Amateur Radio

Volume 83
Number 8
August 2015
Price: $9.70 incl GST
www.wia.org.au

Wireless Institute of Australia

QSL cards

Plain or colourful, interesting or boring?

- Amateurs in WWII
- Boat anchors and 40 m AM
- Build a frequency counter

ISSN 0002-5859 08
0002 685062

FTM-100DR

C4FM/FM 144/430 MHz DUAL BAND DIGITAL TRANSCEIVER

A Digital Mobile Transceiver for a New Age

Advanced C4FM Technology Makes Possible a Wide Variety of Mobile Operations

- C4FM Digital with FM Friendly AMS
- Easy-to-read graphical interface for user-friendly operation
- Bright multi-colored Mode/Status Indicator to visibly and clearly inform the current state of the transceiver
- Powerful 50 Watts RF output for VHF/UHF Amateur bands
- Supports WIRES-X internet linking and worldwide communication system for amateur radio
- Establish an internet WIRES-X node station (Requires optional HRI-200)

C4FM
Clear and Crisp Voice Technology

AMS

WIRES-X

YAESU
The radio

YAESU Authorized Dealer

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
URL : www.andrewscom.com.au
Tel: +61-2-9636-9060

Strictly HAM Pty. Ltd.
Shop 12B Church Street Bayswater Vic. 3153
URL : www.strictlyham.com.au
Tel: +61-3-9729-7656

YAESU Authorized Service Center

Andrews Communications Systems
Shop 8, 41-51 Bathurst Street, Greystanes NSW 2145
Tel: +61-2-9636-9060, Fax: +61-2-9688-1995
E-mail: radioandrews@hotmail.com

JNB Electronics Pty Ltd
347 Settlement Rd, Thomastown Victoria 3074
Tel: +61-3-9465-9399, Fax: +61-3-8682-8748
E-mail: yaesu@jnb.com.au

Volume 83
Number 8
August 2015
ISSN 0002-6859

Amateur Radio

The Journal of the Wireless Institute of Australia

Technical

General

This month's cover

Do you have a QSL card? Is it boring, stimulating, dull or inspiring? Read the article on QSL cards from Keith Bainbridge VK6RK on page 6. Keith talks about QSL cards in the context of some of the cleaning up after the death of a local amateur. Cards courtesy of VK6RK, composition by Sergio VK3SFG.

Columns

Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications Committee
Peter Hartfield VK3PH
Evan Jarman VK3ANI
Ewen Templeton VK3OW
Kaye Wright VK3FKDW

All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or *armag@wia.org.au*

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or *editor@wia.org.au*

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or *admanager@wia.org.au*

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

Production Deadlines
All articles, columns, hamads and advertising booking by **first day of previous month.**

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
ABN 56 004 920 745

The world's oldest
National Radio Society, founded 1910.

Representing
The Australian Amateur Radio Service
Member of the International Amateur Radio Union

Registered Office of the WIA
Andersson House
Unit 20, 11 Havelock Road
Bayswater, Victoria, 3153
Tel: (03) 9729 0400 Fax (03) 9729 7325
email: *nationaloffice@wia.org.au*
http://www.wia.org.au

All mail to
PO Box 2042 BAYSWATER VIC 3153
Business hours: 10am – 4pm weekdays

Editorial

Peter Freeman VK3PF

A big weekend

This Editorial is being prepared at the last minute, amongst all of the preparations for my local club's biggest event of the year: GippsTech 2015.

Back in 1998, I raised the idea of putting on an amateur radio technical conference, with the main focus being on sharing information about techniques and equipment for weak signal communications on the VHF, UHF and microwave bands. That was a silly idea – here we are coming up to the eighteenth annual event, plus we ran a special edition of GippsTech for the WIA AGM in 2009, the forerunner of the format that has been used most years since that first AGM and Conference.

Why was it a silly idea? Well, I seem to have acquired the job of being the Conference Chair and am therefore heavily involved in the organisation and running of the event each year.

For the club, it has been a great idea. For the first 2 or 3 years we just covered costs. For most years since that time, we have had excellent attendance and we have made money for the club, allowing us to build financial reserves to enable several projects from our own resources: repeater upgrades, beacon establishment and conversion to GPS locking, and modifying our new clubrooms, with the blessings of our hosts.

We are expecting around 110 amateurs for Saturday, together with several partners who will be chauffeur driven in a minibus to regional points of interest. Unfortunately for the partners, the weekend weather is shaping up to be very cold and wet, with a large complex low system approaching. The snow resorts are delighted – they are expecting several days (up to a week) of heavy snowfalls.

I will be looking forward to the end of the weekend, when I can relax for a couple of hours before tackling the task of proofreading this edition of *Amateur Radio!*

Potential conflict

I know that I have mentioned this topic previously, but it bears another airing.

We will shortly have another weekend which will be busy on-air. The dates for the Remembrance Day Contest (RD) and the International Lighthouse and Lightship Weekend (ILLW) once again coincide.

This brings about the potential for conflict: the RD is probably the most popular contest in VK, whilst the ILLW is mainly a fun and friendly participation event. Whilst some ILLW stations are happy to give out contest numbers, others are not! Therefore the RD participants should not *expect* to call an ILLW station and be able to receive a contest number back from the ILLW station. After all, the ILLW station was most likely calling *"CQ Lighthouse"* or similar, not *"CQ Contest"* or *"CQ RD"*. You might be lucky with some ILLW stations, but do not expect to be able to increase the number of stations in your log.

On the other hand, sometimes it may be easier for the ILLW station to quickly give the RD station a number, then resume calling *"CQ*

Continued on page 5

WIA comment

Phil Wait VK2ASD

The inspector comes a'knockn

Last month the WIA received an enquiry from a member who had attempted to off-load a second-hand amateur transceiver through a popular on-line amateur radio marketplace. His advertisement disclosed that the equipment had been previously modified (by a previous owner) to transmit outside the amateur bands, specifically the 27 MHz CB band.

Not long afterwards he received a surprise call from an ACMA inspector, and the following email:

Further to our discussions today, find attached a warning notice issued to you for breaching Section 4 (unlawful possession of radio communications devices), of the Radiocommunications Act 1992 (the Act).

Equipment that operates on the Land Mobile HF bands, including 27 MHz must meet the specific Australian Standards. The equipment must also carry the RCM compliance label. Modified amateur radio equipment does not meet these Standards, nor does it carry the mandatory compliance labelling.

The email went on to note the potential for interference from modified devices, and stated the maximum penalties of $255,000 including 2 years imprisonment for unlawful possession of radio communications devices and $255,000 for supply of non-standard devices. Our member was given 14 days' notice to rectify the situation i.e. to get out the soldering iron and un-modify the radio.

All that came as quite a surprise, because he believed, backed up by some information on the WIA's own website, that he was within his rights to own such a radio, so long as it was not used to transmit outside his amateur licence conditions. After all, even new amateur radio equipment is often capable of transmitting outside the HF amateur band limits, and military-surplus and some older equipment can go just about anywhere. Why the distinction?

In complex matters like this it's always safest to refer to the Act. Section 158 (1): Possession of Non-Standard Devices, states: *"Subject to Divisions 4 and 5, a person must not have in his or her possession for the purpose of operation a device that the person knows is a non-standard device."* Divisions 4 & 5 refer to emergency transmissions and equipment supply outside Australia etc.

So, the whole issue revolves around the existence of a Standard for a particular usage and/or device. As there is no applicable Radiocommunications Standard for amateur usage or equipment, equipment built solely for amateur radio use is not affected, but as soon as that equipment is modified in any way to make it suitable for non-amateur use, where another Standard does apply, it then becomes a non-Standard device. There is also no Standard for military gear, or for very old radio equipment which was manufactured prior to an Australian Standard being introduced.

The email was passed to the WIA's Spectrum committee comprising Peter Young VK3MV, Roger Harrison VK2ZRH, Brian Miller VK3MI and myself. The guidance on the WIA website is clear that modified equipment, including modified CB and marine equipment, cannot be operated lawfully outside amateur spectrum. It is also clear that such equipment cannot be commercially sold. However, the guidance is less clear that possessing such modified equipment would also be unlawful.

If an Australian Standard is in place for a particular type of equipment, or usage, amateur equipment modified to operate in the same spectrum is effectively non-standard equipment. Our understanding is that the provisions under sections 46-48 and 158-160 of the Radiocommunications Act effectively prohibit the operation of such equipment, or its possession for the purpose of operation, or its commercial sale. Section 48 clarifies that such equipment is deemed to be in possession for the purpose of operation if it could easily be turned on and placed into operation.

Considering the number of recent criminal convictions following interference to police and emergency services (where modified equipment was used), we believe it would be difficult for an amateur to argue a case against any enforcement action by the ACMA.

So, at the end of the day, we advised our member that he should take it on the chin and comply with the ACMA inspector's request, which he cheerfully did. However, many would argue that the current provisions about the possession of non-standard devices do not seem to support the experimental nature of the amateur radio service, and that is something we intend to take up with the ACMA with a view to creating more flexibility for amateurs to possess such devices in some circumstances.

For a fuller explanation see *http://www.acma.gov.au/theACMA/nonstandard-transmitters-and-permits*

WIA news

Change is coming for the ACMA

The Australian Communications and Media Authority (ACMA) is anticipated to change in significant ways following a review of its "objectives, functions, structure, governance and resource base", to be completed before the end of 2015.

In announcing the review, the Minister for Communications, the Hon Malcolm Turnbull MP, said it was " . . . to ensure the regulator is able to effectively deal with challenges arising from a rapidly changing communications sector . . . to ensure it remains fit-for-purpose for both the contemporary and future communications regulatory environment."

Noting that the communications sector has changed dramatically since the ACMA's inception in 2005, the Minister observed that the national broadband network rollout, the pervasive use of digital devices and the extensive use of social media". . . are all combining to make communications services a more integral part of every Australian home and business."

The ACMA has regulatory responsibilities under the *Radiocommunications Act 1992*, the *Broadcasting Services Act 1992* and the *Telecommunications Act 1997*, along with an extensive range of subordinate legislation and regulations.

The Department of Communications is conducting the review, supported by a reference group of Australian and international experts. An issues paper will be published shortly and the Department will call for submissions. A report will be presented to the Minister by the end of 2015.

The Australian Communications and Media Authority Act 2005 (the ACMA Act) identifies the full scope of functions of the Authority, set out on the Review's Terms of Reference, available at the link on the WIA website.

The Terms of Reference advise that the review will "consider whether any of the objectives and functions of, or services provided by, the ACMA can cease, be provided by other agencies or the industry itself. It will also consider whether there are objectives and functions of, or services provided by, other agencies that may be more efficiently and effectively delivered by the ACMA."

The WIA expects to participate in the Department of Communications' consultation activities. The Institute will prepare a submission to the ACMA Review following the release of the issues paper.

This review was anticipated by the WIA arising from attending the ACMA's RadComms 2014 conference, its January 2015 industry workshop and liaison meetings over the past nine months.

WIA 2 m and 70 cm bandplan review – update

Following the initial release of the draft 2 m and 70 cm band plans back on 20th May, many members have given us feedback on the proposals which has been most welcome. The sub-committee has been continuously reviewing the inputs received and has made some small amendments to the proposals.

The changes on 2 m entail reinstating some of the special use channels. In particular, 145.7 MHz has been relisted as the ARDF Homing beacon channel (although it is still under review as compatibility with potential repeaters is explored).

On 70 cm, the use of the simplex segment between 438.95 and 439.775 has been clarified as available for FM and Digital Simplex (12.5 or 25 kHz channel spacing), not just FM as it was in the previous release. Two additional designated simplex channels have also been defined. These are 439.200 for digital voice calling (to replace 438.95 used previously and in alignment with the plan to refarm old AX.25 channels) and 439.400 for ARDF activity.

The window for feedback was extended to 15 July. Feedback received by that date will be further considered by the team for incorporation into the revised bandplans.

ANZAC 100 focuses on the Kokoda Track

During WWII along a narrow 96 kilometre track over the rugged Owen Stanley Range in Papua New Guinea, 625 Australians were killed and over 1,000 wounded. The Battle of Kokoda Track lasted four-months following the enemy landing in July 1942, and was one the most significant battles fought by the Australian Military Forces. It will be commemorated twice in the WIA ANZAC 100 program. The Eastern Mountain District Radio Club has the WIA-issued callsign VI3ANZAC, for a week from July 20.

The Kokoda Memorial Track in the Dandenong Ranges National Park at Ferntree Gully in Melbourne's outer-east is to be part of the VI3ANZAC commemoration, with other EMDRC activity from its club rooms in Burwood. Victorian veterans of the Kokoda campaign adopted the park as their memorial site, because of the similarity of its 1,000 steps to the first 100 metres of the Kokoda Track in Papua New Guinea.

The 'Kokoda Track Memorial Walk' in Ferntree Gully with its 14 plaques represents an area of historical significance. Vincent Henderson VK7VH will also be air as VK100WIA in Hobart on July 21, the day in 1942 when the enemy

landed at Gona on the Papua north coast. Australians and Papuans stopped the invaders reaching Port Moresby. The extraordinary event was on hot and humid days, with cold nights, torrential rainfall and tropical diseases. The enemy was within 40 kilometres of Port Moresby that was vital to Australia's defence. However, in a series of costly engagements, they were pushed back and abandoned their plan. This action was captured in a newsreel filmed by Damien Parer. Now part of our history it links Australian soldiers and the Papuans, who we call the Fuzzy Wuzzy Angels because of their supportive actions and frizzy hair.

All of the ANZAC 100 events are on the WIA website. Additional ANZAC-suffixed callsign events are invited to join. For more information on this please contact the WIA Director Fred Swainston VK3DAC.

We do that - a message to DIY makers

Amateur radio builders and tinkerers have a lot in common with the modern do-it-yourself makers of things. In the US Make magazine, Ward Silver N0AX provides some explanation of amateur radio to the Maker community.

A ham since 1972, the hobby led him on a career as an electrical engineer, designing microprocessor-based products and medical devices. In 2000, drawing on his experience and knowledge he became a teacher and writer. Ward N0AX explained that radio amateurs can build home-made equipment, or modify existing gear that gives them flexibility and experimentation. Actually it's 1,000 hobbies in one. Through amateur radio you can get deeply into electronics, antennas, digital communications, competitive operating, solar and geophysics science, have world-wide radio contacts, or just use it as a personal communications tool. He said: *"Some hams focus on just one or a few topics while others try to experience it all. As a Maker, you are probably most interested in the electronics, but once you start digging in, you never know where it might lead or where you can apply your skills."*

Further explaining the access to frequencies, Ward N0AX said radio amateurs have access to the radio equivalent of national parks, in which commercial activity is banned. *"Some of the parks or bands (frequency ranges reserved for hams) are the traditional 'short-wave' bands when you imagine ham radio."* Those bands have lots of activity, with amateurs making thousands of contacts worldwide every single day, sometimes with nothing more than a few watts of power and antennas made of wire. *"Other bands are best suited for local and regional communication around town and performing public service. Our bands go all the way to microwaves,"* said Ward N0AX. On them are voice, text, picture and data, as radio amateurs communicate with each other.

The WIA has noticed that Maker hobbyists have gathered at special events in Australia to share and gain knowledge. At Maker Faire-like events last year radio clubs set up stands run by selected members to show and tell related amateur radio activities. While the radio clubs run their stands, the WIA offers promotional help that can include the important tools of posters, brochures and media release guidelines.

In reports by the radio clubs, with careful planning and the right people to enable appropriate interaction with the makers, who are generally of a younger age group and mostly not heard of amateur radio. Among the makers were a few mostly inactive or lapsed radio amateurs. They had not realised it had changed, how it could benefit them, and may resume the activity soon.

Editorial

Continued from page 2

Lighthouse". The contest station will go off searching for more stations to call. But if you wish to not give out a number to one station for fear that it may result in more contest stations calling to expect a contact, please be polite when explaining that you are not participating in the RD! A little civility is cheap compared to the potential of causing aggravation amongst some other stations, especially when they are perhaps a little tired after many hours of contest operations.

I hope that all enjoy the weekend, and remember: Be considerate!

Until next month,

Cheers,

Peter VK3PF

Don't forget

Don't forget to register for MEMNET.

A selection of QSL cards, including the author's own card.

QSL Cards, are yours just boring?

Keith Bainbridge VK6RK

Recently a good friend and a very active contester/DXer Mirek VK6DXI passed away aged a very early 57 years old.

Mirek had travelled the world for work and as a result of this had operated from many, many countries. Sometimes as part of a Dxpedition, other times on his own. He was a founder member of the VK Contest club and that's how we met.

The VK6 members met whenever we could for a meal, chat and general discussions on DX and Contests.

Mirek always instigated the meetings, usually when he was in the country!

I was chatting with him on a Sunday morning recently at the Hills ARG Annual Hargfest sale about upcoming events etc., but the next day an aneurism claimed his life.

I was devastated as where many friends who had chatted with him that morning.

Four of us decided to help his wife and family where we could and, in co-operation with the NCRG, Northern Corridor Radio Group VK6ANC we offered to assist in the selling of his equipment.

This wasn't to be the usual deceased estate type of equipment disposal though; Mirek had a 25 acre property in the hills about 90 km east of Perth where he had been setting up his remote station / retirement contest station.

He used this station when travelling around the world via his internet connection and we often chatted on 2 m while he was "who knows where".

So John VK6NU took control of the sale of equipment, ably assisted by Wayne VK6EH and Larry VK6NOL.

I decided that, based on the fact his massive QSL card collection seemed to also contain many family pictures, documents and paperwork, I would go through the entire QSL card collection and "sort it out".

His logs were a problem as the family, almost immediately after his funeral, requested that all his hard drives were destroyed. So we did the deed. My apologies to all of you out there that were hoping for a card from one of his DX locations; it isn't going to happen.

So the next stage was to go through well over 2 trailer loads of QSL cards.

I've now been at it for around 2-3 hours a night for the past 5 weeks, and I reckon I'm about 30% into it.

I keep finding old bank books, student ID cards, letters and family pictures, so he obviously just put it all in the boxes for "one day".

What do you do when you find these things in the cards? Well I'm trying to be subjective and relying on my wife's good judgement on what to bin and what to save.

Once into the sorting I decided that the WIA needed to have a selection of his cards, and after contacting the Office they requested a shoebox or two to keep in the WIA QSL collection.

I filled those two shoeboxes pretty quickly I can assure you!

So what next?

Well I'm custodian of the club's Morse key collection and display, so I decided that all cards with a Morse key would be kept and used behind the keys in the display at the club premises. The original key display in its majority belonged to the late Dave Couch VK6WT and his family bequeathed it to the club so it would be available for viewing, and to place these cards behind the 170 or so keys on display would be an attractive bonus.

So I'm still sorting.

Back to the original subject of the article, my goodness, folks, your cards are BORING!!

After sorting through thousands upon thousands of QSL cards, well, I reckon if replies were based on appeal then the return rate would be less than 5%!

Come on people! Get your act together if you want some one to actually notice the card you sent and reply too it!

As an example the worst cards I have seen so far are:

1. USA well, what a totally non interesting plain boring load of cards the majority of you send out!
2. Pre 1995 or so Russia, to be blunt crap, after about 2000, much better.
3. Poland, Italy, UK, Eastern Europe come on folks, make an effort!
4. Japan, pre 2000 boring, post then much better!
5. My home country VK, absolutely mediocre.
6. Scandinavia, well along with Germany, you seem obsessed with your antenna systems.
7. The Middle East, well apart from the rich States, do the rest of you send cards at all?
8. The Far East, getting better every year.

The best?

To be perfectly honest the JAs seem to be the best when it comes down to the choice of subjects and the actual quality, it's just that they QSL every - and I mean every - contact.

So, I wrote this as I felt the need to be honest with all of you who QSL via actual cards rather than the EQSL / LOTW options.

If you want a card back from me, and I reckon any others, make sure the card you send out attracts the

recipients attention or it will just go in the *"when I can get around to it boring box"*.

I'm still a long way off sorting Mirek's cards, but I don't consider it a chore, just a way of helping his family while I gain a lot of enjoyment from looking at about 20% of the cards.

Remember when you put pictures of yourself or your shack on the cards that in the case of Bureau cards, you are probably going to be 10 years older and the gear look antiquated by the time the card gets to the recipient.

Perhaps in passing I should also add the "Glamour" QSL cards?

Well I am male, and the vision of so many beautiful women on QSL cards certainly does add to the "return reply rate" but the display on the club walls of glamour QSLs will be much smaller than the DX ones, I can assure you.

Think carefully before you go the glamour route, it will offend many religious people out there, and please many others.

The bottom line I think is, if you cant be bothered putting the effort into choosing a card that grabs the receivers attention and gets a response, then just use LOTW or eQSL and don't bother with direct cards.

As for me, well I still have 35 boxes of cards to sort through, but I don't think they will change my opinions at all.

What are my cards like? Well my VK6EME card is a wolf howling at the moon and my standard VK6RK card is a sunset at Broome in the north of our state of Western Australia, taken by my wife.

So perhaps I'm just as boring.

73

Keith VK6RK

In the Service

Will McGhie VK6UU & Peter Wolfenden VK3RV

A brief overview of WWII

This article commences with an abbreviated extract from the Australian War Museum's website dealing with WWII. It contains background material relative to Australian amateurs both O/Ms and Y/Ls who served.

On 3 September 1939 Prime Minister Menzies announced the beginning of Australia's involvement in the Second World War on every national and commercial radio station in Australia.

Almost a million Australians served in the Second World War. They fought in campaigns against Germany and Italy in Europe, the Mediterranean and North Africa, as well as against Japan in south-east Asia and other parts of the Pacific. The Australian mainland came under direct attack for the first time, as Japanese aircraft bombed towns in north-west Australia and Japanese midget submarines attacked Sydney Harbour.

Nurses had gone overseas with the AIF in 1940. However, during the early years of the war, women were generally unable to make a significant contribution to the war effort in any official capacity. Labour shortages forced the government to allow women to take a more active role in war work and, in February 1941, the RAAF received cabinet approval to establish the Women's Auxiliary Australian Air Force (WAAAF). At the same time, the navy also began employing female telegraphists, a breakthrough that eventually led to the establishment of the Women's Royal Australian Naval Service (WRANS) in 1942. The Australian Women's Army Service (AWAS) was established in October 1941, with the aim of releasing men from certain military duties in base units in Australia for assignment with fighting units overseas.

While Australia's major effort from 1942 onwards was directed at defeating Japan, thousands of Australians continued to serve with the RAAF in Europe and the Middle East. Although more Australian airmen fought against the Japanese, losses among those flying against Germany were far higher. Australians were particularly prominent in Bomber Command's

offensive against occupied Europe. Some 3,500 Australians were killed in this campaign, making it the costliest of the war.

Over 30,000 Australian servicemen were taken prisoner in the Second World War and 39,000 gave their lives. Two-thirds of those taken prisoner were captured by the Japanese during their advance through south-east Asia in the first weeks of 1942. While those who became prisoners of the Germans had a strong chance of returning home at the end of the war, 36 per cent of prisoners of the Japanese died in captivity.

On 7 May 1945 the German High Command authorised the signing of an unconditional surrender on all fronts: the war in Europe was over. The surrender was to take effect at midnight on 8–9 May 1945.

On 14 August 1945 Japan accepted of the Allied demand for unconditional surrender.

For Australia it meant that the Second World War was finally over (1).

Australian amateurs enlist

A continuing project of the WIA for this 100th Anniversary Year of ANZAC involvement has been to attempt to record information about all amateurs who served their country during all wars and campaigns. This has developed into a massive challenge as little in the way of detailed tabulated records appear to exist and it will probably take many more years before a truly accurate and complete list is assembled.

Because the Remembrance Day Contest was established in 1948 to perpetuate the names of amateurs who lost their lives in the service of this country during World War II, we already had a list of their twenty-six names (2).

But who were all the others, and in what capacity did they serve during the war?

A brief look through some wartime *Amateur Radio* magazines quickly revealed a couple of early lists of serving amateurs from VK2 and VK3. With a little more "digging", limited information about enlistment within other states was located. Combining this information a rough initial count established the expected number of amateurs involved in the services to be about 300.

Further investigation of wartime *AR*s revealed that a column by Jim Corbin VK2YC entitled ***"Slouch Hats and Forage Caps"*** contained additional information about those serving. This enabled us to add another 150 or so to our listing. So at about 460 amateurs we were reasonably confident that we had our count.

Wrong! We then stumbled across the *AR* Editorial for June 1940 in which a casual statement included: "*....over seven hundred amateurs are serving...*". The nett result of this is that we are still searching for names to confirm that 700 figure.

However, whichever way you look at it, the amateur radio response to the call to service was significant. At the time of war there were 1908 licensed amateurs in Australia, so even if we take the lesser figure of 460 serving, this represents almost a quarter of licenced amateurs (3).

But if we then discount amateurs who were too old to enlist and others who were employed in "Essential Services" such as the PMG, Electric Supply, Water Boards and telecommunications and munitions manufacturers etc., it is probably fair to suggest that over 50% of available amateurs became involved directly in the war effort.

For those interested in statistics, the number of licences issued post war in 1949 was 2727, a considerable increase in the pre-war figure - and that was before all of the war surplus equipment was placed on the market!

It was decided to make up an Excel spread sheet containing Names, Callsigns, Ranks and Service for each person we came across. The spread sheet can be sorted in order as required including call areas. The need for this came about because of errors and duplications in some of the early listings - a situation which was further hampered by the fact that many WWII issues of *AR* were

	ACT VK1/2	NSW VK2	VIC VK3	QLD VK4	SA VK5	WA VK6	TAS VK7	NT VK8/5	PNG VK9	SERVED TOTALS	DIED TOTALS
RAAF		95	56	21	25	24	2			223	15
ARMY/MILITIA		54	60	23	9	7	7		1	161	8
NAVY		30	15	11	2	9				67	2
M/NAVY			1	1	1		1			4	1
TOTALS:		179	132	56	37	40	10		1	455	
										216	26
WWII RD Honour Roll (WIA members)		5	11	3	3	4	0				

Statistics of VK amateurs who served in WWII. This information has been obtained from various reports in AR during the war, in particular the hand made duplicated issues by the VK3 Division. Thanks to Will VK6UU who is scanning back issues of AR. Present records show that 460 known amateurs served during WWII. (Subject to further research).
Plus 5 others - Service unknown.
WIA Honour Roll of amateurs killed during WWII is 26.

produced by volunteers using a "Roneo" duplicator often resulting in poor quality printing. Coupling this with the fact that the stencils for the duplicator had to be cut in a typewriter - not very "error friendly" and almost impossible to correct, so reading the resultant output after some 74 years became a challenge in many instances!

By adopting the sortable spreadsheet approach, it was reasonably easy to detect duplications and errors in callsigns.

The search for the names of those who served continues!

References

1. Extract from Australian War Memorial Website - Second World War, 1939–45, *http://www.awm.gov.au/atwar/ww2/*
2. WIA Book Volume 1, Wireless Institute of Australia, Melbourne,1982, Lest We Forget, p39
3. WIA Internal Document for Geneva 1959 ITU Conference prepared by John Moyle VK2JU and WIA Executive.
4. *AR* magazine published during and after the war, including mentions in the regular column Slouch Hats and Forage Caps by Jim Corbin VK2YC, Trove, newspaper data base, WIA Book Volume 1.

40 m AM, Home-Brew, Boat Anchors & VK2BA

Gary Ryan VK4AR

Photo 1: Some of the farewell group at Dorrigo: XYL Jenny VK2FJEN and from left Neville VK2QF, Ken VK4KB, Henry VK2ZHE, Howard VK4NX, Stuart VK2KSM, Colin VK2XCT, Gary VK4AR, Warren VK2EY, Steve VK4VN, Chris VK4YE, Don VK2ADY, Terry VK4AAT, Dave VK2AWD, Michael VK4ZKT, Norm VK4ANB out of view.

Regular 40 metre operators will be aware that 7125 kHz is used as a calling, working and net frequency for AM QSOs around Australia. Amplitude modulation (AM) is still popular because higher audio fidelity can be achieved, compared with SSB, and relatively simple equipment can be constructed and operated. AM provides a great opportunity to activate vintage equipment which would otherwise sit in a museum or a corner of the shack. Even new digital technology sounds great.

There are many facets of amateur radio that attract us to this fabulous hobby. Many operators are captured by the clear sound of high quality AM signals, especially if it involves equipment purposely made for that mode many years ago. There is a certain fondness for keeping alive equipment using devices that glow. Hence the widespread restoration and use of 'boat anchors', old and often very heavy WWII, marine, aircraft and early commercial amateur equipment.

AM stations can be heard on most HF amateur bands but are more likely to be heard on 160, 80, 40 and 10 m.

7125 kHz is used as a calling and working frequency for AM QSOs around Australia. An AM Net convenes every Wednesday and Saturday morning on 7125 kHz and has done so for more than 20 years.

David VK2BA strived to have one of the best AM signals on the net and contributed to AM activity for more than 17 years. Sadly, following the mid-week net on 25 February this year, operators learned that their long-time friend and staunch AM operator would never convene the Net again. David's life was cut short and the glow of his inner 813 went out for the last time. His callsign, *Victor Kilo Two Boat Anchor*, went silent.

David was an amateur for 53 years, starting with the limited callsign VK2ZVW. He upgraded in 1977 and felt fortunate to be issued VK2BA

given his passion for restoring and operating boat-anchor equipment.

About 25 amateur operators from up and down the east coast gathered in Dorrigo, near David's QTH, on 5 March to farewell David, lament his passing and chew over his achievements and legacy. This article is the result of those deliberations and is shared in memory of David and his contribution to AM operation in Australia.

Preservation of dinosaur technology

David believed strongly in the preservation and regular use of vintage and WWII era equipment, which would otherwise be a static display in a museum. His view was that amateur operators are merely custodians who keep part of our technological history alive before passing it to the next generation.

This belief in preservation is widely shared by numerous stations around the nation who gain pleasure from operating old equipment.

Restoration to keep it alive

For many amateurs, restoration of equipment is alive and well. Some take the challenge to return an item to original condition and are undaunted by having to perform a complete re-build or to re-manufacture special parts. David applied his skills to restore several domestic broadcast receivers, communications receivers and transmitters.

He spoke often about his fully restored ***Kingsley AR7*** receiver, an Australian designed and built version of the HRO, produced during WWII. It may well be considered one of his best projects and one that showed the depth of his knowledge and skills. His AR7 receiver was completely stripped of components and then rebuilt after cleaning and re-plating the chassis. It was one of his favourite receivers and often used it. Following WWII, AR7 Receivers were used extensively by the Department of Civil Aviation. The receivers were retired during the late 1960s and found their way into many amateur shacks where they are now highly coveted items.

A ***National HRO 50T1*** receiver from the early 1950s also received his special attention. The chassis and cabinet were very rusty but with some scraping, sanding, a fresh coat of paint, replacement transformers and other components, it once again then took pride of place in his station.

David considered that his rebuilt ***BC348M*** was a project to upset the restoration purists! It was far from in original condition with major modifications when David received it. *"The result was a mess of very untidy wiring that could not have worked".* David's approach to restoring it was to rewire it in accordance with the original circuit except for some small components placed where they could fit in. Once the receiver was operational again, he considered it one of his best AM receivers from the WWII era.

A ***Bendix TA-12C*** four-channel aircraft transmitter from WWII was on David's "to-do" list. He eventually restored it to service in 2007 after building an external 50 W modulator (using a pair of 807s), a power supply and control circuitry. The extra units were housed in a purpose built rack. Overall, it was a pleasure to see and he found it a delight to operate.

But it wasn't just WWII equipment that filled his shack. David also operated a ***Johnson Viking 2*** transmitter, provided by his friend Smitty KD4AF. It was this transmitter that David was using when I heard him for the last time.

Home-Brewing – if you want something, build it

Amateur radio was born out of the desire to experiment with radio communications more than a century ago. Experimenters tried new technology, new frequencies and developed new devices. With the advent of the vacuum tube amplifier and oscillator, it wasn't long before the first 'high quality' AM transmissions were heard. Those experimenters were true home-brewers.

Experimentation and "home-brewing" sets amateur radio apart from other radio communications operators and licensed services. Building equipment from discrete components and other materials is fulfilling. Relatively simple home constructed transmitters, capable of excellent fidelity, are well within the technical skills of many Amateurs. Some low powered transmitters in regular use comprise just four valves. By contrast, many contemporary designs are too

sophisticated and complex for the average amateur to reproduce.

Anyone who has seen David's projects will remark about his excellent construction skills.

When bitten by the 10 m AM bug in 1998, he constructed an AM transmitter based on 813 type vacuum tubes. It was built on several chassis (PA, driver, modulator, power supply and control), which were mounted and cabled into a rack specially made for the project. The big valves could be seen through windows cut in the front panels. He described the view through one window as *"The modulator of the BA320 - a pair of 813s glowing like the setting sun"*. This transmitter became his favourite.

Once the transmitter was operational, he designed a companion receiver. His many friends around the world provided various parts that were needed. The result was a 22 valve receiver which he named the ***'BA22'***. To David it wasn't just another communications receiver! He was proud of the *"push-pull audio output amplifier stage with tone controls to increase (his) enjoyment of listening to superior modulation"*.

There were many other projects including amplifiers, an SSB transmitter, power-supplies and even a highly effective electronic *Antechinus* (marsupial mouse) catcher.

Every station must have its aerials and David and XYL Jenny, VK2FJEN, worked together to manufacture and erect towers and antennas for various bands. A Yagi for 15 m was the last one to go up. The extent of their home-brew projects was such that they are well known among local metal merchants.

Catching the AM bug

I am sure there are many readers who made their first amateur transmission using AM. David almost certainly made his first contact on VHF with AM and

Photo 2: David and the BA320.

then went on to embrace other technologies. He wrote on his webpage that *"it was a QSO with well-known 10 metre AM operator Smitty KD4AF, in Apr 1998 using an FT920, which started his interest in 10M AM"*. He spent the next 3 months building a tube station and had daily contacts during the next seven years while propagation was at its peak.

40 m capability was added to David's 813 transmitter, which he renamed the ***BA320***, when band conditions deteriorated on 10 m. His enviable low-interference location in the hills at Megan, west of Coffs Harbour, undoubtedly contributed to an effective station which produced a commanding signal up and down the east coast and across the Tasman. He would have regular contact with stations in VK1, 2, 3, 4, 5, 7 and ZL.

David was passionate about producing and listening to good sounding AM particularly that achieved by high-level modulation. He would often refer to using equipment from either 'Studio A' or 'Studio B' - opposites sides of the shack. Any of the following gear was used by VK2BA on 40 m AM:

- Transmitters: **BA320; Johnson Viking 2; Bendix TA-12C aircraft transmitter; Collins ART13**
- Receivers: **22 valve receiver (BA22); Kingsley AR7; National HRO 50T1; a pair of BC348 receivers**.

He was heard on 7125 kHz AM most days of the week. He inspired others to strive for that good sounding AM signal. Whether it was a choice of microphone, modulation technique, correct adjustment of carrier level or microphone gain control, he offered advice.

Several AM stations attribute

Photo 3: The modulator of the BA320 - a pair of 813s glowing like the setting sun.

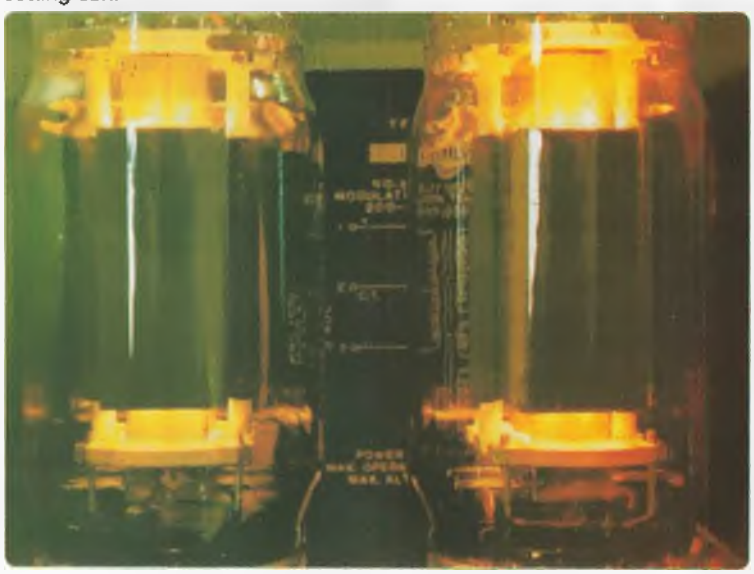


Photo 4: David VK2BA at the microphone.

their current interest in AM operation to hearing-David's fine 40 m signal.

David was quick to draw the attention of SSB operator's to the need to avoid operating in a 'guard band' around 7125 kHz (7115 to 7138 kHz or wider depending on signal strength). After all, AM or double side-band receivers use more bandwidth than is required for SSB, CW or data transmissions and adjacent-channel selectivity is poorer than modern equipment. WWII and boat anchor receivers employed good technology for the day but are broad by modern standards.

Sharing Information

David was always willing to assist other operators and share information on air. He even produced and distributed a CD full of information on restoring war surplus equipment. The CD was updated several times with new documentation.

He was proud of the results of his restoration and construction projects and examples that show the breadth of his knowledge and skill covering restoration, home-brewing and AM matters are captured as inspiration and encouragement to others on David's website: *http://www.macnaughtonart.com/vk2ba.htm*

Boat Anchor AM Net

There has always been AM activity on 40 m. Nowadays, 7125 kHz is probably the most used frequency for daily AM operation around Australia and has been in widespread use by AM operators for at least 20 years. Nominating a frequency is important because a high proportion of vintage, WWII and home brew equipment is crystal locked and stations with this type of equipment cannot QSY.

David was the convener of the AM Net on 7125 KHz for many years.

"It may surprise many just how much AM is still used on our ham bands. Here is a net which has been operating for many years which you may like to check out or even check in. We have some wonderful, old, high level plate and screen modulated, classic valve radios in operation, some home brew gear, old military equipment and even the occasional appearance of a modern solid state transceiver. This is where one can listen to the rich sound of that golden era that preceded the popularity of SSB on the ham bands" (source: David's website).

In memory of David, *Victor Kilo Two Boat Anchor*, the regular Saturday and Wednesday AM Net is now known as the *Boat Anchor AM Net*. The purpose of the BA AM Net is to foster AM activity, high quality amplitude modulation, development of home-brewing and technical skills, continuing connection with radio's past, use of glowing valves, and operation of Boat-Anchor equipment.

The BA AM Net on 7125 kHz starts at 2200Z on Saturday and Wednesday morning.

Modifications to the popular DL4YHF auto-ranging Frequency Counter based on the 16F628 Microcontroller

Erich Heinzle VK5HSE

Some time ago I acquired a handful of discounted surplus forty pin, four digits, seven segments, common anode LED displays from Aztronics in Adelaide. Since then they had remained in a tray gathering dust. More recently, the need arose for a frequency counter for a VFO intended for use as the local oscillator on a BitX transceiver.

As luck would have it, Wolfgang "Wolf" Büscher DL4YHF of Spectrum Lab fame had already devised firmware for an auto-ranging frequency counter on the Microchip PIC 16F628 microcontroller. DL4YHF's standard firmware is able to drive up to five LED displays using just the microcontroller, current limiting resistors for the LEDs, an input buffer, a menu button, a five volt supply, and a clocking signal for the microcontroller. The firmware versions supported common anode as well as common cathode displays. DL4YHF credited the original idea to a James Hutchby, sometime late last century, circa 1996.

Owing to the forty pins on the LED displays that had to be dealt with, a custom PCB seemed to be the least painful way to proceed. The free and open source gEDA electronic design suite was used on the free and open source Ubuntu GNU/Linux operating system to design the PCB. Rather than generate a customised footprint for the display, I cheated and used a pair of twenty pin headers in *gschema*, the schematic editor, to represent the forty pins on the display, and used the corresponding footprints in gEDA's PCB layout editor when routing the tracks. Gerber files were generated by the PCB layout editor and sent off, and the boards arrived in due course. The PCB was designed to be 100 x 50 mm, a size eligible for preferential pricing from the PCB manufacturer *http://www.hackvana.com/*, but the Gerber files I have made available are industry standard and can be sent to any PCB manufacturer that accepts Gerber files.

DL4YHF's original firmware supported either 4 MHz or 20 MHz clock crystals for the 16F628. Having installed all of the other parts, all that was needed to complete the counter was a 20 MHz crystal. I had plenty of 8 MHz, 10 MHz, 12 MHz, and 16 MHz crystals, but I struggled to find a 20 MHz crystal in the junk box. I eventually found one in a late 1980s era Apple II AAUI equipped NuBus Ethernet card which was duly sacrificed.

Given the intended use of the frequency counter on a BitX, and the fact that the typical BitX builder has at least forty left over 10 MHz crystals after building the crystal filter and BFO, it seemed sensible to modify the firmware to support other crystal frequencies. In addition, the increasing availability of cheap 12 MHz crystals in USB devices, 16 MHz crystals for AVR microcontroller enthusiasts, and the cheap TCXO modules from EBay and old mobile phones, as well as other sources of precision timing signals, made a greater range of clocking options clearly desirable to allow builders to use the best and cheapest clock source available at the time of construction.

The assembly code available from DL4YHF is well documented, making modification somewhat simpler. The firmware compiled easily under the freely downloadable MPLAB IDE for Windows. I have not tried compiling under Linux with Microchip's cross platform compiler at the time of writing.

It turned out that the smallest timing and multiplexed digit display loop possible in the firmware takes 50 instructions to execute. On the PIC architecture, fifty instructions take 200 clock cycles to execute. The number of gate timing loops for one second is the crystal frequency divided by the number of clock cycles per timing loop. The trick was simply to find the right number of instructions per timing loop to provide a convenient number of clock cycles which will divide into gating intervals of 1 second, 0.25 seconds, and 0.125 seconds without a remainder for a microcontroller clock frequency of interest.

The other requirements are ensuring that the timer used after the pre-scaler is not clocked at more than one fourth the crystal frequency, and determining the counting ranges for pre-scaler values between one and sixty four such that the timer is not overflowed by the pre-scaler. Frequencies below 1 MHz do not require the pre-scaler.

The compromise that is made as

the clocking crystal decreases from the maximum possible 20 MHz is the reciprocal increase in pre-scaler counts that necessarily reduces precision in the least significant digits of the counter at higher frequencies. For frequencies below 1 MHz or general usage displaying the four most significant digits this is a non-issue.

After identifying commonly available TCXO frequencies on www.ebay.com, some systematic exploration of timing loops on a spreadsheet was undertaken. The firmware was then modified to support the crystal frequencies found to be compatible.

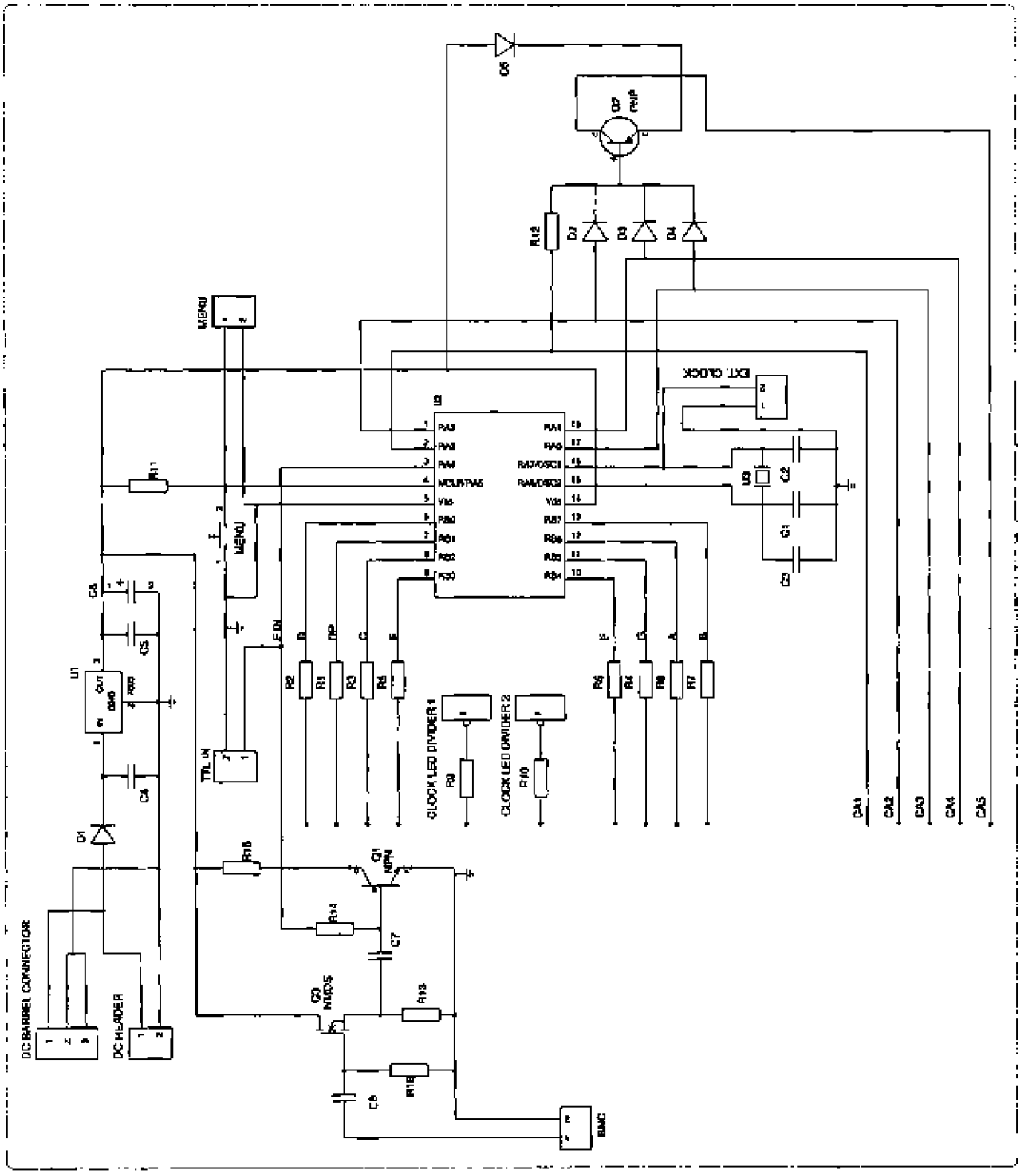


Figure 1: The schematic of the LED frequency counter.

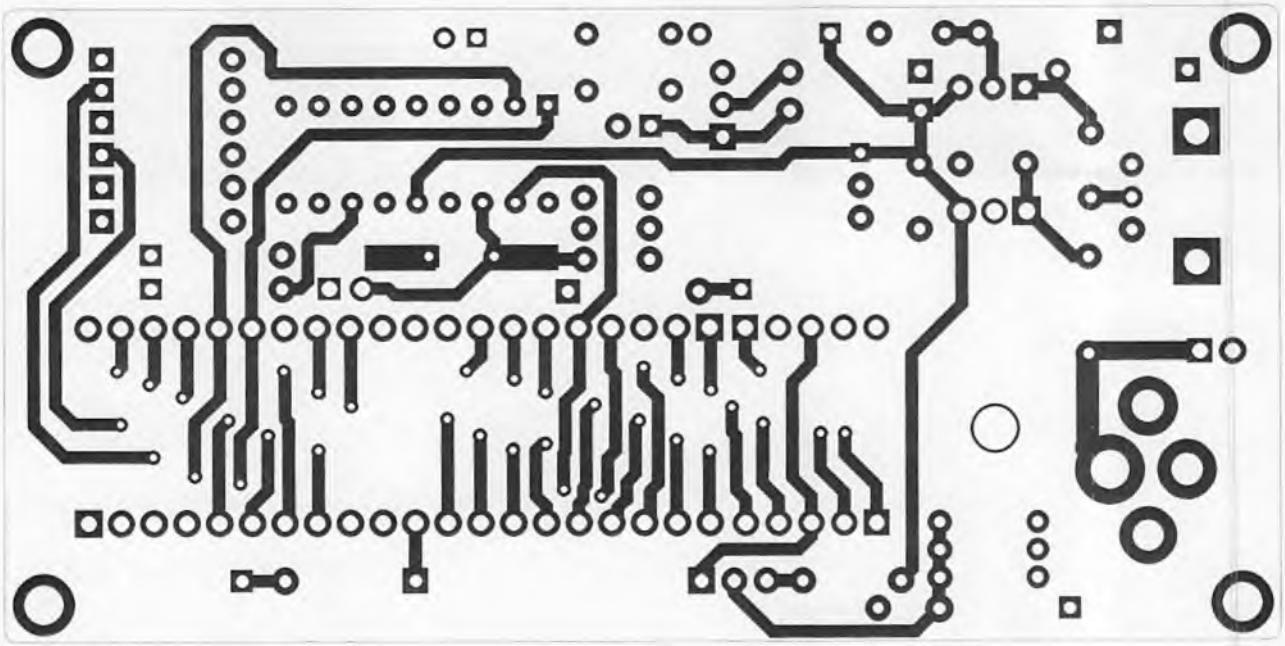


Figure 1. Top layer of PCB.

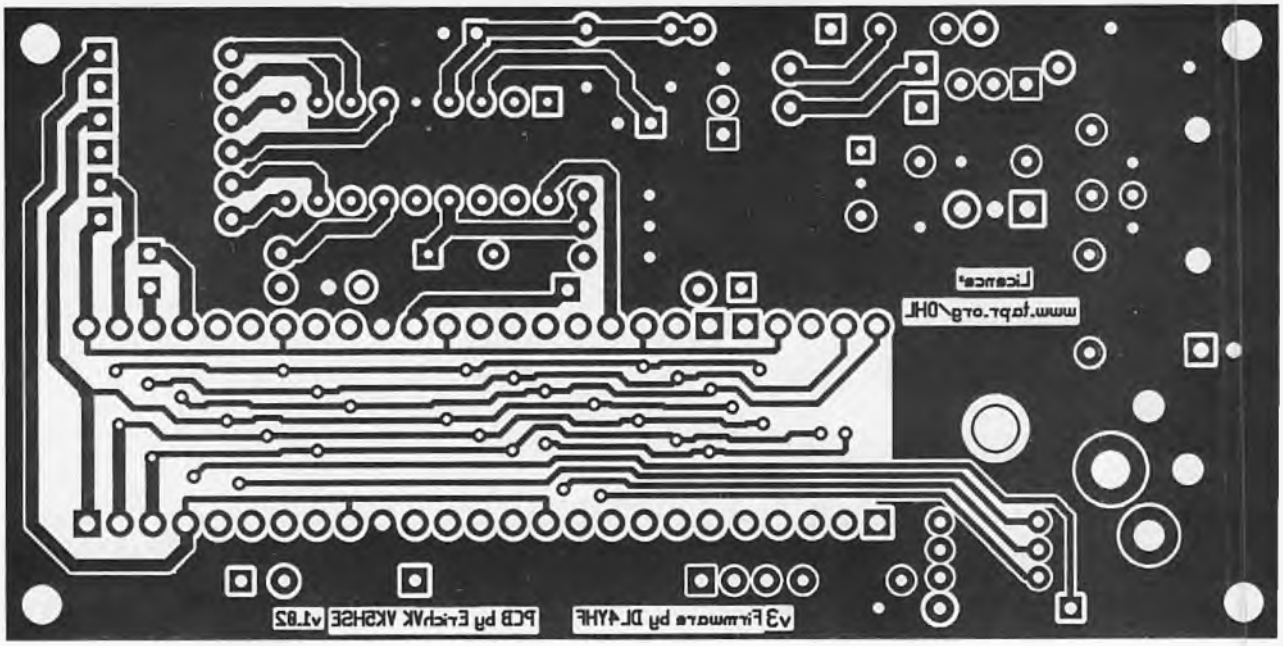


Figure 2. Bottom Layer of PCB.

No additional precision is gained with clock frequencies above 16 MHz with the current PIC 16F628 code.

The first prototype seemed to be a bit deaf above 1 MHz, until I realised my batch of TO-92 2N2222 transistors had a reversed pinout that provided an Hfe of around 3 instead of 200 when installed the wrong way in the input buffer. It was a useful lesson, since these 2N2222s were also destined for the BitX. Once the transistor was installed the right way round, the counter worked well above 25 MHz when driven by an antenna analyser.

A second revision of the PCB (v1.01) included a high impedance input buffer that extends the frequency range, and the ability to provide an external clock source via a header was added as an alternative to a crystal or TCXO. The third revision of the PCB will be available by the time of publication, version 1.02, and includes a header

Clock frequency	Instructions per timing loop	Clock cycles per timing loop	Duration of timing loop (microseconds)	Tested and confirmed to work
4 MHz	**50**	**200**	**50**	**Yes**
8 MHz	50	200	25	Yes
9.6 MHz	60	240	25	
10 MHz	50	200	20	Yes
12 MHz	60	240	20	Yes
12.8 MHz	**64**	**256**	**20**	
13 MHz	65	260	20	
14.4 MHz	72	288	20	
16 MHz	80	320	20	Yes
16.8 MHz	105	420	25	
19.44 MHz	243	972	50	
20 MHz	**100**	**400**	**20**	**Yes**

Table 1: The original (bold) and newly supported clock frequencies.

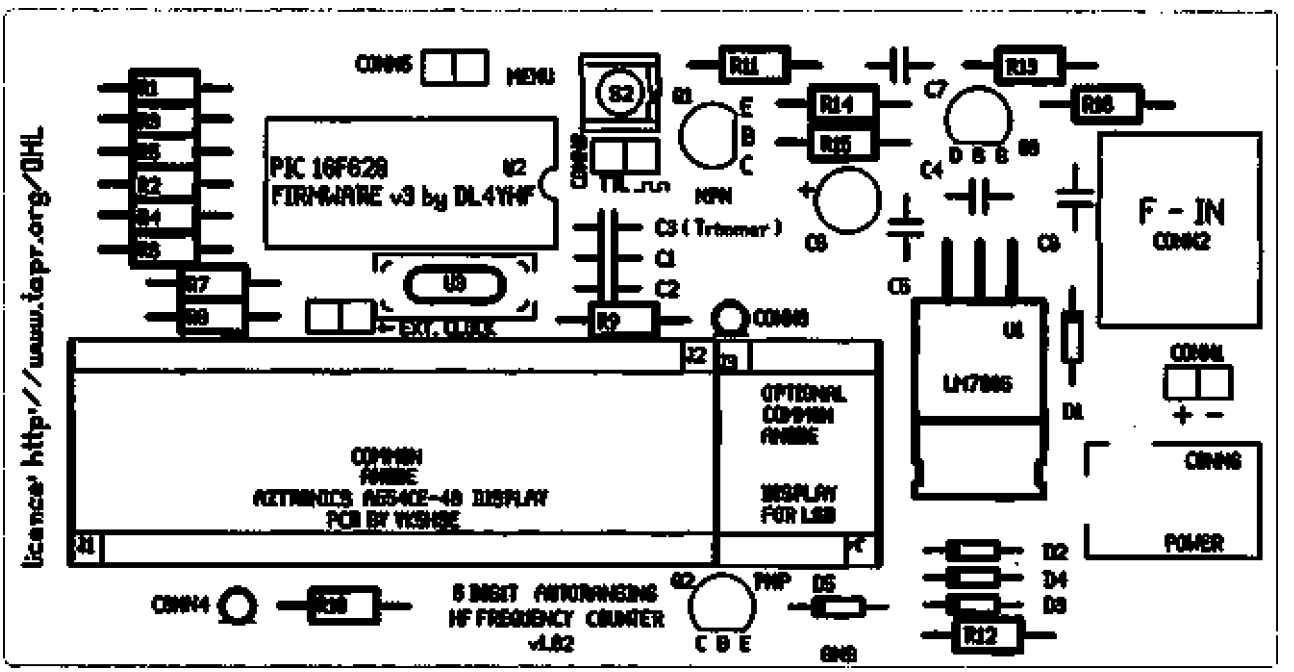


Figure 3. Top silkscreen of PCB.

for TTL level frequency input, if required, by the builder.

The PCB allows an optional common anode seven segment display to be added as a fifth digit, using a discrete component NAND gate to power it from the multiplexing lines of the first four displays. If the forward voltage drop of the LEDs in the fifth display differs to those of the 4 digit display LEDs, some ghosting may appear in the fifth digit during multiplexing, so your mileage may vary.

Finally, DL4YHF's firmware allows an IF offset to be subtracted from the displayed frequency. This, in addition to the lack of a pre-scaler below 1 MHz, should allow MF or LF experimenters to display frequencies with 1 Hz resolution. The stored standard IF offsets accessible via the menu system were extended in the code to also include a 470 kHz offset for 600 m band LO applications, and a 130 kHz offset for 2200 m band LO applications.

The counter is quick and easy to build, and would be ideal as a club construction project. I have made the modifications to the firmware available as well as compiled firmware HEX files for the different clock options so that builders can modify it further if they desire or build their own version with discrete seven segment displays and available quartz crystals.

Displays should still be available from Aztronics in Adelaide, and the board design is freely available.

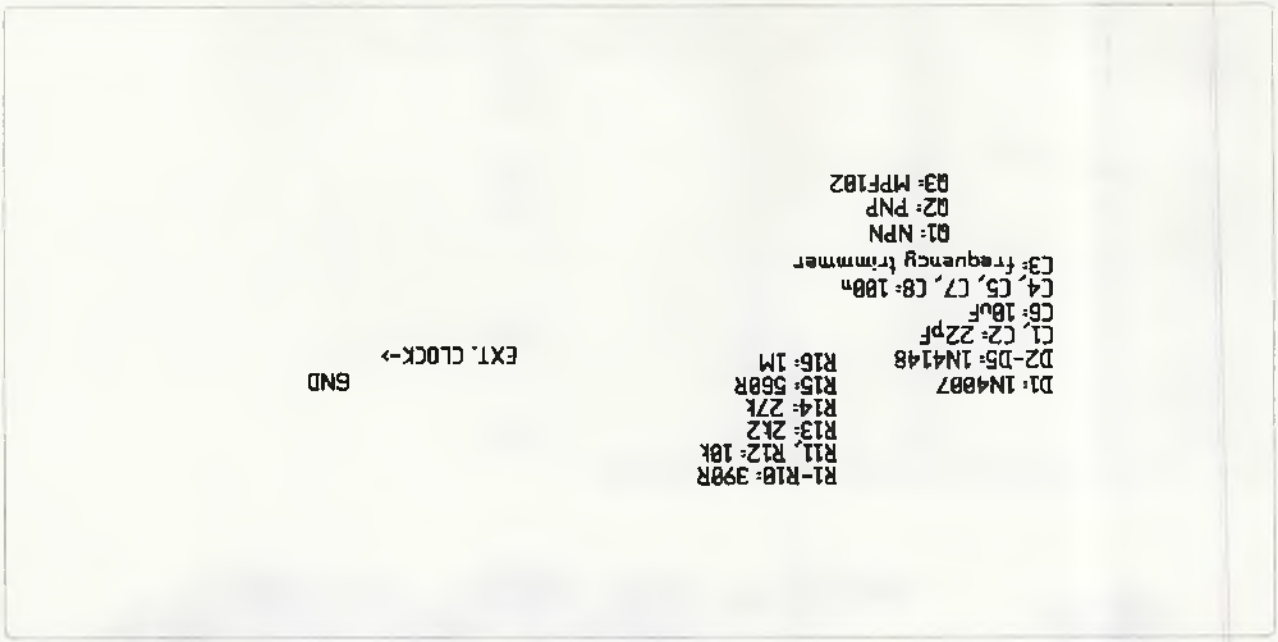


Figure 4. Bottom silkscreen of PCB.

From v1.01 up the board will work unmodified with DL4YHF's original v3 firmware with either a 4 MHz or 20 MHz crystal. Modified assembler source code, compiled versions of firmware ready for burning that support the other frequencies, and Gerber files that can be sent off for PCB manufacture will be available for download on *https://github.com/erichVK5/*

In summary, DL4YHF's frequency counter has been implemented with a cheap 4 digit LED display, a bespoke PCB, and the firmware has been enhanced to allow a greater variety of clocking options, including the particularly useful 10 MHz option. Additional IF offsets have been added to suit 2200 m and 600 m band applications. Existing DL4YHF counters can also be upgraded by replacing the PIC 16F628 firmware, but attention will need to be paid to whether the displays are common cathode or common anode when compiling or selecting the new firmware. A PIC programmer will be required to burn the firmware into the 16F628 if you are replacing firmware or starting with a new 16F628.

References

http://www.qsl.net/dl4yhf/
http://www.microchip.com/
http://www.aztronics.com.au/
https://github.com/erichVK5

Silent Key

Alwyn (Stan) Brooks VK1BKS

It is with regret that I must inform the amateur radio fraternity of the passing of Stan Brooks VK1BKS, aged 91 years, on 5 May 2015.

Stan's love of amateur radio followed on from his association with his trade background in the maritime engineering field and meeting people. His circle of friends included neighbours around his home unit, voluntary conservators from the Australian War Memorial, retired radio amateurs and other patrons that met on a regular basis at Ricardo's coffee lounge in Canberra. He preferred CW on HF and had regular skeds with other amateurs around Australia and overseas. He gained his licence around 1976 in VK2 and later shifted to the ACT where he changed over to his VK1BKS callsign.

Stan enjoyed reasonable health for his age, and although he recently suffered a fall, was cleared to return home. He passed away soon after which was unexpected. He is survived by his son Geoff and two grandchildren.

Stan was one of nature's gentlemen and will be sadly missed by all that had the pleasure of knowing him. So mote it be.

Submitted by John Clare VK1CJ.

Getting back into amateur radio

Peter Parker VK3YE

Men had mullets. Women wore shoulder pads. Bob Hawke was PM. Oh and that was about the last time you were last on air. Other responsibilities and interests took over. You sold your gear and possibly let your licence lapse.

Thirty years on personal circumstances may have changed. Fewer work or family duties. Injuries. Being single again. Or a move to the country.

Whatever the reason, you wish to get on air again. You'd not be alone; the airwaves are full of previously lapsed amateurs giving radio a second go. And they're loving it!

A return from a spell away can make you feel like a novice all over again, prior experience notwithstanding. Those continuously active can take in changes as they occur. Whereas those coming back lack that luxury.

This article summarises the last 20 or 30 years of change in amateur radio. Give it to a lapsed or inactive amateur and they'll be up to speed in no time.

PMG/Department of Communications/Spectrum Management Agency etc

They've changed their name many times, but the government agency responsible for spectrum management remains. It's now the Australian Communications and Media Authority or ACMA. The main differences are that there's less counter service and and administrative tasks like running amateur exams and issuing callsigns have been outsourced to the WIA and clubs. Though less feared than in old pirate legends, radio inspectors are still busting miscreants for illegal transmissions and interfering with others.

Photo 1: The real cost of amateur radio transceivers has fallen by 70 to 90% in recent decades. This is a 50 dollar dual band 2 m/70 cm FM handheld.

WIA

The WIA remains concerned with national and international representation of amateur interests. It continues to publish through weekly broadcasts and *Amateur Radio* magazine. Awards, contests and the QSL bureau continue as Institute services, though there is less paper QSLing than in the past.

The main change is that members belong to the national organisation as there are no longer state divisions. The WIA also now administers amateur exams and callsign issue on behalf of the ACMA.

Amateur bands

The amateur bands are broadly similar to what they were 20 or 30 years ago, with minor gains and

losses. We no longer have 576 MHz and there's less spectrum on 70 cm and some microwave bands. However we have new low frequency bands at 2200 and 630 metres while 50 MHz restrictions have been lifted Australia-wide.

The 80 metre DX window just below 3.8 MHz is now wider. 40 metre DXing is also better with the clearance of broadcast stations from 7.1 - 7.2 MHz and its return to amateur use worldwide.

Amateurs in some countries have limited access to a 5 MHz (60 metre) band but we don't yet have this in Australia.

Licence levels

The licence grades are different now. For a start there's no Morse testing. Their names, band privileges and power limits have changed. If you held a Novice, Novice Limited, Limited or combined licence 10 or more years ago you could be pleasantly surprised with privileges their equivalents allow today.

Today's licence structure is as follows:

Advanced. The old 'AOCP', 'Unrestricted' or 'Full'. Also includes previous Limited, combined or intermediate certificates. Permits all amateur privileges.

Standard. The old 'NAOCP' or Novice licence. Also includes the previous Limited Novice category. Permits operation on most popular HF, VHF and UHF amateur bands at up to 100 watts SSB power output. The main gains compared to the old Novice licence are more bands and modes (including 40 and 20 metres) and higher power limits (100 watts on SSB).

Foundation. This is the new entry level grade. It permits operation on some HF, VHF and UHF bands with a 10 watt power limit. Foundation licensees are restricted to commercial transmitting equipment.

Callsigns

Callsigns remain much the same as before with the VK and state numeral. Two letter, A, B, C, D, E, F, G, I, J, K, O, S, T, U, W, X, Y & Z suffixes are Advanced licensees. H, L, M, N, P and V suffixes are Standard licensees. Only the Qs remain unissued. The R suffix is mostly for beacons and repeaters but some individuals have managed to snaffle one. The big change is the four letter suffix starting with F. They're for Foundation licensees.

Getting relicensed

If you can furnish evidence of a previous Australian amateur certificate of proficiency you'll qualify for either a Standard or Advanced licence, often with more privileges than you had before. Available callsigns and links to the callsign application forms appear at *wia.org.au*

If you cannot demonstrate a previous pass, you will need to re-sit an exam. Courses are run by local radio clubs or online via the Radio and Electronics School. When you're ready arrange for a test with a radio club or assessor. Contact details for these again appear on the WIA's website.

If you have electronic qualifications another possibility is to examine whether these exempt you from the theory component of the Standard or Advanced licence under the Recognition of Prior Learning rules. A charge applies for this and if you aren't sure whether your qualification is suitable it may be easier to re-sit all exam components.

Information on becoming relicensed appears on the ACMA and WIA website. Once you've applied for your callsign all you need to do is check that it appears on the ACMA's Online Register of Radiocommunications Licences. As soon as it's there you can start operating.

Regulations

Overall fewer and simpler regulations govern the amateur service. The list of things we can't do is shorter. For instance we can transmit news broadcasts (for amateurs) and don't need to keep a log. Also there are freer rules with regards to third party traffic, connection to the internet and unattended operation. Remaining prohibitions include not transmitting entertainment, advertisements or interfering with others. Foundation licensees have more restrictions, including not being allowed to use rigs they have built themselves.

Otherwise the main area where regulations have increased is electromagnetic radiation. We must now avoid exposing others to excessive RF. This is achieved by keeping antennas away from people and avoiding excessive output power. Amateurs can do a self-assessment on their station, making use of freely available calculation information and software. A recent trial of higher output powers ceased because too few amateurs understood their EMR exposure obligations.

Listening

At one time the would-be amateur tweaked, converted or built a receiver to sample what we spoke about. Or they saved up to buy a short wave radio or VHF scanner. The old options are still available on the new and used market. However they do look a touch unloved and are thus cheaper than ever.

Modern computing power and networking present other choices. The most common are special USB dongles using the RTL2832U chip. Team one of these up with freely available software plus an antenna and you have a wide-range all mode VHF/UHF receiver. The computer's processing gives features, such as spectrum display and filtering, absent from old receivers. And HF reception becomes possible with a simple upconverter.

Another possibility is software defined radios. A simple SDR is fun and cheap to build. It provides quality reception with 'big receiver' features. SDRs range from weekend projects, which cover an active part of one or two bands to full-range

communications receivers.

Then there's the radio you have when you don't have one. This is the web controlled online receiver. Get a username and spend hours tuning HF, VHF or UHF frequencies on someone else's receiver, either across town or across the world. It's particularly handy to sample amateur activity or check your own signal strength.

Operating activity and modes

Operating interests and activities have changed in the last 30 years. There's more happening on some bands and modes and less on others.

Formerly busy 2 metre FM repeaters are quieter now, with a trend to 70 centimetres in some cities. There are more repeaters than ever before but most receive little use, even in populated areas. The old objections to holding long conversations on repeaters are no longer valid provided adequate gaps are left between transmissions.

The packet radio frequencies are very quiet these days. Amateurs largely failed to embrace faster data speeds, flocking to the then-new internet instead. However other digital modes, more suited to low data rates and narrow bandwidths, remain popular with amateurs. These include automatic position reporting system (APRS), keyboard communication (PSK-31) and low power beaconing (WSPR).

Before Novices got more bands, 80 metres was the favoured SSB and CW chat band in the evenings, with numerous nets and skeds. It's still used for that purpose but less than previously. However you'll still likely get responses to evening CQ calls.

Conversely 40 metres, which is now available to all licensees, has boomed. It offers good daytime propagation and excellent distances with low power and mobile antennas. The clearance of shortwave broadcasters above 7.1 MHz has increased DX opportunities on the band. It is perhaps the best all-purpose HF band for short to medium distances during most of the day.

20 metres continues to be the dominant DX band. Higher bands like 10 and 15 metres have devotees but our recent sunspot peaks have been weaker than those of 1979 and 1990. 10, 18 and 24 MHz offer a more leisurely pace ideal for those wishing to escape the frenzy of other bands during major contest weekends.

Just like 30 years ago, SSB remains the top voice mode on HF. CW retains a following, especially for DXing and contesting. There doesn't appear to be as much inter-VK CW activity as there used to be, but you can still call CQ on bands like 7 MHz and still get contacts.

Eastern Australia has an active AM scene on 160, 80 and 40 metres, with many amateurs building, restoring or converting old equipment. At the other end of the technology scale experiments are being done with digital voice modes on bands like 40 and 10 metres.

1970s amateurs trying 'exotic' modes like SSTV or RTTY had to build, buy or modify specialised video or teleprinter equipment. These days all these and more are available to anyone with a computer. Just download some software and connect the computer's sound card to an SSB transceiver via a simple interface box. And there are even low cost mobile phone apps that allow transmitting and receiving these modes when held up to an SSB transceiver.

PSK-31 has largely replaced RTTY as a popular keyboard to keyboard chat mode. WSPR, or weak signal propagation reporter, is a slow speed, narrow bandwidth and high efficiency beaconing mode. Milliwatt WSPR signals span the world each day and you can visit the WSPR website to see which paths are being spanned. On VHF other digital modes such as WSJT allow propagation experiments not possible with voice or Morse. Again these modes just require a computer, software and transceiver to use.

Equipment

If you haven't looked at new transceiver prices lately you're in for a pleasant surprise. It's a buyers' paradise compared to thirty years ago.

Back then transceivers only covered the HF bands and cost maybe a months' wage. All-mode rigs for 50, 144 and 432 MHz were separate units and cost a similar amount each. A 160 metre to 70 cm station could have easily cost three months' pay, and we haven't even counted the accessories yet.

Today an all mode 160 metre to 70 cm transceiver can be yours for maybe two weeks' income. And a basic 100 watt HF-only transceiver is down to a week's average wage.

VHF/UHF handheld prices have plunged even more. A 2 m/70 cm handheld was an expensive luxury in the 1980s and early 1990s. Today the cheapest eBay handhelds from China cost under $50. They may lack the quality control of the established brands but their presence in the market has improved affordability for all models.

Online purchasing and payment systems have further cut prices. Only a handful of 'bricks and mortar' amateur stores remain in all of Australia. Instead a great deal of amateur gear is purchased online from both domestic and overseas suppliers. Online suppliers have lower overheads and prices but you need to weigh this up against support provided by local dealers. The remaining dealers themselves argue as to whether factory authorised or direct import presents best value and some colourful opinions appear on their websites.

Warranties have lengthened on the established brands. At one time HF transceivers were guaranteed for 12 months only. Now warranties as long as 5 years are offered. This, coupled with lower prices, makes buying new gear more attractive

than it used to be.

There remains a healthy used amateur equipment market in Australia as we upgrade to newer models. But gone are the days when each month you'd tear open this magazine's wrapper and head straight for the Hamads at the back. They've almost disappeared now.

Instead keen buyers check the VKHam and eBay websites daily. VKHam offers free listings and often lower prices while eBay offers buyer protections and sometimes higher prices. Hamfests and radio club noticeboards are other sources of used transceivers and components.

Baffled by the range of transceiver models available? At one time we'd hunt down back issues of Amateur Radio, Radcom or QST for the review. That still happens but on a smaller scale.

Instead we go online to review websites such as eHam and QRZ. These offer greater immediacy than a monthly magazine. However the quality of reviews varies as anyone can submit one. Still, they may give an indication of the item's age, popularity and reliability.

Thanks to YouTube, one no longer needs to know an amateur with a piece of gear to watch a demonstration of it. Also particular brands and rigs often have their own email lists for discussion of features and modifications.

To summarise, information on amateur equipment is much more widely available than it used to be, and it's less important to know the local expert to find it.

The information revolution and amateur radio

Those with a grandparent amateur or were away from radio often ask if we're still around. A fair question given the spread of cheap and generally reliable personal communications. Yes it's true that some who previously joined solely for the communications aspect may indeed have less inclination to do so now.

On the other hand we've survived previous communications advances. They coexist with rather than replace the pursuit of our interest. Our stand-alone independent communications capability continues to be enjoyed and appreciated for both fun and emergency preparedness purposes. And our high-involvement practical ethos influences and is in turn influenced by the growing hacker and maker movements.

Photo 2: Amateur radio kits are affordable and widely available. This is a simple to construct synthesised HF VFO kit.

Possibly the biggest impact of the internet is not as an alternative to amateur radio but as a facilitator of many of its activities. Just like how it's changed our learning and working, the online revolution has transformed how we do radio.

The effect of online communications and commerce on equipment purchase has already been mentioned. Popular facets of amateur radio such as homebrewing, DXing, contesting, awards and QSLing are also easier now than in the past. Most of the rest of this article explains how.

Experimentation and home construction

There used to be a huge disparity in the information available to the old timer, with 30 years' worth of AR back issues and numerous books, and the newcomer or returning amateur with nothing. Apart from the occasional lecture or overheard discussion, monthly magazines such as RTVH, EA, ETI and AR were how we stayed abreast of developments.

All that's changed. Gone are the days of sitting cross-legged on the library floor hand-copying circuits from books. Instead everyone has free access to more information than they can read in a day or even a lifetime. There are circuits of almost any conceivable radio project and numerous demonstrations on YouTube.

And if did want to take an extract from print, a photo from your smartphone can do the job in seconds. Another button press and your friends get it as well.

Parts availability has also changed. At one time the industry comprised surly middleman wholesalers who shunned small orders of specialist parts from people without trade accounts. We were instead supposed to buy from local retailers who rarely stocked many RF components. Between them they had the market to themselves as foreign ordering was too hard for most.

We've since seen the departure of Tandy, Dick Smith and some smaller outlets from the enthusiast market. Jaycar and Altronics dominate retail now. Formerly

trade-only outlets opened to the general public while a host of local and international online suppliers cater for more specialised items. Their prices are often attractive, and individual parts can be shipped here for less than local postage alone could cost.

With a worldwide electronic marketplace, even valves, tuning capacitors and crystals are probably easier to get than in 1990, though beware of paying inflated 'vintage' prices. Test gear has also become more available. Direct-reading inductance and capacitance meters are common and antenna analysers have largely replaced the old noise bridge and dip oscillator.

The 1960s homebrewing amateur often got their start with a Geloso VFO for their communications receiver or transmitter. Then followed several decades where anyone who wanted to generate a stable RF signal was on their own. Direct digital synthesiser modules and kits offering excellent frequency range and stability have become available in the last decade or so. DDS modules have made the concept of ordinary amateurs building multiband HF transceivers less far-fetched than thirty years ago.

Those not wishing to build a transceiver from scratch but want the assurance of a proven circuit might try a kit. There are more HF transceiver kits available now than 40 years ago, including some designed and sold from Australia. They range from those using largely salvaged parts (such as the BitX SSB transceiver) to designs incorporating programmable electronics such as Arduino microcontrollers and software defined signal processing.

Online forums, email lists and Facebook pages have brought adherents of a particular interest closer together, although there aren't as many specialist VHF groups as there were years ago. Even so social media provides a more efficient way to arrange tests than calling on an obscure unmonitored band or individually phoning those with known capability.

Antennas

No matter how much technology makes our equipment smaller and cheaper, the old rules of antenna design remain unchanged. That there is no such thing as a free lunch. Antennas claiming wide no-tune bandwidth, high efficiency and small size are illusions. One can have two of these but never three.

That's not to say that there haven't been changes. These come about through greater access to and influence of antenna modelling software, smaller blocks and renewed interest in portable operating. Off-centre dipoles and easy to erect end-fed antennas seem to have become more popular, especially for portable operating.

Another change has been in how we support our antennas. Fishing outlets sell lightweight telescopic 8 or 9 metre squid poles for around 50 dollars. Compacting down to barely a metre, they make perfect masts for portable or temporary home operating. While flexible at the top they are still strong enough to support a variety of thin wire vee and vertical antennas.

Automatic antenna couplers offer fast band change without knob twiddling. They're even available in rugged outdoor versions, making it possible to position them at the antenna rather than transceiver end. This allows easier and more efficient multiband operation from random length wire antennas.

Undergrounding of power lines, the switch to digital TV and the decline of 27 MHz activity made vertical structures in the suburbs fewer and smaller. The amateur antenna thus sticks out more than it used to. Unit complexes may ban them altogether. Popular responses that test our ingenuity include concealed or disguised antennas, temporary masts, use of high efficiency digital modes or portable operating.

DXing

Once upon a time one only knew of propagation conditions and DX activity through magazine articles and one's only radio. Since then real time observations have largely replaced predictions. This is exemplified by online DX clusters Online DX clusters which have narrowed the gap between the first to know and the last to know. This has resulted in intense pile-ups of wanted stations as soon as word gets around.

Equally revolutionary is that it is no longer even necessary to work someone to get an idea of where and how strong your signal is. CW operators have the 'Reverse Beacon' website, comprising a worldwide network or remote receivers and CW decoders whose outputs are aggregated and displayed at near real-time on the web. Call CQ on any HF band and chances are some RBN station will list you.

SSB operators don't quite have this level of automation available. However they can dial up a web receiver and hear the strength of their voice coming back from a remote location.

These developments have meant that we're operating with much more information in real time than we did in the past, including an ability to receive and compare our own signals from a remote receiver.

QSLing, awards and contests

Paper QSLing has always been expensive and laborious. We enjoyed the colourful card from overseas but cursed filling out hundreds of cards from a DXpedition long after our suntans had worn off. Bureaux still exist for those who wish to use them. However, faster alternatives to QSLing are gaining ground and saving amateurs money. These include eQSL and the ARRL's Logbook of the World.

Operating awards used to involve gathering QSLs and forwarding proof of contacts to the Award Manager. The WIA has developed a slick online method that has made applying for awards much easier. Interest in awards has been revived and there are now more applications. In addition popular new awards such as Summits on the Air have rejuvenated portable and hilltop operating around the world.

Ever entered a contest and waited months for the results to appear? Paper logs, contest manager's workloads and magazine deadlines were major contributing factors. Electronic logging and online submission have become common. The result is that more entrants are emailing their logs from just after the contest has finished. Sooner arrival and computerised logs are allowing better cross-checking and earlier publication of results.

Conclusion

The basic ethos of amateur radio is largely similar to what it was years ago. However the way we've done it has changed dramatically. Much of this has been due to technological developments that have made established amateur activities easier and paved the way for new modes.

Returning amateurs should not be daunted by getting up to speed with these and be assured that the satisfaction achieved is well worth trying the challenges of various facets of amateur radio.

Participate

Remembrance Day Contest	15 - 16 August
International Lighthouse Lightship Weekend	15 - 16 August

The UK National Radio Centre

John Longayroux VK3PZ

Photo 1: John VK3PZ at the RSGB NRC amateur radio station GB3RS.

On a recent trip to the UK, I visited Bletchley Park and took some time out to visit the RSGB National Radio Centre *www.nationalradiocentre.com*

The RSGB Radio Station GB3RS on the day was operated by Trevor G4WKJ and John G8JKR.

The National Radio Centre has a series of great displays including:

A short film 'Wireless Communication Powers our Lives'.

"The Wall of Radio", showing the history of Radio Communication including the role that radio amateurs have played in developing communication technologies.

Interactive Displays: a series of hardware and software hands-on displays, showing the building blocks of receivers &

Photo 2: Trevor G4WKJ, John VK3PZ and John G8JKR.

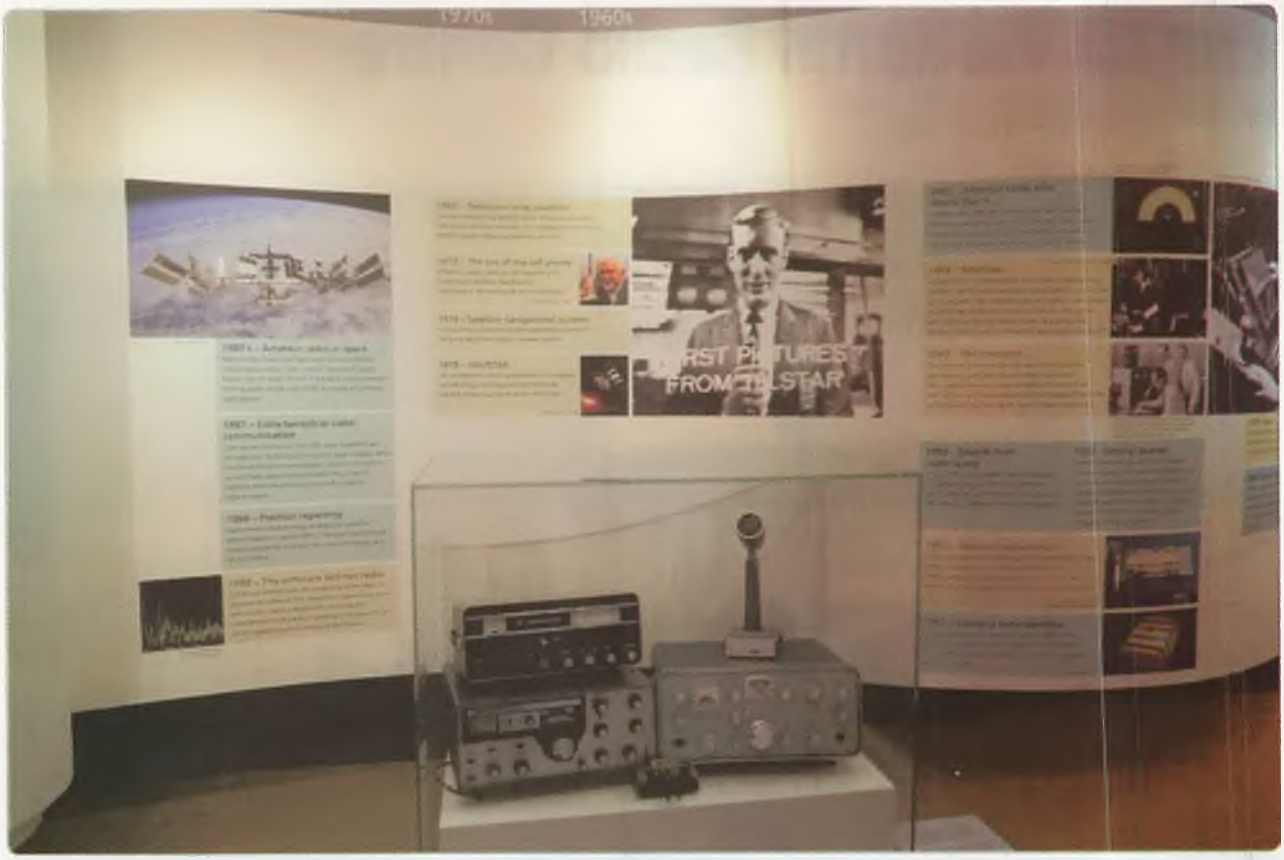


Photo 3: The Wall of Radio, shows the history of radio communications.

Photo 4: The mansion Bletchley Park.

transmitters with displays on Resonance, Oscillator, Bandwidth, Modulation and a complete radio system (transmitter and receiver). It's a display the school groups enjoy.

The ultimate display is the RSGB live demonstration of radio station GB3RS. The volunteer operators are on hand to help the visitors experience an operational amateur radio station.

I did discover a strange key on the desk, one day when I have some spare time, I might learn how to use a CW key.

A great thanks to Trevor G4WKJ and John G8JKR for the hospitality extended to my wife and myself, we had a good chat.

Amateur radio activity during WWII

Jim Linton VK3PC

The outbreak of both WWI and WWII meant that amateur radio activity was stopped. For WWI (1914-18) transmitting equipment in Australia had to be deposited with the authorities through post offices.

Although during WWII all were again no longer authorised to transmit as radio amateurs, a slightly different approach was taken in that they had to initially dismantle all transmitting equipment.

On 1 September1939 an urgent telegram was sent telling that new regulations under the Wireless Telegraphy Act meant they must not transmit. It further said: *"…. valves transformers tuning coils operating keys and microphones must be dismantled from the equipment."*

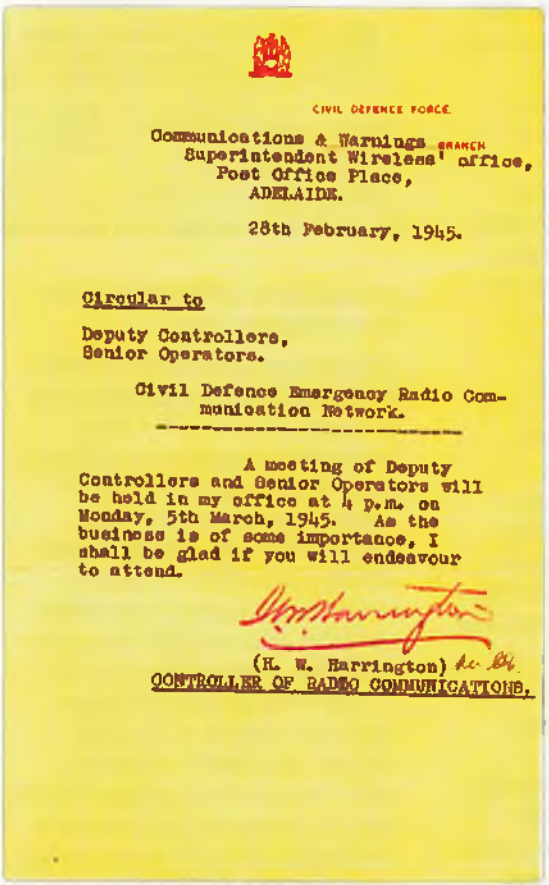
This telegram sent before the official declaration of war, but on the day Germany invaded Poland. Britain and France warned that if the invasion occurred, they would declare war on Germany.

The Australian Prime Minister Robert Menzies on 3 September made his speech to the nation, that as a result of Britain declaring war (that day) on Germany, Australia too was at war.

The telegram was sent to all from the Director General of Posts and Telegraphs and asked for immediate written acknowledgement of the instructions.

The Wireless Branch of the Postmaster-General's Department again wrote in March 1941, to advise that a *'Wireless Transmitting Apparatus (Possession) Order'* came into effect on 1 April 1941.

The letter said possession required a permit issued only after *"…you have placed the principal components of your transmitter in a solidly constructed receptacle ready for sealing by an officer of this Department."*



CIVIL DEFENCE FORCE.

Communications & Warnings BRANCH
Superintendent Wireless' office,
Post Office Place,
ADELAIDE.

28th February, 1945.

Circular to

Deputy Controllers,
Senior Operators.

Civil Defence Emergency Radio Communication Network.

A meeting of Deputy Controllers and Senior Operators will be held in my office at 4 p.m. on Monday, 5th March, 1945. As the business is of some importance, I shall be glad if you will endeavour to attend.

(H. W. Harrington)
CONTROLLER OF RADIO COMMUNICATIONS.

Photo 1: CD Roy Cook VK5AC.

A reply form was included with the letter to either obtain a permit, or advise that transmitting equipment was not possessed.

Similar restrictions were imposed overseas, primarily to stop transmitters getting in to the wrong hands and being used by enemy spies.

In the 1930s and during the war there was increased shortwave listening in Australia used by broadcasters to bring their version of events. News was also popular viewing at the cinema particularly during the war.

Many radio amateurs enlisted in the armed services including being at the forefront of communications and its development. That era resulted in greater use of low voltage filament valves and the use of radar to guide bombing aircraft.

After the resumption of amateur radio following WWII, there were many radio-related stories. One was that during the occupation of Poland, Father Maximilian Kolbe SP3RN was arrested by the Germans who believed that amateur radio was somehow involved in espionage.

He was sent to the Auschwitz prison camp in 1941. After an escape by some prisoners, 10 inmates were killed in retribution.

Fr Kolbe volunteered to take the place of one of the condemned men. His action resulted in canonisation by Pope John Paul II on October 10, 1982, as Saint Maximilian Kolbe. He is considered to be the Patron Saint of radio amateurs.

Another story was about on air contact during WWII between two radio amateurs, even though they were fighting on different sides.

The pair briefly caught up, quietly recognised they were amateurs, sent greetings and then resumed their duties. Whether that urban myth has any truth is unknown, but it again shows that amateur radio is a worldwide fraternity.

There was also the odd, often vague, story about some radio amateurs within Australia still being active during WWII.

However a letter in the WIA Archive received in 1995 written

by George VK2AHJ mentions the establishment of an Emergency Communications network in New South Wales, and more specifically Central Sydney:

"About early 1941 the WIA in NSW set up a radio system in conjunction with the National Emergency Service. This was organised by Wal Ryan VK2TI the then NSW President.

I was involved in this at the Waverley Police Station and I think we made up the equipment to a standard design and installed it at Police stations in concrete huts adjacent to similar huts which were equipped for telephone communication to a central office under Wynyard Railway Station.

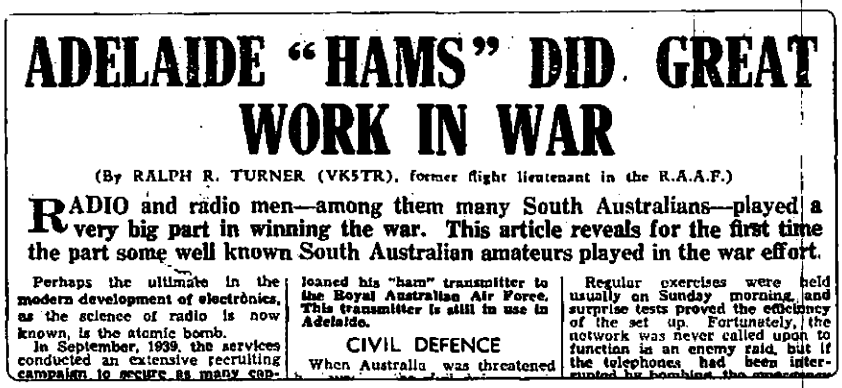
The idea was that in the event of the telephone system being disabled the radio system would take over. We had regular practices but happily no 'real thing'. Unfortunately it has all become a bit hazy after 50 odd years." (1)

So, there was some form of Emergency Network involving radio amateurs in existence during WWII. Recent research has involved looking at our history during the wars and it came across Jim Corbin's (VK2YC) columns published in *Amateur Radio* during most of the war years.

The column reported the whereabouts and activities of radio amateurs in the various services overseas. Occasionally Jim referred to those contributing on the home front. In the November 1942 edition of AR, he told us a little about Civil Defence preparations in Western Australia:

"A scheme has been put forward for the use of radio in the event of communication breakdown, and after months of negotiation it is only awaiting final approval by the PMG's Department.

A committee comprising of George Moss VK6GM, Cliff Brown VK6CB and Chas. Quin VK6CX has been appointed by the Civil Defence Council. They will be calling shortly for assistance in this project from other Members." (2)



ADELAIDE "HAMS" DID GREAT WORK IN WAR

(By RALPH R. TURNER (VK5TR), former flight lieutenant in the R.A.A.F.)

RADIO and radio men—among them many South Australians—played a very big part in winning the war. This article reveals for the first time the part some well known South Australian amateurs played in the war effort.

Perhaps the ultimate in the modern development of electronics, as the science of radio is now known, is the atomic bomb.

In September, 1939, the services conducted an extensive recruiting campaign to secure as many operators as possible. Many amateurs loaned his "ham" transmitter to the Royal Australian Air Force. This transmitter is still in use in Adelaide.

CIVIL DEFENCE

When Australia was threatened by invasion, the civil defence network of radio operators was organised. Mr. E.R. Barbier approached the commissioner of Civil Defence, and the Navy granted permission for the establishment of a headquarters station and seven sub-control stations in South Australia, for use if the telephone lines should be bombed and communications disrupted.

The Superintendent of Wireless (Mr. H.W. Harrington) was appointed comptroller of radio communications, with Mr. J. de Cure and Mr. Barbier as deputies. Senior operators in charge were Mr. H.M. Bowman (VK5FM), Mr. A.A. Brook (VK5KG), Mr. V.P.R. Cook (VK5AC), Mr. C.H. Baseby (VK5BZ), Mr. R. Bruce (VK5BJ), Mr. V. Williamson (callsign indistinct), Mr. H. Robinson (VK5HN), and Mr. M. Phillips (VK5ZU).

These men had as assistants other amateurs who were anxious to do what they could. Headquarters worked on 1775 kilocycles, and the sub-controls on 3605 kilocycles."

Regular exercises were held usually on Sunday morning, and surprise tests proved the efficiency of the set up. Fortunately, the network was never called upon to function in an enemy raid, but if the telephones had been interrupted by bombing, the

Photo 2: Adelaide Hams did great work in war.

This seemed to be directly related to the National Emergency Service in Sydney. However, the most impressive newspaper report found about amateur's involvement in communications during WWII, came from a large cutting recently donated to the WIA Archive by Helen Burt, daughter of Ron Burt VK5NON (later VK5ON) and granddaughter of Chas. Othen VK5ON.

Covering almost a full page, the article entitled "*ADELAIDE 'HAMS' DID GREAT WORK IN WAR*", was written by Ralph Turner VK5TR a former Flight Lieutenant. The second part of this article was headed "*CIVIL DEFENCE*" and it read:

"When Australia was threatened by invasion, the civil defence network of radio operators was organised. Mr. E.R. Barbier approached the commissioner of Civil Defence, and the Navy granted permission for the establishment of a headquarters station and seven sub-control stations in South Australia, for use if the telephone lines should be bombed and communications disrupted.

The Superintendent of Wireless (Mr. H.W. Harrington) was appointed comptroller of radio communications, with Mr. J. de Cure and Mr. Barbier as deputies. Senior operators in charge were Mr. H.M. Bowman (VK5FM), Mr. A.A. Brook (VK5KG), Mr. V.P.R. Cook (VK5AC), Mr. C.H. Baseby (VK5BZ), Mr. R. Bruce (VK5BJ), Mr. V. Williamson (callsign Indistinct), Mr. H. Robinson (VK5HN), and Mr. M. Phillips (VK5ZU).

These men had as assistants other amateurs who were anxious to do what they could. Headquarters worked on 1775 kilocycles, and the sub-controls on 3605 kilocycles."

The equipment at each station was installed at the operator's own expense, and was donated by him or his assistants from their own personal equipment.

"Civil defence replaced any valves and equipment which became unserviceable while being used in the emergency network. Regular exercises were held usually on Sunday morning, and surprise tests proved the efficiency of the set up. Fortunately, the network was never called upon to function in an enemy raid, but if the telephones had been interrupted by bombing, the emergency network would have taken over and continued communication.

"Those who were connected with this network speak in the highest terms of the untiring work of Mr. Harrington, who was always ready to assist the amateurs to overcome difficulties."

Telephony was used throughout the network and duplex operation was maintained from headquarters to the sub-control station.

"A number of 'hams' were employed in the PMG's department on the installation of air navigational aids for the three armed services

the installation of essential carrier communications equipment, the maintenance and testing of carrier and long-line equipment, and the maintenance of a national broadcasting service.

C.E. Moule (VK5CX), W.R. Nottage (VK5MI) and S.R. Buckerfield (VK5DA) all performed excellent service on the installation of air navigational aids in South Australia and the Northern Territory during the war.

W. H. Scott (VK5HS), R.C. Gurner (VK5RG), and P.J. Bested (VK5CS) gave splendid service on long-line testing and carrier maintenance.

W.N. Govan, K.M. Mathews, L.C. Pridham, D.G. Taylor, A. W. Taylor, W.S. Walker, A.F. Wreford, D.R. Briggs, and G.W. Luxon were employed on maintenance and operating duties at the national broadcasting studios or associated transmitters.

H. Foster, A.C. Smythe, and W.A. Smith were employed on transmission laboratory or installation work during the war. G.B. Ragless (VK5GR) and I. Thomas (VK5IT) gave outstanding service on important observation duties for the security services in connection with monitoring of illicit transmissions and other signals of enemy origin."

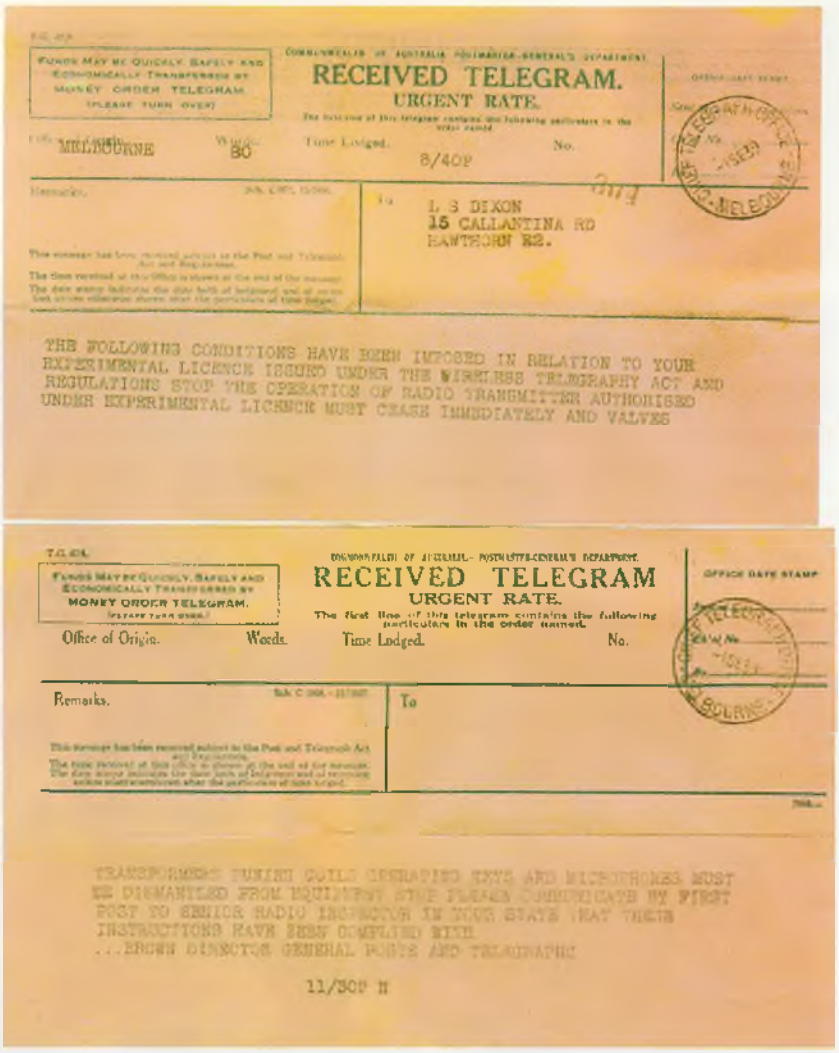

RECEIVED TELEGRAM.
URGENT RATE.
MELBOURNE
L S DIXON
15 CALLANTINA RD
HAWTHORN E2.
THE FOLLOWING CONDITIONS HAVE BEEN IMPOSED IN RELATION TO YOUR EXPERIMENTAL LICENCE ISSUED UNDER THE WIRELESS TELEGRAPHY ACT AND REGULATIONS STOP THE OPERATION OF RADIO TRANSMITTER AUTHORISED UNDER EXPERIMENTAL LICENCE MUST CEASE IMMEDIATELY AND VALVES
RECEIVED TELEGRAM
URGENT RATE.
Office of Origin.
Words.
Time Lodged.
No.
Remarks.
To
11/30P H

Photo 3: Telegram notifying closure of amateur stations at the beginning of WWII.

The war-time Emergency Communications Network was disbanded in late 1945 (4). For more than a decade after the war the term Civil Defence Emergency Network (CDEN) was used.

An editorial in *AR* April 1946 called for a permanent Emergency Communication Network. It mentioned that such war-time networks run by radio amateurs were in New South Wales, South Australia, Western Australia and Tasmania. It also named the Royal Australian Air Force Wireless Reserve as being further proof of our worth to the authorities.

The WIA in each state was encouraged to establish such networks that could cover any contingency where normal communications have failed. The editorial referred to disastrous floods in Victoria, Queensland, News South Wales and Tasmania, where telephone lines went out and many places were isolated.

The name of the Wireless Institute Civil Emergency Network (WICEN) is believed to have begun around 1957. Further research is needed on the actual circumstances and timing.

The earliest incident had been traced back to two radio amateurs who provided emergency communications during a severe tropical cyclone that struck north of Cairns Queensland, on 9 February 1927.

Since then there were many occasions when radio amateurs – even during WWII – were prepared to use their knowledge, skill and dedication to the service of the general community.

References

1. George Paterson VK2AHJ letter. 6/04/1995, WIA Archive.
2. *AR* November 1942, p14 Slouch Hats and Forage Caps by Jim VK2YC.
3. Adelaide "Hams" did Great Work in War by Ralph R. Turner (VK5TR). In 1951, possibly The News.
4. WIA Book Volume 1, p34 'Amateurs and Emergencies'.

VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *groups.yahoo.com/group/vk7regionalnews/*

Photo 1: Reuben VK7FREU activating The Needles VK7/WC-054 with snow covered Mt Mueller in background. (Photo courtesy of Justin VK7TW.)

VK7 SOTA News

We welcome Alan VK7BO to the SOTA honour roll – Alan has been quietly activating many summits around Northern Tasmania. A reminder that the seasonal bonus for the VK7 SOTA Association started on 15 June and runs through to the 14 October inclusive. You get 3 extra points for activating summits that are greater than or equal to 1200 m ASL. So, for a summit like Mt Wellington (VK7/SC-001) or Mt Barrow (VK7/NE-003), you get 10 points and 3 seasonal bonus points – an easy 13 points – just remember to rug up, take supplies and stay safe.

VK7 Broadcast News

The VK7 Regional news team welcomes our newest broadcast reader in Brett Marley "Marls" VK7FMMM. Those in Southern Tasmania will be familiar with Brett as he is an afternoon announcer and Music Director for Heart 107.3 FM. We are privileged to have Marls as one of our readers, welcome Brett.

Northern Tasmanian Amateur Radio Club

The recent activation of VK100ANZAC by NTARC was a fantastic opportunity to celebrate the ANZAC centenary, local hero Harry Murray and to promote this great hobby. NTARC put a huge amount of work into the three day activation. The start of the three day activation was in Evandale at the commemorative gardens for ANZAC Harry Murray. The Official Party who attended the day included Eric

Photo 2: Brett Marley VK7FMMM – VK7 Regional News Broadcast Reader. (Photo courtesy of Heart107.3.)

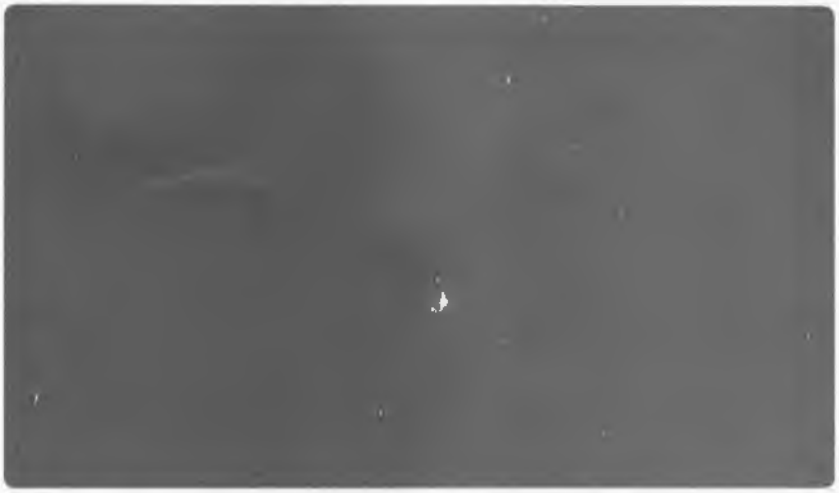


Photo 3: Lightsail captured above Hobart on 13 June 2015 (Photo courtesy of Justin VK7TW.)

Many readers of *AR* and members of the Planetary Society will know of the recent space experiment – Lightsail (*http://sail.planetary.org/*) and the test flight that was launched in May 2015. This spacecraft tested the solar sail idea of using photons of light from the sun on a huge Mylar silver sail for propulsion in the vacuum of space. This spacecraft carried an amateur radio transmitter that sent back telemetry and photos. The author and son Reuben VK7FREU setup a camera pointed at the night sky to try and capture the Lightsail on its last orbit over Hobart Tasmania. We did not see anything with the naked eye however we managed to capture it with the camera on a long exposure.

We also featured some spectacular movies and stills from the Dark Mofo – mid winter festival – including light sculptures and fire breathing organs which warmed up our streaming, RF and live audience viewers...HIHI!

Other items covered included oscilloscopes, Raspberry Pi time lapse photography and mystery items! Our videos included the UK TX Factor and the AmateurLogic.TV Ham College series.

Hutchison MP, Member for Lyons; Guy Barnett MP, Parliamentary Secretary to the Premier; Des Jennings, General Manager of the Northern Midlands Council, Mr Brian Watson, Media Officer Northern Midlands RSL Sub Branch; Mr Laurie Wotherspoon, President Evandale History Society and Mr Brian Bean, Evandale History Society. Both a commercial network and the ABC covered the event on TV and Radio.

NTARC member Peter VK7KPC was the radio operator on the day in the radio tent setup with a great display of military radios and memorabilia. The QSO with Harry Murray's great niece Mrs Anne Batilbasi, in her home town of Deloraine went like clockwork and Mrs Batilbasi then travelled from Deloraine to Evandale to view the displays. At the end of the day VK100ANZAC moved back to the NTARC clubroom at Rocherlea and this gave many NTARC members an opportunity to operate the historic callsign. A huge thank you to all involved especially the NTARC ANZAC Coordinator Alvin VK7ADQ for all his time and effort.

Radio and Electronics Association of Southern Tasmania

Congratulations Warren Nicholas who has successfully upgraded from VK7FEET to VK7WN and congratulations to Garry VK7JGD who came fourth in the 24hour portable operation category of the 2015 John Moyle Memorial Field Day. Our DATV Experimenter's nights saw some interesting highlights over the last month. We have been tracking and following the amazing party balloon PS-46 as it continues its second circumnavigation of the earth. The author has shown what amateurs can expect to see from the WSPR and WSJT JT9 signals from the balloon.

Photo 4: Dark Mofo Fire Organ presentation.(Photo courtesy of Justin VK7TW.)

VK6news

Keith Bainbridge
e *vk6rk@wia.org.au*

Winter is upon us; the mornings are cold enough to stop me going down to the workshop where my 40/80 m station is located, so I've been spending my time sorting through the many thousands of QSL card from Mirek's VK6DXI SK estate. Its lead me to consider QSLing in general and I've written an article for the general pages of the magazine with my views and comments, hopefully you will get to read it soon and maybe comment?

WA VHF Group

To business, starting this month with the **VHF Group** so over to Terry VK6ZLT:

Activities are certainly on the rise around the shack of the WA VHF GROUP Inc. situated in the transmitting cottage alongside the Wireless Hill Museum in Ardross, a southern suburb of Perth in VK6 land. With the refining of the cables from antennas & beacons to plant rooms and shack transmitters the whole place is really becoming a fully operational entity. All this is mainly due to the efforts and co-ordination of Bob VK6KW, Museum Officer. The planning is in full swing for the upgrading of the six beacons scattered throughout the state to GPS frequency standard. This perspective has been enhanced with the successful upgrading of two beacons VK6RST and VK6REP which at present are being soak tested and refined ready for installation. These two beacons were successful in gaining WIA sponsorship for their associated GPS disciplined clocks. Thanks must go to Alan VK3XPD and the WIA. Thanks must also go Terry VK6ZLT and Steve VK6ST for their efforts to complete the 2 x 2 m beacons to enable a successful outcome.

If you are wondering about what sort of GPS clock that was used, they were 2 x (12 V) BG7TBL GPS locked 10 MHz sine wave references, complete with aerials & plug packs purchased on-line. In operation they have been very successful and have been more than adequate in locking the on board beacon synthesizer. Research is ongoing at present by Denis VK6FADF and Tom VK6ZAF to produce a cheaper home grown GPS solution with perhaps even more accuracy than the present devices. Preparations are also in hand to build new 70 cm antennas for VK6RST so that that 2 m & 70 cm reinstallation will be a complete upgrade and also lay the ground work for a future 23 cm addition.

73 Terry VK6ZLT, Publicity Officer, WA VHF Group Inc.

Thanks Terry and good to hear things are progressing with the beacon updates.

Bunbury Radio Club

Next up is Norm VK6GOM with his monthly news from the south west, and the **Bunbury Radio Club.** Our June meeting saw 24 members in attendance, including three visitors: John VK6JON, Murray VK6HL and Ray VK6ET. Following a warm welcome extended to the three, they were then given an offer they couldn't refuse to join the club.

The following is a report from Brian VK6TQG on the club's recent foxhunt:

The Bunbury Radio Club held its first Fox Hunt for many years on Saturday 13th June. After the completion of the formal business at our monthly meeting, Club President Neil VK6FNKS went and hid the Fox. Two teams, each consisting of a driver and a radio operator met up in the car park at the Big Swamp Bird Park in Bunbury. Start time was 4 pm. Both Teams were equipped with 3-element "tape measure" Yagis and handheld radios.

Brian VK6TGQ and Shaun VK6PAL began by driving short distances and checking the signal strength frequently. Within about 30 minutes, they were very close to the Fox, but could not pin point its exact location. Doug VK6DEW and Darren VK6GWN took a different approach, driving slightly longer distances in order to triangulate the location of the Fox. They arrived at the same location about 10 minutes after Brian and Shaun. A great deal of searching followed, without the use of radios, one team even asking local residents if they had seen anyone hide a small radio earlier in the afternoon! Darren was first to spot the ¼ wave whip in a tree near the road. Brian was then able to then follow the coax down the bank, and recover the Fox. Total time to find the Fox was 60 minutes, and although there was a difference in the kilometres driven by the two teams (5.8 km and 3.7 km), it seemed fair to call it a draw.

This was a very enjoyable activity. I think teams of two worked well, although three would probably also work. Once you get close to the Fox, the more sets of eyes you have the better. The Fox was quiet for 2 to 3 minutes between transmissions. We will look at shortening this a little bit.

Both the 2 m and 70 cm

repeaters are down. It appears that their antennas were damaged during a recent storm in the Harvey area. An emergency response team is being put together to attack the problem.

Licence assessments and upgrades are being planned for 22 August. Anyone interested in sitting the appropriate exams please contact Norm VK6GOM on 0438 878 582.

Work on the new club rooms continues apace. All that remains to be done are tiling, carpet laying, plumbing and installation of cupboards. Dicko VK6FSDU assures us that we should be in there by July. It was planned to have a grand opening at the AGM on 11 July 2015. All BRC members were encouraged to attend.

Finally, the club is planning to set up a station at the Casuarina (Bunbury) Lighthouse for the International Lighthouse Weekend on 15/16 August. Again all members are invited to attend, either as supervisors or informed observers. Alternatively they may want to be operators.

Any South West based amateur (or anyone interested in radio or electronics) is more than welcome to join and participate in our activities. The annual fee is only $25.00. Those wishing to join can contact the Club via our Secretary, Brian Andrews, on 0403 975 953 or *vk6brc@wia.org.au*

Thanks as usual Norm, Mr Dependable :)

Ham College

After some prompting lately a few more contributors have shown up this month, including Andrew VK6AS for Ham College.

Ham College was formed in 2007 with the aim of furthering the hobbies of amateur radio and electronics in Western Australia through the provision of quality education services.

Ham College runs courses and assessments for all grades of amateur radio licence. Other courses such as Morse receiving and transmitting are run as required. All instructors and assessors hold a current *Working with Children Card*.

Our regular venue is the Lynwood Scout Hall which is situated within the Whaleback Golf Course in Parkwood.

For people outside the Perth metropolitan area arrangements can be made for courses/assessments to be conducted elsewhere for groups, subject to numbers, the availability of a suitable venue and assessor commitments.

For full details of College activities point your computer to hamcollege.com.au

In terms of courses our next foundation course is scheduled for the weekend of Aug 29/30th, and Bookings are now open.

The Standard course for this year has completed. The next standard course will be in 2016. Expressions of interest can be registered via the contact page on the web site.

The Advanced course for 2015 is now full. Expressions of interest for 2016 can be registered via the contact page.

The college will also run CW courses but are run only when sufficient interest warrants it. Interest can be registered via the contacts page.

We also run the information beacon VK6RIB, its transmitting home at the Wireless Hill Telecommunications Museum in Ardross on the frequency of 145.575 MHz.

This was made possible thanks to the Western Australian VHF Group who have kindly provided space in one of their equipment racks for the radio and computer, and room for an antenna on their tower. Even if the vertical is actually mounted upside down!

VK6RIB is, as far as we know, the first and only Information Beacon transmitting on amateur frequencies in Australia. The beacon transmits information for the benefit of local hams, shortwave listeners and visitors to the state. The WIA News, News West, RAOTC news are all featured, as is information about local amateur radio clubs, Ham College courses and exam dates, how to get involved in amateur radio and any other relevant information.

Clubs can have their contact information and any news or upcoming meetings or events hosted on the beacon by sending an audio file (preferably in MP3 format) to the content manager, Neil VK6BDO, who can be contacted by email to vk6bdo@wia.org.au

Ham College is always interested in signal reports from listeners to gauge propagation – please send any reports to the content manager on the above email address. Please include the time, location and any comments.

Many thanks go to Doug VK6DB and Martin VK6ZMS for their efforts in bringing this project back on-line.

On behalf of the President Kathi VK6KTS and the Committee of Ham College, this is from Andrew VK6AS.

I admire the work of the folks at Ham College, they are doing a great job helping people into the hobby and getting them upgraded as well, well done!

NCRG Hamfest

I'm sure you are all sick and tired of being reminded that **NCRG Hamfest** is on 9th August at the Cyril Jackson Rec Centre in Ashfield Bassendean at 9 am for buyers and 7:30 am for traders.

You've all seen the blurb in the Mag over the past few months, so this is just a final reminder to be there or miss out! The NCRG is having a New Equipment stall this year with antennas, squid poles, baluns, and many other items all new! The raffle has once again attracted sponsorship from Timberden Plant Hire amongst others and we appreciate the donations that allow us to provide such good raffle prizes each year. We will also have a lot of equipment from deceased estates to tempt you

Photo: Ian VK6DW demonstrating DXKeeper.

and to help out the families of those recently gone Silent Key. Food, drinks and good company, what more could you want on a Sunday morning in winter?

There are plans for the Men's Shed Association to have a static display, but that is still unconfirmed. So see you all there, come up and say hello, as usually I'm the pain in the backside on the PA!

The **NCRG** has been busy with antennas once again with our co-ordinator disrupting our plans by popping off to Friedrichshafen and the UK, they have been having fun over there judging by their pics on Facebook, have fun VK6LSB and VK6IA. But we have soldiered on without them and good progress has been made on the new collection of wide spaced, long boom Yagis. Some of the guys have even taken to going out to the club during the week to get things moving along, oh to be retired :(

Hamfest takes up the majority of our attention from June to August so it's nice to see other projects moving along simultaneously.

The Hills Amateur Radio Group

Finally this month it's over to the Hills Group for their updated activities.

News from **HARG** - The Hills Amateur Radio Group.

On Saturday 27th June, members of HARG were entertained by several interesting technical talks by Ian VK6DW and Richard VK6BMW. After enjoying a lunchtime meal of hot dogs and then a short business meeting we set up a digital projector and Ian screened his own PowerPoint presentation to demonstrate the JT65 and JT9 digital modes. Following this, both Ian and Richard made JT65 contacts by using Team Viewer from their tablets to remotely control their home computers running WSJT-X software which controlled their transceivers. Richard then showed how to use the WSJT-X and JT-Alert software packages. Ian also demonstrated the DXKeeper logging software from the DXLab suite of eight different but interactive pieces of software designed to support DXing activities. DXKeeper synchronises automatically with eQSL and Logbook of the World in both directions and extracts address data from QRZ.com and even prints QSL cards and labels. There are many other useful features and we intend to use it for logging at the club.

Finally, Ian showed some YouTube videos which demonstrated the features of the Yaesu FTDX-3000 radio. Security at the club rooms has been upgraded both physically and electronically and we will now be able to take happy snaps of any intruders. We are planning future

talks on DXing, propagation and the All-star digital radio system. Hopefully these talks will resume in August after our AGM in July.

HARG Meetings are held twice a month at the club rooms near the corner of Brady and Sanderson Roads in Lesmurdie. The Social and Practical meeting is held on the second Saturday of the month and the General Meeting, often with a technical talk, on the last Saturday of the month. Doors open at 12.30 pm for a BBQ lunch and the meeting starts at 2.00 pm. Everyone is welcome. More information can be found at *www.harg.org.au*

Cheers and 73 until next time from Bill VK6WJ Publicity Manager for HARG.

Thanks to all who have contributed, it was like getting blood from a stone this month ;) but next will be easier I'm sure.

73 to you all and see you at Hamfest.

Keith VK6RK

VK4news BARC

Les Neilson VK4FAEB

Brisbane Amateur Radio Club

The Annual BARC Fest held at Calamvale in May 2015 was another successful event, with plenty of stalls, radio gear new and used, and food for sale. This is our major fund raiser for the club and although participation was a little down on the previous year, we managed to raise some much needed funds.

After our May Annual General Meeting we are pleased to welcome a completely new Management Team for this year and they have wasted no time in making plans for the coming year, our new President Terry Stewart VK4AAT said *"We are keen to involve all the members in decisions and improvements for our Club"*.

Our new plans include improving our fund raising activities with a second BARC Fest planned to be around six months apart from the first and to also to manage the catering with club members to maximise our revenue.

We are in the process of upgrading our BARC Website refreshing all the information and allow our members to interact in a more user friendly way. We plan for these improvements to become our major communication tool for the club with a calendar of new events and talks planned for the coming year.

We are also very pleased to announce a major new project with the installation a new radio room for the club, this will house our club radios for members to use and also allow licence training during the year After a healthy discussion and acceptance by BARC members our plans are now well under way, we have permission to erect a demountable building and club working bees have started the construction process etc.

Once this room is established it will allow us a separate use of the Scout Hall for meetings and talks etc.

BARC has also volunteered to assist the promotion of our hobby in Qld. Our club will be contacting all Queensland clubs to encourage the publication of our club activities. We propose to be the agent for collation of your information and pass it on the WIA for monthly publication. If we haven't contacted your club already, we will be very soon.

Les Neilson VK4FAEB
Vice President BARC

Bayside District Amateur Radio Society

Club Meetings are held on the first Monday of the month, commencing at 7.30 pm, at the Redland SES facility, 47 Wellington Street Cleveland, members and guests welcome. Call in is via the VHF Repeater VK4RBS on 146.875 MHz If needed.

Program

July: HF propagation and DX

August: Digital modulation

Sept.: Raspberry Pi, Arduino, PIC

Oct.: Embedded electronics

Nov.: LINUX and operating systems

Dec.: VHF/UHF Terrestrial operation

Club Coffee Meets: A morning Coffee Meet is held on the 2nd and 4th Wednesday of the month at the Harmony Cafe, King County, 58 Dinwoodie Road, Thornlands commencing at 10:00 am.

Activity Night

Practical nights - The Second Thursday of the month

July: Radio operation and procedures

Aug.: Antenna and coil making

Sept.: to be advised in lieu of soldering

Oct.: Raspberry Pi, embedded electronics

Nov.: Using computer operating systems

Club Nets

VHF Net: 146.875 MHz Monday evenings at 7:30 pm local time

HF Net: 3.570 MHz Wednesday evenings at 7:30 pm local time

George Nicholls VK4AHG
Secretary
Bayside District Amateur Radio Society Inc.

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

The meeting for June was at the Aviation Museum. Several of our members are volunteers there and it is a popular place to take interstate and overseas visitors. This time, especially for us, the cockpit of the F-111 was open for us to find out what is feels like to fly an F-111.

As well as the F-111 members were shown some of the workshops where planes are rebuilt or repaired. With so many active volunteers there were lots of guides. The Museum houses a surprising number of planes of all sizes and it is well signed so you can understand what you are looking at and why it is important.

Recently there was a big activations weekend for the SA National Parks and Conservation Parks Award which AHARS sponsors. There were 41 participants including five Foundation members. 111 parks were activated including 81 original activations. This weekend was the second anniversary of the Award and the weather was perfect for it. Congratulations to all who took part and had fun.

The Shack program is well under way with the second Saturday social gathering being popular and the fourth Saturday technical lectures have been well attended, particularly the session done by Graham Dicker on the Arduino series of micro-processors. This seems to have sparked people's imaginations and there are several projects under way using these incredible devices, there have been several requests for Graham to run an advanced course on this subject.

The AHARS mid-year luncheon was held at the Auchendarroch complex in Mount Barker this year. It was well attended by approximately 40 members who were well pleased with the menu available, and the comfortable surroundings. With the venue being at Mount Barker this year, it meant that the members who live in Murray Bridge didn't have as far to travel as usual.

We have just recently completed another Foundation program at the Shack with all participants passing their exams. There is another course to be held in October.

73 Christine VK5CTY.

Photo 2: Showing that there are planes for everyone's taste.

Photo 1: Shirley VK5YL in the F-111 cockpit.

VK2news

Tim Mills VK2ZTM
e *vk2ztm@wia.org.au*

Development Fund donations

The annual Development Fund donation to clubs provided by ARNSW this year has been made available to the following clubs. Each payment covered part of the cost for a club project with the balance provided by the recipient. For 2015 there was Waverley ARS for a replacement video projector, Oxley Region ARC for a repeater upgrade with the new modes and Manly Warringah RS to establish an open access web-based SDR facility. The next Development Fund application period is scheduled to be released in February 2016.

Club News

Marcus VK2SK of Bathurst has been providing a relay of the Sunday sessions of VK2WI News to 17 metres on 18.125 MHz. Reports to Marcus or email to *callbacks@arnsw.org.au* Illawarra ARS is one of the relay sources of VK2WI News through their repeaters VK2RUW on 146.975 to the south of Wollongong and VK2RMP on 53.65 and 146.85 MHz to the north of Wollongong. The two metre repeaters are linked to EchoLink stations VK2MT-R and VK2BGL-R which also carry the news. ARNSW held a lecture event on Sunday 28th June with three testing speakers with subjects of valve and semiconductor testing, fault finding in transceivers and checking coaxial cables. The next event is scheduled for Sunday 8th November. The Radio Homebrew and Experimenters Group evening meeting on the first Tuesday of the month has moved location to the home of Eric VK2VE in Denistone.

VK2WI News has weekly the Solar Flux Index update provided by Noel VK2FUL which uses data obtained from *http://www.swpc.noaa.gov/products/usaf-45-day-ap-and-1107cm-flux-forecast*

Manly Warringah RS had their AGM last month as well as a Foundation training and assessment day. This month club station VK2MB will be active from the Barrenjoey Lighthouse at Palm Beach for the Lighthouse weekend. In September their Flagpole Contest which coincides with the international Talk Like a Pirate Day. Towards years end, they have a real challenge when they host a "Build from e-waste" night.

Westlakes ARC have moved their monthly meeting to the second Saturday. HADARC who meet at a council hall on a Tuesday now have to conclude their meetings by 10 pm instead of 10.30 pm as previously. This is because of a little known by-law regulating the operating hours of public halls. The Oxley Region ARC held their 40th annual field day over the June long weekend at a public school hall in Port Macquarie. It was a good event with 80 registrations over the two days. Rain on the Saturday had an effect on the field events. There was a good attendance at the dinner on Saturday evening. Sunday was a sunny day. Next year, in June, the field day returns to the Surf Club hall, which was unavailable this year due to renovations being carried out.

The Waverley ARS held their annual auction last month in the hall portion of their Rose Bay club room building. They have a Foundation and assessment weekend scheduled for 12th and 13th September. They have a Shack Night on the first Wednesday. The monthly meeting is on the third Wednesday. The Project Day is on the first Saturday afternoon. Most Tuesdays have a daytime working bee in the club house.

The Albury Wodonga ARC had their AGM last month with the monthly meeting on the first Tuesday evening in the 1st Lavington Scout hall in Mutsch Street. Projects this year will include a new multimode repeater on 6, 2 and 70 plus D-STAR and it will carry the VK1WIA news session. The weekly nets have 147 MHz Monday at 8 pm; 7047 kHz Tuesday at 8 pm and 3555 kHz Thursday at 8.30 pm.

This is a busy month on air with the RD Contest and the Lighthouse weekend in the same time slots and on similar frequencies.

Good operating. 73 – Tim VK2ZTM.

Participate

High Plains Winter Expedition Group | 11 - 14 August

Bogong High Plains Winter Expedition Group.
The annual Bogong high plains winter mini-expedition will once again head up to the Victorian Alps in August.

VK3news Radio Amateurs Old Timers' Club

Jim Gordon VK3ZKK & Ian Godsil VK3JS

The RAOTC Committee meets quarterly at the home of the RAOTC Secretary, Ian Godsil VK3JS.

Earlier in the year the club started a Facebook page. It was felt that a presence on social media could do no harm and, in fact, may be beneficial to the Club. Within a matter of hours there were 57 followers and currently 91 have joined.

The Club differs from other amateur radio clubs because it does not have meetings and does not have clubrooms. Its membership is composed of amateurs from throughout Australia and a few from overseas. The objectives of the Club are to maintain the interest and original pioneering spirit of amateur radio, to honour the history and heritage of our hobby, and to encourage good fellowship amongst all radio amateurs.

The Club's 60 page journal, Old Timers' News (OTN), is published twice yearly, in March and September, and is mailed to all members. The Club also has a news and information broadcast each month except January at various times and on various frequencies throughout Australia, and has callbacks after the broadcast. Details are on the Club's web site.

The club held its March 2015 VK3 luncheon on 26th March 2015 at the Bentleigh Club in Melbourne and the guest speaker was Ken Halse VK3ZER, whose talk was about 'My enjoyable career in broadcast television'. Ken worked in engineering at channels 7 and 10, in the pop music recording industry and on the Australian East-West microwave system. The club holds two luncheons in Victoria per year, one in March and a second one following a short Annual General Meeting in September. Other States also have luncheons. Guests and visitors are most welcome.

We would welcome new members to the club, but what is an 'Old Timer'? He is someone who is qualified for one of the two categories of RAOTC membership: Full Member, an amateur who has been eligible to hold an Amateur licence for 25 years and Associate Member, one who has been eligible for 10 years. It is not necessary to have held a licence for this time, or even to have held one at all, or to have been on the air – just that you must have been qualified to hold the licence.

Are you in one of these two groups? If so, you have stories to tell about your experiences as a Ham or electronics operator and one of the best places to tell them is as a member of RAOTC in the club's excellent OTN Journal that is full of interesting tales from members.

More details about the RAOTC and OTN Journal, plus recordings of monthly broadcasts, are available on the Club's web site at www.raotc.org.au

73

Ian Godsil VK3JS

Renewing amateur radio licences - a reminder

Occasionally a radio amateur has failed to renew their licence. On asking the ACMA, they are told that a WIA callsign recommendation is needed, and then make a new licence application.

The Radiocommunications Act does not impose on ACMA an obligation to issue a renewal notice. The ACMA does so, but failure to receive it is not an excuse.

It is the licensee's responsibility to ensure that the licence is current. Do you know your licence expiry date, and are your address details correct?

A callsign is only a condition of a licence, and if the licence is not renewed, after 60 days the callsign will be put on the WIA Public List on its website.

After seven days the WIA will issue a Callsign Recommendation to whoever wants it - with ballot provisions applying to 2-letter callsign in some states.

Full information of the process and forms needed may be read at 'All about Callsigns' and 'New licence or expired licence, or reclaiming a former callsign' - on the WIA website at *www.wia.org.au*

VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

The GARC Winter Solstice Dinner

The Club's Solstice dinner was held at the Geelong RSL with an attendance of 48 members and partners; in addition there was representation from our sister club the Geelong Radio and Electronics Society, the GRES, by the President Barry Wilson VK3MBW and Vice President Bill Husin VK3YHT.

Barry VK3MBW gave a short presentation to the guests regarding a WW11 Type A MK11 radio stating that it was one of these radios that the GARC used with its new call sign VK3ATL for the first time on 7 December 1948. The operator was Dick Heighway VK3ABK, who had his licence for only 2 months and made with it his first contact on the 40 m band, as recorded in the original log. Dick VK3ABK was President of the GARC in 1951 to 1952 and again 1959 to 1960. It is unclear how the radio ended up at the GRES, formed in 1963, but it finally ended up in the GRES Museum located in the Old Geelong Gaol where it was housed for several years. Barry then asked Bill VK3YHT, an original member of the GRES, to hand over the unit to Lou VK3ALB, President of the GARC, for safe keeping and to remind both the GRES and the GARC of their bond as Geelong Amateur Radio Operators and mutual friendship.

The guest speaker at the Solstice Dinner function was Dr Michael Axtens who previously was involved with a presentation on Electric Vehicles provided by members of the Geelong Electric Vehicle Enthusiasts Group. The presentation this time was in relation to current scientific developments in the medical world related to diabetes, heart attacks and depression and how attitudes to their respective treatments are undergoing some radical re-thinking. Our thanks go to Jenni VK3FJEN, the Club's Social secretary, for ensuring that the evening was such a success.

Photo 1: Bill VK3YHT handing the Type A MK111 radio to the GARC President Lou VK3ALB.

Licence Upgrades

Congratulations to George VK3AGL and Lou VK3AGH for successfully getting their upgrades to Advanced licences.

Life Membership

At a special general meeting a motion was proposed that Rex Ford VK3ARG was to be awarded Life Membership of the GARC for participation and services rendered to the GARC over the last 57 years. The vote was unanimous and passed. Rex was introduced into amateur radio by Jack VK3ALP (SK), a teacher at the Gordon Technical College, and he subsequently joined the Geelong Amateur Radio Club in 1958. Rex acquired his first license VK3ZKB in 1961 and upgraded to his present call sign VK3ARG in 1964. Over succeeding years he also became both a Scout leader and a member of the Army Reserve. When the new examinations for amateur radio licensing were introduced in 2008, he became a learning facilitator and then a WIA Assessor in 2009, a role that he still pursues energetically on behalf of the GARC.

Photo 2: Rex VK3ARG receiving his life membership award from President Lou VK3ALB.

VK3 news Amateur Radio Victoria

Jim Linton VK3PC
e *arv@amateurradio.com.au*
w *www.amateurradio.com.au*

World Digital ATV QSO Party

Marking its 5th year, this growing annual event will be held on August 21-22. The organiser and its Melbourne anchor is Peter Cossins VK3BFG, who has been busy planning for another success.

All contributions are shown through the digitised repeater VK3RTV at Mt Dandenong in the east of Melbourne, which covers the Greater Melbourne and Geelong areas.

It was the first in Australia to go 100% digital, thanks to major funding by Amateur Radio Victoria, a club grant from the WIA, and a lot of voluntary effort.

Friday night August 21 will be for VK ATV users, either directly through VK3RTV, or from outside the area of coverage including those interstate. On Saturday morning – which is Friday night in the United States – the world joins the Digital ATV QSO Party.

The first overseas session on that day is with users of the Amateur Television in Central Ohio facility, (ATCO) WR8ATV repeater, followed by the W6ATN Southern California Coordinated ATV Repeater Network Southern California. Later there will be video of ATV users using the Home Counties ATV group repeater GB5HV in Upper Hale, Surrey, United Kingdom.

US participation includes the experiences of Art WA8RMC in control at Ohio while Don KE6BXT is in charge of the W6ATN network in Southern California.

Peter VK3BFG has spent several weeks coordinating the event, liaising locally and overseas, has asked any station not in range of VK3ATV repeater, to use the Skype name of 'DATV QSO Party'.

For the World Digital ATV QSO Party, he suggests that everyone prepares one or two short videos of the shack, antennas, and projects completed or in progress.

Homebrew meetings welcome all

The Homebrew and Constructors Group meet on the first Saturday of the month. A feature is a 'Show and Tell' where anyone can bring along their latest efforts to share with the group and learn about the activity of building.

Often there are topics discussed or a speaker invited to make a presentation. All are welcome to attend at the meetings at 2 pm at the rooms, 40G Victory Boulevard, Ashburton.

A newsletter is be emailed monthly to subscribers. Want to ask a question or make a comment? Send an email to *homebrew@amateurradio.com.au*

Get your licence - training & assessments

The next class and assessment weekend for the Foundation licence will be on August 22 and 23, with enrolments now open.

These popular quality courses are held at the conveniently located and equipped office of 40G Victory Boulevard, Ashburton.

To obtain the Foundation Licence manual study and operational practice guide book by mail order visit our online shop. To enrol or learn more contact Barry Robinson VK3PV on 0428 516 001 *foundation@amateurradio.com.au*

Going portable, or working stations who do

While we have shivered in the colder winter months, some have been thinking about spring and planning for the 5th Keith Roget Memorial National Parks Award activity period.

Many National Parks in Victoria will be activated on November 15-19. For the first time it involves a free participation certificate. To qualify, operate within a VK3 National Park and make five contacts. How simple is that!

The certificate goes to those registered with the Award Manager Tony Hambling VK3VTH. The KRMNPA 2014 activity period had 34 National Parks. So far nine including French Island National Park are listec

Please read the Award Rules on the Amateur Radio Victoria website if you are going to have a portable operation, or work the parks from home. All inquiries to Tony VK3VTH at *vk3vth@amateurradio.com.au*

Silent Key

Terry Brundle VK7UK

It is with great sadness that I inform you of the passing of Terry Brundle VK7UK on the 21/6/2015.

Our deepest sympathy to his family and those that knew him.

Vale Terry.

(Tony VK7AU.)

ALARA

Christine Taylor VK5CTY – Publicity Officer

ALARA Contest

The ALARA Contest is on again. It is held over two nights and a day on 29 and 30 August. The details are elsewhere in the magazine, but in essence, we start on Saturday evening so we can use 80 m, then during the day of 30th we can use other frequencies to talk to DX ALARA members with another session on the Sunday night, again on 80 m.

The ALARA Contest is not a rush, rush contest. There is time to talk to each other. All YLs and all OMs are welcome. In fact the contest is a good opportunity to make the required contacts for an ALARA Award.

ALARA Award

You need ten contacts with YL members of ALARA from at least four call areas. There is also a DX section; this requires only five contacts from three different call areas. Contacts made within the Contest count. The certificate is an attractive one that will look good on your 'brag wall'.

Top DX entry in the CLARA Contest

This certificate has been awarded to Shirley VK5YL in this year's contest. Shirley regularly talks to the Clara girls on EchoLink but has had trouble, till now making contacts in the CLARA Contest. She was thrilled to receive the certificate in the post and we are all very pleased that her efforts have been rewarded.

7.222 Net and ANZA Net

Sadly the number of YLs on the Monday 14.222 net is falling but there are OMs around. Years ago there were quite a number of 'regulars' but not so in 2015. The 7.222 Net is followed by the ANZA net so there are more DX stations there, too. Why not have a listen at 0500 Zulu on a Monday afternoon? There are usually some OMs ready to give you a contact. Shirley has several times made contacts with South Africa, and with Beth MW0VOW in Wales.

We keep hoping the sunspot cycle will be kind to us but this cycle has been very poor.

Certificate received by Jenny.

Susan VK3UMM has become a SK

A number of the VK3 members were able to attend the service for Susan. They were given a list of her achievements to ponder. She had been deeply involved in the IT industry, both in Australia and in the US for many years. She had also produced many newsletters for these groups. It is a shame that Motor Neurone Disease cut her life so short. ALARA lost an Editor of great possibilities. She will be sadly missed by her many friends. (See SK article.)

Celebrating thirty years membership OF WARO

Jenny VK5ANW and VK3WQ was recently sent a certificate that acknowledged that she had been a member of WARO for 30 years. She must have taken on a sponsorship in WARO very soon after she passed her licence and became a member of ALARA.

Jenny will tell your how rewarding it is to undertake sponsorship of a YL in another country. If you have not already done so, contact our Sponsorship Secretary, Shirley VK5YL for anyone looking for a sponsor.

VK5 monthly luncheons

These have been pretty poorly attended until the overseas travellers returned, but in June there were ten of us. We have also been trying several different venues recently. The Casino was not satisfactory, although the food was plentiful and good. The London Tavern, which used to be a favourite, was the venue for June. The food was good and well-presented, but as we didn't realise we had to queue to make our orders, our meals were late in arriving. However this gave us more time to talk didn't it?

This coming month we will be at the Strathmore Hotel, opposite the railway station. Please do contact our State Rep Jean VK5TSX, QTHR in the *Callbook*, if you are visiting Adelaide at any time. We are always ready to have an extra lunch together and we all live in easy reach of the city.

73

Christine Taylor VK5CTY

Spotlight on **SWLing**

Robin L Harwood VK7RH
e *vk7rh@wia.org.au*

It really has been a cold, miserable winter here in Tasmania. Very low temperatures, snow, mist, fog, heavy rain squalls and then clear sunny skies with below zero frosts. It was a pleasure to finally get a heat pump installed and now I am feeling much better. Also my hearing has improved as it was discovered that there indeed was a major fault with one of my aids. That has now been rectified. Hearing tests did indicate that there has been a loss since the last occasion they were taken, so it means that I have to accept that there may not be complete aural restoration.

Highlight of June was the annual BBC World Service Midwinter Broadcast on the 21st of June between 2130 and 2200. This programme was for the British Antarctic teams trapped in ice and snow until later this year. It consisted of family greetings and requests. I was unable to hear it on my own receivers yet it was easily monitored via SDR receivers on the Net. 5985 was easily the best as it was from Wofferton in the UK but 5905 was just audible as it was from either Ascension Island or another site. Listening to it brought back memories of a similar weekly programme over Radio Australia also targeting Antarctica. It was 7 MHz and was from Lyndhurst and not Shepparton. I think it was on a Friday night around 8 pm locally. I think it ended in the early 60s.

I am now waiting on the annual SAQ broadcast on the 28th of June. It is from a 20 kW alternator which has been listed by UNESCO as a heritage item. It is down on 17 kHz on CW.

Serbia indeed has left shortwave despite protests. Smaller broadcasting outlets are now being heard after the departure of these major outlets. I have noted that monitors are hearing stations such as Zanzibar on 11735 in Kiswahili and English. Guyana is very rarely heard but monitors in the Americas say it can pop up around 0800 on 3290 in English. Guyana apparently relays the BBC overnight and signs on with local programming around that time.

The Voice of Greece has returned to the airwaves after many years absence due to the network being closed down by the previous government. The shortwave transmitters continued operating and relayed rebel networks. Apparently the new government reinstated the former network and its employees and came back on-air with much fanfare. It is easily heard on 9420 practically around the clock.

China Radio International is loudly coming in on 17510 at 0500. It is in English and from Kashi in far western China and is being beamed to the Middle East and South Asia. The same programme is on 15465 from the same site yet it is not at the same strength.

Glad to be fully back monitoring and hope that conditions will improve.

73 de VK7RH

VHF/UHF - An Expanding World

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

On the morning of June 26th, a high-pressure zone over southern NSW produced some good propagation. Peter VK5PJ in the Barossa had several good contacts into VK1 and VK2. At 2050Z, he was hearing the VK2RSY beacon at 5x1 and had several contacts on 2 m, the best being 1206 km to Steve VK2ZT north of Newcastle with a 5x7 report. On 70 cm, they again worked, this time with a 5x1 report. On 23 cm, Peter managed to work Rob VK1KW in Canberra over a difficult 916 km path with rolling QSB and a best report of 4x1.

Photo 1: Damian VK3KQ assembling antennas.

New World Records

The path from California to Hawaii is somewhat like the path across the Bight, although nearly twice as far at over 4000 km. When conditions are right and a high-pressure cell settles in just the right spot, good tropo contacts are possible. The path has been worked numerous times on the lower VHF bands but contacts in the microwave region have been very elusive.

On June 19th, Wayne N6NB and Gregory W6IT set new world distance records on the 2.3 and 3.4 GHz bands. Wayne, operating from a radio-equipped rental car in Hawaii, worked Gregory who was operating Wayne's home station near Orange, California - a distance of more than 4024 km. The contacts broke records that had stood for more than 20 years and more than doubled the previous distance record for a two-way SSB contact on those bands.

Wayne flew to Hawaii carrying 70 kg of gear for all bands from 144 MHz through 10 GHz. In Hawaii, he rented a small SUV and built a rover-style station that included a rotating roof platform using parts from a local hardware store.

Winter VHF/UHF Field Day

Despite the confusion of two different sets of rules, compounded by an error in the published start and end times (normally 12 noon), a number of hardy souls braved the conditions and went out for the Field Day, some even staying out for the full 24 hours.

A new innovation introduced is Contest Radar (*www.contestradar.com*) where stations participating in the contest can publish their location and see on Google Maps where other stations are located.

The VK3KQ/p group (Damian VK3KQ, Ralph VK3LL and Mike VK3RZ) spent the weekend on McLaughlin's Lookout near Blackwood. Temperatures on the Saturday ranged from a top of 5 degrees diving to 3 below zero overnight. A 1300 W heater was left running full time, necessitating a visit to the local town on Sunday morning for extra fuel for the generators.

They reported a good level of local activity in VK3 - and a few other portable stations. Overall, they worked stations in VK1, VK2, VK3, VK4, VK5 and VK7 (mostly on 6/2/70) and a number of stations on the higher bands as well.

Peter VK4EA had a warmer time of it. He reports:

I selected Moreton Island as it combines a few of my favourite things, camping, radio and good weather. For those outside of SE VK4, Moreton Island is a sand island with minimal infrastructure consisting largely of National Park. There are no formed roads accessible only by boat, 4WD essential. We normally camp on the Western shore of the island which has a good view to the west toward the Brisbane CBD and all of the high

points normally utilised by the local microwave fraternity. Unfortunately microwave activity was very light this time. Our local beacons were found and peaked soon after setting up on the Friday afternoon, although some ropes were needed as always in our part of the world at this time of the year, the westerly winds picked up cooling things down considerably. For note VK3s: it never got below 6 degrees at night, and warmed up nicely to about 20 degrees with clear skies throughout the weekend.

I went to considerable effort to have all bands, sacrificing a few things, except for beer (and wine for the second operator - XYL, VK4JNC). Doug VK4OE kindly lent me a 47 GHz transverter.

- 6 metres consisted of the FT-817 with a horizontally mounted mobile whip

- 2 metres, 70 cm: IC-970 with an Elk log periodic

- 23 cm: IC-970 with an 8 element Yagi

- 13 cm: IC-970 - grid pack

- 9 cm: VK3XDK and patch antenna

- 6 cm: DB6NT, 600 mm dish

- 3 cm: DB6NT, 600 mm dish

- 1.25 cm: DB6NT, 600 mm dish (sharp!)

- 6.5 mm: VK4OE, 300 mm dish

Activity all during the contest was slow, and I recognise my antenna department was quite compromised so I may not have heard anybody. Having said that I was pleasantly surprised who I could work on low power and small antennas. Best excitement was a small opening on 6 m - who would have thought 5 W into a mobile whip would work into VK5 and VK3? .... an exceptional moment with very strong signals heard from VK5BC and VK3PP.

A couple of nice 10 GHz contacts with Geoff VK4KJJ/P, located at Clear Mountain confirmed the 10 GHz gear was working well.

My contacts to VK4WS/P on 23 cm and to VK4IF (Eden's Landing) on 5.7 and 10 GHz made the effort worthwhile.

Photo 2: Rex VK4REX's setup at Howells Knob.

Keeping the best for last, Sunday morning the 24 GHz gear got a workout to Kevin VK4UH at home, extending our best to 54 km. Similar good results with Rex VK4REX at Howell's Knob. Rex and I tried 47 GHz next, and while I was able to copy him S9+, I was unable to work out the VK4OE gizmos to TX, not completing the contact.

I'm not sure if I will go to the effort of going to Moreton Island for a contest again, unless I am sure more people will be out and about next time. Not that I was too stressed, wonderful weather..... VK3s listening?

Andrew VK1DA used the opportunity for both the Field Day and SOTA. He reports:

This operation was intended to give me more contacts for the 6/10 m challenge while qualifying as an entry in the VHF/UHF Field Day.

Unfortunately I did not pack the 3 el beam for 2 m and a third length of coaxial cable. This limited my 2 m antenna options and the range I could achieve.

Radio wise I was in a good position at the "Katoomba" Lookout on Mt Alexandra, just north of Mittagong, south west of Sydney. I could hear and work anyone others were working in the Sydney basin and also could work Geoff VK2UL in Yass and Gerard VK2IO who was on various summits in the Blue Mountains north of me. One north Sydney station could be worked easily on 2 m and 70 cm but while I could hear him well on 6 m, he was unable to hear me and gave the (SSB) contact away.

In a surprise Es contact on 6 m, I did work VK5KV who was s9 on peaks.

Another station called CQ frequently on 6 m and was replied to by several others closer to him, but he appeared to receive only very strong signals. He called CQ many times on 6 m but never seemed to understand something was wrong. I wondered whether his receiver was faulty or perhaps his antenna system had high losses.

After making about 20 contacts, I moved to Mt Gibraltar. Another operator, VK2VOM, had been working there but had generator problems and was closing down. I was on the air at Mt Gibraltar by 4:30 pm but by then all the other portable stations except for Gerard

VK2IO had closed down. After spending 2 hours there and working Gerard on 6 and 2 m and making very marginal contacts with Geoff VK2UL on 6 and 2, I was too cold to continue as it was around 2 C and I decided to leave even though I had not made enough contacts to qualify the summit for SOTA purposes.

Very disappointed in the low level of activity for the VHF contest.

My gear was an FT-817 at 5 W running on a LiPo 3S and a LiFePO4 4S battery. At Mt Gibraltar, I added an HL66v amplifier for 6 m which should have raised my output power to about 30 W. Antennas used were a wire dipole for 6 m and a quarter wave vertical for 2 m. Most of the 2m contacts were actually made using the 6 m dipole.

The operating position using a picnic table kindly provided by council, FT-817 radio, iPhone, ATU (not used), log book, Morse paddle, boxes used to carry the bits in my backpack. No car access here, so you carry the lot.

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

Digital DX Modes

Rex Moncur VK7MO

Further update on WSJT-X

Since last month's report most of the JT4 bugs have been fixed and a major addition has been an EME echo mode which uses automatic Doppler correction. It is still a struggle with a small 77 cm dish on 10 GHz to get your own echoes as compared to a dish double the diameter (around 1.5 metres) you lose 6 dB both ways and are thus 12 dB down. Nevertheless when spreading was low (around 20 to 30 Hz) I was able to use the new version to average over around 165

Photo 3: VK1DA operating position.

echoes and see my own echoes as in Figure 1.

The bugs have been resolved with JT4 and r5604 can be downloaded below that includes JT4, echo mode and WSPR as well as JT9 and JT65a for HF.

http://www.sucklingfamily.free-online.co.uk/wsjtx5604.exe

While JT65b and JT65c are included in the above version, these still need more work as these sub-modes are well down on performance. There are a number of enhancements we have submitted to Joe K1JT to improve microwave operation including variable bin-width decoding for JT65 with sub-modes up to JT65d (22 Hz tone spacing) that is expected to improve performance over JT4 on tropo-ducting as well as the lower microwave bands for EME. The JT65d (and possibly JT65e for those with wide passband SDR transceivers) sub-modes should also give a useful improvement over

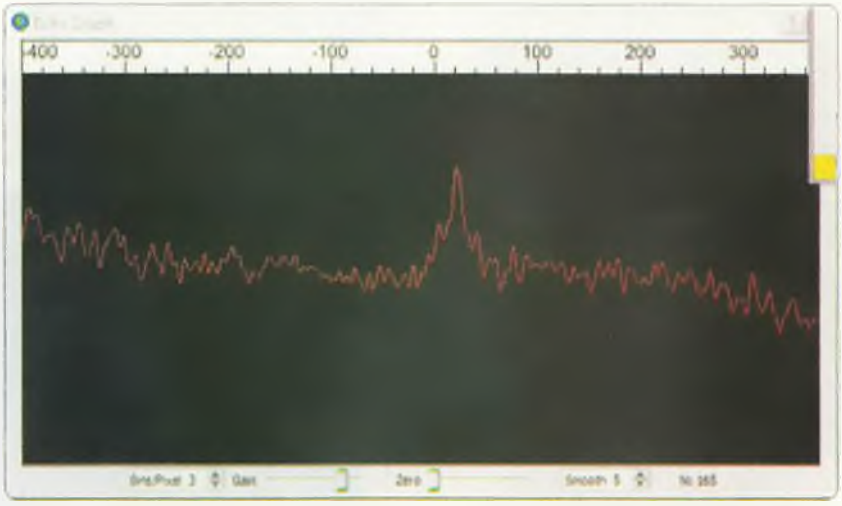


Figure 1: Echoes received by VK7MO on 10 GHz with a 77 cm dish and 50 watts averaged of 165 echoes.

JT4 on 10 GHz for small station to small station EME at times of low spreading.

The WSPR specialists are experimenting with a two pass version that goes back and repeats the decoding with the original decoded tones deleted. This is showing promise for finding signals buried below others.

ISCAT in WSJT10

A correction has been made to the ISCAT mode in WSJT10 which tended to produce errors when receiving RRR (such as RRT or RRS). This program is primarily designed for 6 metre meteor scatter but we have used it very successfully on 10 and 24 GHz for aircraft scatter. The new version, r5634, now displays all decoded information in each burst and leaves it to the operator to select the decoded message while in previous versions the program made the decision – and not always correctly. At this stage it is necessary to build this version yourself from the source codes but hopefully I will be able to provide a URL to download it by next month.

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

Meteor Scatter

Dr Kevin Johnston VK4UH

June has been a very interesting month with a number of new experiments being tried during a predictably quiet period.

As has been discussed in several previous articles both the intensity and duration of meteor returns normally increases as we move down the frequency bands towards longer wave-lengths. On 50 MHz for example meteor scatter burns lasting for tens of seconds, sufficient to complete an SSB contact, may have corresponding 144 MHz pings, from the same meteor and along the same path, of only a few a few tens of msec. Likewise large meteors producing massive burns on 144 MHz may support propagation right up to 432 MHz if only for very brief pings. But what happens on frequencies below 50 MHz? At what point does this relationship stop holding true? There are commercial data retrieval systems utilising Meteor Scatter propagation from distant unmanned radio sites using low powered transmitters in spectrum around 40 MHz, where there is no amateur allocation. From my reading this is probably close to the optimum. The propagation mode does not however stop there.

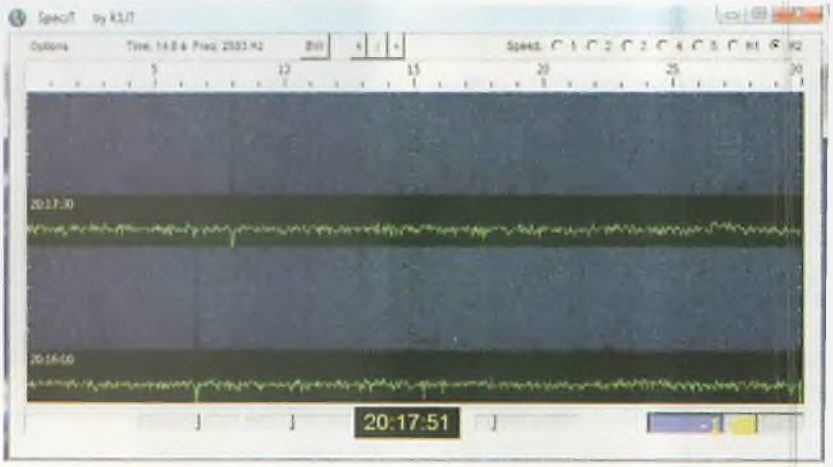
On 16th June, a day when there was a typical winter level of random meteor returns on 144 MHz, Waldis VK1WJ (QF44mt) and I VK4UH (QG62kp) conducted a short series of early morning tests looking for evidence of Meteor Scatter propagation at 28 MHz. Running only modest power and a variety of omnidirectional (zero gain) antennas (dipoles and verticals) while running FSK441 mode contacts were attempted over the 943 km path. Only one decodable ping was detected at the Brisbane end during the entire one hour test. Nothing was received at the Canberra end.

The single ping shown above was of 2 sec duration occurring at 26.5 seconds into the upper 30 second period and was barely 1 dB above noise floor. With the eye of faith, the four tone lines can just be seen in the recording (Figure 2.) with the smallest of rises in the green signal strength line. This is however evidence that meteor scatter propagation does occur at 28 MHz, even though the contact was not completed during the test period. More tests are planned for the future, using gain antennas and also, if successful, on the next amateur band down, that being at 24 MHz.

Also in June was a prolonged period of enhanced meteor scatter propagation related to the Arietids Meteor Shower. This shower, named after the constellation of Aries, is unusual in that it is a daytime shower. The source of the meteors, the parent body, has never been properly identified. The Zenith Hourly Rate may exceed 60/hr. and the peak of activity can be very wide but probably peaking around the 7th June. I have to admit that the Arietids shower was not even on my "radar" - in truth I have not previously heard anything about it. It will be on my watch list for next year however.

Meteor Scatter contacts between VK and ZL are neither unusual nor uncommon. Indeed, there is a regular activity session devoted to this activity running on Saturday mornings on 144.330 MHz, the secondary MS frequency, usually finishing before the normal weekend MS activity session on 144.230 MHz. MS contacts are

Figure 2: Single 28 MHz meteor ping June 2015 received from VK1WJ by VK4UH.



common between VK1, VK2, VK3, and ZL stations on 2 m on most weekends. MS contacts between VK4 and ZL are, however, very uncommon as the distances involved even from the SE of VK4 to the main population centres on the ZL North Island are approaching the theoretical limit for Meteor Scatter propagation, that being around 2300 km. Meteor Scatter contacts on 50 MHz between the two countries, even though theoretically easier, have been even rarer as historically there has been very little FSK441 activity on that band on the ZL side of the Tasman. I did report back in January 2014 a series of successful 2 m MS tests conducted with Steve ZL1TPH/p at Cape Reinga (RF65jm) on the very northern most tip of North Island to this QTH in Brisbane. Several MS QSO's were completed over a distance of 2110 km. On all occasions however, even though Meteor Scatter was clearly the propagation mode involved, there was strong evidence from the Hepburn charts of the likelihood of tropo enhancement at one or both ends of the path. For the last few months a thread has been running on the VK-Logger/ Forum attempting to stimulate interest in running a similar series of 50 MHz MS tests between VK4 and ZL. This came to fruition on 27 June with some partial success between Scott VK4CZ (Brisbane - QG62lp) and Bob ZL1RS (Bay of Islands - RF64vs) on 50.230 FSK441 over a distance of 2169km, on a day with minimal possibility of any tropo enhancement.

Four pings were received and three successfully decoded by Bob ZL1RS who unfortunately was receive only, unable to transmit due to a faulty feeder on that day. No completion was possible; however clear evidence that the path is possible. Mark ZL2WHO (Palmerston North-RE79tp) and Peter ZL4LV (Dunedin-RE54ec) also took part in the tests, both at just over 2500 km but neither received any signals on that day. More tests are planned.

Finally this month, in the March MS report I mentioned the release of MSHV, a new software application for meteor Scatter operation, developed by Christo LZ2HV (MSHV Beta Ver. 0.86) available at *http://www.lz2hv.host.sk* Ron VK4CRO has also tried out the program and reported: *"I tried the program briefly this weekend and on Saturday I very quickly contacted VK3 but then had to go QRT. For the initial use of a program and setup I give it 10/10. I need to do a save and a few more touches but looks good. On Sunday I copied VK5PJ and completed in four periods, so thumbs up for MSHV from me."* As I wrote earlier: *"My first impressions of MSHV are favourable. The software is easy to use and the User Screen is appealing. The pre-populated Tx windows are however set up for European / US operating formats but can be easily changed to the usual VK/ZL format without trouble. The ST (Short Text) format is not however supported in this beta version."* As I mentioned at the time this is only a β-release and the author Christo LZ2HV is very amenable to suggested changes and feedback.

The next Major Meteor showers for the diary are the Delta Aquarids around 31st July, a Class 1 Major shower but with a predicted ZHR of only 16/hr generally not a big event and then the Perseids around 13th August with a predicted ZHR of up to 100/hr.

Please send any reports, questions or enquiries about Meteor Scatter in general or the digital modes used to Kevin VK4UH at *vk4uh@wia.org.au*

Silent Key

Susan Coleman VK3UMM

Susan Mary Coleman passed away peacefully after a long and intense battle with Motor Neurone Disease.

Susan was born in Sydney and was a self-confessed 'nerd' at school. After being dux at Moorefield Girl's High and a Queen's Guide, she went on to study Physics and Maths at the University of Sydney.

Susan has worked in the IT field both in Australia and the USA, then as a journalist and managing editor of computer magazines and had a strong interest in fighting for greenies and Australian Companies, taking on any cause that she felt needed her assistance.

Susan enjoyed being with her family, singing, long walks, meeting with friends, celebrating birthdays and cooking for family, friends and business associates. Eventually, Susan became an enthusiastic member of the Gippsland Gate Radio Club and ALARA and gained her Advanced amateur radio licence in 2010. She was Editor of both Clubs' magazines and a regular at VK3 ALARA lunches.

Daughter of Jack and Enid Catto, Sister of Jennifer, Bruce and Nicole, Wife of Grahame, Mother of Rachel and Bronwen, Granny to Callan and Austin, Aunty to many.

Susan will be deeply missed and never to be forgotten by all who knew her.

"Feel the fear and do it anyway!"

Compiled from Herald Sun Tribute and from Grahame Coleman's VK3XK obituary notice and notes from ALARA historian Jenny Wardrop VK3WQ

Kaye Wright VK3FKDW
Editor ALARA Newsletter

Contests

James Fleming VK4TJF/K8UP
e *vk4tjf@wia.org.au*

Contest Calendar for August 2015 - September 2015

Month	Date	Starts at	Spans	Name	Mode
August	1st	0000 UTC	24 hours	TARA Grid Dip Shindig contest	RTTY/PSK63
	1st - 2nd	0001 UTC	48 hours	10-10 International Summer contest	SSB
	8th - 9th	0000 UTC	48 hours	Worked All Europe contest	CW
	15th - 16th	**0300 UTC**	**24 hours**	**Remembrance Day contest**	**CW/Phone/RTTY/ Mixed**
	29th - 30th	**0400 UTC**	**20 hours**	**ALARA contest (10 hours each day)**	**CW/SSB**
September	5th - 6th	0000 UTC	48 hours	All Asian DX contest	SSB
	12th - 13th	0000 UTC	48 hours	Worked All Europe DX contest	SSB
	19th - 20th	1200 UTC	24 hours	Scandanavian Activity contest	CW
	26th - 27th	0000 UTC	48 hours	CQ WW DX contest	RTTY

Where has the year gone? It is already the cold month of August and we are getting ready for that very quirky Aussie contest.

Yes you guessed it, the **Remembrance Day Contest**. In this contest the aim is to contact only VK ZL and P2 stations. *What? No DX?* I hear you saying, yes that is correct strictly no DX. The dates are starting at Saturday 15th August 0300 UTC and ending at 0259 UTC on Sunday 16th of August, so 24 hours long.

Entry categories are single operator, and single operator QRP, Multi op single transmitter, and multi-multi.

Modes for single operators are phone (AM, FM, SSB), CW (CW and RTTY), and mixed. Bands available are all except for the WARC bands.

You can even compete as teams of three operators without even being together. In the first example a station and two of their friends operate in the contest from their respective home QTH and participate in the contest and submit their logs in the normal manner. They are eligible for any awards in the category they entered as single operators. The contest manager was notified that these three stations want to form a team. Their scores are tallied together and that is the team score. A second example is when a multi-single club has two operators who wish to work from their home QTH. The two single operators and the multi-single club contest and submit logs in the normal manner. They are eligible for any awards in the category they entered. The contest manager was notified that these three stations want to form a team. The two single operators and the club multi-single stations scores are tallied together and that is the team score. The exchange is RST plus the number of years that you have been a licensed amateur radio operator.

There is also a section for those using WW2 ex-military equipment.

Just to spice things up you can work everyone again every three hours. Scoring is fairly simple, 160 metres and 23 cm and above contacts is 2 points per contact and all other bands are 1 point. Triple your score for contacts between 0100 and 0600 local time. Also double points for working CW. I suppose if you wanted to make the most of it you would work CW on 160 metres in the early morning hours. This would get you 12 points per contact. The logging program to go with is the VKCL logging program. So, with all these rules how is it best to compete in a contest like this? Well if you only wanted to do HF I suggest doing CW only; this I think would eliminate the VHF and UHF bands, as I have not heard of many doing CW or RTTY on these bands. It also makes sense to use either full legal power or QRP. QRP should be fun for setting up portable in the bush. Thus if I was going out bush I would do CW on a doublet and QRP, this I think would be real fun. Or perhaps sit at home with a Doublet and my 100 watts, I think that might be enough to get me around Australia and work 80, 40, and 20 metres. Then perhaps team up with one of the guys in my radio club who is keen to do some VHF and UHF. This promises to be a real good weekend for radio.

The next contest is the **35th ALARA Contest** on the 29th and 30th of August. The object here is to contact as many YLs as possible and for YLs to use amateur radio. Complete details are listed in this magazine.

NOTE: **EXTRA POINTS:** As ALARA will be 40 years old this July, you will be able to gain a total of 40 extra points if you can contact Jenny VK5JAY and Lesley VK5LOL on both 80 m and 40 m (10 points per contac to a maximum of 40). They have both been members of ALARA for 10 years

Submit logs to:
Contest Manager: Mrs Lesley Smi VK5LOL
4 Perry Barr Road
Hallett Cove SA 5158
Australia or: *alaracontest@wia.org*

Also look for the Flagpole Contest details for a fun event in mid-September.

73,
James Fleming.

35th ALARA Contest 2015

Lesley Smit VK5LOL

Note: Contest is always on the last FULL weekend of August

Eligibility: All licensed operators throughout the world are invited to participate.

Object: To encourage YLs in the use of amateur radio. YLs work everyone; OMs work YLs only.

Contest: Combined phone and CW run over two 10 hour time slots:

Saturday 29th August 2015 - 0400 hours UTC to 1359 hours UTC

Sunday 30th August 2015 - 0400 hours UTC to 1359 hours UTC

Suggested Frequencies: Bands to be used are 3.5, 7 and 14 MHz only.

The following are suggested frequencies for easier location of contacts:

3.560 to 3.590
7.070 to 7.100
14.250 to 14.280

Contacts made on EchoLink and two metres will also be accepted (Separate logs for these would be preferred).

Operation: Single operator only (1 operator per call sign).

NB If YL is operating as a 2nd operator, her husband/partner CANNOT participate in the contest.

Every individual phone or CW contact may be counted.

There must be an interval of greater than 1 hour between contacts with any one station on any one band and in the same mode.

All contacts must be made in accordance with operator and station licence regulations.

Procedure
Phone: Call "CQ ALARA contest"
CW: YLs call "CQ test ALARA"
OMs call "CQ YL"

Exchanges: ALARA member: RS or RST, serial no. starting at 001, ALARA member, name.

YL non-member, OM: RS or RST, serial no. starting at 001, name and whether YL or OM.

OMs work YLs only
SCORING: Phone:
5 points for ALARA member logged
4 points for YL non-member logged
3 points for OM logged
CW: All contacts made on CW count for double points
OM:
5 points for ALARA member logged
4 points for YL non-member logged

Logs: Single log entry. Logs must show date, UTC time, band, mode, call sign worked, report and serial number sent, report and serial number received, name of operator of station worked and points claimed.

Paper logs and electronic logs both welcome.

Logs must be signed. Logs also to show full name, call sign and address of operator, and show final score (points claimed). Logs must be legible. No logs will be returned. Decision of the Contest Manager will be final, and no correspondence will be entered into.

Logs must be received by the Contest Manager by **30th September, 2015**

Contest Manager:
Mrs Lesley Smit VK5LOL
4 Perry Barr Road
Hallett Cove SA 5158
AUSTRALIA
or: *alaracontest@wia.org.au*

Certificates will be awarded for the following:

Top score YL overall

Top score YL phone only

Top score YL Echo link

Top score Australian YL CW

Top score DX YL CW

Top score DX YL

Top score ALARA member in each country & VK call area

Top score OM in each continent & VK call area

Top score VK YL Foundation Licence holder

A **trophy** will be awarded for the following:

Top scoring Australian YL

Top scoring Foundation Licence ALARA member

The top scoring VK non-ALARA member will be awarded 1 year's subscriber membership to ALARA.

Please Note: This contest is always held on the last complete weekend of August.

Extra Points: As ALARA will be 40 years old this July, you will be able to gain a total of 40 extra points if you can contact Jenny VK5JAY and Lesley VK5LOL on both 80 m and 40 m (10 points per contact to a maximum of 40). They have both been members of ALARA for 10 years.

73
Lesley Smit VK5LOL

Flagpole Contest

Richard Murnane VK2SKY

Manly-Warringah Radio Society

The 3rd annual Flagpole Contest, organised by the Manly-Warringah Radio Society in Sydney, takes place on 19 September, from 0000 to 2359 UTC. Go portable with a flagpole as part of your antenna system (optional).

Bonus points for talking like a pirate during the QSO, more for dressing up like a pirate, or hoisting the Skull and Crossbones (or any humorous flag) on your flagpole. Photographic proof to be submitted either via email or to the club station VK2MB on 20 metre SSTV, on 14.31415 Megahertz (the unofficial "pi rat" frequency.)

As you've probably guessed, this is not a contest for taking things seriously; this is a contest for getting on air and having fun!

Contest rules, and details of previous contests at *http://www.mwrs.org.au/?s=flagpole*

Some background; borrowed from last year's announcement on WIA National News. Probably too long for the magazine, but you might find it interesting:

Two years ago, one of our club members identified a source of modestly priced collapsible eight metre flagpoles. We figured that these would be ideal for portable radio operations, so the club organised a bulk purchase.

Our next bright idea was that, seeing how many of us now had an excuse for operating portable, we should make an event out of it. And so, in the blink of an eye, the Manly-Warringah Radio Society Flagpole Contest was born.

The rules were fairly simple: go portable with an antenna on your flagpole, and contact other amateurs who have done the same.

As it happened, the date we chose for the contest coincided with International Talk Like a Pirate Day, so a new contest rule was added: bonus points for talking like a pirate during the QSO.

Now, let me make it clear that the Manly-Warringah Radio Society does not approve of piracy, be it on the air, at sea, or on the internet. But we reckon that talking like a pirate is fine, at least for this special occasion.

You can also earn bonus points for dressing up like a pirate, or hoisting the Skull and Crossbones (or any humorous flag) on your flagpole. Photographic proof to be submitted either via email or to the club station VK2MB on 20 metre SSTV, on 14 decimal 31415 Megahertz (the unofficial "pi rat" frequency.)

Last year we had entrants from VK2, VK3, and VK4. We're hoping to spread the "piracy" further afield this year, so get on the air, join in, and have some fun!

The contest takes place on 19 September, from 0000 to 2359 UTC, or 10 am AEST on the Saturday to 10 am Sunday.

73

AMSAT-VK

AMSAT Co-ordinator
Paul Paradigm VK2TXT
email: *coordinator@amsat-vk.org*

Group Moderator
Judy Williams VK2TJU
email: *secretary@amsat-vk.org*

Website:
www.amsat-vk.org

Group site:
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 2nd Tuesday of each month at 6.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. Check-in starts 10 minutes prior to the start time. 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
VK2RBM Blue Mountains repeater on 147.050 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 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278,
EchoLink node 399996

In Tasmania
VK7RTV Gawler 6 metre repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 metre 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 or VK3JED conferences. Past experience has shown that the VK3JED server offers clearer audio. 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. Currently only SO-50 is available.

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.

SOTA News

llen Harvie VK3HRA

ioto 1: Brett VK4FTWO in Littabella National Park.

K4

ıve K4DD became VK4's first ɔth. In true sloth form, it's taken o years to get there. That may em a bit slow, but with the ajority of the weekend activity ing on 40 m around the South st corner of VK, not a lot of those gnals get as far as Brisbane at at time of day. Dave VK4DD is ıo top of the activators list for :4 but SOTA activity is still a slow. Recently there are a few w callsigns appearing in the :4 Activator and Chaser stats ges of the database. Thanks ıst go to those activators (Phil :2JDL, Gerard VK2IO and Andrew .1NAM) that ventured out to West d Central VK2 and further North ɔwing Dave to achieve Slothdom.

Sunday 29th June Brett 4FTWO and Dan VK4OH activated Littabella National Park, VKFF-290. After selecting a high vantage point within the park, they set to calling CQ with Brett operating on 40 m and Dan on 20 and 10, with Brett making a total of 65 contacts including a number of Park to Parks and Dan struggling to make a handful of DX contacts due to poor conditions and a lot of big US Field Day stations on the bands.

HL and VK

There has been a steady stream of VK activations of Ansan HL/SL-008 in Korea by VK activators. Two separate operators Andrew (VK3ARR) HL1ZIH and Glenn (VK3YY) HL1ZIB have escaped winter to experience temperatures around 30 degrees with high humidity. A real change from current VK activations! Ansan is a relatively small mountain at 296 m, and in comfortable reach of Seoul - an absolute target for activators visiting Seoul.

Glenn (VK3YY) HL1ZIB deployed a FT-817ND with small 25 watt amplifier on 15 metres feeding an almost vertical end fed half wave. After a couple of practice runs Glenn qualified the summit with VK contacts: VK4AAC, VK2IO, VK3PF, VK6NU and VK3FQSO.

https://vk3yy.wordpress.com/2015/06/29/ansan-hlsl-008-seoul-revisited/

Andrew (VK3ARR) HL1ZIH deployed a Buddistick vertical for 10 m, using an ATU instead of the supplied coil, and the FT-857, set at around 50 W. After calling CQ for a while, he was faced with silence. This was a bit disconcerting for Andrew

after a recent WWFF activation of Jimbasan-Takaosan in Japan, where silence ruled, but finally there was a low down VK station. As the QSB took the signal higher and it was revealed to be Tony VK3CAT. They then attempted to confirm the contact but eventually had to give up and wait until conditions improved. Glenn VK3YY then came up and confirmed a contact with 21 reports both ways. As Glenn had activated Ansan earlier, this gave him a SOTA Complete. The band opened up during the QSO with Glenn, and Tony was able to come back and complete his contact. Shortly afterwards, Ron VK3AFW gave Andrew three VK contacts from the summit. There was suddenly a distinct chance of Andrew being able to qualifying the summit with VKs, however conditions were not to stay. The summit was qualified with local contact HL1SB.

https://vk3arr.wordpress.com/2015/05/10/seoul-summits-hl5l-008-and-hl5l-006/

Pixies on Summits

John VK2YW attempted something new – an activation on CW only with a Pixie 40 m transceiver. He made a total of 6 contacts with it to VK2, VK3 and VK7, thereby qualifying the summit on CW. He then went on to work the rest of the Chaser crowd on SSB with the FT-817.

The Pixie is a small, light and cheap transceiver with a fixed Tx frequency of 7.023 MHz and a rated output of 0.8 W, using a 9 V PP style battery. You can purchase a kit from China for under $10 for the base kit. Case, speaker and a key are up to your ingenuity.

John is looking forward to doing it again with a keyer and is considering possibly adding VFOs to the Pixie. Ultimately the intent is to carry the station in a couple of pockets and hike to the top of a summit for activations.

A SOTA amateur lost

The VK SOTA community recently lost one of its members: Ian VK3TCX passed away unexpectedly at home in late June. Ian was an active Chaser and Activator, based in Bruthen in East Gippsland. He will be missed by many amateurs. Vale Ian VK3TCX.

73

Allen Harvie VK3HRA

Photo 2: John VK2YW qualifying Wagra Mountain VK2/RI-003 using a Pixie transceiver.

Over to you

OTY Contest behaviour

Louis Szondy VK5EEE

Dear Peter,

I've not yet joined WIA for financial reasons given a whack of $75 ACMA to apply for my licence (not yet VK5EEE) and other bills, but will certainly be joining WIA soon taking advantage of the quarterly pension option, not available to ACMA. On that note, in G-land where I'm licensed, there are NO annual fees, self-report updates online, and only a first-issue charge of GPB20 ($40).

Meanwhile, thanks to VK5FWIN OM Wayne I have a stack of *Amateur Radio* magazines to read through while awaiting my licence and I'm working my way forward from the October 2014 issue.

I am a great supporter of and past participant in contests: I believe these activate our frequency bands and show how many amateur radio stations there really are. Contests also encourage operator endurance, perseverance and pushing antennas and efficiency to its limits.

If we had more active contesters in Australia perhaps we'd not have a height restriction of 10 m for antennas.

Having said that, I believe it is high time for clubs and national societies to take action concerning the behaviour of contestants, who otherwise are operating within the limits of their licences but not within the spirit of amateur radio. I single out a few points that are of concern to many:

1. The contest rules should stipulate avoiding established international QRP frequencies such as 14060 kHz plus/minus 1 kHz. This is because these stations are low power, often crystal controlled or limited in frequency, and their entire weekend is ruined by (as of today) EA8/RA1A running high power and beams calling CQ TEST. Those running high power should always have respect for the low power operation which stimulates the best in amateur radio: getting the most out of each watt, saving power, antenna efficiency, operator skill, and very often home brew equipment.

Which stations will be on air in the event of a major catastrophe? Not the 1 kW 3-ele Cubical Quad stations running off the mains. Those masts will be down and no power. Thus, QRP stations probably constitute the backbone of communications in the event of disaster and thus this aspect of the Amateur Radio service should be encouraged, not discouraged.

Further, putting into the contest rules to avoid 14060 kHz plus/minus 2 kHz will bring more awareness to QRP and its importance, as well as solve the above problem. This brings me to point 2.

2. The contest rules should stipulate avoiding the IARU Emergency frequencies in each region, e.g. 7090-7130 in Region 1 & 3, 7270-7310 in Region 2, and especially worldwide emergency bands 14280-14320 and 21340-21380. If they don't wish to reserve the recommended 20 kHz either side of the Emergency Centre of Activity frequencies, then they should reserve at least 10 kHz, but also bear in mind avoiding the QRP frequencies of 14285 etc. Note that this QRP frequency is also inside the IARU Emergency communications band.

The reason for this is that, if for example a Tsunami or severe earthquake should hit a populated region on a weekend, there would be no way that emergency communications would be able to compete with the QRM, and there are not so many stations capable either due to radio equipment or antenna, to operate on WARC bands. Emergencies don't choose operating class licences.

I thus would like to see the WIA, other national societies with large membership, QRP and other clubs looking at some of these concerns and not only the poor operating behaviour of a minority of contesters forcing non-contesters to give them a point. These concerns should be agreed upon and communicated to the contest organisers, so that certain issues are contained within the rules. As you rightly pointed out, certain behaviour should qualify for disqualification.

I note today's WPX contest on 20 m is occupying everywhere from 14000 to 14091 kHz, and likely the same happens on SSB covering the entire band and even the well-established emergency centres of activity frequency of 14300 plus/minus 20 kHz.

In my personal opinion, the giving of 5NN or 59 for EVERY contact in a contest is also NOT in the spirit of ham radio: experimentation requires accurate reports. It is not even in the basic realms of honesty and decency. Since MOST contests now allow and use 5NN for every single contact, they should do away with the 5NN as it is NOT a signal report. This again only encourages dishonesty. I hope that is a station receives a report of 469 034 from me in a contest and my log is used as a check log, the other station getting it wrong would lose a point.

73 and look forward to reading more from you,

Lou VK5EEE, ex ST2/G4OJW, ST2AA.

Filter designs for application in the 2 m amateur band

Dale Hughes VK1DSH

This article describes three type of filters constructed for two applications in the 2 m amateur band. The first application was to solve a receiver overload problem and the second application was a transmitter output low pass filter.

Application 1 – solving receiver overload

Modern hand-held transceivers are a technological wonder with so many features packed into a tiny volume. For a relatively small amount of money you get a lot of radio, but with some inevitable compromises.... When recently using a small 2 m handheld in central Canberra, I found that it didn't work well due to the presence of strong VHF TV broadcast signals from the Black Mountain transmission[1] site which meant that the transceiver was basically useless in that area. It appeared a filter was required to prevent the receiver 'front end' from being overloaded by the TV signals.

Two filter designs were tried:

- A pair of coupled tuned circuits inside a metal box[2] (see Figures 1 and 2)
- A pair of capacitance coupled low-pass filters[3] (see Figures 3 and 4)

Both filters solved the overload problem and meant that the radio could be used in the area I wanted; though filter 1 was superior in terms of interference rejection it was physically much bigger and less convenient. Filter 2 was much smaller and did not significantly impact upon the physical size and convenience of the hand-held radio.

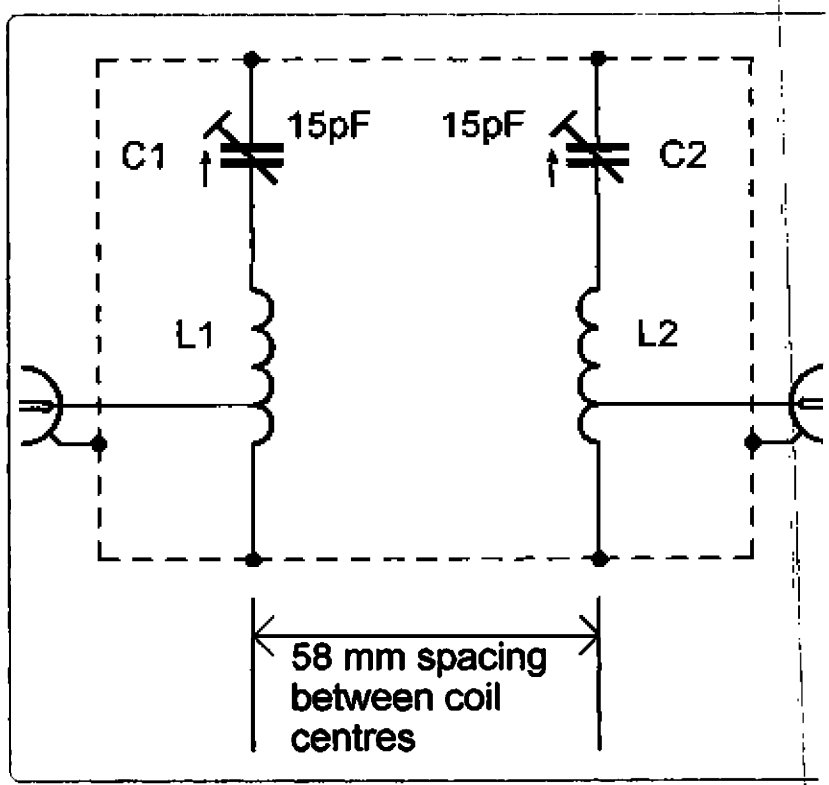


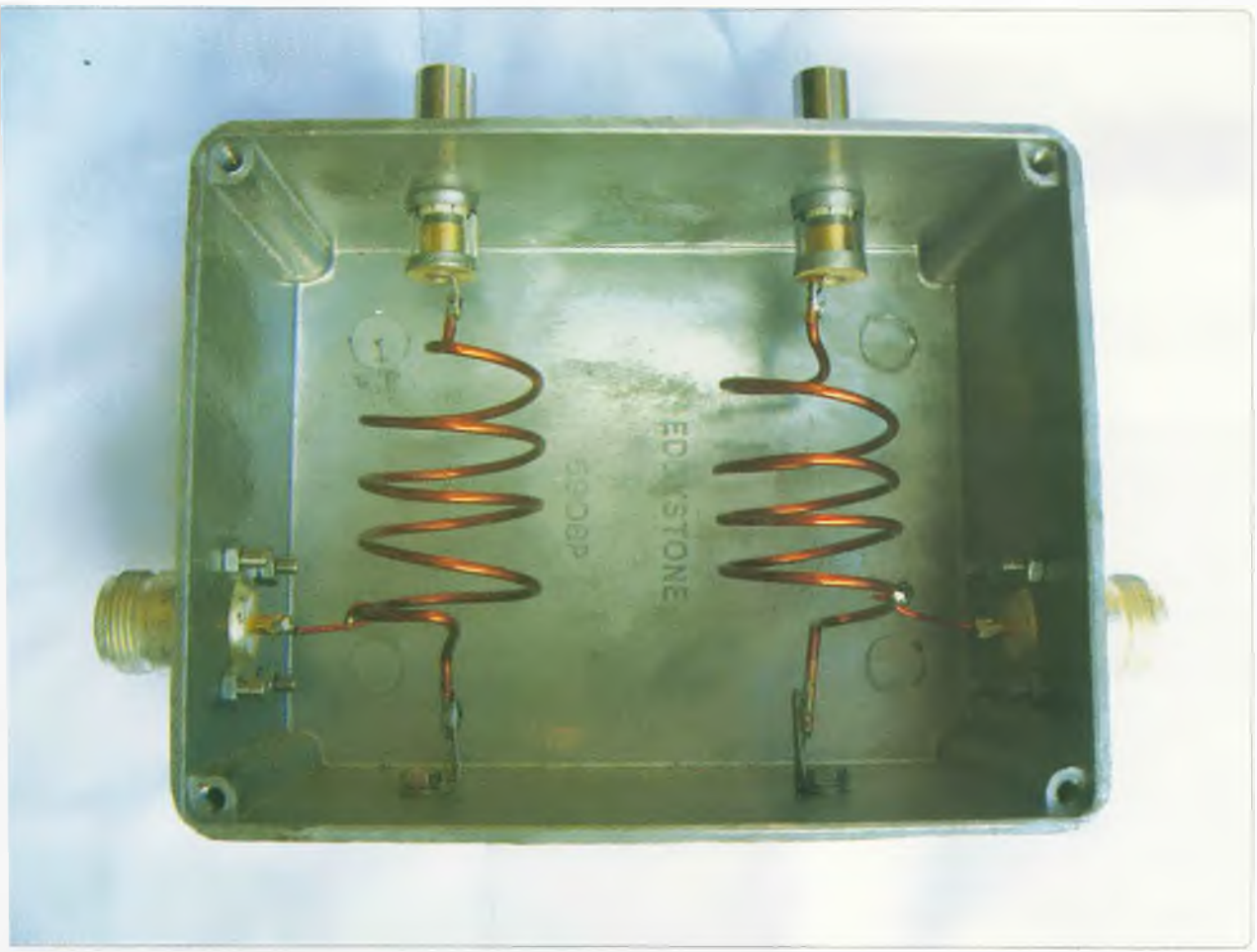
Figure 1: Schematic of the band-pass filter. The coils are 4 turns with a 23 mm diameter. The position of the tap is adjusted for best match to the transmitter.

Filter 1

Filter 1 consists of two air-cored coils of 4 turns 23 mm diameter. The coils are tuned with air dielectric variable capacitors and the input/output connectors can be either BNC or N types. The response of the filter is determined by the spacing of the coils and the position of the input/output coupling. To reduce losses ensure that all connections are solid and low resistance and select appropriately rated capacitors if operation at more than a few watts power is anticipated.

Filter 2

Filter 2 was constructed in a small metal box that has BNC connectors at both ends. The two inductors are 9 turns of 0.9 mm wire wound on Amidon T50-12 cores (green/white colour). The fixed capacitors are small NPO ceramic types and the variable capacitors are plastic dielectric types with a maximum capacity of 20 pF. A screen is fitted between the two halves of the filter to improve its performance. At the power levels generated by typical hand-held transceivers, ordinary low power components can be used. Th components were soldered onto a



gure 2: The band-pass filter.

nall section of PCB material which as mounted inside the box. The ɔmplete assembly mounts between e radio and antenna; the box is fitted ith a cover when in normal use.

pplication 2 – Transmitter utput low pass filter

low pass filter was required for e output of a recently constructed 2 m band power amplifier and no suitable capacitors were on hand. The filter design was the simple 'half wave' type[4] which consists of two coupled pi-sections as shown in Figure 5. As the filter was on the output of an amplifier that could deliver 200 watts of power the components are subject to large currents and voltages. The shunt capacitors were constructed by cutting pads of the required area on a small section of double-sided copper clad PCB laminate. The initial piece of laminate was 70 by 75 mm by 0.4 mm thick and the 22 pF capacitors required 268 mm^2 of copper and the 44 pF capacitor required 537 mm^2 of copper. The size of the pads for each capacitor

gure 3: Schematic of the coupled low-pass filter.

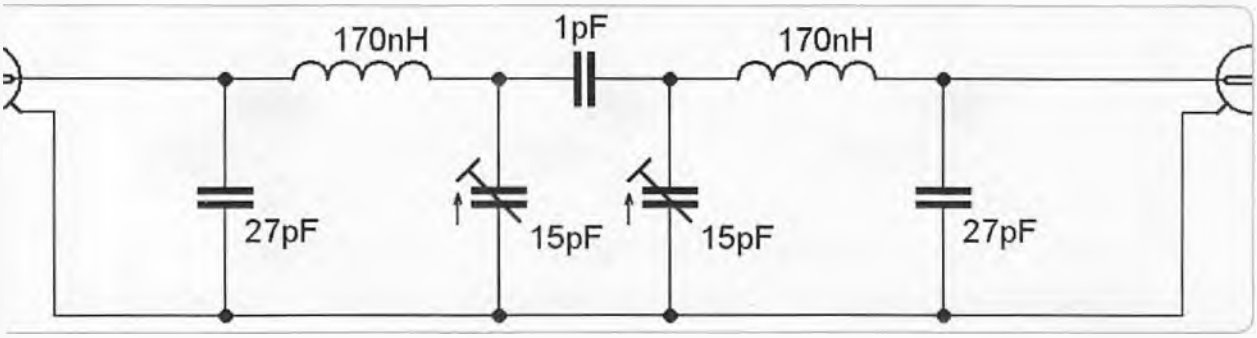


Figure 4: The low-pass filter which fits conveniently between the whip antenna and connector.

was calculated by measuring the overall capacitance (430 pF) of the blank PCB material then calculating the pro-rata area for the required capacitance. The unwanted copper was removed using the 'hot soldering iron and sharp knife[5]' method where the copper to be removed is first heated then lifted from the laminate.

The two 55 nH inductors are 4 turns of 0.9 mm wire wound on the shank of a 5 mm drill. The turns are spaced 1 wire diameter. The completed inductors are soldered directly to the copper pads and are mounted orthogonally to minimise mutual inductance.

Results

Figure 7 shows the measured performance of the three filters and it can be seen that filter 1 provides very good out-of-band performance, while filter 2 is reasonable considering the

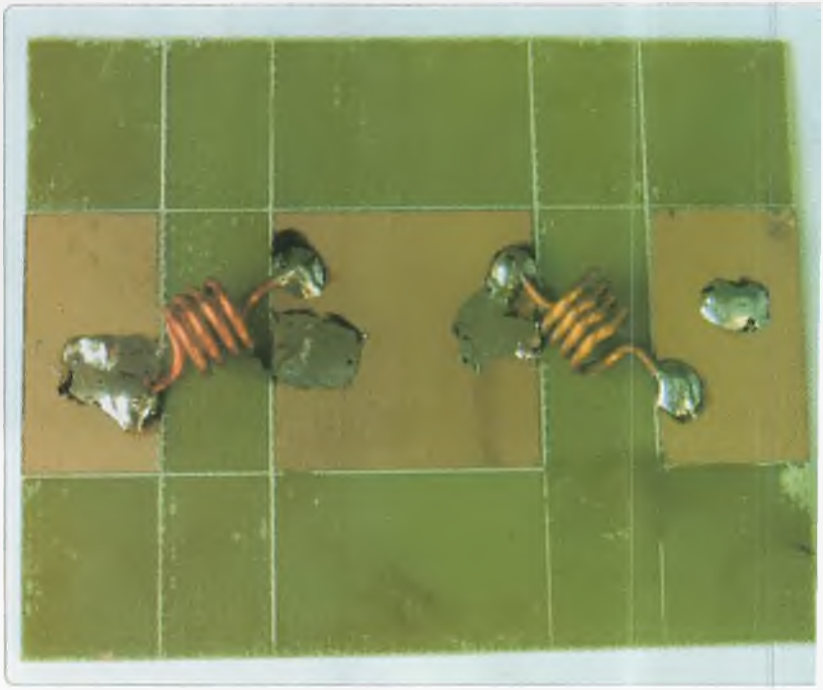


Figure 6: The low pass filter as constructed. The filter is mounted onto the transmitter chassis by screws which pass through the PCB material at its periphery. Connections to the filter are via coaxial cable which solders directly to the two outer pads (22 pF capacitors).

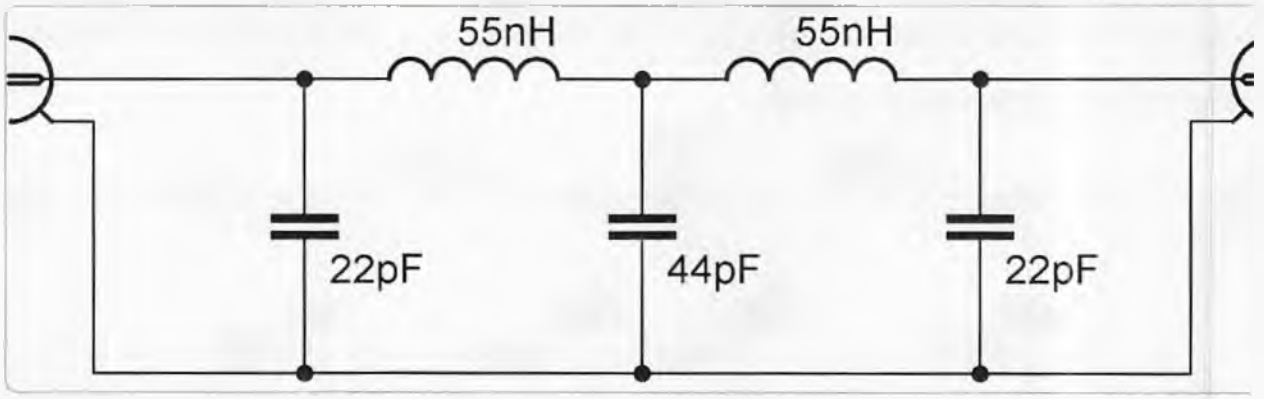


Figure 5: The transmitter output low pass filter. A relatively novel approach was 'constructing' the capacitors from PCB laminate material.

implicity of the circuit. Filter 3 roll ff is acceptable for its intended urpose of additional suppression f harmonics from the amplifier. oss at the operating frequency was pproximately 0.5 dB in all three ases.

Conclusion

wo filter designs have been resented which solve overload roblems for wideband receivers, ne of which is very suitable for use n a hand-held transceiver. Filter shows that a low pass filter with ood power handling capacity can e easily constructed using readily vailable materials.

ndnotes

. At the Black Mountain site there are five 50 kW TV transmitters in the 177.5 MHz to 226.5 MHz frequency band. See *http://ozdigitaltv.com/transmitters/ACT/3-Black-Mountain* for details. There is also a number of high power VHF FM broadcast radio transmitters operating from the same site.

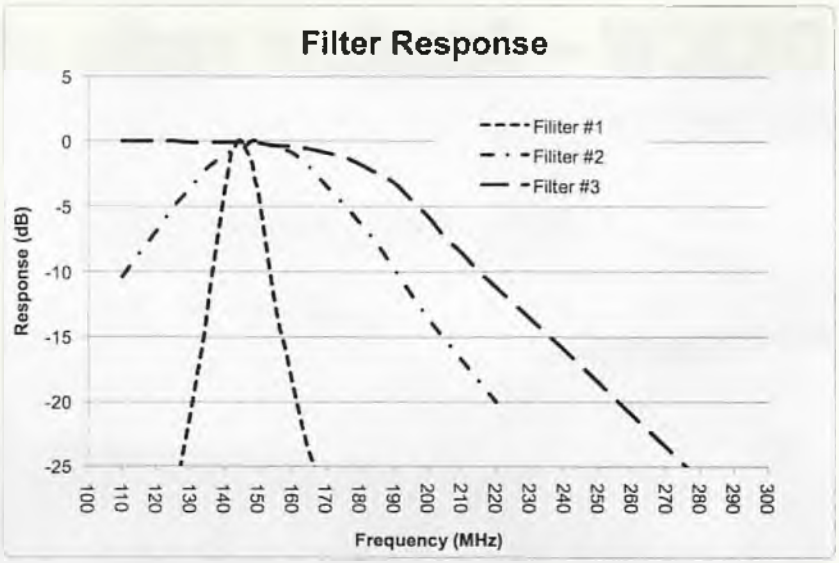


Figure 7: Measured characteristics of each filter. While the low-pass configuration is far broader than the band-pass design it's performance is acceptable for less demanding applications.

2. RSGB VHF-UHF Manual 4th edition, page 7.2
3. RSGB Radio Communications Handbook, 11th edition, page 9.54
4. ARRL Experimental Methods in RF Design, 1st edition, page 3.4
5. RSGB-ARRL International Microwave Handbook, 2002 Edition, page 112

DK3CW – Amateur radio at the Museum

Peter Scharf VK6APS

Photo 1: Transmitting apparatus for a spark transmitter.

After nearly 50 years of SWL and amateur radio, one gets to recognise a range of antennas. Generally, in larger cities in Europe, one sees numerous antennas on the roofs of Embassy houses including the ubiquitous Log Periodic. So one day, while walking along the bank of the River Main in Frankfurt, when I spied a log periodic on a building on the other side of the river, I assumed we were looking at an embassy building.

Much to my surprise, I discovered that this was the Communications Museum! It featured displays of equipment that dealt with postal and telegraph services from the middle ages

Photo 2: The view through the window of the shack showing one bench of equipment.

hoto 3: The Log Periodic is a dead giveway!

rough to modern digital satellite quipment that brings entertainment to our houses. For a small fee, the YL and I were allowed in to look ound and play. Obviously, I was terested in the bits that connected a certain log periodic on the roof.

DK3CW is the call sign of the ation but it is only operated on ednesdays and we were on the rong day and the wrong end of the liday! However, the photos show me of the depth of the collection the museum and if you are in the ea and it is a Wednesday, pop in r a rag chew. The assistants claim at the operator is very friendly.

73 de Peter VK6APS

Photo 4: The other bench and plenty of room for multiple operators in the shack.

Plan Ahead

Ballarat Amateur Radio Group (BARG) Hamvention 25 October

Hamads

WANTED – NSW

I am looking for a cheap FT-101E suitable for restoration or repair.

Anything considered. Thanks.

QTHR and *vk2cao@wia.org.au* for contact. Noel Pakihi VK2CAO.

FOR SALE – VIC

FT-747GX transceiver with FM board fitted. Desk Mike and Hand Held Mike. Manuals for the above. AT11MP auto antenna tuner with manual. Bencher low pass filter. Bencher antenna baluns. Lafayette TE48 GDO, TRIO noise bridge. MFJ TNCR Packet radio, model MFJ-1247. Alinco 2 m FM transceiver with manual. Osker SWR-200 meter.

VK Powermaster PSU. Low noise dummy load. 80 m mobile antenna. 2 coils coax cable. Other odds and ends. All items are in excellent condition and working OK. A complete station. Will not separate $1000.00 the lot. Contact Norm EX VK3JAL anytime on 0354563122 or *bell122@westnet.com.au*

Contributions to *Amateur Radio*

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at *http://www.wia.org.au/members/armag/contributing/*

Email the Editor: *editor@wia.org.au*

About Hamads

- Submit by email **(MUCH PREFERRED)** or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

ADVERTISERS INDEX

WIA Functional Committees

The WIA is a membership organisation with a very wide range of complex functions and member services. Core functions and services are administrative in nature (general administrative functions, membership services, examination and callsign management, financial etc...) and are performed by salaried staff.

Volunteers perform a diverse range of highly specialist functions (ACMA liaison, Frequency Co-ordination, Standards liaison, Interference issues, technical support and training and assessment etc.). These volunteers provide the majority of member services, however they have been loosely organised and often overstretched.

The new committee system attempts to structure the WIA's non-core activities into 10 broad functional areas, each comprising a team of volunteers under the direction of the WIA Board. This structure is intended to spread the workload on our volunteers, improve communications between members and the WIA Board, improve services to members, and encourage more people to become involved in the WIA.

WIA Committee Charters

Spectrum Committee

(Regulatory, ACMA, ITU, IARU, Repeaters & Beacons, Standards, Interference & EME, Monitoring Service)
Geoff VK3AFA, Phil VK2ASD (Director), Peter VK3MV, Roger VK2ZRH (Director), Brian VK3MI, Dale VK1DSH, Peter VK3APO, Richard VK2AAH, Gilbert VK1GH, Rob VK1KRM, Noel VK3NH, Doug VK3UM

- Perform all ITU and IARU liaison activities.
- Liaise with, and act as the 1st point of contact for, the ACMA.
- Advise the Board, and enact Board policy in relation to all radio communications regulatory issues and the LCD.
- Represent the WIA to State and Local Government
- Represent the WIA to Standards Australia
- Provide specialist technical advice and coordinate repeater and beacon licence applications and frequency allocation.
- Develop responses to significant and prolonged harmful interference issues affecting amateur radio operations.
- Provide an information resource for EMC/EMR issues.
- Administer the IARU Monitoring Service in Australia
- Provide a technical resource to other committees and the WIA Office.

Technical Advisory sub-Committee (Tech support, Band plans etc.)

John VK3KM, Doug VK3UM, Rex VK7MO, Paul VK5BX, Walter VK6KZ, Barry VK2AAB, Bill VK4XZ, Peter VK3PF, Paul VK2TXT, Peter VK1NPW, John VK1ET, Peter VK3BFG, Eddie VK6ZSE, Peter VK3APO

Administrative Committee

John VK3PZ (Treasurer), Greg VK2SM (Assistant Treasurer), David VK3RU (Secretary), Mal VK3FDSL (Office Manager), Phil VK2ASD (President), Chris VK5CP (Vice President)

- Responsible for the efficient and correct operation of the WIA office.
- Responsible for staffing and workplace safety.
- Provide a specialist administrative resource to the WIA office as required.
- Manage contractual agreements.
- Manage business relationships.
- Ensure compliance with the ACMA Business Rules
- Prepare yearly budgets
- Prepare quarterly financial reports for the Board
- Prepare independently reviewed YE financial reports and balance sheets for circulation to the membership prior to each Annual General Meeting.
- Manage insurances and to be responsible for currency of insurance policies.
- Maintain a complaints register.
- Ensure complaints are handled in accordance with WIA policy and any contractual agreements.

Communications, Marketing, Publications and AGM Committee

Robert VK3DN (Director), Phil VK2ASD (Director), Jim VK3PC, Graham VK4BB (Broadcast), Roger VK2ZRH (Director) Publications sub-Committee (AR Magazine, Callbook etc): Peter VK3PF (Editor AR), Peter VK3PH (Editor Callbook), John VK3PZ (Treasurer), Emie VK3FM, Peter VK3AZL, Evan VK3ANI, Ewan VK3OW, Bill VK3BR

- Communication with members and the public:
- Communicate with the membership.
- Publicise WIA activities and initiatives.
- Develop strategies and resources for the promotion of Amateur radio to the public.
- Develop strategies and resources for the promotion of WIA membership to the Amateur community.
- Supervise and/or perform promotional activities.
- Co-ordinate the yearly AGM activities

Education Committee

Fred VK3DAC (Director), Owen VK2AEJ, Ron VK2DQ, Mal VK3FDSL (Office Manager)

- In association with the WIA's RTO and affiliated clubs offering training services, develop and administer the WIA's training and assessment systems.
- In association with the Spectrum Strategy Committee, develop and maintain the various licence syllabi and associated question banks.
- In association with the Community Support Committee and the RTO, develop and maintain the Emergency Communications Operator scheme.
- Ensure the confidentiality and security of all personal information, question banks and examination papers.

Radio Activities Committee

Chris VK5CP (Director), Geoff VK3TL

Contests sub-Committee

Alan VK4SN, Denis VK4AE/3ZUX, John VK3KM, Tony VK3TZ, Kevin VK4UH, Colin VK5DK, James Fleming VK4TJF

Awards sub-Committee

Bob VK3SX, Marc VK3OHM, Laurie VK7ZE, Alan VK2CA, Alek VK6APK, David VK3EW, Paul VK5PAS, ARDF sub-Committee: Jack VK3WWW, ARISS sub-Committee: Tony VK5ZI

- All activities associated with actual radio operation, such as: contests, awards, distance records, QSL services, ARISS, AMSAT, ARDF etc

QSL Card sub-Committee

Geoff VK3TL, Alex VK2ZM, John VK1CJ, Max VK3WT, June VK4SJ, Stephan VK5RZ, Alek VK6APK, John VK7RT, Craig VK8AS

Historical and Archive Committee

Peter VK3RV, WIA Historian, (Leader), Drew VK3XU, Linda VK7QP, Martin VK7GN, Ian VK3IFM, Will VK6UU, David VK3ADW, Jennifer VK3WQ/VK5ANW, Roger VK2ZRH (Director)

- Develop, maintain and preserve the WIA's historical and archive collection
- Encourage access to the collection by WIA members and those seeking historical materi for publication.

IT Services

Robert VK3DN (Director), Tim VK3KTB

- Provide an IT resource to other committees and the WIA Board.
- Be responsible for the off-site data back-up of all IT systems information.
- To update and maintain the WIA website as required.
- Advise the Administrative / Financial committee in relation to the MEMNET Cloud Service contract.

Community Service Committee

Fred VK3DAC (Director), Greg VK2SM (Assistant Treasurer), Ewan VK4ERM (Director), Paul VK5PH

- Develop, promote and co-ordinate all WIA community support activities

New Initiatives

Phil VK2ASD (Director), Robert VK3DN (Director), Roger VK2ZRH (Director), David VK3RU (Company Secretary)

- Think-tank ideas and initiatives to advance amateur radio and WIA membership.
- On approval by the Board, run proof of conc trials.

Affiliated Clubs Committee

Ted VK2ARA, Mal VK3FDSL (Office Manager), John VK3PZ (Treasurer), Phil VK2ASD (Director)

- Manage all arrangements between the WIA and WIA Affiliated Clubs
- In cooperation with the Administrative / Financial committee, manage the Club Insurance Scheme
- Encourage stronger relationships and communications flow between the WIA and WIA Affiliated Clubs
- Encourage increasing WIA membership rati in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board.

Join your local radio club today!

Radio Clubs:

- Are Australia-wide
- Will introduce newcomers to amateur radio
- Run regular meetings and functions
- Provide short training & accreditation courses for people wishing to obtain an amateur radio licence

Further information on clubs
can be found on the WIA website

www.wia.org.au

ICOM

IC-2730A

Introducing the new IC-2730A VHF/UHF dual band transceiver.

Featuring an easy-to-see white backlit LCD, optional Bluetooth and 50W of output on VHF and UHF, this amateur transceiver will take your communications to the next level.

To find out more about Icom's Amateur products email sales@icom.net.au

WWW.ICOM.NET.AU