK2HOT as Vice President, John McLean VK2KC as Secretary and Keith Anderson VK2FKJA is Treasurer. Committee members are David Newey VK2DFN, Arthur Monck VK2ATM and Bill Sinclair VK2ZCV. Life Membership was bestowed on Lewis Green VK2AG, Bob Brodie VK2EJK and Roy Burges VK2YOR. The 2011 Clubman of the Year was awarded to Stuart Melville VK2KSM for an outstanding contribution to the club during the past year.

With JOTA over the weekend of 15th and 16th October many amateurs will be providing their equipment for the event. St. George ARS will have a station at Bonna Park Reserve, Kurnell and are looking for persons to assist. Contact their JOTA co-ordinator at [jota@sgars.org](mailto:jota@sgars.org)

Fishers Ghost ARC will be operating JOTA for the scouts from

the Cataract Scout Park and for the guides at Kentlyn, advises Secretary Wal VK2ZWK.

Blue Mountains ARC conducted their Winterfest at the end of August. Their Wednesday evening two metre net is now half an hour later at 8 pm on 147.050 MHz. A 123 Hz CTCSS tone is required. HADARC have an examination and assessment session for all grades of licence on Saturday 1st October. Contact Tony VK2BTL 02 9487 3383 or the HADARC web site [www.hadarc.org.au](http://www.hadarc.org.au) The Great Lakes ARC held their AGM on 29th July with this year's office bearers being Bruce VK2EM as President, Andy VK2AAK as Vice President, Shayne VK2XUV as the Secretary and Ken VK2FKEN as Treasurer. Their club is based on the lower north coast around Forster - Tuncurry.

The Hellenic Amateur Radio Association of Australia – HARAOA – DXpedition to Lord Howe Island in late July made some 17,000 QSOs with 140,000 hits on the website [www.vk9hr.com](http://www.vk9hr.com) advises President Tommy VK2IR. For the ILLW weekend they activated Montague Island, IOTA OC-223 under the club call VK2CL. A reminder that the judging of the Illawarra ARS crystal set building will be conducted in November. WICEN NSW has the Hawkesbury Canoe Classic operation over the weekend 22nd and 23rd October. As always help is required on the many check points. Their AGM was held early September.

The final two Trash and Treasure Sundays for this year at ARNSW are on the 25th September and 27th November. In the morning, exam assessments are conducted. The

VK2WI 3699 kHz Morse training transmission is a constant signal covering much of the globe. Recently John VK2ASU, on a cruise in the Pacific, copied the transmission while off the west coast of the USA. He was using a small SW portable with a short whip. He went up on deck just after dawn and had a respectable signal on the wide band receiver. John considered that if he had had a narrow filter receiver it would have been a solid QRP signal. The 3699 signal is almost 24/7, except for broadcast times and a few other station operations when the 80 metre band is required.

While on the subject of broadcasts it would seem that many weekly broadcasts have left the HF bands in preference for VHF and UHF only transmissions. The VK2WI News Network provides good interstate coverage if the interstate callbacks received are an indication. There may be times when interstate groups require some coverage of a major topic. Our news compilers may be able to fit in a short item or two. Material should be sent to [news@arnsw.org.au](mailto:news@arnsw.org.au) by the Friday prior to the broadcast. VK2WI transmits at 10 am and 7.30 pm VK2 time on Sunday. VK1WIA is part of the morning transmission. The evening is VK2WI news only and includes the ARRL DX news. The text of the weekly VK2WI news can be found on the ARNSW web site [www.arnsw.org.au](http://www.arnsw.org.au) on Monday following the broadcast. There are many VK2 clubs and groups that report their major events via VK2WI. We invite other clubs and groups to do likewise. 73.



## WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)

# Hamads

## FOR SALE – VIC

Radio Projects for the Amateur - Volumes 1 - 4 are back in print by popular demand. Practicable plans for the construction of receivers, transmitters, antennas and couplers, test equipment, with lots of workshop notes, prepared by Drew Diamond, VK3XU. Available from the WIA Online bookshop, [www.wia.org.au](http://www.wia.org.au)

All you need to set up a station at an affordable price and with proven equipment.

Antenna tuner Daiwa, 200 watts P.E.P., crossed needle type, frequency range 3.5 to 30 MHz. Ser No 07304. Going for \$75.00. Transceiver, Icom IC-718, 100 watts, fitted with DSP module, covers all HF bands including WARC. Complete with hand held microphone, Icom HM38 and comprehensive manual. Serial No 12216, and priced at \$675.00. Power supply, 13.8 VDC 15 A continuous, 17 A on 50% duty cycle. Made by Powertech, Serial No N16511. For sale at \$120.00. Two metre HH, Quansheng, with charger and handbook, Serial No 8008070138. For sale, \$55.00. Sell complete or will separate, buyer to arrange collection or delivery.

Contact Laurie VK3BV, phone 03 5975 0306 or email [shirlau@netbay.com.au](mailto:shirlau@netbay.com.au)

Icom model IC-718, 100 W HF transceiver, S/N 0836004, optioned with CR-338 high-stability reference xtal, and FL-52A 500 Hz CW/RTTY filter. Like new, with original box, \$890.00.

Icom AH4 auto tuner/coupler to suit, \$440.00. Diamond SX-100 power/SWR meter, \$150.00.

Drew VK3XU. QTHR, Phone 03 9722 1620.

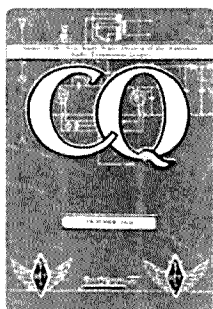
## WANTED – VIC

Electronic keyer, for a white stick operator in middle 80's who is a CW buff. Contact Bill VK3DQS on 03 5941 2899, any hours.

Copies of *Australian CQ* magazine. See photo at top next column.

The WIA Archive is seeking early copies of the late 1920s *Australian CQ* for copying and/or adding to the WIA Archive's shelves.

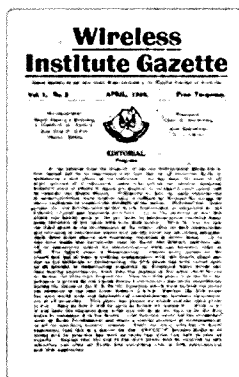
This magazine was published by the NSW Division of The Australian Radio



magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrangong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.



Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The

shelves.

Little is currently known about this magazine except that it was published by the NSW Division and possibly started in February, 1926. The WIA Archive holds one copy of the April, 1926 issue. It is marked Volume 1, No. 3. The President at the time was Charles Maclurcan and the Hon. Secretary was W.L. Carter.

The format was eight printed pages stapled; each page approximately 150 mm wide x 220 mm height. There appears to have been no cover.

Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.

Copies of the *Wireless Institute Gazette*. The WIA Archive is seeking early copies of the *Wireless Institute Gazette* for copying and/or adding to the WIA Archive's

Wanted. A warm dwelling for a freezing radio. The proud owner of a rack mount, that is, a naked Eddystone 880/2, desires to give it some decent housing to protect it from our current cold nights in Melbourne. Does anyone have a table-top case for this model? I hate to watch it shiver the nights away. Please contact Mike VK3KRO, QTHR, mobile 0417 358 751, or email [vk3kro@yahoo.com](mailto:vk3kro@yahoo.com)

## FOR SALE – NSW

Yaesu FT-1000, adjustable power up to 200 watts output, with all extras to make it a D model, including band pass filter module, high stability TCXO, 500 Hz and 250 Hz CW filters. Internal automatic antenna tuner with 39 memories. Simultaneous dual frequency reception. 100 memories.

Unit serial number 0L100239. Includes variable rate tuning on both VFOs. Complete with matching SP-5 external speaker and operators manual. Unit was purchased new, is in excellent condition, one owner. Included, for you to install, is ROM 6.0 firmware update. Pick up from QTH only, asking \$2700.00. Les Baber VK2RFJ, QTHR, telephone 02 6543 1942, or email [les\\_baber@dodo.com.au](mailto:les_baber@dodo.com.au)

Waverley ARS has a tilt over antenna tower for sale. It is 13 metres tall when raised and has a heavy base plate and base column. It has two winches, one to wind up the telescopic tower and one to tilt it over.

The centre trellis is made in two sections, and will separate. It can be guyed by steel wires and has a ladder built in on the side, but an antenna is easily serviced whilst horizontal and is a one man job. It can be easily transported on a ute or trailer. It is currently located at Rose Bay in Sydney, ready to transport. Photos of it when last in service can be seen at [vk2bv.org/gallery/2011-auction](http://vk2bv.org/gallery/2011-auction) The club is asking \$400.00 for it. For further details please contact Eric VK2VE on 02 9337 2909, or email [vk2ve@vk2bv.org](mailto:vk2ve@vk2bv.org)

Wanted book title: *Electronic Applications of the Smith Chart*, by Philip H Smith. Please call Roderick VK3YC on 0413 074386 or email [vk3yc@wia.org.au](mailto:vk3yc@wia.org.au)

General Radio AM modulation monitor type GR 1931A, in any condition. Also, Harris MSP100 Audio Process System or any PCBs for it.



Thanks. Contact John Eggington  
VK3EGG, phone 03 9752 6184, mobile  
0409 234 672, or  
email [vk3egg@optusnet.com.au](mailto:vk3egg@optusnet.com.au)

### WANTED – NSW

Yaesu FT-7 transceiver circuit diagram.  
Contact Malcolm Sinclair VK2BMS, 52  
Fourth Ave., Willoughby East. NSW 2068.  
Telephone 02 9958 1114, or email  
[vk2bms@bigpond.com](mailto:vk2bms@bigpond.com)

### FOR SALE – SA

The popular VK5JST Antenna Analyser  
kits are still available through the South  
Coast Amateur Radio Club. Improve  
your HF antenna efficiency by building  
yourself, arguably, the most useful item  
for your shack. See [www.scarc.org.au](http://www.scarc.org.au) or  
contact SCARC, PO Box 333, Morphet  
Vale. SA. 5162. Alternatively email  
[kits@scarc.org.au](mailto:kits@scarc.org.au)

VK5CQ is downsizing; I have listed some  
items and will be listing more, in coming  
weeks, here: <http://GEAR-4-SALE.INFO>  
Contact Chuck VK5CQ QTHR or at  
[Chuck.VK5CQ@gmail.com](mailto:Chuck.VK5CQ@gmail.com)

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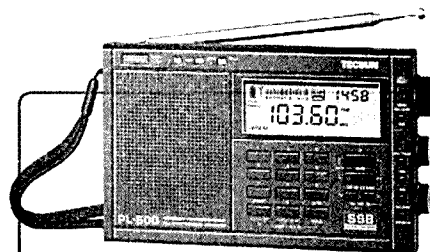
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<http://www.wia.org.au>



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... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

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Dominic Dahl VK2YDD  
Timothy Mills VK2ZTM / VK2UJ  
Gilbert Hughes VK1GH

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Garry Woods VK8GW  
Alan Baker VK8AB  
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\*Denotes nominated by the WIA Board  
(\*Nominated Member)

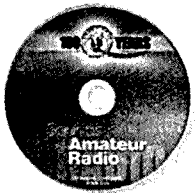


## Interested in our history? Need a Christmas Present?

These three CDs may give you the answer and perhaps even provide the incentive for you to seek-out further stories from our past.



**The Sounds of Amateur Radio Volume 1** was originally released as a cassette tape for the 75th Anniversary of the WIA in 1985. It contains many fascinating segments of oral history from the days of Marconi – with descriptions of early equipment and international communication. Rare off-air recordings of amateur broadcasters made during the 1930s makes this CD a real collector's item. Also included are comments on recovering material from old media. A fascinating CD containing rare and interesting recordings!



**The Sounds of Amateur Radio Volume 2** was produced for the 100th Anniversary celebrations of the WIA in 2010. It features many stories of early experimentation, international communications and broadcasting. Pre-World War II including Radar development and stories from WWII. Also included are highlights of amateur activities following the war, such as Yasme and Danny Weil's story of early DXpeditions, television experimentation, retention of our spectrum and early space communication including the launch of Australis Oscar 5 in 1970.



### **Amateur Radio magazines 1933 to 1939**

If you are interested in the printed word, try this pdf collection of our "in house" journal, *Amateur Radio*. A few years ago, Will McGhie VK6UU undertook the massive task of scanning issues commencing with the very first in October 1933 through to the December 1939 issue. You will glean a few useful and good ideas from our earlier experimenters by reading these early magazines. Some things don't change!

To purchase, head to [www.wia.org.au/members/bookshop/about/](http://www.wia.org.au/members/bookshop/about/)  
or contact the WIA office on 03 9729 0400 between 10.00 am and 4.00 pm (EST).

Mildura welcomes  
 Wireless Institute of Australia  
**2012 Annual Conference**  
 Friday 25 - Sunday 27 May 2012



## WIA Annual Conference Mildura 2012

### Host Club: The Sunraysia Radio Group

The 2012 WIA Annual Conference will be held in Mildura, Victoria, on Friday 25, Saturday 26 and Sunday 27 May 2012.

The 2012 Conference will be centred on the Mildura Grand Hotel and on Sunday lunch on the Paddleboat Mundoo, with a special Conference station, a special callsign and special QSLs.

### Accommodation

The WIA has negotiated a special deal with the Mildura Grand Hotel.

The Grand will offer all participants in the WIA's Annual Conference special rates for accommodation as follows:

Grand Rooms	\$140
Grand Executive Rooms	\$165
Suite	\$200
Grand Suite	\$240

These prices are for up to two people per room and includes a cooked breakfast for each person in the Chandelier Room, and are available for as many additional continuous days as required.

The charge for an extra person per room is \$30 per person and includes the cooked breakfast. Children under the age of 12 are free of charge.

### To book

Make your bookings directly with the Mildura Grand Hotel on either the free call number 1800 034 228 or the hotel's number 03 5023 0511, stating that the booking is for the *WIA Annual Conference 2012*.

We suggest that you request to speak to either Kelly Lang or Ian George when making your booking.

### Registration

From 1 October 2011 on-line registration will be available on the WIA website, or you can register by phone to the WIA office.

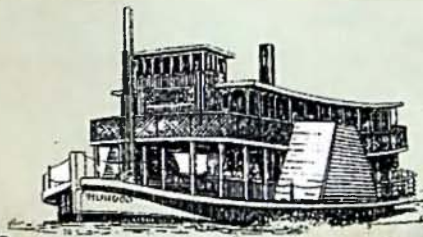
A registration fee of \$75 per person will be charged. That fee will include morning tea, lunch and afternoon tea on Saturday and a tour of the district for partners not participating in the AGM/Open Forum/Symposium.

Other costs are:

Settlers Club Friday night	\$55
Annual Dinner, Saturday night	\$50
Paddleboat Mundoo, incl. lunch, Sunday	\$50
Sunday night BBQ	\$10

When you register we will send you the, Mildura – Sunraysia Tourist Guide, so you can plan what else you will do in the Sunraysia area.

Shortly before the Annual Conference we will send you the Open Forum documents.



## Program

Friday 25 May 2012

2 pm to 5 pm

6 pm

Registration at the Mildura Grand Hotel  
 Buffet Dinner at the historic Settlers Club with Alan Cameron, Mildura businessman, balloon pilot and marriage celebrant "Sunraysia – Past, Present and Future".

Saturday 26 May 2012

8 am to 9 am

9 am to 12.45 pm

1 pm to 2 pm

2 pm to 5 pm

6 pm to 7 pm

7 pm

Registration at the Mildura Grand.  
 Annual General Meeting and Open Forum, Mildura Grand Ballroom.  
 Lunch.  
 Symposium (A technical program, details to be announced).  
 Drinks in the Club Lounge.  
 Annual Dinner, Hot and Cold Carvery Buffet, Mildura Grand Ballroom.

A Partners Tour will be available for Saturday, including visits to some of the highlights of the area. The cost of that tour will be included in the registration fee.

Sunday 27 May 2012

11.30 am to 3.30 pm

5.30 pm

Cruise and lunch on the Paddleboat Mundoo.  
 The Host Club's event – for those staying for Sunday night, a casual BBQ at the home of Noel Ferguson, Fergus Park, Nichols Point (Details at Registration).

### Further Information

Watch the WIA website for further information.

**The WIA Directors and the Sunraysia Radio Group hope that you will join us in Mildura for our next Annual Conference for what we know will be a memorable weekend.**



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# Amateur Radio

Volume 79  
Number 11  
November 2011  
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# Amateur Radio

Volume 79  
Number 11  
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The Journal of the Wireless Institute of Australia

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### This month's cover

*The youngest girl in the Chinese team, Ye Qiaoqian, listens intently to her 80 m receiver during the warm up period of the Model Event at the start of the IARU Region 3 ARDF Championships held near Maldon in late September. Ye Qiaoqian is much loved by the rest of her team, who call her "little lovely". You can find an overview of the Championships commencing on page 22.*

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## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

### Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

### Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

### Wireless Institute of Australia

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Peter Young VK3MV

# Editorial

Peter Freeman VK3PF

## Publications Committee activities

The Publications Committee is made up of a team of volunteers, all committing part of their hobby time to work towards the preparation of this publication - *Amateur Radio*. I doubt that I could do my job as Editor without the contributions of the formal and informal members of the committee. We have several formal members of the Publications Committee, all of whom are listed in the left hand column on page one of each issue. We also have a couple of other informal members who contribute by being part of the proof reading team for each issue of this magazine. In addition to these members, we value the input from a number of others involved in the WIA, and of course we cannot ignore the efforts of Fontana Design in the preparation of each issue.

Whilst *Amateur Radio* is the regular monthly evidence of our combined efforts, and logically the task which consumes most of our time and effort, we also have other tasks to consider.

As I prepare these notes, the 2012 *Callbook* is at the printer. The *Callbook* is edited by Greg VK3VT, with many contributing to ensure that the most up to date information possible is included. As I mentioned in last month's Editorial, there must always be a cut-off date for all information. Therefore, a printed volume such as the *Callbook* will always be out of date before it can be distributed! But we do as best we can. I thank Greg for his efforts and also all who responded to Greg's requests for updated information. As a team, we also thank Communique Graphics for their efforts in collating and layout of the *Callbook*.

By now, the *Callbook* should be available for purchase. Details can be found elsewhere in this issue, or at the Bookshop on the WIA website. Clubs are reminded that they can

order in bulk at a discounted price. I am sure that the *Callbook* will also be available for purchase at upcoming major hamfest events.

The Publications Committee also considers other projects from time to time. We may have something new to announce in the New Year..... watch this space.

## Summer is coming

As many readers will be aware, my primary area of interest in amateur radio is the VHF, UHF and microwave regions, especially in the weak signal segments of the bands.

I hope to have a mast or two approved and erected before the forthcoming summer season arrives, with appropriate antennas mounted. If I achieve that goal, I will be able to engage more effectively in the activities that provide me with both stimulation and satisfaction.

In addition to getting a mast and antennas organised, I also need to check out the microwave transverters and associated equipment in readiness for summer, when we can hopefully experience periods of enhanced propagation.

But even if you are not well set up at home, you can still be involved in such activities if you have transceivers which will operate in the narrowband segments of the higher bands. Consider getting out onto a local high spot with horizontally polarised antennas, especially during the VHF/UHF Field Day events or during the Ross Hull Contest. You might be surprised at what you can work!

Hopefully we will continue to see further improvements in HF propagation as we move out of the cycle minimum.

## A pirate?

In the past couple of weeks I have received reports that my callsign has been appearing on the 40 m band,

Continued on page 5





# WIA comment

Michael Owen VK3KI

## The 8<sup>th</sup> IARU Region 3 ARDF Championships

Let me start by quoting a rule:

*C2.4 FIVE hidden transmitters shall operate on each band (i.e. 3.5 and 144 MHz) in the following sequence:*

- *In the first minute: transmitter no. 1 radiating the characters MOE.*
- *In the second minute: transmitter no. 2, radiating the characters MOI.*
- *In the third minute: transmitter no. 3, radiating the characters MOS.*
- *In the fourth minute: transmitter no. 4, radiating the characters MOH.*
- *In the fifth minute: transmitter no. 5, radiating the characters MO5.*

*This sequence shall repeat after the fifth minute with transmitter no. 1 operating in the sixth minute, etc.*

*A sixth transmitter, acting as a beacon, shall be placed at the entrance to the "finishing corridor" (see D2.10). This transmitter shall transmit the characters MO continuously.*

That is one Rule taken from the twelve pages of the "Rules for IARU Region 3 Championships in Amateur Radio Direction Finding".

One of the features of amateur radio is that it covers such a wide range of diverse interests. Radio sport is one of those interests.

I wrote about the IARU in the September 2011 issue of *Amateur Radio*. The IARU Region 3 ARDF Championships is one of the few activities of IARU Region 3 that is not confined to its policy/advocacy roles but engages in ordinary amateur activities.

Yet how many of us in this country really know very much about ARDF as it is conducted as an international sport?

As I say, there are 12 pages of detailed rules, and changes to those rules, even their interpretation, is a very hot topic for those involved, across the world and particularly in Region 1.

As you can see from this issue of *Amateur Radio*, the 8<sup>th</sup> IARU Region 3 ARDF Championships were conducted around Maldon, Victoria, from 23 September to 28 September 2011. The article by the WIA ARDF Coordinator, Jack Bramham VK3WWW tells a little about the event, as do the photographs.

Perhaps the scope of the event is best summed up by Jack, where he has written:

*Participants for this event were made up of Australia (WIA) 19, China (CRSA) 34, Japan (JARL) 31, Kazakhstan (KFRR) 1, Korea (KARL) 6, Malaysia (MARTS) 2 and USA (ARRL) 3, totalling 96 competitors. Added to the competitors list there were team officials, trainers and International Referees. So, as you can see it is really a major event for us here in VK.*

The WIA was the host Society and provided administrative support.

The planning and organising, the real work, was undertaken by a group from the Victorian ARDF Group, led by Jack.

Jack also refers to the many volunteers needed to conduct the actual event.

The preparations started 18 months ago, and I realise now the extent of those preparations necessary to conduct such an event properly. These preparations extended to contacting landowners, government agencies as well as local authorities, quite apart from the obvious things of finding a venue, determining a course, finding suitable and not too expensive

accommodation, organising registrations processes and organising transport for quite a number of people and arranging a day for the overseas visitors to see something of that part of our country.

Finding a course is governed by the detailed rules which define the terrain for the competition as follows:

*C2.1 The area and terrain over which the competition takes place shall be predominantly wooded. Differences in level over the terrain shall not exceed 200 meters. The Organising Society shall exercise prudence in the choice of terrain taking into account any hazards that might be harmful to the health of competitors. An area used in the past 12 months for any ARDF event should not be used.*

The choice of location, Maldon, with the right terrain and very much a centre in the attractive and historically interesting Gold Fields part of Victoria, would be hard to better.

Amateur radio has many aspects. Each of us tends to see it in the prism of our own particular area of interest. ARDF, particularly international ARDF is an aspect that many of us in Australia really know very little about.

As someone who has discovered that ARDF can be a bit more than the 80 metre transmitter hunts that I once enjoyed, I learnt a number of things from the IARU Region 3 ARDF Championships.

One was to understand the mixture of technical and physical skills required, the real orienteering skills needed.

Another was the genuine international friendships that were fostered, and importantly, how this activity attracted younger people.

Continued on page 5

## ACMA investigates serious interference on amateur bands

Mark Loney, Executive Manager, Operations Branch of the ACMA has advised the WIA that the Operations Branch has been investigating interference to the Mt. Cottrel and Mt. Macedon repeaters as a result of complaints made by radio amateurs.

As a result of those investigations the ACMA applied to the Melbourne Magistrates Court for the issue of a search warrant under the *Radiocommunications Act 1992*.

The application was successful and the search warrant was executed on premises in metropolitan Melbourne on Wednesday 14 September with the assistance of Victoria Police.

Mr Loney advised that as this is an ongoing investigation, the ACMA is unable to provide further details.

The WIA President, Michael Owen VK3KI said that the WIA welcomes these compliance activities affecting the amateur community.

Mr Loney points out that the successful prosecution of individuals charged with causing serious interference on amateur bands depends heavily on the willingness of amateurs to give evidence and to provide evidentiary statements to ACMA compliance staff.

The WIA encourages all amateurs to support the ACMA investigations.

## Queensland Clubs meet in Bundaberg

Representatives of nine Queensland WIA affiliated clubs met with WIA President Michael Owen VK3KI and WIA Director Ewan McLeod VK4ERM on Sunday 9 October 2011 at the SES Headquarters at Bundaberg. Michael Charteris VK4QS, Chair of the WIA Queensland Advisory Committee, also participated. The meeting followed the 50<sup>th</sup> Anniversary celebrations of the Bundaberg Amateur Radio Club the day before.

The WIA President briefed the representatives of the nine clubs attending on the current matters the

WIA was addressing, and identified a number of issues for discussion.

How to attract younger new amateurs became a theme of the discussion, with useful ideas being exchanged. The representatives of the clubs shared their experiences and collectively JOTA was seen as an opportunity to present amateur radio to potential young new amateurs.

It was agreed that what may have been attractive and interesting in the past may no longer be the best approach and it was agreed that clubs could be helped by a guide, setting out possible approaches to promoting amateur radio to groups of younger people.

The Bundaberg Club undertook to investigate producing a first draft of such a guide.

Other matters discussed included the balance of content in the WIA magazine, the charging requirements imposed on the WIA for the examination services it provided, WIA emergency communication accreditation and the effectiveness of the WIA office.

Michael Owen said that it was a most useful and very constructive discussion.

## New callsign block available

The ACMA has advised the WIA that a number of amateurs had sought Advanced three letter callsigns commencing with the letter "O". Previously that block had not been used because of a fear of confusion between the letter "O" and the numeral "0". The opinion of the WIA was sought.

The Directors took the view that as phonetics are almost universally used and as other countries used such a block without apparent difficulty, there seemed to be no reason why that block could not be used.

The ACMA has now released the block of three letter callsigns commencing with the letter "O" for Advanced licensees and the

available callsigns are listed on the Public List of Available Callsigns on the WIA website.

## Successful 8<sup>th</sup> IARU Region 3 ARDF Championships concludes

The 8<sup>th</sup> IARU Region 3 ARDF Championships concluded on Tuesday evening, 27 September, with a banquet and award ceremony in the Baringhup Community Hall.

Baringhup is about 10 kilometres from Maldon, where the Championships had been centred and the Community Hall has been described as an honest, down-to-earth tin shed, which started life as an Australian air force building.

Teams from Australia, USA, China, Japan, Malaysia and Korea had competed in the Championships, with one competitor from Kazakhstan.

Many medals were presented at the banquet by Michael Owen VK3KI IARU Region 3 Chairman and very many photographs of the presentations were taken.

IARU Region 3 ARDF Committee Chairman, Yoshio Arisaka JA1HQG said that the 8<sup>th</sup> ARDF Championships had been a wonderful success and congratulated everyone involved in conducting them.

The event was hosted by the Wireless Institute of Australia and the organisation was undertaken by a committee from the Victorian ARDF Group, under the leadership of Jack Bramham VK3WWW, WIA ARDF Coordinator, whose great contribution was particularly recognised.

## Ken Fuller VK4KF retires as VK4 Advisory Committee Member

Ken Fuller VK4KF has requested to retire from his position on the Queensland Advisory Committee.

The WIA Board has appointed Alan Shannon VK4SN for the balance of Ken's term.

Once again, amateur radio is indebted to Ken for his commitment to the Institute and its activities.

## Antenna height regulations - NSW Planning Review

In New South Wales amateur radio towers and antenna heights are regulated through local environment plans (LEPs). The NSW Department of Planning is looking to change the way LEPs are made and to make them more flexible. To this end a planning review team is holding a

series of public meetings around NSW and is accepting written submissions.

WIA Vice President Phil Wait VK2ASD says that there may be an opportunity to improve the situation for radio amateurs in NSW - the most populous state for hams - if as many NSW radio amateurs as possible make written submissions to the review. He says that the WIA believes that a written submission would be more effective than attending the public meetings - but time is short.

The WIA urged as many amateurs as possible to make written submissions and WIA Manager Mai Brooks has contacted the WIA NSW Advisory Committee and asked them to draw the attention of clubs and individuals in New South Wales to this matter as soon as possible.

Background information and directions on how to make an effective written submission have been placed on the WIA website at [www.wia.org.au](http://www.wia.org.au)



# WIA comment

Continued from page 3

The Chinese team included a group of students who carried their school flag at the closing dinner.

I was privileged to be at both the opening and closing of this great event.

For me it was great to see so many young people, great to catch up with old friends such as the Chair of the Region 3 ARDF Committee

Yoshio Arisaka JA1HQG, and above all, to see the friendly camaraderie of so many people from different lands brought together by this aspect of amateur radio.

I commend Jack, his team and the many people from both amateur radio and orienteering who made the event the success it undoubtedly was.

To all involved, from organisers to helpers to competitors, I extend my sincere congratulations on a truly memorable and friendly occasion.

I am proud, too, that we, the Wireless Institute of Australia, were able to contribute to the success of this international event.



# Editorial

Continued from page 2

with the "operator" being someone other than me.

Whilst I do not appear often on the HF bands, I do pop up occasionally. So I may well be on the HF bands. But the "pirate" reported to me is not using my name.

Anyone hearing the callsign VK3PF on air being operated by someone with a name other than Peter located at Churchill (or some portable location) is asked to log

as much detail as possible about the station and operator, including location, time, date and frequency. Please then forward the information to me so that it can be collated and forwarded to the ACMA for further investigation.

## November celebrations

You may wish to note that Amateur Radio Victoria (ARV) will be celebrating its Centenary during

November this year. They are offering a Centenary Award certificate and also promoting the Keith Roget Memorial National Parks Award during the celebrations. Further details can be found in the ARV notes and on their website.

That is all for now.

Cheers,

Peter VK3PF



## Try VHF/UHF Contesting

▶ Spring Field Day November 26/27

▶ Ross Hull Memorial VHF Contest January 2012

Do you have a transceiver with any of the VHF or UHF bands in addition to HF? Then have some fun during the upcoming VHF/UHF events. Listen around in the band segments xxx.150 - xxx.250 MHz (where xxx = 50, 144, 432 or 1296) on USB. You may be pleasantly surprised at what you can work! Support the contest by submitting an entry.

# A switched mode power supply repair

Erich Heinzle VK5HSE

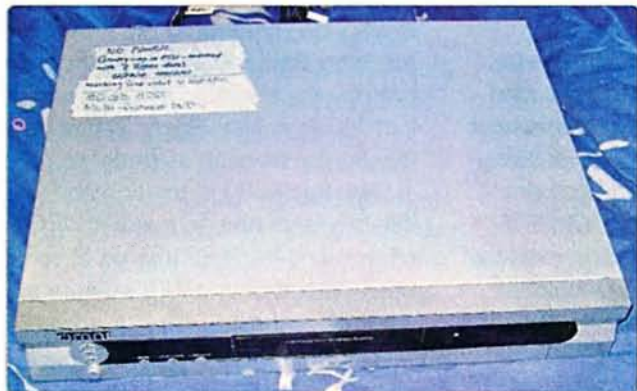


Photo 1: The DVD HDD recorder, complete with a helpful label to indicate the nature of the fault.

Switched mode power supplies work by rectifying alternating mains current and then driving a high frequency transformer with pulses of this rectified current. The high frequency transformer produces a high frequency output which is then rectified and smoothed by filter capacitors.

The advantages of this approach are that a small, lightweight transformer can be used instead of a big iron cored mains frequency transformer, and very little standby current is required when no load is being drawn. Two of the major downsides are that the high frequency pulses of current are

rich in harmonics which can produce broadband RF noise, and that the ripple in the DC output of the high frequency transformer can cause heating in the smoothing capacitors used to condition the DC output before it makes its way to the electronics being powered.

Switched mode power supplies are often very compactly constructed, and sometimes lack airflow, causing more heating of the components. Failure of the smoothing capacitors is a common mode of failure in the switched mode power supplies which are becoming almost ubiquitous in consumer electronics, computers and radios.

This short tutorial documents the process of identifying and replacing smoothing capacitors which have failed in service in a switched mode power supply. This is by no means a comprehensive guide to repairing power supplies, but it will give you enough information to resurrect a lot

of the failed switched mode power supplies you come across.

Photo 1 shows the device being repaired, a DVD HDD recorder which was looking very lonely one night at an Adelaide Hills Amateur Radio Society meeting. Usually, you will not be lucky enough to have a label indicating the fault on the device which has suddenly failed. Usually, it will simply show no signs of life when turned on. After opening the lid, the power supply board is quite obvious in the upper left hand portion. It has the mains lead going to it; quite a few heatsinks for the voltage regulators, some ferrite cored transformers, various diodes, and lots of electrolytic capacitors. The rest of the boards are full of smaller surface mount devices, crystals and smaller wires that look more reminiscent of computer motherboards. See Photo 2.

Switched mode power supplies can harbour lethal DC voltages in excess of 300 volts. Do not poke around a recently powered up power supply unless you know how to safely discharge the electrolytics, and even then, it is safer and easier to leave it a day and come back to it. And whatever you do, do not work on the device with the power lead plugged in, as this is just asking to be electrocuted.

Note that this manufacturer has not skimped on a power switch on the front panel. Some manufacturers do not have this and the switched mode power supply runs all the time, thereby increasing the heat stress on components. This was seen in a poorly ventilated TEAC digital set top box which had died with failed smoothing capacitors. It drew seven watts even when 'asleep'!

After removal of the board from the chassis, it can be inspected visually for obvious problems.

The fuse in the black rectangle on the lower left of the power supply board was intact. On detailed inspection, a 2200  $\mu$ F 10 V low ESR capacitor has an obvious bulge.

Photo 2: The power supply is clearly visible once the lid is removed.





Photo 3: The rear electrolytic capacitor is obviously bulging.

Other things to look for include brown spots on circuit boards where components have overheated. This can be seen under the red zener diode with the white stripe in the left of the above photo, right next to a 220  $\mu\text{F}$  16 V electrolytic. Having gone to the effort of dismantling the unit, it pays to make sure nothing else warrants replacement. A particularly helpful test instrument for checking normal looking electrolytics is an ESR meter, where ESR stands for equivalent series resistance. This ESR meter was built from a kit.

A capacitor, at its simplest, is a pair of plates separated by a

dielectric. If the composition of the plates or their surfaces changes, it can increase the resistance to current passing through the capacitor, which in turn can lead to increased heat dissipation in the capacitor, which increases resistance even further, and so it goes, slowly cooking the electrolyte in the capacitor. The ripple currents in switched mode power supplies can be significant, so for this reason, low ESR capacitors are used. Unfortunately, even the low ESR capacitors rated to 105 degrees in this unit can fail in service when near heatsinks that are giving off heat, and in poorly ventilated enclosures. Of use to us is the fact that failing or failed electrolytic capacitors will increase in resistance, and by checking the ESR of the capacitors, we can sometimes identify normal looking but faulty electrolytic capacitors.

On testing, the bulging 2200  $\mu\text{F}$  10V electrolytic is found to have an ESR of two ohms. This is much more than the 0.1 or less ohms we would expect of a new electrolytic of the same value and voltage rating. Checking the other capacitors, three 220  $\mu\text{F}$  16 V electrolytics were also found to have higher than expected ESRs, and were also marked for replacement. One of these was next to the brown spot under the zener diode shown above.

In the absence of an obviously defective electrolytic, and in the absence of an ESR meter, one can

start troubleshooting of switched mode power supplies by replacing all the electrolytics near heat sources, and also checking diodes and resistors with a multimeter, but this is a bit of a shotgun approach. Sometimes failed semiconductors will show very obvious signs of failure.

The suspect capacitors were de-soldered with a soldering iron and de-soldering braid. I have read that copper braid from coaxial cable can be used as a de-soldering braid substitute, but I have not tried it.

The new capacitors are then installed, the board put back in the chassis, and the unit fired up. Ideally, this should be done with the lid back in place to reduce the risk of electrocution.

Success!!

Of interest, the fan was groaning a bit on powering up the unit, which may explain how the power supply died in the first place. A lack of air flow might have caused the overheating and capacitor failure. The fan will be replaced. Of course, if all of the above fails to work, one must go back to the beginning and look for other obvious or not so obvious component failures, or perhaps cold solder joints. If it all becomes too hard or potentially too expensive, salvage the good bits and throw out the rest. Good luck with your dead electronics!

Photo 4: Checking the ESR of the capacitors.

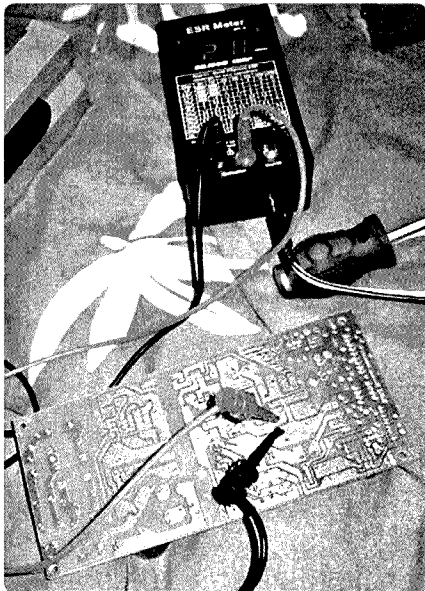


Photo 5: Success!



# A sensitive field strength meter

Tony La Macchia VK2BTL

One of my projects has been experimenting with a portable dipole antenna using two Moonraker (UK) SPX200 multiband mobile whips. This antenna project has shown some promise with receiving and transmitter loading. However to further evaluate the dipole's performance I needed a sensitive broad band field strength meter to carry out near and far field strength measurements, so I chose to construct one.

### The circuit

The circuit is basically an extension of the simple diode detector type Field Strength Meter, where its output is fed into the input of an inverting operational amplifier, and as configured offers very high gain characteristics. Past experience with using op-amps in audio and video applications has offered the best solution for this project over the use of discrete solid state components.

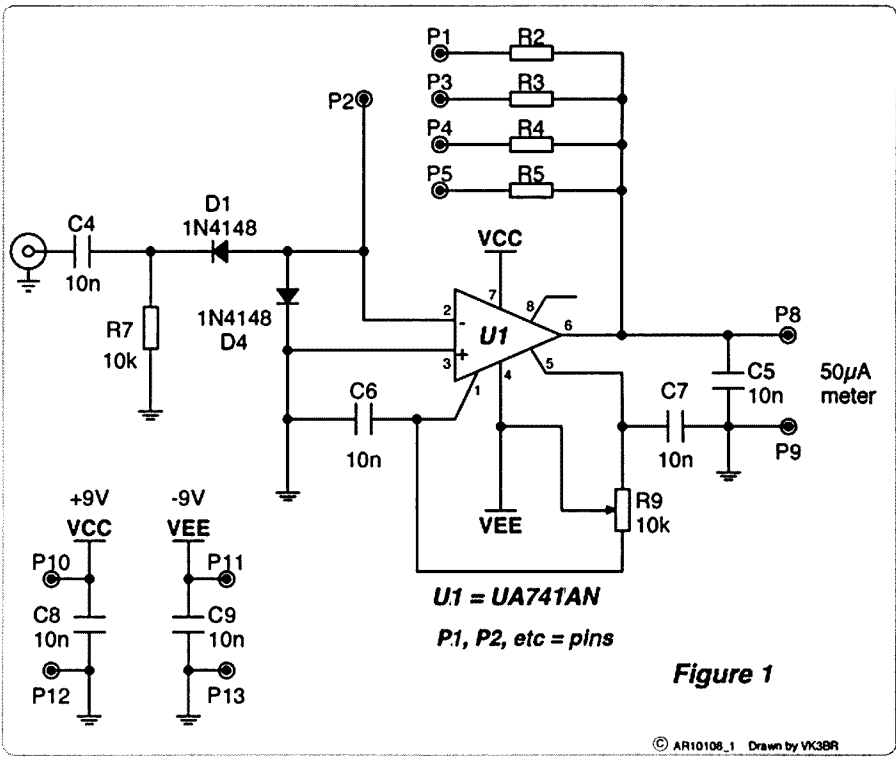


Figure 1: The circuit of the field strength meter.

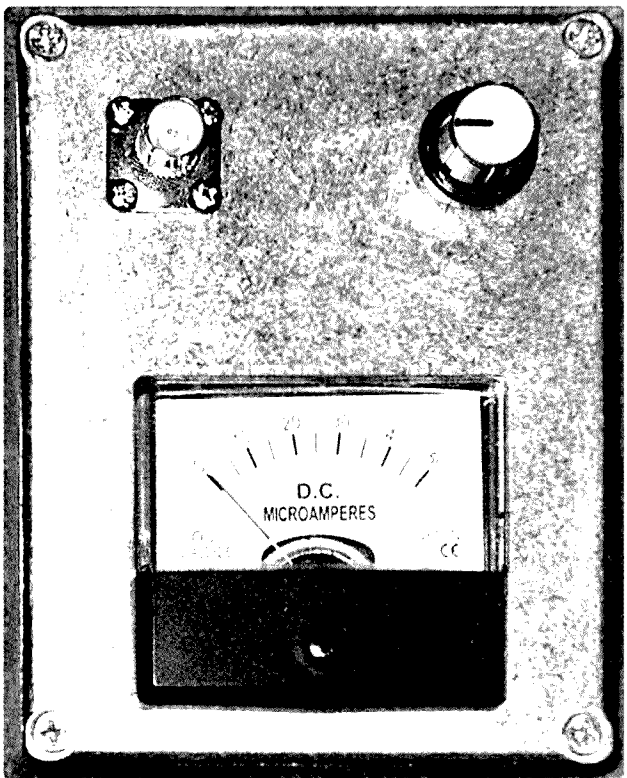


Photo 1: The completed field strength meter, minus the antenna.

The antenna is fed to the diodes via a capacitor; there are no tuned circuits at the input, so the instrument has broadband characteristics from 80 m to 70 cm. Note: Comments at 'The antenna' paragraph.

All capacitors are 50 V ceramics. Resistors are 0.25 watt. Diodes are 1N4148 and the IC is a UA741 general purpose op-amp. Note the circuit is annotated for a one off developed PC board. It is left up to the individual constructor to develop a suitable PC board or use a prototype board as described.

### Sensitivity

The amount of sensitivity can be set as required by the selection of sensitivity resistors R2, 3, 4 and 5, either by switching or linking. Switching is achieved between P2 and P1, P3, P4 and P5. The value of resistor for maximum sensitivity is in the range from 680 kOhms to 820 kOhms . It is suggested sensitivity steps be best set at X10, for example, 820 k, 82 k, 8.2 k etc. Should the constructor choose to use a sensitivity switch, I recommend that they use shielded cabling from the circuit board to the switch to avoid instability.

As my requirements are for near and far field measurements, I have opted to set the FSM for the most sensitive setting, the resistor value is set at 820 kOhms. Experiments with the adjustable telescopic antenna will compensate for other sensitivity settings.



Photo 2: A selection of potential antennas for use with the field strength meter.

### Supply

The IC requires + 9 volts and - 9 volts so two 9 volt batteries are connected in series with the +/- junction grounded.

### The antenna

The FSM test antenna is constructed from a telescoping section of a rabbit ear TV antenna which expands to approximately one metre, assembled into a large coax cable entry PL259 plug. A neat and tight fit between the antenna and the inner rim of the plug is achieved by using a piece of the outer sheath of the coax cable. This is an effective compromise broadband antenna. However I found that when I used resonant antennas

the sensitivity of the FSM was further enhanced, particularly when measuring at far field points. For two metres I am using a Sagent 5/8 HH vertical with a BNC plug and for HF I use a Moonraker SPX100 multiband vertical with frequency selection taps - an ideal set-up over using switched tuned coils at the antenna input.

Vertical and horizontal polarisation of the FSM antenna is achieved by using T piece or elbow coax adaptors.

### Construction

Initially I used a prototype PC board with IC mounting facilities, as this allowed for point to point wiring, that is, as a pseudo PC board.

Importantly, keep all leads as short as possible. It is advised to use either a 50  $\mu$ A or 100  $\mu$ A meter with this instrument.

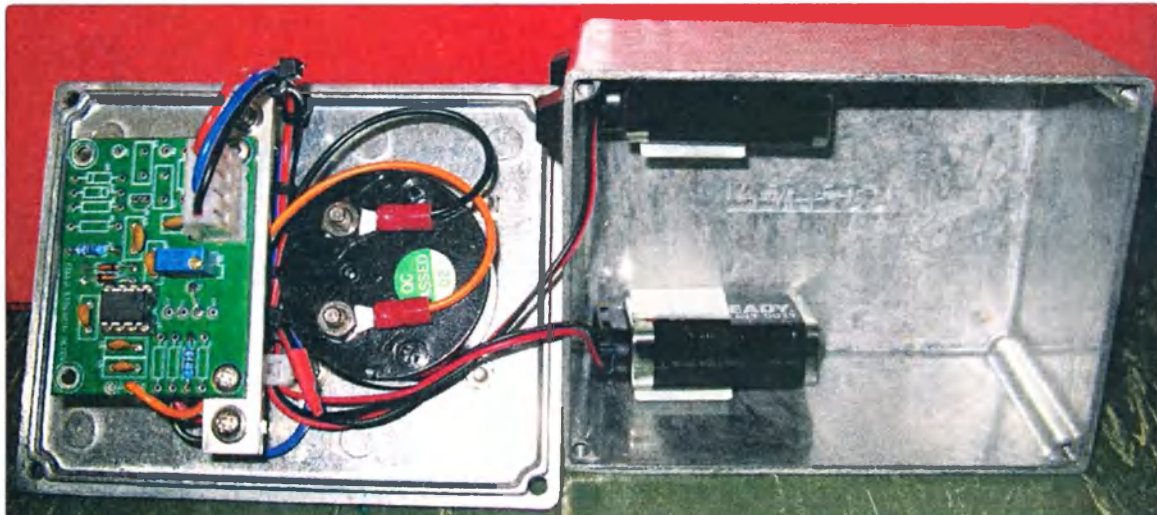
### Calibration

This FSM is basically a relative measuring instrument and as such is ideal for measuring antenna radiation and field patterns. Accurate calibration would require access to RF chamber facilities. There are equations to determine field strength levels with known antenna gains and measured distances from the antenna and at the measuring point.



Photo 3: The completed field strength meter, antenna attached, ready for use.

Photo 4: The field strength meter from the inside.



### Costs

I have used all new components including an aluminium diecast box. My costs were just under \$50. You may have some items amongst your junk box which can be used to reduce the cost.

# A simple beeper for microwave operation

Lou Blasco VK3ALB

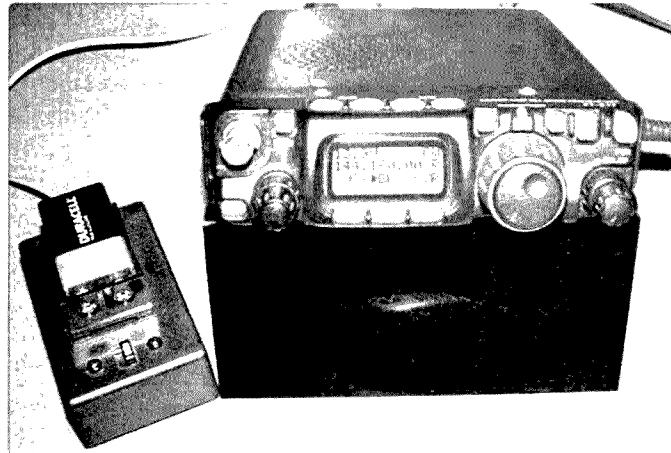


Photo 1: FT-817 with external beeper.

Without being 100% sure that both stations are on the same frequency the chances of finding each other and aligning antenna systems to each other are very slim indeed. If you cannot hear a station there is no way you can adjust your dish for a proper heading. It is not

that this does not take into account the frequency differences between the two IF radios which might not be exactly on the frequency indicated on the display.

Most microwave operators use a beeper or, as it is sometimes called, a 'keyer' to help each other tune in on their transmissions. The beeper connects to the key socket of the radio and sends a series of dits or dahs in CW. It is not a keyer in the traditional sense but it effectively works in the same way. A beeper creates a distinctive 'beacon signal' that is easily recognizable even if the signal strength is low and is very unlikely to be confused with any other signals that may be heard. Once you have heard a beeper in operation there is no question that it is the signal you are looking for and you will wonder how you ever got along without one.

You might wonder why a beeper is used rather than just calling CQ. Establishing a microwave contact takes time and it is not unusual for operators to remain in contact on a liaison frequency while searching for each other's signal. Calling CQ is an inconvenience at best. The process of tuning for a signal and peaking

## Introduction

Working on the microwave bands (1296 MHz and up) when the signal to noise ratio is low, the amateur operator's ability to find the right frequency and right direction are crucial. The aim of this article is to present a couple of simple methods for generating a distinctive signal on the air that is easy to hear even under difficult conditions.

Microwave contacts are normally arranged on a lower band, say 2 metres, agreeing on the operating frequency and compass headings then moving to the agreed frequency.

unusual for a microwave signal to be up to 10 or even 15 kHz off the nominated frequency. You might wonder why signals can be that far off frequency. Take the example of a 10 GHz transverter system. It has a 144 MHz intermediate frequency (IF) and uses a 106.5 MHz reference crystal that is multiplied 96 times to 10224 MHz. Even though the crystal is stabilized by a heater it can and does drift in frequency. Consider two identical systems whose crystal oscillators differ by 100 Hz. Not a lot at 100 MHz but almost 10 kHz at the operating frequency. Remember

Figure 1: The 555 beeper.

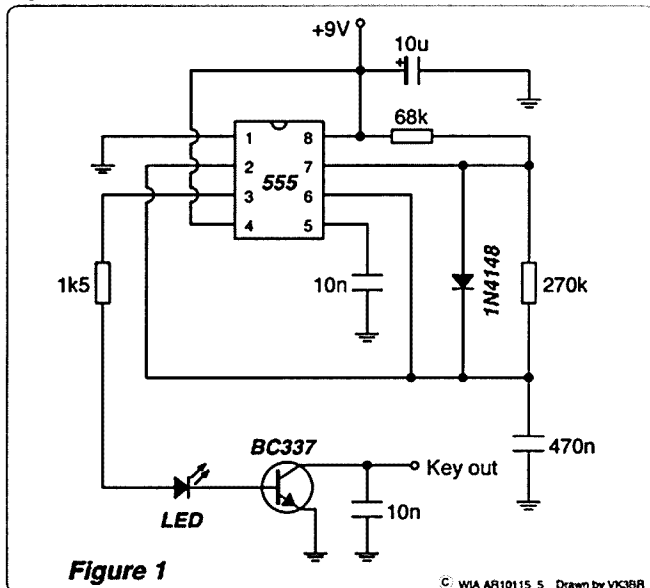
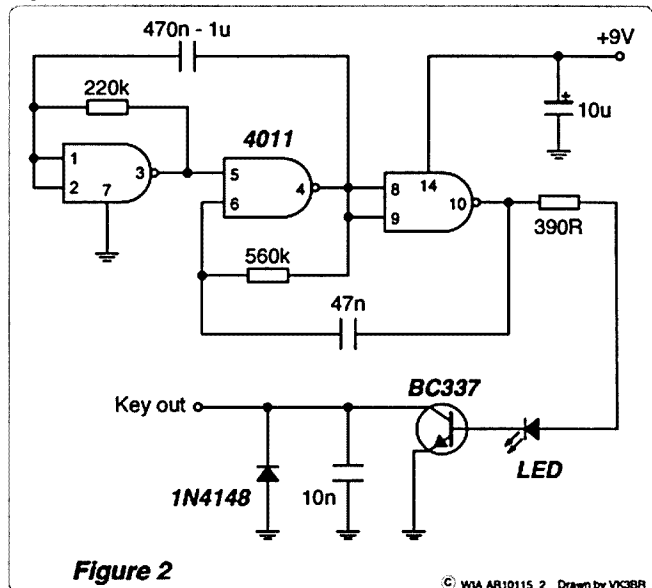


Figure 2: The 4011 beeper.





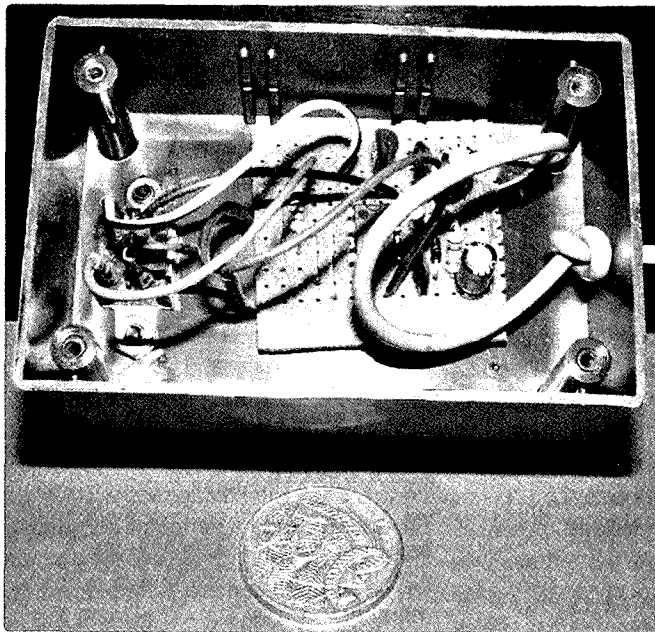


Photo 2: Inside view of 555 beeper circuit.

dishes for a DX microwave contact is reasonably involved and looking for a CQ call that may be down in the noise can be difficult. Some microwave operators still venture into the field without a beeper and rely on various other methods to put some kind of beacon signal on the air, such as calling CQ, whistling or transmitting a carrier. Finding these transmissions can prove difficult. They all work to some extent but come a poor second to a beeper signal. The beeper increases the chances of being found and making a successful contact.

### Radios with in-built CW keyers

There are plenty of radios that are suitable for use with microwave systems. They are usually small portable all mode transceivers that operate on 2 m or 70 cm. The FT-817 is a very popular choice being battery powered, small, multi-band and reasonably affordable. The FT-817 has the added bonus of an internal CW keyer which is easily accessible. Whilst the following description relates to the FT-817, other modern radios probably behave in a similar fashion. Consult your radio manual for further details.

### How to configure the FT-817 keyer for beeper operation

Select menu #17 and make sure the

delay is set to 250 ms.

Select menu #21 and adjust the CW speed (45 to 60 wpm).

Select menu #22 and adjust the CW weight to 1:4.

Press and hold button F to save settings.

Set the function keys to level 10 (VOX/BK/KYR).

Press function key B to enable semi break in mode.

Insert an open 3.5 mm mono plug into the key socket at the back

of the radio. The sleeve on a mono plug is so long that it will short the rings (dah) connection when plugged in to the key socket.

Select CW mode on the radio and press function button C to enable the keyer. Your radio will now send a constant stream of dahs at the selected speed. Press function button C again to disable the keyer.

This is the simplest method to use for the FT-817. You could also try shorting the mono plug which will send alternate dits and dahs or use a 3.5 mm stereo plug with a switch to select dits, dahs or off.

Note: If you want to use an external beeper you still need to enable semi break in mode.

### Simple beepers for older radios

An outboard beeper can be used with older radios that do not include a keyer. I use a beeper based on a 555 circuit and have built a number of them for field day use. The circuits are so simple that

no PCB is required. I built them on Vero board or perforated board and installed them into a small project case. They have a power switch with integrated LED indicator and a short lead with a 3.5 mm plug that goes to the key socket on the radio. They are powered by a 9 volt battery which is attached to the outside of the case making replacement easy. Consider that these beepers are so small that you could build them into the IF radio and draw so little current that they can remain continuously energized whilst the radio is on. The IC-202 in particular has plenty of space in the battery compartment to mount a beeper. It is possible that other radios might also have enough room inside to add a beeper.

### Conclusion

It is acknowledged that a number of operators run GPS locked systems and have very high frequency stability and accuracy which makes finding their signals much easier. However there are still plenty of operators out there where this is not the case. I hope this article encourages those operators that do not take a beeper into the field to consider this simple yet invaluable tool that will enhance their microwave activities.

Thanks to Chas VK3PY and David VK3QM for their advice and assistance during the preparation of this article.

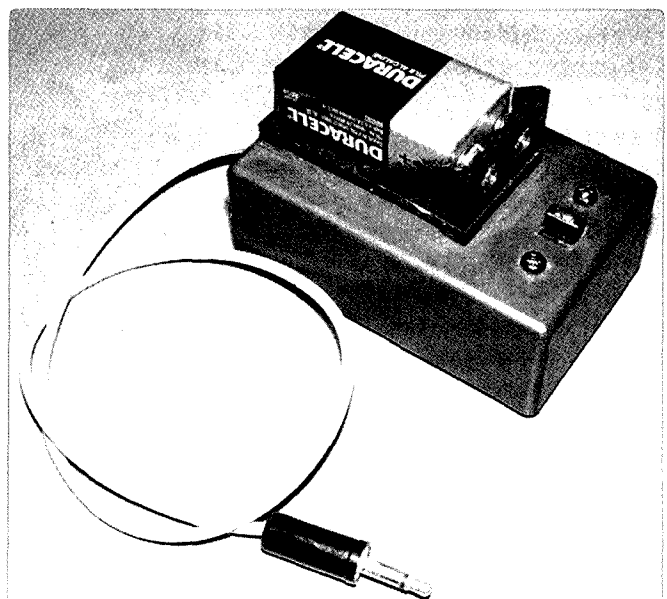


Photo 3: Outboard beeper with external battery.

Justin Giles-Clark VK7TW  
Email: vk7tw@wia.org.au

## The Prostate!

We had a timely reminder for men over 40 about getting your prostate checked from radio amateur Brett Marley VK7FMMM, who is well known to his Heart 107.3FM listening audience each morning.

Brett was diagnosed with prostate cancer and has undergone an operation to remove his prostate and we wish Brett a speedy recovery. Unfortunately, close to 3,300 men die of prostate cancer and about 20,000 new cases are diagnosed each year in Australia and this is not good considering prostate cancer can be cured if detected and treated. So, if you are experiencing some discomfort with 'the plumbing' then ask your GP about your prostate, it may just save your life!

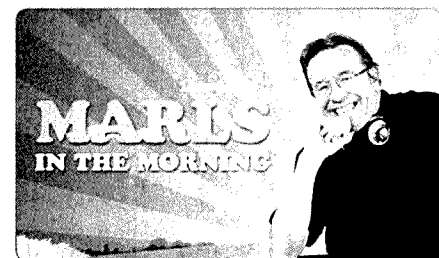


Photo 1: Brett 'Marls' Marley is a well-known radio personality in Hobart. Image courtesy of Heart 107.3 website.

## Repeater and IRLP news

Joe VK7JG has let us know that Air Services Australia have replaced the cable tray and Heliac on the Mt Barrow tower and mounted the new broadcast link corner reflector. NTARC would like to express its appreciation to Andrew Snadden and Tasmanian Electronics and Communications Services Pty Ltd for the very kind and generous donation of that angle reflector. An interesting by-product is that the crackle that used to affect repeater VK7RAA has disappeared and may have been caused by the deteriorating cable tray fasteners. Please note the falling cable tray also dismembered the

digipeater antenna and therefore APRS coverage is a little patchy at the moment in the north of VK7. IRLP Node 6700 (VK7TAZ) on VK7RAA is also currently off-air due to a computer system failure. Hayden VK7HA lets us know that pager filters have successfully been installed on VK7RCH on Grey Mountain above the Huon Valley and this has solved the interference issues. VK7RCH links into VK7RAA.

## Northern Tasmania Amateur Radio Club

On 14 September Bill VK7MX presented a fascinating presentation on the very popular open source platform the Arduino and thinks it is certainly one of the most useful digital building blocks for the radio amateur. Thanks Bill. The continuation of this presentation with the practical demonstrations will be at the November 9, 2011 meeting at Alanvale Skills Institute, Block B from 7.30 pm. The Northern WICEN coordinator Norm VK7KTN is looking for communications helpers at the State Equine Endurance Championship at St Helens at the end of November, 2011. This event is a precursor to St Helen's hosting

the National - Tom Quilty equine event. Please contact Norm if you are interested. The October NTARC meeting was the annual pilgrimage to the Mt Barrow interpretation centre which is always a great show.

## North West Tasmanian ATV Group (NWTATVG)

Tony VK7AX has been broadcasting via ATV in the NW and via the <http://batc.tv/> internet streaming site (VK7AX members) some ATV archive material from the last 30-40 years following its conversion to digital format. Tony started with some videos from NW and Northern branch activities, Gladesville ATV club via Aussat (1991) and some Gladesville WICEN material, and much more will be broadcast in future. Keep an eye on the VK7 Regional News mailing list for notification of future material at <http://groups.yahoo.com/group/vk7regionalnews/>

## Radio and Electronics Association of Southern Tasmania

We congratulate Paul Tudor-Stack VK7MKY who successfully gained his Standard licence recently. Paul is a yachtsman from Darwin and is having



Photo 2: L to R: Ian VK7QF and Graham VK7ZGK hosting a DATV Experimenter's Night 'in the studio'.

a break in Hobart before crossing the Tasman to ZL. The callsign is apt given Paul's boat name is Monkey-Fist!

September 4th was the REAST car boot sale with many about enjoying the weather, sausage sizzle, preloved items and, thanks to Damian VK7SD, a look at one of the OB vans courtesy of the ABC complete with large hydraulic mast. The past few months have seen some wonderful donations to the club – the first thank you is to Gerry VK7GK, who has donated a large tower and rotator for the club station, thanks Gerry. The second big thank you is to Graham VK7ZGK who donated a large LCD TV to the club which will come in very handy for DATV nights and training sessions, thanks Graham.

Our DATV nights have been well attended with both physical and now virtual attendees via the <http://batc.tv/> streaming site (member's stream – VK7OTC). Over the last month we have had some wonderful show and

tell with: line following robots, a 3D MakerBot Printer – thanks to Patrick VK7FPJB who demonstrated the 3D printer by printing an ABS plastic gear, Enigma emulators and cryptographic techniques, a wonderful 1983 ATV expedition video to Mt Ossa (1617 m) thanks to Winston VK7EM who participated and digitised the video, the HPSDR Alex band pass filters demo, Lo-Key and AR articles, the Balloon-borne Large Aperture Submillimetre Telescope (BLAST) – launched in the Antarctic late in 2010, photos from Warren VK7FEET of a recent trip to the ACMA Quoin Ridge RF monitoring station, LCD backlighting techniques and much more and that was just the show and tell, the video presentations where just as interesting...HIHI! Do you realise that you do not have to be a radio amateur or need any ATV equipment to participate in the DATV Experimenter's nights – in Hobart it can be received via standard DVB-T set top boxes or via the internet at the stream outlined earlier. See you there.

## Silent Key

### Bob Oakley VK7FRMO

With regret we announce the passing of Bob Oakley VK7FRMO.

From the mid-1970s Bob was very active on the 11 m CB band and in 2007 he passed his Foundation licence exam and became VK7FRMO. He operated from his home on the Don Hill near Devonport.

Bob succumbed to cancer after a battle lasting about three years. He had a private burial service followed by a memorial service in Devonport for friends and associates.

He is survived by his wife Sally, daughters Emma and Eve and several grandchildren.

Vale, Bob VK7FRMO.

Submitted by John VK7FOXX and Winston VK7EM.



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Also if your group would like to do a demonstration of any aspect of our great hobby, you are most welcome to do so, this could be, Home brew gear, servicing gear, APRS, D-STAR, slow scan.

This list is long, so we are looking for expressions of interest.

Table bookings will need to be made by **Friday 20 January 2012**, late bookings will be accepted, but an extra fee will apply.

There are two wineries nearby, and one of these has a B & B and camping facilities.

Or you can visit the beautiful Bunya Mts near by, there are camping and picnic grounds available as well as cabins and houses to rent, if you want to stay a night in comfort.

Maclagan is located about a forty minute drive North East of Dalby and about a fifty minute drive North West of Toowoomba Qld.

More info please contact: Rick [VK4NRL@wia.org.au](mailto:VK4NRL@wia.org.au) or Neil on [holmzie@bigpond.com](mailto:holmzie@bigpond.com)

# Official opening of the Adelaide Hills Amateur Radio Society Inc (AHARS) training and operations 'shack'

John Elliott VK5EMI - 'AHARS Newsletter Editor



Photo 1: Chris Platt VK5CP addressing the assembled guests, with AHARS President David VK5KC to his right.

On Saturday, 3 September, 2011 about 70 people from the hills and suburbs attended this prestigious event in central Blackwood.

Guests of honour included the local mayor, Michael Picton, Trish Pratt, State Commissioner for Guides, Wendy Davis, SA International Adviser for Guides, and Jan Childs, District Leader and Belair Guide Leader. Many dozens of curious radio amateurs and friends, anxious to see what our AHARS working parties had managed to create, came from the far reaches of the Adelaide area to check it out.

The building, which had largely fallen into disuse, is now a fully refurbished and comfortable venue. It has been fully lined, carpeted, and converted into a training and hobby construction facility. Our thanks go to the Girl Guides Association for giving us the opportunity to put it to use, and to those members who laboured on weekends to convert it, under the guidance of Club President David Clegg VK5KC.

David opened the proceedings, outlining the operations and history of the club, and the planned use of the building. He was supported by

Chris Piatt VK5CP, a Director of the WIA. Barry Williams VK5BW and Roy Gabriel VK5NRG were presented with plaques for their outstanding efforts relating to the refurbishment. David also thanked the many others who assisted regularly.

The building was officially opened by Christine Taylor VK5CTY, a long-term member of AHARS, whose husband Geoff VK5TY. (SK), guided the Society from being a small club to a large and very successful society. AHARS now boasts about 150 members.

Special club visitors to the opening included Life Member Gordon Welsh VK5KGS, Bryan Scott VK5NOS and Hans Smit VK5YX, who are all foundation members of the society. Greetings from the society's first President, Marshall Emm VK5FN/N1FN, now living in Denver, Colorado were read out at the ceremony.

Information relating to the shed and other club matters can be obtained from a committee member or obtained from our comprehensive website [www.ahars.com.au](http://www.ahars.com.au)

AHARS' main meetings will continue to be held at the Belair Community Centre, on the third Thursday evening of the month. Additional information on AHARS activities can be found in VK5news.



Photo 2: Guests of honour at the opening: Christine Taylor VK5CTY, second from left, with Girl Guide officials Jan Childs, Trish Pratt and Wendy Davis.

# Adelaide Hills Amateur Radio Society overcomes some advanced technology

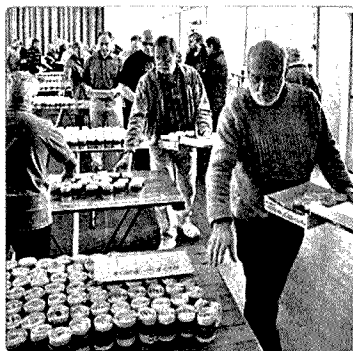
Rob Gurr VK5RG

Although catering for modern techniques, the AHARS members recently met the new miniaturisation trend in radio construction methods head on.

Resistors, used frequently in all forms of radio and electronic equipment, have for years been manufactured with wire leads, suitable for soldering or otherwise connecting these components to others in a piece of equipment. Modern techniques now utilise 'surface mount' methods, where resistors and other components are no larger than a grain of wheat.

Manufacturers of electronic components now almost universally manufacture only these miniature items, making it impossible to obtain replacements for the components used previously for the manufacture of valve and other earlier transistorised equipment.

The inability of some older members and beginners to utilise these new items made it necessary for the AHARS to undertake the purchase of large remaining stocks of these now scarce items. They solved the problem by buying a quantity of



*AHARS members hard at work sorting and packing the huge supply of resistors purchased.*

1,700,000 resistors, of 84 different values, on behalf of other South Australian Radio Clubs, and undertaking to assemble them in packs of 8,400, being 100 of every value.

After purchase, and planning a method of counting, about 30 members of the Society gathered together for a three hour marathon, at the Club Rooms in the Belair Community Centre. Photographs are attached.

The project assisted the Society financially, and also helped many new members to understand the type of components and construction methods they will encounter in following this

practical aspect of the hobby of amateur radio.

AHARS meets regularly with formal lectures and demonstrations at 7.30 pm on the third Thursday of each month, at the Belair Community Centre. Visitors and new members are always welcome. For details, contact the Secretary, on 0407 833 843, or the Publicity Officer on 08 8379 1889. Alternatively, check out our Web site <http://www.ahars.com.au/>

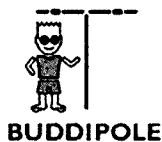


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# VK3news Amateur Radio Victoria News

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

## Centenary goes on air

For the month of November a number of registrations have been made by members to use the special callsign VK100ARV, which is well sought after and qualifies toward the Amateur Radio Centenary Award.

This year is the 100th anniversary of the Amateur Wireless Society of Victoria, formed in 1911, quickly changing its name to the Wireless Institute of Victoria, and which today is known as Amateur Radio Victoria.

A special QSL card is on offer for contact with VK100ARV. On the front it features defining words capturing the spirit of the founding of the organisation and a gallery of Presidents and the information panel on the back.

The Amateur Radio Centenary Award certificate has a montage of the organisation over the decades. Both the QSL card and certificate are worth obtaining for display and will show the Centenary logo.

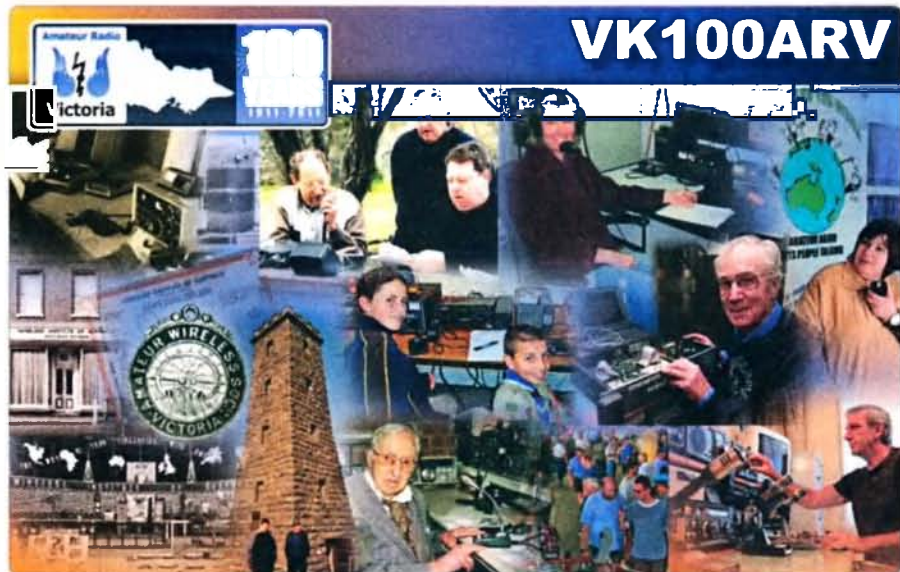
Valid contacts with VK100ARV earn ten bonus points towards the award. Contact with VK3WI during the Remembrance Day contest, International Lighthouse and Lightship Week, and the Oceania DX Phone contest on 1-2 October, and the Oceania DX CW contest on 8-9 October also gain bonus points.

For Australian stations a total of 100 points is required and DX stations 25 points. Valid contacts with members during the celebratory period August 1 to November 30 earn two points towards the award.

For the names of those on the roster check the website for frequent updates, and for the award rules before submitting an entry.

Also in the celebration are stations set up in Victorian national parks operating under the Keith Roget Memorial National Parks Award (KRMNPA) rules on Friday, 18 November through to Sunday, 20 November. Get on and support them.

The Award Manager Tony Hambling VK3VTH [vk3vth@amateurradio.com.au](mailto:vk3vth@amateurradio.com.au)



The VK100ARV.centenary QSL Card.

thanks all who have so registered for VK100ARV or the extended weekend focused on the KRMNPA.

The Centenary has already featured the successful, and world's first DATV QSO Party from the digital amateur television repeater VK3RTV. Peter Cossins VK3BFG recently gave a presentation of the highlights to Council which by all accounts went extremely well.

## Centre Victoria RadioFest

The Centre Victoria RadioFest No 5 will be held at the Kyneton Racecourse on Sunday, 12 February, 2012 and include the first Australian demonstration of the new hardware/software alternative for generating digital television streams in the DVB-S format.

Generating full motion digital television for a fraction of the cost of other hardware-only alternatives brings digital television into the realms of possibility for any radio amateur. See just how easy it is to join this exciting area of our hobby.

The Organising Committee is continuing to work on the program for the major amateur radio event in Victoria. Further details next month or visit [radiofest.amateurradio.com.au](http://radiofest.amateurradio.com.au)

The bookings are now open for the ever popular Traders Hall, Second-hand Market Places, and Club Corner.

## Changes for the website

Council has discussed enhancements to the web presence of Amateur Radio Victoria to make it easier for people to make direct contact with those responsible for various activities.

These range from Education, Events, Awards, Digital Amateur Television plus points of direct contact to the President and Secretary.

Also discussed were ways to make on-line payment of subscriptions. These changes will take a while to implement and is dependent upon the software used.

There can be no doubt that having a very good web presence is vital to the well-being of all organisations in this online world, giving a window on the world to members, would-be members and newcomers to our hobby.

## Next class session

Enrolments are open for the Foundation Licence session to be held on 3-4 December. For enrolment or more details contact Barry Robinson VK3PV via email [foundation@amateurradio.com.au](mailto:foundation@amateurradio.com.au) or telephone 0428 516 001.



# Spotlight on SWLing

Robin L Harwood VK7RH

2011 is rapidly coming to a conclusion. More major broadcasters will have departed when the B-11 broadcasting period commenced at the end of October. Sadly this is going to increase at the end of March. Radio Netherlands Worldwide is changing its format from airing programs on Dutch affairs to become an international free speech station. Also they will be closing both the Bonaire and Madagascar relay stations during 2012. The latter will be put up for sale. Some of you may have heard that World Christian Broadcasters, which operates now from Anchor Point, Alaska, has been constructing a new shortwave relay station in Madagascar but at a different site from RNW. They may be miffed that the existing senders are up for sale, just as they complete their own station.

Whilst on Madagascar, I note that the government station has been heard on 5010 or 4910 around 1600. Most have noted that it is USB with carrier. They cannot seem to make up their mind what channel to use but 4910 is better than 5010 I am informed.

Propagation improved in September but there was also major solar disruption. I am pleased that there is improvement at last and one never knows from day to day what will pop up. Indications are that the 22 metre broadcasting band and the adjacent 21 MHz amateur allocation may be picking up. I believe that there will be surprises there over our summer months.

Libya has had a change of government, following the ousting of Gaddafi. The shortwave senders fell silent and have not reappeared. It is unclear if they will, or if they may have been damaged or perhaps even destroyed by NATO bombing.

I believe Radio Australia may be going to use 19000 to Asia in English. Yes there is a small band there but the only station utilising it was an American evangelical broadcaster. I think the lousy propagation and few listeners forced them to abandon the channel. It may be an experiment to see if 19000 is feasible from both the propagation perspective and number of listeners. I do not have the exact times but could be around 2300 to 0100, which is around our local midday.

If you have any news, please feel free to email me at [vk7rh@wia.org.au](mailto:vk7rh@wia.org.au)

73 de VK7RH



## The Centre Victoria RadioFest

Returns to the Kyneton Racecourse  
Sunday 12th February 2012

For all the latest information visit

[www.radiofest.amateurradio.com.au](http://www.radiofest.amateurradio.com.au)

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- Set contains:  
Torx: T10, T15, T20, T25, T30, T40  
Flat blade: 3.5, 5.5, 6.5  
Philips head: 1, 2, 2, 2, 3  
Hex: 4, 5, 6
- Case dimensions: 115(L) x 50(W) x 31(D)mm (TD-2111)



### Autorange DMM

An accurate and easy to use autoranging DMM. Select the parameter required and the meter chooses the appropriate display range. Features temperature, capacitance, data hold and auto power off plus a backlit display for measuring in dark places.

- Display: 4000 count
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### Cat III 2000 Count Inductance/Capacitance DMM

A feature packed DMM with inductance & capacitance measurement. Ideal for audio enthusiasts designing their own crossovers. Features large LCD, inductance, capacitance, data hold, auto power-off, and temp measurement.

- Display: 2000 count
- Hfe transistor test
- 10A AC & DC current
- Diode test
- Audible continuity
- Dimensions: 195(H) x 92(W) x 55(H)mm (QM-1548)



### Digital Sound Level Meter

Featuring a wide dynamic range from 30 to 130dB, it can measure both A and C weightings and can have fast or slow responses to get an 'ambient' reading or a short noise. Includes data hold and min/max functions, as well as tripod mount. Supplied with carry case, wind sock and battery.

- Dimensions: 210(H) x 55(W)mm (QM-1589)



### Smart Powerboard

6 way smart powerboard with digital energy power board. One socket never switches off and one 'smart' outlet can be used for main appliances. When the main appliance is switched off it will then switch off other related items. LCD display shows energy consumption which is easy to use and simple to set up.

MS-6152



### Cigarette Lighter Battery Monitor

Check the voltage output of a car's battery quickly and easily. Simply plug this handy voltmeter into the cigarette lighter socket and get an instant readout of the electrical system's voltage.

- Display resolution: 0.1V
- Operating voltage: 8 - 30VDC (QP-2220)



### Retractable Cigarette Lighter Extension Cord

Handy for 4WD & camping use, this three metre extension cord retracts into its rugged housing to keep it protected & tangle free.

- 5 amp fuse
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### 2500 Lumen 24W HID Torch

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- Output: 2500 lumens
- Burn time: 40 minutes
- Dimensions: 235(L) x 70(Dia)mm (ST-3361)

\$199.00



To order call 1800 022 888  
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Tim Mills VK2ZTM  
vk2ztm@wia.org.au



Photo 1: Cutting the Anniversary Birthday cake - Henry VK2ZHE and Arthur VK2ATM.

Most readers should be aware of the Inquiry released late September into NSW state planning laws and the effect that this could have on amateur antenna heights. Much information has been released through the WIA which included requests of input from radio amateurs. If you have something to contribute - please follow instructions given on the WIA site.

**WICEN NSW** held their AGM on 3rd September at Auburn. WICEN NSW, being an Association, had the members present vote in a new Constitution to conform with recent changes introduced by the Department of Fair Trading. The incoming committee has Malcolm Alexander VK2YVA as President and Crompton Allen VK2HRX as Senior Vice President. The position of Junior Vice President went to Julian Sortland VK2YJS until the new constitution is ratified by Fair Trading, when he becomes a committee member and Crompton becomes Vice President. No one put up their hand for Secretary at the meeting and Steven Heimann VK2BOS remained as Treasurer. The committee members appointed were Allan Hirschel VK2VEC, John Harper VK2FCOM and Andrew Vaughan VK2XPT. Contact with WICEN NSW may be made by email to [operations@nsw.wicen.org.au](mailto:operations@nsw.wicen.org.au)

**HADARC** and **WICEN** are working together to re-establish repeater facilities at Chatswood.

The Oxley Region ARC celebrated their 40th anniversary with a lunch on Sunday 2nd October at Port Macquarie. There were 40 in attendance on a rather wet day, which did not detract from the enjoyment of the occasion. The club had been formed in 1971 to develop a two metre repeater for their region.

Lucky door prizes were presented with the major one donated by Radio Supply going to Bill VK2ZCV. The second draw - provided by Jaycar of Port Macquarie - going to Judy VK2HZV. For those without callsigns, prizes were won by Linde Court and Dee Pillely. The special callsign VI40BOR finished at the end of October. ORARC will be setting up an APRS two metre facility at the VK2RPM site. The club's Christmas party will be on 3rd December at the Settlement Point picnic grounds.

Next month the **Ilawarra ARS** will be judging their crystal set construction project. **Summerland ARC** has a Foundation course over the weekend 29/30 October.

In December it will be the Centenary of the 1911 - 1914 Mawson Expedition to the Antarctic mainland. Amateur radio was represented by Wally Hannam VK2AXH who was chief wireless operator. He had also been the first secretary of the March, 1910 meeting of Experimenters, which is today's WIA. Part of the December celebrations is planned to have a gathering in Tasmania of descendants of the expedition. On 2nd August, Australia Post issued a special stamp set for the Centenary. There are five stamps in the issue.

On Sunday 4th September **ARNSW** hosted at the VK2WI site a centenary birthday gathering for Life Member Pierce Healy VK2APQ. Pierce had reached his Centenary on 14th August. A number of VK2 amateurs attended the gathering. Pierce has recently moved to a southern Sydney nursing facility where some limited communications facilities have been arranged so he can be on air. Pierce has given his home station installation to the Kurralong Radio Museum where Ian VK2ZIO will re-install it as an example of an amateur shack of recent decades.

**ARNSW** conducted a Foundation course early September with six successful candidates. Another course is considered before years end. The last Sunday of November (27th) is the final Trash & Treasure for the year at VK2WI, and the Home Brew and Experimenters Group meet in the early afternoon. Also during the morning there are exam assessments. Should you know of anyone wishing to undertake an assessment for any licence grade or for a Foundation course, have them email [education@arnsw.org.au](mailto:education@arnsw.org.au) or telephone 02 9651 1490. Details of equipment items on offer and other information can be found on the ARNSW web site [www.arnsw.org.au](http://www.arnsw.org.au)

73 - Tim VK2ZTM



Photo 2: One of the well populated tables at the 40th Anniversary Dinner.





Photo 1: The GARC set up at Point Lonsdale – Photo courtesy of VK3BA.



Photo 2: Ken VK3NW operating.



Photo 3: Gerhard VK3HQ operating.

### ILLW at Port Lonsdale

Amongst those taking part in the event were Dallas VK3DJ, Nik VK3BA, Gavin VL3FGMV, Dana VK3FDJV, Lee VK3PK, Lou VK3ALB, Jenni VK3FJEN, Michael VK3FMIC, Ian VK3ZIB, David VK3QM and Ken VK3NW. The site and activities attracted a lot of visitors including an overseas member of the ILLW committee. There was no access available to the existing site buildings so Lou provided his caravan (portable shack), Lee and Garry brought sleeping vans and Nik brought a petrol generator to power the site. The weekend weather was absolutely ideal and 139 contacts were achieved.

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23 cm 36 el. 2 m boom N-conn	\$249
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2 m 10 el. hi gain Yagi	\$190
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## Silent Key Arthur Hughes VK3POM

It is with regret that we report the passing of Arthur Hughes VK3POM on Monday, 19 September, aged 95. Arthur was an active member of the GARC from the late 1970s to the late 1990s.

# An audio compressor/AGC circuit

Dale Hughes VK1DSH

The need for this circuit came about while using a phasing type transceiver that I had built. The transceiver did not have any sort of Automatic Gain Control and this detracted from the otherwise fine performance of the unit. If a strong nearby station came on air when I was working a weak station at adequate volume, I would be scrambling for the volume control! That problem has now been solved.

A search of my text books and the internet came up with a few designs; most designs used a junction field effect transistor as a gain control element and some others used a

light emitting diode – light dependent resistor combinations as gain control elements. I came across a circuit published in EDN magazine in August 1998 which had an appealing simplicity and which promised good performance. The EDN version used a P-type JFET and NPN transistor as the gain control elements. Not having any P-type JFET's, I used an N-type JFET and a PNP transistor instead, however the performance was poor with the components I had chosen.

After playing around with the circuit arrangement and component values, I realized that the JFET characteristics

were an important variable. I then modified the circuit so that the gate bias could be adjusted to an appropriate point of the device characteristic curve. The circuit was now well behaved and showed significant promise for an audio AGC circuit that could be used in my receiver. The circuit is shown in Figure 1.

Tests of the amplifier while adjusting the gate bias voltage (measured at test point Vb) also revealed an interesting property of the circuit: that the gain and the point of compression could be changed by varying the gate bias voltage. Furthermore, the adjustable gate bias

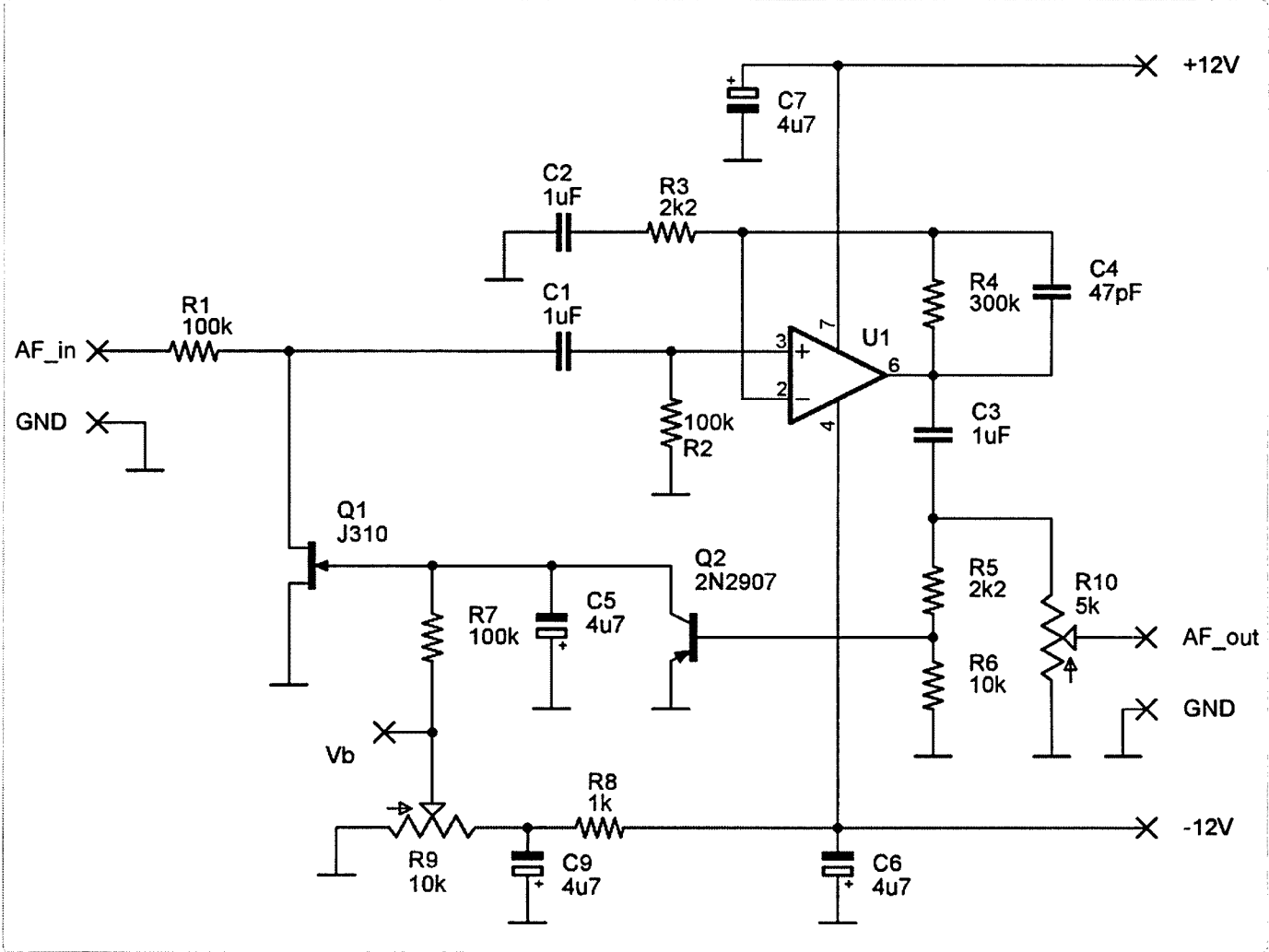


Figure 1: Schematic diagram of the amplifier. Integrated circuit U1 can be almost any low noise op-amp, the prototype used an NE5534 device. Q2 can be any small-signal PNP transistor. J310 JFETs were used in the prototype, but other types should also be suitable providing the appropriate gate bias is set. Capacitor C4 may not be needed for other types of op-amps, but it was necessary to suppress high frequency oscillation when using the NE5534 device. The gate bias can be measured at test point Vb as this is relatively isolated from the actual device gate.

meant that JFETs with quite different characteristics could be used and that reproducible figures for amplifier gain and compression point could be set by varying the gate bias while making some simple audio gain measurements. Three J310 JFETs were tested in the circuit and Figures 2, 3 and 4 show how the gate bias voltage ( $V_b$ ) changes the circuit performance and allows the user to adjust the operating parameters for the compressor to suit the application and the characteristic of the JFET being used.

The circuit functions by using the JFET Q1 as a variable resistor in the signal path. The 'no signal' gate voltage is set by potentiometer R9. As the input signal increases the amplifier output is rectified by Q2 which is turned on and the gate voltage is pulled towards ground. As the gate voltage is lowered the drain-source resistance of the JFET is reduced and this shunts more of the increasing input signal to ground reducing the amplifier input by a sufficient amount to maintain a constant output level. The decay time of the gain control is set by C5 and the value shown gives a decay time constant of several seconds which is good for SSB reception. Attack time, that is the response time to input peaks, is very fast. The overall output level of the circuit can be set by potentiometer R10.

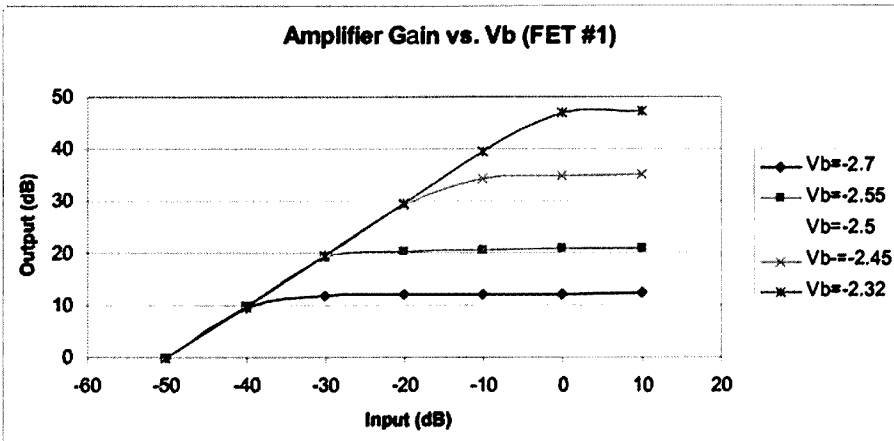


Figure 2: Circuit operation with JFET #1. For clarity, the gate bias voltage (as measured at test point  $V_b$ ) of each JFET was set to a value to give similar gain to the other devices. The input and output values are relative to the -50 dB input, which was approximately 1.8 mV at the amplifier input. The output voltage was measured at pin 6 of the amplifier and the actual voltage output to the following stage can be set by R10. Note the significant difference in gate voltages between JFETs for the same overall amplifier gain. Each JFET was the same type number (J310).

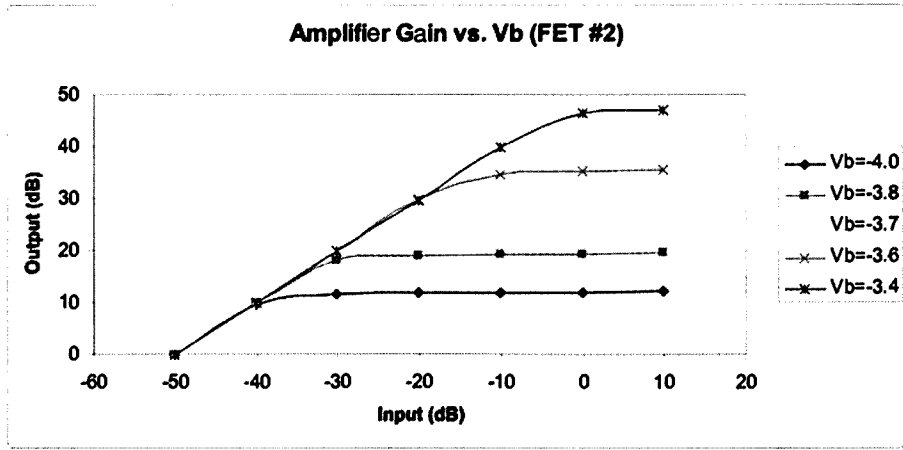


Figure 3: Circuit operation with JFET #2

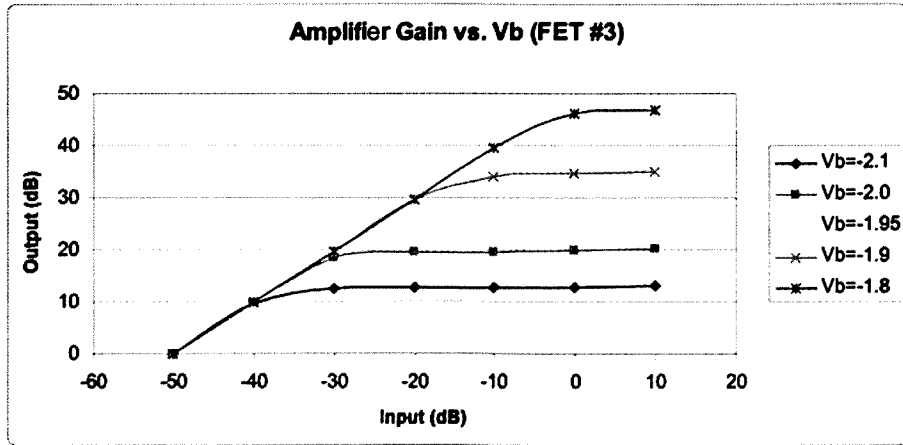


Figure 4: Circuit operation with JFET #3.

Given the simplicity of the circuit, its performance is remarkable. It has a wide dynamic range, low noise figure and a wide bandwidth. In addition, the circuit adds virtually no distortion to the signal. A simple test for

distortion is to play recorded music through the compressor; except for dynamic range the audio quality of the output should be identical to the input signal with no evidence of clipping or other effects.

The circuit was built on a small piece of 'Vero' board and placed between the detector output and the volume control. Potentiometer R10 was adjusted so that the output amplitude was the same as the input amplitude up to the point at which compression started. In my case, that level was about 10 mV.

### Conclusion

The audio AGC circuit described here is a useful circuit where a constant amplitude signal with low distortion is required. The circuit allows the user to optimize the amplifier gain and compression point, as well as allowing the use of different JFETs as the gain control element.

# ARDF championships a success - Report on the 8th IARU Region 3 ARDF Championships

Jack Bramham VK3WWW – WIA ARDF Coordinator



Photo 1: The ARDF competitors, officials and dignitaries after the opening ceremony.

Photo 2: Chinese competitors testing their receivers at the Model Event.



Over the last 12 months or so a dedicated group of volunteers had been working in preparation to hold the 8<sup>th</sup> IARU Region 3 ARDF (Amateur Radio Direction Finding) Championships in Australia. The host society was the WIA and the event was organised by members of the Victorian ARDF Group. Organising an event of this magnitude is no easy task. Conducting the actual competition is the easy bit; it is all of the other things such as International Correspondence, International Teams local transport, meals and

accommodation for 130 plus and many other things which form the bulk of the work. Over 50 volunteers were required so each of the events went off without a hitch. As WIA ARDF Coordinator I must thank all of those who gave up their time to assist with the event. Not all of the volunteers came from the amateur ranks. Many were recruited from the Orienteering side of the sport. I would also like to thank Orienteering Victoria and the many orienteering clubs that loaned infrastructure for this event.

Participants for this event were made up of Australia (WIA) 19, China (CRSA) 34, Japan (JARL) 31, Kazakhstan (KFRR) 1, Korea (KARL) 6, Malaysia (MARTS) 2 and USA (ARRL) 3 totalling 98 competitors. Added to the competitors list there were team officials, trainers and International Referees. So, as you can see it is really a major event for us here in VK.



*Photo 3: Seated L-R: Jack VK3WWW having a serious conversation with one of the Japanese competitors. John VK3PZ is checking off the registration sheet and standing is Ewen VK3OW making sure each of the late arrivals has a bed for the night.*

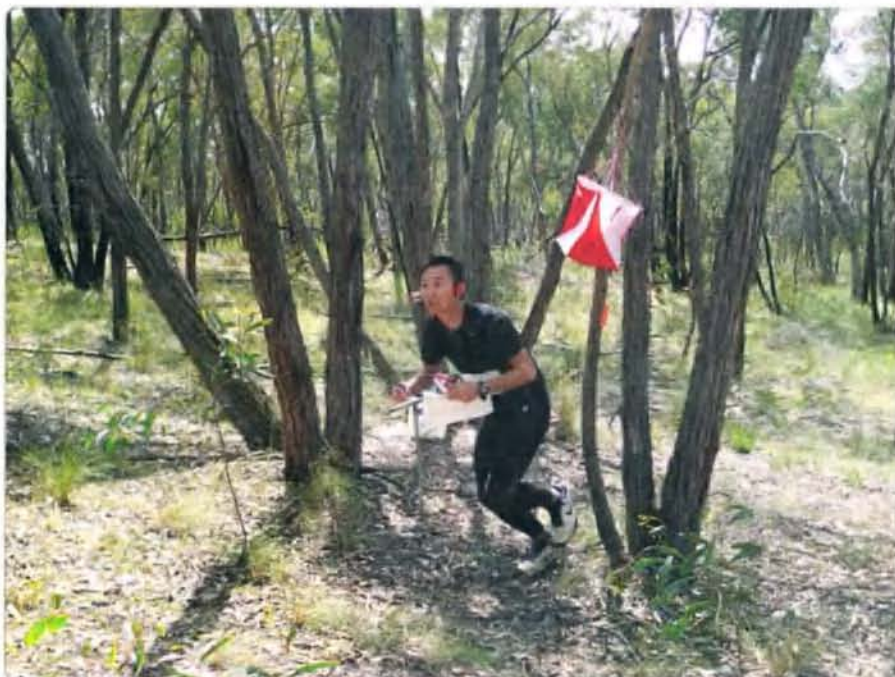
Weather for all five days was really fine with the only bad patch being the Tuesday morning just before the 80 m event when the heavens opened, dampening the course referees and the team setting up the infrastructure for this event. By the time the competitors arrived

at the start location, the weather had improved considerably, to a point where the event was held and no more rain fell on the course.

Friday 23 September was arrival and registration day. Some international teams had arrived early and had been touring VK3. Listening to them, the most popular tourist spot was the Great Ocean Road and the Twelve Apostles. Teams started to arrive at the Blue Light Camp in Maldon around 1400. John VK3PZ and his team were very busy making sure all of the information for each of the team members was correct and Ewen VK3OW made sure all had a place to sleep. Registrations continued well into the night with the last bus arriving about 2200.

By Saturday morning most had settled in well and once breakfast was over everyone was loaded onto a bus to attend the Model Event. This event is for competitors to get used to our local weather and bush conditions also test out their equipment by DFing up to 10 transmitters (5 x 2 m, 5 x 80 m) set in a state forest with a real map. Following the Model Event competitors were invited to participate in a Street-O and Fox-Or event around the local streets of Maldon.

*Photo 4: Wu Qiuyang, Chinese competitor, exiting control point 1 en-route to the finish.*



I am sure the locals were very confused about what was going on. For information regarding these styles of events I suggest you look at [www.ardf.org.au](http://www.ardf.org.au) where you can find an explanation for all sorts of Orienteering and ARDF type events.

Saturday was a very active one for after the local events it was off to the opening ceremony where both Michael Owen VK3KI (IARU Region 3 Chairman and WIA President) and Yoshio Arisaka JA1HQG (IARU region 3 ARDF Chairman) welcomed everyone. After the opening ceremony there was an opportunity to take a group photo with all of the teams wearing their country kit.

Sunday 25<sup>th</sup> was the first event. This event was contested on the 2 m band, and until this time most of the competitors were very tense. After the 2 m competition you could sense that most of the tension has passed and competitors opened up a bit and started to form friendly relationships with competitors from other teams. That evening organisers put on a DVD night showing a few local amateur radio related videos. One of the videos was from the Melbourne Foxhunt that was recorded by a Norwegian film crew. This confused a few of them trying to work out what language was being spoken.

Monday 26<sup>th</sup> was a rest day but, not really. Competitors and officials met at

*Photo 6: Takayoshi Suzuki JS2FSG on fire as he approaches one of the 2 m ARDF Controls.*



*Photo 5: One of the ARDF control points.*

the Maldon station in preparation for a vintage steam train trip to Castlemaine. From the Castlemaine station they were then taken by bus to Bendigo and after an Aussie BBQ lunch they headed underground for a tour of the Central Deborah Gold Mine.

Tuesday 27<sup>th</sup> was the second event and as earlier mentioned it rained as we were setting up the course. After the 80 m event everyone headed off to the Baringhup

Community Hall for the closing ceremony banquet and medal presentations. Michael Owen VK3KI and Robert Broomhead VK3DN took control of the microphone and presented all of the medals gained during the two competitions and Dianne Shalders VK3FVXN presented the awards for the Combo event. Medals were not presented for all of the age categories but to give you an idea on how many categories there can be they are as follows. W19, W21, W35, W45, W55, W65, M19, M21, M35, M45, M55, M65. With the exception of the 19 category which is actually up to the age of 21 all of the other categories' ages are grouped in 10 year segments. So, you really are only competing against competitors very close to your own age.

In closing I would like to thank all of the volunteers who assisted, our sponsors, Blue Light Camp management and staff, plus all of the local land owners who were kind enough to let competitors cross their land. Boy, there are so many to thank, it is difficult. So, if I have missed anyone important I must apologise.

There will be a video DVD of the event and it will be available soon. For more information regarding the DVD have a look at: [www.r3.ardf.org.au](http://www.r3.ardf.org.au)  
See more images page 56.

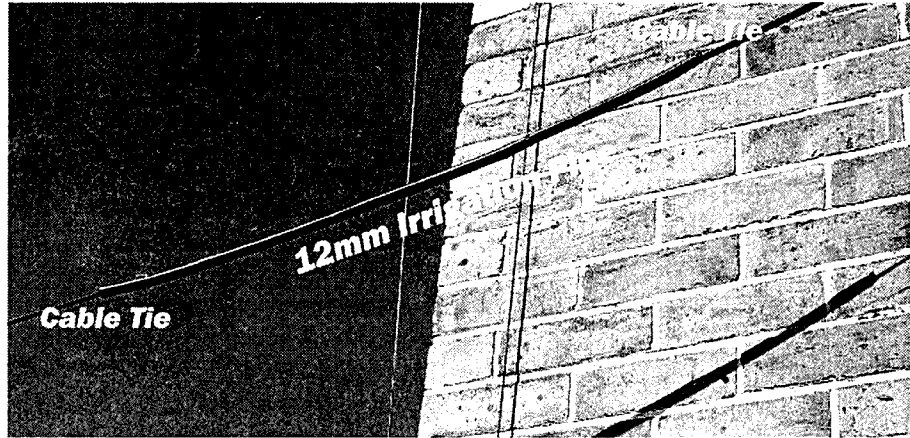


# Simple balanced line protector

Justin Giles-Clark VK7TW

The author's main HF antenna is a G5RV dipole strung across the backyard. I use 300 ohm TV balanced line for the 10 metre (34 foot) matching section. This matching section runs very close to an outer brick wall and it bangs against that wall when the wind blows. My QTH is on the side of a valley which channels the prevailing wind down the valley and it blows the matching section against the west facing wall most days.

One day I tried to tune up the G5RV and found I could not. After inspection, I found that one side of the 300 ohm line had been worn away from rubbing against the brick wall and broken the conductor. The balanced line was replaced and a short length (~one metre) of 12 mm black plastic irrigation pipe was slipped over the 300 ohm line and



The 12 mm irrigation pipe covering the 300 ohm antenna line.

held in place with cable ties each end to ensure it stayed in place. The irrigation pipe could also be put in place in situ if you were to carefully slit the irrigation piping and then place a few cable ties along the length of the irrigation pipe.

This arrangement has been in place for about four years and I have not had to replace the 300 ohm line since then. Not sure if this may also be another possible protection mechanism against those troublesome antenna loving cockatoos.

## TET-EMTRON

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Eldon Bryant VK4FNQA

## The 20th North Queensland Amateur Radio Convention

The 20th North Queensland Amateur Radio Convention was held from Friday 16<sup>th</sup> to Sunday 18<sup>th</sup> September, at Charters Towers, under the auspices of the Townsville Amateur Radio Club Inc (TARC).

The convention was officially opened by the Charters Towers Regional Council Mayor, Ben Callcott, who in his opening address recounted how HF radio, the Royal Flying Doctor Service and RFDS operator Vern Kerr VK4LK, plus a brand new RFDS Homestead

medicine chest helped save his life as a lad on the land.

Activities were many and varied and included a home brew contest, a craft section, a produce section, several raffles, a Mystery Pressie auction, tours for attendees and partners to a number of the local tourist spots, and trade displays by Barry Dionysius VK4TBD of Navcom Electronics and Mark Rawlings VK6MOA of TET-Emtron that created a lot of interest from all present.

The Ken Robertson VK4KT Memorial Award was awarded to Steve Wood VK4SMW from the

Central Highlands Amateur Radio Club, and will be presented to him at that club's AGM on Saturday, 1 October.

The event also welcomed some local press coverage, with John VK4FNQ featured in a half-page write up in the Northern Miner. Refer Photo 1.

From all accounts all enjoyed a wonderful weekend, with great weather allowing all to catch up with their fellow hams, and enjoy fully the wonderful location.

## WHAT'S ON Dining and Entertainment in Charters Towers

# Radio enthusiasts unite

NOT many people can say they have made contact with life forms in outer space but Charters Towers man John Goldfinch can.

In 1998 Mr Goldfinch spoke to NASA astronaut Andy Thomas while he was in the Mir Space Station.

"I heard a skipper in a space shuttle and had around three to four minutes contact," he said.

Mr Goldfinch is an amateur radio enthusiast and will be sharing stories just like this with other amateur radio operators at the 20th biennial North Queensland Amateur Radio Convention.

This is the first time the convention will be held in the Gold City and Townsville Amateur Radio Club Inc secretary and publicity officer Eldon Bryant said he expects around 50 people to travel from all corners of North Queensland to attend.

"Leaders in the deployment of and experimentation in communications

Right - DO YOU COPY... John Goldfinch will attend the 20th biennial North Queensland Amateur Radio Convention this weekend

and technology will be attending and some will be guest speakers," he said.

Visitors to the event can listen to technical lectures, browse trade displays and watch demonstrations and bid for items in the monster auction.

Mr Goldfinch is looking forward to the convention being held locally and said he will enjoy putting a face to the voice.

"I've been into amateur radio for a bit over 30 years," he said.

"It's a bit of a hobby, after school I played

around with hand held radios and in 1979 I passed the novice exam."

Sitting at home in a room full of many different kinds of radios Mr Goldfinch said he has made contact with hundreds of people over the years nationally, internationally and of course, in outer space.

"There was a chap in Japan we used to talk to and he came to Australia and made a point of visiting everyone," he said.

Mr Goldfinch, who's main interest in is UHF radios, said has also spoken

to Black Hawk pilots, priests, doctors and also Dick Smith while he was doing his famous balloon flight.

"It's something that doesn't happen everyday," he said.

The 20th North Queensland Amateur Radio Convention will run from September 16 to 18 at the Charters Towers RSL Sub-Branch.



The article from The Northern Miner, 16 September 2011. Courtesy of The Northern Miner.

## WIA Contest Website

Keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)



# VHF/UHF - An Expanding World

David Smith VK3HZ  
vk3hz@wia.org.au

This month, once again, there has been an opening across the pond to New Zealand. All of the activity at the far end involved Nick ZL1IU.

On the evening of September 19 at 0926Z, Steve VK2ZT worked Nick on two metres with a 5x7 report. Shortly afterwards, Kirk VK2MER also worked him with at 5x5. Half an hour later, the opening had spread further north and Adrian VK4OX worked Nick at 5x3. They also managed a scratchy CW contact on 70 cm with a report of 419. At 1034Z, Col VK2KOL in western Sydney was somewhat surprised to work Nick giving a report of 5x1 and receiving a 5x3. Grant VK2MAX then joined the party, working Nick at 5x5. Adrian VK4OX attempted 70 cm again and was rewarded with an SSB contact with a 5x1 report.

The following afternoon at 0525Z, Adrian again worked Nick on two metres but the opening had almost gone with only a 5x1 report.

## News from northern VK6

Rod VK6KP in Karratha submitted some news of interest:

*For the very first time since arriving twelve months ago, I have heard YB FM on two metres. Our local repeater is located near Point Sampson about 40 km up the coast near Wickham (146.7 MHz). I had FM breakthrough from what was probably an Indonesian repeater on Java. I will try and find out a bit more about two metres from YB. Tropo is meant to be very good this time of year here and the locals regularly hear Indonesia and work into the Broome repeater (800 km north) or the repeaters further down south.*

*Another frequency that I have heard activity on from YB is 146.480 – simplex.*

## VK2KU DXCC

After much hard work, Guy VK2KU is very pleased to finally be in possession of his DXCC certificate:



Photo 1: VK4KSY mobile set-up.

*Yesterday I was delighted to receive my two metre DXCC Certificate from the WIA. WIA DXCC certificates appear not to be numbered for each band (as with the ARRL), but rather by mode - in this case 'Data', that is, digital). Thus my certificate is numbered 00015 which appears to indicate that it is the 15th Data mode DXCC certificate issued by the WIA. Nevertheless I believe it to be the first DXCC Certificate for two metres issued by the WIA, and it carries a corresponding two metre EME endorsement.*

## Spring VHF-UHF Field Day

A reminder that the Spring VHF-UHF Field Day is on the weekend of November 26 – 27, commencing at 0100Z for the eastern states and 0400Z for VK6. There are six sections catering for portable single and multi-operator, eight or 24 hours, and Home and Rover operation. For more information, go to: [www.wia.org.au/members/contests/vhfuhf/](http://www.wia.org.au/members/contests/vhfuhf/)

Remember that while 150 is nominally the contest calling frequency, always try to QSY away from that frequency to have your QSO – that is what the big knob on the front of the radio is for. This

will allow other, weaker stations the chance to get through.

There is expected to be more activity this year, particularly in the microwave region where many people have been busy constructing transverters that they now want to give a good workout. However, even if you just have an FT-817 with a whip, you'll still find plenty of people to work.

Please send any Weak Signal reports to David VK3HZ at [vk3hz@wia.org.au](mailto:vk3hz@wia.org.au)

## Digital DX modes

Rex Moncur VK7MO

### FSK441 – VK4KSY portable QG61

David VK4KSY reports on his portable operation to the rare grid square QG61 near Warwick about 170 km west of Brisbane.

*Got started at 4.45 am only to find ice all over the windscreen and washer jets frozen - in Qld? Luckily I carry extra water in the vehicle, so all over the screen and all good. Arrived at the position, frost everywhere and boy-o-boy the metal was icy cold. Height above sea level 480 metres.*

First ping was from Rex VK7MO and then completed with Arie VK3AMZ and then Rex. And yes I am excited that it is a new grid square for Rex and Arie. Sent a report to VK3HY but the pings had dropped off by this time.

Best conditions were early - if I had this information I would have set up the night prior.

A good trip, but I like summer better. A new grid square for two contacts and some good signals (SSB) into VK2 on AE.

The mobile system, see Photo 1 below, consists of an eight element beam. Driven element copper pipe dipole with RG58 inner feed through the pipes and soldered at the ends. This gives a good flat SWR. Have used folded dipole feeds but they don't travel well in the trailer, vibration fractures the coax to dipole connection.

### FSK441- VK4UH

Kevin VK4UH reports on his results as a 'newbie' on FSK441:

I have been cranking away at MS activity on FSK441 for most of the Saturday and Sunday activity sessions for the last six weeks or so.

From my new QTH on House Mountain in the Samford Valley to the west of Brisbane, a site marginally obstructed to the south at low elevations, I have successfully completed QSOs, via meteor scatter, with the following stations:

VK3AMZ	Arie	1,402 km
VK3KH	Michael	1,406 km
VK3GHZ	Rhett	1,263 km
VK5DK	Colin	1,621 km
VK1WJ	Waldis	943 km
VK3HY	Gavin	1,362 km

Other stations have been successfully decoded or have reported signals from me but have yet to be completed.

Patience and persistence seems to be the key. The signal strength and duration of some longer 'burns' is nothing short of astounding. Signals received from distant stations close to my practical maximum distance, including VK7MO and VK5DK have been seen for over 20 seconds and well above the noise floor. Clearly only the bigger rocks are making the longer distances possible.

Interestingly other VK4 stations, not that far from the VK4UH QTH, have reported many decoded pings on days when I have seen almost nothing. And vice versa!

### Small station 1296 MHz EME - VK2AMS

Mark VK2AMS reports:

Rex VK7MO thought I should write a short article on 'Getting Organised to try EME on 1296 MHz'.

I was given a 1.8 m dish, refer Photos 2 and 3, that was collecting rain water in a paddock so I decided to build an OK1DFC septum polariser with a choke ring for it then got sorted with Az (a Create rotator) and El (a Motech elevation control unit with an actuator) then got my son who is handy with a welder to help me construct a suitable support structure using 50 mm galvanised pipe and concrete footings - I knew I brought him up for something! I have had assistance from Ross VK2DVZ, a good mate, on setting the dish up

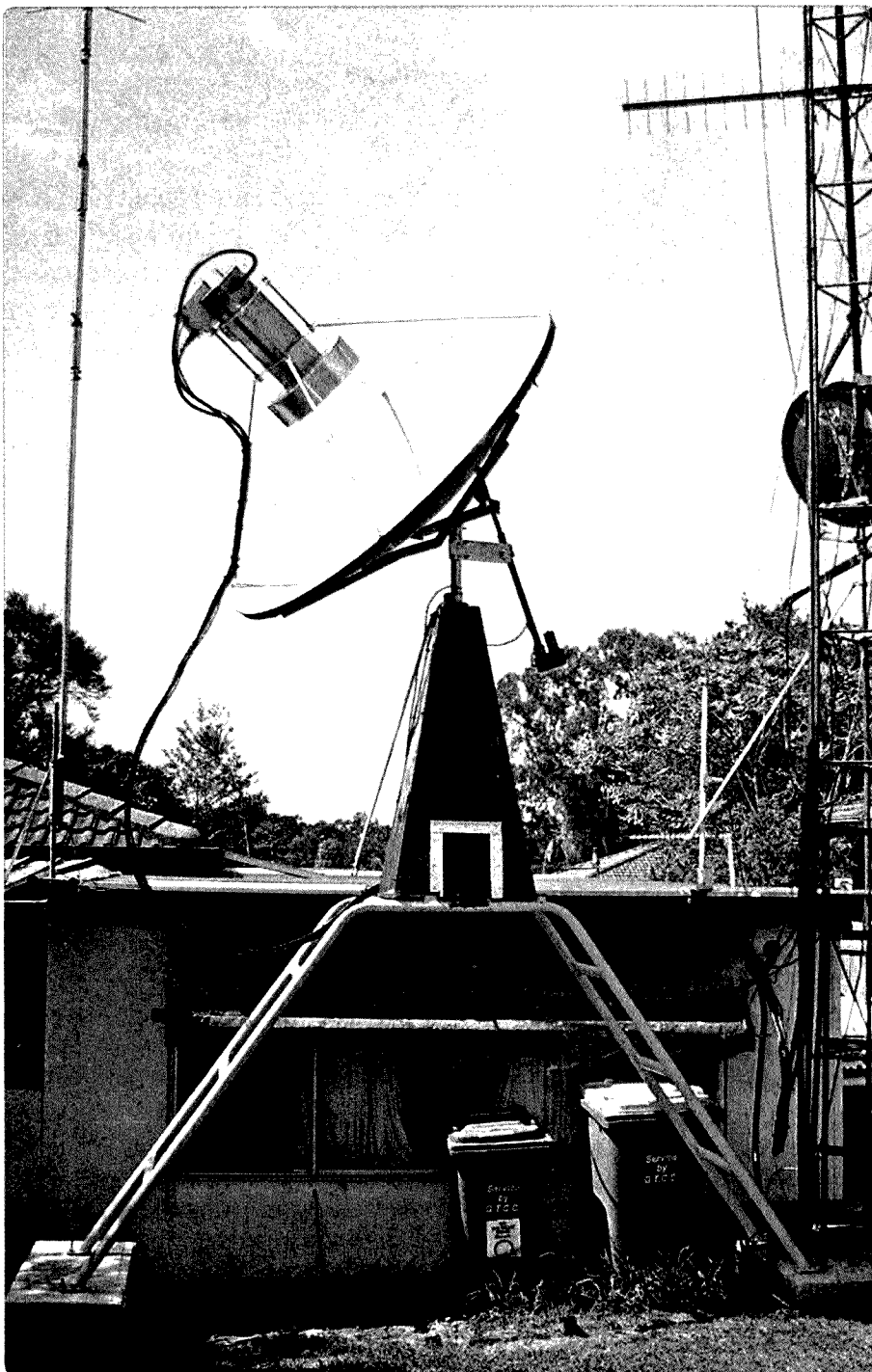


Photo 2: VK2AMS 1296 MHz dish.

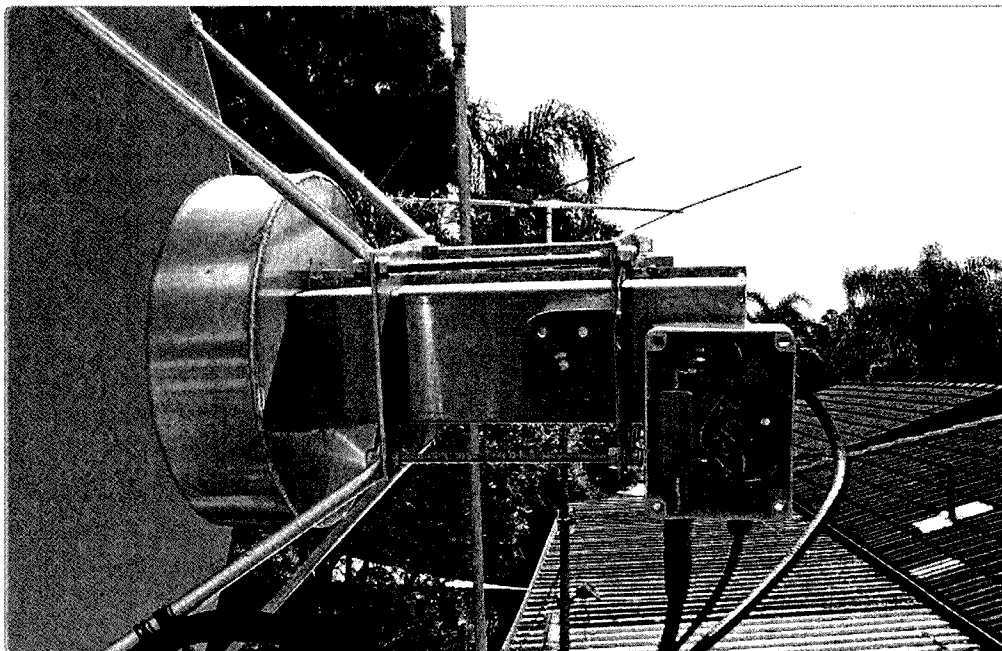


Photo 3: VK2AMS feed.

accurately using the shadow from the sun on the feed. I am currently using a MiniKits EME179 preamp with <math><0.4\text{ dB}</math> NF at the feed (again I had valuable input from Dave VK2JDS) switched into a 50 ohm termination via a Transco 18 GHz relay and have a GS15B amplifier running 120 watts. I am using an FT-817 into a MiniKits transverter with a MiniKits amplifier running 10 watts as a driver.

I had an email from Howard G4CCH about trying for a QSO on the weekend. I thought I would see how things were going on Friday morning, 16 September before work so got on the HB9Q EME logger and said I was transmitting on 1296.065 JT65C. I was surprised to be able to 'see' DL6SH and we proceeded to complete the QSO - his best at -23 dB with my modest setup. This morning, 17 September, I had the good fortune of being able to complete a QSO with Howard G4CCH - best at -20! I am well aware that the 'big guns' are doing the lion's share but it nevertheless shows what is achievable with a small station so I am very happy so far with progress.

I have now severely pruned another tree and about to work on the XYL for a bigger dish!

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

*Brian Cleland VK5BC*

As the sun became more active in September with many good flares so did six metres with good TEP openings throughout the month particularly from the northern areas of VK. Northern VK4s, VK6s and VK8s experienced many good openings into Japan, China, Korea Guam areas, and late in September into Hawaii.

Rod VK6KP and Michael VK6BHY in Karratha both experienced good TEP contacts to the north throughout the month. Rod reports the first sign of six metre activity returning to the NW was on 29 August with JA6YBR/B 559 – a few JAs not too strong plus 49 MHz offsets 9++. After that several good openings occurred as follows:

03/09/11 1032 UTC, BA4SI 50.110 599 CW,

1105 UTC, BA4SI 50.110 59+ SSB.

04/09/11 0905 to 1000 UTC, JAs mostly 3, 4 and 6.

13/09/11 0940 UTC, JA6GGD 50.110 59,

0946 UTC, BA8AG 50.102 599.

15/09/11 0950 UTC, BA4SI 50.110 559,

1007 UTC, BA8AG 50.102 599.

16/09/11 0932 to 1100 UTC, JAs most areas plus 'dogpile' 110 trying to work a VK4SWE (Sweers Island),

1340 UTC, BV2YA/B 50.001 529,

1342 UTC, VR2SIX/B 50,075 539.

18 & 19/09/11 @1000 UTC onwards, many JAs plus BA, BV, VR and a lot of TV crud. FM signals 50.150 FSD?

20/09/11 again from 1000 UTC, very strong opening same as previous two evenings many signals 59++, @ 1031 UTC, BA4SI 50.110 599.

21/09/11 0812 UTC, JE6AZU 50.110 59+,

1020 UTC, HL5BLI 50.110 58, 1100 UTC, BV2DQ 50.120 55,

1140 UTC, JH1WHS 50.110 59,

1209 UTC, VR2XMT 50.110 57.

22/09/11 1100 UTC onwards, JA/BA all calling 110 strong TEP opening with a lot of TV crud,

1200 UTC, beam 315 degrees 48.250 S7 (Dubai),

1235 UTC, VR2HF 50.100 559.

23/09/11 1000 UTC, very strong TEP opening JA/DU/BA/VR - many BA stations calling 110. FM signal there again on 50.150,

1200 UTC, DU7/PA0HIP 50.110 58 off back of Willem's beam who was working BAs, JR6SEU 50.115 55 Okinawa.

25/09/11 1140 UTC, BV/B, VR/B TV crud and Dubai TV S3 with the beam north.

1142 UTC, VR2XMT 50.110 57/8. VR2HF there also and Willem DU7/PA0HIP 559.

28/09/11 0800-0900 UTC, very intense opening to JA with all signals S9+++.

Throughout the last week of September Dubai TV audible 48.250.

Michael's VK6BHY log is detailed below:

03/09/11 1058 UTC, BA4SI 5/9 +.

04/09/11 0927 UTC, JA6RJK 5/9, 09:32 UTC, JA6RJK 5/9 & 10:26 UTC JA1QOP 5/9.

11/09/11 from 0632 UTC, contacted 11 x JAs some big signals but most about 5/3.

17/09/11 0755 UTC, JR6EXN 5/3

19/09/11 1301 BM3GJ?

20/09/11 from 08-12 UTC, contacted 5 x JAs with signals between 5/3 and 5/9.

21/09/11 1209 UTC VR2XMT 5/3.

The last few nights have heard Charlie VR2XMT and Willem DU7/PA0HIP and short openings to JA.

25/09/11 1340 UTC DU7/PA0HIP 5/4.

Michael reports that on a few occasions he has not been able to hear any beacons but has put out a call and got a reply from Japan.

A little further south, Rick VK6XLR in Geraldton had a good start to the autumn season with 13 contacts into JA on 18 September. The band was only open for about 30 minutes starting at about 0540Z with most signals 5/9.

Meanwhile in VK4 regular JA openings occurred throughout September but the highlights were the openings to Hawaii late in the month. On 28 September contacts to Hawaii were made from as far north as Charters Towers (John VK4FNQ) and as far south as Hervey Bay (Wade VK4WM). Scott VK4CZ also reported hearing KH6SX in Brisbane. It was all repeated on the 29th with several Hawaiian stations working many VK4s with over S9 signals. Signals were particularly strong on the 29th into the Mackay and Hervey Bay areas. Kevin VK4BKP in Mackay worked KH6RH at 20 over 9 both ways and Wade VK4WM reported

working KH7Y with signals over S9.

Brian VK4EK in Sapphire also got in on the KH6 openings working KH6U 5/1 on the 27th then on the 29th working KH6RH, KH7JJ, KH6HI all 5/8 and a little later KH7Y at 5/9. Brian reports Fred KH7Y was calling on both SSB & CW but unfortunately not getting many takers. Brian also worked several JA's throughout September with the best opening on the 22nd when he worked 12 in a row before taking a break.

Scott VK4CZ in Brisbane sums up the 28th as follows:

*'An interesting day on six metres. Just on midday, KH6SX was heard calling CQ on 50.110 CW RST519 - a very good copy albeit low in strength. Unfortunately a two way contact wasn't completed.*

*Soon after, at 0330Z the band swung to JA and many JA stations were heard with most signals RS59. A second TEP opening occurred just after sunset with very strong signals from JA, BA4SI was also worked. The following is a list of stations worked.*

*28/09/11 0344 - 0405 UTC, 50.145 SSB JH1WHS, JA7CSL, JH8HQA, JA8GMZ, JA8CAR, JR1SLT, JP1LRT, JA1JSC JA8CRB/7, JA8ANQ, JA1UAV, JM1HJG, JG1XGL with all signals 5/9.*

*28/09/11 0417 UTC, HL3ERJ.50.125 SSB 5/9 PM37NV.*

*28/09/11 0826 UTC, BA4SI 50.102 CW 519 539 PMØ1HD.*

Meanwhile Phil VK4FIL in Brisbane also worked JA's on several days in September, the best being the 29th with signals up to 30 over 9

when contacts were completed with JP1LRT, JO7HAM, JA1UAV, JA1SFL, JA7CSL, JA8OW, JA8CRB/7, JH1WHS and HL3ERJ.

Wade VK4WM in Hervey Bay also completed a good month with contacts completed as follows:

04/09/11 0701Z CW JK1HCE 539

0910Z JJ2NKO 559

0917Z JR2TER 579

07/09/11 2211Z FK8CP 419

18/09/11 0503Z JJ3JZM/1 599 followed by 6 more SSB and 2 x CW JAs

19/09/11 0319Z SSB JM1WBB 41

22/09/11 1057Z CW JA4OK 599

24/09/11 0509Z CW JG1RVN 599

0512Z JG1SIS 599

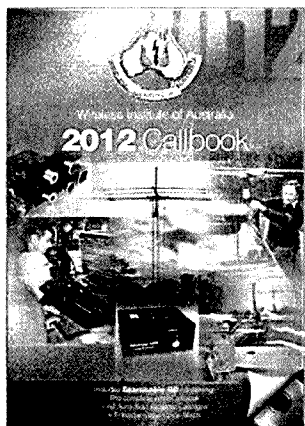
28/09/11 0230Z CW 50.105 MHz Art KH7SX 559 on the Big Island then later on the band opened to JA, worked 2 x JA stations at 0402Z 59 sigs then later at 0759Z worked another 17 x SSB including JR1SLT with a 59 signal using only one watt into a one element quad loop.

29/09/11 KH7Y 5/9.

Although I do not have details, VK8s in the Darwin area had many openings to the north in September and David VK5AYD in Coober Pedy worked several JAs throughout the month.

Certainly a good month for northern VKs on six metres. Let us hope we get some extension south in October/November.

Please send any six metre information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)



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# Silent Key **John Lehmann VK4AZK (1936 -2011)**

A genuine character of our hobby, John Lehmann VK4AZK passed away in his 75th year on 21 May, 2011. John was first licensed in 1963 as VK5ZHL. He obtained his full call, VK5HP in 1965. In 1968 John moved from Mt Gambier to Victoria and obtained the call sign VK3TN. He later moved to VK6 and VK8 for brief periods before moving permanently to Brisbane as VK4AZK.

John had a keen interest in VHF and UHF propagation and was a prolific constructor and operator in the 1960s and early 1970s. During that era, he operated firstly from Glenburnie (Mt Gambier) and later from Warrnambool and Mortlake in Victoria. He was a foundation member of the South East Radio Group (SERG) and was influential in the decision to hold the very popular SERG radio conventions at Mt

Gambier. He was the 1966-1967 winner of the Ross Hull Memorial VHF-UHF contest and acquired several other awards for his VHF and UHF activities.

John was always there to lend a helping hand to others. At a time when most VHF/UHF equipment was 'home brewed' he helped many new chums to improve their equipment. Although self-trained in radio, John seemed to be one of those people that knew how to get things going. Whether it was tuning up a receive converter, building an antenna, helping to erect a tower or just telling you how things should be done properly.

John had rather unique ways of 'encouraging' others to build or improve their equipment which many of his peers will recall fondly. His keen sense of humour was often displayed during his on air contacts and some of his more famous 'vk5hp-isms' are still heard on the VHF bands occasionally.

Health problems restricted John's radio activities in later years but he never lost interest in the hobby and was always ready for a long chat about any aspect of the hobby. He held daily skeds with Rob VK4ZDX until shortly before his passing.

In more recent times, John provided assistance to an RSL Club in Brisbane. This activity involved tracing the histories of some soldiers that were listed on the club's WW1 and WW2 Honour boards but of which, little else was known. Sadly, that work was not completed. John was to have attended a meeting with RSL personnel on the day that he suffered a major health failure resulting in his passing a few days later.

Farewell John.

Submitted by Gavin VK3HY, Colin VK5DK and Russell VK3ZQB.



# Silent Key **Frederick Brian Conway Fergus VK4BCF**

Late of St Paul's Villa, Bardon, in Queensland, Brian, as we was known, passed away peacefully on 19 September, 2011, aged 96.

Brian was born in Askham, Yorkshire, England. He served in the Grenadier Guards from 1934 to 1935, and in the 2nd NZEF Divisional Signals from 1939 to 1945, seeing service in the Middle East, Greece and Italy.

He was a radio announcer by profession, working initially for 1ZB

in Auckland, before the outbreak of war interrupted his career. On his return after the war, Brian worked for a short period in Sydney radio, then with 4MB in Maryborough, in Queensland, before transfer to 4BC in Brisbane, where he remained until 1951.

Learning that Radio Trinidad was looking for staff, he applied for and was appointed to the position of Program Director, eventually completing two three-year contracts in this role. Shortly

after returning to Brisbane he joined an advertising agency, where he eventually ended up as manager.

Brian became associated with 4MBS-FM from its very beginning and, after retirement, was a regular announcer for some eight years.

Contributed by Colin Hinxman VK4ACH.



## Over to you

Dear Sir,

In the references appended to the article *An exquisite situation... on short unloaded whip antennas and the effect of shunt capacitance at their base*, AR, Oct 2011 (not 2100), page 35, my name has been misspelled. The correct spelling is CORTIS. A small point noted by a club member.

It is nice to think that someone actually read my article and decided to follow up my initial diagnosis with some detail experiment and theoretical analysis.

I am preparing an article on my recently constructed rotatable delta loop HF antenna using an auto tuner at the feed point to achieve

multiband coverage. The antenna works on eighty metres to six metres. I just have to make time to draft the article.

Many thanks for producing a good magazine.

Regards,

Richard Cortis VK2XRC



# The Porta-Loop: A loop antenna for MF reception

Peter Parker VK3YE

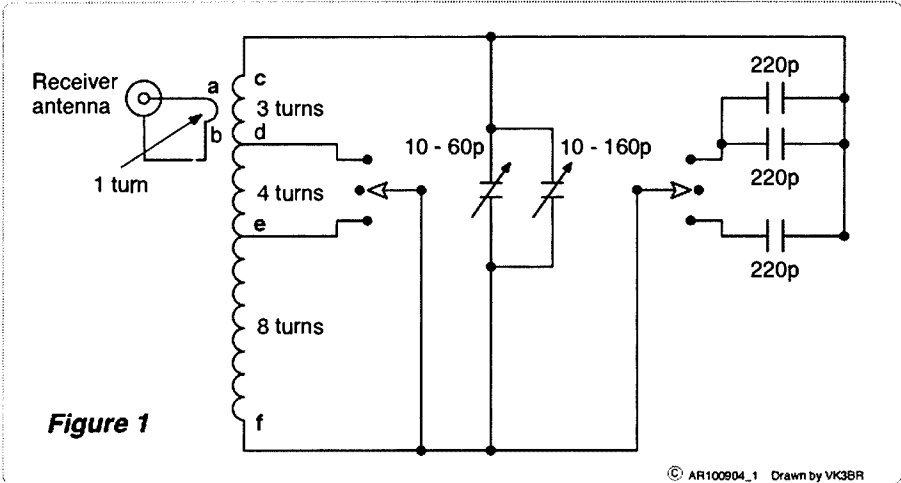


Figure 1: Schematic diagram.

One of the best antennas for long-distance MF reception is a rotatable loop antenna. This is typically built on a rigid frame up to one metre per side. Unfortunately these can be bulky and inconvenient to take to low-noise receiving sites.

Described here is a lightweight MF receiving loop for portable use. Made with flexible materials it is foldable into a small space and carried in a small bag. In use the antenna can be worn or hung in a tree. Frequency coverage is 300 to 5000 kHz, making it suitable for not only the AM broadcast band

but also reception of 600, 160 and 80 metre scientific or amateur signals.

**Benefits**

The loop forms a giant tuned circuit brought to resonance on the frequency of interest. This provides additional selectivity – helpful when trying to hear a weak signal 9 or 18 kHz away from a stronger station. A sharp null broadside to the loop provides directivity. This is useful to null out a strong station when trying to receive a weaker station on an adjacent or sometimes even the same frequency.

Lower frequencies are tuned by switching in parallel capacitors while shorting some coil turns allows higher frequencies to be covered. A simpler version without switching or capacitors will cover 530 to 1300 kHz, that is, the main part of the broadcast band.

**Obtaining parts**

This is one of those rare projects where everything is readily obtainable. The tuning capacitor, ribbon cable, box and switches all came from Jaycar. A hardware store helped with the shade cloth used to encase the cable.

**Construction**

Instead of winding wire around a former, I used sixteen conductor ribbon cable with the ends soldered to form a coil. A two metre length of cable with fifteen conductors in use allows resonance at about 530 kHz with a normal tuning capacitor. The spare turn provides a connection for receivers with an antenna socket.

Getting the coil connections right is critical. I used rainbow coloured cable rather than plain grey to make this easier. Ignore the first (brown) wire as this is for the coupling loop.

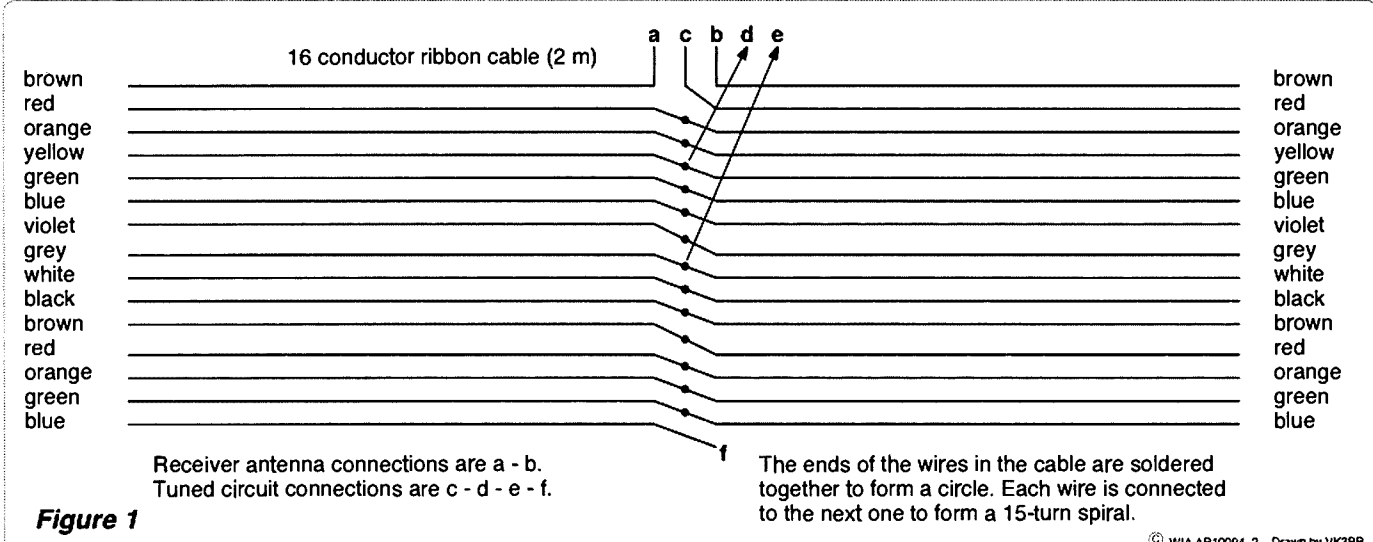


Figure 2: Wiring of ribbon cable.



Photo 1: Hand carried loop.

Starting with the second wire (red) solder the end of each wire to the opposite end of the next colour along until a 15-turn coil is formed. It helps to know the resistor colour code as the wires are thoughtfully coloured in numerical order.

Figures 1 and 2 provide more detail. Note there are two tapping points where another wire branches off to a switch; these are so that the loop can cover the top end of the broadcast band and lower HF frequencies. There are many close

connections around the coil joint so insulation is critical to avoid shorted turns. Heat-shrink tubing could be used or insulation stripped from a thicker piece of wire.

The fixed capacitors and their switch are optional but desirable for tuning the 600 metre band and non-directional beacons down to 300 kHz. Additional capacitors can be switched (possibly with a rotary switch) for complete NDB band coverage down to 200 kHz. However the tuning range becomes narrower

and a larger version of this antenna, possibly using four metres of cable, would provide better LF coverage.

Both switches look like ordinary two position toggle switches but are in fact three position, with no contacts connected when the switch is in the 'neutral' central position (SPDT Centre Off). This is the normal position for using the loop when tuning the bulk of the AM broadcast band. Switching either side adds less or more capacitance (or subtracts less or more inductance) to allow frequencies either side to be covered. Rotary switches could be substituted, but the compactness of the toggle switches suited the box used.

The tuning capacitor is the standard two-gang plastic type as used in transistor radios and generally available. Both gangs are wired in parallel (bridge the two outer terminals) to provide a maximum capacitance of approximately 220 pF. A larger variable capacitor, such as from a valve radio, will also work and changing the 220 pF capacitors to 330, 390 or 470 pF will extend the low frequency tuning range.

**Adjustment and finish**

First testing of the antenna should be done on the AM broadcast band with a portable receiver. Hold the loop open in the vertical plane (or drape over a plastic chair) and place the set inside the loop.

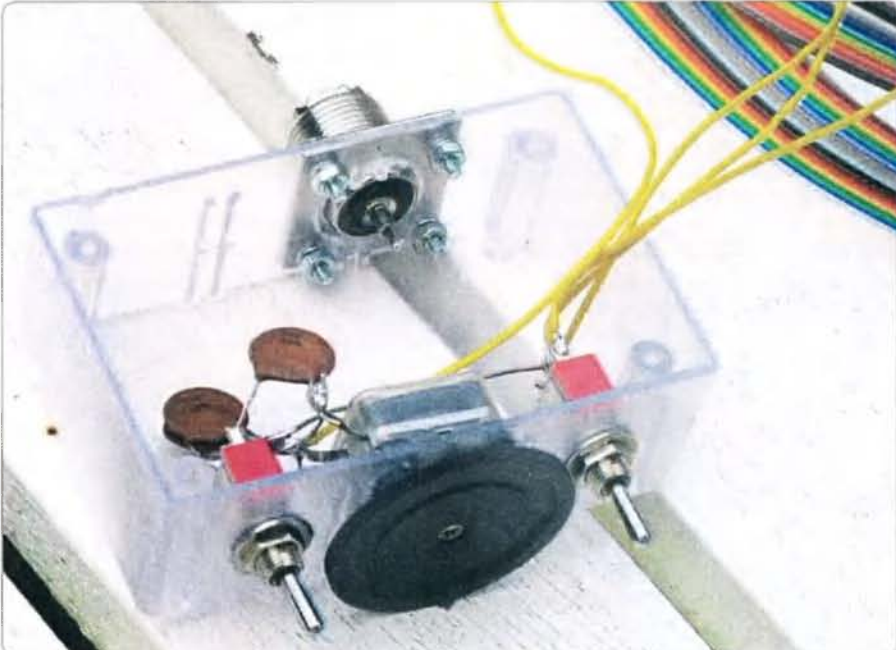


Photo 2: Loop control box.



Photo 3: Ironing the shade cloth.

There should be an increase in band noise when the loop's tuning capacitor is brought to resonance near the radio's dial frequency. It should be possible to cover the entire broadcast band this way. If not adjust the taps (if higher frequencies are not fully covered) or switch in 220 pF of parallel capacitance (if having problems at the bottom end).

Once satisfied that the taps are in the right spot the loop can be finished by wrapping the ribbon in a folded strip of shade cloth approximately 20 cm wide. Possible ways to secure the shade cloth include glue or sewing with coarse string. Having failed with the former and been impatient with the latter, I tried ironing together the edges of the shade cloth. The result was surprisingly successful, though too much heat causes the cloth to disintegrate. It's also a good idea to iron away from the ribbon cable. Finally glue the control box to the shade cloth near where the ribbon's wires emerge.

### Conclusion

A very simple receiving loop for the medium frequencies has been described. Stations that are hardly audible without the loop are good strength with it. While not as sharp as a larger loop with more widely spaced windings, it still performs well and would be useful for situations where a full-size loop would not be taken.

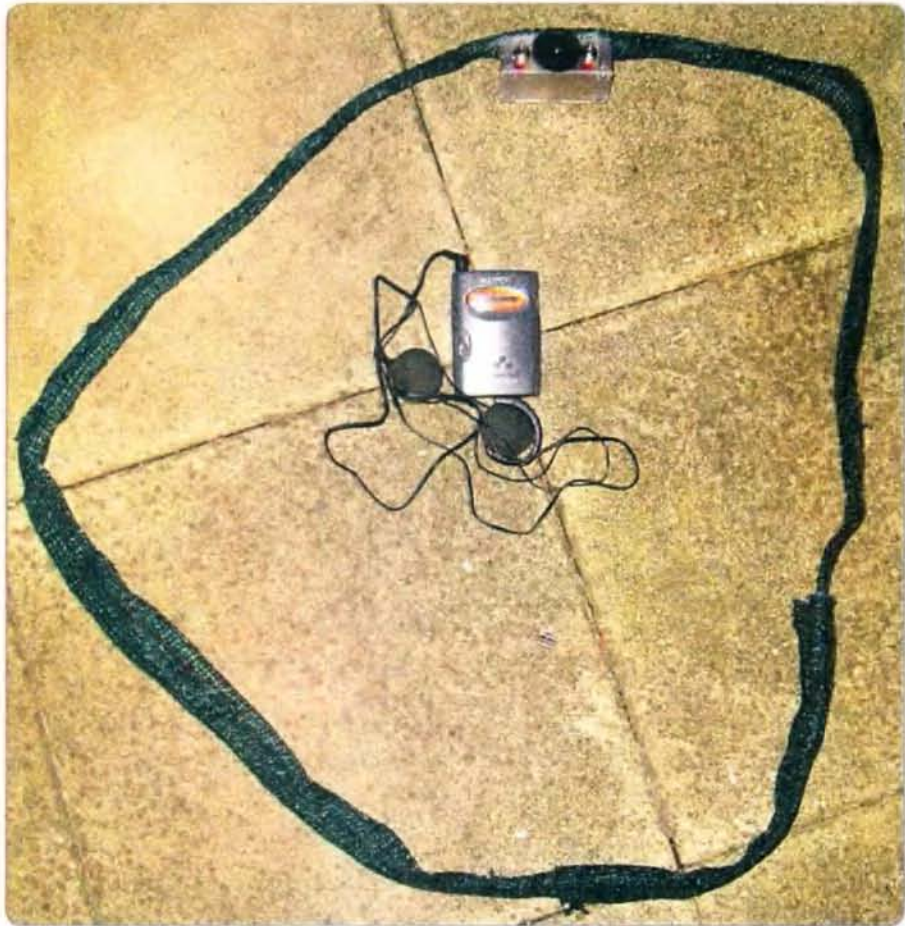


Photo 4: Loop rolled out.



Photo 5: Loop with small receiver.

## D-STAR QSO Party in 2011

Icom Inc. is pleased to inform you that the D-STAR QSO Party for 2011 will be held between **November 11th 0:00 to November 13th 24:00 (UTC)**.

This event differs from the contest that has been held over the last few years. Instead of competing for numbers of contacted call signs, the goal this year is to encourage D-STAR operators to make contact with other operators in as many different countries as possible.

The more countries a user can contact during the time period, the more entries in the prize pool they will have. Icom Inc. has a total of 15 ID-31A D-STAR units available as prizes for the event.

Detailed information will be available on the following website in early October 2011:  
<http://www.icom.co.jp/d-starparty2011/>



# DX-News & Views

John Bazley VK4OQ  
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Well it has happened! Earlier this week (September 29) the solar flux hit 190, the first time since 2002 and 10 m was in good shape! If conditions do hold up until the end of November we should see a lot of activity there during the CQ CW contest. If you are looking to fill 'band spots' on 10 m this will be the time to do it.

We have a number of DXpeditions coming up, details below, but even the best laid plans sometimes 'fall apart' as, unfortunately, has happened with the **T32C** operation. This operation should still be active when you read this. The ship taking the majority of their gear, over five tons, broke down and had to be towed back to Fiji. They have taken additional rigs, as handheld luggage, antennas and a few small linears but the operation will be 'simpler' than originally planned but, I am sure, nevertheless successful.

Updating the ZK2V Niue Island expedition, October 21 to December 29, Keith GM4YXI/GM5X, will join Chris, GM3WOJ/ZL1CT/ZK2V for the first two weeks and Keith is hoping to get the callsign ZK2X. QSL ZK2X via N3SL. Chris will operate ZK2V in the CQWW CW contest at the end of November. The new ZK2V website has three new innovations. G4CLA has written software to give real-time logging, linking WinTest 4.8.0 in DXpedition mode to ClubLog and a real-time Google map showing the QTH of every station worked. IK8LOV is providing an interactive map showing the number of stations worked in each DXCC entity. Refer [www.zk2v.com](http://www.zk2v.com)

Bill VK4FW has advised a change of plans for the C21A DXpedition to **Nauru Island**, which was expected to take place from mid-November to early December. Due to light



Photo 1: Kevin VK0KEV, active from Macquarie Island through 2011, is due to go QRT in November.

uncertainties from Fiji to Nauru the team has decided to change destination. They are now pushing back the C21A DXpedition to 2012; however they have 'secured accommodation, licence and flights' to **Tuvalu** and will be QRV as T2T from November 10 to December 6. Unfortunately, due to major work commitments, Art NJ7N has been forced to pull out. So the team now will be K4ZLE, NL8F, VK4AN, VK4NEF, VK4FW and W5SL. The team has a new website at <http://www.t2t.pacific-dxers.com/> which has all the updates. The team is seeking donations, which can be made via PayPal to [dxpedition@westnet.com.au](mailto:dxpedition@westnet.com.au)

Rob GM3YTS and Gavin GM0GAV have planned a CW only DXpedition to **Malawi**. They will be active as 7Q7GM from October 31 to November 13 with an emphasis on the low bands, specifically 80 and 160 metres. Plans are to upload their logs to a log search during the DXpedition and then LoTW upon their return home. QSL via GM4FDM.

Twelve operators (namely OK1DIX, OK1DO, OK1DSZ, OK1FFU, OK1NU, OK1RI, OK1RK, OK5MM, OK8WW/OM2TW, OM2IB, OM5AW and OM6NM) will be active

from **The Gambia**, from November 20 to 29. They will participate in the CQWW DX CW (26-27 November) contest as C5A (Multi-Multi). They will be QRV on 160 through to 10 metres with six stations. QSL via OM2FY, direct or bureau. Logsearch and further information can be found at [www.om0c.com](http://www.om0c.com)

This is the 23rd straight year for the VooDoo Contest Group's DXpeditions. This year they go to **Liberia** for the CQWW CW contest in November. They will be EL2A, Multi-Multi, from a QTH just south of Monrovia,

the capital. The group, with their personal callsigns, will be active from November 21. Ned AA7A - EL2NS, Roger G3SXW - EL2A, Fred G4BWP - EL2WP (QSL via G5LP), Mike KC7V - EL2MF, Lee KY7M - EL2LF and Bud N7CW - EL2CW. QSL via their home calls except for EL2WP. Roger G3SXW has said that 'LoTW uploads will be fast!' He also thanks the Liberian Radio Amateur Association for their wonderful support.

Trevor VK0TH is now QRV from **Macquarie Island**. His gear is a Yaesu FT-897 running 100 watts into a five band vertical and 40 m dipole. He is active 80-6 m. No word yet on his length of stay on VK0. He has been reported on PSK31 on 21.070 MHz on Saturdays around 0230 Z. QSL direct only, to JE1LET. Kevin VK0KEV is still on Macquarie Island and currently is scheduled to depart the island in November, after a 13 month stay.

Susan W7KFI is once again saying she will be going to **Johnston Island** (KH3). Apparently she plans to set sail aboard her sailboat in late November or early December of this year. Stan KH6CG says she will be running 100 watts into a 13.1 m (43 foot) vertical on SSB and CW, as KH3/W7KFI. QSL via KH6CG.

Gab SU/HA3JB has renewed his licence to operate in **Egypt** and plans to be on for the CQWW DX CW contest. QSL to home call.

W0MU, N1NK and G0VDJ are getting ready for their J6 **St. Lucia** trip in November. The licences have been issued. The operation is planned from November 21 to December 1, emphasizing the CQWW CW contest. They will have a pair of Elecraft K3 rigs to KPA-500 amps and a variety of antennas. <http://w0mu.com/DX/>

Art VP2V/N3DXX will be on **Virgin Gorda** November 23-30, focusing on 160 and the CQWW CW contest, November 26-27. He will be single op all band. QSL to AA7V.

8Q7EJ in the **Maldives**, by Jim G3VDB, will be at the Vilamendhoo Island Resort October 31-November 13. He will be holiday style, mostly on 20 m, CW, SSB, PSK31 and RTTY. QSL to his home callsign. The 8Q7EJ logs from 2009 and 2010 are now on ClubLog, <http://www.clublog.org/logsearch/8Q7EJ>

**ZF1A** will be the call used by K6AM, K5WA and AC6T for the CQWW CW contest November 26-27. They will be multi-single. QSL direct, bureau or LoTW to K6AM.

Mike VP8DMH plans to be

stationed at the Halley Station, **Antarctica** from the end of December 2011 through the beginning of March 2012. QSL via M0PRL.

J68HZ, **St. Lucia**, is scheduled for November 19-December 3 by K9HZ operating from Castries. Especially look for him near 7.155 MHz and 14.155 MHz between 1600-2400 Z daily. QSL via K9HZ.

PJ7I (the callsign applied for) **Sint Maarten**, is due from November 24-28. Operator Masayuki Inoue JN3NFQ/K1GI will have an FT-450 with 500 watt amplifier. He will have a quarter-wave vertical for 80 and 40, hex beam for 20 to 10. The operation will be 80-6 m SSB, CW and digital. QSL via JG2BRI. [www.qsl.net/pj7i](http://www.qsl.net/pj7i)

After a month and a half Robert S53R is back in Khartoum, **Sudan** and QRV as ST2AR. Robert is one of the best operators and can operate on 1.8 through 50 MHz. For more information about ST2AR check out his QRZ.com listing at <http://www.qrz.com/db/st2ar> QSL direct only to S53R.

Taiwanese amateur radio operators will be putting on a multi-op as **BV100** in the upcoming CQ World Wide CW DX contest. The operators will be BM2AAV, BV2DD,

BV2KI, BV2KS, BV2NT, BX2AB, BX4AF and BX4AN. QSL via BV2KI.

6V6V is the **Senegal** callsign for N1NSB when he is there for the CQWW CW event November 26-27. He plans to be single-operator all-band. QSL to his home call.

5X1NH will be on from **Uganda** starting November 23, for three weeks. Nick G3RWF is taking his new KPA 500 amplifier, hoping to make a dent in the low bands, he says. QSL to G3RWF.

9M6NA on **Labuan Island** will be in the CQWW DX CW contest November 26-27 with JE1JKL operating, single operator all band. QSL to his homecall.

TO7A on **Martinique** will be in the CQWW CW contest November 26-27. UT5UGR will be at the controls, single op all band high power. QSL to his home call.

6Y3M in **Jamaica** will be in the CQWW CW contest November 26-27, multi-single. Operating will be Lajos VE3NE and Gyorgy VE3NZ. QSL via VE3NE.

Paul VE3TA and Nick VE3EY will be operating as TO3A from **St. Barthelemy** during the CQ World Wide CW DX contest, as they have now secured the licence through the French ministry. This will be a multi-single effort. The two will be on St. Barts from November 22 to 29. Outside the contest they will be QRV as FJ/VE3TA and FJ/VE3EY. QSL TO3A and FJ/VE3EY via VE3EY and FJ/VE3TA via VE3TA.

DK9PY plans to be on **Guadeloupe** (FG) from November 6 to 25. Activity is planned for 3.5 through 28 MHz, on CW. Listen 15 kHz up from the bottom of the band.

Special thanks to the authors of **The Daily DX (W3UR)**, **425 DX News (I1JQJ)** and **QRZ.DX** for information appearing in this month's DX News & Views and photographs from JE1LET and G3SXW. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)

Photo 2: The VooDoo Contest Group that operated as 9L5VT in the 2010 CQWW CW contest from Freetown, Sierra Leone. L to R: Roger G3SXW, Zbig 9L1BTB, Ned AA7A, Fred G4BWP and Bud N7CW.



# Bits and Bobs: How amateur radio enhances a marriage

Rananda Rich VK2FRAR, with technical support from Alex Taverner VK2RZ

Marriage is not only about sharing and being together. It is also about giving each other space to develop your own interests and talents knowing that you have the support of your spouse. So on one level, when my husband explained we needed another trip to the local hardware store, oh and could we stop at the toy store too, I was happy to indulge him but not to delve any further into what was going on behind his closed study door. This time he was after a metal retracting tape measure and a 'slinky' that walks its metal coils down stairs.

Of course, what he wanted to do was build another couple of antennas, this time a compact radio direction finding antenna and a twenty metre band dipole. I have to admire my husband's tenacity. At the time we lived in an apartment block built of steel reinforced concrete which made picking up even commercial radio stations difficult at the best of times. Consequently his triumphs with antennas had been hit and miss though the portable contraptions have been used with varying degrees of success all over the higher ground of New South Wales.

Since renewing his interest in amateur radio after a twenty year break from it, our home has gradually accumulated an increasing amount of what can only be described as 'bits and bobs'. Apparently it is possible to make working antennas out of things that just happen to be lying around the place. What is really happening is that when he buys a part for his latest project it comes as a pack of two or four and all of a sudden 'spares' start to accumulate.

Nevertheless while I still was not a big fan of the increasing clutter around the place, I did start to become interested in the reach of amateur radio. While on car journeys we tracked our passage by listening to the Morse idents from the repeaters, and when the wind was blowing in the right direction (so to speak) I could hear conversations about what was for dinner over in Broken Hill, or hear the logistics discussed of a local fair in Wagga Wagga. It felt illicit initially to be able to hear these conversations, like I was eavesdropping. Yet I felt drawn to these real but distant lives taking place remotely all around me. I realized that I was intrigued in being able to be part of this larger Australian community. My husband had to explain to me that these are not like private phone calls. The amateur radio bandwidths are there to share. In the interest of research and experimentation actually keeping a log of transmission details, particularly those that are being picked up over longer distances, can provide useful information and increase understanding of propagation.

Later that year we took our annual holiday up on the northern New South Wales coast and we packed the normal stuff: tent, tennis rackets, boogie boards, clothes, esky etc. But it seemed that the heaviest and bulkiest items were all the different bits of radio gear. At this stage I was still relatively disinterested in amateur radio. Actually, I will share a secret with you. I loved that my husband was into this radio stuff. It



Photo 1: Alex VK2RZ 'listening avidly to the static'.

gave me hours off each day to read novels, lie in the sun, and relax. All this was completely guilt free while he twiddled and fiddled with his knobs and listened avidly to the static.

But a funny thing happened while we were on our holiday. One week we stopped at a beautiful caravan park which was situated beneath a brilliant leafy green canopy. The wallabies grazed between the pitched tents in the evenings, the sulphur crested cockatoos socialised on the soft grass in the mornings and there was the sound of surf in the background from the beach that was only a few hundred metres away. My husband had noticed something far more exciting, however. The trees! He searched for and selected an appropriate rock and then threw this over the lowest of the high branches. It was attached to string which in turn was attached to an end fed antenna. At this stage I knew that I had secured at least an hour of peace and quiet as he plugged the radio into the car battery.

What was interesting though was that there was more than just communication via radio. Referring back to his log book of those few days, I can see that he spoke to New Zealand and could hear Russian and Canadian stations. But in addition he drew an audience from the surrounding camp sites. Initially I think it was out of concern for the contraption and wires that he had rigged up overhead. 'What is this?' 'Is it legal?' 'Is it safe?' And then these transformed into more congenial questions such as 'Who are you talking to?' 'How does that work?' All of a sudden my husband knew everyone by name, was having beers with them and I was the one with no mates sitting with my head stuck in a book not interacting with my surroundings at all.

From feeling magnanimous about giving my husband space to develop his 'nerdy' hobby, I was somewhat humbled by the way my husband has used his hobby to make friends, have fun, and be part of a bigger community. And it has been enough to motivate me to complete my Foundation Licence...

# Contests

Phil Smeaton VK4BAA

## Contest Calendar for November 2011 – January 2012

October	1/2	Oceania DX Contest	SSB
	8/9	Oceania DX Contest	CW
	22/23	ARRL International EME Competition	CW/SSB
	29/30	CQWW DX Contest	SSB
	29/30	CQWW SWL Challenge	SSB
November	12/13	Japan International DX Contest	SSB
	12/13	Worked All Europe DX Contest	RTTY
	19/20	ARRL International EME Contest	All
	26/27	Spring VHF/UHF Field Day	CW / SSB / FM
	26/27	CQWW DX Contest	CW
	26/27	CQWW SWL Challenge	CW
December	2/4	ARRL 160 m Contest	CW
	4	RTTY Melee	RTTY
	10/11	ARRL 10 m Contest	CW/SSB
	17	OK DX RTTY Contest	RTTY
Jan 2012		Ross Hull Memorial VHF Contest (VHF/UHF)	CW / SSB / FM

Welcome to this month's Contest Column.

### CQWW CW 2010 results

A very pleasing list of VK stations entering the contest in 2010. VKCC managed to submit three teams in the contest, consisting of:

**VKCC Suckers (Long Path)** comprising VK2PN, VK4AN, VK4SN and VK6DXI, totaling 890,951 points;

**VKCC Suckers (Short Path)** comprising VK2BJ, VK4IU (VK4EMM), VK6AA (VK2IA) and VK6LW, totaling 9,301,370 points and; **VKCC Dream Team:** PAØMIR, VK2GR and VK3TDX, totaling 1,568,404 points.

**VK6AA** A 5,705,784 (Op: **VK2IA**, using the station of the NCRG); **VK2GR** 601,506; **VK2PN** 504,804; **VK7GN** 50,986; **VK6LW** 998,200; **VK3TDX** 430,164; **VK4BUI** 156,279; **VK4IU** 1,976,728 (Op: **VK4EMM**); **VK2BJ** 620,658; **VK6HG** 251,100; **VK3FM** 99,110; **VK4EJ** 56,064; **VK4TT** 36,378; **VK4VDX** 20,097; **VK3BYR** 12,925 (O: **MØRYB**); **VK4TI** 4,080; **VK4CC** 1,558; **VK2AYD** 38,772; **VK4OQ** 203,895; **VK4TGL** 242; **VK2DX** 20,272; **VK3GK** 13,851;

**VK6DXI** 9,968; **VK4FJ** 103,806; **VK4AN** 217,889; **VK4SN** 158,286; **VK1CC** 5,054,836.

Col VK4CC commented that he had only been learning the Morse code for six months and this was his first CW contest, enjoyed it immensely and looked forward to the next one. By the time you read this Col, you would hopefully have participated in another one!

### WAE contest 2011

Steve VK3TDX was out in force for this contest. Steve found it to be a very frustrating but still satisfying weekend. The solar flare caused major disruption to propagation blacking out much of the weekend propagation to EU but there were still some very good openings that made this interesting and challenging. From VK3 Steve had an excellent late afternoon 20 metre long path and after midnight a short path opening that helped him push his score as high as he could get it. John VK4CT did not have a good 20 metre opening Sunday night but from Steve's QTH there was about three hours of pipeline from one to 4 am that allowed him to run for about 300 contacts. Very strange but it was good fun during the openings. Only a modest 15 m opening on Sunday to

EU and 10 m never opened at all. 40 m was also a bit strange – Saturday night it performed as normal but on Sunday it was reportedly dead and Steve heard almost no stations anywhere working into EU from JA, Asia or ZL. Steve managed to bag 654 QSOs for a claimed score of 322,056.

Vlad VK2IM was on the bands and operated for a few hours in the contest, to grab 648 Qs for a claimed score of 103,032 points. John VK4CT (VK4EMM) was also active, managing to make most of his score on the first day prior to the solar storm. The solar blackout arrived on the second day, but John stayed up all night to work one QSO. Imagine staying up from 1450Z to work one station. That is what I call frustrating. John could be forgiven for thinking that Steve had some sort of celestial arrangement taking place, as the solar storm was very selective. During the same period as John's solar blackout to Europe, Steve was working pile-ups on 20 m and 40 m.

### CQWW DX RTTY contest 2011

The SFI stayed around 170 and the K index never got over three the whole weekend so VK stations finally had a chance to operate a major WW contest with full open propagation. For the vast majority of the contest, there was at least one or more bands open to DX and at sunrise both days all five bands were wide open at once to southern VK. It was great to be spoilt for choice and have to decide which band to operate in such conditions. It was tempting to indulge in band changing to up the multiplier tally, but the scoring systems means that if QSOs and multipliers are coming on the band you are on, it is just as good to stay put and let the points accumulate.

Steve VK3TDX took full advantage of the conditions to amass around 1500 QSOs - which is an impressive tally in RTTY as the exchange speed is probably less than half that of CW or SSB.

### Oceania SSB contest 2011

As I sit writing this wee ditty, the sounds of the Oceania SSB contest are still in my ears. A mixed bag of fortune this year, with HF doing rather nicely but LF deciding that sustained decent propagation was

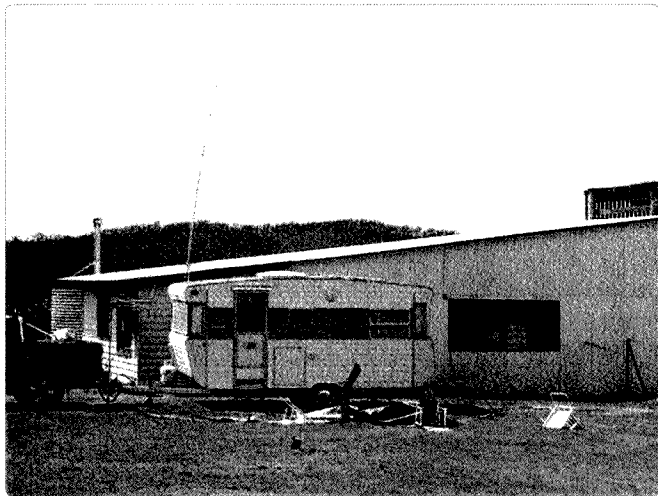


Photo 1: VK4SN's humble abode during the Oceania contest.

not going to happen. A number of stations in VK4 reported poor LF conditions and reports from ZL seem to mirror this observation.

### Did you suffer from wind?

Alan VK4SN certainly did. His camp site at VK4KW can be seen in Photo 1, cowering after being blown for hours on end. All the little piggies had long since run away. The wind bursts were very strong indeed and caused many hours of wind static on LF – just to add to the woes on 80 m and 40 m.

The California QSO party can often cause problems for us in the Pacific as the W6s point east blocking OC ability to work mainland USA. Some US stations would not work anyone other than CA stations, but took longer to inform the unwanted caller as such than it would have taken to give away some points. Such is life. The California QSO party created a bit of havoc but it was not the biggest issue for participants. On Sunday the radio went dead – nothing on any of the HF bands. VK7 up to VK4 suffered, as did stations in ZL and across to VK6, causing many to check their radios and even try a second one in case of failure. Thankfully it did not last and we got to work stations again. VK7ZX was active for the first time in the Multi/Single category, operated by VK7ZE and VK7NET. 1783 QSOs ensued, for a claimed score of 4,096,432. Not bad at all for a first time out!

Steve VK3TDX was again active, netting 613 QSOs for a claimed

score of 684,690 and Peter VK8HPB was also on the bands and generated a claimed score of 174,609 for his efforts. Catherine VK4GH was also competing well, generating a claimed score of 1,355,190 but also commenting that this was the first contest where she was actually busy

most of the time and did not have time to play cards etc like in most other contests!!

Andrew VK4NM and Peter VK4LAT set up their usual M/S station but with a number of improvements this year. Their score was helped along by the 10 m antenna that Peter made prior to the contest – an eight element Yagi on a 19.5 metre boom. The antenna was rotated by two bits of rope located at either end of the boom. I dare say that it wobbled about in the breeze! The lads logged 1943 Qs for a claimed score of 5,438,840.

Vlad VK2IM reported poor weather also – but more than just a lively breeze. Vlad suffered from rain and hail during a nasty storm. Looking at the radar, Vlad saw one storm cell circulating at his QTH about a dozen times over the weekend. It was probably Steve up to his celestial tricks again! Vlad also reports some flash flooding as well. Constant QRN crashes on low bands with almost constant static rain static on the high bands, makes for hard work, but Vlad persevered for 900 QSOs and a claimed score of 1,647,716.

The HQ station of the NCRG was manned for the weekend by Keith VK6RK as a solo effort on 10 m as the guys could not persuade enough members to participate. NCRG usually go to Muresk for the Oceania contest and have a ball with

a strong emphasis on social activities as well as the contest itself, but the trip was called off this year. It is a shame to see such a superb station only partially utilised but this type of problem is unfortunately quite prevalent. Keith netted just over 600 QSOs for a claimed score of 671,232 points. That is good going Keith, for a single op effort!

VK4KW operated as M/2 and had some fun on the bands – except for the wind of course. The team worked hard to grab just over 3100 QSOs for a claimed score of 12,900,000 points. Photo 2 shows John VK4EMM contending with the EU pile up during the latter part of the contest.

T32C entered as M/M and amassed just over 50,000,000 points as a claimed score – which is surely a record which will take quite some beating – if ever! A superb effort!

The Oceania contest improves year on year and is well worth the effort to get on the bands as we are the target for the rest of the world for QSOs. CQWW contests tend to be more hectic and more stations on the bands, but being the centre of attention is nice every now and then!

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au) See you on the bands.

73 de Phil VK4BAA



Photo 2: John VK4EMM at VK4KW during the Oceania SSB Contest.

# 2011 Remembrance Day Contest Results

Peter Harding VK4OD

I received a total of 282 logs compared to 358 last year, with one log each for the HF and VHF Receiving section, one log in the WWII Equipment Single Open.

The overall points for 2011 totalled 41,495 points compared to the 2010 total of 41,185.

Thankfully this year, 272 of the logs were created electronically, the other remainder that were posted, were either hand written or on the pre-designed forms that I made available. This made my task a lot easier and enabled a quick final result being made.

Although many stations made contact with some of the ZL stations this year, we had only one log in from P29 and from the "Land of the Long White Cloud" in the HF category we received three logs.

It is no surprise that VK6 once again will get their name engraved on the RD Trophy as the Winning State for 2011. Once again I must thank the amateurs in VK5 who really improved the points from last year.

Well done to all those who took the time and effort to enter the contest and also posted or emailed in their logs.

Above is a table of the breakdown of Logs and points by State for 2011 vs 2010.

Before the next RD rolls around I will have posted to those operators who hand wrote their logs several copies of a computer generated log sheet and cover sheet, as some of the hand written sheets took a fair amount of deciphering (but we got there).

By the time you read this in AR, all the Certificates will have been sent out, to all the first, second and third place getters.

Should any questions arise from this year's contest, please email them to Peter Harding, c/o vk4od@wia.org.au and I will do my best to answer your query.

Until next year.

Peter Harding VK4OD

State	Logs 2011	Points 2011	Logs 2010	Points 2010
ACT	11	890	23	2467
NSW	32	5174	42	5385
VIC/O	43	4585	56	3254
QLD	41	5222	54	4715
SA/NT	49	4417	43	8126
WA	77	15,668	105	12,410
TAS	25	4772	34	4754
PNG	1	104	0	0
ZL	3	663	1	74
<b>Totals</b>	<b>282</b>	<b>41,495</b>	<b>358</b>	<b>41,185</b>

## HF WWII Single Open

### 2-1-1-3

Call Sign	Score
VK5WT	16

## HF Multi Open

### 2-0-2-3

Call Sign	Score
VK2AWA	752
VK4WIS	458
VK3YVG	161
P29CW	104

## HF Multi Phone

### 2-0-2-1

Call Sign	Score
VK7ZE	1284
VK2AWX/P	821
VK4HH	679
VK2TS	321
VK3BJA	249
VK3WI	178
VK5GRC	174
VK2AOJ	112
VK6SH	81
VK2AFY	76
VK8DA	37
VK5NI	26

## HF Single CW

### 2-0-1-2

Call Sign	Score
VK7OO	299
VK3QB	208
VK4WM	160
VK2BHO	142
VK5UM	102
VK2KJJ	80
VK2BJT	64
VK5HO	60
VK3TX	58
VK4ZW	46
VK5FKAD	32

VK6AFW	28
VK2RJ	20
VK2VFX/AOJ	16

## HF Single Open

### 2-0-1-3

Call Sign	Score
VK4SN	562
VK5ATU	382
VK3HJ	369
VK7GN/2	353
VK2UH	254
VK3YE	122
VK5NE	50
VK6TWO	44
VK2WL	18

## HF Single Phone

### 2-0-1-1

Call Sign	Score
VK6IR	1098
VK4QH	657
VK5PAS	503
ZL2U	489
VK3LDR	464
VK2KF	410
VK6NS	375
VK2BGL	335
VK3AVV	316
VK2NBR	314
VK2NRB	314
VK7TW	312
VK5CB	300
VK4ATH	297
VK4KRX	285
VK1HW	285
VK4ADC	257
VK5KX	250
VK1LW	220
VK7HW	214
VK3WZ	207
VK2ACC	196
VK4MIT	180

VK6ADI	176
VK3VCL	171
VK2HBG	162
VK4FATT	161
VK3AHY	159
VK7VKT	156
VK5DJ	151
VK4AMG	142
VK2EJW	140
VK3ASU	140
VK2YY	138
VK5ZQV	136
VK4JRO	128
VK5ZT	128
VK3TCX	119
VK7BEN	118
VK1MAT	117
VK3FT	117
VK6ED	116
VK5MTM	113
VK4BAY	113
VK3AMW	111
VK6CSW	110
VK5ZD	107
VK4GQ	103
VK3MRG	101
VK6DT	100
VK5KBJ	97
ZL4HD	94
VK7OO	89
VK7ZGK	87
VK4GLC	86
VK2XDL	82
VK3CO	81
ZL50GH	80
VK7KPC	76
VK5UV	75
VK6LAW	70
VK3SIM	69
VK5TW	67
VK2LEE	66
VK1EY	65
VK5LJ	64

VK4MON	63
VK5FCJM	63
VK5FCJM	63
VK2KZ	63
VK3VT	62
VK4FHYH	61
VK3MZ	59
VK3FZRB	58
VK2FERM	57
VK1DW	56
VK7KC	53
VK4FLR	50
VK1XYZ	50
VK3FAAR	50
VK3CAY	50
VK3YX	50
VK5UE	50
VK6SO	50
VK6FDX	47
VK4BL	46
VK4MAX	46
VK6JP	45
VK3KTM	42
VK1FM	41
VK7HK	41
VK4FR	36
VK2EI	36
VK3ZPF	35
VK7JGD	35
VK5AIM	34
VK4GH/P	34
VK7RM	33
VK1ZHC	33
VK5LSB	32
VK5LSB	32
VK6AH	32
VK4SR	31
VK2ACD	30
VK6AXB	30
VK2ARE	28
VK2RL	28
VK2VE	26
VK4OD	25
VK6HX	25
VK6MAB	25
VK2NR	25
VK6HX	25
VK6AR	25
VK4AA	24
VK3DY	24
VK2AOJ	24
VK2FY	24
VK3JK	23
VK7HDM	23

VK6ZRW	22
VK6CG	22
VK4TE	22
VK6HV	21
VK5LZ/5	20
VK4PQ	20
VK4HSW	18
VK6YOY	14
VK6YOY	14
VK1CM	14
VK3KYF	13
VK5MK	10
VK4ZBV	10
VK5HCF	9
VK5KC	7
VK6HDX	7
VK3JWT	6
VK3SF	6
VK3HSR	3
VK6FLMJ	1

### HF Single CW

#### 2-0-1-2

Call Sign	Score
VK7OO	299
VK3QB	208
VK4WM	160
VK2BHO	142
VK5UM	102
VK2KJJ	80
VK2BJT	64
VK5HO	60
VK3TX	58
VK4ZW	46
VK5FKAD	32
VK6AFW	28
VK2RJ	20
VK2VFX/AOJ	16

### HF Single RX

#### 2-0-1-4

Call Sign	Score
VK6ABM	57

### VHF Multi Open 1-0-2-3

Call Sign	Score
VK6AHR	377

### VHF Multi Phone 1-0-2-1

Call Sign	Score
VK3BJA	212
VK4WIS	147
VK5GRC	62
VK3YVG	47
VK5NI	16

### VHF Single Open

#### 1-0-1-3

Call Sign	Score
VK6TWO	802
VK5NE	160
VK5SE	66
VK5AIM	47

### VHF Single Phone

#### 1-0-1-1

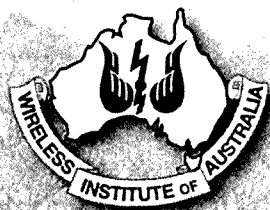
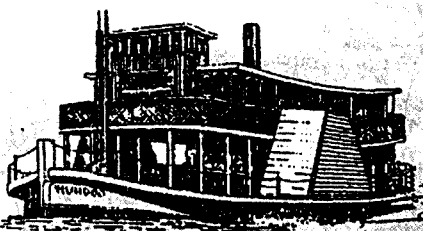
Call Sign	Score
VK5NE	799
VK6BDO	691
VK6PIG	684
VK5ZT	671 ±
VK6NAH	660
VK5AKH	535
VK6USB	517
VK5VCO	460
VK6KHZ	460
VK6FMON	435
VK5NI	387
VK5HZ	375
VK6KYF	354
VK6GO	354
VK6FIVE	338
VK6SAA	338
VK6SCS	337
VK6LZ	311
VK6CSW	302
VK7OTC	280
VK6GG	268
VK6KTV	265
VK6AXB	265
VK6NU	245
VK5ZD	242
VK5KBJ	240
VK6ST	237
VK6FDX	230
VK7HDM	224
VK6YS	220
VK6YD	211
VK6HAD	209
VK6JP	202
VK5AR/M	201
VK6MM	184
VK6CLL	184
VK6GD	178
VK7OO	177
VK5FXYL	158
VK6OTN	134
VK6WJ	134
VK5KLD	134
VK6HDX	131

VK3JK	130
VK6WIA	127
VK6KMC	117
VK5FSKS	106
VK7RM	103
VK6CN	101
VK6ZKO	100
VK4ADC	83
VK5APA	76
VK6ZLZ	75
VK5LD	73
VK6AR	69
VK7ZGK	65
VK6AB	62
VK6OE	59
VK4OE	59
VK6AAL	58
VK6HRC	58
VK4ZA	54
VK6KG	53
VK4ZW	50
VK6ZSB	50
VK6AN	42
VK7JGD	40
VK6YF	39
VK1DW	38
VK7PAH	36
VK5ZKK	35
VK3JWT	35
VK4AR	31
VK6ZMS	27
VK5RV	26
VK6TS	26
VK6FJA	23
VK7VKV	21
VK4RY	15
VK7HW	13
VK7VH	11
VK4GLC	8
VK3KTM	6
VK2EI	6
VK4ION	6
VK2YW	5
VK1EY	4
VK5CB	4
VK4UD	4
VK4HJE	4
VK2ZCW	3
VK4BW	3

### VHF Single RX

#### 1-0-1-4

Call Sign	Score
VK5FPAW	51



# WIA Annual Conference

Mildura, 25 – 27 May, 2012

Register online at <http://www.wia.org.au/>

# The 31st ALARA contest

Lesley Smit VK5LOL – ALARA contest manager

The ALARA contest is always held on the last full weekend of August each year. This year it was held on the 27th and 28th August.

Congratulations to those who did well in the ALARA contest in spite of the poor participation rate by YLs. I am interested in receiving feedback re what we can do to encourage YLs to get on the air. I'm not sure that a contest is the way to go. YLs generally prefer to chat than contest!

Catherine VK4GH is the overall winner with 1307 points. This was a sterling effort. Catherine did well on 20 metres, having contacts with 42 different countries. It was a great pity there were no YLs amongst those contacts!

Leonie VK2FHRK is the top Foundation licensee, with 344 points.

I am pleased to award Mavis VK3KS the top CW certificate.

Mavis has been contesting since the earliest days of the contest.

Sadly there were no non-ALARA members on air to win the free membership to ALARA for a year. This year you would have only needed one contact plus

## Scores

Catherine VK4GH	1307	Top overall, Top Phone, Top VK4 ALARA member
Pam VK4PTO	572	
Leonie VK2FHRK	344	Top Foundation Licensee, Top VK2 ALARA member
Gerald VK2HBG	269	Top VK OM, Top VK2 OM
Mike VK3AVV	210	Top VK3 OM
Phillip ZL2U	205	Top ZL OM
Jenny VK3WQ	196	Top VK3 ALARA member
Paul VK5PAS	165	Top VK5 OM
Bill ZL2AYZ	150	
Lesley VK5LOL	135	Check log
Dot VK2DB	123	
Marilyn VK3DMS	98	
Shirley VK5YL	86	Top VK5 ALARA member
Paul VK2HV	65	
Chris VK2ACD	50	
Matthew VK2ACL	25	
Tom YL2PP	9	Top European OM
Mavis VK3KS	6	Top VK YL CW
Eric SM1TDE	5	

submitting your log to me to win that membership!

Gerald VK2HBG is the top VK OM, with 269 points.

A great big thank you is forwarded to the OMs who persisted

in spite of the lack of YLs. Let's see if we can all make a better effort next year.

In summary, there were nine ALARA members, no non-member YLs, and ten OMs that entered logs.

## Correction: Short unloaded whip antennas

Correction and addendum to the article 'An exquisite situation... on short unloaded whip antennas and the effect of shunt capacitance at their base' published in the October, 2011 edition of *Amateur Radio* magazine.

We are thankful to Dr Paul Edwards VK7ZAS for pointing out that there was an error and lack of clarity in the article:

In the paragraph starting: 2. RR is the 'radiation resistance'... The equation given for the power radiated from any antenna should be  $P = I^2 \times RR$  not  $P = I / RR$

1. The radiation resistance of any antenna is fixed by its height and operating wavelength and cannot be changed by external components. Therefore Figure 3 is incorrect as it stands and a number of changes should be made to clarify the situations:

a) The vertical axis should be relabelled 'effective radiation resistance' as this is the value of the transformed radiation resistance that is seen by the transmitter. The adjacent paragraph starting 'Doing some circuit analysis...' states that it is the '...radiation resistance seen by the transmitter...' but this is not clear from Figure 3.

b) The title of Figure 3 should read 'Effect of shunt C on effective RR & X of 2.7 m whip @ 3.55 MHz'.

Dale Hughes VK1DSH and Andrew Davis VK1DAVK2UH





# Silent Key

David Sidney Thompson ex VK2BDT

It is with great sadness I report the passing of David Sidney Thompson. David passed away on the eve of his 92nd birthday, on 18 July, 2011.

David Thompson had an extraordinary life, and was involved in many facets ranging from radio to race horses, and farming to a diverse range of community activities. He was born in Sydney on 19 July, 1919, and lived his early life in Strathfield. After leaving school David worked for a large trustee company and began his studies in accountancy. He was also serving in the Militia (Army Reserves), before enlisting in the Australian Army on 26 June, 1940 at Rushcutters Bay. David was a corporal in B Company of the 2/20th Battalion in the 22nd Brigade of the 8th Division AIF.

During the course of his time in the military David was wounded in Singapore, and spent more than a year as a prisoner-of-war working on the Thai-Burma railway. He was also to view first-hand the aftermath of the atom bomb attack on Nagasaki.

He was discharged on 5 March, 1946 and spent time working on a number of properties before managing his brothers farm at Bigga.



In 1958, David was granted a Soldier Settlers block off Fullerton Station at Golspie. The family packed up and moved there, firstly living in a tent while a fibro shed was built to live in, and eventually a cottage. While at Golspie in the late 60's he renewed his childhood passion for radios, and electronics. The location at Golspie was of a high altitude, and perfect for HF and VHF radio. He had a wonderful antenna farm. By 1971 he had obtained his amateur radio licence, VK2BDT, which he held until recently. He remained farming at Golspie until 1973, and then the family moved into Goulburn.

David also bought a property, 'Marama', and ran it from town.

He was the VK2 President, and then in 1978 David became the first President of the newly formed Goulburn Amateur Radio Society, and was also heavily involved in the late 1990's when the club merged with another local club to become the Goulburn and Southern Highlands Radio Society.

By 2008, with his health failing, David moved to a retirement village in Goulburn. He sold off much of his equipment when he left his farm.

He was one of those people who are 'life's characters'. He was a true friend, and definitely will be missed by all who knew him, but in particular by the members of the Goulburn, and Southern Highlands Radio Society. Men like David Thompson are a vanishing breed. He was a legend in his own lifetime.

He is survived by his wife Pat, sons Stewart and Henry and their families, which include five grandchildren.

Submitted by Ian Jeffrey VK2IJ.



Yarra Valley Amateur Radio Group Inc.  
www.yvarg.org.au PO Box 346 Healesville Vic. 3777

VK3YVG's

# Hamfest

**Sunday 6 November 2011**

10 am to 2 pm at the new venue

Garry Cooper Pavillion, 16 Anzac Avenue,  
Yarra Glen Melways 274 K1

Call in on VK3RYV Repeater 146.725 MHz

For booking of tables and further information contact  
Gavin VK3GH on 5968 8482 or Brian VK3ABJ on [kan00082@bigpond.net.au](mailto:kan00082@bigpond.net.au)

**Sales**  
of pre-loved  
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computer gear

Free tea and coffee

Light refreshments  
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Hire of tables  
\$15 each

Ample parking  
\$5 entry

Open to traders  
at 8:30 am

# SALE

# A history of the Amateur Operators Certificate and the Morse code requirement

Lloyd Butler VK5BR

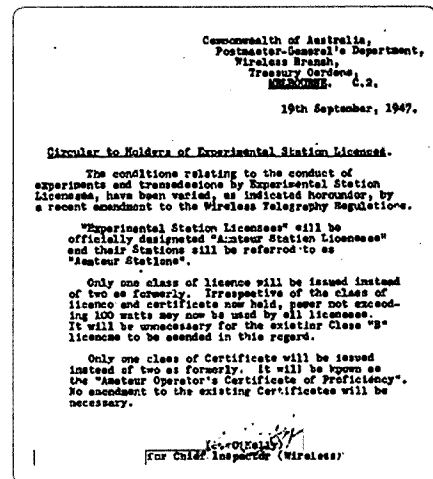


Figure 1: The 1947 licence changes. (From the records held by the WIA Historian).

The Amateur Operators Certificate of Proficiency and its qualification for Morse code has seen some changes since it was first introduced in 1924. I thought I would track down changes, such as Morse speed, which have occurred over the years

The issue of the Amateur Operators Certificate of Proficiency (AOC) is inter weaved with the issue of licences to operate amateur stations. The operating conditions of licences issued have depended on the breadth of qualification in the Certificate and conversely, the curriculum variation for Certificates has varied to suit the variations in licence conditions. Also the encoding of amateur call signs issued has been related to the type of licence issued and hence the type of operating certificate held.

This article is about the amateur certificate and where relevant, mention is made of its connection with the licence and in some cases the call sign. To include the changes in licence conditions and call signs before the introduction of the AOC would be a much larger task and this has not been addressed.

Experimenting with Wireless Communication goes back to the last century with the control of experimental licences to transmit following a variable path. The Australian Government enacted the Wireless Telegraphy Act (October 1905) which placed the control of wireless under the Postmaster Generals' Department (PMG). This allowed the PMG to issue licences for amateur experimentation.

All wireless experiments ceased in August 1914 because of World War 1 and were not resumed until after June 1919.

The Navy took over full control of the airwaves in November 1916 and this continued until September 1920 when it was handed over to the Prime Minister's Department. This remained until 1922 when the PMG took over control of licensing functions. The PMG introduced the first Amateur Operator's Certificate of Proficiency (AOC) in July 1924.

To obtain the AOC, an examination was set to qualify in electrical and radio theory, operating regulations and ability to send and receive Morse code at a speed of 12 words per minute (12 wpm). This Morse speed was maintained for the certificate until around 1946/1947. (It is interesting to note that even in 1914, well before the introduction of the AOC, the specified Morse code speed was 12 wpm for Experimental stations.)

Whilst the Amateur Operators Certificate has been the minimum qualification to obtain an amateur radio station licence, other certificates which have been accepted are the First and Second Class Commercial Operators Certificate of Proficiency which give qualification at a higher level of radio theory and a higher Morse code speed. (Essentially, these certificates are required for the operation of ships stations, and base stations such as aeradio and maritime

radio). Later on, students for higher level radio technicians courses and professional radio engineering courses were also exempted from the theory examination.

Licences to operate amateur stations were suspended during World War 2 and were withdrawn on September 1, 1939. Re-issue of old licences and the issue of new licences started to take place around early December 1945 and January 1946.

For amateur station operation, the maximum input power to the final amplifier was 50 watts (and for a pre-WW2 period, 25 watts). A six months probationary period on Morse code was enforced and an equipment inspection by a PMG Radio Inspector was carried out before operation on phone was allowed.

Two new classes of certificate were introduced around 1946/1947. The old certificate was to be known as the Second Class Amateur Operators Certificate but its new issue called for an upgraded Morse speed of 14 wpm. A higher level certificate known as the First Class Amateur Operators Certificate was introduced with a higher knowledge of radio and electrical theory and a Morse speed of 18 wpm.

The new First Class Certificate allowed the operator to increase the maximum input power into the final amplifier to 100 watts.

The two certificate classes lasted barely two years after which the qualification requirement reverted back to a single class certificate with a Morse speed of 14 wpm and which allowed operation with a maximum input power of 100 watts for all amateur stations.

Prior to 1947, the amateur licence was defined as the "Amateur Experimental Licence". However in September 1947, advice was received that redefined the licence as the "Amateur Operator's Licence", and replaced the two existing types of licence with a single licence with a maximum operating power of 100 watts. Only one class of operator's certificate would be issued in the future called the "Amateur Operators Certificate of Proficiency".

AMATEUR OPERATOR'S  
**Certificate of Proficiency**

In June 1954, the Amateur Operators Limited Certificate of Proficiency (AOLCP) was introduced which called for the full theory qualification but exempted Morse code. With this certificate, the limited operation was restricted to the VHF bands of 50 MHz and above. The Limited call sign issued was initially VKnZxx, with VKnYxx, and VKnXxx later added. The significant characters were the "Z", "Y", and "X".

In 1958, the maximum power input to the final amplifier was increased to 150 W, and this remained the limit until 10 years later, when a maximum RF output power of 400 W PEP (relevant to SSB operation) was introduced.

In 1967, the Morse speed qualification was reduced from the existing 14 wpm to 10 wpm.

The Novice Amateur Operators Certificate of Proficiency (NAOCP) was introduced in 1975 with a lower theory qualification than the AOCp and a Morse qualification requirement of 5 wpm. With this certificate, the Novice operation was restricted to the 10, 15 and 80 metre HF bands. The Novice call sign issued was VKnNxx, the significant character being the "N".

From 1980, operators with both the Novice and Limited certificate accreditations, were issued with the call sign format of VKnJxx and VKnKxx, the significant characters being the "J" and "K". This was later called the "Intermediate Licence".

The requirement for a Morse code qualification on the amateur bands was removed on January 1, 2004 and the Morse qualification to obtain an amateur operators certificate was eliminated.

In October 2005, the new classes of licence, the Foundation licence, the Standard licence and the Advanced licence were introduced. The Advanced licence allowed operation on all amateur bands with RF power output limited to 120 watts continuous and 400 watts PEP. The Standard licence had some limitations on what bands were used and power output was limited to 30 watts continuous and 100 watts PEP. The Foundation licence had further band restrictions with power output limited to 10 watts on all permitted modes.

To qualify for these classes of operation, three new levels of operator certificate endorsed Foundation, Standard or Advanced were introduced with three different levels of qualification. The existing unrestricted (AOCp) and Limited (AOLCP) certificates were also accepted for all levels of licence. The existing Novice (NAOCP) certificate was also accepted for the Standard

or the Foundation licence. The Novice Limited (NLAOCP) certificate was also accepted for the Foundation Licence. The new levels of licence are also defined in the call sign format. Detail of this can be found in later additions of the Call Book under the heading "A Guide to Amateur Licensing and Regulation".

As the one time controller of telecommunications in Australia and the

Licensing option	Minimum qualifications required
Advanced	Amateur Operator's Certificate of Proficiency (Advanced) (AOCp(A)); or Amateur Operator's Certificate of Proficiency (AOCp); or Amateur Operator's Limited Certificate of Proficiency (AOLCP).
Standard	Amateur Operator's Certificate of Proficiency (Standard) (AOCp(S)); or Novice Amateur Operator's Certificate of Proficiency (NAOCP); or Novice Limited Amateur Operator's Certificate of Proficiency (NLAOCP).
Foundation	Amateur Operator's Certificate of Proficiency (Foundation) (AOCp(F)).
Repeater and Beacon	Amateur Operator's Certificate of Proficiency (Advanced) (AOCp(A)); or Amateur Operator's Certificate of Proficiency (AOCp); or Amateur Operator's Limited Certificate of Proficiency (AOLCP); or Amateur Operator's Certificate of Proficiency (Standard) (AOCp(S)); or Novice Amateur Operator's Certificate of Proficiency (NAOCP); or Novice Limited Amateur Operator's Certificate of Proficiency (NLAOCP).

Figure 3: Certificate qualifications for the various classes of licence commencing October 2005 (Chart from the WIA 2009 CallBook).

manager of licences issued for the radio spectrum, the PMG controlled the issue of amateur radio licences and operators certificates for many years. The controlling agency is now the Australian Communications and Media Authority and examination for Certificates is now greatly assisted by appointed members of the WIA – the WIA Assessors.

Supervision of examinations for the Amateur Certificate was originally carried out by Radio Inspectors in the Radio Branch of the PMG. However I can quote my own case where I was supervised by the Postmaster at Murray Bridge, including the examination for Morse code. In those days the postal staff were very efficient in operating the telegraph and reading the "click-clack" of the telegraph sounder. The Postmaster could only read the sounder and I had learned to read keyed tone. I brought along a buzzer connected to a Morse key which he used to send Morse to me and he opened up the telegraph line for me to send Morse to him.

### Acknowledgement

My thanks to WIA Historian Peter Wolfenden VK3RV for his time cross checking historic details written here with documented records held in the WIA files.

### THE WHEELS OF CANBERRA

In May, 1953, we informed you that the Postmaster General's Department had agreed to the issuance of the Technician License, or as it is now known, the "Amateur Operator's Limited Certificate of Proficiency."

In December, 1953, we recorded our disappointment at the delay in completion of machinery necessary to fully implement the scheme.

Now, we are happy to announce that "the wheels of Canberra" have completed their slow revolutions and every last cog has been fitted into its assigned place. The result may be read in "Amendments to the Wireless Telegraphy Regulations CSR 1954 No. 50."

The self same document also requires future applicants for both "A.O.C.P." and "Limited A.O.C.P." to pay one pound examination fee.

An imposition that we know will not in anyway dampen the enthusiasm of the genuine candidate.

To turn to the bright side of the picture, we remind A.O.C.P. candidates who failed in Morse Code only since January, 1953, that they are now eligible for Limited A.O.C.P. and should make immediate application.

Many technically capable enthusiasts who lacked marse qualifications now have the opportunity to show their ability and keenness. Undoubtedly in the near future the v.h.f. bands will become densely populated by a new race of keen experimenters. It is from the ranks of these men that the C.D.E.N. will draw most of its personnel in future national emergencies. So give them every encouragement chaps!

FEDERAL EXECUTIVE.

Figure 2: A 1954 Editorial from Amateur Radio advising of the new Limited Operators Certificate (From the records held by the WIA Historian).

# PSK31 QRP is great fun

Grant McDuling VK4JAZ

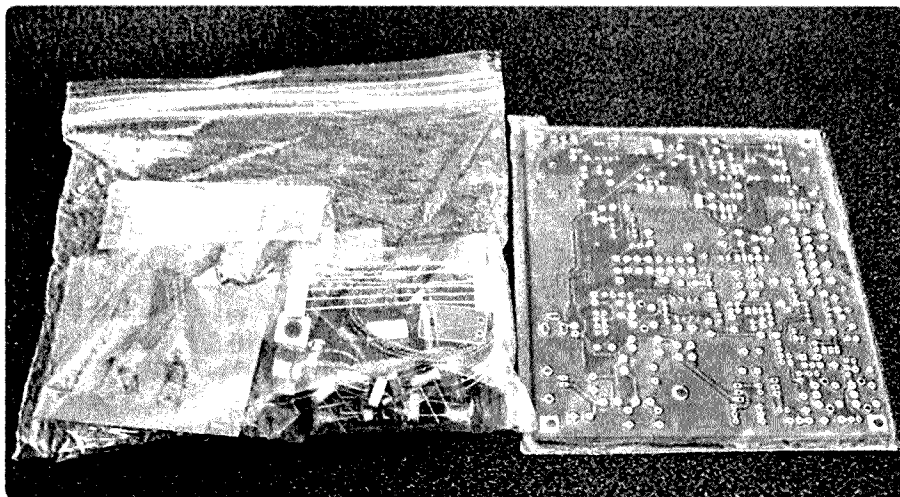


Photo 1: The PSK31 kit as it arrived from Small Wonder Labs.

QRP has long been a passion of mine, not only because of the challenge of communicating with someone far away with as little power as possible, but also because it allows me to build my own rigs that I can use to achieve that. This ensures I can delve into electronic theory and keep some of the work I did when studying for my licence from becoming lost in the mists of time.

I have also always been fascinated by computer technology and the thought of being able to combine radio with computers not only seems logical to me, it also is hugely enticing. Being able to work the digital modes with a QRP rig rapidly rose up my wish list, to the point where I had to action it and make it happen. So I turned to the internet once more and ordered a PSK31 kit from Dave Benson at Small Wonder Labs ([www.smallwonderlabs.com](http://www.smallwonderlabs.com)) in the US. Dave is, of course, a legend in the world of QRP kits, having made his name with the ubiquitous RockMite 500 mW kit.

After a short wait, the kit arrived and I was delighted at its quality.

The double-sided PCB measures 13.4 cm x 11.7 cm (5.27" x 4.6" in the old language), has plated-through-holes and is solder masked/silk screened for easy assembly. The 24-page instruction manual, which

is extensive and professional and includes colour figures, came on a CD. It was thorough and easy to follow.

Building this little beauty was really easy. In fact, it was the easiest and most straight forward kit I have built to date. No fancy tools or test gear was required and there were no surface mount components to worry about – the single surface mount component was already soldered to the PCB. I particularly liked the fact that there were only four toroids to wind! Once built, the number of adjustments required to tune the rig was minimal and easy to do. The rig also has no harness wiring to worry about. All interface connectors mount on the rear of the circuit board.

One of the features that attracted me to this rig is the fact that it is directly compatible with my computer. No extra interface unit or TNC is needed; once the transceiver kit is assembled, it's 'plug-and-play',

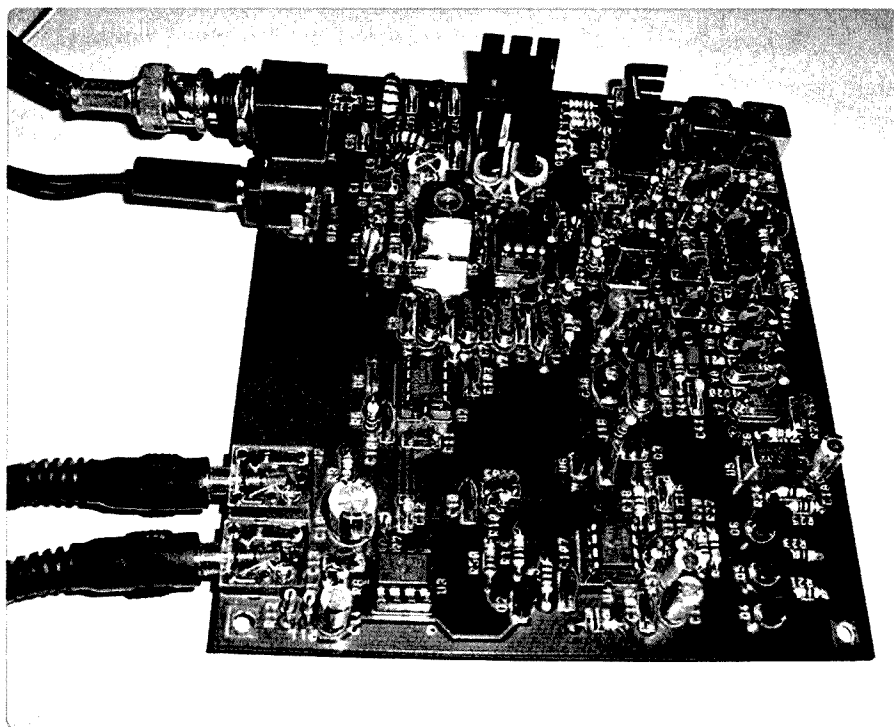


Photo 2: The completed circuit board undergoing testing on the bench.



Photo 3: The finished unit in its neat box on the shelf in the shack.

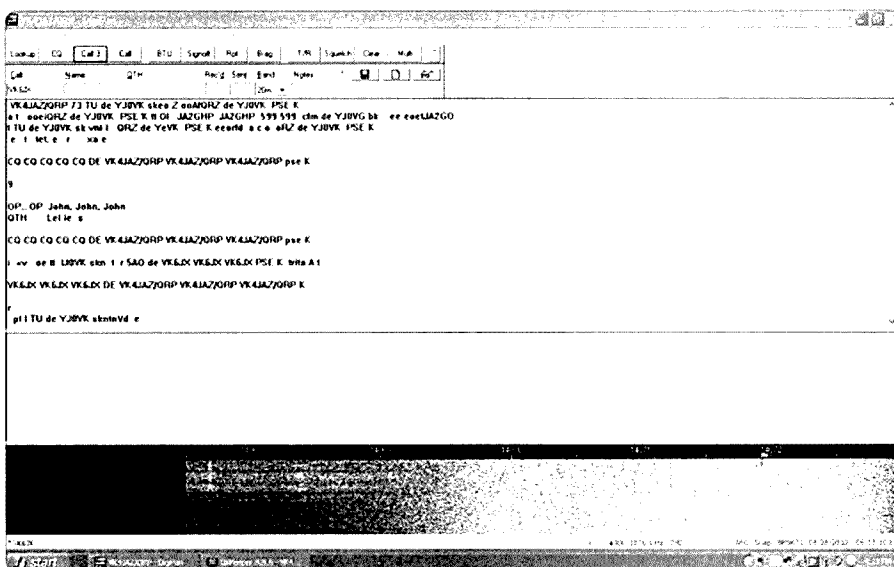


Photo 4: A screen shot of the DigiPan software in operation.

with all operating adjustments being made via the computer. Just hook up the rig to the Microphone In and Line Out sockets of any computer or laptop, using standard stereo cables (I bought mine for \$2 each from the local dollar-type shop). Power of between 12 V and 15 V needs to be supplied via a 1 A regulated power supply.

This has got to be one of the easiest, and most satisfying, kits on the market to build. All that was needed once the build phase was complete was to add a computer (with free DigiPan software) and a 50 ohm antenna and I was on the air with PSK31 in no time at all, with no drift, no VFO tuning and no fuss!

The Small Wonder Labs PSK31 rig is crystal-controlled and has an output power of three to four watts PER. The crystal control provides excellent stability and its simplicity keeps the cost low. The rig I chose to build was the 20 m version, but they are available for the 30 m and 40 m bands as well.

The completed kit slips into a very nice and professional looking metal enclosure, which is one of the best I have seen. I use my little PSK rig on a daily basis now, and even though 20 m has not been the best band for QRP operation lately, I have staggered DX operators in Russia, Japan and the US with great signals. It continues to amaze me as well as those I meet on the keyboard.

## Over to you

Dear Editor,

I enjoyed reading Warren Stirling VK3XSW's *An 'SGC-230' autocoiler repair* article in the October 2011 issue of *Amateur Radio*.

In a previous job I was responsible for repairing couplers like these, and it was good to be reminded of their layout and workings – thank you Warren.

I also worked on the later version of SGC230, which has a similar LC and relay arrangement, but very different microprocessor circuitry. If one of these is encountered which fails to tune

at all, the fault may be the failure of one or more surface-mount diodes – D4, D9 or D10. Replacement with BAV70 or BAV99 type diodes is one possible remedy for such problem.

Warren's article refers to the use of a 100 W, 2.2 ohm resistor as a dummy load – I can advise another effective dummy load is an old-style 240V incandescent light globe. From experience, a 60 watt version worked well from 2 to 30 MHz when connected with short leads across the coupler's antenna and earth studs. Cheaper than the resistor, and with the added bonus of a visual indication when the coupler is correctly tuned.

These globes are becoming harder to obtain with the advent of compact fluorescent and energy-efficient models, however if you can locate one I recommend keeping it for test load use.

The re-badging of these couplers by local HF manufacturers is done in collaboration with SGC on an OEM basis, and both Barrett and Codan may be willing to provide technical assistance or supply parts for their versions of the couplers.

Best 73

Anthony Benbow VK6AXB [axb@iinet.net.au](mailto:axb@iinet.net.au)

# An unforgettable lesson

Alan Elliott VK3AL

My radio career almost came to a premature end. But let me start at the beginning.

In 1927 there were valve receivers but even the simplest valve set was far too expensive for us. For example, a three valve TRF set cost about 30 pounds (\$60). We had to be content with a crystal set, and even that cost Dad at least a week's wages. He assembled the set from a kit, put up a mast for the aerial and hammered a piece of water pipe into the ground for the earth connection. Suddenly we were in the new era of wireless reception.

To a small boy, the thrill of adjusting the springy wire in the detector to find a sensitive spot on the galena crystal whereupon the scratching sounds suddenly changed to music in the headphones cannot adequately be described. Music coming through the air! Surely this was magic! I was hooked. I do not have a photograph of our family crystal set, however by a strange coincidence we do have a photograph of the actual crystal detector from our first wireless set, thanks to Jim Gordon.

A few years later we acquired a three valve TRF set with a loudspeaker. The new set was called a 'Seyon' which was the name of the Australian manufacturer, Noyes Brothers, spelt backwards! The two valve plus rectifier set consisted of a regenerative detector, transformer coupled to a triode audio amplifier. This wireless opened up a new world for me.

Amateurs with special licenses were allowed to operate on fixed frequencies at the high frequency end of the broadcast band until noon on Sundays. I could hear four or five amateur stations from my home at Ascot Vale. I think the amateurs were also allowed to operate after the A and B stations closed down at night but that was past my bedtime.

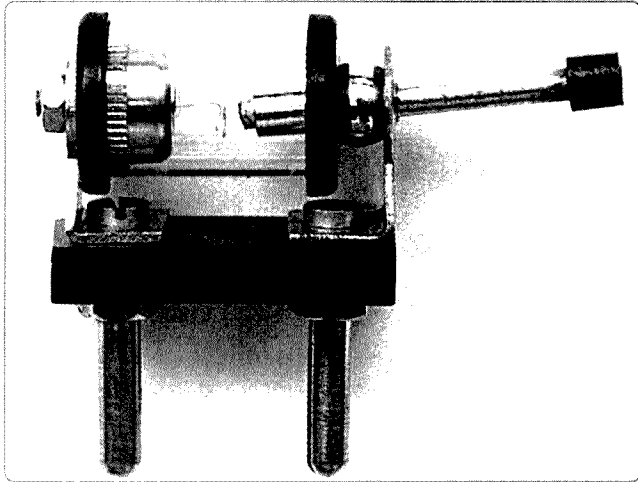


Photo 1: Our 'Cat's whisker' detector. Photo courtesy Jim Gordon VK3ZKK.

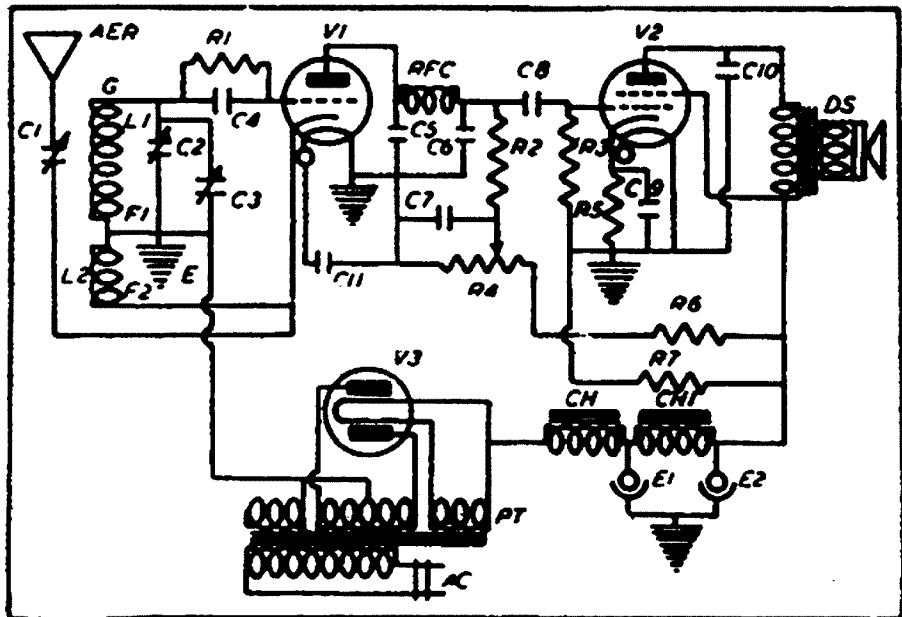
I am yet to discover the regulations under which the broadcast band amateurs were licensed. Alan Shawsmith mentions that they were limited to 25 watts DC input (1). They were licensed to play records and make station announcements but they were forbidden, as were other amateur operators, to make remarks about politics, religion and other sensitive subjects on air. I remember that the

broadcast band amateurs were highly regarded by the general public.

Given the low power and inefficient aerials of the amateur transmitters and our simple regenerative receiver it is hardly surprising that my success was limited, but trying to 'tune in' the broadcast amateurs gave me my first taste of weak signal reception.

Sometime in the middle 1930s I discovered that amateur radio operators were not only active on the broadcast band but were also to be found on short waves. I was given access to my cousin's five valve dual waver. I knew nothing about sunspot-cycles but it so happened that Cycle 18 peaked about 1937, coinciding exactly with these events. Propagation conditions then were excellent. Overseas shortwave broadcasting stations and

Figure 1: Circuit diagram of the electron coupled short-wave three-valve receiver.



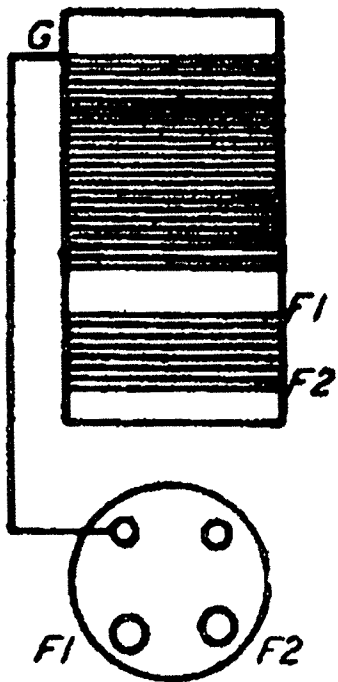


Figure 2: The coil layout.

amateur stations came in strongly. I was carried away on hearing the BBC, stations in the USA, Holland, Japan, Mexico and many other countries. This was my first taste of DX. It was heady stuff.

It was the amateur stations which excited me most. Often I could hear both sides of the contact and was fascinated by the fact that people could talk to each other across the globe from their own stations at home. I started to learn the amateur shorthand—QRM, QRN, QSO and

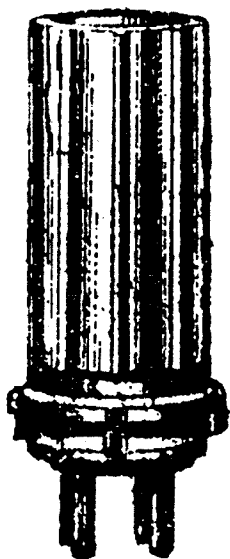


Figure 3: The Marquis coil former.

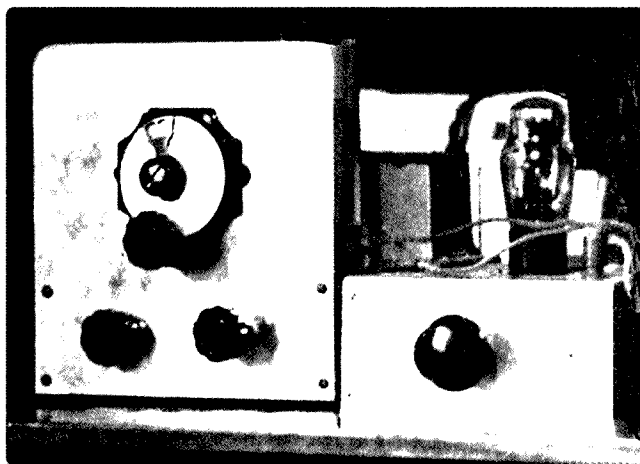


Photo 2: This is my home-made short-wave receiver and its separate power supply which almost brought a premature end to my career about June, 1938. Below the main tuning knob are the aerial trimmer C1 and the regeneration control R4. There is no audio gain control: the aerial trimmer served to control the volume. On the power supply chassis is the mains power switch. In those days there was no mains earth wire but I did have an earth connection to the water-pipe.

all the rest. I discovered that I too, could get 'on the air', but in order to do so I would have to learn the PMG regulations, radio theory, Morse code and pass an exam. I resolved to build a shortwave receiver but my pocket money was not enough to buy the necessary components.

I started work at the beginning of 1938, at age 16. With a weekly wage of 15 shillings (\$1.50) I had to rely on my parents for support but now I had a little more pocket money. I was attending chemistry classes at the Melbourne Technical College three or four evenings a week. On Friday nights when the shops were open I could be found haunting the radio shops in Swanston Street on my way to Flinders Street railway station. By buying cheap components at Veal's basement discount store I was able to gather together the bits and pieces for a short wave receiver featured in the *Listener-In* of January 22, 1938. The circuit consisted of a 76 triode regenerative detector, a 42 pentode power amplifier and an 80 rectifier. As valves were expensive the set was designed to be as simple and cheap as possible. An obvious shortcoming was that the lack of an audio amplifier valve between the 76 and the 42, but I did not know that. With no-one to advise me I

just followed the published circuit as closely as possible.

Before starting the project I made what seemed like a sensible decision. I put the power supply on a separate chassis so that it could be used for other projects. Constructing the set posed many problems. I had to make the chassis from sheet aluminium. Cutting holes for the valve sockets was difficult as I didn't have a socket punch so I drilled a series of

small holes in a circle, cut out the centre with a cold chisel and then filed the jagged hole to a smooth circle with a half-round file. Mounting the tuning condenser to a flexible coupling and the vernier tuning dial was another challenge. After assembling the main components I had to learn how to solder. I used Dad's soldering iron heated on the gas stove. Dad used 'killed spirit of salts' (1) as a soldering flux but fortunately I had found out that this was too corrosive for electrical circuits. I bought some resin-cored solder and gained some practice on scrap pieces of wire before working on my receiver.

I wound three coils on Marquis Bakelite plug-in formers exactly to the specifications given in the article. Eventually, after several weeks of spare-time effort my set was ready for testing.

I connected the aerial and earth wires, plugged in the 76 and the 42 valves, connected the heater and high tension wires to the power supply, plugged the power supply into the mains and turned on the mains switch. The valve heaters glowed a satisfactory red. So far, so good.

Next, I plugged in the 80 rectifier valve whereupon its filament too



Photo 3: Alan, age 17, with his home-made short-wave set, January, 1939.

excitement. I became an ardent short-wave listener, sent off reports and received verification cards in return.

Of particular interest was the BBC on the 30 MHz band, when sometimes there was an echo effect, apparently caused by the time difference between signals arriving by both the long and short paths. Listening to short-wave stations was interesting but it was essentially a passive hobby. It became clear to me that there was little incentive beyond listening to foreign stations (which in those days were particularly interesting because they often took a feed from a domestic program), and the logging of ever more elusive stations. I wanted more than that. I became determined to get an amateur transmitting licence so that I could have my own station.

I found *Amateur Radio*, the magazine of the WIA, and QST, the journal of the ARRL at McGills bookshop in Elizabeth Street and read them with interest. I started practising Morse code. In April, 1939 I bought the first issue of *Radio and Hobbies in Australia*, a magazine which had considerable appeal for electronics enthusiasts. Nothing was going to stop me from getting the coveted 'ticket' and joining the ranks of what was certainly a select group of enthusiasts. Then the war intervened and amateur radio was shut down. In 1946 I joined the WIA but other matters took up my spare time and it was not until 1955 that I obtained my limited license and the full call in 1956. Amateur radio opened new and totally unexpected vistas for me, but that is another story.

### Reference

Alan Shawsmith VK4SS, *The Story of Amateur Radio in VK4, Queensland, Australia*, 1987.

glowed red. This was all very promising except that no sound was coming from the speaker. I switched off the set and checked over the wiring. Everything seemed correct. This was very puzzling, but I had no-one to turn to for advice. Next day I tried again and this time something dramatic happened. When I inadvertently touched the front panel of the receiver with one hand and the chassis of the power supply with the other at the same time I got a massive electrical shock! I didn't tell my parents about this because they were already apprehensive about my playing with mains operated equipment. Why was there a big voltage difference between the two chassis? I did not have the faintest idea.

After thinking about this for some time the penny dropped. In departing from the original design I had made a serious and potentially fatal error. I had connected the two heater wires and the high tension lead but had not realised that an earth connection between the two chassis was necessary. With no earth return the open-circuit potential between

the two metal chassis must have been well over 300 volts. I could easily have been electrocuted. After installing an earth connection I was immediately rewarded with sounds from the loudspeaker—and no more shocks.

On turning the tuning control knob I was excited to hear an amateur phone station coming in loud and clear. That station was VK3LN, operated by Len Moncur about a mile away to the west. Len was on the 20 metre band in contact with a VK2 in Sydney whose signal was also loud and clear but fading up and down. It was a Sunday morning in mid-1938. I had to stop experimenting and go to church. I was impatient to get home and the sermon seemed even longer and more tedious than usual.

Soon I was listening to amateur stations from around the world as well as short-wave broadcasting stations such as KZRM in Manila, W8XK in the USA, HCJB in Ecuador, PCJ in Holland and of course the BBC on several frequencies. Receiving overseas stations on my own set! I could hardly contain my

## Coming Events

**6 November**

VK3 – Yarra Valley ARG Hamfest.

**20 November**

VK5 – AHARS Hamfest Goodwood Community Centre.



David Clegg VK5KC



Photo 1: Christine VK5CTY cuts the ribbon.

September 3rd was the official opening of the club 'Shack'. Much has already been written. Around 70 people attended the day, including the local Mayor and representatives from the Guides. The opening was carried out by Christine Taylor VK5CTY, XYL of the late Geoff VK5TY.



Photo 2: Roy VK5NRG and Barry VK5BW proudly display their Certificates of Appreciation.

Geoff was the longest serving Club President. Barry VK5BW and Roy VK5NRG were presented with Certificates of Appreciation for all their work in renovating the 'Shack'. Many members helped, but Barry and Roy played a major part in the work. Elsewhere in AR is an article by John Elliott VK5EMI covering the opening ceremony.

On September 10th and 11th the Club ran a Foundation licence training day, with an examination on the Sunday. Nine students attended with seven passing the Foundation exam and two passing the Standard licence. Congratulations to all. Thanks to Barry, Sasi, Paul and Kevin for their help.

On Saturday 17th 14 people gathered at the 'Shack' to modify old computer power supplies to work at 13.5 V, 20 A. Several were successful on the day with the rest to be finished at home. On Saturday 24th around 40 members and spouses gathered at the 'Shack' for breakfast. An enjoyable morning was had by all.

Our September meeting was presented by Barry VK5BW on his vector analysis unit, which he built from a kit. This unit displays graphs in real time for VSWR, filter bandpass and antenna bandwidth. Thanks Barry for a very well presented lecture.



Photo 3: Barry VK5BW and Alf VK5AJF and the vector analysis of his loop antenna.

All AHARS meetings are recorded and are available as a DVD from the Club for \$10 posted. Trevor Quick VK5ATQ spoke on his life in amateur radio.

The Club will be involved in JOTA and JOTI in October and will host the Buy and Sell on Sunday, November 20th at the Goodwood Community Centre. Doors open at 9 am for buyers and selling commences at 9.30 am.

The club Christmas lunch will be held on Sunday, December 4th at the Mt Osmond Golf Club. Book and pay early to save money.



Photo 4: The AHARS power supply modification day.

# ALARA

Margaret Blight VK3FMAB – Publicity Officer

ALARA's mission is to encourage women's interest and active participation in amateur radio. ALARA was formed in 1975 by a small group of Australian ladies interested in amateur radio. Membership has now grown to over 200, with many Australian members sponsoring overseas YLs into ALARA. The term 'YL' stands for 'young lady' – regardless of age. The following information may encourage members, who have not been active on radio for a time, to join in on the ALARA net and other activities to reconnect with other female operators who will be very encouraging and welcoming.

## ALARA travels

This year has seen many ALARA members spread their wings and travel both within Australia and overseas. It is good to hear their stories. Space does not allow publication this month, but hopefully we can publish some from time to time.

## News from VK5 – Christine VK5CTY

Over the weekend of 17/18 September, Jenny VK5FJAY, her OM Kevin VK5AKZ and Christine VK5CTY attended the North Queensland Radio Convention in Chartres Towers. They had met most of the members four years before when the Convention was held in Townsville so they were greeted as old friends.

There was a Get-Acquainted evening on the Friday, and official registration the next morning. The mayor of Chartres Towers opened the meeting with a story from his childhood. Only a matter of weeks after the Chartres Towers Flying Doctor service was opened he became very ill on the station where he grew up. There was no plane yet but they had been provided with a medicine kit and a radio. Under instructions from the doctor-on-air



Photo 1: L-R: Helen R, Jean VK3VIP, Muriel M, Margaret VK3MAB, Robyn VK3WX, Pat VK3OZ, Elaine VK3EQY, MEG VK5YG and Kathy VK3XBA.

Net	Day	Time	Frequency
ALARA	Monday	1030 UTC <sup>1</sup>	3.580 MHz +/-
YL 222 DX	Monday	0530 UTC	14.222 MHz
YL Activity day	6th each month	On hour. Call 'CQ YL'.	14.288 MHz <sup>2</sup>
Birthday Net	4th Sat July	1000-2000 UTC	3.588 MHz +/-

<sup>1</sup> During daylight saving, 1000 UTC.  
<sup>2</sup> Also found on 21.188 MHz and 28.588 MHz.

the family was told to treat his fever with sulpha drugs, identified by number. He recovered fully from what was later diagnosed as Rheumatic Fever! He was possibly one of the first children to be given that 'wonder drug'. It is no wonder that he is well-known for raising funds for the Flying Doctor each year...

Later in the morning there was a visit to a museum filled with family and farm type items from bygone days, all set up by a Zara Clark. Everyone who visited the museum found something of particular interest.

We also visited the Historic Ambulance Museum which has a patterned tin ceiling that is particularly beautiful. This was of special interest to Jenny, a member of St John for 40 years, and her OM who was a member for about 20 years. We were told that there is a similar ceiling in the Target store in the main street. Well done for preserving such treasures.

Of special interest of us all was the gold processing plant we visited on Sunday. There were several very modern displays of 'the Ghosts of the Mining era'. Until just a few years ago this plant was virtually derelict as the refining of gold is now done in Townsville. The man who led us around has done a lot of research to make it an extremely interesting tour- he had spent his working life as a station hand.

There are now only two members of ALARA in the North Queensland radio club, Lyndall VK4ZM and Cheryl VK4RYL but there were a number of XYLs participating in the Meet who clearly know each other well, just as over 30 years ago the YLs and XYLs who formed ALARA. Maybe some of them will decide to join the YL International MEET and go on the Ghan, too.

The main venue for the Conference was the local RSL Club and they turned on some very good meals for us and made us

very welcome. I am told the Boot Sale went well and that TET-Emtron and Navcom Electronics certainly generated a lot of interest.

There was a competition for home built equipment which attracted a number of interesting entries, a competition for garden produce which only had one entry, a positively enormous bowl of parsley, and a craft competition for the ladies. Jenny VK5FJAY won the third prize with her tatting – which she had only learned a few weeks earlier. We may see you in two years.

### VK3 News

On September 10th Meg VK5YG and her OM David were greeted by a number of ALARA members at a luncheon at the Mountain View Hotel in Glen Waverley. Meg and David were in Melbourne on the last leg of a lengthy tour overseas. Meg admitted they had not been

home since June and they were both looking forward to finally returning to South Australia. The lunch was a great success and it was very pleasant to see some members present who sometimes found it difficult to make the bi-monthly ALARA lunches. This gave everyone plenty of opportunity to catch up on the news and the conversation flowed happily.

### ALARA lunch

On 24th September the ALARA lunch was held at the Society Restaurant in Melbourne. As the venue was close to Parliament railway station it was possible for most of the attendees to travel by train, saving the worry of trying to locate a car park. The exception to this was Cristina VK3FCRS who spent the previous night at

a city hotel to celebrate her wedding anniversary with OM David, who also celebrated his birthday. Our congratulations went to them both. Everyone enjoyed a very pleasant meal and we look forward to our final get-together for the year which will be our Christmas lunch. Our host for the day will be Susan VK3UMM who will open her home for the occasion. We look forward to seeing a good number of ALARA members there.



Photo 2: The ALARA VK3 September lunch.

## VK3news Yarra Valley Amateur Radio Group

Brian Andrews VK3YBJ

The Yarra Valley ARG is a small friendly Club located at the Yarra Glen Scout Hall, Steels Creek Road, Yarra Glen. The rooms have an excellent site for the erection of antennas, and this has been an ongoing work in progress. There has been a renewed interest in contesting this year, due to newer club members getting involved. Each event has had its share of little problems with cross band interference, and a good but not perfect field day site due to trees.

Now that we have a caravan for operations, even the Winter VHF/UHF event is not too uncomfortable.

What we need now is more people to talk to, otherwise the call of a nice warm campfire is too much temptation for some members. Our meetings are held on the 2nd and 4th Tuesdays at the clubrooms.

The Yarra Valley ARG will be holding its next Hamfest on 6th of November, 2011 at the Garry Cooper Pavillion in Anzac Avenue, Yarra Glen.

Due to ongoing problems with the February Date and clashes with Wyong and AR Vic. Hamfests, the committee has decided to move the event to November each year. Rather

than miss a year before the change, we have reset the time for this year.

As the event has always been well supported at the Healesville Hall, the move to the Yarra Glen venue has been necessary due to lengthy building works at our usual venue. Table prices will stay the same for this year, and a warm welcome is extended to our usual trade and private traders. So come along and see us in the Yarra Valley on Sunday 6th November 2011.

## VKLOGGER

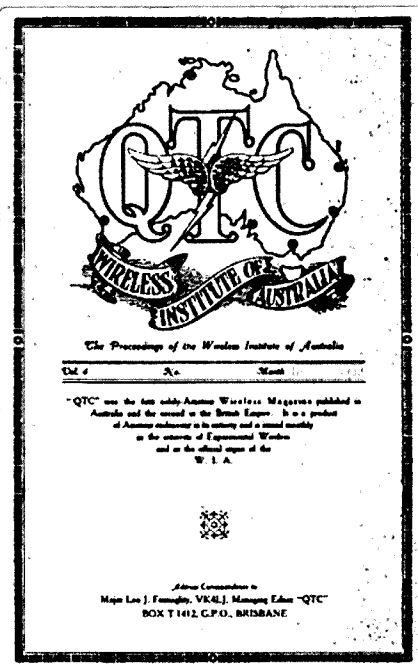
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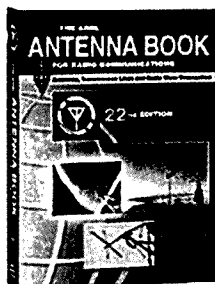
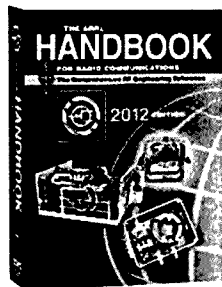
# Hamads

## WANTED – NATIONAL



### Early copies of QTC magazine.

The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves. QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire! The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only. Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.



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Antenna tuner Daiwa, 200 watts PEP, crossed needle type, frequency range 3.5 to 30 MHz. Ser No 07304. Going for \$75.00.

Transceiver, Icom IC-718, 100 watts, fitted with DSP module, covers all HF bands including WARC. Complete with hand held microphone, Icom HM38 and comprehensive manual. Serial No 12216, and priced at \$675.00.

Power supply, 13.8 VDC 15 A continuous, 17 A on 50% duty cycle. Made by Powertech, Serial No N16511. For sale at \$120.00.

Two metre HH, Quansheng, with charger and handbook, Serial No 8008070138.

For sale, \$55.00.

Sell complete or will separate, buyer to arrange collection or delivery.

Contact Laurie VK3BV, phone 03 5975 0306 or email [shirlau@netbay.com.au](mailto:shirlau@netbay.com.au)

## WANTED – VIC

Any documentation for the Philips RCL Bridge, model PM6300 – but preferably a manual or schematic. It needs a bit of attention, but I have been unable to locate a schematic.

I am also interested in purchasing a capacitor tester/reformer for electrolytics (as distinct from paralytatics). Perhaps similar to Hallicrafters HC-1 or Heathkit C-3 or IT-28.

Contact Mike VK3KRO, QTHR.

Email: [vk3kro@yahoo.com](mailto:vk3kro@yahoo.com) or phone 0417 358 751.

## FOR SALE – NSW

VK2AYL is no longer able to go on the air, having moved into a nursing home for good.

I have for sale an IC-7400, model 107400, S/N 01449, priced at \$1500.00. Call my son Peter, on 02 4981 7173, for the location of the transceiver.

Thanks - Stan VK2AYL.

## WANTED – NSW

Icom IC-260 (2 metre all mode transceiver) service manual. In any condition, original or photocopy OK. Please contact Chris VK2CY QTHR, or [vk2cy@wia.org.au](mailto:vk2cy@wia.org.au) or phone 02 97631407 anytime.

## FOR SALE – SA

Christmas is coming soon. Shout yourself, or get the significant other to get you a great present. The VK5JST Antenna Analyser kits are available through the South Coast Amateur Radio Club. Get in early as stock goes quickly at this time of the year. See [www.scarc.org.au](http://www.scarc.org.au) or contact SCARC, PO Box 333, Morphett Vale, SA. 5162. Alternatively email [kits@scarc.org.au](mailto:kits@scarc.org.au)

### "Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the **Radio Amateurs Old Timers Club Australia**



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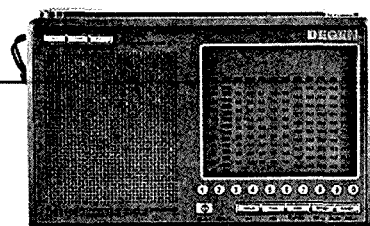
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## The Amateur Service

... a radio communications service for the purpose of self training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique with a personal aim and without any pecuniary interest.

56 ITU Radio Regulations

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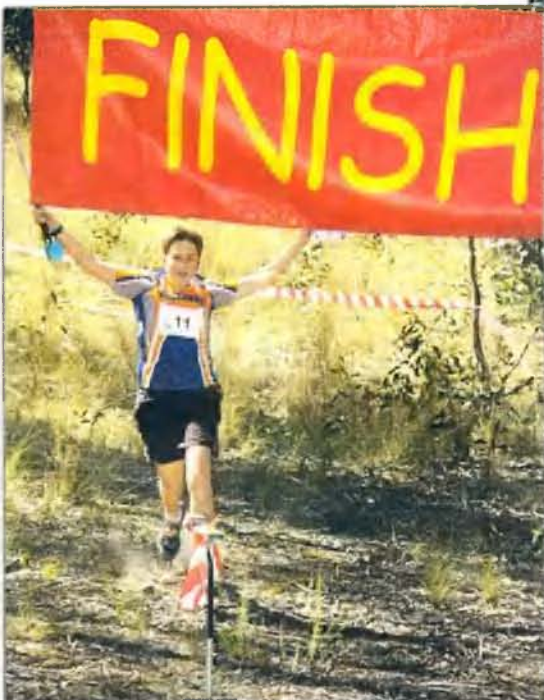
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\*Denotes Committee Chairman

\*Denotes nominated by the WIA Board  
("Nominated Member")

## ARDF action



Darian Panter VK3FAST, Australian Team Leader.



Bryan Ackerly VK3YNG.

Bob Cooley KF6VSE shown here in the 80 m event. Bob took gold in the M65 Category (competitors 65 years plus).



\*ARDF Competitors test out their 80 m receivers at the Model Event.

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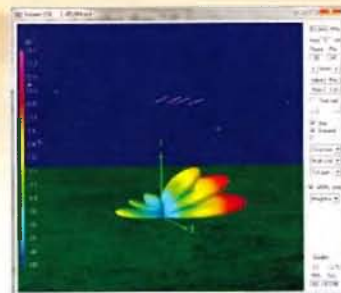
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*Season's Greetings*

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# Amateur Radio

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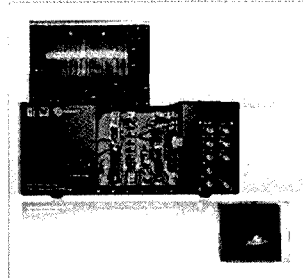
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### This month's cover

In this issue, Justin Giles-Clark VK7TW presents an overview of modern communications technologies and techniques, based on his presentation at the Centenary Conference in May 2010. The main images are a photo of Justin's High Performance Software Defined radio (HPSDR) transceiver and a screen shot of the PowerSDR software. Images by Justin Giles-Clark VK7TW. The inset photo shows the predicted radiation pattern of the four element Yagi for 6 m designed by Paul McMahon VK3DIP.

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## Contributions to Amateur Radio



Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The

WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

### Back Issues

Back issues are available directly from the WIA National Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

### Photostat copies

If back issues are unavailable, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

### Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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# Editorial

Peter Freeman VK3PF

## Another year almost gone

Here we are with the December issue – where has the last year gone?

The Publications Committee has been busy all year. We had the *Callbook* out more or less on target, but we are reviewing the entire production process in an attempt to see if we can identify sticking points. We anticipate having that review completed this year so that we have a refined production schedule for the next edition.

More significantly, we are overall very satisfied with the results across the year with respect to *AR*. We moved the production process to a new publication house this year – Fontana Design. The principal of Fontana Design is Sergio VK3SFG, who introduced a new layout style and has worked hard with the Publications Committee throughout the year. We have observed occasional minor hiccups with the printing process used, but generally have been happy with the magazine overall. As always, the Publications Committee will review our production options over the next few weeks to see if we can achieve even better results in the future within our allocated budget.

## Amateur radio features in technical press

An interesting overview of modern amateur radio appeared in a recent issue of the technical trade journal *EDN* magazine. The article "Ham radio in the 21<sup>st</sup> century" was written by Doug Grant K1DG. The author begins by pointing out that Marconi can be considered to be an amateur. He then moves on from the beginnings of our hobby through to the current state of the art. It makes for an interesting read, even if the focus is on activities in the US. You can read the article online at [www.edn.com](http://www.edn.com) – search for "ham radio" and it should come up in the search results, along with some other interesting reading.

## In this issue

We have two articles this month that are a result of the Centenary celebrations last year: A review of the Centenary activities by WIA Historian Peter Wolfenden VK3RV, and a paper based on one of the presentations made at the Symposium held in association with the AGM – Justin Giles-Clark VK7TW gave a very interesting overview of modern communications technologies and techniques, and we are pleased to publish his written report in this issue.

## Season's greetings

On behalf of the Publications Committee, I extend season's greetings to all. Thank you to all our contributors over the past year. Without the regular columns and club news contributions, and the many articles submitted, we would not have a magazine that seems to have broad support across its readers.

We look forward to providing the magazine again in the New Year. Remember that the January and February volumes are published as a single combined issue, due to be available in late January 2012.

I do have a little bad news for those who buy the magazine from the newsstands: it has been decided that the cover price will increase to \$8.00 per issue, commencing with the January/February 2012 issue. This once again means that it will be cheaper to be a member of the WIA than to buy every issue of *AR*. Not to mention that you will receive other membership benefits and contribute to the work of the WIA in supporting your operating privileges.

Cheers,

Peter VK3PF





# WIA comment

Michael Owen VK3KI

## Has the Club Grant Scheme run its course?

Meeting at the home of the late Chris Jones in Menai, near Sydney, on 8 and 9 April 2005 the WIA Board decided in principal to establish a Club Grant Scheme, initially allocating \$1,500 for the 2006 year, but soon increasing the amount to \$5,000.

In a carefully considered approach it was decided to support useful and or innovative projects to be undertaken by affiliated clubs. Later, the Rules initially adopted were amended to allow different categories of projects that were useful and or innovative to be specifically identified by the Board.

The Rules required the Board to appoint a Grant Committee of three to recommend grants to the Board. The Rules say that *"The Board shall give preference to appointing members who come from different geographic areas and who by reason of their occupation or experience are likely to be generally respected by the amateur community and have experience relevant to their obligations under these Rules ..."*

The task of the Grant Committee is not easy, with their Report to the Board to include:

- (i) A brief summary of each of the Applications it has considered;
- (ii) A detailed description of each Proposal (if any) it recommends be supported, setting out its reasons;
- (iii) The amount of Grant it recommends be made for each Proposal it recommends be supported (in total not to exceed the Grant Amount).
- (iv) Any other fact or matter that the Grant Committee considers should be brought to the attention of the Board.

This approach provides guidance for the clubs considering making applications for a grant and ensures an open and transparent process.

All the Grant Committee Reports to the Board, other than the very first report, are on the WIA website, together with the current Rules.

In the first year, 2006, the Grant Committee, Ken Fuller, Deane Blackman and Wally Howse, reported that some 18 applications for grants had been received and made recommendations for grants and suggestions for the future of the Scheme to the Board.

Since then the Board has identified specific categories of projects that it will support and the maximum amount of grants for a year has increased to \$6,000.

In the five years from 2006 to 2010 the Grants Committee has recommended some 36 separate projects be supported by grants totalling \$27,180.

Obviously, while the WIA wishes to support useful and or innovative projects by clubs, it also has regard to the number of WIA members in a club.

It does not make a lot of sense to support clubs that do not support the WIA. The Rules provide that, except in the case of a project having particular merit, at least 50% of the members of the club who are amateurs must also be members of the WIA to receive a grant, and the Grant Committee is encouraged to have regard to the number of WIA members in a club when considering recommending a grant.

This year the Board decided that the WIA would support projects falling into two categories, namely projects and activities to be conducted before 1 June 2012 to attract new amateurs, but focussed on people under 25; and amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

The 2011 Scheme was advertised in the June issue of *Amateur Radio*, with applications to close on 25 July.

To our surprise, only three applications were received.

One club, for reasons that seemed to me to be quite valid, sought an extension of time to lodge an application that it had planned to lodge.

Given the few applications received, it seemed reasonable to accede to that request, but if we were to accede to that request, it seemed unfair not to allow an extended period for all clubs, and so if we were to accede to that request it also seemed reasonable to allow further time for all clubs, and so the time limit was extended to 9 August.

With hindsight, that may have been a mistake and may have encouraged some projects to be put together in too much haste.

On the other hand, only three applications certainly does imply that there is now little interest in the Scheme.

I think that a number of comments can be made about some of the applications in the last year or so, and in particular some proposed projects really represent ordinary and routine expenditure and some projects are proposed that are very remote from the categories of project that have been identified.

In fact, and particularly disappointing, no project was proposed this year that addressed the category we had defined of amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

Has the Club Grant Scheme run its course?

Continued on page 5

## Club Grants for 2011 announced

The Board of the WIA has accepted the recommendations of the 2011 Club Grant Committee and announced the successful applications.

Two categories of project were identified that the WIA would support this year. The first category was projects and activities to be conducted before 1 June 2012 to attract new amateurs, but focussed on people under 25 and the second category was amateur radio projects that are useful and innovative and that utilise both information technologies and radio communications.

No projects were proposed by any club that fell into the second category.

The Oxley Region Amateur Radio Club will be supported by a grant of \$1,500 to support a mobile shack as a promotional tool to attract new members, for Field Days and emergency communications within their local area.

The Brisbane Amateur Radio Club will receive a grant of \$600 to help them to improve the quality of their meeting presentations using digital projection equipment.

The St George Amateur Radio Society Inc. will also be supported by a grant of \$600 for a basic trailer to be converted into a mobile display and field operations unit.

The Sunraysia Radio Group will be supported by a grant of \$1,000 to support their work promoting amateur radio to the Scout Districts in the Mildura/Wentworth area.

The Adelaide Hills Amateur Radio Society will receive a grant of \$600 to support building on the established

training room by the addition of training aids and a number of kits.

The Illawarra Amateur Radio Society will be supported by a grant of \$900 to provide a projector and basic transceiver and antenna to supplement existing training aids for classes.

The full report of the 2011 Grant Committee can be found on the WIA website.

## Submissions close to the NSW Planning System Review

Many amateurs have lodged submissions to the NSW Planning System Review, proposing radio masts, antennas or aerials for use by licensed radio amateurs be classified under exempt or complying development.

The submissions lodged by radio amateurs appear to easily outnumber the submissions received on any other issue, so it appears certain that this issue will be considered.

The NSW Planning Review will publish an Issues Paper in early December which will cover the ideas and feedback received during the initial consultation phase. Further feedback and comment on the Issues Paper will be invited to be received by Friday 17 February.

The WIA lodged its own submission and that may be viewed on the WIA website.

WIA Vice President Phil Wait thanked the NSW Advisory Committee for their support, all the amateurs who lodged submissions and in particular acknowledged Roger Harrison VK2ZRH for his valuable assistance on this issue.

## WIA National Field Day 2012

The dates of the next WIA National Field Day will be the weekend of the 14th and 15th of April 2012. This

will provide two days of possible operation and is in response to the requests from some club for some flexibility to suit their local community with operation on either the Saturday or Sunday. This is not suggesting that the clubs would need to operate their displays over the two days unless they wanted to.

Advertising material will require a little customising by local clubs to match the times and date of the local activity. Acknowledging valuable feedback from clubs, some changes to the rules and guidelines of the 2012 event will be advised to support the two days of operation of this event as it is certainly not a traditional amateur radio contest. The rewarding or recognition of clubs who take pride in their preparation and presentation will still be encouraged.

The objective of the WIA National Field Day is to positively place the hobby of amateur radio in front of the general public, to provide various clubs with an opportunity to promote their activities and increase the awareness of amateur radio training opportunities, either via the local clubs or the amateur radio fraternity as a whole.

The event will continue to be coordinated and managed by a small committee. In September, anyone interested in joining this committee were invited to contact the WIA through the appropriate State WIA Advisory Committee prior to the 28th of October 2011.

The chair of each Advisory Committee was asked to forward these nominations during the first week of November to the WIA office.

Former committee members are welcome to nominate if they wish to continue in this role.

## Try VHF/UHF Contesting

### ► Ross Hull Memorial VHF Contest January 2012

Do you have a transceiver with any of the VHF or UHF bands in addition to HF? Then have some fun during the upcoming VHF/UHF events. Listen around in the band segments xxx.150 - xxx.250 MHz (where xxx = 50, 144, 432 or 1296) on USB.

You may be pleasantly surprised at what you can work! Support the contest by submitting an entry.



Is there now little interest by clubs in projects of the kind that could attract grants?

Or, was it just a combination of unrelated factors that resulted in a coincidence of so few applications this year? Or, is the way we are conducting the Scheme a problem? Can we change the process, the timing, or something else to make it more attractive to clubs?

The Board will not make a decision about continuing the Scheme until it meets at Mildura after the Open Forum at the 2012 WIA Annual Conference.

We invite all clubs to make written submissions on the matters I have raised, and to send them to us. In order to ensure balance, we encourage positive as well as negative reactions to the Scheme as it is now.

We will circulate all submissions we receive with the Open Forum reports that we will send to everyone who has registered for the Annual Conference so all views can be taken into account when it is discussed at the Open Forum.

Then, the Board will be in a position to decide the matter.



## NZ Amateur of the year 2010, and now VK2DWS

David W. Searle VK2DWS

Editor's note: At the June 2011 NZART Conference held in Wellington, President Roy Symon ZL2KH announced that the NZ Amateur of the Year for 2010 was David W Searle ZL3DWS. This was in recognition of "the tremendous results he achieved in his ZL3 Radio Buildathon projects."

In accepting the award David commented: "If we each share our enthusiasm for a great hobby with just one young person, their interest in radio, communicating and electronics could last a life time."

Following a swarm of damaging earthquakes in Christchurch, I relocated my family to North Bondi, Sydney, in March, 2011 and am greatly enjoying and appreciating the warm support and friendship of the Waverley Amateur Radio Society (WARS - [www.vk2bv.org](http://www.vk2bv.org)), Sydney's oldest radio club. They are a wonderful lot.

I left Christchurch with XYL Mary and pregnant daughter Angela in rather a rush in March, because they could not tolerate the effects of the earthquakes any longer. The contents of our family home of 14 years were condensed to just seven tea chests. All my amateur treasures plus 14 years of amateur junk was given away before leaving: We could not afford to ship it. Some of it really was junk though! It is amazing what you gather over 14 years.



David ZL3DWS, NZ Amateur of the Year 2010, and now VK2DWS, at the Waverley ARS station. Photo courtesy of Daniel VK2FDGW.

Upon arriving at WARS I was made very welcome and was lent the gear I needed by the club. I was overwhelmed. For each club meeting and event, Raffy Shamma VK2RF picks me up and returns me home. I was pretty shell shocked upon arriving in Sydney and the friendships started and the support extended by WARS has meant

the whole family has settled in much quicker. It illustrates just how universal our hobby is and how welcoming are Australian amateurs.

I am now proud to be an active contributing member at WARS, having delivered a talk on "The Secret Listeners" at the June meeting.



# Science Alive

Paul Schulz VK5FPAW

On the weekend of 4-6 August, the Elizabeth Amateur Radio Club ran a booth at Science Alive, the South Australian premier science education event. This event is held at the Adelaide Showgrounds and kicks off the National Science Week activities in South Australia.

This was the first year that the organisers were going to charge for admission, something forced on them by the economic climate, and it was uncertain as to how this would affect attendance. The weather was also inclement over the entire weekend, which may also have affected the attendance. Regardless of this though, the organisers estimate that 24,000 people passed through the doors of the three day event, including 2,500 high school students (on the Friday) and 16,000 under 18s on the Saturday and Sunday.

The booth display was setup to cover a broad range of amateur radio activities and visitors were encouraged to get involved with radio in various ways. This may have either been by having a go at the Morse code keys or having a chat on



Photo 1: Booth display – Codan HF manpack, Yaesu FT-817, Morse keys, documentation and laptop for decoding the Morse transmissions.

SSB on a couple of HF radios across the booth. There was also a 'radio shack' setup and a display featuring amateur radio satellites, including the recently launched ARRISat. It had just been pushed out of the International Space Station!

The Morse display consisted of a couple of simple brass strips, connected to tone generators.

Young kids could quite happily bang away on these, and often, almost to the point of exasperation, they did. For those that were a little older, creating Morse code, which a computer could then decode proved to be more engaging, particularly when, with a little bit of practice, it was possible to actually get consistently readable results.

A Codan HF manpack radio had been kindly supplied for the event by Codan. Manufactured in South Australia, this radio was used together with another HF radio and some dummy loads to communicate across the booth on SSB. Kids got a kick out of being able to talk to siblings, parents and friends via this technology, particularly when shifting off frequency caused the pitch of the transmission to alter up and down. It was a good chance to give people an introduction to basic radio techniques. Asking the kids what they were enjoying at the show also gave them the opportunity to reflect on why they were at the event.

For those people who were familiar with amateur radio of the past, a display of more modern AR satellite and related equipment was also on

Photo 2: People at the booth. An Arrow antenna and ACMA spectrum allocation poster can be seen in the background.

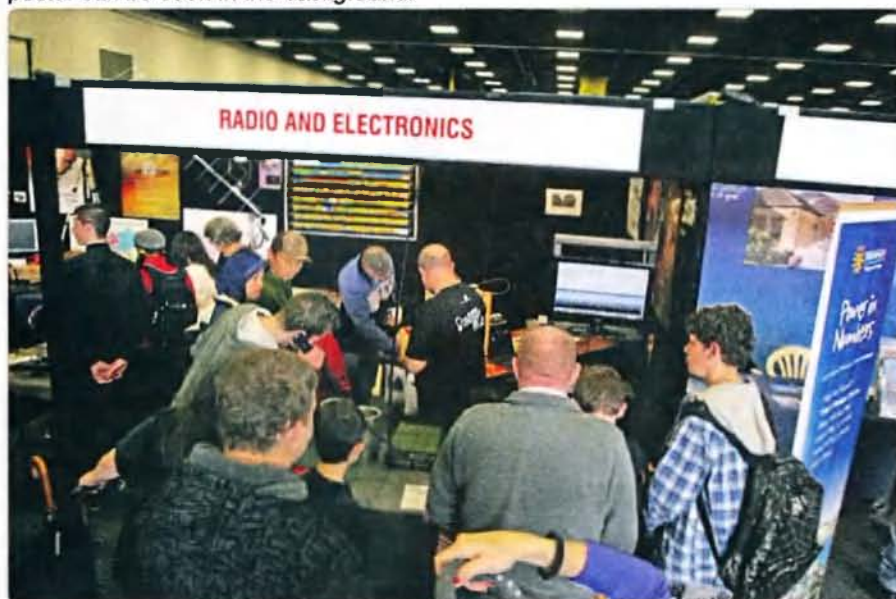






Photo 3: Bob VK1ZRE talking to the public, with the crowd in the background.

show. A computer ran satellite tracking software, showing where some of the AR satellites were currently located. It was not possible to hear the signals or make contact with them due to the steel roof of the building, but we could point out the arrow antenna and HT as all that was required to get started. A FUNCube dongle was also on show which often led into discussion about the AMSAT-UK's project to launch a Cubesat (FUNCube-1).

There were some displays that did not quite work as expected.

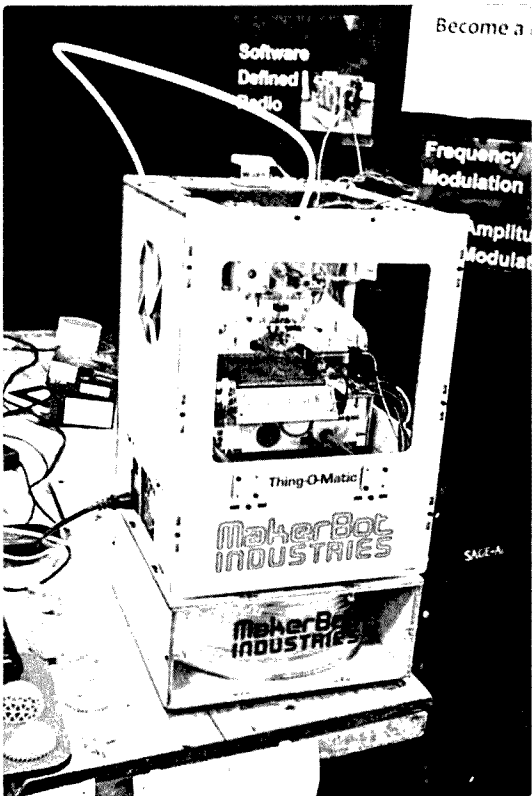


Photo 4: Makerbot – The type of objects that it can print can be seen on at the lower left.

There was quite a bit of trouble getting the APRS system working correctly at the site, even though it had worked flawlessly on the bench.

Finally, on a slightly different tangent, the booth was called 'Radio and Electronics' and we had asked another Adelaide group

called 'HackerSpace' to join us on the booth. These guys describe themselves as 'a knitting circle for nerds'. They dabble (hack) on electronics and one of their members had brought along their 'Makerbot'. This is a 3D printer or rapid prototyper that creates small objects by extruding plastic, and building up shapes as a series of layers. While there was no direct radio relationship, it was a very attractive feature in the booth and together with the rest of the display gave both groups the opportunity to engage people who may otherwise not have shown interest.

Time will tell, but there were a couple of good connections made, with up to five people who were prospects for the next Foundation licence course being run by Paul VK5PH. There were also some interesting enquiries by school teachers who were wondering how they could include amateur radio in their science curriculum; one of these from an all-girls school!

Thanks to Paul VK5PH for assisting with the display and helping out on the booth, and helpers Dale VK5FSCK and Bob VK1ZRE. Thanks also to Will VK5AHV for providing the Codan radio. Photos are courtesy of Jeff VK5MSE.

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# DX-News & Views

John Bazley VK4OQ  
john.bazley@bigpond.com

## T32C breaks the DXpedition QSO record

Well, after all the problems that they had to contend with, the **T32C** DXpedition has established another record with a provisional QSO total of over 213,000. This is a superb effort. It is also amazing that nearly 25% of all the QSOs are unique callsigns. There appears to be an even split between CW and SSB with about 9% on RTTY. This record has been established without beams, just simple antennas with an emphasis on verticals. This will undoubtedly raise many discussions in the future planning of similar trips. Is it really worth all the trouble to take beams and supports? The T32C boys did have two major factors helping them. The improvement in conditions, and the fact that they were able to mount the verticals near the sea edge, essential to gain the benefit of this antenna on a DXpedition. The original inventory included no less than four four-element Yagis for 12 m, 15 m, 17 m, and 20 m and a six element Yagi for 10 m. Without belittling the achievement, I think that with the beams they may



Photo 1: Verticals on the beach at T32C. Photo by Justin G4TSH.

have made another 5,000 QSOs, for the old saying is still true, 'you can only work them one at a time!' Nevertheless a superb result. Congratulations!

Over the past few years there have been several references to another DXpedition to **Malpelo Island**, which appeared in the 'most wanted DXCC list' in 2010, at the number 12 'spot'. Jorge HK1R says the team is now complete, with 16 operators from eight countries and

including three members of the CQ DX Hall of Fame. The plan now calls for the team to arrive on the island on January 23<sup>rd</sup> or the 24<sup>th</sup>, 2012 and stay for 10-12 days, returning to Colombia on February 6<sup>th</sup>. Elecraft are providing seven of their K3 transceivers and five of their new KPA500 amplifiers. RF Concepts will loan them three Alpha 8410s for use on the low bands. DX Engineering will furnish most of the antennas.

N2OO and the SJDXA have graciously agreed to handle the QSL duties. They did an expert job for 3YØX and K5D. Contributions are being sought and you will find all the details on their web site: <http://www.hk0na.com> Direct contributions may go to DXARC in Colombia; K4UEE in North America; DJ9ZB in Europe or JA1ELY for JA/Asia.

In a similar period we will also have another major DXpedition to **Pitcairn Island** by Jacques F6BEE, Nigel G3TXF, Gilles VE2TZZ, Michel FM5CD and Vincent F4BKV. They will use the callsign VP6T (OC-044) from January 20<sup>th</sup> to January 29<sup>th</sup> with three stations operating 'around the clock' on 160 m to 10 m CW, SSB and RTTY.



Photo 2: The excellent phased array for 17 metres at T32C. Photo by Justin G4TSH.

Pitcairn has not seen any large-scale amateur DXpedition operation for the past decade, and VP6T has a target of more than 50,000 QSOs. Efforts will be made to make this rare entity available on as many bands as possible, but especially on the low bands. QSL via G3TXF, direct or bureau, and LoTW. QSLing instructions and further information can be found at [www.vp6t.org](http://www.vp6t.org)



Photo 3: Tony G0OPB explaining the rig to David G3UNA, Clive G3POI and Bob N6OX, with his back to the camera. Photo by Justin G4TSH.

The following is from Pista HA5AO and George HA5UK, who stated that due to difficulties in organizing and making arrangements for the transportation of equipment to **Banaba**, they decided to reschedule the HA South Pacific Tour DXpedition to January/February, 2012.

They will leave Budapest on 8 January, 2012. The operation will start from **Tuvalu** on 12 January, as T2HA. They will be back to **Fiji** on 26 January and three days of operation can be expected as 3D2HA. They will leave for **Tarawa** on 31 January. Operation from **Kiribati** will take place until 23 February. They will attempt to go over to **Banaba** for 7-10 days within this period. Although they will do their best to get over to Banaba the exact time of the T33HA Banaba operation can be announced from Tarawa only. Two stations will be on the air from 160-10 metres, on CW, SSB, RTTY and some PSK modes.

The landing permit to Banaba, licenses and flight tickets to Fiji, Tuvalu and Tarawa are in hand. The radios, antennas, PAs and other equipment have already been put together and packed. The weight of these packages exceeds 100 kg (200 pounds). They will bring everything with them, as excess baggage. This DXpedition will be a 'simple two man show'. However the eight week long operating plan, working from three different rare countries, make it very expensive. They will cover the flight

tickets, accommodation and other personal expenses. The excess baggage fees and the transfer to Banaba are extremely expensive. Thus they are seeking support from DX foundations and organizations to help cover these transfer and the excess baggage fees. Personal contributions are also welcomed. More information on <http://ha5ao.novolab.hu>

**PJ4C** is being planned by F6KOP for January 12<sup>th</sup> to the 23<sup>rd</sup>, 2012. Discussions of 'What next?' began on the trip home from their recent TJ9PF operation, with other options set aside due to security problems or expense. **Bonaire** was chosen for the ease of getting gear in and out and the welcoming environment for the multinational operators. Peter PJ4NX has been helping make the arrangements. The group's goal is 80,000 contacts in 11 days of operating and 'maybe get the RTTY world record.' They will be on SSB, CW and RTTY with six stations 24 hours a day. Operators signed on are F4AJQ, PJ4NX, K4SV, I2VGV, N2WB, DJ7JC, DJ9RR, OE3GCU, OE3JAG, ON7RN, F1HRE, F1NGP, F4DLM, F5EOT, F5VHQ, F6BIV, F6ENO, F6JMT, F8BJI, F9IE, PA0R, OZ1IKY, F2VX, F5QF and F8ATS. The team leaders are Franck F4AJQ and Seb F5UFX.

Arnauld F4FOO - 5V7MA will be active, in his free time, from December 19<sup>th</sup> to January 4<sup>th</sup> with the call 5V7MA from **Togo**. He plans to be QRV 20-10 m SSB only. QSL to his home call.

Phil F4EGS is back in Ndjamena, **Chad** and QRV as TT8PK, until December 23<sup>rd</sup>. He will be active in his spare time. QSL via F4EGS.

Wayne K8LEE says he will be in PJ2 from October 19 to December 13 and his 'main goal' is to run RTTY almost 100%. During the CQWW Phone and CW contests he will share the station with others

that do not get as much chair time as he does. So, RTTY will be less in those periods.

Retu OH4MDY will again be active from **Vietnam**. Look for him between November 1 and December 12 on 80-6 m on CW/SSB. QSL direct only to home call with SAE and US\$2. Log will be on-line at: <http://www.clublog.org>

Oleg UT0EA says Valery UA0QV has obtained a new licence to operate until mid-2012. He will be active on CW/SSB/RTTY on 40-10 and if possible will put up an antenna for 80. QSL to home call, direct, bureau or use LoTW.

Phil Ward F6GNT has been on **Mayotte Island** since August 1<sup>st</sup> and is expected to remain there until March 1<sup>st</sup>, 2013. He has recently obtained his FH8NX callsign and has been QRV. He is using an IC-746PRO running 100 watts into a multi-band dipole up 25 metres. Look for Phil on 20 through 10 metres on SSB. QSL direct to his call book address <http://www.qrz.com/db/fh8nx> or via e-QSL.

Look for WA4DAN/CY0, AA4VK/CY0 and N1SNB/CY0 on **Sable Island** from December 28, 2011 to January 6, 2012. The team will use the [www.CY0dxpedition.com](http://www.CY0dxpedition.com) website.

Nine operators from Germany (DF1AL, DJ9HX, DJ9RR, DK1AX, DK1MA, DL2HWA, DL7JAN, DL7VEE and DM2AYO) will be active as ZK2C, **Niue** (OC-040) on 3<sup>rd</sup> to the 17<sup>th</sup> February, 2012. They will operate CW, SSB and RTTY on 160-6 metres with three stations.

QSL via DL7JAN, direct or bureau. Further information, including suggested frequencies, log search and the OQRS for both direct and bureau cards, can be found at <http://zk2c.hkmann.de/>

Hans OE3NHW is again back in **Peru** until March, 2012. He has been QRV as OA6/OE3NHW. He is running a TS-480HX into either a Spiderbeam or G5RV. QSL via OE3NHW.

Shin JA2PSV has been in Bhutan since late September and will be there until September, 2013. In his spare time he has been QRV as A52SV. He plans to be QRV on 15, 12 and 10 metres on CW, SSB, RTTY and PSK using an FT-450D running 100 watts into a vertical wire whip. QSL via JA2PSV and LoTW.

The **Republic of South Sudan** was recently added to the DXCC entities list, so each QSO confirmed by their manager (EA5RM) will be the confirmation of a new one. As you may know, the distribution of the STØR QSL cards has begun. Because of this, the DXCC desk has

expressed concern that they may be overwhelmed by thousands of applications to credit the new entity.

Consequently, the STØR team have decided to make a change to their previously announced plans for LoTW. They will upload to the LoTW all individual donor QSO and all QSL requests submitted via their on-line QSL request system on November 1, 2011.

Bill Moore NC1L released the following: Special 'paper application offer' procedure for STØR QSLs – please read carefully.

The cards for the 2011 STØR operation from the new DXCC entity of South Sudan are now being received by DXers around the world. With next year's publishing deadline of 31 December, 2011 fast approaching, we will offer a special, reduced-price option for those DXCC participants who have already made at least one application during 2011.

You **MUST** have already made a submission in the 2011 calendar year via either LoTW or via a traditional,

paper application. If you have made an application already in 2011, then you may submit a paper STØR QSL (no other cards, just the STØR South Sudan card) following these rules:

Enclose \$6.00 (check, money order, CC#, or cash at your risk) for non-USA amateurs;

Enclose an SASE for the return of the STØR card;

This special submission is **ONLY** for the STØR card; if **ANY** other card(s) are included this will be considered a full submission subject to full fees, even if you already submitted in 2011.

And finally, Season's Greetings to all and good luck in the pile-ups.

Special thanks to the authors of *The Daily DX (W3UR)*, *425 DX News (11JQJ)* and *QRZ.DX* for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from [www.dailydx.com/trial.htm](http://www.dailydx.com/trial.htm)



# The 2011 VK9HR DXpedition to Lord Howe Island

*John Chalkiarakis VK3YP*

Planning by the Hellenic Amateur Radio Association of Australia for the DXpedition to Lord Howe Island (OC-004) between 23 July and 2 August, 2011 began in February, 2011. The VK9HR (Hellenic Radio) callsign was issued on 6 April, 2011 by the Australian Communications and Media Authority (ACMA).

Team Leader Tommy Horozakis VK2IR (HARAOA President) and Co-Leader John Chalkiarakis VK3YP (HARAOA Treasurer) began the long process of organising all the equipment, antennas and logistics. The aim was to put together an international team including VKs and thus we were delighted to have David EB7DX as the QSL Manager and webmaster for VK9HR. David

EB7DX was most recently the QSL Manager for the very successful 4A4A Revillagigedo Archipelago DXpedition in March, 2011.

All the equipment was shipped from Australia to Lord Howe Island using both sea freight (boat) for the antennas and ancillary equipment, and air freight for the HF radios and amplifiers in the week prior to the start of the DXpedition.

The entire VK9HR team, comprising of Tommy VK2IR, John VK3YP, Peter VK2NN, Bruce VK2KLM, Raffy VK2RF, Ed G8GLM, Don N4HH, Les W2LK, Saul K2XA and Alex OZ7AM all met at Sydney Airport for the flight to Lord Howe Island on the morning of Saturday, 23 July, 2011.

The team arrived safely at Lord Howe Island late afternoon and we began the task of setting up the stations. We managed to get the Steppir BigIR vertical installed that afternoon before dark so we could begin making contacts. Early next morning and the remainder of Sunday were spent setting up all the antennas from 160 m to 6 m, and that were located at two separate sites. By the evening we had everything set up and although everyone was very tired, we finally had all six HF stations operational.

Our many antennas were:

- 160 m inverted L using a Spiderbeam 18 m fibreglass mast and a 200 metre long receive Beverage.



The VK9HR DXpedition team, comprising (from left to right) John Chalkiarakis VK3YP, Peter Garoufalis VK2NN, Ed Durrant VK2ARE, Les Kalmus W2LK, Raffy Shammay VK2RF, Tommy Horozakis VK2IR, Bruce MacDonald VK2KLM, Saul Abrams K2XA, Don Nesbitt N4HH and Alex Rosenmejer OZ7AM.

- 80 m – 1/4 wave vertical and also a 1/2 wave dipole.
- 40 m – 2 element Moxon beam and also a 1/4 wave vertical.
- 30 m – Steppir BigIR vertical (additionally covering 80 m – 6 m as well).
- 20 m – 3 element Yagi.
- 17 m – 2 element Moxon.
- 15 m – 3 element Yagi.
- 12 m – 2 element Moxon.
- 10 m – 3 element Yagi.
- 6 m – 3 element Yagi.

All the antennas performed very well with the 160 m vertical (located close to the water) performing exceptionally well with strong signals into NA, JA and VK.

For the first few days the band conditions were not the best, with the SFI around the 80s, but then slowly started to climb above 100 and the bands become alive with massive openings on 20 m, 17 m, 15 m and even 12 m. We also had an opening on 10 m and even a couple of contacts on 6 m.

Our six HF radios comprising of 3 x Kenwood TS-590S, 2 x Yaesu FT-857s and an Icom IC-7000 were all connected via CAT and digital

interfaces (built in USB port on the TS-590S) to N1MM for logging and also DM-780 for RTTY. We used three SPE amplifiers comprising of 2 x SPE-1K-FA and 1 x SPE-2K-FA and also 3 x RM-ITALY HLA-300V amplifiers. The Kenwood TS-590S radios performed exceptionally well with our CW operator Alex OZ7AM commenting that he had previously used an Elecraft K3 on CW and he could not pick any difference in performance on CW between the K3 and the TS-590S. Our SPE amplifiers were also a stand out in performance – all running nearly 24 hours a day and not missing a beat.

In the pileups, the North American and JA discipline was excellent. The European discipline was mostly very good, as is often heard with DXpedition stations, and there was minimal jamming activity.

The RSGB IOTA contest was also entered on the weekend of 30-31 July using the callsign of VK9IR, thus allowing our other stations to continue operating as VK9HR on the other bands. Almost 2,000 contacts and 12,153 contest points was realised for the IOTA contest.

The cost for this DXpedition was over \$25,000. Many thanks go to the sponsors (including many

personal contributors) who assisted in offsetting some of these costs.

The corporate sponsor list included RF Solutions, SPE, SteppIR, Kenwood, Spiderbeam, The Pest Control Company, Ham Radio Outlet, ATRC, Begali, Island Connection and Tower Tees.

The DX Foundation sponsor list included Nippon DX, Danish DX Group, EUDXF, German DX Foundation, SEDXC, HVCDX, Chiltern DX Club, MDXC, Clipperton DX Club and Swiss DX Foundation.

Great planning, great operators and a lot of hard work prior to and during the DXpedition and many operating hours by the team realised some 17,000 contacts during a seven day operating period. A special thanks to our CW operators Alex OZ7AM, Don N4HH, Les W2LK and Saul K2XA.

All QSLing for this expedition is via EB7DX.

To all the VK9HR team and most importantly our corporate and DX foundation sponsors we thank you. Stay tuned for another HARAOA DXpedition in 2012.

# Silent Key

Keith Malcolm, VK1KM

Amateur radio has lost one of its finest.

Keith Malcolm VK1KM passed away suddenly on Thursday 13 October. His direct and indirect contribution to our hobby has been great, and his loss will be deeply felt.

Keith was born in Manchester, England, in 1948. He spent the first 10 years of his life there before his family migrated to Australia in October, 1958. He retained his affection for the old country – and his accent – for the rest of his life. The family settled in Melbourne and prospered, moving into their own home in Clayton in 1964. Keith established his first radio shack in a shed at the bottom of the yard. He studied engineering and qualified as a communications engineer. It was not long before he joined the Public Service in the Bureau of Meteorology, where among other things he worked on receiving systems for weather satellites. He then moved to the Australian Broadcasting Control Board, and next to the Telecom Broadcasting Branch. Here he worked on spectrum management, and experimental and development work relating to broadcast services. He remained in the field throughout his professional life.

Keith was licensed as VK3ZYK in 1967. His interest was primarily in VHF propagation, and for years he was a member of the WIA's VK3 VHF group. He soon took on the role of Secretary of this group, and served this way for many years before he was elected as its President in 1975. At this time the VHF group was large and very active, and organized events such as field days, fox hunts, conventions and scrambles, and these events often included wives and girlfriends. Keith was a keen contributor. He was also involved with the WICEN organization.

He was married in 1974.

Over time, broadcasting control underwent numerous changes in its administrative arrangements. In the late 1980s it was incorporated into the Department of Transport and Communications. Keith's career was all the while advancing, and his expertise in radio frequency management in the global context was growing rapidly.

Keith and his family moved from Melbourne to Canberra in 1986, as a result of the relocation of his Department's head office. He was soon appointed as the Joint Director of the Federal Government's Communications Laboratory. Here he did some of his finest work. Under his direction, the laboratory covered the full gamut of broadcast engineering work. This included deep involvement in planning the digital TV services in this country and among other things the selection of the most appropriate transmission standard for Australian conditions. Detailed technical analysis was needed to compare the competing American and European systems, and in the end the European system was recommended. Other important issues for which he was ultimately responsible included development of the home satellite TV system (HACBSS) to bring TV to the bush, and evaluation of HD TV systems.

As joint director of the Communications Laboratory, Keith was a member of several high level overseas delegations representing Australian interests to the CCIR and the ITU. He travelled widely during this period.

On transferring to Canberra, Keith was first VK1ZKM, and later VK1KM.

Keith took an early retirement in 2000, and started work as a Consulting Engineer, accepting commissions from his old employer, including among other projects the TV black spot problem, and from the ABC, concerning interference from BPL systems.

After his retirement Keith participated in the preparation for WRC 03 representing the WIA. That ITU World Radiocommunication Conference was of particular significance for amateur with an agenda that proposed the extension of the 40 metre band in Regions 1 and 3 and a complete review of Article 25, the part of the Radio Regulations relating to the amateur services.

Keith spent four intensive and exhausting weeks in Geneva as a member of the Australian delegation, with David Wardlaw, representing the amateur services.

A task of lasting importance to amateurs was the preparation in 2005 of an ACA document setting out guidelines which amateur radio operators may use to assess the compliance of their stations with the EMR guidelines. This document was prepared jointly by Keith Malcolm and Gilbert Hughes, and simplifies a complex problem very well.

Keith was awarded the WIA's Ron Wilkinson Achievement Award in 2005. This was especially in recognition of his contribution to the WIA effort for the WRC 2003 Conference, but the citation also recognized his contribution to the WIA preparation for the then forthcoming 2007 conference.

Again he was a member of the Australian delegation to WRC-07, again nominated by the WIA to spend another four weeks in Geneva.

A surprising side-line in Keith's interests was his love of railways. He was widely travelled overseas, and this allowed him to indulge his pleasure of taking classic rail journeys in odd places. He was a senior member of the Australian Railway Historical Society, and was licensed first as a steam locomotive fireman, and later as an engine driver. He was an active member of the ARHS, and contributed to their activities in many ways from ticket selling to cleaning, painting, and repairing rolling stock, to driving trains. They called him Mr Fixit for his talent for fixing technical problems, and he also undertook restoration work on two of the society's steam locos and their "Tin Hare" rail motor.

After his retirement, Keith bought a large block of land outside Murrumbateman, about 40 km NW of Canberra. His intention was to build a home there using his own labour, and he worked steadily on this project for years. He moved in about three years ago, and the house is now virtually complete. The quality of Keith's work is excellent.

Keith was an unassuming man, but he possessed a powerful brain and great knowledge in several fields. He had the ability to cut through intellectual clutter to get to the core of an issue, and was able to explain complex issues in a readily understood way.

He will be sorely missed by his many friends and colleagues.

Keith is survived by his XYL Lesley, three adult children, and one grandchild.

**Vale Keith Malcolm.**

Prepared by Ian Cowan VK1BG, with the assistance of numerous of Keith's friends.

# VK6news

John Ferrington VK6HZ  
vk6hz@wia.org.au

Season's Greetings! Another year has passed by; another circle round the sun...at least the sun now has some sunspots!

As I sit here typing, I am trying to recover from the CQ WW SSB contest, CHOGM and a visit from the Queen. I hope that many of you managed to work VI6CHOGM whilst they were active for the three days during CHOGM. Luckily for us here in VK6 Friday, 28 October was a public holiday, so it gave us a few extra hours to play radio. We were also given the opportunity to use the VI6 prefix to celebrate CHOGM.

The CQ WW has now passed for another year, and I am sure my friend Phil VK4BAA will provide all with a complete update shortly. I have seen and heard of some very large, perhaps record breaking, scores from both VK4 and VK6. NCRG operated as VI6NC in M/2 mode and managed a great score. A big thank you must go to Chris VK3FY who managed to sit in the chair for a few hours on Saturday night to help the contest crew. Conditions were great. I even managed to work some 500 contacts on 10 m over the weekend as VI6XX.

In the coming weeks the NCRG shack will be used by Bernd VK2IA/VK6AA for the CQ WW CW contest. We wish him luck in the contest. Bernd is one of the best CW operators I have had the privilege to meet. He is pure poetry when he gets going.

Not much more from VK6 this month. I hope Santa is generous to you and that you have a safe holiday period. If you have anything for the VK6news, please email it to me, at vk6hz@wia.org.au

73 for now, John de VK6HZ.



## Hunter Radio Group catches up with Jeff Johnson VK4XJJ in Newcastle

Grahame O'Brien VK2FA



Photo 1: Grahame O'Brien VK2FA and Jeff Johnson VK4XJJ.

Photo 1 was taken on Saturday, 22 October, and shows Grahame VK2FA presenting a cheque to Jeff Johnson VK4XJJ at the foreshore of Newcastle Harbour.

The money was collected at The Hunter Radio Group's October meeting, where they passed the hat around to make a donation to Jeff's charity, NETS, the charity Jeff supported on his last walk across Australia.

NETS, the Newborn Emergency Transport Service is a wonderful transport service that transports very sick babies to specialist care at major hospitals. To put it more

bluntly, NETS helps save baby's lives and we never know when one of our family members may need this service.

I would like to send a challenge to all radio clubs across Australia to do the same as the Hunter Radio Group has done and forward a donation to NETS <http://www.nets.org.au/>

On the day both photos were taken, there was also a meeting of three Australian adventurers. There was Jeff, the 70 year old gentleman we all know and at the other end of the spectrum there were two gentlemen in their twenties who started off in Turkey then going through 38 countries on quad bikes (they called themselves the Quad Squad <http://quadsquad.org/expedition.html>), including the UK, Sahara Desert, Africa and then on into Australia to complete their adventure in Sydney. This team started off as a team of three, but unfortunately one of them was killed in an accident along the way. As a mark of respect to their colleague they decided that they would

continue the adventure in memory of their friend.

Jeff met these adventurers in Laverton, Western Australia, and they agreed to meet in Newcastle where there was going to be a Guard of Honour of motorcyclists for the last 160 kilometre ride to Sydney. As the parade left Newcastle, Jeff shook their hands and wished them good luck for the rest of the trip and a parade of hundreds of motorcycles left the foreshore on the rest of their journey to Sydney.



Photo 2: Kristopher 'Ted' Davant, Jeff Johnson VK4XJJ, Brian 'Bear' Mooney, Jeff's support driver, and James Kenyon.

# VK3news Geelong Amateur Radio Club - The GARC

Tony Collis VK3JGC

## The ACMA

Nik VK3BA invited Mark Tell VK3XMT from the ACMA to give the club an 'educational' presentation on the Field Operation Section activities.

Mark's presentation was geared around a PowerPoint presentation that lasted for a highly informative 2.5 hours to a full house, standing room only, audience comprising the GARC members, guests from the GRES and visitors from VK5 land.

The Field Operations Section has some 32 staff covering Australia with six offices; three in NSW and one each in Tasmania, Victoria and Queensland. The section relies on centralised reporting and coordination in dealing with around 70 calls a week Australia wide. Their remit is dealing with interference to telecommunications services up to 45 GHz.

Of their 27 monitoring sites only three actually deal with the HF bands. The ACMA's primary High Frequency Monitoring and Investigation facility



Mark Tell VK3XMT.

is located on a 50 hectare radio quiet site at Quoin Ridge, Tasmania and is rated a world class facility.

It houses the organisation's Field Operations Hobart office, and is an ITU accredited facility operating the ACMA's HF direction finding network of sites which are located throughout Australia and service around one third of the world.

The ACMA's approach to dealing with those responsible for

creating interference problems starts with education and several other notification steps before issuing infringement notices and fines/ confiscation of equipment. Any equipment confiscated is crushed by the authority. Problems caused by the amateur fraternity account for a very small percentage of their overall activities; conversely the erection of a tower by an amateur has the inevitable effect of raising received complaints against amateurs ranging from causation of a variety of medical issues to poor television reception!

## The GARC club house makeover

With the re-roofing and guttering completed the focus has now changed to improvements to furniture and fittings. The first phase of which was the purchase of three new settees to replace existing 'tired' units along with a new book case and replacement computer desk.



# NZART CONFERENCE 2012

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QUEENS BIRTHDAY WEEKEND 1<sup>st</sup> – 4<sup>th</sup> JUNE 2012

Tahuna Beach Conference Centre, Nelson- Tahuna Beach Holiday Park

Thinking of a break in New Zealand?

NZART says "It would be great to see some of

our fellow amateurs from Australia and if you are interested in

coming to the conference we would love to see you here in Sunny Nelson."

Please contact: Secretary ZL2LS Topsy Scott: [scott@tasman.net](mailto:scott@tasman.net)



# Darcy Hancock VK5RJ

Ian Sutcliffe VK5IS

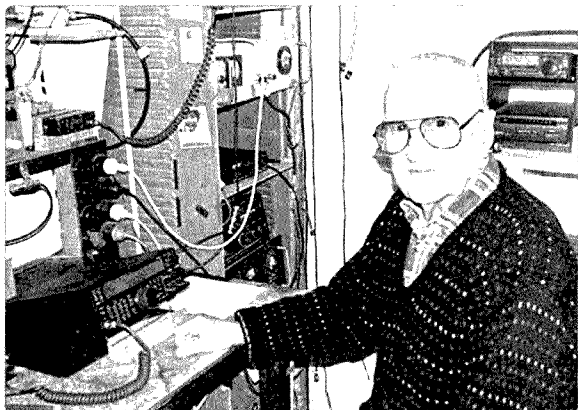


Photo 1: Darcy Hancock VK5RJ, 100 years young, with his new TS-590.

Darcy was born in Kadina, South Australia on 18 December, 1910, making him 101 years old in December this year.

He gained his amateur licence at the Kadina Post Office in July 1927 and has been on the air ever since. He remembers the first wireless to

come to Kadina's local electrical shop. In those days everyone would come down to the shop to listen to one of the few broadcast stations on the air, 2FC Sydney. Darcy said the reception was more static and crackle than radio but everyone was mesmerized by the marvellous new technology.

He said, 'In those days you built everything yourself'. Darcy talks

fondly of the early days of amateur radio when friends and neighbours would bring over their 78 records for him to play on the air. He had built his own magnetic 'pick up' so he could reproduce the records electronically resulting in high quality broadcasting of the music.

Darcy is a very accomplished musician and he played throughout Yorke Peninsula with dance band 'The Rhythm Kings'. In later times, after moving to Adelaide, he played his saxophone in a band with pianist Ray Carney for many years. This was much loved by the dance goers of the time.

Darcy is still active on the bands making regular daily contacts with his son Bruce VK5TRJ, his grandson Ian VK5LRJ and long-time friends Ian VK5VJ and Ian VK5IS, and also with Lyn VK4SWE and Harold VK4ANR on Sundays.

He uses his computer for emails and web surfing and to preserve photos and record his treasured jazz music. He has just purchased a TS-590 which he is now using on the air. Pretty good effort all round for a ham one hundred and one years of age. Well done Darcy!

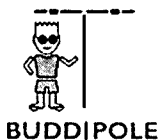


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# Centre Victoria RadioFest No. 5

## Sunday 12 February - Kyneton Racecourse

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The place to pick up a bargain at the Traders Hall supported by all the major traders or at the second-hand market place whether it be at the tables or carboot lots.

Socialise, see, learn and enjoy. This is a family friendly event where you can have a picnic and relax.



### Check out this great program

- ✓ Australia's first look at home-brewing a DVB-S ATV Transmitter. The poor man's entry into the enthralling world of digital television by Ross Pittard VK3CE
- ✓ The ZL6QU Super Station at Quartz Hill by its Chair of Committee 1997-2011 and avid contester, Brian Miller VK3MI/ZL1AZE
- ✓ Tracking down that interference! An interesting insight delivered on this very important activity from Mark Tell of the ACMA

### DISPLAYS AND ACTIVITIES

- EmComm ready to serve in our name
- F-Troop photo call of Foundation licensees
- Bendigo District Astronomical Society
- Scout radio display
- Historical radio on show
- CQ Awards QSL checking with VK3PA
- Special interest group meetings

More details listen to the VK1WIA broadcast or check out the website

The program advertised reflects what is proposed at this time and may be subject to change.

### Second-hand market and car-boot sales

Bookings of tables and car-boot space close soon. These are low cost and include one entry ticket. An application form and conditions on the website (see below) or contact Tony Hambling VK3VTH 0423 635 152

**Catering:** Hot and cold food and drinks will be catered by the Kyneton CFA Auxiliary. Hot breakfast is available from 9am. Free tea and coffee available all day. Or bring your own lunch to enjoy in picnic style.

**Entry tickets \$10:** On sale from 9am with the gates opening at 10am. Free entry to children aged under 13. No pets or alcohol. The venue is mostly under cover suited for all weather.

**Door prizes:** Entry tickets will be drawn for the winners of available door prizes.

**Venue:** Kyneton Racecourse, Campaspe Place (off Beauchamp St), Kyneton, Only 50 minutes from Melbourne and an hour from Ballarat and Bendigo. Plenty of free parking.

**Info and talk-in:** Mt Macedon 2m repeater VK3RMM 147.250MHz from 7.30am to 10.30am on the day.

**Email:** [radiofest@amateurradio.com.au](mailto:radiofest@amateurradio.com.au)

**Website:** [radiofest.amateurradio.com.au](http://radiofest.amateurradio.com.au)

Don't miss this major event and great social occasion for everyone with an interest in radio communications. Ready to help you maximise your participation are volunteers from **Amateur Radio Victoria** and the **Central Goldfields Amateur Radio Club**.

Christine Taylor VK5CTY



AHARS members at their latest construction night.

The October meeting of AHARS was a construction night. It is great to see all the different sorts of equipment the members bring to these construction nights. Most of them have lamps and there are lots of magnifiers in use. Most of the constructors do manage to complete the projects. Graham VK5ZFZ, who provides the parts, also brings along a method of testing the finished project.

This time it was an interface that, for those that participate in a program of training sessions next year, will be used at that time. The training sessions are all about PICAXE chips, with a follow up program about PIC chips. It should be very worthwhile.

AHARS did participate in JOTA at the new Shack but as JOTA fell at the end of the school holidays in this state the participation was low. David VK5KC, Hans VK5YX, Frank VK5BF and Patrick VK5MPJ had just five Guides visit them. They did have some contacts, though, and the five girls enjoyed the experience. We all hope next year will see a bigger participation.

The shack is being used as a meeting place each Saturday morning, with a breakfast once a month. A session of training and exams has been held and more are planned for the New Year.

A group of the members went to the archives of the ABC to hear and see some tapes held there. This was enjoyed by those that attended and may lead to more of the same in the future.

Our regular meetings are held on the third Thursday of each month in the Blackwood Community Hall, except for the months of December and January. If you are visiting Adelaide just get in touch with the President, David VK5KC or the Secretary Sue VK5AYL, both QTHR the callbook.

Don't forget the AHARS BUY AND SELL on November 20th – a Sunday – to be held at the Goodwood Community Hall in Rosa Street, Goodwood. Doors open at 9.00 am into the commercial seller's hall and at 9.30 am into the general selling hall. Come along and meet your friends and look for the bargains. You can always find that special item here.

The committee and members of AHARS wish everyone a Merry Christmas and a Happy New Year. May Father Christmas bring you that special present.

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- Calculate average measurements
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# Foundation Corner 17:

## Basic digital communication or The Diddly Dah's

Ross Pittard VK3CE

vk3ce@amateurradio.com.au

International Morse Code	
1. A dash is equal to three dots	
2. The space between parts of the same letter is equal to one dot	
3. The space between two letters is equal to three dots	
4. The space between two words is equal to seven dots.	
A	••—
B	•••—
C	•—••
D	•—••
E	•
F	••••
G	•—••
H	••••
I	••
J	•—•••
K	•—••
L	•—•••
M	—•—
N	•—•
O	—•—
P	•—••
Q	•—••
R	••••
S	••••
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V	••••
W	•—••
X	•—••
Y	•—••
Z	•—••
1	•••••
2	•••••
3	•••••
4	•••••
5	•••••
6	•••••
7	•••••
8	•••••
9	•••••
0	•••••

Figure 1: The International Morse Code.

Everyone is talking about going digital these days, including the local TV and radio stations, your phone company and even the local newspaper. It all sounds very exciting and complicated but broken down into its basic fundamentals digital communication is the transfer of two states, logic one and logic zero. These can be represented by two voltage levels, that is, 0 volts and five volts; or light on and light off; or perhaps carrier on and carrier off.

One of the first forms of long distance communications was of course the Morse code, originally developed by Samuel F. B. Morse for use on his electric telegraph in the early 1840s, refer Figure 1. In the 1890s, it began to be extensively used for early radio communication, before it was possible to transmit the human voice.

For the Foundation operator this is perhaps the simplest and most efficient method of radio contact particularly at the power levels allowed under their licence. Looking at the Band Plans (Foundation Manual, page 86) we can see a section devoted to the exclusive use of Morse code at the bottom of each amateur band, called the **Continuous Wave** section.

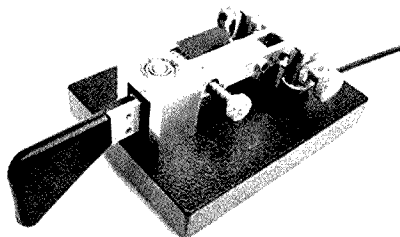


Figure 4: A paddle style key.

Morse code was originally a part of the amateur licence requirement, but for a number of years has not been compulsory for any grade of licence in Australia. There are still a small number of dedicated operators regularly using

the code for communication; try having a listen during the evening and I am sure you will hear plenty of stations working CW around the world.

For those interested in the Morse code there are a number of PC based programs which make it a simple matter to learn the code; one I would recommend is called 'Just Learn Morse Code', refer Reference 1. A word of advice, **NEVER** try sending on a key until you are fluent in receiving. The best approach I found to learning the code is the Farnsworth method (supported by this program); this is where

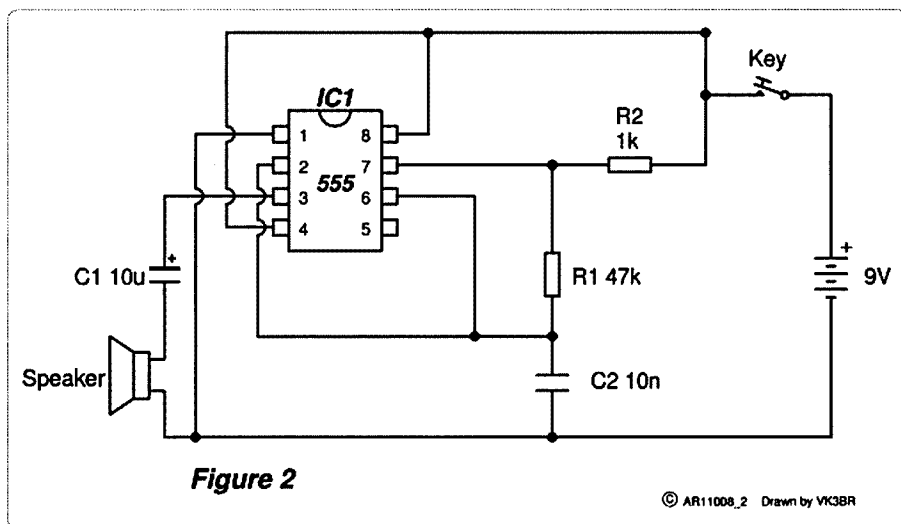


Figure 2

© AR11008\_2 Drawn by VK3BR

Figure 2: A simple Morse code oscillator circuit.

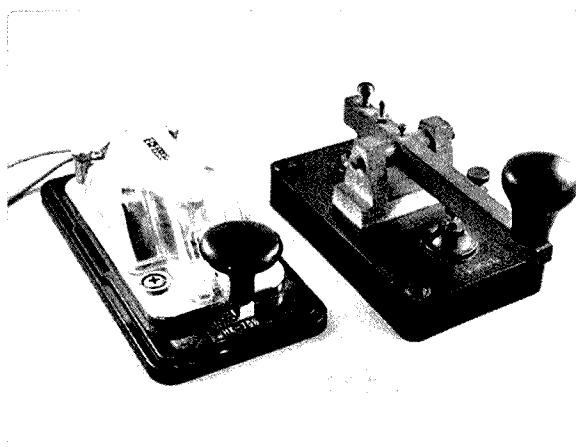


Figure 3: Hi-Mound & Clipsal keys.

characters are sent at higher speeds, while extra spacing is inserted between characters and words to slow the transmission down. The advantage of this is that you get used to recognising characters at a higher speed, and thus it is easier to increase overall speed later on. The whole idea is to learn the sound of the letter not the letter as dots

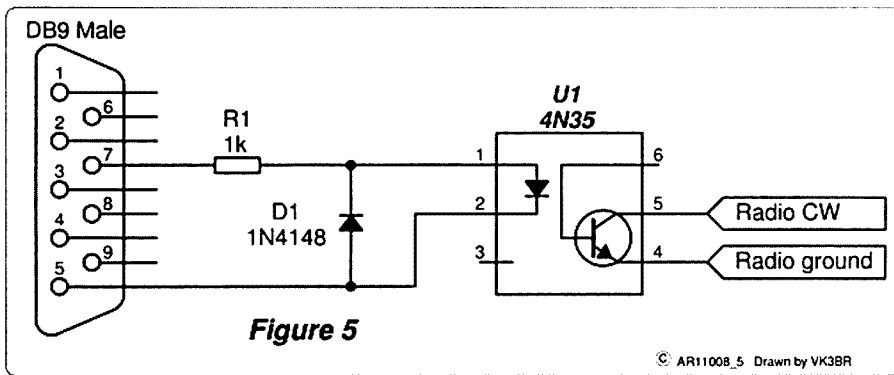


Figure 5: A CW Opto-isolator circuit.

and dashes. After you have tried the program see if your local club has an experienced Morse operator who I am sure will give you some expert advice.

I have included a small circuit for a Morse practice oscillator in Figure 2 for anyone wanting to practice sending the code. It is easy to build on a small piece of Vero strip board and is based on the very popular 555 timer IC, and needs in addition two capacitors, two resistors, a speaker and battery.

Morse keys can be purchased new from ham suppliers or can usually be found at swap meets; a popular key is the 'Clipsal', shown in Figure 3, used by the Post Office during the heyday of telegrams. Many ham shacks will have one of these tucked away in the cupboard; also pictured is a modern 'Hi-Mound' key available new from selected dealers.

Many modern radios have a 'paddle' input as well as a key input. The difference being a paddle

style key, shown in Figure 4, has a horizontal action one direction to produce a dot and the opposite produces a dash. The advantage in using a paddle is that the dot and dash are generated by the radio and are always at the correct length (a dash is three dots long).

When calling CQ it is sometimes handy to use an automatically generated message and a handy little program called CWType, refer Reference 2, can be used to store a number of pre-programmed messages: just the shot for contests and poor propagation. I have included a small circuit, seen in Figures 5 and 6, which can be made on strip board (from Jaycar) or it can be just built piggyback style on the rear of the DB9 connector. It is built around what is called an opto-coupler which provides electrical isolation between the PC earth and the radios RF earth. The unit is plugged into the selected com port and will key your radio.

The program will transmit Morse code from pre programmed sequences, the PC keyboard, or from a paddle connected to the game or printer port.

As with all types of amateur radio activity do not be afraid to try Morse; all experienced operators will adjust their send speed to suit the speed you are sending at, so give it a go! There is, as with most specialist modes, a club for Morse operators called the 'FISTS', refer to Reference 3. The following information was gleaned from their web site and I am sure they would welcome new Foundation members.

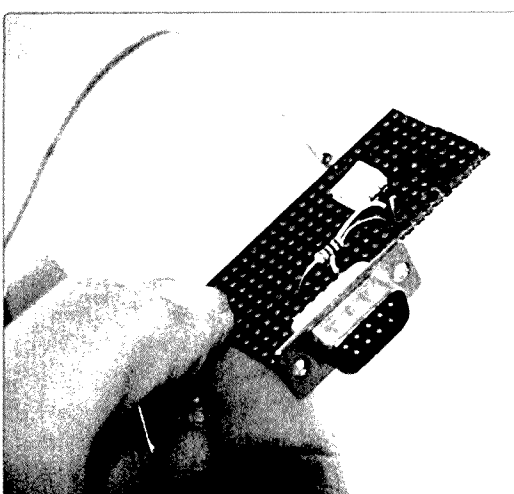


Figure 6: The assembled CW Opto-isolator.

## History of the FISTS Club

The FISTS Club, (International Morse Preservation Society) was founded in 1987 by Geo Longden G3ZQS of Darwen, Lancashire, England, after recognising a need for a club in which veteran operators would help newcomers and less-experienced operators learn and improve CW proficiency. During the first year, membership reached 300, most of who were in Great Britain and Europe.

The North American chapter was formed in 1990 to assist 11 members in the USA receive the newsletter and as a banking convenience. Nancy Kott WZ8C of Hadley, Michigan was named US representative, a position she still holds but she now handles the affairs of over 2,000 members in the Americas.

The New Zealand/Australia Chapter was formed in 1998 to provide a similar service to Australasian members, with Ralph Sutton ZL2AOH as the VK/ZL representative. From a VK/ZL membership of four, there are now over 70 members 'Down Under', principally in New Zealand. The New Zealand membership is the largest in any country outside England and Wales and North America.

Worldwide, FISTS members now number over 4500 members, growing by up to 100 each month.

The FISTS Club is one of amateur radio's fastest growing organisations. It is a unique club, founded and maintained on solid principles using radio's oldest and yet most reliable communications mode - CW!

### Jaycar Parts List

DB9 Male	PP-0800
4N25/35 Opto Coupler	ZD-1928
Vero Strip Board	HP-9540
LM555	ZL-3555

### References

1. <http://www.justlearnmorsecode.com/>
2. <http://www.dxsoft.com/en/products/cwtype/>
3. <http://www.fistsdownunder.org/>

# Can't you hear me calling?

Bill Isdale VK4IS

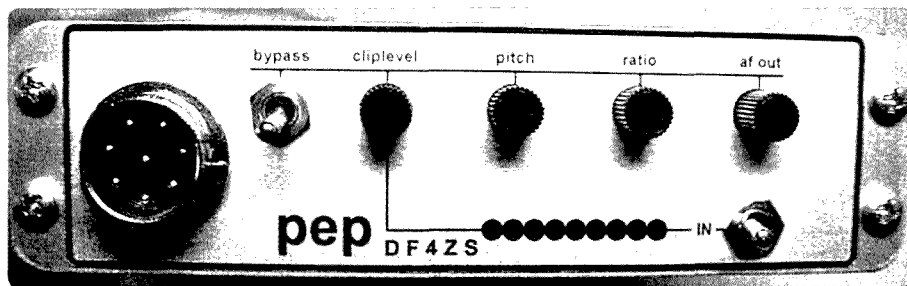


Photo 1: The DF4ZS speech processor.

At present, the most common output power of an amateur transceiver is 100 watts. A quick glance at a price list shows us that it is expensive to introduce a linear amplifier to increase output power to the 400 watt limit which applies in this country except where special permission is obtained. We are all conscious of the need to avoid interference to others and to ensure that the emissions from our station cannot pose any health risk to anyone. At the same time we will be aware that when operating a digital mode such as PSK-31 worldwide contacts can be made with about 25 watts.

It is mostly when operating on SSB that we feel the need to have more power in order to be heard above the background noise. Partly this is due to the greater bandwidth needed for voice signals, typically about 2.4 kHz, so that when listening to the wider channel we hear more of the noise that is out there. Additionally, the human voice is made up of such a wide range of frequencies and loudness that while 100 watts is the peak power available and is frequently reached for some sounds, the average power put out on SSB to carry a voice signal may well be about a quarter of that. Using a transmitter for a digital mode will heat it up more at 25 watts, in my experience, than using the same transmitter set for 100 watts on SSB. This is simply because the digital mode is steadily delivering the set power level when transmitting while on SSB the average power is unlikely

to reach that level, though it briefly touches 100 watts. It is the steady power that challenges the heat sink's ability to dissipate the heat from the output transistors.

It is possible to get higher average output from a transmitter and so make more use of its potential. In doing so it must be recognised that this will put a greater load on the device and may ultimately shorten its life. If any change is approached with an eye to ensuring that adequate cooling is maintained, the reduction in ultimate lifespan of the equipment may be negligible, particularly since most amateur transmitters will spend most of the time switched off and become obsolete before they ever wear out.

Better use can be made of the transmitter's power if the average output on SSB can be increased. This can be achieved by a speech processor. Anyone who listens to the sounds coming out of a television set or broadcast band radio receiver will soon notice that the advertisements are louder than the programme they are interjected into. This is achieved by processing the sound to raise its average level in the frequencies to which the human ear is most sensitive. The lowest and highest frequencies can be blocked, the energy peaks limited and then the sound amplified until the fainter sounds are much stronger. What goes to the transmitter is then a concentrated sound that arrives seeming louder than might be expected.

The perils of this are that manipulating sound will produce

distortion and harmonics. Some of the harmonics would be in the audible range and the overall result will become unpleasant if too much processing is attempted.

The simple end of speech processing is the 'power microphone' which was developed to help boost the apparent power of CB operators. Simply an audio amplifier, it is useful for ensuring that a good signal makes it from the microphone to the transmitter. Crank it up too far and the sound will deteriorate (and the transmitted signal will become very broad, causing interference to operators on adjacent frequencies. Ed).

Many of the transceivers we use today boast of having a speech processor. A few moments spent studying the circuit diagram will allow us to see what it is actually doing. My Yaesu FT-857D has a speech processor which is actually an audio amplifier; it works well but the name given to it tends to create the impression of something more complex.

The next step is audio speech processing, which may be built into the radio or added as an accessory. This manipulates sound at audio frequencies and can perform well. A limitation is that because speech is a blend of frequencies predominantly between 300 and 3000 Hz, processing will be sure to create harmonics which are themselves still in the audio range, even if everything above and below this range is filtered out. The distortion will grow as the amount of processing increases. Good audio design can keep this to a minimum and some competent products are on the market, not least among which will be those used by broadcasters.

A higher level of effectiveness can be achieved by radio frequency speech processing. The incoming audio can be converted to a radio frequency; the availability of parts makes it easy to use a frequency like 455 kHz. The processing is

performed at this frequency so that unwanted products are at radio frequencies. They are then filtered off and the remaining signal down-converted back to audio which is then fed to the transmitter. This requires the processor to be between the microphone and the input socket on the transceiver. If this method is employed it will be prudent to turn off any processing of the input inside the transmitter and leave the task to the external unit. Some of the transceivers now available have this sort of speech processor in them but an accessory can be added to any transmitter to, in effect, boost the audio of the output to a level such that the 100 watt transmitter sounds like a 400 watt transmitter, for a small fraction of the cost.

Some products are commercially available, but there are few.

One that I have tried successfully is thoughtfully designed and carefully built by Joachim DF4ZS, an amateur operator in Wilhelmshaven, Germany who will sell a built unit over the internet. He has published the circuit diagram on his website [www.jwm.de](http://www.jwm.de) so that how it is constructed and built is fully disclosed. The clipper has adjustable audio frequency compression and a noise gate so that background noises picked up by the microphone out of the voice range are excluded. Compression is adjustable from none to 9:1.

The output level is adjustable so that the transmitter's automatic level control is not overloaded. A switch allows the whole unit to be bypassed and the user can also bypass the clipper and use only audio compression and the noise gate. A low pass filter keeps audio output below 3 kHz and pitch can be adjusted.

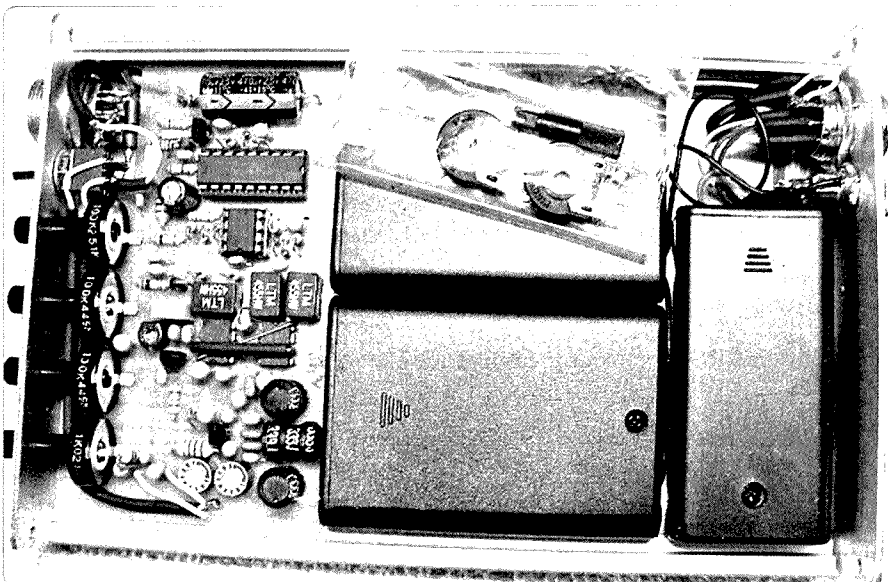
I ordered the fully built unit and it duly arrived. It is the work of a craftsman and includes some extra and spare parts which can be used to modify it, for instance to accept some microphones with lower than typical output levels.

The unit may be powered from internal 'AA' size batteries or an external power supply. I was delighted to find that the standard Yaesu lead from my desk microphone connected to the processor and another of the same leads, available as an accessory from Yaesu and which I had on hand connected from the processor to the transceiver. The wiring all matched so it was not necessary to make any leads.

Clear instructions for setting up the processor came with it and I was on the air in a minute or so. I have had good reports from stations contacted and have enhanced my station for a very reasonable price. For those with the skills, time and inclination, construction of an RF speech processor would be a very rewarding project.



Photo 2: A view of the internal construction of the DF4ZS speech processor.



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# VK3 news Amateur Radio Victoria

Jim Linton VK3PC

[www.amateurradio.com.au](http://www.amateurradio.com.au)

## Season's Greetings to all

The month of December is here as we prepare for the summer holidays. On behalf of the Council - Barry Robinson VK3PV, Peter Mill VK3APO, Keith Proctor VK3FT, Terry Murphy VK3UP, Tony Hambling VK3VTH and myself, complements of the season and best wishes for a Happy New Year.

A reminder that the office at 40g Victory Boulevard, Ashburton, will close at 1 pm on Tuesday, 20 December and reopen on Tuesday, 7 February next year. During the break, urgent matters will be given priority while office-bearers work on financial statements, stocktaking and the annual audit.

The Annual General Meeting will be on Wednesday, 16 May, 2012, at 40g Victory Boulevard, Ashburton, commencing at 8 pm. Members will be sent the annual report details later. Notices of Motion for the AGM close with the Secretary at 2 pm on 14 February.

While the office is open Tuesday's 10 am to 2 pm, the work of the

organisation continues beyond those hours. Most correspondence is email although the office volunteers are kept busy with letters, phone calls, membership applications and renewals, some public inquiries, keeping the QSL bureau up to date and assisting with membership services.

May I take the opportunity to say thank you on behalf of the Council for their great work that helps the administrative side of our volunteer organisation function well.

The Internet Project Development Officer, Gary Furr VK3FX, continues to play an important role through the website. He recently trialed the sending of graphics along with text as part of the regular e-news updates. There are other team members of course, so apologies for not mentioning everyone.

## Centre Victoria RadioFest

While many take their annual break at this time, the organisers of the Centre Victoria RadioFest No. 5 will be busy as they work on the big event.

Set for the Kyneton Racecourse on Sunday, 12 February, 2012, the program is coming together nicely. From Ross Pittard VK3CE we have the first Australian demonstration of the new hardware/software alternative for generating digital television in the DVB-S format.

From the ACMA we have Mark Tell who will give an engaging presentation '*Field operations and tracking down that interference*', and a lot more.

The commercial traders are on board declaring it an event they would not miss. Bookings are also open for the ever popular second-hand market places, and Club Corner.

## Membership inquiries

To join and support the state-wide organisation Amateur Radio Victoria costs \$30 for Full or Associate membership and \$25 Concession, for two years. New members are most welcome and an application form can be found on our website or posted out on request.



## WICEN NSW Inc.

Amateur Radio Operators providing communications support to the community.



WICEN NSW Inc. is a specialist communications squad affiliated with the NSW Volunteer Rescue Association. Through this affiliation, WICEN operates as a specialist support squad under the NSW Disaster Plan (DISPLAN).

Recent activations: Newcastle & Central Coast floods in 2007 & 2009, and helping staff the communications centre receiving Offers of Assistance after the 2009 Victorian Bushfires and concurrent Queensland cyclones and floods)

WICEN also supports community fund raising events, providing support for bone-marrow transplant recipients and development in Timor; and exercises with other emergency agencies.

- Trek for Timor • Hawkesbury Canoe Classic • BWRS Navshield • Endurance Horse Events
- SAREX, the search for VH-MDX • Car Rallies

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# Modern communications technologies – A quick Centenary review and the future!

Justin Giles-Clark VK7TW

The catalyst for this article came from a presentation the author made at the WIA Centenary AGM in May, 2010 in Canberra. It was a quick crystal ball gaze on what the current developments are in amateur radio and also made some predictions along the way about the direction we might be heading.

First I would like to explore why we are involved with amateur radio, as this drives much of this development:

- We love 'novel' communications - that opening, that new mode, that impossibility! (You don't know what you don't know and you try all sorts of interesting things!).
- We try to do more with less (our Scottish ancestry!) – take the logo of the QRP CW Operators club – 'doing more with less'.
- There are intergenerational benefits through providing a self-training, development and communications environment for future electronic and communications technicians and engineers and the move to the national competency framework was an excellent one.
- Emergency communication (when all else fails – it is usually a novel



A screen shot of the PowerSDR/OpenHPSDR software in operation. Instead of touch buttons and knobs, controls are mouse click buttons and sliders. You also have panadapter waterfall displays, together with a "S meter" calibrated in dBm, not rubbery "S" units.

- event well suited to amateur radio) / Event communication (community events – proves portable/mobile operation capability – field day activities and JOTA is a great example), and,
- It is all done in a not-for-profit (non-commercial), open, educative, information sharing environment.

We freely share information too – this fits really well with many of the free software development groups on the internet (GNU, etc). The amateur community has embraced the various free Unix versions – Linux, FreeBSD, etc – it fits well with the amateur philosophy of freely sharing technology.

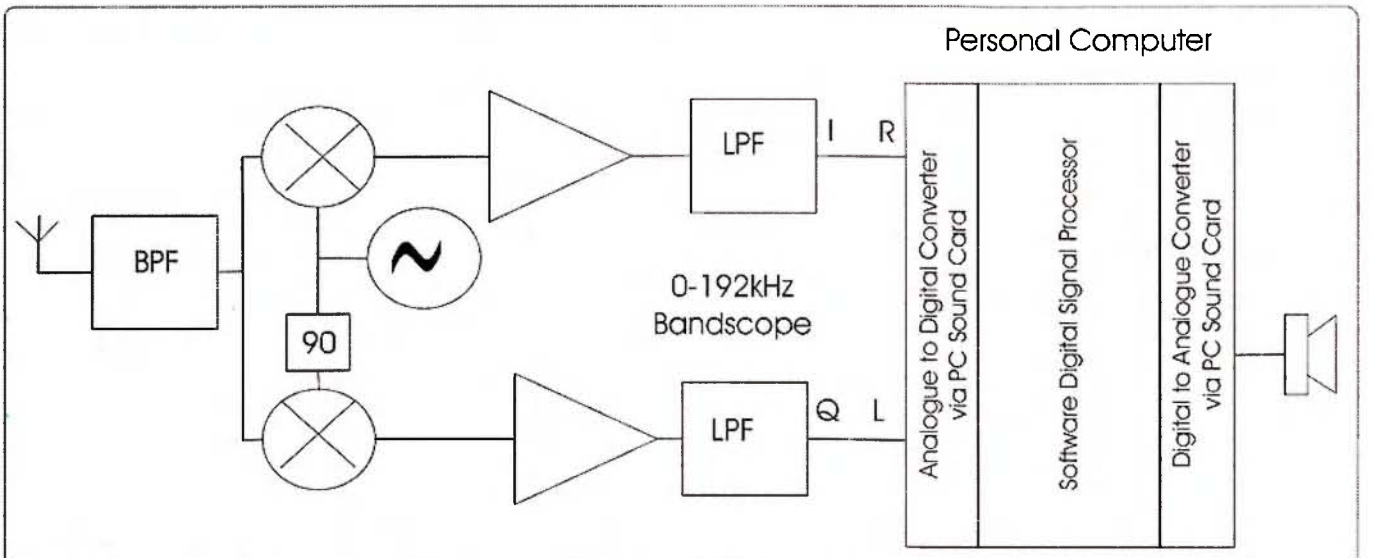


Figure 1: The architecture of the SoftRock receiver.

'Homebrewing' is slowly morphing from hardware into software. The homebrewer of the future will be a programmer using standard data signal processing (DSP) hardware and software libraries. Software Defined Radio is providing whole new areas of software 'homebrewing'! Many radio amateurs are already using Arduino, PicAXE, ATMEL, FPGAs, and the like to assist our hobby. However, one area that the author believes will remain in the hardware homebrewing domain will be antennas, with support from increasingly sophisticated software modelling tools (EZNEC, MININEC, MMANA and so on).

Many amateur radio tools (computer applications) are being developed by amateurs who work in the RF and IT engineering or technical fields and have a little fun with some AR programming on the side. A famous example is Joe Taylor K1JT – in 'real life' he is a Nobel Prize winning astrophysicist; in amateur life he develops and experiments with free weak signal WSJT, WSPR and other applications.

The four key areas of development the author would like to briefly explore are:

- Software Defined Radio (SDR).
- Narrow band - Weak signal modes.
- Internet backbone modes.
- Other notable digital modes.

### Software Defined Radio

Currently there are two types that exist in amateur radio shacks.

The first type uses the computer soundcard as the analogue to digital (A/D – D/A) converter and the personal computer (PC) as the digital signal processor (DSP) – for example, SoftRock. If your sound card is capable of sampling at 192 kHz then you can see 192 kHz of the band and there is a SoftRock produced for each band.

One issue with this approach is the need for adjustment to allow for the temperature, component aging, etc. to get good image rejection. However, this is solved through smart pieces of software that build a dynamic picture of where the images appear on the band and can store these in EEPROM for future reference. The big advantage with this design is that it is cheap to manufacture and opens up the world of SDR to the amateur.

The second type uses directly coupled A/D (or zero IF) which minimizes analogue components and feeds the digital data through a high speed bus to the PC for DSP – Digital Down Conversion (DDC), for example, the high performance SDR (hpsdr) receiver called Mercury.



Photo 1: Some of what is available on the SDR market today. L to R: SoftRock, Mercury (bottom left), SDRZero, RFSPACE SDR-IQ and Flex 5K (top right). The photo was sourced from the Internet and enhanced.

DDC is used in the Mercury receiver and digital up conversion (DUC) in the transmitter (Penelope). Both use field programmable gate arrays (FPGA) which are field upgradable through firmware downloads if more effective techniques are developed. Decimation enables slower computers to be used and dynamic ranges increase three dB at each doubling of the decimation rate. The Mercury decimation rate results in about 121 dB of dynamic range.

Both SDR types can use freeware PowerSDR software which is constantly being developed and for the more software adventurer among our ranks there is the DttSP open source SDR library.

With digital signal processing you can get over the many issues with the older phasing rig designs

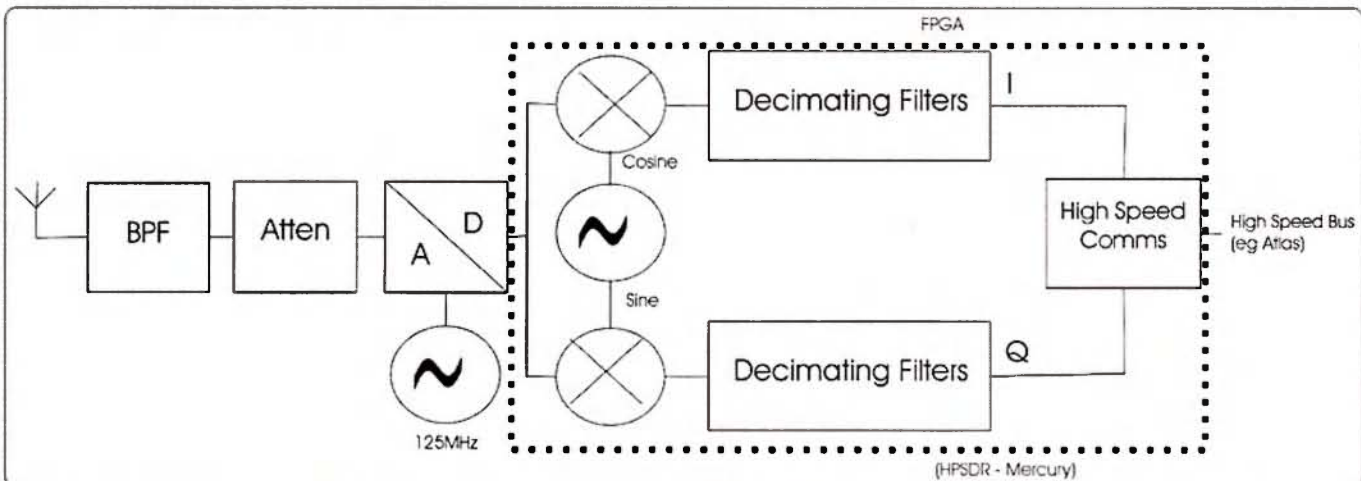


Figure 2: The architecture of the hpsdr Mercury DDC receiver.

like being able to very accurately determine amplitude and phase to reject images. For 100 dB rejection, phase has to be accurate to 0.001 of a degree and amplitude accurate to 0.0001 of a dB and these are both more than possible with modern digital SDR techniques.

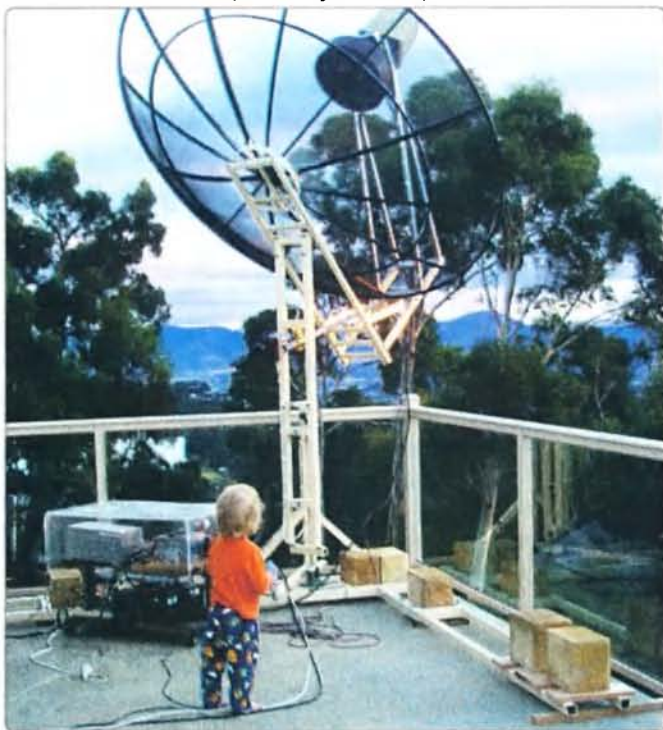
A big thank you and acknowledgement to Phil Harman VK6APH of the hpsdr project for much of this information. If you ever get the chance to see one of Phil's talks, take it, they are excellent. Disclaimer: The author is the proud owner of an hpsdr transceiver!

### Narrow band – weak signal modes

High frequency stability has allowed the narrow bandwidth weak signal modes to become reality for radio amateurs. Amateurs can sample bandwidths down to mHz (millihertz) and when coupled with DSP/Fast Fourier Transform (FFT) techniques signals can be pulled magically from the noise. For example a signal which is -23 dB within a 2.5 kHz passband can become a +5 dB level signal within a 4 Hz passband – it just takes longer for a QSO.

Amateurs can access relatively cheap GPS disciplined oscillators

Photo 2: The balcony mounted small dish system for EME of Rex VK7MO (Photo by VK7MO).



which can provide very high frequency stability into the shack. For example, an ex-CDMA base station GPSDO – HP3815A can provide somewhere between  $1 \times 10^{-10}$  and  $1 \times 10^{-11}$  frequency stability which translates to a drift of better than  $1/100^{\text{th}}$  of a Hertz at 10 MHz or better than 10 Hz at 10 GHz. VK7RAE at Don Heads in Devonport is the first beacon in VK to be recently upgraded to provide high frequency stability beacons on 6 metres and 2 metres for weak signal experimenters.

Some notable narrow band applications that are currently available are:

WSJT – Weak Signal Communication by K1JT: 2.7 Hz bin width – down to -28 dB. FSK441 is used for meteor scatter, JT6M for ionospheric scatter, JT65 for EME at VHF/UHF, and for HF propagation. K1JT also produces a program called WSPR (Weak Signal Propagation Reporter) which uses similar techniques for propagation reporting.

WSC – Weak Signal Communicator by VK3HZ: 3.8 mHz bin width, down to -44 dB (WSJT scale). This highly experimental mode needs the sound cards to be GPS locked and uses

Spectrum Lab as the DSP engine. WSC was used to make a 288 km optical (474 THz) cloudbounce one-way contact between VK3 and VK7 in October, 2009.

Jason – Uses incremental frequency keying: – 4.28 Hz bin width using absolute frequencies which represent tones and the difference between two tones is used. ISK is a keyboard to keyboard mode.

QRSS – Very narrow band slow

CW (QRS): – 0.3 Hz bin width.

DFCW – Dual frequency CW: – mHz bin width, and splits the dots and dashes to two frequencies and slows it down and uses the waterfall display for visual integration. A QSO takes about 30 minutes to complete.

Weak signal modes like WSJT have enabled relatively modest Earth Moon Earth (EME) stations to be run within the suburbs whereas the traditional CW/SSB stations need large dishes and high power to bounce signals off our closest natural satellite.

Using WSJT JT65 mode via the moon using a 2.3 metre dish, Rex VK7MO and grandson Matthew can work similar sized small dishes with five watts and a large 25 metre dish run by amateurs in Holland with half a watt. On the 40<sup>th</sup> anniversary of the moon landing, the University of Tasmania allowed VK7MO and VK7TW to use its 26 metre dish and successful digital EME was demonstrated down to three milliwatts (QRP EME). Our recent access to the low frequency spectrum also provides a whole new area which is suited to weak signal and digital modes so, watch this space.

Radio amateurs have a large slice of radio spectrum – 23.353 GHz to be exact and this spectrum is under scrutiny all the time. The Australian 3G auction raised \$1.17B in 2001 and that was for only 110 MHz of the 2 GHz band! In Germany the same auction of their spectrum raised US\$67B! The push is always for spectrum efficiency and in future we will be expected to do more with less and these narrow bandwidth modes are demonstrating how we as radio amateurs could do this in the future.

### Internet backbone modes

There are a range of AR modes that use the internet as a virtual ionosphere (backbone). The digital age has provided streaming technology which can digitize an audio (or video) stream and send it across the Internet.

The most popular being the Internet Radio Linking Project (IRLP) created by VE7LTD.

This mode interlinks repeaters via the internet using DTMF tones and audio streaming technology (similar to Voice Over Internet Protocol – VOIP) with radio frequency (RF) at each end on repeaters. This mode enables world-wide communication using just a handheld by accessing a local IRLP enabled repeater.

EchoLink is another popular VOIP mode that was created by K1RFD and can also use RF to connect to an EchoLink enabled repeater. EchoLink can also connect two computers with no RF involved and this has very similar functionality to the VOIP phone applications like Skype, although it can only be used by licensed radio amateurs. DTMF tones can be used to access EchoLink nodes via IRLP using the EchoIRLP application.

WIRES II is Yaesu's 'Wide-coverage Internet Repeater Enhancement System' and uses internet streaming technology to connect repeaters in much the same way as IRLP and EchoLink with a desktop client available. Two other notable internet backbone modes are eQSO, which is a VOIP type system for interlinking repeaters and keyboards for radio amateurs, and CQ100 which uses a 'Virtual Ionosphere' with no RF involved.

### **Other notable digital modes**

Packet radio both using AX25 and TCP/IP was very popular a decade or two ago and were some of the first modes that enabled computers to be connected to radios. This gave way to bulletin boards, internet wormholes (gateways) and is still providing much enjoyment for radio amateurs. Packet radio technology is also the basis for many other modes. Link a packet radio modem with a Global Position System (GPS) module and you have the Automatic Position Reporting System (APRS) created by Bob Bruninga WB4APR. Through packet digipeaters and internet gateways and the provision of geographical information systems like Google Earth a radio amateur can track APRS equipped vehicles, people, whatever, all around the world.

PSK31 is a very popular narrow bandwidth digital mode

and couple this with automatic link establishment protocols and you get a very useful propagation tool. This is HFLink and it is used to track propagation and post the paths to a website for contacts and emergency communications.

D-STAR is a collaboration initiated by the JARL which has been commercialized by Icom. It stands for 'Digital Smart Technologies for Amateur Radio' and uses 128 kbps digital data (DD) streams and 4.8 kbps digital voice (DV) streams. It can provide internet similar functionality and bandwidth at the radio dependent on the D-STAR repeater configuration. It can operate radio to radio or through a D-STAR enabled repeater or through a normal FM repeater. Repeaters can be linked via the microwave bands or internet links.

Digital Amateur TeleVision using both the digital video broadcasting (DVB)-terrestrial and line-of-sight DVB-satellite standards are becoming popular with ATV groups. The video and audio (MPEG) encoders and DVB modulators are produced by a number of manufacturers and are available to the amateur community. I am aware that VK2, VK3, VK4 and VK7 all have digital ATV running either through repeaters or from club studios and sites.

### **The Future**

Given this is an article about the future I will make a bold prediction that we as radio amateurs will get to the point where it will be a novelty to 'actually' listen to the spectrum we are using! The spectrum unfortunately will become that polluted with extraneous noise that we will only be able to use digital modes to decode signals on the airwaves. This will provide the next big challenge that radio amateurs will need to address. Broadband over powerlines (BPL) is dead and gone (*or at least it should be – many firms and retail outlets still seem to promote variations of this technology, such as Ethernet over power systems for use within the home that are currently available for sale in VK. Ed.*)

but the challenge is now the constant flow of seemingly unregulated RF generating equipment that is entering the consumer market!

There will continue to be regulatory issues as technology development is always faster than policy and regulation development (bureaucratic hysteresis). These pressures are not new and I refer to the 1930 ARRL handbook:

*'Legislation has always been the arch enemy of the amateur. We have already seen that but for human erring on the part of the early lawmakers in 1912, the first encounter with this formidable antagonist would have likely ended in virtual extinction.....Grumbings and dark glances greeted moves on the part of the Radio Inspectors to get amateur stations down to at least 220 meters in 1921 and 1922.....A menace of another kind put in its appearance during 1926 and 1927. There appears a tendency on the part of municipalities to create city ordinances restricting local amateur operation.'*

Yet the amateur service has thrived, developed, embraced and overcome many of the challenges presented. The old adage could not be closer to the truth '*necessity is the mother of invention*' and the ingenuity and skill demonstrated by many in the amateur service will continue to underpin the hobby's future.

The very nature of amateur radio that I mentioned earlier is the very thing that saves it from becoming extinct. Radio amateurs are always looking for the 'novel' approach, unique contact, longest distance, DXCC, most contacts, that opening, lower power, and so on. We are always trying whether it is comests, least cost, greatest distance, weakest signal, or whatever. This equals survival and we are 100 years young to prove it!

Editor's note: This article covers the material presented by Justin at the Centenary Conference in Canberra, May, 2010.





# It all started 100 years ago

## A review of the 100<sup>th</sup> anniversary celebrations

*The Centenary Celebrations Committee*

It all started just over 100 years ago when on 11 March, 1910 a meeting took place between like-minded radio enthusiasts at the Hotel Australia in Sydney.

There, a group was formed, initially known as the Institute of Wireless Telegraphy of Australia. A similar organisation took shape in Melbourne about a year later, known as the Amateur Wireless Society of Victoria. Like-minded organisations were gradually established in other Australian states, and in time these groups all became Divisions of a federated organisation known as the Wireless Institute of Australia.

Over the years, further restructuring took place. Now the national Wireless Institute of Australia, a single body continues to represent the interests of all Australian amateur radio operators.

Throughout last year, clubs, individual amateurs and the WIA celebrated **100 Years of Organised Amateur Radio in Australia** - a direct consequence of the foresight of the early experimenters in Sydney. Indeed, the formation of a determined negotiating body which finally became the Wireless Institute of Australia was probably due to the frustrations of individuals who sought permission to experiment with wireless transmission and were delayed or denied a licence by the authorities. A 'WIA' could apply a greater pressure than that possible by any individual!

So in recognition of what transpired over the past 100 years, it was considered appropriate that Centenary Celebrations were in order!

### **WIA Centenary Celebrations - the vision**

Conceptual planning to celebrate 100 Years of Organised Amateur Radio in Australia commenced in 2008, and in April, 2009 a brief outline paper prepared by David Wardlaw and Peter Wolfenden was presented to the Board of Directors. This included a brief review of the 75<sup>th</sup> Anniversary celebrations including aspects considered applicable to any the forthcoming 100<sup>th</sup> year event; they were:

1. A **celebration** - a time for amateurs to come together, enjoy each other's company and remember their past achievements.
2. A time to gain **publicity** for our **hobby** and educate the public.
3. An opportunity to further **add knowledge** to our **history**.

The Board gave its approval and a small Centenary committee was formed, made up of individuals with experience in the areas that needed to be developed. David Wardlaw VK3ADW headed up the group as Chairman, Peter Wolfenden VK3RV

undertook the history and archive research project, Jim Linton VK3PC acted as Centenary Media Officer and was responsible for much of the media aspect of our preparations, whilst Robert Broomhead VK3DN organised the promotional merchandise, website development and arrangements for the Centenary Weekend. Most issues involved the collaboration of all members of the committee.

The committee faced many challenges and hurdles, most were overcome, however a few ideas were simply not possible to implement. In the true spirit of the hobby many members stepped forward to assist the committee in a multitude of practical ways. It is true to say that these individuals are the 'unsung heroes' of the success of the year's activities - and there were hundreds of them! These members (and a number of non-members) really got behind the celebrations and finally made it all work so successfully. The commercial suppliers generously made available equipment and commemorative memorabilia. They also met some of the costs.

Their involvement is greatly appreciated.

A detailed report of all the centenary activities would be almost impossible to achieve within the space available in this magazine article. Many activities have been reported in their own right in various articles published in *AR* over the last 12 months and we would like to acknowledge and thank the many authors for their contributions.

In this article the Centenary Committee aims to present what we feel are a number of key highlights.

### **Tangible results**

The committee called upon the creative skills of Ivan Smith from Communiqué Graphics to undertake the development of the special Centenary logo. After viewing a number of choices Ivan had provided, the committee made its final decision and work commenced on the development of the Centenary Poster, QSL card, Centenary Award and Centenary merchandise.

One item the committee was very passionate about was the release of a commemorative postage

stamp and so we were extremely disappointed when we learnt that Australia Post had not accepted our proposal to produce such a stamp. Despite the committee's best efforts and despite the fact that we completely fulfilled Australia Post's requirement criteria, regrettably we were unable to change their decision.

In October, 2009 the appearance of a news release on the WIA website announced the many activities that were being planned for the 2010 Centenary year. This along with the availability of Centenary merchandise that could be purchased through the WIA's online store saw enthusiasm begin to build among members. By the end of January, 2010, the online registration form for the Canberra weekend was available via the website and within days people began registering for the weekend. The announcement that the Friday evening Telstra tower technical tours had been confirmed and the subsequent announcement that Dick Smith had accepted our invitation to speak at the Saturday evening dinner plus the Sunday afternoon BBQ at Dick's property saw registrations simply pour in.

The WIA website played an important role in communicating information about the Centenary and developing an interest in the planned celebrations.

The January/February issue of *Amateur Radio* saw the commencement of a series of historical articles written by Peter Wolfenden. Entitled: ***Arena of Wonder*** (a quote from George Taylor's press release on the formation of the Institute), the articles helped to explain the early days of organised amateur radio in Australia and provide readers with an insight to those who went before.

The release of the distinctive ***Centenary poster*** resulted in a lot of positive feedback from members, incorporating some fascinating imagery of early wireless experiments provided courtesy of the Waverley Amateur Radio Society. The especially themed Centenary artwork was used in a number of places during the year, including the

VK100WIA QSL cards, the Centenary Award and the 2010 Call Book. The range of ***Centenary Merchandise*** available from the WIA became extremely popular. Vests, caps, hats, jackets, shirts and other memorabilia were sold in the hundreds. A CD ***The Sounds of Amateur Radio Volume 2*** was released and ***The Sounds of Amateur Radio Volume 1*** (1985) originally on cassette tape was re-mastered and also released on CD. Another CD containing PDF copies of ***AR Magazines 1933-39*** was re-issued. These CDs will be available on an ongoing basis from the WIA Bookshop.

A special callsign, ***VK100WIA***, was proposed by the committee and after much discussion and correspondence with the ACMA through WIA President Michael Owen VK3KI, it was announced that the callsign would be made available to the WIA for a six month period to be used by nominated affiliated clubs. An online registration form was placed on the website and clubs selected from the calendar a three day operating window, creating a fair and equitable way to share the callsign among the clubs.

There is little doubt that VK100WIA had a major impact on our hobby. From May to October, 2010 it was on air almost continuously, operated by over 50 clubs around Australia. The WIA website ***VK100WIA online log***, recorded 24,460 contacts during this time and over 100 countries made contact with *our* special callsign.

The ***Centenary Award*** also proved popular with over 380 certificates awarded to the end of December, 2010 and further applications in January. Both VK100WIA and the Centenary Award have been very successful, resulting in the reactivation of many stations within Australia, generated a lot of interest from overseas amateurs and raised activity and interest levels within clubs.

### **Gaining publicity**

The WIA Centenary Committee recognised the importance of making a professional ***Media Kit*** available

to the clubs to ensure that those engaging with the media during the year had suitable resources to draw upon. The comprehensive kit prepared by Jim Linton VK3PC, included a template media release, background sheets on amateur radio and the WIA, plus a ***how-to guide for clubs***. The WIA National Office posted out these kits approximately a month before each club's rostered VK100WIA slot and followed up each club with reminder emails.

It was very pleasing to see the media releases adapted with club information appear in so many newspapers and result in radio and television interviews. Undoubtedly the level of media coverage achieved right across Australia is something we have not previously seen. Hopefully the exercise in promoting the Centenary will have a long lasting influence on the way radio clubs think about promoting themselves and amateur radio in the future.

A decision was made to appoint a ***Patron*** to help promote the celebrations to the general public – someone who would be able to provide a 'public face' for amateur radio. Dick Smith VK2DIK not only volunteered his services as Centenary Patron but in the ensuing Canberra AGM/Celebrations in May, 2010, opened his private flying club, museum and barbeque facilities to us. As it transpired, this was a wonderful, awe-inspiring and unforgettable experience for all of those attending the weekend in Canberra including the representatives of international radio societies.

### **A national formal celebration**

The location, structure and timing for the ***formal celebration*** were major tasks. Robert VK3DN conducted much of the 'field work' with a number of visits to various locations and venues to seek out the most suitable that met our requirements. Facilities included not only the usual accommodation, dining and meeting/lecture facilities but also the requirement for a dedicated 24/7 radio room for an amateur radio station together with access

to a suitable roof for antennas with access permission to mount an array of antennas. There were additional requirements for a proposed ARISS contact planned to take place during the Saturday evening dinner.

It was decided to hold the special celebrations combined with the WIA AGM in Canberra, the nation's capital, which is reasonably central to the majority of amateurs in Australia. A bonus was that the IARU Region 3 was able to schedule their Annual Directors Meeting to coincide with the celebrations thus enabling a significant international presence at our Centenary celebrations.

The vision of a **National capital event**, designed to provide a number of interests for each person attending – including partners and families, gradually crystallised. The Canberra weekend was considered by many as a real highlight of the Centenary Celebrations. The weekend was based on the format of past **WIA AGM weekend of activities**, and expanded with many other facets including an opportunity to recognise our history. The **WIA AGM weekend of activity** theme, run for a number of years, has promoted a weekend with activities of particular interest to the radio amateur, so it was a unique but fortuitous coincidence that one of Canberra's most famous technical landmarks, the **Telstra tower** was celebrating its 30<sup>th</sup> Anniversary in the same month as the WIA Canberra weekend. The technical tour of the tower became a memorable element in the weekend's program and was followed by dinner in the tower's Alto revolving restaurant with spectacular views over Canberra. Thanks are extended to Telstra and property management for making the once in a lifetime technical tours possible.

During the Saturday morning the WIA conducted its **AGM** followed by the presentation of awards and the **Open Forum** which included reports on all WIA activities over the year and providing the opportunity for questions and comment from members.

The **historical presentation** held throughout the Saturday afternoon at Rydges Hotel was an

outstanding success brought about by the number and quality of the guest speakers and their subject matter which ranged from history, through construction techniques, ladies in amateur radio, to an overview of future developments in communications techniques. Oh, and the cat's whisker was in there somewhere also!

The **Centenary Dinner** featured a message from the Chairman of the Australian Communications and Media Authority, Chris Chapman; the Centenary contact with the International Space Station and Dick Smith VK2DIK as keynote speaker. The evening's events went off without a hitch. Astronaut and Flight Engineer Tracy Caldwell-Dyson KF5DBF delivered a congratulatory greeting to the WIA and all attending the dinner at the commencement of the ISS contact. Tracy then answered questions from ten students from Trinity Christian School: an evening the students and their Principal, Carl Palmer VK2TP/ VK1TP – will not forget for a long time!

To conclude the evening, representatives from a number of international Radio Societies delivered messages of congratulations to the WIA and gifts in recognition of the occasion.

International visitors included: Tim Ellam VE6HS President, International Amateur Radio Union, Professor Joong-Geun Rhee HL1AQQ Director IARU Region 3, Peter Lake ZL2AZ Director IARU Region 3, Gopal Madhavan VU2GMN Director IARU Region 3 and President Amateur Radio Society of India, Shizuo Endo JE1MUI Director IARU Region 3, Keigo Komuro JA1KAB representing The Japan Amateur Radio League, Isamu Kobayashi JA0AD representing the Japan Amateur Radio League, Panayot Danev LZ1US representing IARU Region 1, Roy Symon ZL2KH President NZART, Vaughn Henderson ZL1TGC NZART Councillor and Jay Bellows K0QB International Affairs Vice President ARRL.

On Sunday morning, the weekly VK1WIA news broadcast was transmitted live from the radio room at Rydges Lakeside

Hotel. Simultaneously recorded, it was also uploaded to the WIA website shortly after the broadcast concluded thereby making it available for retransmission around Australia and the world. This very 'first' live broadcast VK1WIA news was anchored by Graham Kemp VK4BB with live appearances by WIA President Michael Owen VK3KI, Vice President Ewan McLeod VK4ERM, Secretary Geoff Atkinson VK3AFA, WIA Office Manager Mai Brooks VK3FDSL, Director Philip Adams VK3JNI, Director Peter Young VK3MV, Director Bob Bristow VK6POP, Director Phil Wait VK2ASD and Jim Linton VK3PC representing the centenary committee.

Following the broadcast, the focus moved to Dick Smith's Gundaroo property, where a wonderful day was enjoyed by all.

Sincere thanks are extended to the members of the *Canberra Region Amateur Radio Club* for their assistance during the weekend and to the management and staff of Rydges Lakeside Hotel for providing the venue and meeting our somewhat unusual requirements.

### **Legacies of our 100<sup>th</sup> year**

Whilst the formal Centenary Celebrations are now well behind us, a number of **legacies of the year** remain. Some of these are in the form of new friendships and stimuli for clubs, but there are others which are the result of the combined efforts of many people over the years. The sorting of the many uncatalogued documents held by the Institute has enabled an **embryonic Archive to be established** at the national office in Melbourne. One early project undertaken is the scanning of all callsign listings and callbooks from 1912 onwards. Although this is still a 'work in progress', it has already paid dividends for the institute which can now, from searchable PDF files, relatively easily answer enquiries about licensed amateurs – usually from family historians.

Another major ongoing result of the year's celebrations is the wonderful response to the **'Call for Historical Articles'** in *AR*.

This resulted in many submissions, some of which have already been published. Other very interesting and significant articles will follow and all material will be indexed and added to our archive for use by future researchers.

We can all be part of the on-going Centenary Celebrations of Organised Amateur Radio in Australia, by contributing historical material to the WIA Archive - a true legacy of our 100th year!

Another significant on-going aspect of the celebrations is the **availability of media help**. If you have not already done so, check out the 'VK100WIA Club & Media Feedback' section on the WIA website. A request for a special media release has in the past been received from a few clubs, but most felt comfortable preparing it themselves by drawing on the media kit. Having done this for the Centenary, there is no reason why a club cannot do it again in the future - such as for the National Field Day, this year entitled '*Amateur Radio, The First Technology-based Social Network*', to be held on 17 April, 2011.

Clubs are also now aware of the need to have knowledgeable, friendly and well groomed ambassadors, if possible across a wide demographic and of both genders, to give a first positive impression to any members of the public attending a club event.

**Helping to raise the public profile of local radio clubs is another legacy of the Centenary celebrations.**

## A constructive year for amateur radio in Australia

In summary, the real significance of 2010 has been much more than the events and images. It was a very friendly and constructive year. A year when many felt proud to be a radio amateur, and proud of the WIA and what it has achieved over the years. 2010 was a year that rekindled an interest in amateur radio for many people, generating a new pride, new interest, and new enthusiasm. Long may it continue!

We sincerely appreciate the generosity of all who contributed to make the Centenary Celebrations such an enormous success. There were many people who made it all possible - especially our Patron, Dick Smith VK2DIK, a wonderful and generous person.

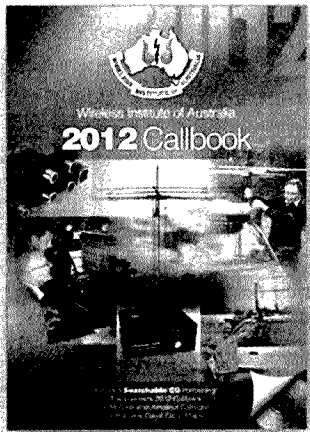
It was definitely not just the work of the four committee members. At times officers of the Institute assisted the committee in the planning and implementation work. People like Michael Owen VK3KI, President, Geoff Atkinson VK3AFA, Secretary, John Longayroux VK3PZ, Treasurer, Peter Freeman VK3PF, AR Editor, and the other WIA Directors, not to forget the office staff in Bayswater!

The guest speakers at Canberra who all did a most outstanding job of their presentations, are worthy of special praise, as are the Canberra Region Amateur Radio Club members for their assistance, including the bus drivers and private car owners who helped with transporting guests.

Those club members who helped so ably in providing appropriate publicity to local media and radio stations as well as the outstanding work of our own broadcast co-ordinator/announcer, Graham VK4BB and Clubs Co-ordinator Ted VK2ARA.

The efforts of local radio clubs which contributed in so many ways were major players in the year's activities. Some organised special events or re-enactments, like the Gippsland Gate Radio and Electronics Club, or the involvement with the public *Science Alive* activity in Adelaide. *Super Spring Time* in Perth was a real co-operative event involving a number of clubs. The dedication of the '*Dural Shed*' in Sydney and the '*Neil Penfold Centre*' in WA will provide a continuing long term focus for many amateurs. It is appropriate that these two significant facilities were opened this year. In Tasmania, Justin VK7TW also conducted multiple radio interviews publicising both amateur radio and his club's VK100WIA operation from the Domain. Many, many others contributed in a multitude of ways to their hobby and their community this year.

This list could go on and on. But the most important people of all this year are the individual radio amateurs who joined in the spirit of celebrating 100 Years of Organised Amateur Radio in Australia. Thank you all for your time and interest; it was a worth-while year!



# 2012 WIA Callbook On Sale Now

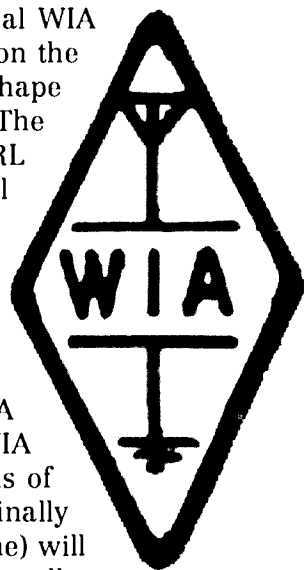
For more details, head to [www.wia.org.au/members/bookshop/about/](http://www.wia.org.au/members/bookshop/about/) or contact the WIA office on 03 9729 0400 between 10.00 am and 4.00 pm (EST).

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# WIA Travelling Badge Competition

At the 1980 Federal Convention the WIA membership approved the use of the international Diamond Badge as an alternative to the official WIA emblem that we have today. The badge (pictured) was based on the well-known and long-established international diamond shape which had been adopted by the ARRL in the mid 1920s. The ARRL badge contained an aerial, capacitor (with the ARRL abbreviation in between the plates) and an earth. The final design of the WIA badge was put forward by Bill Roper VK3ARZ and replaced ARRL with WIA.

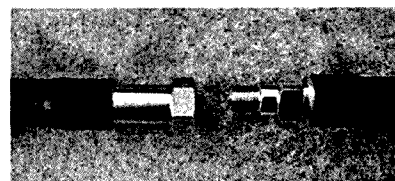
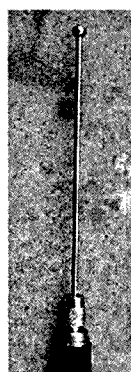


Some 30 years later at the 2011 Annual Convention the membership proposed that the WIA revisit the offering of a badge which could be displayed by travelling VK amateurs, or simply collected. The WIA believes that the reintroduction of a International WIA Diamond Badge has merit and is seeking the submissions of design suitable for use on the same diamond shape as originally used. The designs (which may include the original 1980 one) will be reviewed by the WIA board and presented in February *AR* to allow the membership to vote to select the most popular design capable of being manufactured at a reasonable cost.

So get your creative juices flowing and submit your design by email to the WIA HQ at [nationaloffice@wia.org.au](mailto:nationaloffice@wia.org.au)

Christopher Platt VK5CP

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# A four element six metre Yagi for 50 to 52.5 MHz

Paul McMahon VK3DIP

## Outline

This article describes a four element Yagi particularly suited to the SSB and narrow band parts of the Australian six metre band. It is directly matched to 50 Ohms and produces good gain and VSWR from 50 MHz up to 52.5 MHz.

## Introduction

This Yagi originated out of a desire to replace my previous six metre horizontal antenna, an omni-directional crossed turnstile diamond quad (Reference 1) with something with more gain and directionality. I had built several six metre Yagis in the past but all had ultimately mechanically failed, usually with the assistance of a large number of local birds. The turnstile quad had been a reaction against this and had proved pretty much bird proof with no convenient roosting spots, and had delivered more than its fair share of DX, but the lure of the higher gain Yagi is strong. So the search commenced for a good design both in terms of RF performance and mechanical strength.

## Base Design

The RF performance objective was in many ways the easiest to achieve. The basic parameters I was after were good performance on both the 50 MHz and 52 MHz portions of the band, with a size roughly three metres square (half wave by a half wave) to fit comfortably on my rotator, and to suit the maximum length of readily obtainable boom material. I started with YagiCAD (Reference 2) and took a previously designed wide band two metre Yagi (Reference 3). I removed the last two directors and scaled it to 51 MHz, which was more or less the centre frequency of the band I was looking for. The resulting antenna was not too far off what I wanted but was slightly over 3 metres in boom length. A session with the genetic optimiser optimising for maximum gain and a good VSWR over the range 50 to 52.5 MHz, with the added hard limit to the three metre boom length, produced the final design given above in Table 1.

Element	Length (m)	Position (m)	Diameter (mm)
1	2.902	0	16
2	2.788	1.076	16
3	2.636	1.769	16
4	2.567	2.928	16

Table 1: Base design, position measured from element 1.

- At a frequency of 51.0 MHz this gave:
- Input Impedance =  $52.74 + j 12.76$  Ohms
  - Forward Gain = 9.4 dBi
  - Front-to-Back Ratio = 12.9 dB

The pattern obtained is shown in Figure 1. Along with the overall response in Figure 2.

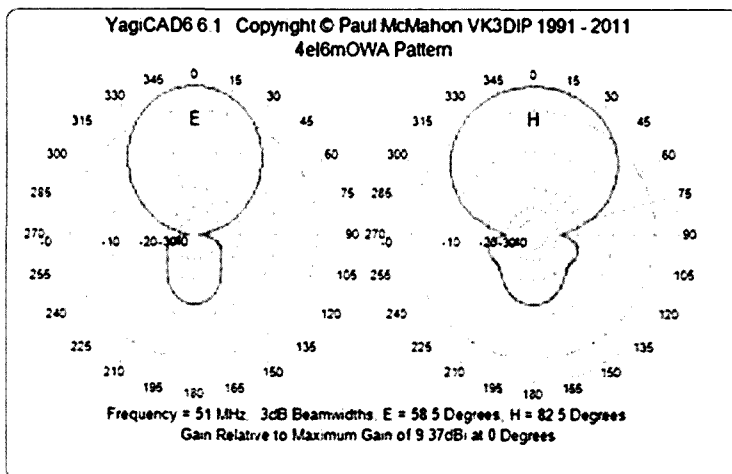


Figure 1: Antenna pattern.

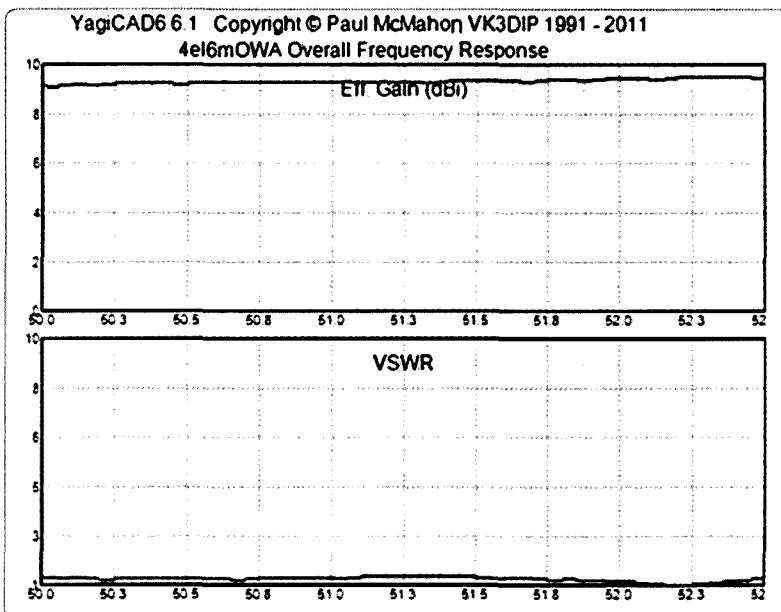


Figure 2: Overall response.

## Practical considerations - or how to spend hours in a hardware store without even trying

Getting the base design was relatively easy but implementing the design in practice can be a challenge especially if you want to minimise cost, and the need for hard to get bits and pieces. My goal is to be able to buy all the bits I need at one of the local (large) hardware stores, so usually I end up spending a lot of time wandering back and forward between the aisles taking bits with me to see how they fit together. A couple of the things I found have already been reflected in the design above, the boom limit of three metres, and the 16 mm aluminium tubing for the elements.

For the boom I had quickly given up on using aluminium because of cost, and the desire to stay with an insulated boom. I have had good success with using electrical conduit as boom material at 2 m and 70 cm in the past and the cost is a fraction of aluminium. For 50 MHz use however even the larger diameter electrical conduit was looking a bit floppy in three metre lengths, and the cost of a piece of wood dowel to stiffen it up was almost going to be more expensive than an equivalent aluminium boom. While wandering back and forward between the wood and electrical aisles, I went through the plumbing section and discovered 40 mm diameter plastic pipe. This is particularly useful because I found that there are several types of 40 mm pipe and 40 mm DWV telescopes nicely into 40 mm Class 9 (but not the Class 12) pressure pipe both of which were available in three metre lengths. So my scheme for the boom is a three metre length of 40 mm DWV with a 1.5 metre length of Class 9 pressure pipe slipped over and glued in the middle. This makes a quite rigid and light structure which can be painted if required to increase UV resistance, and at a considerably lower price than aluminium or even wood. One of the other advantages of this sort of boom is that it is hollow; on the way home from purchase of the components all the elements fit easily inside the DWV with the pressure pipe over the lot for a very neat package.

I am sure with a bit of fiddling and a couple of tube end caps (one with a thread) this could make an ideal field day or portable antenna.

The element diameter and material were chosen reasonably quickly based on the simple criterion of aluminium tube being readily available in three metre lengths, and 16 mm diameter looking like it would support a fair few birds.

Probably one of the most challenging parts of this and any direct connect Yagi is the driven element, and early on I realised that I was going to have to come up with a robust way of achieving this. My usual technique as used in previous 2 m and 70 cm Yagis (Reference 3) has been to use half-inch copper water pipe reinforced with an internal 10 mm diameter fibreglass electric fence rod. While I could have used this here I felt that this would be too thin and heavy in the lengths required for 50 MHz. The previous technique also involved the driven element going through the boom, with a reasonably large hole being needed to facilitate soldering the connections, and I felt this would produce a point of weakness in the boom with the longer lengths involved at 50 MHz. What I did come up with however is a more complex variation on this involving a length of the same fibreglass rod, a 13 mm black plastic hose joiner, a 20 mm conduit inspection tee, some 20 mm light duty conduit, a couple of snail proof plant tags, and lots of silicon filler. The details of exactly how this all goes together are given in the 'building it' section but what is important here is that the driven element would end up sitting on top of the boom, while the other elements would go through the centre of the boom. The question then was; would having the driven element displaced by 35 mm vertically above the plane of the rest of the elements have any bad effects on the basic design?

### Enter 4NEC2

In the past when faced with this sort of question I have often just added some more code to YagiCAD. There is no question the base NEC2 engine would easily handle this sort of question, but in this case, apart from this one time I wanted to check the

effect of a displaced driven element, who else would ever want to do this sort of analysis? Basically what this required was a NEC2 program that took arbitrary geometry antennas as input. Fortunately there exists an excellent example of this sort of thing called 4NEC2 which is available for free as detailed in Reference 4. Arie Voors, the author of 4NEC2, has produced a very fine piece of software; it handles all the possible tasks that one could ask of the NEC2 engine and then some. I use 4NEC2 for all my non-Yagi antenna modelling as it has equal or better features to most of the commercial pieces of software and of course the price is right.

The one fundamental problem of all these styles of arbitrary geometry antenna programs is data entry. Describing the actual antenna geometry can be cumbersome and prone to user error, as basically the user has to break the design up into a number of wires, and then enter the co-ordinates of each end of these wires in three dimensions into the program. Once you have learned the particular data entry mode of one of these programs then there is almost nothing you cannot model, but this still takes a bit of effort to get right. Only having to deal with Yagi antennas, and only using physical terms to describe the Yagi that would be reasonably familiar to most hams, YagiCAD can have a much simpler interface which hides much of the complexity of the NEC2 engine from the user. The trade off for YagiCAD is that you are stuck with pretty much vanilla Yagis which is why I occasionally, as in the case here, find myself needing the flexibility offered by 4NEC2.

Apart from sharing the same underlying NEC2 engine as 4NEC2, YagiCAD has for many years been able to export the current Yagi design in raw NEC2 format, which 4NEC2 can then read in and analyse. This process works well, but it can still be cumbersome to manipulate the data once in 4NEC2; for example varying the antenna height above ground requires editing the input file and changing the Z co-ordinate on each end of each of the wires.

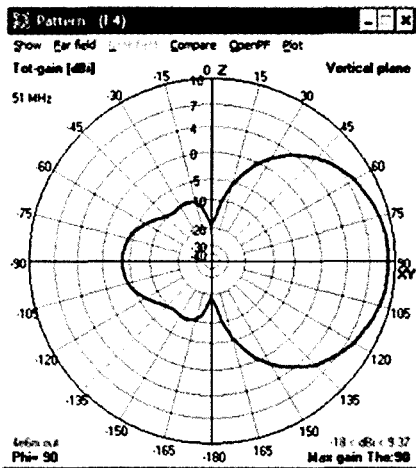


Figure 3a: Base Yagi far field pattern 4NEC2.

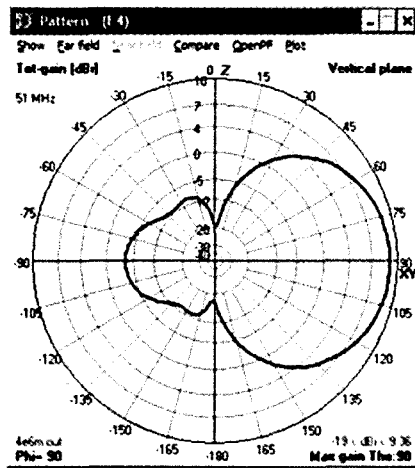


Figure 4a: Modified Yagi far field pattern 4NEC2.

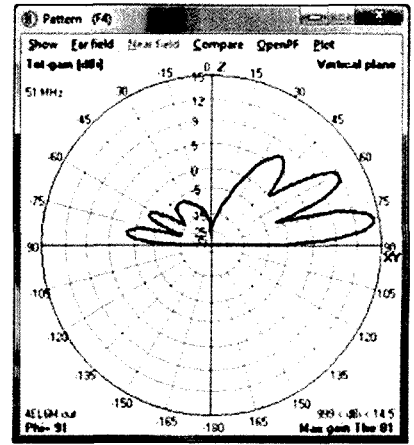


Figure 5a: Modified Yagi, nine metres above real ground, far field pattern 4NEC2.

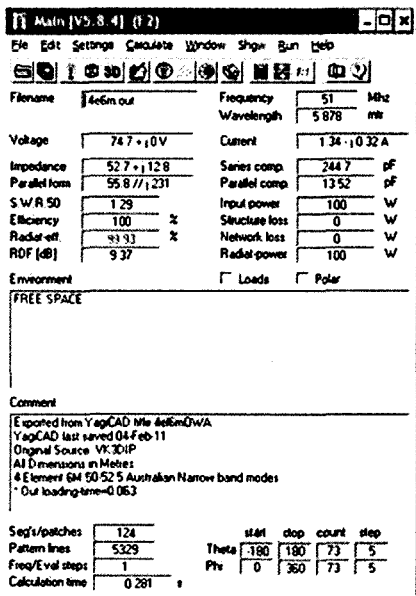


Figure 3b: Base Yagi main display 4NEC2.

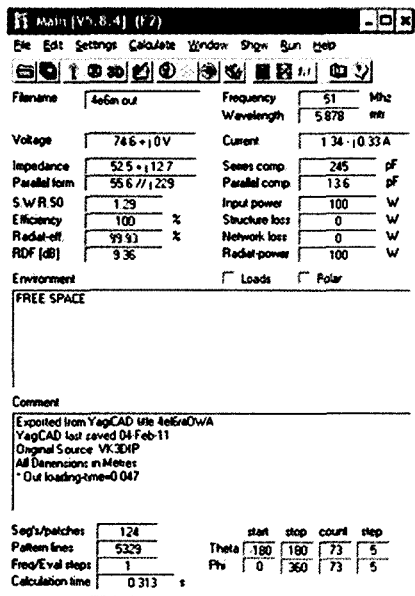


Figure 4b: Modified Yagi main display 4NEC2.

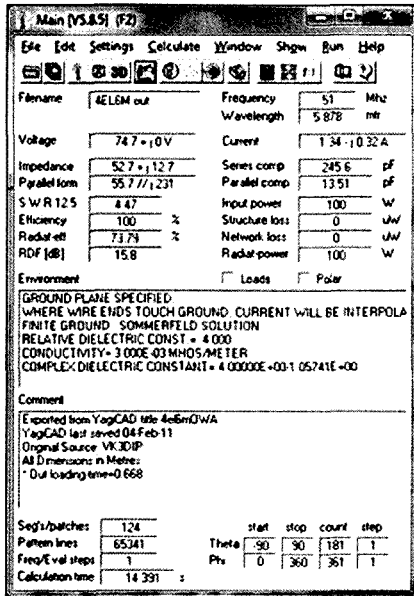


Figure 5b: Modified Yagi, nine metres above real ground, main display 4NEC2.

A single missed end or typo can cause chaos. As of version 6.1.8 of YagiCAD, I have also added a 4NEC2 specific export feature which includes some extensions to the standard NEC format supported by 4NEC2. In particular this includes a single parameter for height along with a number of other so called symbolic variables which can make playing with the resultant antenna in 4NEC2 much easier.

So to check the effect of displacing the driven element I exported the design to a .nec file and ran the basic single frequency pattern analysis. The results are shown in Figure 3a, and 3b.

As expected from using the same underlying engine, apart from slightly different rounding, these results are identical with those obtained from YagiCAD. Raising the driven element by the expected 35 mm can now be easily done in the 4NEC2 editor and the program re-run. The results for this can be seen in Figures 4a, and 4b.

Comparison of Figures 3 and 4 shows, luckily, only very minor differences. The pattern is now slightly asymmetric but the numerical values of input impedance and gain have varied only by the smallest amounts. These, and some runs swept across the frequency range of interest, confirm that the slightly

offset driven element planned will not have any great effect on the Yagi.

While we have the design in 4NEC2 we can also see the effect of having the Yagi sitting above real ground rather than the usual YagiCAD case of free space. For this run I have set the height at nine metres, because that is about where it will be in my case, and the results are shown in Figures 5a, and 5b.

Apart from the differences due to these figures being taken from a slightly later version of 4NEC2 running on a Windows 7 PC rather than XP, once again the input impedance shows very little change from the free space case so matching will still be fine, but the

pattern is quite different. This effect is pronounced here because the height is relatively small in terms of wavelengths, about 1.5 in this case; usually you need an antenna to be several wavelengths above ground to get a reasonable approximation of free space. The net effect of the pattern change here is to create a number of lobes at various elevation angles. These lobes are created as the various waves, both direct and reflected from the ground, add or cancel depending on the distances they have to travel.

This sort of thing happens with all antennas above real ground. This effect literally brings pluses and minuses; for example, in this case for signals coming in at an angle of about 10 degrees above the horizon there is over 5 dB additional gain above what would be expected in free space. Conversely signals coming in at about 20 degrees have lost all gain and are about 9 dB worse off than free space. In practice of course ground is not a perfect flat thing and there are houses and trees and such like in the real world so the actual pattern achieved will be a less well defined version of this. The general trend will, however, be more or less independent of the actual antenna used; the higher the antenna the more lobes, the lower the angle, and the more the sum of those lobes will look like the free space case. The lower the antenna, the fewer the lobes, but the higher the angle, and the smaller the peak. So except in special cases where you want your DX from one particular spot the general rule is the higher the antenna the better. Height in these cases is of course in terms of wavelengths; at 70 cm seven metres is quite high (about 10 wavelengths), whereas at six metres the same seven metres is low (just over one wavelength), and at 80 metres it would be very, very low (under 0.1 wavelengths). One of the best ways to visualise this effect is to use the 4NEC2 3D viewer as shown in Figure 6.

## Building it

Assuming you have managed to get together all the items or equivalents as listed in Table 2 the first task is glueing the boom.

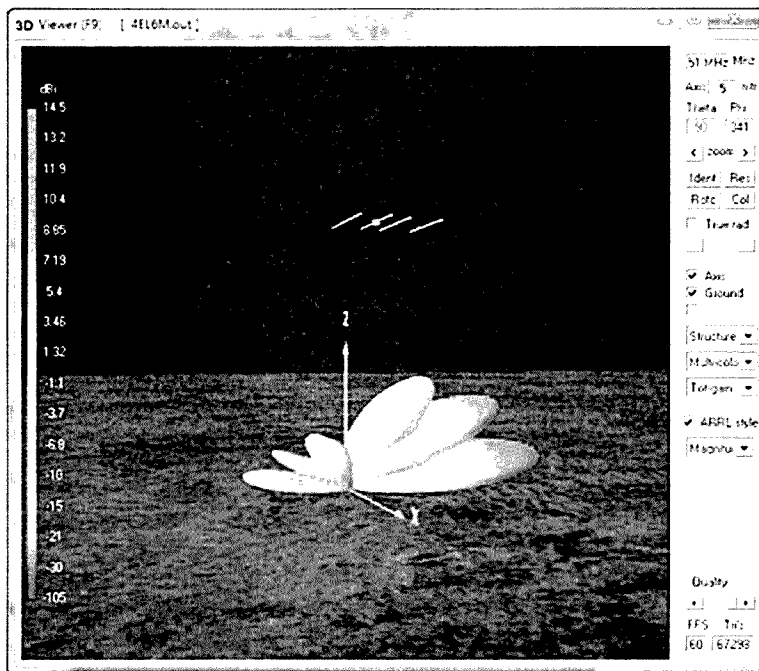


Figure 6: 4NEC2 3D viewer showing the pattern for the modified Yagi at a height of nine metres above ground.

1. If you have the three metre length of 40 mm class 9 pressure pipe (the outer pipe) it needs to be cut in half, at 1.5 metres.
2. The two pipe sections should be test fitted together with the class 9 centred, and marks made on the 40 mm DWV showing where it comes up to. Note both sections of pipe have a stripe of writing detailing type, size and so on. When these two halves of the boom are finally glued it will make life easier if these two stripes end up aligned.
3. Surfaces should be prepared as per the instructions on the glue as far as cleaning and general preparation. However, rather than painting the glue on as normal, which for such a large area of overlap may dry before we are ready, what I found worked was to:
  - a. Secure one end of the inner tube, for example, have someone hold it.
  - b. Position the outer at the start of the overlap.
  - c. Slowly pour the glue onto the inner pipe while sliding the outer pipe into final position.
  - d. While sliding and pouring, slowly rotate the outer pipe to distribute the glue between the two pipes.

- e. Make sure you end up with the writing stripes aligned.
  4. The glue sets reasonably quickly so do not take too much time or you will get stuck before the outer pipe is in final place. The intent is to end up with the 1.5 metre outer pipe positioned over the centre of the three metre inner pipe with a thin layer of glue between the two pipes all along the overlap - but nowhere else!
- While the Boom glue is setting you can cut the aluminium elements to length. The three parasitic elements are cut as per Table 1. The driven element piece of aluminium is cut to the length shown in Table 2, divided by two, minus the two mm middle spacer gap, that is one mm each side, thus 1.393 metres.

The next step is to assemble the driven element. A cross section diagram of the centre of the driven element is shown in Figure 7.

The driven element is by far the most complicated bit of construction. The scheme I have used here is very much belts and braces as I wanted this to last for some time. The obvious weak point in any directly driven element is the break in the centre of the aluminium. In the scheme here I have used a length of fibreglass rod to strengthen

this point rather than to just rely on the strength of the conduit inspection tee. Ideally the fibreglass rod would have been a snug fit inside the 16 mm aluminium tube but I could not source any of this diameter so I used 10 mm fibreglass rod effectively padded out with a filler. In my case I used silicon because I had a large tube/gun of it to hand, but if you had some two part epoxy this would probably be better. The centre insulator is a 13 mm black plastic hose joiner which may or may not require some drilling out to take the fibreglass rod. Short extensions of 20 mm conduit are used to both further support the aluminium and to act as a housing for the ferrite cores used as the balun.

The last aspect of note in the driven element is the electrical connection to the coax. I looked at several schemes involving aluminium solder, and clamps and screws, but all suffer from being either subject to corrosion leading

to bad contacts and/or requiring holes through the element, and in this case, the strengthening rod, which would ultimately lessen the mechanical strength of the element. The simplest scheme would have been some form of electrical hose clamp combined with the use of special electrical jointing compound such as 'Penetrox' or equivalent, but I have not found this yet at the local hardware store so I needed an alternative. What I ended up using was a technique of tightly wrapping the ends of the elements with strips of copper shim. The shim was sourced as a packet of plant labels from the gardening section of the hardware store but any other source, such as EMI or leadlighting tape, would do. The idea here is to provide a dual mechanism of contact. Firstly the large area of copper in close contact with the aluminium will minimise the contact resistance. Secondly if, in the longer term, moisture gets past the seals

and oxidation takes place between the copper and the aluminium thus increasing the resistance, the copper and aluminium will form a tubular capacitor (aluminium oxide is actually a good dielectric) which with the close spacing and areas involved leads to effective capacitive reactance values well under an ohm at 50 MHz, even with only one 20 mm wide strip. The coax is soldered as normal directly to the copper shim. This is, of course, the theory; only time will tell how well it actually survives, hopefully at least long enough to get hold of some 'Penetrox'.

Figures 8 through 14 show the driven element and its components at various stages of construction. One key thing to remember is to always try fitting the pieces together without glue or silicon first; it is a lot easier to adjust spacing, or hole diameters, with separate components rather than with bits glued together.

## Parts List

Item	Description	Quantity	Comments
Boom -part 1	40 mm DWV pipe	3 metres	Should fit neatly inside the class 9.
Boom -part 2	40 mm Class 9 pressure pipe	1.5 metres	For example, half a three metre length, neat fit over 40 mm DWV.
Glue	Plumbing pipe glue	some	Either red or blue; I used blue.
End Caps	40 mm DWV cap	2	Optional, fit last if required.
Elements	16 mm diameter, 1 mm wall, Al tube.	4 by 3 metres	Cut to lengths given in text.
Inspection tee	20 mm inspection tee	1	For example, Clipsal 246-20.
Hose joiner	13 mm barbed pipe joiner	1	Typical black plastic, cheap irrigation fitting. Check inner diameter to fit 10 mm fibreglass rod.
Fibreglass rod	10 mm diameter fibreglass rod	Approx. 750 mm	Off cut from earlier project - originally electric fence support sold in 1 or 1.5 metre lengths.
Conduit	20 mm (gray) electrical conduit	3 by approx. 75 mm	Off cuts from earlier project. A 5 metre length is cheapest. Caution; it must fit neatly over 16 mm Al tube. Some do, some do not, so check first.
Shim	Copper shim, 20 mm wide	2 by 60 mm	Sold in plastic packet as long life plant labels, or alternately EMC /leadlight tape.
Coax (tail)	RG58	3 metres	Good quality is best.
Connector	N (RG58) Inline female socket	1	Could use PL259 if desired
Balun	Ferrite tubular cores	6	Jaycar part number LF1258, packet of 6.
Filler	Silicon filler	Lots	If silicon, get the neutral cure type, much cheaper by the large tube even if you have to buy the gun also.
Bolts	75 mm 6.5 mm galvanized bolt, nut, washer set	2	For mounting the DE to the boom
Epoxy putty	5 minute epoxy putty	Approx. 50 mm	Sold in stick form, example, Selleys KNEAD IT

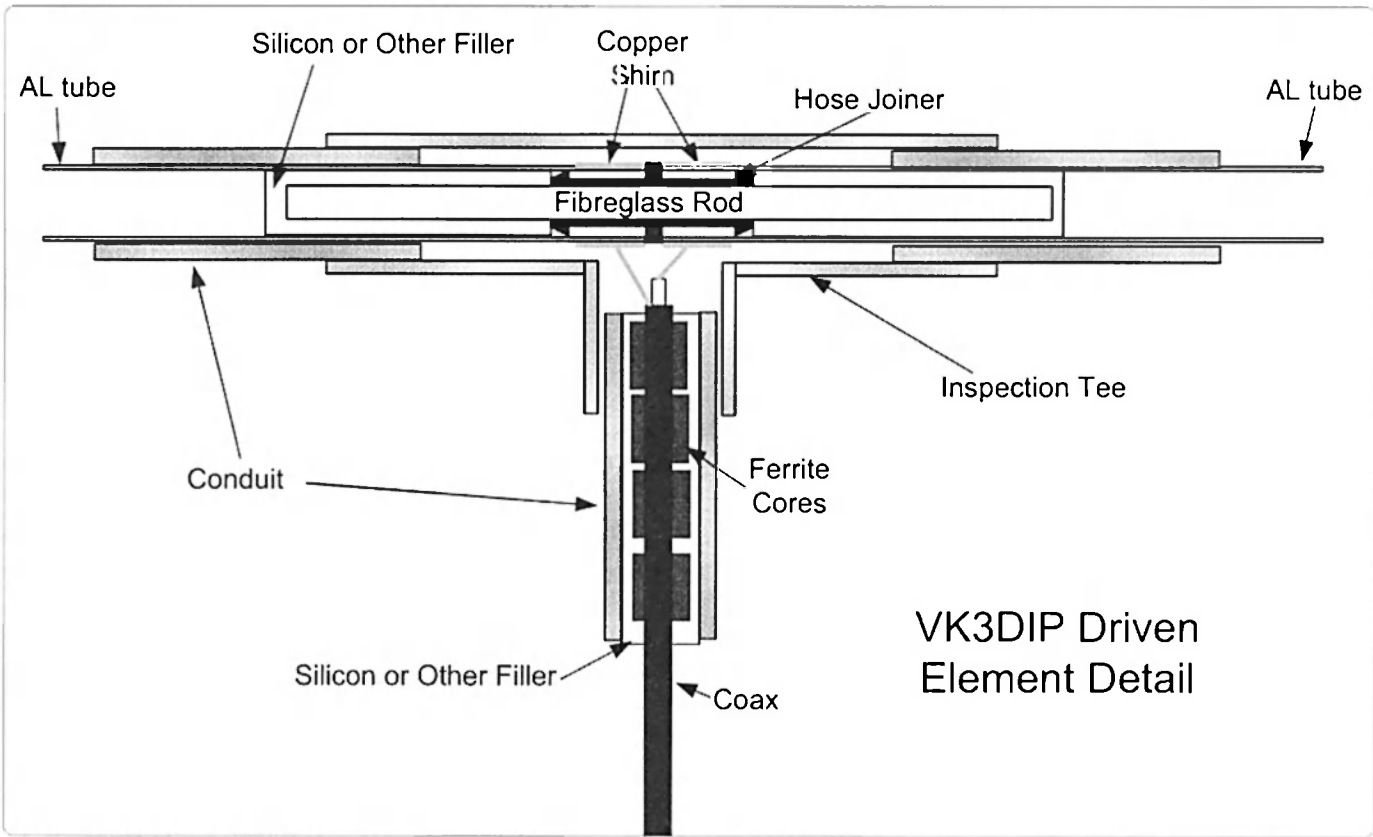


Figure 7: Driven element assembly cross section.

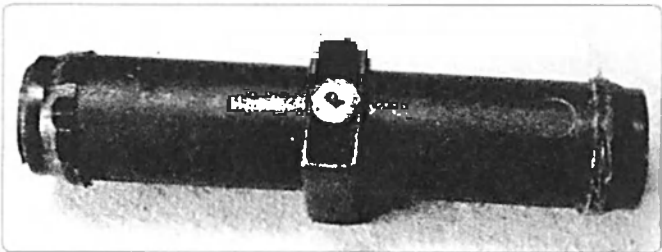


Figure 8: The hose joiner used as the centre insulator.

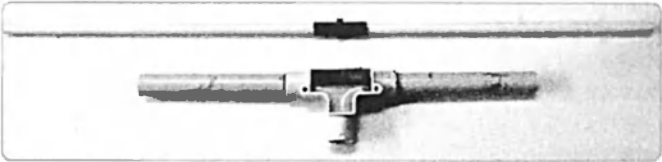


Figure 9: The hose joiner threaded on the fiberglass rod next to the inspection tee.

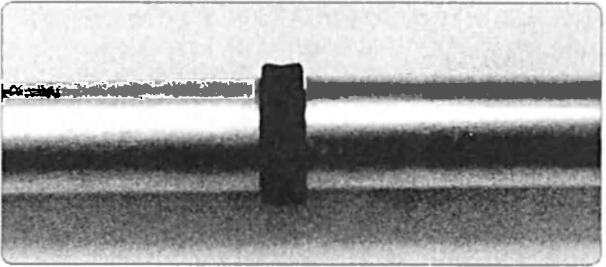


Figure 10: Close up of DE separator.

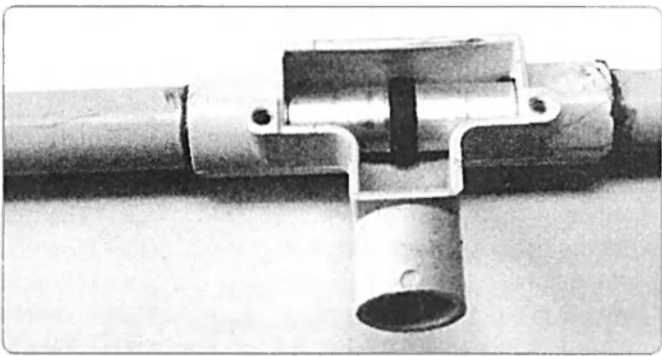


Figure 11: DE inspection tee.

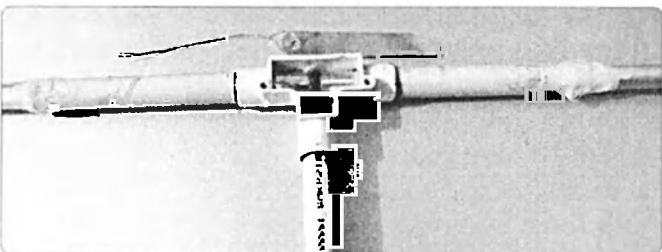


Figure 12a: Copper plant tag shim with driven element.

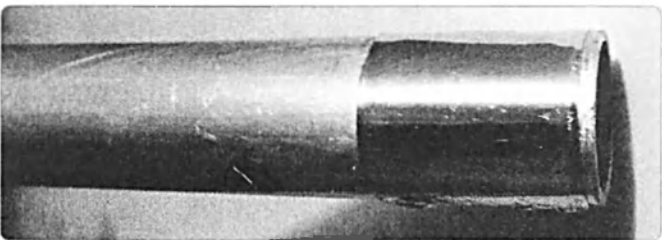


Figure 12b: Copper band on driven element.

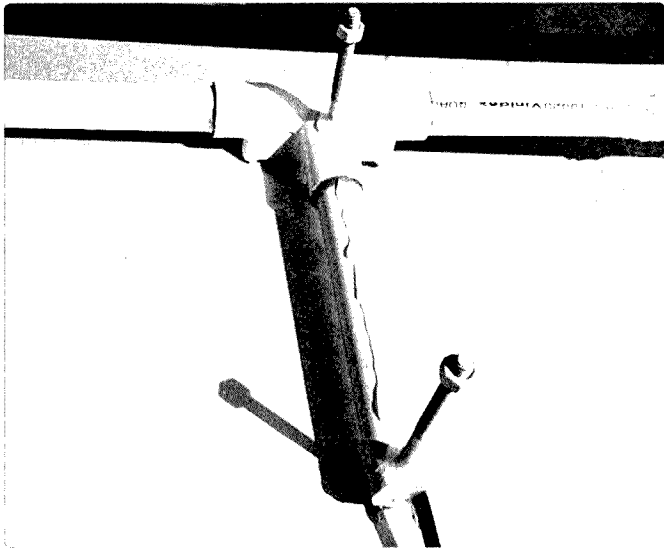


Figure 13: Completed DE bottom view showing mounting bolts.

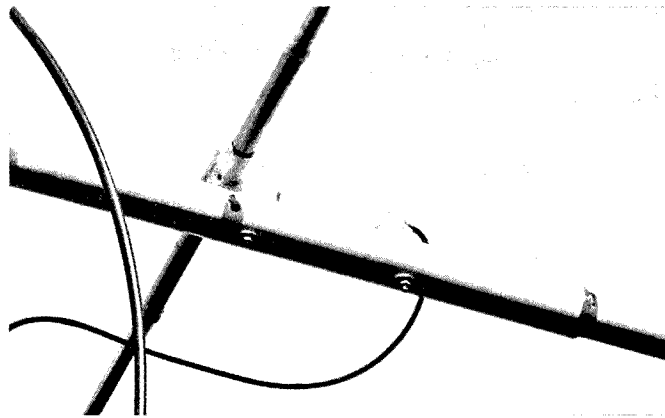


Figure 14: Completed DE mounted on boom - note epoxy putty fillets.

The following is the best order to assemble the DE:

1. Cut and/or drill as necessary all the bits to size, and try them without glue to ensure they fit.
2. Wrap tightly the copper shim around what will be the inner ends of the two halves of the aluminium tube. Use solder to join the ends of the shim. Try to keep the copper hot with the aluminium cold so as to allow the copper band to pull tight as it cools. If you have 'Penetrox' or equivalent, use it as a layer between the two metals.
3. Fix the hose joiner in the middle of the fibreglass rod with a dab of glue inside the joiner, and allow to set. Use hot melt glue if impatient.
4. Position the joiner and fibreglass rod in position in the conduit tee - cover removed - so that the visible bit of the joiner/separator is in the middle of the inspection window.
5. If you are using silicon filler, and if not see point 7 following, then fill the inners of the two inner ends, the ends with the tightly fitted copper bands, of the aluminium tubes with silicon or equivalent filler.
6. While the filler is not set, carefully push the two aluminium tubes over the two ends of the fibreglass rod and down to cover all but the two mm - or so - gap formed by the middle of the hose

joiner. Slowly rotate the aluminium at the same time

- you push them together to evenly spread the silicon.
7. As an alternative to point 5, and 6. If you are using epoxy fit the two halves of aluminium together over the fibreglass then for one half at a time, holding the element vertically, carefully pour the epoxy down the ends of the aluminium tube so that it runs down into the gaps between the aluminium and the fibreglass rod. Obviously having done one end you have to wait for it to set before inverting the element to do the other side.
8. Glue the three short lengths of 20 mm conduit in place to the inspection tee. For the two pieces that go over the aluminium add a dab or two of silicon as you slide them on at the end to act as a seal.
9. Drill the holes for the mounting bolts. In my case one of these went through the lid of the inspection tee and out the bottom near, but not, of course, touching the join of the aluminium. The braid and the centre of the coax will go either side of this bolt. The second bolt hole goes through the far end of the conduit extension that will house the balun ferrites.
10. It is probably a good idea at this time to drill the matching mounting holes in the boom and check that they line up nicely.

Before doing this however you should drill the holes for the other elements on the boom. These other holes are simplest drilled at the spacing specified in Table 1 by temporarily attaching the boom tube to a length of flat straight timber, using masking tape or similar, with the marking line on the boom tube uppermost. This line will then give you a guide to mark out and subsequently drill the positions of the holes. The DE mounting holes are drilled at right angles to the other element holes at a position which has the aluminium parts of the DE at the correct spacing to the other elements.

11. The coax tail to be connected to the DE should now be prepared. I used a three metre length of good quality RG58. One end was terminated with an inline female type N connector and the other end has the six ferrite cores slipped over and tacked into place with hot melt glue. The ferrite sleeves are positioned such that when approximately 30 mm of outer cover is removed there is enough braid/inner to pass either side of where the mounting bolt will go and still be solderable to the copper shim as per Figure 7.
12. Once you are sure it will all fit then solder the braid and inner in place and insert the bolts. The bolt at the end of the conduit needs to be inserted so that the coax tail passes to one side.



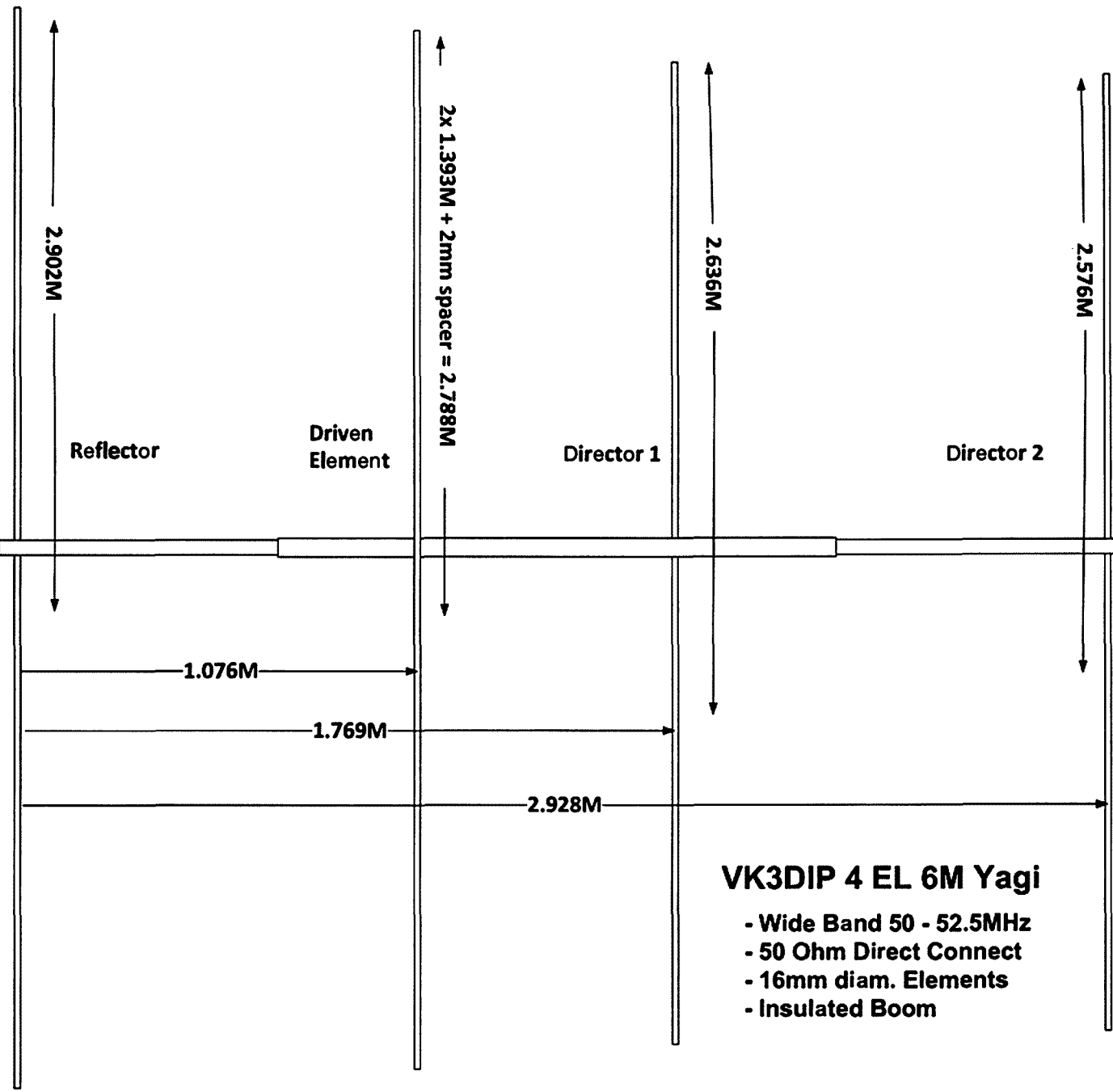


Figure 15: Yagi summary diagram.

- Once the bolt at the coax tail end is in place the section of conduit with the balun in it can be sealed with yet more silicon.
13. Before finally placing the bolt that goes through the inspection tee lid, note that the tee cover is not water tight by itself so a bead of silicon is needed around the edges. Do not add too much if you want to be able to open it at some later time.
  14. You should have already checked that the DE mounting bolts slide

cleanly into the holes in the boom. At this point take approximately 50 mm of a stick of epoxy putty and knead to mix the two parts. Form into two equal blobs and position around the two mounting bolts

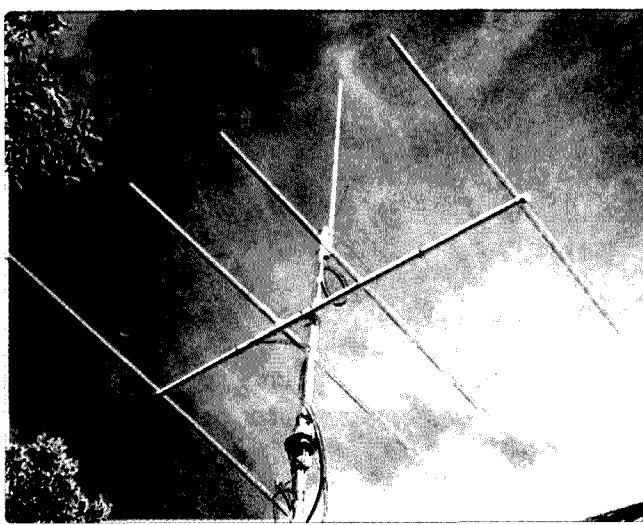


Figure 16: Final Yagi mounted on mast.

and insert the bolts into the boom squashing the putty to form a fillet between the boom and the DE. Do not at this time add the nuts or tighten as the idea is to leave about 5 mm of putty between the two pieces. Once the putty has hardened then the nuts can be added and the bolts tightened to secure the DE to the boom. If you wanted to build the antenna for portable use then it might be a good idea to have wrapped the boom with a layer of plastic wrap first to facilitate taking it apart later.

The final steps to assemble the Yagi consist of inserting the other elements in the relevant holes in the boom and putting end caps on the boom. If you intend to take the antenna portable then you can use either large rubber bands made from old inner tubes in a Figure 8 pattern, or cable ties to hold the elements in place, and threaded end caps. If you do not intend to go portable then you can glue/silicon the elements and end caps in place. I do not

recommend using a fixing bolt through the boom and element as this necessitates a weak point in the element which, given enough birds and time, will break.

For a final touch the entire antenna boom and DE support can be painted to improve UV resistance. A summary of the completed Yagi configuration is shown in Figure 15.

### Tests and results

The prototype Yagi was completed and raised into the air an hour or so before the start of the 2011 John Moyle Field Day contest. The RG58 tail was connected to a longer length of RG8 down into the shack and the VSWR was checked. VSWR was almost exactly as predicted, with values under 1.5 to 1 from 50 MHz up to just over 52 MHz. By 52.5 MHz the VSWR had risen to 2 to 1 and climbed steeply after this. Receiving tests comparing the received signal of a beacon on the Yagi versus the old crossed turnstile loop showed the Yagi to be considerably better and with the predicted directionality.

The completed antenna on the mast is shown in Figure 16. While conditions were not favourable for DX in the John Moyle, many contacts on six were made at over 200 km distance.

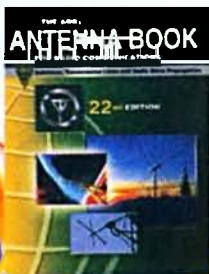
While it is still very early days for the Yagi - some two months later at the time of writing this article - the antenna has since been through some pretty wild and wet weather and the performance and VSWR have not varied at all.

### References

1. For details of the 6 metre quad turnstile see: <http://www.yagicad.com/Projects/6QdTurn.htm>
2. YagiCAD is freely available for download at: <http://www.yagicad.com/YagiCAD/YagiCAD.htm>
3. Simple wideband Yagis for 2 m and 70 cm - by Paul McMahon VK3DIP. *Amateur Radio* magazine, September 2008.
4. 4NEC2, a NEC based antenna modeller and optimizer by Arie Voors can be obtained from: <http://home.ict.nl/~arivoors/>



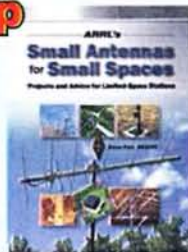
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# Western Vic JOTA/JOTI 2011

Ash Clark VK3SSB



Photo 1: The 'JOTAVille' camp.

The Western Vic JOTA/JOTI camp brought the Grampians to life again this year as 124 Scouts gathered at the Cooinda Burrong Scout Camp to participate in what is the world's largest annual scouting event. Groups from the far south like Warrnambool and Portland, through Hamilton, Horsham and right up to Kaniva and Hopetoun attended,

making a total of 15 different Scout groups.

Cars and trailers flowed in on the Friday night with troops setting up camp while listening to our onsite entertainment station, JamFM. Scouts enjoyed a social evening of setting up camp and meeting some other groups from different corners of the State.



Photo 2: A group of Scouts enjoying their radio activities.

Saturday morning started with the JamFM rude wakeup call at 7 am, in order for opening parade at 8.45. The Official Opening from Governor General Quentyn Bryce was aired to announce JOTA/JOTI 2011 open and our big day of activities began. Scouts spent the day participating in great activities, like fox hunting, geocaching, radio orienteering, communications in the bush and mast building, SES car rescue with a Jaws of Life demo, electronic kit building, JOTI and of course the amateur radio activity, JOTA.

Our amateur radio station VK3SAW was given a major overhaul for this year. After JOTA in 2010 we decided that we needed to introduce the Scouts to some of amateur radio's more exciting modes like SSTV and APRS. We set up a local two metre SSTV repeater where the Scouts would send through a photo of their patrol to then see it be received back with a special 'Western Vic JOTA' template applied to it. We also set up and ran three radio backpacks on the orienteering, fox hunting and geocaching activities and had a screen set up so as the other Scouts and Leaders could track each patrol's position on a Google Earth screen using APRS. These modes, in conjunction with our three fully set up amateur radio tents, three big towers and a big bright information board on amateur radio was enough to capture the interest of most of the Scouts who visited our station. Every Scout who made a contact at our station was also given a special QSL Card with which they recorded the details of their contact.

Saturday night was about wheeling and dealing as the Saturday Night Market opened for trading. Each group had a stall where they ran competitions, sold food, with one even selling cordial in a self-made paper cup!

Regional Commissioner Jon Peart and wife Anne were even spotted spending a few JOTA dollars at the market!

On Sunday morning the camp had its one and only short moment of peace while a traditional Scouts Own took place. Shortly after, it was back into activities before the final wind down and goodbyes with our Sunday BBQ lunch. Closing parade then followed and, of course, this meant the presentation of the awards earned throughout the weekend.



Photo 3: The amateur radio tent entrance – very well merchandised.



Photo 4: The VK3SAW QSL card.

To the 15 amateur radio operators who ran our station, all who are members of Scouting, congratulations on running a brilliant JOTA station this year! We look forward to another exciting year of Scout Radio in western Victoria for 2012.



Photo 5: The Western Vic JOTA team in 2011.

*The WIA office will be closed from 4:00pm Friday, 23rd December @  
will reopen 10:00am, Monday, 16th January, 2012*

*Further details are available at our website [www.wia.org.au](http://www.wia.org.au)*

*The Wireless Institute of Australia extends to all  
radio amateurs very best wishes for the festive season.*



# Spotlight on SWLing

Robin L Harwood VK7RH

2011 is almost over and at last propagation has dramatically improved of late. Signals as high as 30 MHz are being heard worldwide. I believe that monitors in Europe are hearing emergency services within the US around 33 MHz but because each channel has multiple registrations, it has been difficult to actually pinpoint where they are. I am also certain that the operators would not welcome reports from Europe or elsewhere, that their communications have been heard.

It has also been interesting because the allocations between 24 and 29 MHz have been flooded with illegal and unauthorised users, particularly in Russia and south east Asia. The Russians have been mainly heard on very rudimentary FM and are often small taxi services. Services in Thailand and Indochina have been heard here in Australia and are related to transport.

Although there have been reports of illegal CB activity, it is nothing like it was two or three decades ago. I guess that the cellphone and/or Skype have proved to be more reliable. I recently scanned across the old 27 MHz CB channels recently and there was nothing but hiss.

October 29 saw the demise of Deutsche Welle's programming on shortwave. The Tricomallee relay in Sri Lanka closed down, leaving the Kigali, Rwanda site as the only remaining operational outlet for the few remaining DW transmissions to Africa. At the same time it cut back its usage of the Babcock senders worldwide. The BBC World Service also has

scaled back their transmissions via HF with the eventual aim of quitting shortwave in its entirety by 2013. The historic Rampisham senders in Hampshire will close by December 31 and Wofferton in Lancashire has also reduced output. This leaves Skelton in Cumbria as the main shortwave outlet.

The global financial crisis finally did hit the Greek shortwave senders and I believe programming has been restricted to 12 hours between 1600 and 0400. This leaves only Spain, Romania, Bulgaria and Poland as some of the remaining European broadcasters on shortwave during the B-11 period. The latter did intend to migrate to MW but opted to remain on shortwave for now.

The VOA's parent body also decided against closing some language services after Congressional pressure. However, overall output has decreased. The Chinese are everywhere it seems on shortwave. They are quickly filling in empty spots on the dial after they were vacated by other stations.

Myanmar has vacated 7185.7 and moved to 5835. The station on 7189.7 is the Sri Lankan Broadcasting Service from Colombo. Programs are in Hindi and Tamil. I expect that the SLBC will start using the former DW senders in Tricomallee and possibly do away with older inefficient senders.

Whilst other organisations have been deserting shortwave, Afghanistan has re-appeared on 6102 at 1600 and has been heard in English and other local languages.

Libya has also been noted on 11600, after the dramatic fall of Gaddafi, around 1500, in French and Magreb, a derivative of Arabic in north Africa.

I also note that Radio Australia will be on 19000 between 0100 and 0300 in English, from Shepparton. This makes it unique, as the only other station on the rarely used 15 metre allocation is an American religious station on 18990 and, I believe, using DRM.

Incidentally Christmas Eve marks the 40<sup>th</sup> anniversary of myself obtaining VK7RH. Sadly I do not get on these days as this retirement village precludes me from operating on HF and although I still have my 30 year old loom IC-25 on two metres, there seems to be minimal activity there. I remember vividly my first hesitant contact on 40 metres with VK3 and my second contact was with Ron VK3AKC who calmed me down after my first QSO went awry. Three days later I got a personally delivered QSL card from him via Trevor VK7TB. Gee, four decades have passed since then. The hobby has certainly undergone massive changes over that time and is very different now.

In conclusion, allow me to wish you the compliments of the season and I hope to continue into 2012. Shortwave has changed but it will not disappear because there is always something on.

73 de VK7RH



## WIA Contest Website

Keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:

[www.wia.org.au/members/contests/about](http://www.wia.org.au/members/contests/about)

# AMSAT

David Giles VK5DG  
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## OSCAR turns 50

On the 12th of December, 1961, a mere four years after Sputnik-1 started the space age, Discoverer XXXVI was sitting at the top of a Thor-Agena B rocket. Its mission was to take reconnaissance photos and drop its film canister into the ocean for recovery (no electronic cameras in space back then). Tucked away underneath was a small satellite that was to have its own slice of history. OSCAR-I was the first amateur built satellite and the first ever secondary payload.

## OSCAR-I

The spark that started OSCAR-I came from an article by Don Stoner W6TNS in the April, 1959 issue of CQ. While he proposed a transponder, that would not happen commercially until 1962 (Telstar 1) or 1965 for amateurs (OSCAR-III). Even silicon transistors were a rarity, having only been invented in 1954. A homebuilt amateur satellite was a radical idea at the time. In 1960 a group of amateurs in California took this idea and formed the OSCAR Association. Within two years they had built, tested and launched a 5 kg satellite. A summary of the launch was written by one of the OSCAR Association members – Bill Orr W6SAI [1].

OSCAR-I transmitted a simple beacon. Its message was HI in CW that varied in speed with its internal temperature. The transmitter consisted of two transistors (oscillator and amplifier) at 72.5 MHz feeding a varactor doubler. The amplifier transistor (a 2N1506) had a Ft of only 80 MHz and the one used in OSCAR-I was a prototype part from Fairchild. There were not any transistors that could put out much power at 144 MHz in 1961 [2]. They managed to get 140 mW out of this simple transmitter. There is an audio recording of the beacon available at the AMSAT website [3]. It is fairly rapid CW compared to modern OSCARs.

OSCAR-I lasted 22 days before re-entry and was heard by over 570 amateurs in 28 countries. According to the telemetry data received it spent most of the time working between 40 and 60 degrees Celsius. From this data improvements were made for OSCAR-II which operated between 10 and 20 degrees. OSCAR-I was built in the amateur's shacks and workshops. Vibration, shock and temperature testing was performed (after hours) at the Lockheed Palo Alto Research Laboratories [2]. The total cost of OSCAR-I has never been fully defined. While there is one quote of \$63 in parts, most of the time, effort and materials were donated by OSCAR Association members.

OSCAR-I also has the distinction of being the first secondary payload ever launched. According to one of the Project OSCAR pioneers, Lance Ginner K6GSJ, the most challenging aspect of OSCAR-I was getting through the political process of launching it [2]. That OSCAR-I was the first sub-satellite ejected from a spacecraft other than the primary payload compounded the problems of permission from various government agencies. Add to that that the rocket was owned by the US Air Force and you get the idea of the hoops they had to jump through. The biggest danger was that this was untried technology and if it failed then the primary mission would be jeopardised. From the third edition of the Radio Amateur Satellite Handbook I quote *'The ejection mechanism which had been subjected to detailed stress analysis and careful mechanical and thermal balancing, had been constructed around a \$1.15 spring from Sears'* [4].

For a mixture of cutting edge technology and hardware store parts, built in garages and tested at rocket research facilities, made by a not-for-profit organisation of volunteers and

launched by the military, OSCAR-I was quite an achievement.

A model of OSCAR-I made by the OSCAR association was donated to the Smithsonian Museum in 1963. It has been on display at the National Air and Space Museum near Washington DC, sharing room with the space shuttle Enterprise. Currently it is on loan for the AMSAT symposium.

The Project OSCAR website has pictures of OSCAR-I during construction, before and during launch [5]. To this day some amateur satellites (such as AO-7 and FO-29) use the letters HI to start their telemetry frames.

## FO-29 silent

Once again FO-29 has fallen silent. We can easily forgive the old bird after 15 years in space that its batteries and solar panels are not in peak condition. FO-29 has a cycle that puts it into long eclipse periods about every 4.25 years. On the 4th of October, FO-29's transmitter stopped due to its batteries going under voltage. At the time FO-29 was in eclipse for 27% of its orbit. Now, FO-29 does not switch itself on after giving the batteries a chance to recharge (unlike FO-20 did). The self-restart circuit proved itself unreliable during the last period of eclipses. So FO-29 has to be commanded on but this has revealed another problem. A report on the AMSAT mailing list said that the computer used to command FO-29 has stopped working. Finally FO-29 still has six months to go before it reaches time of maximum eclipses. So it is unlikely we will be able to use FO-29 very much during 2012.

## More new satellites

Two launches during October have seen six new satellites successfully launched. On the 12th of October an Indian rocket launched SRMSAT and JUGNU. SRMSAT is a nano-satellite with a CW beacon on 437.475 MHz.

At this stage not much is known about this satellite and its beacon is on over India. JUGNU is a cubesat with a camera and GPS. It has a CW beacon on 437.425 MHz that is on throughout its orbit. These satellites do not stray far from the equator.

On the 29<sup>th</sup>, a rocket from the Vandenberg base in California launched four cubesats. Aubiesat-1 is a student built cubesat to test solar panel protection film and do ionosphere tests. It has a 20 wpm CW beacon on 437.475 MHz [6]. Explorer 1 Prime (E1P) was a cubesat built to replicate the scientific mission of the first American satellite Explorer 1. Explorer 1 was the satellite used to discover the Van Allen belts. Unfortunately the original Explorer 1 Prime cubesat did not achieve orbit as there was a failure with the launch vehicle. However there was a twin satellite built at the time and this has been upgraded to flight level and is now orbiting the Earth.

E1P flight unit 2 measures the lower radiation belt and has transmits at 1200 baud on 437.505 MHz [7]. Radio Aurora Explorer-2 (RAX-2) is the successor to RAX-1, a 3U cubesat from the university of Michigan. RAX-2 will explore large plasma formations in the ionosphere. It has a 9600 baud telemetry downlink on 437.345 MHz [8]. Finally M-Cubed (Michigan Multi-purpose Minisat) is a 1U size cubesat with a camera. It transmits 9600 baud FSK on a frequency of 437.485 MHz [9].

### Final Pass

OSCAR-I caught the imagination of many. By what I have read, it was met with plenty of opposition in and out of the amateur community, like so many pioneering ventures. Fifty years on the amateur satellites are still working. Now it is possible for anyone (with enough cash) to build their own satellite using pre-made assemblies. Getting it launched is still the biggest step.

### References

- [1] Orr, W., *Sixty Years of Radio Amateur Communication*, QST February, 1962. Reprinted in 'The Satellite Experimenter's Handbook, 1st Edition by Martin Davidoff K2UBC'.
- [2] *Between a Rock and Outer Space: Interview with OSCAR Pioneer Lance Ginner*, The AMSAT Journal September/October, 2006.
- [3] <http://www.amsat.org/amsat/features/sounds/firstsat.html>
- [4] Davidoff, M., *The Radio Amateur's Satellite Handbook*, 3rd Edition'.
- [5] <http://projectoscar.wordpress.com/project-oscar-history/>
- [6] AubieSat-1: <http://space.auburn.edu/>
- [7] Explorer-1[PRIME] <http://ssel.montana.edu/e1p/>
- [8] RAX-2: <http://rax.engin.umich.edu/>
- [9] M-Cubed: <http://umcubed.org/>



## AMSAT-VK

### AMSAT Co-ordinator

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Group site:  
[group.amsat-vk.org](http://group.amsat-vk.org)

### About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station,

Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

### AMSAT-VK monthly net Australian National Satellite net

The net takes place on the second Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

#### In New South Wales

VK2RMP Maddens Plains repeater: 146.850 MHz  
VK2RIS Saddleback repeater: 146.975 MHz  
VK2RBT Mt Boyne Repeater on 146.675 MHz

#### In Queensland

VK4RIL Laidley repeater on 147.700 MHz  
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

#### In South Australia

VK5TRM, Loxton on 147.125 MHz  
VK5FRS, Mt Terrible on 439.825 MHz IRLP node 6278, Echolink node 399996

#### In Tasmania

VK7RTV Gawler 6 m. Repeater 53.775 MHz IRLP node 6124  
VK7RTV Gawler 2 m. Repeater 146.775 MHz. IRLP node 6616

#### In the Northern Territory

VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9558. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

### Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

# Summer VHF-UHF Field Day 2012

Contest Manager: John Martin VK3KM

## Saturday and Sunday 14 and 15 January 2012

Duration in all call areas other than VK6:	0100 UTC Saturday to 0100 UTC Sunday.
Duration in VK6 only:	0400 UTC Saturday to 0400 UTC Sunday.

### Sections

- |   |
|---|
| A: Portable station, single operator, 24 hours.   |
| B: Portable station, single operator, 8 hours.    |
| C: Portable station, multiple operator, 24 hours. |
| D: Portable station, multiple operator, 8 hours.  |
| E: Home station, 24 hours.                        |
| F: Rover station, 24 hours.                       |

### Operating periods

Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

### Entering more than one section

If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

### Two operators

If two operators set up a joint station with shared equipment, they may choose to enter Section A or B as separate stations under their own callsigns, or Section C or D under a single callsign. If they enter Section A or B, they may not claim contacts with each other.

### Multi-operator stations

Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

### Rover stations

The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

### General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite and crossband contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange.

### Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

### Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

### Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

### Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

### Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

### Entries

Paper logs may be posted to the Manager, VHF-UHF Field Day, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to [vhfuhf@wia.org.au](mailto:vhfuhf@wia.org.au) (please note the change of email address). Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. Logs must be received by **Monday, 30 January 2012**. Early logs would be appreciated.

**FIELD DAY WEB SITE** – <http://www.wia.org.au/members/contests/vhfuhf/>  
This site includes the rules for the next Field Day, rules and results of all past VHF-UHF Field Days, cover sheets and scoring tables, and other information.



# Ross Hull Memorial VHF-UHF Contest 2012

Contest manager: John Martin VK3KM

The next Ross Hull Contest will run through the month of January 2012. Logs are due by Monday, February 13.

If you participate in the Summer VHF-UHF Field Day, remember that you can count Field Day contacts (one per station per band per day) in your Ross Hull Contest log.

## The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

## Duration

0000 UTC January 1, 2011 to 2400 UTC January 31, 2012.

In Eastern Summer Time, that is 11 a.m. on January 1 to 11 a.m. on February 1.

## Sections

A: All bands, non-digital modes.

B: All bands, digital modes.

Digital modes are defined as those in which the decoding of the received signal is done by a computer.

Entrants may submit logs for one or both sections.

## General Rules

One callsign and one operator per station. Stations may operate from any location. You may claim one contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 on each band, and QSY up to make the contest exchange. All rulings of the contest manager will be accepted as final.

## Contest Exchange

For Section A, Entrants must exchange RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For propagation modes such as meteor scatter or short-lived sporadic E openings, it is sufficient to exchange

Date	6 m	2 m	70 cm	23 cm	etc
	----	----	----	----	----
Day 1	xxx	xxx	xxx	xxx	xxx
Day 2	xxx	xxx	xxx	xxx	xxx
etc.					
	----	----	----	----	----
<b>Total</b>	xxx +	xxx +	xxx +	xxx +	xxx = <b>xxx (GRAND TOTAL)</b>

*callsigns plus two further digits that cannot be predicted by the other station.*

For Section B, exchange callsigns plus two further digits that cannot be predicted by the other station.

While not an essential part of the contest exchange, Maidenhead locators may also be exchanged as an aid to distance calculations.

## Logs

Logs must contain the following for each contact:

- Date and UTC time.
- Frequency and callsign of station worked.
- Reports and serial numbers sent and received.
- Approximate location or grid locator of station worked.

Separate scoring columns for each band would be helpful.

## Scoring

Scoring will be based on the best seven (7) UTC days nominated by the entrant.

For each contact, score 1 point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 – 199 km: 2 points, etc.)

Multiply the total by the band multiplier as follows:

Then total the scores for all bands.

6 m	2 m	70 cm	23 cm	Higher Bands
x 2	x 3	x 5	x 8	x 10

## Cover Sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered.
- A scoring table set out as the example below.

- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals.

A cover sheet and scoring table has been included in the postings on the WIA web site. Copies can also be obtained from the e-mail address given below.

## Penalties

Minor errors may be corrected and the score adjusted. Repeated use of recognised DX calling frequencies (especially when the reports indicate strong signals) may lead to disqualification. Inclusion of any false log entries will lead to disqualification.

## Entries

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to [rosshull@wia.org.au](mailto:rosshull@wia.org.au) (Please note the change of email address). Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, MDB, PDF, or any Open Document format.

Logs must be received by **February 13, 2012**. Early logs would be appreciated.

## Note on Calculating Distances

Absolute accuracy is not required. You just need to know whether each station is above or below the nearest multiple of 100 km, so you can use a compass to draw 100 km circles around your location on a map. A more accurate method is to use six-digit Maidenhead locators and a computer program that can be obtained from the WIA web site.



# Contests

Phil Smeaton VK4BAA

## Contest Calendar

December	2/4	ARRL 160 m Contest	CW
	4	RTTY Melee	RTTY
	10/11	ARRL 10 m Contest	CW/SSB
	17	OK DX RTTY Contest	RTTY
January		Ross Hull Memorial VHF Contest (VHF/UHF)	
	14/15	Summer VHF/UHF Field Day Contest	CW/SSB/FM

Welcome to this month's Contest column.

### Oceania CW 2011

The weekend following the SSB leg of the contest, the bands sparkled with the dulcet tones of CW. Steve VK3TDX fired-up the rig and fitted house guests in between the far more important task of contesting. Maybe I have got that the wrong way round! Oh, never mind! Anyway, Steve reported a lively response to his CQs, often resulting in a blurry monotone mess due to a 'point and click' approach involving the spotter network. So, there were lots of stations transmitting on exactly the same frequency, making life difficult. Plenty of DX reported, so Steve's 400+ QSOs earned him a few DXCC points as well as around 406,000 claimed points for the contest.

Vlad VK2IM had 900 QSOs in the log after 10 hours or so, concentrating mainly on 15 m, 20 m and 40 m. 10 m was a non-performer for Vlad and LF noise curtailed operation for him unfortunately. Long path EU routes did not seem to want to come out to play in VK2 until later in the piece, leaving Vlad little option but to mop-up EU on 40 m towards the end of the contest. Almost 1500 Qs and a claimed score of just over 3,100,000 points. Not bad at all. Andy VK5MAV found the propagation to be favourable from his QTH, but failed to let his rig know about the bands as it developed a nasty fault after a short while – rendering Andy's contesting somewhat moot.

Patrick VK2PN mopped-up Qs to a total claimed score of just under the one million mark, with 15 m the 'money band' for him. Patrick also experienced a high number of EU stations netting on exactly the same frequency, which slowed the rate somewhat.

John VK4EMM joined forces with travelling wilbury Martin VK7GN, who was in the area for a few days. A formidable CW team, they operated M/1 as VK4CT and netted 1600+ QSOs for a claimed score of just over 4.5 million points despite suffering from an awful storm just prior to kick-off. With over 1000 Qs logged during the first half of the contest, the dynamic duo got cautious so as to not pop the champagne cork just yet – and that was a very wise decision! The second part of the contest was harder work, with a further 600 stations taking about the same time to work.



Photo 1: Andy VK4NM operating the CQ WW SSB contest as a member of the VK4KW team.

Alan VK4SN braved the contest for a few hours during the weekend to bag 420 QSOs for a claimed score of 371,000 points. More QSOs would have ensued no doubt if the Bundy Bear (allegedly) had stayed at home and not tampered with Al's alarm clock, which resulted in Al missing the 4 am wake-up call to finish off the contest.

A fine effort by all and it is good to see VK represented on the bands. There is plenty of opportunity to join them in 2012 of course – I will hopefully be doing so if I pull my finger out and polish-up my CW. Yeah, I know, I have been saying that for ages...

### CQ WW SSB 2011

Nothing much to report on this weekend's CQWW SSB contest, which just ended yesterday as I pen this ode. It is not as if the bands did anything special. Well, unless you count opening completely on HF that is! As an example, the ten metre band went absolutely ballistic. The cluster spot list was as long as your arm and DX Summit started to struggle to cope with it all. Requesting a list of the last 10,000 spots for 10 m did not even clear the first day!

The claimed 10 m QSO tally for some of the big M/M stations is around the 3000-4000 mark. Other tallies for other categories for 10 m are around the 2000-3000 area, which is fantastic indeed. Chris VK3FY found himself in Perth in-transit to elsewhere and took the opportunity of a delay to play radio with NCRG who operated as VI6NC. Being initially limited as regards operator

headcount, the lads had permission to use the special prefix for CHOGM in Perth and the prefix may have helped increase the QSO tally. This callsign selection effectively limited operation somewhat as regards time at least, as the callsign 'expired' eight hours or so prior to the end of the contest, but this might have been offset by the prefix hunters calling in for a QSO. Regardless, they netted over 2000 Qs on 10 m, and the whole log has a claimed score for their inaugural M/2 effort of around the seven million mark for over 5000 QSOs. Splendid!

Laurie VK7ZE took part and was eager to try his shiny new 40 m antenna. LF was not in wonderful shape however – 80 m and 160 m did not really want to come out to play. Laurie bagged over 1000 Qs, being just shy of 400 Qs on 40 m, for a claimed score of almost one million points.

Tony VK3TZ suffered from horrendous power line noise, but still managed to tally a claimed score of just over 200,000 points in the Low Power section. Steve VK3TDX logged over 2000 Qs for his all band entry and a claimed score of more than two million points.

Ken VK4QH also had fun on 10 m, grabbing over 1600 Qs for a total claimed score of 2.1 million when the other bands were also tallied. Like most stations in southern VK4, Ken suffered from a very nasty storm which hit on the Sunday evening. VK4KW also suffered badly from this, in that a logging PC got spiked (as well as some other hardware in the station) and made a dreadful mess of the log. Photo 1 shows Andy VK4NM enjoying a leisurely pile-up, while seemingly enduring a high degree of brightness from the PC screen. Photo 2 shows John VK4EMM prior to the storm hitting the main logging PC, which soon wiped the smile off John's face as the log was at risk of destruction!

Catherine VK4GH also came out to play, and used the contest to increase her tally of zones and DXCC entities before the storm struck. No doubt, there will be more news on this contest after the AR publication date cut-off is reached. If so, I will report next month. By the time AR lands on the doormat, CQ WW will have been

finished for a few days (at least) and thoughts would be turning towards CQ WW CW instead. Hopefully, the bands will let us play again!

### Contest Free Zones

There has been lots of talk about contest free zones of late. Non contesters turn on their radios to use them and find the band/s crammed with stations contesting, leaving very little free space for rag chewing, nets and everything else that is enjoyed on HF. When we are talking about wall-to-wall contest activity, we are really talking about a limited number of major international contests: ARRL DX, WPX, IARU and CQ WW, for example. If we look - theoretically - at 20 metres SSB, you can bet that the frequency range from 14.112 to 14.350 will be filled during these events. This happens on 10 out of 104 weekend days out of a year. That is less than 10% of all weekend time. The remaining 90% of the weekends have ample spectrum for SSB users on 20 m SSB. Even where you have events like IOTA, the loading on the band segment is such that there is ample free space for non-contest activities. Irrespective of the loads that are borne by 20 metres SSB during one of the big international contests, the fact remains that there are significant swaths of usable amateur spectrum that are contest free. The 20 metre CW segment is contest free during CQWW SSB for example; the 15 metre CW is contest free during WPX SSB, and so on. In addition, the WARC bands are contest free 24/7, 365 days a year.

On the other hand, if a contest features a 'contest free zone' within the rules, then it ought to be followed. By breaking the contest rules in that way, you only give ammunition to the anti-contest lobby. Contesters activate the bands and we also have to share them with the non-contesters.

No matter what the reason is, to push the non-contesters completely



Photo 2: John VK4EMM, another of the VK4KW team, in good spirits prior to the storm.

off of a given band, especially when operating a non-traditional mode in certain band segments is to risk antagonising and alienating other operators on the bands. However, I have a car that I am very fond of and I like to drive it. I like to drive it at the legal limit on the highway, often to the beach. But sometimes, just when I want to drive it, there are other people doing exactly the same thing, enjoying themselves on the road in their car. They get in my way, change lanes strangely and sometimes even go slower than I do. Should I demand that they not be permitted to drive whenever I want to use the highway? Worse than that, when I finally get to the beach I often find that my 'spot' has been taken by someone. Do they not know that I always enjoy the sand at that spot? Sometimes, things are busy. Sometimes, that means there is no room at the inn. Sometimes, we have just got to time our trip to the beach at a different time, or drive on a different road, or use a different beach. Or, it *might* be best to simply tolerate the fact that other people might also want to do similar things as us, when we want to do it.

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via [vk4baa@wia.org.au](mailto:vk4baa@wia.org.au) See you on the bands.

73 de Phil VK4BAA



Justin Giles-Clark VK7TW

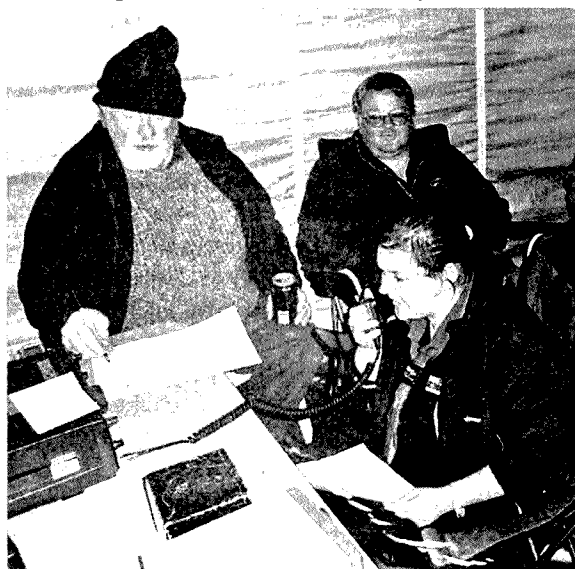
Email: vk7tw@wia.org.au

## 2011 JOTA in VK7

Thanks to the Northern Tasmania Amateur Radio Club JOTA coordinator Peter Dodd VK7KPC for the following information. NTARC's major JOTA activity was on Saturday, 15 October at the Kings Meadows Scout Hall from 9 am to 8 pm. There were nine groups who attended for about 45 minute sessions, with three of the larger groups having double sessions. HF contacts were made to VK2, 3, 4, 5, 6 and 7. Other activities included CB walkie talkies, Morse code lights, a battleship game using an intercom system plus word find and crossword puzzles with JOTA and radio themes. Thanks to Tony VK7YBG who managed to get the IRLP node up and going in time for JOTA. On the day, thanks go to Norm VK7KTN, Kevin VK7HKN, Tony VK7YBG, Ann VK7FYBG (for the supply of scones, jam and cream) and Peter VK7KPC for their efforts.

Thanks to Tony VK7AX for the north-west JOTA information. Paton Park was the location where five amateurs provided equipment and their time to operate. There was focus on using EchoIRLP nodes 6124 and 6616 with several HF contacts also being made.

*Photo 1: Rod VK7TRF, OM Michael VK7FMRS and Scout daughter Jessica. Photo courtesy VK7ARN.*



Thanks to Neil VK7ZNX, Ross VK7WP, Paul VK7HPD, Jim VK7JH and Tony VK7AX for their time and effort.

Thanks go to Nicole VK7FNJS from the 1st Huonville Scout Troop for the information about the WICEN Tasmania (South) JOTA activation. There were seven Scouts from the 1st Huonville troop who participated over the weekend from a station set up under canvas at an excellent camp site on Peter VK7TPE's property near Coningham. Forty individual Scout contacts were made on HF bands. Vegemite flavoured Smiths Chips were such a hit during the night that the troop renamed itself to the 'Vegemite Chip Patrol'! Thanks to Peter VK7TPE and XYL Maureen for the camp site, WICEN South's Rod VK7TRF, Garry VK7JGD, Roger VK7ARN, Michael (and Dad) VK7FMRS for all their help and equipment.

## Repeater and IRLP News

We have a new 70 cm repeater VK7RDS in Hobart, thanks to Damien VK7DS. VK7RDS operates on 439.750 MHz with a negative 5 MHz offset and no tone is required. VK7RAD 6 m repeater is back on air thanks to Alan VK7KAJ and Dave

VK7DM and continues to broadcast the Sunday 0900 WIA National and VK7 Regional News broadcasts. IRLP Node 6700 which resides on VK7RAA is back on air thanks to Tony VK7YBG. The callsign used is the NTARC club call of VK7TAZ.

## Northern Tasmania Amateur Radio Club

October 12 saw many members and families trekking to the Mt Barrow Forest Appreciation and Interpretation Centre for a BBQ. From reports it was relatively warm and

the fire was only lit after 6 pm; the stars twinkled from a lack of the city lights and the discussion drifted to many topics along with many toasts! Many stayed overnight in their motor homes.

Please note that the Monday and Friday coffee morning at Friends Cafe in Jimmy's Shopping Complex, Charles Street, Launceston has moved time to 10.30-11.30 am, and do not forget that on the final Monday of the month it is at the fine establishment of David VK7YUM and Norma VK7FOOD in the main street of Lilydale.

At the time of writing, WICEN in the North of VK7 were preparing to assist the State Equine Endurance Championship along with WICEN Tasmania (South). This state event was held on the east coast at St Helens over 26 and 27 November. This event is in preparation for the Tom Quilty Australian national equine event which is also at St Helens over the period 8-10 June, 2012.

## North West Tasmanian ATV Group (NWTATVG)

On 8 October members and friends of NWTATVG met at the QTH of Jim VK7JH and XYL Janine, at Stowport for a general meeting and to hear a fascinating slide show of Peter VK7IY's involvement with the oil and gas rigs in Bass Strait. Peter works on the supply ships which ship material and supplies to and from the oil rigs. Thanks Peter for a very interesting talk and thanks to Jim and Janine for opening up their QTH.

Tony VK7AX has converted a number of videos and films for transmission on ATV and has shown a range of these on ATV in the NW and via the batc.tv streaming site (VK7AX Stream). These films have included: Amateurs of the North West, WIA News Readers of the Past and also rebroadcasts of the REAST DATV Experimenters nights on a Wednesday night.

## Radio and Electronics Association of Southern Tasmania

Congratulations to Steven Honson formerly VK7FSNH who has gained his Advanced Certificate and is hoping for the call VK7SH. The five New Town High students who received a scholarship from REAST provided for by the WIA grants scheme are studying furiously in preparation for their Foundation licence assessment.

October 5 saw a wonderful presentation by Winston VK7WH who took us through his trip to the Dayton Hamvention this year and then his tour of the National Museum of the United States Air Force, also

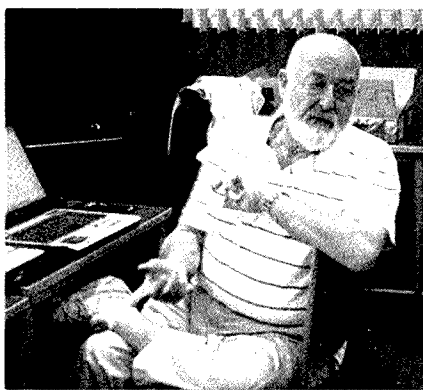


Photo 2: Winston VK7WH fresh back from Dayton.

at Dayton. Winston then finished off with a presentation of the Logic8 logging software. Thanks Winston for a great presentation.

The REAST DATV experimenter's nights are continuing to be popular and we have been undertaking field strength improvements thanks to a donation by Joe VK7JG, thanks Joe. Our virtual batc.tv (stream VK7OTC) audience has been steadily growing and we have been presenting a broad range of items which included robotics component demonstrations, video equipment, studio tours, Arduino projects and surface mount soldering and desoldering techniques with an on camera demonstration of desoldering and soldering a 100 pin quad flat pack IC using hot air and solder reflow technique.



# RD Contest Results corrections

Peter Harding VK4OD

Unfortunately, some gremlins worked their way into the results published last month. The HF Single CW 2-0-1-2 tabled appeared twice in the magazine (*probably my error – sorry. Ed.*), and some callsigns appearing twice (which was my mistake).

I will post out corrected Certificates to those affected. The following are the correct tables for the affected categories.

### HF Single CW

Call Sign	Score
1st VK3QB	208
2nd VK4WM	160
3rd VK5MGY	152

VK6HAD	524
VK6HX	500
VK6WIE	465
VK6AXB	426
VK6CSW	393
VK6LZ	353
VK7TW	351
VK7DG	319
VK7HDM	311
VK6FLAB	304
VK7OO	299
VK6ST	289
VK6SKY	257
VK6HDX	250
VK6ZM	238
VK6ZM	238
VK6LD	236
VK6WJ	225
VK6FDX	221
VK6JP	220
VK6LV	219
VK6LUX	218
VK6AH	215
VK6GA	206
VK3MZ	178
VK7BEN	173
VK5KBJ	172
VK6KMC	171
VK6GD	157

VK6ZKO	150
VK5ZD	144
VK7ZGK	140
VK5MK	130
VK7HK	128
VK7RM	125
VK6CN	125
VK6CG	122
VK3JK	121
VK6FJA	120
VK6YOY	119
VK6USB	111
VK5KLD	100
VK6RO	69
VK6ZLZ	65
VK6OTN	65
VK5ZKK	65
VK6ARO	63
VK6CRO	63
VK6SIX	63
VK4JRO	62
VK3FJOR	62
VK6VHF	50
VK5ZT	49
VK4KRX	43
VK5AMW	40
VK6AR	39
VK4XZ	34
VK4UD	33

VK5KC	33
VK5KDK	31
VK5AVQ	31
VK3KTM	29
VK6AN	29
VK7JGD	29
VK3FAAR	25
VK4FATT	24
VK6OE	24
VK4GLC	21
VK6YF	20
VK4ZA	19
VK6TS	19
VK3JWT	18
VK6KG	16
VK7HW	16
VK4ZBV	15
VK5FCJM	14
VK5FCJM	14
VK4MAX	12
VK4ZW	11
VK3FEZZ	8
VK1EY	6
VK7TL	6
VK3ASU	4
VK1XYZ	3

### HF Single Op Phone

Call Sign	Score
VK6IR	1098
VK4QH	657
VK5PAS	503
ZL2U	489
VK3LDR	464
VK2KF	410
VK6NS	375
VK4GH/P	344
VK2BGL	335
VK3AVV	316

### VHF Single Op Phone

Call Sign	Score
VK6ZRW	801
VK6HC	647
VK6BDO	646
VK6KHZ	585
VK6MAB	528

# Gridsquare Standings at 17 October 2011

144 MHz	Terrestrial	
VK2FLR	Mike	116
VK3NX	Charlie	107
VK2KU	Guy	102
VK3PF	Peter	90
VK3HZ	David	89
VK2ZT	Steve	82 SSB
VK5AKK	Phil	82 SSB
VK2ZAB	Gordon	78 SSB
VK2DVZ	Ross	77 SSB
VK3PY	Chas	77 SSB
VK3BDL	Mike	68 SSB
VK3II	Jim	66
VK3QM	David	66 SSB
VK7MO	Rex	66
VK2EI	Neil	65
VK3BJM	Barry	64 SSB
VK2AMS	Mark	63 SSB
VK2TK	John	62
VK3II	Jim	62 SSB
VK2MER	Kirk	61 SSB
VK4FNQ	John	59
VK3WRE	Ralph	58 SSB
VK4FNQ	John	58 SSB
VK3PF	Peter	56 SSB
VK5BC/p	Brian	55 SSB
VK5BC	Brian	53 SSB
VK3KH	Michael	52 SSB
VK3ZLS	Les	51 SSB
VK3HY	Gavin	49
VK4CDI	Phil	49
VK3VG	Trevor	46 SSB
VK7MO	Rex	46 SSB
VK7MO	Rex	46 Digi
VK3AKK	Ken	45 SSB
VK4CDI	Phil	45 SSB
VK4KZR	Rod	43
VK4TJ	John	41 SSB
VK3EJ	Gordon	40 SSB
VK3PF	Peter	40 Digi
VK2TG	Bob	39 SSB
ZL3TY	Bob	37
VK3UH	Ken	36
VK2TK	John	35 SSB
VK2KOL	Colin	34 SSB
VK6HK	Don	34
VK3II	Jim	33 Digi
VK3ZUX	Denis	33 SSB
VK1DA/p	Andrew	31
VK1WJ	Waldis	28
VK2TK	John	27 Digi
VK3DXE	Alan	24 SSB
VK1WJ	Waldis	23 Digi
VK3TLW	Mark	23 SSB
VK4CDI	Phil	23 Digi
VK4EME	Allan	23
VK3ALB/p	GARC Team	22 SSB
VK3BG	Ed	22 SSB
VK3KH	Michael	21 Digi
VK3ECH	Rob	20 SSB

VK6KZ	Wally	20
VK2ZT	Steve	19 Digi
VK4EME	Allan	19 SSB
VK3AL	Alan	18 SSB
VK6KZ/p	Wally	16
VK2EI	Neil	12 Digi
VK4EME	Allan	12 Digi
VK5APN	Wayne	12
VK2AMS	Mark	10 Digi
VK2DVZ	Ross	9 Digi
VK2KOL	Colin	9 Digi
VK1WJ	Waldis	7 SSB
VK5APN	Wayne	7 Digi
VK5APN	Wayne	6 SSB
VK6HK	Don	6 Digi
VK1WJ	Waldis	5 CW
VK4AE	Denis	5 SSB
VK4JAZ	Grant	4 FM
VK2GG	Dan	3
VK3DXE	Alan	2 Digi
VK3QM	David	1 Digi
VK4FNQ	John	1 FM

144 MHz	EME	
VK2KU	Guy	454
VK2KU	Guy	441 Digi
ZL3TY	Bob	392
VK3AXH	Ian	265 Digi
VK4CDI	Phil	247 Digi
VK5APN	Wayne	192
VK5APN	Wayne	189 Digi
VK7MO	Rex	157 Digi
VK2FLR	Mike	120
VK3II	Jim	87 Digi
VK2AWD	David	82 Digi
VK2DVZ	Ross	81 Digi
VK3KH	Michael	50 Digi
VK2KU	Guy	43 CW
VK3DDU	Paul	39 Digi
VK2ZT	Steve	28 Digi
VK3HZ	David	19
VK5APN	Wayne	8 CW
VK3NX	Charlie	5 CW
VK4EME	Allan	5 Digi
VK3AXH	Ian	3 CW
VK2DVZ	Ross	2 CW
VK3DXE	Alan	2 Digi
VK3AXH	Ian	1 SSB

432 MHz	Terrestrial	
VK2ZAB	Gordon	57 SSB
VK3PY	Chas	51 SSB
VK3NX	Charlie	50 SSB
VK3QM	David	50 SSB
VK3ZLS	Les	40 SSB
VK3BJM	Barry	39 SSB
VK3HZ	David	39
VK5AKK	Phil	39 SSB
VK2KU	Guy	38
VK2DVZ	Ross	34 SSB
VK2ZT	Steve	34 SSB

VK3BDL	Mike	34 SSB
VK3WRE	Ralph	33 SSB
VK3PF	Peter	32
VK3PF	Peter	30 SSB
VK5BC	Brian	26 SSB
VK1DA/p	Andrew	24
VK2MER	Kirk	24 SSB
VK3KH	Michael	22 SSB
VK3VG	Trevor	20 SSB
VK5BC/p	Brian	20 SSB
VK7MO	Rex	20
VK2AMS	Mark	18 SSB
VK2TK	John	18
VK3ALB/p	GARC Team	18 SSB
VK7MO	Rex	18 SSB
VK2TK	John	17 SSB
VK3AKK	Ken	15 SSB
VK3BG	Ed	15 SSB
VK3TLW	Mark	15 SSB
VK3ZUX	Denis	15 SSB
VK4KZR	Rod	15
VK4CDI	Phil	14
VK4CDI	Phil	14 SSB
VK6KZ	Wally	13
VK2EI	Neil	12 SSB
VK2KOL	Colin	12 SSB
VK4TJ	John	11 SSB
VK2TG	Bob	10 SSB
VK3AL	Alan	10 SSB
VK3ECH	Rob	10 SSB
VK4FNQ	John	10 SSB
VK6KZ/p	Wally	8
VK3KH	Michael	7 Digi
VK3UH	Ken	7
VK7MO	Rex	7 Digi
VK4EME	Allan	6 SSB
VK1WJ	Waldis	5 SSB
VK4CDI	Phil	5 Digi
VK2DVZ	Ross	4 Digi
VK2ZT	Steve	4 Digi
VK3PF	Peter	4 Digi
VK3PY	Chas	4 Digi
VK3QM	David	4 Digi
VK2AMS	Mark	3 Digi
VK3DXE	Alan	3 SSB
VK4AIG	Denis	3 SSB
VK4JAZ	Grant	3 FM
VK2GG	Dan	2
VK2KOL	Colin	1 Digi
VK2TK	John	1 Digi

432 MHz	EME	
VK4EME	Allan	53
VK4EME	Allan	48 Digi
VK4CDI	Phil	37 Digi
VK7MO	Rex	10
VK7MO	Rex	9 Digi
VK4EME	Allan	8 CW
VK3NX	Charlie	5 CW
VK3AXH	Ian	4 Digi

VK3HZ	David	4
VK3KH	Michael	3 Digi
VK3NX	Charlie	3 Digi
VK2ZT	Steve	2 Digi
VK5BC	Brian	1

**1296 MHz Terrestrial**

VK3PY	Chas	41 SSB
VK3QM	David	41 SSB
VK3NX	Charlie	37 SSB
VK2ZAB	Gordon	29 SSB
VK2DVZ	Ross	26 SSB
VK3ZLS	Les	26 SSB
VK2KU	Guy	25
VK5AKK	Phil	25 SSB
VK3BJM	Barry	22 SSB
VK3PF	Peter	22
VK3PF	Peter	20 SSB
VK3WRE	Ralph	20 SSB
VK3KWA	John	19
VK3BDL	Mike	18 SSB
VK3HZ	David	18
VK3KH	Michael	17 SSB
VK3ALB/p	GARC Team	16 SSB
VK2ZT	Steve	13 SSB
VK3VG	Trevor	12 SSB
VK4KZR	Rod	12
VK3BG	Ed	11 SSB
VK5BC	Brian	11 SSB
VK7MO	Rex	11 SSB
VK1DA/p	Andrew	10
VK2TK	John	10 SSB
VK2AMS	Mark	9 SSB
VK5BC/p	Brian	9 SSB
VK3TLW	Mark	8 SSB
VK3AL	Alan	7 SSB
VK3UH	Ken	7
VK2MER	Kirk	6
VK3ECH	Rob	6 SSB
VK3ZUX	Denis	5 SSB
VK4CDI	Phil	5
VK4CDI	Phil	5 SSB
VK4TJ	John	5 SSB
VK6KZ/p	Wally	5
VK3KH	Michael	4 Digi
VK6KZ	Wally	4
VK4EME	Allan	3 SSB
VK7MO	Rex	3 Digi
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK2TG	Bob	2
VK3PF	Peter	2 Digi
VK3QM	David	2 Digi
VK4AIG	Denis	2 SSB
VK4CDI	Phil	2 Digi
VK4FNQ	John	2 SSB
VK2DVZ	Ross	1 Digi
VK2ZT	Steve	1 Digi
ZL3TY	Bob	1 SSB

**1296 MHz EME**

VK4CDI	Phil	71
VK4CDI	Phil	57 Digi
VK3NX	Charlie	56 CW
VK7MO	Rex	41
VK7MO	Rex	36 Digi
VK4CDI	Phil	26 CW

VK2AMS	Mark	4 Digi
VK4CDI	Phil	2 SSB

**2.4 GHz Terrestrial**

VK3PY	Chas	18 SSB
VK3NX	Charlie	17 SSB
VK3QM	David	17 SSB
VK3AKK	Ken	15 SSB
VK3WRE	Ralph	11 SSB
VK3ALB/p	GARC Team	7 SSB
VK3PF	Peter	7 SSB
VK3KH	Michael	6 SSB
VK3HZ	David	5
VK4KZR	Rod	4
VK6KZ	Wally	4
VK2EI	Neil	3 SSB
VK3BJM	Barry	3 SSB
VK3KH	Michael	3 Digi
VK1DA/p	Andrew	2
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK3PF	Peter	2 Digi
VK2DVZ	Ross	1 SSB
VK3BG	Ed	1 SSB
VK3TLW	Mark	1 SSB
VK3ZUX	Denis	1 SSB

**2.4 GHz EME**

VK3NX	Charlie	41 CW
VK7MO	Rex	14
VK7MO	Rex	10 Digi

**3.4 GHz Terrestrial**

VK3NX	Charlie	14 SSB
VK3QM	David	14 SSB
VK3WRE	Ralph	8 SSB
VK3PF	Peter	6 SSB
VK6KZ	Wally	4
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK2AMS	Mark	1 Digi
VK2EI	Neil	1 SSB
VK2EI	Neil	1 Digi

**3.4 GHz EME**

VK3NX	Charlie	16 CW
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**5.7 GHz Terrestrial**

VK3NX	Charlie	14 SSB
VK3QM	David	12 SSB
VK3PY	Chas	10 SSB
VK3WRE	Ralph	9 SSB
VK3PF	Peter	7 SSB
VK3ALB/p	GARC Team	6 SSB
VK6KZ	Wally	4
VK2GG	Dan	3
VK3BJM	Barry	2 SSB
VK3PF	Peter	2 Digi
VK6BHT	Neil	2 SSB
VK2AMS	Mark	1 SSB
VK2EI	Neil	1 SSB
VK3ZUX	Denis	1 SSB

**5.7 GHz EME**

VK3NX	Charlie	24 CW
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**10 GHz Terrestrial**

VK3HZ	David	61
VK3HZ	David	22 SSB
VK3PY	Chas	19 SSB
VK3QM	David	17 SSB

VK3AKK	Ken	16 SSB
VK3NX	Charlie	16 SSB
VK3PF	Peter	11 SSB
VK3WRE	Ralph	11 SSB
VK6BHT	Neil	9 SSB
VK3ALB/p	GARC Team	7 SSB
VK2EI	Neil	6
VK6KZ	Wally	5
VK2EI	Neil	3 Digi
VK2EM	Bruce	3 SSB
VK3KH	Michael	3 SSB
VK3KH	Michael	3 Digi
VK3TLW	Mark	3 SSB
VK7MO	Rex	3
VK2AMS	Mark	2 SSB
VK2GG	Dan	2
VK3BJM	Barry	2 SSB
VK3UH	Ken	2
VK3ZUX	Denis	2 SSB
VK4KZR	Rod	2
VK1DA/p	Andrew	1
VK3BG	Ed	1 SSB
VK3NX	Charlie	1 Digi

**10 GHz EME**

VK3NX	Charlie	16 CW
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**24 GHz Terrestrial**

VK3NX	Charlie	4 SSB
VK3QM	David	3 SSB
VK6BHT	Neil	3 SSB
VK2EI	Neil	2 SSB
VK2GG	Dan	2
VK6KZ	Wally	2
VK3WRE	Ralph	1 SSB

**47 GHz Terrestrial**

VK3NX	Charlie	4 SSB
VK3QM	David	4 SSB
VK2GG	Dan	2

**76 GHz Terrestrial**

VK3KH	Michael	1 SSB
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**122 GHz Terrestrial**

VK3KH	Michael	1 SSB
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**474 THz Terrestrial**

VK3WRE	Ralph	3
VK3HZ	David	2
VK7MO	Rex	2
VK7MO	Rex	2 Digi
VK7TW	Justin	2
VK7TW	Justin	1 Digi

Additions, updates and requests for the guidelines to Guy VK2KU.

The guidelines (and the latest League Table) are also available on the VK VHF DX Site at <http://vhfdx.radiocorner.net> - click on Gridsquares.

Next update of this table will close on or about 17 February 2012.

Stations who do not confirm their status for more than 12 months may be dropped from the table.



# ALARA

Margaret Blight VK3FMAB – Publicity Officer

So another year is drawing to a close. We may be asking ourselves where did time go? I cannot believe that twelve months has passed so quickly! Didn't something similar happen last year? For many of you this year may have contained a mixture of joys and sadness, expectations and disappointments. Whatever the mixture that has been your allotted portion; I do hope that Christmas is a happy occasion for you this year and that the New Year brings with it the promise of new opportunities and positive challenges to be met.

Jenny VK5FJAY is a St John Ambulance volunteer who carried out an assignment at the Australian MotoGP at Phillip Island. She reports:

We left Adelaide on Tuesday 11th October to travel to a suburb out of Melbourne to sleep Tuesday night in preparation to be up bright and early to travel in a convoy of four St John vehicles to Phillip Island. We had to travel on toll ways which we found to be interesting. The scenery on the way was lovely and green. We arrived at our camp site at about 5 pm to settle in to our dorms, and then went shopping for office supplies. Everything on the island seemed super expensive – they had a monopoly for the weekend. I met up with old friends and made some new ones.

On the Thursday just three of us were taken to the track side camp site, as this is where the bikies were setting up their camp. Friday I was inside the track and discovered that bees or wasps were coming into the first aid post. I spoke to an official and by the morning it was fixed. The apiarist took away the Queen and hive, but she then came back again and thus she and her hive were then moved 'a long way away'.

On Saturday I was assigned to a post near the Start and Finish line. On the Sunday it was reported that



Photo 1: Jenny VK5FJAY in action in the communications post.

there were 30,000 attending – we attended to 350 customers, who mainly wanted sunscreen at that post.

I am amazed at what a bikie can fit on 'the Bike'. They came from far and wide, including Perth, Adelaide, NSW, Victoria and Queensland. Two of them would not have been able to ride home – one had a knife injury and the other had an upper leg injury caused by the metal bar of a camp chair which broke and went into his leg!

My OM (VK5AKZ) helped in the communications bus as one of our members dislocated his shoulder. The crowd leaving the track after the races was bumper to bumper for some hours to get away – including an accident on the only exit road.

We stayed overnight at our camp site and until about lunch time Monday, as the track area still had to be covered. Even then the traffic on the way off the island was still bumper to bumper. Overall this was a busy, but great, extended weekend.

## A weekend in Ballarat

The Ballarat Amateur Radio Group (BARG) held their annual hamfest on Sunday, 23rd October. We heard that some ALARA members from South Australia were planning on being there and a gathering of ALARA members, including some from the EMDRC club and the Midlands Radio Club, were on hand to greet them. Some of the members had dinner

on the Friday night with the SA contingent. It is always good to have the opportunity to meet face to face with people you speak with on the radio.

It was also a great pleasure to meet up with Gwen VK3DMS who arrived with family members, as we had not managed to catch up with her for a while. Christine VK5CTY took the opportunity of having a long chat with Gwen as they had much news to share. Dianne VK3FDIZ from the WIA was also present wearing her official badge.



Photo 2: ALARA members at Ballarat: back L-R: Margaret VK3FMAB, Jenny VK3WQ, Jenny VK5FJAY, Dianne VK3FDIZ, Jean VK3VIP, Monica VK3FMON, and front Gwen VK3DYL and Christine VK5CTY.



Tim Mills VK2ZTM  
vk2ztm@wia.org.au

The NSW Planning inquiry, which was an opportunity to submit requests for a better antenna installation approval process from your local Council, should be handing down an interim report this month. This was a wide ranging inquiry, antennas being just a part of it.

**VK2WI** news bulletins will take the usual summer break across the Christmas period. The last evening bulletin will be on 18 December and will resume on 15 January. There will be morning bulletins – at the usual 10 am slot – during the break. There were a lot of earthworks at the **ARNSW VK2WI** Dural site in late October when water was laid and conduit systems for lighting and coax feeds installed. Further work on installation of cables will occur during the holiday period. The committee of **ARNSW**, on advice received, has declared the Dural property a No Smoking area. It is in a bushfire prone environment. The committee of **ARNSW** has observed some altercations between visitor's dogs and other visitors – including young children. This could result in an injury and as required by law we need to maintain a safe environment for all persons attending the Dural site. In the interest of safety, **ARNSW** has decided to ban dogs at the Dural site. The above items have been broadcast via the Sunday bulletins.

Next year **ARNSW** will conduct a Foundation course on the Sunday before the Trash & Treasure at the Dural site. The assessments will be on the T&T morning. The first course for 2012 will be Sunday 22 January with the exam and T&T event on Sunday

29 January. This means there will be a Foundation training course available every two months. There is also likely to be a full course for Standard and Advanced licenses over several weeks during the year. While it is a few months away, the AGM of **ARNSW** will be held in April, 2012 and a call for nominations to the committee will be made toward late February.

**Jeff Pages VK2BYY** has become quite an author over recent years. He has still had time to be on the **VK2WI** Broadcast team. He has just published his fourth novel, 'Cry of the Bunyips'. Jeff's email is jeff@barefoottimes.net

It is now three months until the next **CCARC** Field Day at the usual Wyong venue, the racecourse, on Sunday 26 February. When the Club is not planning the field day, they have been expanding their repeater building to accommodate additional facilities. They are also active with two monthly meetings. Nets on Saturday at 8.30 am and the Foundation class net on Wednesday at 8 pm on repeater **VK2RAG** 146.725. The club rooms are open every Saturday from 10.30 am and Tuesday evening from 7.30 pm and every second Wednesday from 10 am. **VK2WI** is relayed through the **VK2RAG** repeater. Check their club web site [www.ccarc.org.au](http://www.ccarc.org.au) for all details, advises Rod **VK2FVRJ**.

The **VK2RSY** Sydney 10 metre beacon at Dural developed an antenna fault late October. Previously on a vertical antenna, it was restored using a multiband horizontal dipole. Major antenna works are planned early 2012, when a vertical will be installed.

**Jeff's Walk** concluded on Sunday 2 October after he – **VK4XJJ** – covered 4971 km, to end at Steep Point in **VK6**. Jeff set out to raise \$80,000 for **NETS**. A little short of the mark, they looked at other fund raising ideas and one was to shave off beards. Grahame **VK2FA**, who had been arranging many radio interviews for Jeff during his walk, made the mistake of offering to have his 30 year old beard get the chop. Well, it happened and his **XYL** Judy **VK2HZV** had never seen Grahame without a covered face. So, on Friday 28 October both Graham and Jeff became 'clean shaven'. There is a lot of material about **NETS** and Jeff's Walk to be found at [www.nets.org.au](http://www.nets.org.au)

**WICEN NSW** has been busy since their AGM with mainly exercises. The web site has been updated so check out operations@nsw.wicen.org.au Contact by email to [www.nsw.wicen.org.au](http://www.nsw.wicen.org.au)

The **Hunter Region Group** Monday event news bulletin will take the regular break from early December until early February. Many clubs and groups also take a break from meetings in January and they are asked to use the **VK2WI** News Bulletins to inform their members and visitors to their region of meeting arrangements during this period.

On behalf of **ARNSW** may I wish readers all the best for the forthcoming festive season, may your Christmas stocking contain that new rig and may 2012 be a good year for you. See you in the January/February issue.

73 – Tim **VK2ZTM**



## HAM AND WINE FEST 2012

4 February 2012 at Maclagan



More info please contact:  
Rick [VK4NRL@wia.org.au](mailto:VK4NRL@wia.org.au) or  
Neil on [holmzie@bigpond.com](mailto:holmzie@bigpond.com)

## VKLOGGER | Are you an active radio amateur?

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<http://www.vklogger.com/>

# VHF/UHF - An Expanding World

David Smith VK3HZ  
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## Weak Signal

Things are certainly picking up as summer approaches.

Another opening occurred to ZL over the period from October 20th to 21st. Many contacts were made on 2 m with Ross VK2DVZ featuring heavily for 'our' team, while Nick ZL1IU ably represented the All Blacks! Other participants included VK2ZT, VK2MER, VK2AMS, VK2QO and VK4JMC with ZL1TPH, ZL1AKW, ZL1SWW, ZL1BCJ, ZL2WHO and ZL2TAL. Several 70 cm contacts were also achieved between VK2DVZ, VK2ZT and VK2AMS to ZL1IU and ZL2TAL. Ross VK2DVZ attempted a contact on 23 cm with Ray ZL2TAL, and voices were heard each way, but they were unable to complete on SSB due to QSB.

On the 21st Steve ZL1TPH operated portable from Moirs Hill in RF73HM at 350 metres ASL with nice coastal views towards VK. He reports that the Sydney VK2RSY beacon on 144.420 MHz was S2. He worked on 2 m VK2QO, VK2BHO, VK2DVZ, VK2ARA, VK2FE, VK2EI, VK2ZT, VK2AH, VK2MER, VK2ZCV and VK4JMC. All signals from VK2 were exceptionally strong. The path to VK4 was marginal but there.

At the end of October, the weather charts were showing a high pressure cell nestled nicely in the Bight - normally a good indicator of enhanced tropo conditions. However, the weather was a bit unsettled which tends to disrupt things somewhat. The morning of November 1st saw the first contact across the Bight on 2 m from VK5 to VK6. At 2305 Z, Brian VK5BC worked Derek VK6DZ over a distance of 1920 km. The VK6REP 2 m beacon in Esperance was also being heard in the east, in VK5, VK3 and on the morning of November 2nd as far as Leigh VK2KRR's QTH - a distance of 2314 km.

As the high moved east, conditions between Melbourne and

Adelaide were lifted and 5x9 contacts were had between the locations.

Also during this period Mark VK2EMA successfully worked into the Adelaide area on 2 m to VK5GF, VK5BC, VK5AKK and VK5ZK and on 70 cm to VK5BC.

## MAD Report

Michael VK3KH reports on the recent Microwave Activity Day in the south - this time focussing on 23 cm to encourage both field and home operation and also to encourage people to explore a band on their rigs that don't get as much use, perhaps, as it should. *The VK3 and VK5 Microwave Activity Day was held on Sunday, 16th October.*

*The weather was definitely against us for, although no rain eventuated, the winds were so strong that portable operations were, in the main part, impractical. My own plans for portable operation had to be aborted as the winds were between 30 and 40 knots straight up the side of Arthur's Seat.*

*So I, like most others chose to operate from home. The focus was on 1296 MHz and I must admit to being very happy at the number of contacts I made.*

*I managed 11 contacts on 23 cm, including VK3AXH and VK3IDL in Ballarat, VK3MY, VK3YFL/P, VK3XPD, VK3RU and VK3TPR/P all around Melbourne, VK3QM, VK3PY and VK3BA in Geelong, and finally VK5DK/P (a group of Mt Gambier amateurs) at 'The Bluff', a distance of 402 km. A great result for 1.5 hours of operating between 8.30 am and 10 am local time on a Sunday morning. VK3MCW made contact with Ian VK3AXH, but was not heard in Melbourne.*

*I received the following report from Colin VK5DK about their portable operation:*

*'Worked on 23 cm: VK3AXH, VK3QM, VK3KH, VK3XPD and VK3PY.*



Photo 1: Adam VK4GHZ in the operating position.

*Worked on 2.4 GHz: VK3AXH and VK3QM, and VK5DK/P on 'The Bluff' QF02GG; very windy but no rain.'*

*Thanks for making the effort to everyone who came on air despite the conditions. Microwaves continue to flourish in the South East!*

## VK4 Microwave Day Report

One week after the southern Microwave Activity Day, on October 23rd, the VK4's had the second of their Microwave days with, by all reports, an excellent turnout.

Adam VK4GHZ reports: *What a perfect day to be out and about, and playing radio in the field. Blue sky, and mid 20s - take note Mexicans!*

*VK4GHZ/P consisted of Alan VK4WR, Graeme VK4FI and Adam VK4GHZ, and we were concentrating on 2.4 GHz activity, from northern NSW.*

*Contacts on 13 cm were made using VK3XDK transverter boards with a Spectrian 30 W PA, and 21 dB grid pack antenna as follows:*

*VK4OX (247.7 km), VK4KZR (186.0 km), VK4OE/P (194 km), VK4TJ/P (148.4 km), VK4JMC (145.5 km), VK4OX (271.9 km), VK4JMC (166.6 km), VK4KZR (213.8 km).*

*The 'operation' actually started on Saturday, doing a recce for another potential field day site, and then visiting some wineries in the Stanthorpe region.*

*Conveniently, our accommodation for Saturday night was within crawling*

distance of the Ballendean Tavern. Knocking the top off a few coldies before dinner, and checking in with VK Logger, it was at this time I discovered that the vklogger.com domain was totally down. Damn service provider. Again. After a 15 minute call to support from the mobile, it was back on line.

Out on Sunday morning, and up to Mt Richmond, QG61db, just east of Tenterfield in NSW, for activity commencing at 10 am.

Equipment consisted of the 2.4 GHz transverter with a Yaesu FT-817 as the IF rig. An IC-910H was used for 2 m and 23 cm. A B&D Workmate makes a very handy collapsible table. Due to the activity only running for a few hours, power was provided by a car battery, so no need to muck around with a generator.

We then relocated to Mt MacKenzie, QG50, on the western side of Tenterfield. Our brief operation from here was minimal – 2.4 GHz only and VK Logger Microwave iChat for liaison.

The best distance today was from Mt MacKenzie with Adrian VK4OX, (in Maleny QG63KF) over a path of 271.9 km. Very pleased with that, and we were delighted to provide Adrian with a new square on 13 cm.

Some comments and thoughts from today! It was fun, and provided a great shakedown of gear, and field day related procedures.

Trying to liaise on 2 m SSB using a Yagi was a little awkward, and a bit clumsy, especially when you cannot hear everybody, and have to rotate the Yagi regularly. (It would be a different situation during a field day, where there is more time available, and operation is not so concentrated)

Using the VK Logger iChat as well as 2 m FM (with omni antenna) was quite efficient. When trying to peak on a weak signal on 2403 to begin with, it helps not having a second SSB receiver going, and the iChat was a nice silent way of liaison... not having to constantly wrestle with multiple volume controls.



Photo 2: Doug VK4OE with van and antennas.

It was easy to have the notebook computer connected to the Internet using the 3G mobile phone as the modem.

Doug VK4OE was also out in the field, and he reports: I was very pleased with the number of microwave stations who were on-air on the day, or trying to be so. Weather wise, it was a beautiful day on 'Straddie' and, apart from bruising my fingertips when the driver's door closed on them, everything went very enjoyably.

Stations worked on 1296 MHz were VK4NE/4, VK4WA, VK4KSY, VK4GHZ/2, VK4MJF and VK4ZQ/4. Sorry to Frank VK4FLR as I wasn't aware at the time that he was on 1296 during the morning but the propagation wasn't favouring us on the day.

On 2403 MHz I had QSOs with VK4GHZ/2, VK4OX, VK4WA, VK4KZR and VK4JMC, and on 10368 MHz I worked VK4EA, VK4MJF, VK4IIO and VK4UH. Despite being some distance from each other (in other words not close where normal leakage takes place), VK4IIO, VK4UH and I enjoyed a rare 'three-way' QSO on 10.3 GHz.

Rod VK4KZR participated as a home station:

Thanks to Doug VK4OE and the rest of the SE Queensland microwave operators for such a good turn out last Sunday. I participated as a home station but unfortunately operation was restricted to operation on 2403 MHz only.

Two-way SSB contacts were made with the following stations: VK4OX, VK4OE/4 VK4GHZ/2 (Mt Richmond) and VK4GHZ/2 (Mt Mackenzie) - best DX at 213 km and a new grid square.

My home station for this band consists of a homebrew transverter (Minikits) + GaAsFET PA (four watts) and 900 mm grid-pack at 15 m.

Other comments - this was a great shakedown test for the forthcoming field day contest.

Reference locked PLL oscillators are certainly a great advantage because you know exactly where the transverter is. Ironically it's my 2 m IF radio that needs a calibration.

iChat on the VKLOGGER is a very useful facility - even as an adjunct to using talkback frequency since there is a history log. It's not always possible to be in front of the radios, so it allows you to quickly see what is happening or has been happening.

It was very encouraging to see some new callsigns listed as having been active, particularly on the higher microwave bands.

### **New microwave band records - 135 GHz, 243 GHz and 324 GHz**

Alan VK3XPD has been continuing his experiments at the extreme end of the microwave spectrum. He reports on his latest efforts:

On Friday 21/10/2011, we activated the 135 GHz, 243 GHz and 324 GHz microwave bands in VK3.

Despite the most unfavourable weather conditions, Michael VK3KH and I went out to Casey Sports arena in Cranbourne, east of Melbourne to test a pair of new transverters that I had just finished building. Our initial on-site testing over a 10 metre path was to check the functionality of the gear.

We started with 324.48 GHz. Signal reports for our SSB signals were 5x9 both ways. At this time, I'm unsure if we in VK have any allocations in this band segment. There have been recorded amateur QSOs on 322 GHz in the USA and Europe.

(Ed: Frequencies above 250 GHz are not assigned to any service by ACMA, so technically there is no 324 GHz band in VK. However amateurs may operate on these frequencies because they are not assigned to any other service).

The next frequency we activated was 243.36 GHz. Signal reports were 5x9 +10 both ways. Our final frequency was 135.20 GHz, again with 5x9 +10 both ways.

Having seen such big signals over our 10 metre path, we decided to try our luck with an optimistic 400 metre path.

We failed to hear anything on 135 GHz. This was not surprising with all the recent wet overcast weather, water sitting in puddles in the nice green grass and the very high relative humidity at the time.

Tests over a 200 metre path yielded much the same results. Nothing heard. Clearly we had too much atmospheric attenuation.

A 100 metre path yielded mixed results. We heard our 135 GHz ident signals but they were so very weak that SSB was going to be impossible. Despite much effort to optimise our dish pointing and the gear sensitivity, the signals finally disappeared as the afternoon passed.

On each series of tests using non-amateur band frequencies, we noticed that conditions (propagation) for these upper microwave frequencies were changing very fast - even over these relatively short paths.

As the afternoon progressed towards 1600 hours local, it became somewhat chilly. With time running out, we decided to run our last tests over a 25 metre path.

Our 135 GHz QSO was 5x9 both ways. The 243 GHz QSO was also 5x9 both ways. Our final QSO on 324 GHz was 5x5 from Michael to my 5x2 report.

All in all it was a very successful day despite the obvious poor weather. Amazingly, the QSOs we achieved on these three widely spaced band segments were achieved by this single pair of transverters.

At this time, we have not decided whether to claim Australian Distance Records for these 25 metre QSOs. Clearly with some better weather and accompanying low humidity, these distances will certainly be improved on.

A full write-up on the equipment used will be published shortly. Suffice to say that the hardware is very similar to the 78/122 GHz transverters I built previously. This time the 'pump' source is 27.04 GHz. So, the 5th harmonic is 135.2 GHz, 9th harmonic is 243.46 GHz, and so on.

Our VK9NA website at [www.vk9na.com](http://www.vk9na.com) has more information on the techniques used. Related articles will also appear in DUBUS 4/2011. Subsequent to this report, Alan and Michael have claimed, and been awarded, new distance records for these three bands. Several days later, on October 23rd, Alan and Russell VK3ZQB extended the records for 135 GHz and 243 GHz to 50 metres.

### **New EME digital records**

After much discussion, the WIA has decided to accept distance record applications for digital mode contacts via EME. These will be classed separately to contacts in other non-digital modes such as CW and SSB.

The first of these records have been awarded as follows:

12/01/11 - 2 metres - VK9NA to EA2AGZ - 18306.4 km

01/10/11 - 23 cm - VK2AMS to VK2JDS - 325.3 km

### **ARRL EME contest 22/23 October, 2011**

Doug VK3UM reports on his efforts during the recent ARRL EME Contest:

*It's like going to the dentist... I know it will hurt... and I will take the rest of the week to recover, and as usual it did! The Declination is now playing a factor for many given its decline due to the current Moon's*

*cycle. The siting of many antennas nowadays is posing a problem and it will get worse! Some stations I can no longer work as we no longer have common visual windows. Many guys now require a higher elevation which results in a lower elevation for me. This does not worry me given my low horizon, but concentrates activity into an even tighter time frame.*

*Conditions... Wildly swinging on 70 cm, really quite amazing. It made for hard work at times because of deep fading and rapid polarisation changes that were evident over the space of a minute. I have not seen that for a while and reflects the rise in solar activity. 23 cm was subject to deep fading at times but, in general, it was very good. Libration was at a minimum that weekend but Faraday caused the problems. The stand out signal from Gerald K5GW on 70 cm was clear evidence of the advantage of circular polarisation on that band. Polarisation offset to NA and EU was theoretically aligned for most of the time which is an advantage to me at such declinations. However Faraday messed that right up! Finished with 21 QSOs on 70 cm and 47 on 23 cm which is about average for contacts/time over the years. I did not spend too much time on 70 and will concentrate there in November. On Sunday's Moon set I left with three stations calling me at 0.2 degrees so there are many more to work.*

*The following were worked on 23 cm: JA8ERE, OK2DL, OZ6OL, VK4CDI, G4CCH, IK1MTZ, I5MPK, SP6JLW, ES5PC, JF3HUC, RD3DA, AL7RT, K1JT, N2UO, NA4N, K5AZU, WA6PY, VA7MM, NR5M, W9IIX, JR4AEP, K5GW, RA3AUB, SP7DCS, OH2DG, SM3JQU, DF3RU, SV1BTR, SM4IVE, OE5JFL, 9A5AA, LZ1DX, PA3FXB, DL4DTU, OK2ULQ, G3LTF, F2TU, IK3COJ, F5KUG, I1NDP, DL3EBJ, S59DCD, IZ1BPN, W5LUA, VE6TA, and the following were worked on 70 cm: DL1YMK, SM4IVE, DG1KJG, SD3F, F6DRO, OZ5MM, OH2PO, SV1BTR, JA9BOH, SP6JLW, F2TU, SP7DCS, N4GJV, K5GW, VE6TA, VK4EME, W8TXT, ES5PC, JA0TJU, KORZ and K1JT. Please send any Weak Signal reports to David VK3HZ at [VK3HZ@wia.org.au](mailto:VK3HZ@wia.org.au)*

## Digital DX Modes

Rex Moncur VK7MO

### 144 MHz FSK441

Welcome to Simon ZL4PLM who is putting out an excellent signal from Christchurch, New Zealand and had his first meteor scatter QSO with Rex VK7MO on 29 October. For this first QSO, Simon was under instruction from veteran meteor scatter operator Starr ZL3CU. 48 readable pings were received from Simon in an hour which compares to typically 5 to 10 from Starr whose QTH is also in Christchurch – it will be interesting to see if this large number of pings is typical.

### 144 MHz JT65

Welcome to Rob VK3XQ near Yea who has an excellent signal on JT65 working a number of stations EME and has good and consistent signals down to Hobart via tropo-scatter.

### Sending Single Tones on JT65 to check for propagation

It is possible to send a single tone on JT65 by inserting '@1270' without the quotes in any message box and then ticking that box. As a single tone puts all the energy into a single bin and runs for the full 60 second TX period (cf 48 seconds for JT65 text messages) the signal strength is improved by 3 to 4 dB and it becomes possible to identify the presence of a weak signal on the waterfall down to around -33 dB on the WSJT scale. This approach can be very useful for testing for the presence of a weak signal when you are waiting for a marginal path to open. The signal tone '@1270' gives a tone of 1270 Hz which is the same as the reference tone when transmitting text on JT65 and thus identifies where you should see the signal when the station moves to text. It is, however, possible to send other tones if one wishes such as '@1000' to provide a 1000 Hz tone.

### 10 GHz DXpedition to rare grid square QF40 Flinders Island

Rex VK7MO, Eric VK7NFI (the pilot and owner of the light aircraft used



Photo 3: Rex setting up the plastic dish on Peter's ute.

to visit the island) and Peter VK7KPB (who provided on-site transport and accommodation) activated the rare grid square QF40 on Flinders Island on 22 October on 10 GHz. While Flinders Island is at the intersection of four grid squares, the other three can be covered from the mainland of either Tasmania or Victoria but QF40 is the rare one that requires a visit to Flinders Island. In order to fit the equipment into the minimal space behind the seats in Eric's small two-seater aircraft, it was necessary to design a compact cut-down 10 GHz system. Following a request on the VK-Microwave reflector, Scott N0EDV recommended a small 47 cm ABS plastic dish which can be removed with a single bolt to readily fit down behind the seats of the aircraft and is available at: [http://www.sadoun.com/Sat/Products/Eagle-Aspen/Travel\\_Dish-20-inch-Antenna.htm](http://www.sadoun.com/Sat/Products/Eagle-Aspen/Travel_Dish-20-inch-Antenna.htm)

The 10 GHz station was reduced to two watts to allow operation from a small gelcell as a back-up, although in this case Peter VK7KPB kindly provided a charged up tractor battery. It was also necessary to find a small wooden tripod that could be disassembled to fit into the aircraft. Joe VK7JG and Alan VK7AN had visited the island and recommended

a suitable site in QF40. Rex and Eric started off from Wynyard airport but soon ran into low cloud and had to return and wait for the WX to improve. Later a second attempt was made with reasonably clear conditions up to the north east coast of Tasmania when the aircraft turned towards Flinders Island. On approaching Flinders Island from the south west, low cloud blocked access to the Lady Barron airstrip. An approach from the south east was also blocked by cloud and it was necessary to approach the airstrip from the north with low cloud covering the hills. Fortunately, it was possible to track along a road to the gravel airstrip.

Next morning Peter VK7KPB transported us to Middle Patriarch mountain. To get a clear take-off, the dish was mounted on the tray of Peter's ute.

Contacts completed were:  
VK3HZ R-10, S-13 JT65c Johns Hill lookout in the Dandenong ranges 313 km  
VK3HY 4-1, 4-1 SSB Johns Hill lookout in the Dandenong ranges 313 km  
VK3HZ 5-1, 4-1 SSB Johns Hill lookout in the Dandenong ranges 313 km

VK3TPR R-13, S-16 JT65c Johns Hill lookout in the Dandenong ranges 313 km

Conditions at John's Hill were poor with rain but clear at Flinders Island VK3QM 4-1, 3-1 SSB Bayview near Geelong 399 km

VK3PY 3-1, 3-1 SSB Bayview near Geelong 399 km

VK3NX 3-1, 3-1 SSB Bayview near Geelong 399 km

VK3ALB 3-1, 3-1 SSB Bayview near Geelong 399 km

VK3ZQB S-22, R-23 JT65c Portland 543 km

Russell VK3ZQB's signal was spread considerably, at least 20 Hz, which suggests that forward rain scatter was involved and might explain getting over a relatively long distance for non-enhanced tropo scatter.

The following stations were in Gippsland at relatively short distances:

VK3s WRE/PF/ZYC at Currajong 220 km  
VK3BQJ at Swan Reach 244 km

Nothing at all was received even with single tones and despite the fact that this was a much shorter distance than the other contacts and the fact VK3WRE and VK3BQJ could copy each other at well over S9. Ralph VK3WRE reports there was poor WX to the south and a possible inversion below them, which might be the explanation.

Nothing was copied of VK5DK at 686 km but that is not unexpected in what was poor conditions.

The WX was much better for our safe return to Wynyard.

While there were some unexplained failures at the shorter distances, the trip was a success and proved the viability of the equipment for our next project - three more rare Bass Strait island grid squares on King Island.

Please send any Digital DX Modes reports to Rex VK7MO at [rmoncur@bigpond.net.au](mailto:rmoncur@bigpond.net.au)

## The Magic Band – 6 m DX

*Brian Cleland VK5BC*

During October six metres really came to life with international openings occurring on most days during the month but particularly in northern VK and on many days these openings extended south to VK3, 5, 6 and 7. Most days JAs could be worked or indicators from the north heard. Highlight for the month was a great opening from VK4 to America, Canada and Mexico.

The opening to North America occurred on 26 October with stations as far south as Hervey Bay and north to John VK4FNQ in Charters Towers

working several stations. Paul VK4MA near Hervey Bay reported working 15 North American stations including 3 x VE7s. Wayne VK4WTN in Hervey Bay worked VE7SL, K7CW, K6MYC all on CW and KE7V on SSB at 5/5. Further north in Mackay Kevin VK4BKP reported the band open for about 40 minutes and working N8DEZ, K7JA, N6RMJ, W6FL, K6GXO, N6ED, KE7V, AE6ZV, K7CW, N7NW as well as XE2D Roman in northern Mexico with signals ranging from 5x1 to 5x9. Later the same day to complete a great day on six metres Kevin also worked KH6SX, KH6RH and KH7Y. John VK4FNQ in Charters Towers also worked several stations including K7RWT, N7DB, AD6WL, KE7V, K7CW and K7JA.

Some of the other significant openings/contacts during the month are as follows:

On 4 October Art KH6SX worked Mark VK8MS 5/9 and John VK8JM 5/5 in Darwin. Mark also worked Fred KH7Y. The DX expedition of 3D2R on Rotuma Island also worked many JAs as well as several KH6s as did 5W1SA from Samoa. Great to see activity from these Pacific areas.

Early evening on October 5, Gary VK8AW in Darwin worked Fred KH7Y and later that night Dale VK4SIX in Atherton worked several JAs as well as Willem DU7/PA0HIP, Li BA4SI and HL3IUA.

The first evening TEP opening this cycle to southern VK occurred on the 11th October. Andrew VK3OE reported that the Chinese TV on 49.750 was strong and Brian VK5BC noted the same. Brian found the JA2IGY beacon on 50.010 was audible and at 0943 UTC worked JA3EGE SSB at 5/5. Then at 1143 UTC worked Charlie VR2XMT in Hong Kong SSB at 5/5, Charlie was audible for over 1/2 hour and was also heard working Dale VK4SIX, VK6KP and VK8.

Next morning 12th October at 0050 UTC the band again opened to JA from VK5 with Brian VK5BC working JA2MBF, JA3EGE and JA3JRA, all SSB. This was followed by another opening on the 13th with John VK5PO and Garry VK5ZK working several JA's in CW.

Photo 4: Eric VK7NFI with his aircraft at the Lady Barron air-strip.



Good openings from JA to VK5 followed on several days including 17th, 21st, 22nd, 26th and 28th with VR2XMT in again on the 26th.

17th October a good opening from JA to VK5 which extended down to VK7 with Frank VK7DX and Joe VK7JG working several JAs as well as Li BA4SI.

Big opening to KH6 from VK2 and VK3 on 27th October. Roger VK5NY/2 in northern NSW first reported Art KH6SX and then conditions moved further south with several VK2s including Brad VK2QO, Mike VK2ZQ, John VK2FAD and Philip VK2HN working several KHs including KH6SX, KH6HI, KH6U, KH6RH and KH7Y. Conditions continued to move south with eventually Andrew VK3OE and Norm VK3DUT working several of the KH6's. Later in the opening Remi FK8CP was heard by some stations and worked by VK3OE.

At around 0600 UTC on the 29th October the VK4RTL beacon was reported in VK5 and Brian VK5BC, as well as being able to hear Wade VK4WM in Hervey Bay working KH6HI in CW, could also hear KH6HI. Brian called Albert KH6HI and completed a contact in CW 599 and then followed a further SSB contact at 5/3.

Rick VK6XLR in Geraldton WA has had a great October. Mainly contacts from JA, especially an opening on the 29th where he worked 22 stations. Rick has added four new countries to his list with Charlie VR2XMT in Hong Kong, Roger 9W6RT in East Malaysia, Li BA4SI in China and Lee DS4EOI in South Korea all being worked during October, and he has heard Dave A92IO in Bahrain just in the noise, although not enough to copy.

From Darwin Gary VK8AW reports the following; *A short opening to JA on 3 October with Hide JR6EXN appearing around 1330Z at 5/1. On the 5th we had Hawaii with Fred KH7Y coming in at 0725Z 5/3 followed by JF2WMH at 1030Z. On the 6th Fred KH7Y was 5/9 at 0650Z and then the conditions went west with 9W6RT at 1335Z at 5/8.*

*The 8th saw Willem DU7/PA0HIP. 5/7, 9W6RT 5/5 and then conditions went west again with A92IO making the log at 5/3 on SSB. Signals then fell short back into West Malaysia with 9W2TS 5/3 and then back west with A71EM 5/5 on CW at 1345Z. I also had A61Q 5/2 (he was mobile) but he could not hear me at 1350Z. On the 9th we had Charlie VR2XMT bashing the needle 30 over 9 from 1248Z and then DU1GM joined in around 1250Z followed by 9W6RT at 1320Z.*

*On 10th October I quickly worked 9M2IDJ 5/9 on 50110 whilst waiting for the band to shift west but nothing further eventuated. On the 11th conditions kept changing long/short with ST2AR around 1100Z calling for hours with no takers. Then VR2XMT 5/9 at 1140Z, BA8AT 5/9 at 1155Z then it shifted to A45XR 5/2 at 1315Z then short again with Satu 9N1AA in Nepal 5/6. Then it went long again with Dave A92IO 5/2 at 1400Z then short again with 9M2ESM 5/9 at 1410Z.*

*The 12th saw a good opening with ST2AR from Sudan on CW from 1130Z till 1250Z. Then it fell short with 9W2MSO 5/9 at 1255Z, 9N1AA 5/6 at 1300Z, VR2HF 5/9 at 1310Z followed by A45XR 5/5 at 1315Z, Andrew 9V1TT 5/9 at 1323Z, BA8AT 5/9 at 1333Z and 9W6RT 5/5 at 1338Z.*

*On the 15th we had all the usual JA, DU, BV and VR beacons in again with just Eddie DU1EV 5/9 at 1225Z and Charlie VR2XMT 5/9 at 1232Z making the log. On the 16th we had very strong Es into Indonesia with YB0AKM 40 over 9 at 1230Z for hours then Andrew 9V1TT appeared around 1235Z 5/9 who worked many VR's and JAs.*

*On the 17th we had VR2XMT at 1324Z then 9V1TT at 1332Z, BV100 at 1333Z, 9W2ODT at 1334Z and YB0AKM at 1337Z and 9W6RT at 1344Z followed by Dave A92IO who rounded the night out at 1412Z 5/3 for an hour looking for VKs/Pacific.*

*On the 24th again we had 9W6RT 5/9 at 1350Z, who is a regular appearance most nights, followed by Eddy XV1X from Vietnam 20 over 9 on SSB at 1400Z.*

*The 28th saw Dave A92IO appear early at 0600Z 5/5; he called for hours with not many takers on 110. On the 29th Art KH6SX was 5/5 around 0512Z and then it went west with the A6 TV roaring in 30 over 9 but I could not raise anyone that way.*

*The A6 TV from the middle east on 48.250 MHz appears most nights anywhere from 0600Z through to 1500Z, usually peaking twice during the evening but not coinciding with the 49ers.*

Certainly exciting times in Darwin on six metres with the contacts with Mark VK8MS and Gary VK8AW working Rob ST2AR in Sudan a big highlight

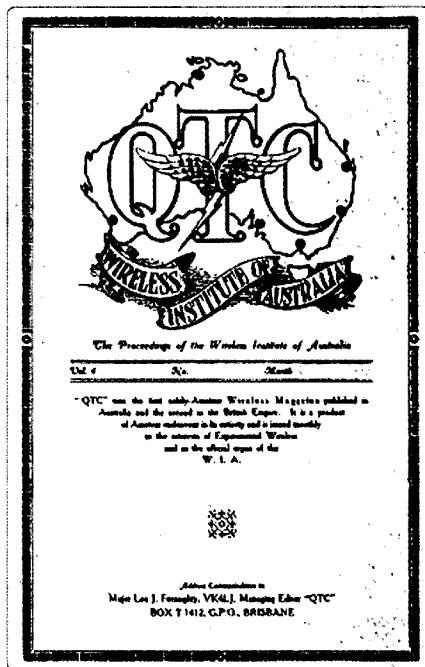
For those interested in grid squares Richard VK5UK reports that he will be operational from Elliston on the west coast of South Australia PF76 from 20th December until at least the end of January and that he may also be able to take a trip to neighbouring grid PF77 if there is enough demand. He will be 'working' during this time and not available on demand but that there should be plenty of time for radio. He also intends to be running WSPR on 6 m and could be alerted to openings by text message, contact details on VKLOGGER.

VKLOGGER now has a new version of iChat which includes colours and the ability to run it in a separate window as well as overlaying it on the logger screen. The combination of this with VKLOGGER is a great tool for VK DXers and provides many features including beacon details, operator information, etc. as well as a history of postings on the logger. If all operators post details of contacts it also provides a means of following propagation trends, assisting other VK's in working that special DX. It can be found at <http://www.vklogger.com/>

Please send any 6 m information to Brian VK5BC at [briancleland@bigpond.com](mailto:briancleland@bigpond.com)

# Hamads

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The WIA Archive is seeking early copies of QTC magazine for copying and/or adding to the WIA Archive's shelves. QTC was published in Queensland and claimed to be the first solely Amateur Wireless magazine in Australia and second in the British Empire! The format was duplicated foolscap pages stapled, with a light blue/grey front cover. QTC was published in the late 1920s/early 1930s, ceasing in November 1931; VK4LG was the dedicated editor. There was a later version in Queensland. We are presently interested in the early editions only. Please contact Peter VK3RV via email [vk3rv@wia.org.au](mailto:vk3rv@wia.org.au) or c/o the National Office in Bayswater if you can help us locate this important part of our history.

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## WANTED – NSW

Headphones, 2K, suitable for crystal set. Phone Stan Dogger VK2KSD QTHR 02 6677 9292

Talking wattmeter for blind amateur, LDG TW-1 or similar.

Contact Maurie Camps VK2DCD, Box 72, Coleambally, NSW. Or phone 02 6954 4631, or email [m.camps@bigpond.com](mailto:m.camps@bigpond.com)

## FOR SALE – QLD

House and land for sale, with council approval as a radio transmitting site. Land area is just less than two acres - 6797 sq m. House area is 310 sq m, five bedrooms, of which two bedrooms are part of a Granny Flat. Covered verandas surround the house. Two bathrooms, and provision for a third. Three entertainment areas. ADSL2+ Telstra. Double garage plus a double car port. Also a car port for a motor home, with 3.5 metre clearance. Tower has been taken down but footings are in place. Antennas in place are a full size 80 metre horizontal loop and an off centre fed Windom. Property is located at Clear Mountain, approximately 35 km north west of the Brisbane GPO. Offers over \$695,000. For more information and pictures on CD please contact me at email [vk4zmm@bigpond.net.au](mailto:vk4zmm@bigpond.net.au) Malcolm VK4ZMM

## WANTED – QLD

Wanted is the external VFO for the FT707, with cables and in GWO. Contact Mervyn VK4DV by phone, nights, on 07 4928 5537 or by email [vk4dv@yahoo.com.au](mailto:vk4dv@yahoo.com.au)

## FOR SALE – SA

Christmas is coming soon. Shout yourself, or get the significant other to get you a great present. The VK5JST Antenna Analyser kits are available through the South Coast Amateur Radio Club. Get in early as stock goes quickly at this time of the year. See [www.scarc.org.au](http://www.scarc.org.au) or contact SCARC, PO Box 333, Morphett Vale. SA. 5162. Alternatively email [kits@scarc.org.au](mailto:kits@scarc.org.au)

## FOR SALE – WA

Icom IC-718 100 W HF transceiver, S/N 0846311. Brand new, unopened, and in original box. Brian VK6ABM QTHR [vk6abm@wia.org.au](mailto:vk6abm@wia.org.au) or phone 08 9574 6111.





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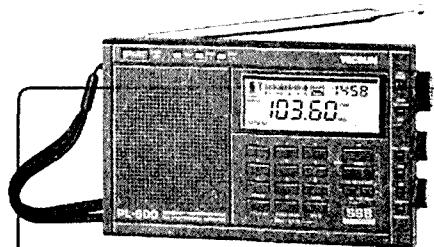
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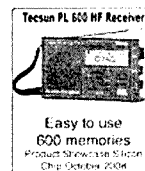
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- \* John Bishop VK2BK
- Dominic Dahl VK2YDD
- \* Timothy Mills VK2ZTM / VK2UJ
- Gilbert Hughes VK1GH

### Victorian Advisory Committee

Email: vk3advisory@wia.org.au

- \* Bob Tait VK3XP
- Luke Steele VK3HJ
- Noel Ferguson VK3FGN
- Chris Chapman VK3QB

### Queensland Advisory Committee

Email: vk4advisory@wia.org.au

- Don Wilschefski VK4BY
- Kevin Johnston VK4UH
- \* Michael Charteris VK4QS
- Alan Shannon VK4SN

### South Australian Advisory Committee

Email: vk5advisory@wia.org.au

- \* David Clegg VK5KC
- \* Peter Reichelt VK5APR
- Ben Broadbent VK5BB
- Trevor Quick VK5ATQ

### Western Australian Advisory Committee

Email: vk6advisory@wia.org.au

- \* Martin Stretton VK6ZMS
- \* Heath Walder VK6TWO
- Craig Lamb VK6FLAM

### Tasmanian Advisory Committee

Email: vk7advisory@wia.org.au

- Clayton Reading VK7ZCR
- \* Justin Giles-Clark VK7TW
- Peter Rumble VK7IY

### Northern Territory Advisory Committee

Email: vk8advisory@wia.org.au

- \* Peter Blackadder VK8HPB
- Garry Woods VK8GW
- \* Alan Baker VK8AB
- Mark Sellers VK8MS

\*Denotes Committee Chairman

\*Denotes nominated by the WIA Board  
("Nominated Member")



## The Wireless Institute of Australia

ACN 004 920 745

# Election of Directors Call for Nominations

Pursuant to clause 14.1 (c) of the Constitution the WIA Board has determined that the election of directors shall be conducted by postal ballot.

Three directors retire at the conclusion of the next Annual General Meeting which will be held at Mildura, Victoria, on the 26th May 2012, namely Philip John Wait, Christopher Brian Piatt and Robert Stanley Bristow. Each is eligible for re-election and Philip John Wait, Christopher Brian Piatt and Robert Stanley Bristow have offered themselves for re-election to three of the three vacancies.

Nominations are called for from others also seeking election as a director of the WIA.

A director must be a voting member of the WIA and must hold an Australian amateur radio licence.

Any person wishing to nominate as a candidate for election as director of the WIA must deliver or cause to be

delivered to the Returning Officer by not later than 31 January 2012 a statement signed by the candidate signifying his or her willingness to be a candidate for election as a director together with; the full name, age, occupation and call sign of the candidate, and such other biographical details or other information as the candidate wishes to accompany the ballot papers, but in all not exceeding 250 words.

Delivery to the Returning Officer may be made by hand when the WIA national office is open at:

Unit 20  
11-13 Havelock Road  
Bayswater  
Victoria 3153

or by mail to:  
PO Box 2042  
Bayswater  
Victoria 3153

Nominations received by facsimile or by electronic means cannot be accepted.

**Geoffrey Atkinson VK3AFA**  
Returning Officer.

# WIA 2012 Callbook



**Now available**



The WIA 2012 Callbook complete with contact details for Australian Amateur callsigns, amateur radio organisations, technical information on band plans, beacons, repeaters, DXCC and QSL info. The callbook includes a searchable CD.

Member Price - \$22  
Retail - \$30



## RSGB Radio Communication Handbook

11th Edition. Edited by Mike Dennison, G3XDV and John Fielding, ZS5JF.

Since it was first published in 1938, the RSGB Radio Communication Handbook has been one of the largest and most comprehensive guides to the theory

and practice of Amateur Radio communication. Fully updated, this edition includes the very latest technology. It contains significantly expanded chapters covering HF Transmitters and Receivers, LF, Microwaves, VHF/UHF Antennas, Computers and more. New material covering transmitting SSB on light frequencies, long distance transmission and reception below 10kHz, digital theory, background noise, ceramic filters and more.

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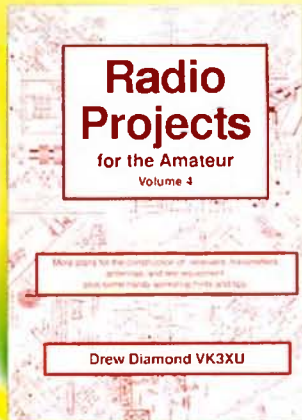


## Weekend Projects for the Radio Amateur

Edited by George Brown, MW5ACN

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