Amateur Radio

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WIRELESS INSTITUTE OF AUSTRALIA

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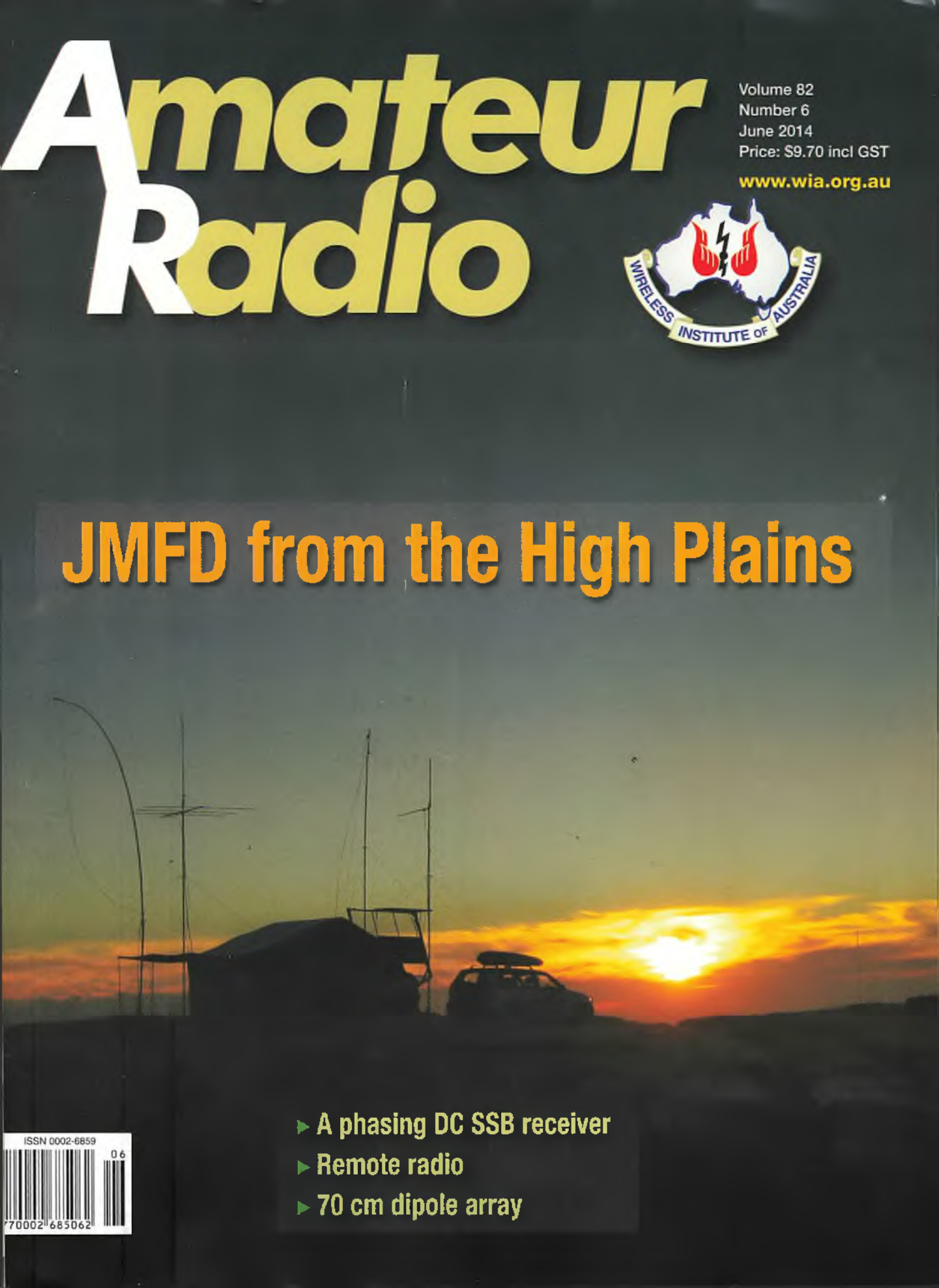

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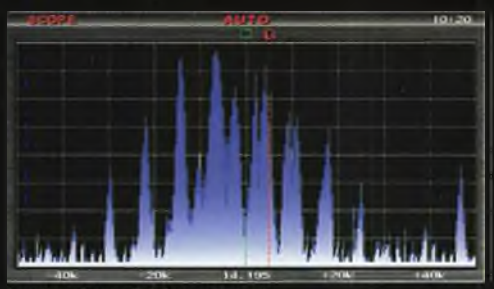
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General

Technical

Columns

This month's cover

The VK3JNH team operated from high on the Bogong High Plains for the John Moyle Field Day, experiencing some superb sunsets and sunrises, plus some truly horrible weather which forced them to retreat to lower altitude for Saturday night. Our cover shows an overview of the station. See the story on page 32. Photo by David Warrillow.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

Back Issues
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Photostat copies
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Editorial

Peter Freeman VK3PF

A radio quadrella

Whilst I am not into horse racing, this seemed to be a reasonable title for this Editorial. I guess that "double hat trick" might also apply?

As you will see in the article "Portable activations to chase KRMNPA plaques" from Jim Linton VK3PC, two Peters reached significant milestones over the ANZAC Day weekend. I was one of them! So, I am going to indulge myself by giving you an overview of 10 days of my radio activities.

At the start of Easter, my SOTA Activator score was sitting at 865. I headed off to Wodonga to visit family, but warned them that I wanted to head into the hills to play radio during the day – I wanted to hit the 1000 point mark to qualify as "Mountain Goat". That was all OK.

I travelled via the Great Alpine Road, with some diversions to activate three summits on Good Friday. I joined Mark VK3ASC and his wife Kathleen on Saturday for three summits near Mount Beauty. Sunday saw me back near Mount Beauty to activate a "new" summit, with another diversion on the way home for a second activation for the day. Monday was spent with Mum, but with a pleasant chat with Warren VK3BYD over coffee at the Bakery in Chiltern, discussing SOTA, followed by some shopping in Albury and then a family dinner that evening. Tuesday and Thursday saw two further solo activation trips into the hills, followed by a joint activation trip with Bernard VK2IB on ANZAC Day.

ANZAC Day saw terrific weather. It was somewhat amusing to listen to other activators when the pile ups were running hot – many tripped up whilst trying to use the AX prefix! After the first two summits of the day, I had estimated that my Activator tally was at 999 – one point short of the magic 1000. We headed on to our third summit – a 10 point summit, and our third previously un-activated summit for the day. My fourth contact for the day qualified the summit, so I was then officially entitled to be called a Mountain Goat. Bernard tells me that I had a huge smile at that point. It was even a very comfortable activation, as Bernard supplied folding chairs – a comfort which I rarely consider.

Whilst activating our second summit, I worked John VK5BJE/3 in the Coopracambra National Park – one of two parks that I still needed to chase for the complete set of 45 Victorian National Parks for the Keith Roget Memorial National Park Award (KRMNPA). Many thanks, John!

I headed for home on Saturday, with a diversion to activate a summit near Bright. When I was back close to Bright, I heard people chasing John VK5BJE/3. However, John was not strong at my location, so I headed out of town. Once away from the noise sources, I could hear John, but he was struggling to hear me. I set up the squid pole and a SOTA antenna on the side of the quiet road, and finally managed to work John, who was in the Errinundra National Park – number 45 for me, so I now had the second leg of what turned out to be a quadrella. Thanks again John!

Once at home that evening, I checked my tally sheet for the KRMNPA – I had indeed now chased all 45 parks. I quickly sent off an email to Tony VK3VTH with the summary sheet.

Continued on page 5

WIA comment

Phil Wait VK2ASD

Strong Foundations

I'm writing this Comment about 10 days out from the WIA's Annual General Meeting (AGM) and Conference, being held this year on the Queensland Sunshine Coast, so my mind is focused on reports and statistics. It's also possibly my last Comment, depending if I am ousted from the position (or not) at the first Board meeting following the AGM!

The AGM is actually a very short affair, dealing only with the statutory corporate requirements. The record for the shortest AGM is held by Michal Owen VK3KI (SK), at about six minutes long! The AGM session is followed by the Open Forum, where written reports from the various WIA committees are received and discussion happens between the Board and the members present. The Open Forum is where the real business takes place and substantive issues are dealt with.

In the past, published Open Forum reports have only been available from the time of the AGM, but this year, the Board has decided to place the Open Forum Reports on the WIA website in advance, so everyone with an interest has a chance to read them prior to the meeting.

The reports contain some interesting statistics that show the health of amateur radio in Australia. Let me share some important ones with you.

In 2013, there were 625 new amateur licences issued, (79 more than the previous year, but well below the 813 recorded in 2009), of which 414 were Foundation licences, 118 were Standard and 93 Advanced.

The total number of amateur licences at the end of 2013 was 14,190, some 186 less than the previous year and 408 less than in 2009. Silent keys and people moving-on from the hobby appear to be taking a toll.

Clearly, the Foundation licence is supporting the hobby to a far greater extent than many realise. If it was not for the introduction of the Foundation licence some nine years ago, with 414 Foundation licences issued last year, amateur radio in this country would probably be in a very different position. Interestingly, after decreasing for a number of years, possibly as pent-up demand washed through the education and assessment system, there was a small upswing in the number of Foundation licence candidates in 2013. The forecasts from doomsayers that amateur radio in Australia is in terminal decline seem to be rather premature (by some 50-60 years!).

It's also interesting to look at the number of WIA members. At the end of 2013, the WIA had 4,538 members, (51 less than the year before, but only two less than in 2009). So, although the amateur population has been falling, the WIA has been able to sustain membership numbers and has actually improved its market share from 31% in 2009, to 32% in 2013. Not that we think 32% is a good number – there is much room for improvement, but it's a good position from which to work.

The WIA Broadcast clocked-up 34,800 RF check-ins and 41,400 streaming downloads, while the WIA website had 11.5 million hits, and the inwards QSL bureau handled 90 kg of cards which, if stacked in one pile, would stand 19.36 metres high!

The other interesting statistics we have been looking at recently are the results of the recent Membership Survey. The 834 survey responses received would have to be judged as pretty good for a membership of 4,538 – 18.4% of the total membership – so we should be able to draw some valid conclusions.

As Vice President Chris Platt VK5CP said in his preliminary Survey analysis placed on the WIA website: *"the most common entry points into the hobby were the old Limited licence (34%) and old Novice licence (21%), followed by the Foundation licence (21%). These results probably reflect the entry-level licence options that were available at the time, and show the importance of the previous Novice, and now the Foundation, licences as feeders into our hobby. Over 50% of respondents upgraded their licence within two years, and almost 70% within the first five years".*

Again, this shows the importance of the Foundation licence as a feeder into the hobby.

One pleasing result from the Survey was the length of time people have been a member of the WIA, with about 30% of responders being a member for five years or less. Either we are attracting a lot of new members to the WIA, or old members are returning (probably both).

Chris is working on a more detailed report that will include the raw survey data.

With a view to the future of the Foundation licence, the Board and the Spectrum Strategy Committee have been working through the many issues that need to be addressed to update the Foundation licence conditions, the syllabus and exams. Our goal is to introduce expanded privileges for the Foundation licence during the 10th anniversary of its introduction, particularly

Continued on page 5

WIA news

2014 WIA Open Forum Reports

President Phil Wait VK2ASD reports that the Board decided to publish the 2013-2014 WIA Open Forum Reports prior to the AGM and Conference weekend on the Sunshine Coast.

"Very often we hear the question, "what does the WIA do for me?", and I'm sure after reading the Open Forum Reports for this year, that question will be well and truly answered", said Phil.

Publishing the Open Forum reports on the website also gives non-members the opportunity to see what the WIA has also done for them over the past year, so hopefully they may reconsider and become a member.

Phil said "I hope you enjoy reading the Open Forum Reports. I would like to sincerely thank everyone who has contributed to the WIA over the past year, and also I would like to thank Peter Freeman and the publishing committee for formatting the reports."

Media hits attributed to PR4AmateurRadio Expo

Some of the aims of this year's PR4Amateur Radio Expo were community interaction and media coverage for Amateur Radio, with many successful examples occurring.

Ipswich and District Radio Club President, Glen Woodrow VK4FARR, in the Ipswich Advertiser, reports social media has not damped the enthusiasm of those engaged in amateur radio.

The club marked World Amateur Radio Day with an Expo, calling on residents to get involved in the fun.

Glenn VK4FARR said, "It has never been easier to enter the hobby through the basic Foundation licence, and the club can show you how to join in the fun."

He was speaking as modern amateur radio was showcased across the nation to the public at demonstration stations.

A few visitors to the Expo had seen an antenna in their neighbourhood and wondered what it meant. Some thought we'd gone out of existence, had a former relative involved, or held an old fashioned view of it. Others have not even heard of us.

The public relations event also scored an interview by ABC Radio of a Bundaberg radio amateur that included references to his do-it-yourself techniques and operating to chat with friends near and far.

A member of the Bundaberg Amateur Radio Club, Dave Nebe VK4HAX prefers using amateur radio while others may choose the Internet means or other ways to stay in touch.

He told the ABC that amateur radio is different things to different people. Some like working on antennas, so they like to put up an antenna to communicate with someone far afield. Dave VK4HAX enjoys building things, trying out a project, and sharing it with others.

The WIA CQ Expo stations have generated interest and stimulated much discussion on public relations among existing radio amateurs.

PR4Amateur Radio Expo reports are still coming in, but initially include indications of some potential recruitment, and that a greater understanding now existed among the public who visited.

Amateur Radio-Developed Software Assisting in Search for Missing Airliner

US Navy personnel helping to look for missing Malaysia Air Flight MH370 have used the signal-processing and analysis package Spectrum Laboratory by Wolf Buescher DL4YHF to analyse recently detected 37.5 kHz "pings" that may be from the missing plane's "black box." Some Spectrum Laboratory screen shots as seen aboard the Australian defence vessel Ocean Shield were shown on TV in Australia and in the UK. The US Navy personnel are guests aboard the Australian ship. VLF experimenter Warren Ziegler K2ORS said the software is the same package amateur radio experimenters used recently to detect transatlantic signals on 29 kHz.

"Wolf's package is first-rate software, and I know that there have been other professional uses, but this was quite an interesting one!" Ziegler said.

The software began as a simple DOS-based FFT program, but it is now a specialized audio analyser, filter, frequency converter, hum filter, data logger, and more. It's available for download from DL4YHF's amateur radio software site.

Buescher said he was skeptical about the initial "ping" detection by a Chinese search vessel, but later called the spectrogram taken by the US team aboard Ocean Shield "convincing." He said a screenshot from Australian TV clearly shows the "bip-bip-bip" ultrasonic bursts or pings, "just as they should look," he said, rather than "just a wobbly carrier that comes and goes."

"In slow-CW terms, it would be an 'outstanding signal.'" Buescher said. "Now keeping fingers crossed that the ["black box"] batteries last a bit longer than specified. The experts say the pinger's battery usually degrades slowly, instead of going QRT abruptly."

At mid-week, searchers had detected additional, more promising pings that appeared to conform to the pattern of those expected from an aircraft black box.

UK amateurs to lose parts of two microwave bands

Sections of the 13 cm and 9 cm amateur microwave bands are to be allocated to "new civil uses" across Britain, the spectrum regulator, Ofcom, announced on 7 April 2014.

The current UK 13 cm band of 2310-2450 MHz will have 2350 to 2390 MHz carved out for new primary users, while the 9 cm band

of 3400-3475 MHz will be reduced to 3400-3410 MHz.

The new uses for the spectrum blocks are slated to provide digital mobile access for portable consumer devices, such as tablets and smartphones.

Ofcom said UK amateurs will retain access to the adjacent bands but has implemented procedures to remove even those frequencies from Amateur Radio access, if necessary in the future.

However, Ofcom did say that 2300-2302 MHz will be made available for amateur use through a "Notice of Variation" to licences.

The RSGB reported the announcement on its website. The ARRL also posted a news item on the announcement.

In Australia, the 2300-2302 MHz band is currently under threat from a spectrum licence allocation proposed by the ACMA. The WIA advocates retention of a 150 kHz segment, from 2300-2300.15 MHz.

Editorial

Continued from page 2

I woke early on Sunday morning to see a fine day. I quickly decided that it was a good day for a ferry ride and drove to Stony Point on Westernport Bay. After purchasing the ferry tickets, I had to rush to make the 1015 ferry departure. Once at Tankerton, I walked off the jetty and into the French Island National Park and set up amongst some low trees which provided protection from the wind. I quickly made plenty of contacts, thus qualifying National Park number 45 as an Activator. This was the trifecta (or hat trick, if you prefer). I continued operating and made over 50 contacts in just over two hours, which also qualified the activation of the Park for the VKFF and WWFF schemes.

That evening, I sent Tony VK3VTH my activator summary sheet. Tony confirmed that I had activated all 45 National Parks, and had therefore qualified for both the Chaser and Activator plaques for the KRMNPA. Tony reminded me that Amateur Radio Victoria had recently announced a new trophy for the KRMNPA – the Grand Slam plaque for having both activated and chased all 45 NPs.

Tony also advised that Peter VK3ZPF had qualified for the first Grand Slam plaque on the previous day, having chased his last park some 45 minutes after I had chased my last park. (Yes, Peter also activates SOTA summits in addition to National Parks. And yes, some people do get confused when we are both out activating on the same day!)

So the ANZAC Day weekend saw me reach four significant milestones over three days. I had not expected to complete the KRMNPA milestones and had seen but forgotten about the Grand Slam announcement from ARV.

It was a very satisfying 10 days of radio activity, interspersed with valued family time. I offer sincere thanks to all who have been out in the Parks activating and to all the chasers. And congratulations to Peter VK3ZPF for being the first to achieve the Grand Slam!

Cheers,

Peter VK3PF

WIA comment

Continued from page 3

digital modes – not only digital voice, but also access to some computer-mediated digital modes. We anticipate that many future newcomers to the hobby will be sourced from the sphere of Hacker-Maker hobbyists who are mainly interested in digital modes and the crossover technologies between the IT and wireless worlds. We anticipate that this work will flow on to the Standard licence, too. Naturally this all depends on the views of the regulator, so no doubt there will be some interesting liaison sessions with the ACMA in the year to come!

From time to time we hear the question *"what does the WIA do for me?"* For anyone reading the Open Forum Reports for 2013, and the Membership Survey results, I'm sure that that question will be well and truly answered. Non-members are also able to view the information on the WIA website, and hopefully some will now see the value in becoming a WIA member.

I would like to sincerely thank everyone who has contributed to the WIA over the past year. I'm not a particularly active radio amateur as I don't have a lot of spare time, but being President of the WIA has been a great honour, and a lot of fun. In particular, I would like to thank retiring Director, Bob Bristow VK6POP. Being a West Australian, Bob has never been backward in coming forward and telling us easterners what he thinks, and together with Onno VK6FLAB, Bob pulled off an excellent AGM and Conference weekend last year in Fremantle. Bob may not be a Director now, but he has not escaped the WIA's clutches.

By the time you read this Comment, the new WIA Board will have met and elected the executive positions. It will also have set a strategic direction and a broad agenda for the next year's term. I hope to tell you something about that in the next Comment.

Phil Wait VK2ASD
President, WIA

Remote radio at FAMPARC

Peter Collins VK3IJ

For some time our club members have talked about having remote access to one of the rigs at our club and how good it would be to be able to remotely use the radios and beams set in a quiet radio location from the comfort of their home. Well that has now become a reality although still somewhat in the development stages.

The first attempt at the project was in mid-2012 when John VK3CVF and David VK3LDR purchased a Glentek RTE_FXO internet radio controller. They got it working but having to set up the audio via Skype and other difficulties decided to abandon the project as setting up the system would be beyond many of the technical challenged members of the club. A decision was made to wait until someone developed an easier process for the remote client to set up system.

Enter the PigRemote (PR). Now 12 months later, I discovered a recently released Remote Station Control by Pignology. This unit had a built-in audio codec providing audio in and out, serial rig control, everything in one box, no computer required. I decided to purchase one for myself and investigate if this was what we had been waiting for.

Only having very limited experience with networking it took me a week or so to get the set up working with readily available help via email from the developer Nick N3WG. The first part to get working is controlling and hearing the radio on the local network. Following success in that aspect the next trick is to get the system operating over the web. The learning curve proved not too difficult and very interesting.

Once I was confident the PR would fit the bill for our club remote I gave a PowerPoint presentation to our club members, who were

Photo 1: The Elecraft KX3 transceiver.

enthusiastic and decided to proceed with the project. We then arranged the purchase of a PR and an Elecraft KX3 transceiver. The units were due to arrive while I was away on holiday so I asked one of our members Colin VK3CR if he would like to be involved with the project and he happily obliged and assembled the KX3.

One of the more difficult hurdles to overcome in this project is the fact we don't have a phone line at the club and therefore have to rely on a wireless internet connection. While I was on holidays Colin set up the TP-Link wireless router which uses a USB modem. We have been using Telstra Elite 3G services for some time to provide internet access to club members and had anticipated that would be adequate for this task. Colin had trouble getting the system to operate reliably and after investigation found the Telstra Elite service uses a private network which is not suitable for this purpose without additional applications which would add latency to the audio.

Next we tried Optus Broadband but found it also used a private network until I stumbled on an Access Point Name (APN) that gave us a dynamic public IP and allowed the system to operate correctly. We were now able to remotely access the radio and start testing. There are a couple of items that have been a concern, one being how to prevent unauthorised access and the other how to switch the radio on and off. Colin has developed a Linux control program internal to the PR which logs users in and out and enables or disables the PR. We have also purchased a Sierra Radio Station Controller which pairs with the PR and allows us to control and monitor many functions of the remote setup.

During testing we have found that the Optus service appears to struggle during periods of heavy cell usage so we have decided to try Bigpond Broadband which, we were assured, provides a public dynamic IP. Early testing of the Bigpond network confirmed this and the performance was very encouraging. What we have observed with the Optus service is an intermittent stuttering in the audio. During quieter periods of cell usage the audio is extremely good.

It's early days yet but we are

very pleased with the performance of this project and the outstanding user interface (UI) provided by Pignology. The client software is available for a variety of platforms in various stages of development including Windows, Mac, iOS, Linux and Android. The software is either free or very reasonably priced and a breeze to install.

A final note. The purchase of the radio and the PR was made from a generous bequest from the estate of the late Barry VK3BAP, a long serving member of our club. In recognition of this we have used Barry's callsign as part of the login to our remote station. I am sure our club members will enjoy Barry's legacy for many years to come.

References

FAMPARC – Frankston and Mornington Peninsula Amateur Radio Club.

Pignology - *http://pignology.net/*

Sierra Radio - *http://www.hamstack.com/*

Photo 2: The PigRemote user interface controller.

Portable activations to chase KRMNPA plaques

Jim Linton VK3PC

Enhanced rules for the Keith Roget Memorial National Parks Award (KRMNPA), to better recognise high achievement with personalised wall plaques, has resulted in a flurry of activity.

Under the new rules 'Merit plaques' are now available for those who either work from, or work to, all 45 national parks (NP). A third plaque called the 'Grand Slam' is also attained by having worked both from and to all parks.

First to claim a 'Worked all 45' merit plaque is Peter Freeman VK3PF. His 45th worked was with John Dawes VK5BJE/3 at Errinundra National Park. He was just a shade quicker than Peter Fraser VK3ZPF, who said, 'Peter Freeman VK3PF chased all 45 parks, beating me to the honour (of the first 'worked all' merit plaque) by about 45 minutes.'

Peter VK3ZPF had also worked Tony Hambling VK3VTH from Little Desert National Park to cap off all 45 NPs worked from, and to, and qualified for the 'Grand Slam' plaque on Saturday 26 April.

Peter VK3ZPF had already secured the 'activated all' merit plaque in January. 'I've worked Peter Freeman VK3PF 40 times when I have been in a national park and 11 times when he was in a national park - and at least four times when we were both in national parks,' he said. The pair have talked, sharing log entries to work out who was first, and agree that VK3PF has just beaten VK3ZPF to attain the merit plaque. However the tables were turned with VK3ZPF getting the 'Grand Slam' ahead of VK3PF. Both will remain very active giving others the chance of an award.

Peter Freeman VK3PF with the 'merit plaque' in the bag then activated French Island National Park a day later on Sunday 27 April to complete his 'Grand Slam' plaque of 45 activated and worked.

His rival Peter Fraser VK3ZPF who had previously activated the French Island National Park with the Scout Australia, Victorian Branch Scout Radio & Electronics Service Unit during hiking, agrees that activation of this park presents a little difficulty. As Peter VK3PF explains, 'You need to have a boat, or you pay for the return ferry trip. Having worked the last NP (Errinundra on 26 April) was stimulus enough for me to make the trip on 27 April.'

Peter VK3PF has a keen interest in weak signal communications techniques on the VHF, UHF and microwave bands and wears many hats, as a past rover station in the VHF/UHF Field Day, Chairman of the annual GippsTech Technical Conference, President of the Eastern Zone Amateur Radio Club, WIA Assessor and class organiser, Editor of *Amateur Radio* magazine and many other things.

The activating of national parks was started by him on the KRMNPA Activity weekend of the Amateur Radio Victoria Centenary in 2011. With the special callsign VK100ARV he went to the Baw Baw National Park for a quiet location and had plenty of fun. Once bitten, this portable operator became serious in getting his score up during a trip to Mildura for the WIA AGM in May 2012.

Peter VK3PF said, 'I combined Summits On The Air (SOTA) with the KRMNPA - my first SOTA activation was of Mount Ida, in the Heathcote-Graytown National Park. Since then, I have considered my options for activating when going on any trip. I try to fit in a SOTA summit or a NP (both together is better) if time allows.'

With the KRMNPA, SOTA, the South Australian National Parks and Conservation Parks Award, and the firing up of the VKFF Award (World Wide Flora & Fauna - Australia), activity on the bands has been significantly greater.

Peter VK3PF said, 'Chasing the last few parks, especially those in East Gippsland, has been a matter of being in the right place at the right time. This is greatly assisted by activators posting their intentions to the KRMNPA Group on Yahoo.'

Portable activations and chasing is especially noticeable on the 40 metre band, where all licence classes can be involved. Some work overseas, especially to Europe, where awareness abroad of the awards is slowly increasing.

'Reaching the targets of chasing and activating all 45 parks is most satisfying. Many months ago I decided not to apply for either version of the award until all 45 were 'in the log'. So I guess that I might be in for two plaques,' said Peter VK3PF.

Peter Fraser VK3ZPF said, 'Peter Freeman VK3PF beat me to the honour (#1Merit plaque) by about 45 minutes. My QSO with Tony VK3VTH from Little Desert National Park was number 45 and that capped off both activating and chasing the all-parks 'Grand Slam' plaque. I'm going to continue to activate national parks as I work toward the VKFF and WWFF awards which require 10 and 44 QSOs from each park respectively. This will also provide the opportunity for others to chase them as well,' he said.

The KRMNPA began in the early 1970s when going portable meant taking all-valve powered equipment into a handful of national parks. That changed with hybrid gear having some transistors and valves, and then with the small solid-state transceivers now readily available today, leading to a renaissance in portable operation.

Peter VK3ZPF first entered the KRMNPA in December 2008 using an FTDX-100 hybrid radio for his first contact from the Alpine National Park. Since then he has had more than 1300 QSOs, giving many opportunities for others to claim parks.

He said, 'The recent announcement of the three plaques encouraged me to focus on chasing parks, after I finished activating all 45 parks during the 2012 KRMNPA weekend in November 2012. Chasing parks can only be achieved by others activating them and I'd really like to thank the 24 different activators that made it possible,' said Peter VK3ZPF.

To further help those who genuinely want to go portable, many of the current portable operators are willing to share their knowledge and experiences.

A new breed of operators, particular among the Foundation licence holders, is starting to emerge adding even more activity and excitement on the bands.

South East Radio Group 50th Anniversary Convention and Foxhunting Weekend

When

Saturday 7th and Sunday 8th June 2014

Doors open Saturday 7th at midday and 9:00 am on Sunday.

Where

Mount Gambier Scout Group Hall in Margaret Street, Mount Gambier.

What

The Australian Fox Hunting Championship is a highlight of the event. Beginning at 11:00 am on the Saturday, the nine event programme runs until early Sunday afternoon. Some events may need physical agility and speed, others guile and there is always an event or two to surprise and challenge the competitors. What will take the place of the fox riding sky high in a balloon this year?

A home brew competition with great prizes will be held as is our tradition and there are tables of new equipment, pre-loved gear and parts that no shack should be without.

Entry fee is $5 for the weekend and this includes the lucky door prize raffle. To book a table contact John VK5DJ.

Contact us

Programme information and where to find us may be found on the club website at http://serg.mountgambier.org or contact John VK5DJ on 0400 043 916, 0887332138 or *johnfdrew@bigpond.com*

Accommodation should be booked early as this is a busy weekend in Mount Gambier.

An early snapshot of the 2014 WIA Member Survey

Christopher Platt VK5CP

834 persons completed the WIA 2014 Survey or about 18.5% of our membership. Over 600 respondents completed the online survey, the balance using the paper based option supplied in *AR*.

The following is a global overview of the survey. We have not yet had the time to analyse the information on the basis (for example) of licence type, age, location or duration of amateur licence holding. I have also not included a detailed examination of the free text responses provided.

76% of survey respondents were full WIA members, 19.8% were concessional members with the balance made up of student, family and overseas memberships. Approximately 30% of respondents had been WIA members for less than 5 years; the next largest group had been members for over 30 years. The vast majority of respondents (over 80%) were Advanced licence holders, followed by Standard (12%) and Foundation (6%).

The most common entry point into the hobby was the old Limited licence (34%) and old Novice (21%) followed by the Foundation licence 21%. These results probably reflect the entry-level licence options that were available at the time. It shows the importance of previous Novice and now Foundation level licences as feeders into our hobby. Over 50% of respondents upgraded their licence within 2 years, and almost 70% within the first five years.

The majority (37%) of respondents were aged between 61-70, with the next peak (25%) between 51-60. Only 6% of our membership is under 40! And 3.5% of our membership is over 80 – there is hope for us yet!

Whilst 57% of respondents live in the suburban and inner city areas, 28% live in rural areas (including semi-rural) with 12% in fringe/outer urban areas.

As amateurs we have embraced the computer world with all of us owning a computer and over 80% owning a desktop and notebook PC, the bulk of which (94%) are running Windows, next followed by Android devices (38%) and iOS (26%) followed by Linux at 24% and then Apple at 20%. We almost all use the Internet at home, and 40-50% of us also use the Internet at work and on the move. The Internet is ubiquitous with 90% of respondents using it every day, the bulk of which have ADSL or better.

The most common amateur radio related websites are the WIA website (90% access at least on a monthly basis, followed by VK Ham (70%), VK Classified (69%) and VK Logger (62%).

It is nice to know that 90% of our members read *AR* on a monthly basis at home.

The most highly valued membership service offerings (with a important to most important rating of 90% or more) are (in order), the WIA website, Protecting our Spectrum, Publicizing the Hobby, *AR* Magazine, International Representation, Promoting the WIA, and the Examination Service.

The value that is placed on these services is possibly the reason why two thirds of our membership say that the Membership Services represent good value for money with 26% stating they would be a member regardless of the cost. Over 70% prefer to pay their membership subscriptions annually with 24% taking the 5 years option and 7% using the recently introduced quarterly automatic payment option. Surprisingly 30% of our members are not members of a Radio Club and 25% were not aware if their club was WIA affiliated. Pleasingly over 80% of respondents who contacted the WIA National Office or a Director/Office Holder were satisfied with the level of service provided. Disappointingly only 10% of respondents had attended a WIA AGM in the last three years with the most common reason for absence related to the location of the AGM.

Further analysis will be undertaken over the next few weeks, the information gleaned will be particularly useful to the board in setting the long term WIA strategy, and prioritizing initiatives.

Thank you for your participation.

Christopher Platt VK5CP
Vice President

The basis of distance-based scoring for the VHF-UHF Field Days

Roger Harrison VK2ZRH

As advised in the May issue, the Winter and Spring 2014, and the Summer 2015 VHF-UHF Field Days include alternative rules with distance-based scoring, called Division 2.

The general principles behind the introduction of this distance-based scoring system are to:

(a) educate newcomers to the VHF-UHF bands in the capabilities that the bands afford beyond the myth of "line-of-sight" propagation,

(b) encourage self-education in VHF-UHF operation by contest participation, and

(c) to continue the tradition of so many VHF-UHF pioneers who sought to establish 'what could be done' on the bands above 30 MHz.

Since the days of the early VHF-UHF pioneers early last century, through to the current era, a prime measure of achievement for operators and their stations has been distances worked, given the technologies employed. The recognised doyen of VHF pioneers is Ross Hull VK3JU (1902-1938), who encouraged the use of ever-improved equipment and antennas to achieve ever-greater distances [1]. Ross Hull discovered, and was the first to record and describe, the effect of tropospheric refraction ("air mass bending") on VHF waves under favourable atmospheric conditions [1].

Scoring distances worked

The distance scoring table – Table 1 – needs a little explanation. You will note immediately that principal scoring is based on one point per kilometre, but the three lower bands – 6 m, 2 m and 70 cm – each have a distance cutoff of 700 km, after which scoring is one point per 100 km or part thereof. This deals with the issue of serendipitous long-distance propagation on the lower three bands. Such DX may be supported by ionospheric propagation – principally sporadic E on 6 m and occasionally 2 m [2], or transequatorial propagation (TEP) on those two bands from the TEP zones in the north of the continent [3, 4] – or tropospheric refraction or ducting [5], principally on 2 m and 70 cm.

Any operator who has spent a few "seasons" on 6 m and 2 m will

have experienced such DX, been regaled with tales of such DX, or pored over the regular reports in *VHF-UHF – An Expanding World* in *AR* every month.

The issue that arises is that a "good opening" on one or more of the three lower bands can yield 1500 to 3000 points per contact, or more, thus "creaming" the point-scoring for the lucky few at the expense of other operators. A sporadic E opening on 6 m and/or 2 m between VK4 and VK7 that affords five or six contacts will enable contestants to readily amass 8000 - 12,000 points – per band!

It is not possible to construct a rule that precludes ionospheric and tropospheric propagation. So a distance limit was determined after a deal of research, which here is set at 700 km. This was chosen because it is generally the sort of distance that can be achieved by tropospheric scatter, the most common form of over-the-horizon propagation on VHF-UHF, or by aircraft enhancement, or through a "lift" in conditions by tropospheric refraction or ducting, which is often confined to a limited geographic region. Further, the 700 km cutoff takes into account "short skip" sporadic E (Es) on 6 m.

Given a typical sporadic E layer height of 100 km, for an MUF of 52 MHz, the vertical penetration frequency of the Es (foEs) at the point of reflection (as seen on an ionogram) would be about 16.1 MHz; the raypath elevation angle is around 15° [2]. From my experience of viewing tens of thousands of ionograms over the years, this doesn't happen too frequently. When it does, the MUF over a 1900 km path via that reflection point would be above 90 MHz, or just below 180 MHz if the Es was rippled ("spread Es") [2].

Of course, tropospheric ducts can result in contacts on the bands above 1000 MHz over distances of 1000 km to 2000 km, or more [5]. However, they aren't common (even in summer) and it takes some skill

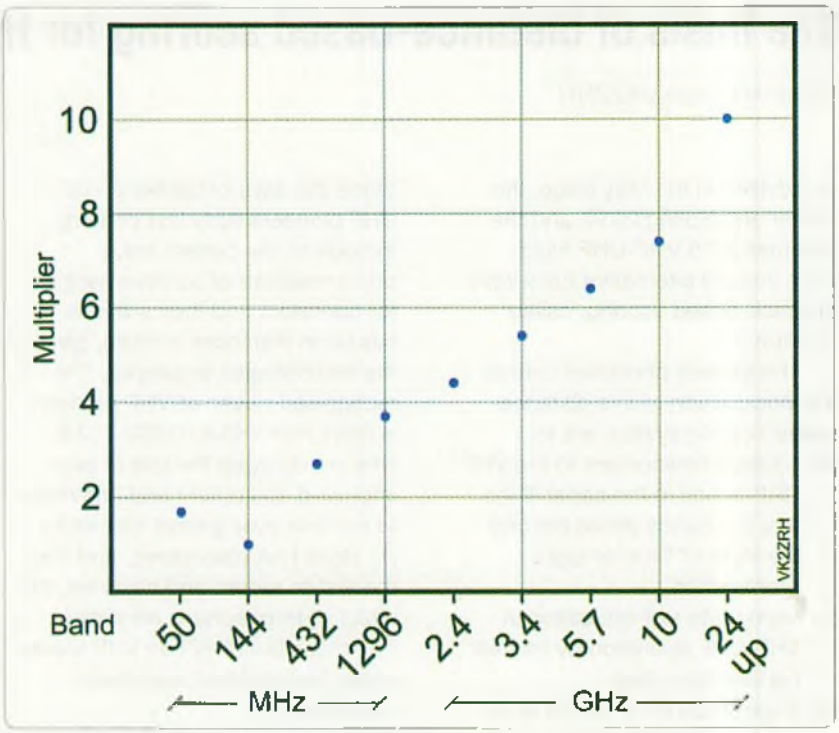


Figure 1: Distribution of the band multipliers.

(in both planning and execution) to take advantage of them. Hence, the 700 km limit does not apply on the bands from 1296 MHz upwards. For those who manage to exploit serendipitous tropo on the bands 23 cm and up, more power to their portable elbows.

Band multipliers

The first VHF-UHF band all licensees are permitted to use is 144 MHz. It is also the most populous, given the ubiquity of 2 m rigs. This is the "pivot point", or fulcrum, for the band multiplier figures, as is evident from Table 1. Hence, the multiplier is one.

So, why is the multiplier for 6 m equal to 1.7? Firstly, 6 m is not a very popular band among Field Day contestants operating portable (going from past logs) and this is intended to encourage more portable operation on 6 m, as well as more use of the band. There are a number of reasons for 6 m lack of popularity, perhaps related to availability of rigs, but chiefly to the logistical difficulties with antennas, it seems. To deploy an antenna of modest gain – say, a 2- or 3-element Yagi – requires poking quite a bit of metal in the air and having it stay up under field day conditions. A 5- or 6-element Yagi on 2 m provides modest gain for roughly the same "amount" of hardware in the air, but is mechanically more manageable. So, deploying a 2 m antenna of modest gain has perhaps a 5:3 advantage over a 6 m antenna of modest gain. That ratio is near to 1.7. So, I have awarded the advantage to 6 m.

So, balanced by the fulcrum of 144 MHz, the next two band multipliers are weighted by 1.7 with a linear step added – yielding 2.7 for 432 MHz and 3.7 for 1296 MHz. This covers the span of commercial-off-the-shelf VHF-UHF rigs. The bands from 13 cm up are weighted by 1.4, because antenna gain is relatively easier, with again a linear step added for each higher band and so on up to 10 GHz. All bands from 24 GHz up get a multiplier of 10. In part, this is to encourage use of the bands above 10 GHz and to reward operators who go to the effort of assembling rigs for these

bands and deploying them in the field. Figure 1 provides an overview of the band multiplier scheme.

References

[1] *Ross A. Hull – VHF Pioneer*, by John Martin VK3KWA (now VK3KM), at: *www.wia.org.au/members/contests/rosshull/documents/Ross%20Hull%20-%20VHF%20Pioneer.pdf*

[2] *On sporadic E VHF propagation and solving a mystery about maximum usable frequencies*, Roger Harrison VK2ZRH, *Amateur Radio*, Part 1 April, and Part 2 May 2012.

[3] *Afternoon Transequatorial VHF Propagation*, Roger Harrison VK2ZRH, at: *http://home.iprimus.com.au/toddemslie/aTEP-Harrison.htm*

[4] Evening Transequatorial VHF Propagation, Roger Harrison VK2ZRH, at: *http://home.iprimus.com.au/toddemslie/eTEP-Harrison.htm*

[5] *VHF and Microwave Characteristics of Ducts*, Andrew L. Martin VK3KAQ (now VK3OE), at: *http://vhfdx.radiocorner.net/docs/GTPaper2004V2-1.pdf*

Band	Multiplier	Distance Scoring
50 MHz	1.7	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
144 MHz	1	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
432 MHz	2.7	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
1296 MHz	3.7	1 point / km.
2.3/2.4 GHz	4.4	1 point / km.
3.4 GHz	5.4	1 point / km.
5.7 GHz	6.4	1 point / km.
10 GHz	7.4	1 point / km.
24 GHz & up	10	1 point / km.

Table 1. Distance scoring and band multipliers for Division 2 Field Day rules.

Over to you

Masts Planning

Dear Peter,

I was glad to read President Phil's advice about the decision of the NSW Government regarding its State Environment Planning Policy as it applies to "Aerials, antenna and communication dishes" (WIA comment AR Jan/Feb 2014). Ideally, similar policy and regulations need to be in place in all other states and territories of Australia.

About 10 years ago I applied for a building permit to erect a 14.7 m Nally radio tower at my QTH in the Moorabool Shire Council (MSC) municipality, about 70 km west of Melbourne. This was rejected due to objections from surrounding neighbours. I subsequently appealed decision at the Victorian Building Appeals Board (VBAB). At the VBAB hearing, I appealed the MSC's decision not to grant a building permit, ably supported by Amateur Radio Victoria's (ARV) Jim Linton VK3PC. This appeal was rejected on grounds that (a) the tower would reduce the visual amenity of the neighbour, and (b) I did not justify why I needed a tower of 14.7 m in height.

There are many other structures extant in my township that exceed the State of Victoria's statutory permit-free height limits for masts and the like of 8 m free standing, and 3 m above the highest point of the adjoined building. None of these arguments were accepted by the VBAB.

Readers should note that in Victoria a precedent exists eliminating the need for a planning permit for towers up to 14.7 m high resulting from a Victorian Civil and Administrative Tribunal decision some years ago brought about by a Victorian radio amateur appealing his local council's decision not to grant a permit. Also note that Planning permission is about land use, whilst Building permission is about structures.

Subsequently I successfully applied for another building permit from the MSC, which was granted with the condition that the tower not be extended beyond 8 m to the full height of 14.7 m for more than three hours in any given week. Town planning and building surveying professionals I have discussed this with subsequently have questioned the rationale around this decision and the arbitrary time limit imposed on the tower height. Of note is that WICEN is specifically mentioned in the MSC's Emergency Management Plan (EMP). Citing this in my applications to the MSC and appeal to VBAB had no effect.

Working across government in Australia is like working for the United Nations. We have three levels of government to deal with across eight states and territories. Planning and building policies, acts, regulations and codes are inconsistent. Compounding the problem further are the opinions and interpretations applied by local and state/territory governments of their own policies, acts, regulations and codes. My example perhaps exemplifies the irrational and tortuous path one sometimes has to negotiate when dealing with these authorities.

While I congratulate and thank all concerned involved in the NSW outcome, which can be cited as a precedent in other jurisdictions, the matter nationally is unresolved. I can only encourage the WIA and the various state and territory based representative bodies such as ARV to pursue this matter elsewhere. This is a tangible example of the value of membership to peak body organisations that represent our hobby, and provide services and advocate for outcomes beyond those achievable by individuals. While the NSW victory appears to be planning specific, be aware that in VK3 the Victorian Building Act also applies for structures above statutory heights, and as demonstrated above can be a pitfall to radio amateurs in a similar situation to my own.

73

Bruce R Kendall VK3WL

See Response on page 61

A 70 cm dipole array for repeater use

Ian Jackson VK3BUF

This article describes how to build a robust, commercial standard, UHF antenna system suitable for repeaters on the 70 cm band. The antenna may be of interest to any other club or repeater group around the country wanting to establish or service a repeater. We have dubbed it the 'Moonshine Special' for reasons that are obvious once you have seen one. First a little background story is in order to reveal the motivation behind this design.

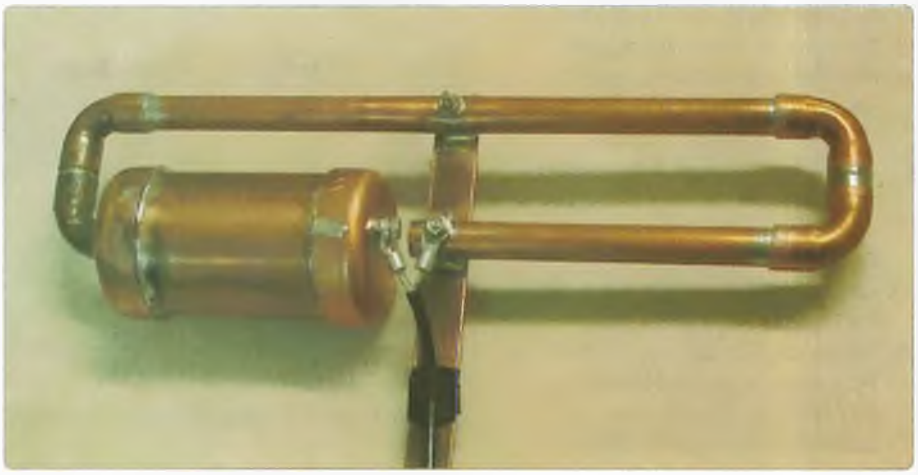


Photo 1: The 'Moonshine Special' test dipole.

Back in 2009 the 70 cm repeater VK3RWD (Warragul-Drouin) was temporarily relocated to Jindivick for some field trials. Unfortunately it was fried in the bushfires that raged to the east of Melbourne at that time. Very little remained. At that time the repeater was licensed to the Eastern Zone ARC. It was not a high-profile repeater and had a limited service area, so while the licence was maintained, the repeater was not returned to service after the fires.

The Gippsland Gate Radio & Electronics Club is based in Cranbourne, to the east of Melbourne. They maintain a 70 cm IRLP repeater in Cranbourne (VK3RLP), another six metre repeater near Cockatoo (VK3RDD) and some microwave beacons in Frankston. In recent years several new members had joined the club from around the Drouin and Warragul area and there was some interest in reactivating the VK3RWD repeater for public use. Following some friendly discussions with the Eastern Zone ARC, they kindly relinquished the licence to the GGREC so that they could resurrect the repeater as a club project. The details of how all the equipment came together would make a fair article in its own right. Many members were involved with building it up from scratch and learned the fine details of what makes a repeater tick. By October 2013 the repeater was re-commissioned. VK3RWD is now a robust, battery-backed repeater with sophisticated control system, servicing a part of West Gippsland, roughly between Berwick and

Photo 2: The spectral sweep of the copper dipole.

Trafalgar. Input is on 433.575, output is on 438.575, CTCSS of 91.5 Hz.

Early in the project development it was realised that a decent antenna system was going to be an important part of this repeater. It needed to be very tough and withstand all weather for the next 10-20 years, it needed to be intrinsically grounded to improve lightning and static discharge immunity, it required a wide working bandwidth and it must have the capacity to tailor its radiation pattern to suit a specific service area. A simple co-linear vertical will not achieve those goals. Commercial dipole arrays that will do the job are expensive and, frankly, it felt too much like giving-in if we did not build our own. Accordingly, the essence of this article is a description of what we built, how we built it and how well it performed.

The dipole

Several designs were examined, but some of these were made from solid welded sections of aluminium, making it difficult to build and adjust. Other designs used 4:1 coax baluns at the feedpoint for matching, which sweep tests revealed to be quite narrow in working bandwidth.

After a series of experiments I settled on a half-wave dipole made entirely from standard copper fittings, with an interesting impedance matching technique.

Photo 1 shows the un-painted prototype. First reactions conjured up images of a device for distilling corn whisky by bare-footed mountain folk wearing straw hats, hence the name, but it does work surprisingly well as a UHF antenna.

This sample was cut from 12 mm and 50 mm copper pipe, elbows and end caps sourced from plumbing suppliers. Some stainless steel screws were added for support, then the whole lot was simply soldered together with a basic LPG gas torch. The soldered

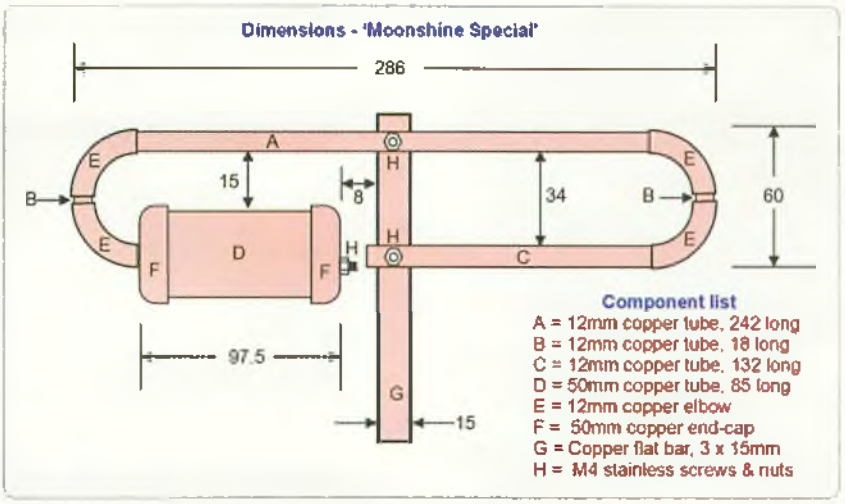


Photo 3: The dimensions of the 'Moonshine Special.

method was reasonably robust, but the final versions were bonded using silver-solder, which made the end result particularly tough.

You may well ask what is going on with this design, as the large copper cylinder looks a little out of place and the 50 Ω coax attaches directly to one side with no matching balun or stub.

The resonance of the antenna is established by the total length. That aspect is a conventional folded dipole, normally with a 300 Ω impedance requiring a balanced feed, except here one entire loop of the dipole is grounded. This allows the antenna to be a complete dead-short to DC and lets the dipole accept an unbalanced feedline of coax cable. The remaining dipole loop has a gap of a few mm and a termination point of the feedline centre-core. Normally this would still be a prohibitively high impedance, but we have added the copper cylinder to reduce the impedance to 50 Ω. There is nothing inside this cylinder. It is simply 50 mm tube with two 50 mm end caps soldered on. The ratio of the diameter of this cylinder to the adjacent 12 mm dipole leg provides a direct impedance transformation. The result is a wide bandwidth dipole, with a 50 Ω unbalanced feedpoint impedance, with an SWR of better than 1.2 :1 from 430 through to 440 MHz.

Rob VK3BRS provided some certainty here by conducting a series of spectral sweeps to confirm that we were dealing with a single resonance node covering our operating frequencies.

Building more dipoles

There was a lot of experimentation done using different lengths of copper of different diameters. The spacing between the cylinder and the adjacent dipole element was optimised, with the best symmetry achieved when the cylinder was bonded on its axis. The location of the screw for the coax centre core on the face of the cylinder (H) is not particularly critical, but it does need to be placed and fitted in the end cap before the cylinder is sealed. This is the only hole in the cylinder.

The assembly was bolted, then soldered to some 15 x 3 mm copper flat bar, which was in turn bolted to some 19 mm galvanised square tube suitable for mounting to the vertical mast with stainless steel U-bolts.

Four more dipoles were built and painted white before feedlines were attached to the 4 mm stainless mounting screws. Silicon rubber was then used to waterproof the connections. Each of the four antennas was tested and resulted in dead-needle SWR on the first measurements.

The Phasing Harness

Having built the dipoles, the next step was to add a phasing harness that would connect them to a single feedline. The common *'manifold feed system'* was used to achieve this using RG213 coax cable and 'N' series connectors. This is a reasonably straightforward method of connecting 4 x 50 Ω antennas to a single 50 Ω coax cable.

With typical 50 Ω coax matching, impedances above 50 Ω coupled to a ¼ wavelength section will transform to a new impedance value below 50 Ω. In ½ wave multiples, the impedance will transform back to the original value. Using three 'Tee' adapters, and some clean RG213/U coax cable, we can transform all four 50 Ω antennas into a single 50 Ω feedline.

It works like this: The 50 Ω dipole feeds several half-wavelength sections to extend the original 50 Ω impedance into one side of a Tee connector. The second dipole does the same into the other side of the Tee. 50 Ω in parallel with 50 Ω = 25 Ω at the Tee junction.

This 25 Ω impedance is fed via a ¼ wave section of RG213 coax so that it transforms from half to double the 50 Ω impedance (100).

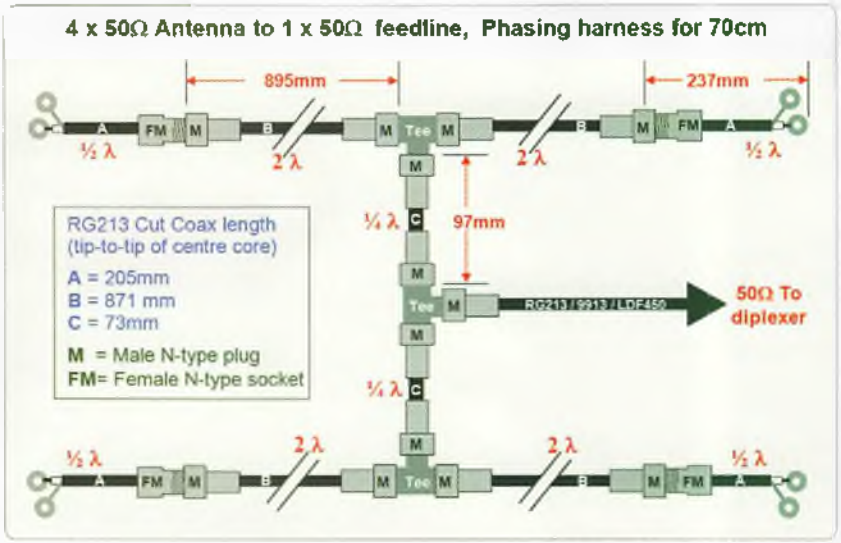


Photo 4: Diagram of the phasing harness for 70 cm.

When this 100 Ω from the first two antennas delivered to the third Tee connector, along with the 100 Ω from the second antenna pair, the 100 Ω in parallel with 100 Ω equals 50 Ω again, which is an exact impedance match to couple down to the repeater using more 50 Ω cable. We used low loss LDF450 heliax for this task.

Getting the physical length of the phasing harness correct is another onerous task that involved the correct termination of some seventeen N-type coax plugs, again carried out by Rob VK3BRS.

Mounting the antenna

Initially, the antennas were arranged in a circle around the mast at the same level. This gave a symmetrical 4-leaf-clover radiation pattern. A series of mobile signal strength tests were carried out comparing different mounting configurations with the performance of a commercial co-linear whip. There was sufficient slack in the phasing harness to allow for this experimentation.

Given that the service area had to emphasise coverage to the east and west, the dipoles were stacked to give a form of figure-8 pattern. This provided performance that exceeded the collinear reference antenna where it was needed.

Photo 5: Rob VK3BRS waterproofing the tuned antennas.

Horizontal distance from the face of the supporting mast to the dead-centre of each dipole was 345 mm.

Vertical spacing between each antenna was 505 mm U-bolt to U-bolt, with the mast extending vertically 650 mm above the top U-bolt. Liberal application of butyl rubber, electrical tape and cable ties ensured a quality watertight connection of all feedlines.

It is important to mount the four antennas in the same orientation, otherwise some phasing cancellation effects can greatly distort the radiation pattern. With the cylinder mounted to the top, a small two mm hole was drilled into the bottom of each dipole to prevent a build-up of water condensing inside the antennas over time.

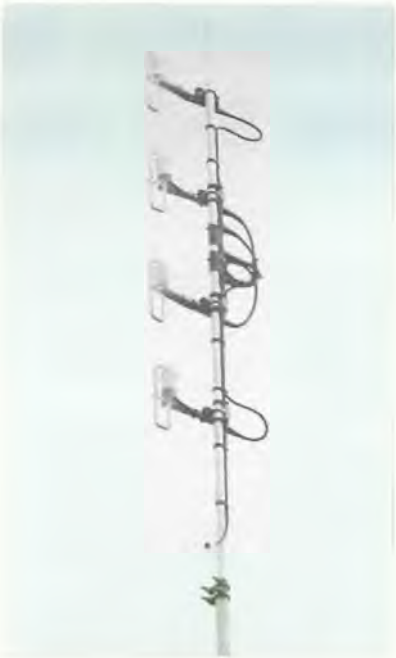


Photo 6: The completed vertical array.

Summary

In their entirety, UHF antenna arrays are complex devices, with a vast number of factors that can affect performance. Other clubs working with repeaters may have the same issues as we to contend with, where commercial-grade reliability is needed at a budget price. Sufficient detail has been provided here to allow others to replicate this work. Should construction be attempted, make a point of getting as many people involved as possible in the process, as it is a great vehicle for learning about the nature of UHF. Finally, please send an image of your finished creation to *secretary@ggrec.org.au* so that we can get feedback from the experience of others who have put one of these arrays together.

A practical introduction to phasing direct conversion SSB receivers

Peter Parker VK3YE

'Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away.'
ANTOINE DE SAINT-EXUPERY.

History

Ladder filters using cheap computer crystals made the filter method of SSB transmission and reception popular amongst equipment builders. The once-dominant phasing method was considered 'poor man's SSB' and, unlike the filter method, required complex mathematics to understand. It was little discussed in this and other magazines.

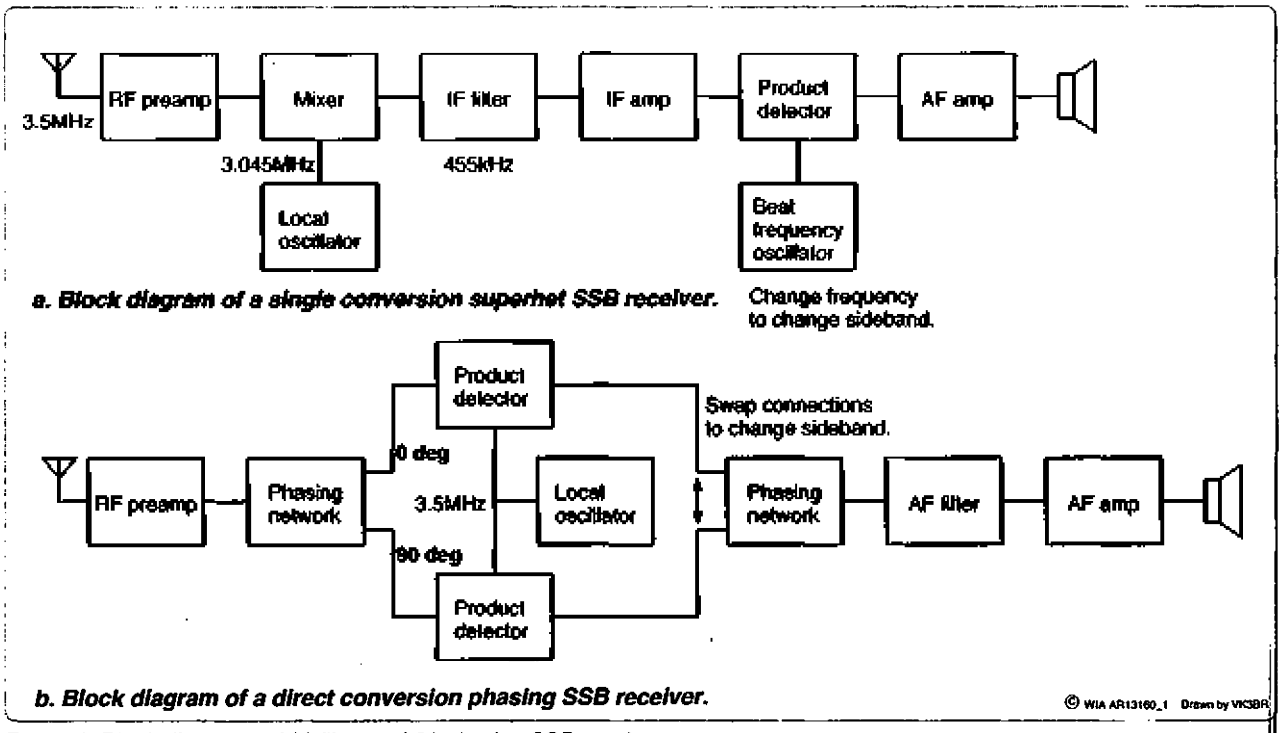
Still, a few experimenters retained interest. The devotion displayed is similar to how 'real' computer buffs prefer Linux to Windows, even though both do roughly the same thing and outsiders do not understand the fervour.

Phasing's followers have felt vindicated by its recent revival in both stand-alone and software-defined radios. What they knew all along was being more widely acknowledged. For example phasing's mathematic nulling of the unwanted sideband seemed more elegant than 'brute force' crystal filtering. Its gentler approach introduces less distortion and is potentially beneficial for critical digital modes. Phasing's avoidance of multiple radio frequency conversions is another advantage as it eliminates the image problems of superhet receivers.

Figure 1 shows block diagrams of both the filter method and phasing receivers. While both have the same number of stages overall, the phasing receiver has fewer operating at radio frequencies. Also, more of the phasing receiver's stages can be done with passive components only.

Complexity and simplicity

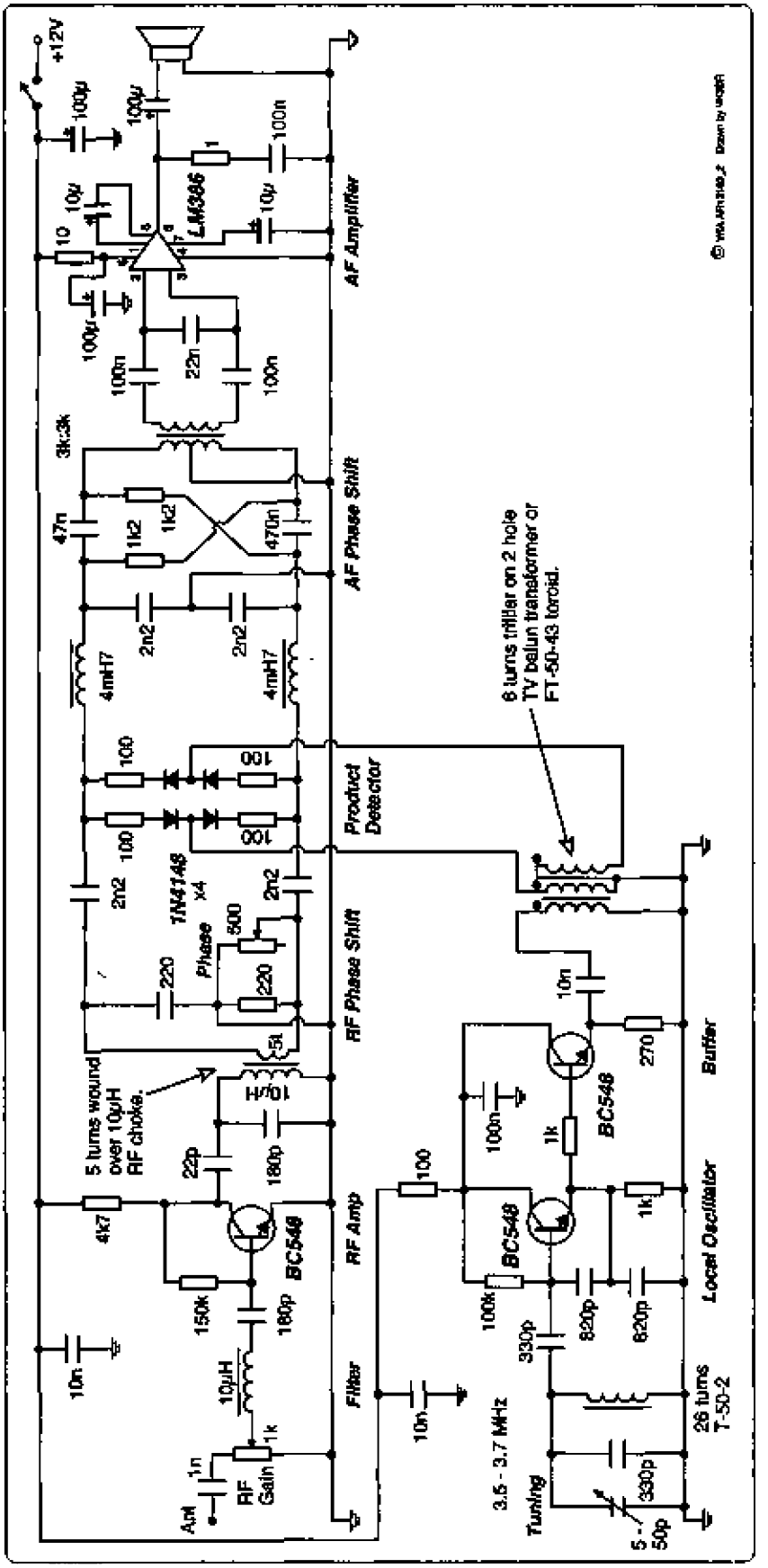
Rick Campbell and others have demonstrated that phasing receivers can deliver excellent performance. However low parts count is not necessarily one of their advantages. This has led some to conclude that they offer little benefit over superhets, at least for mid-performance HF designs covering two or three bands.



a. Block diagram of a single conversion superhet SSB receiver.

b. Block diagram of a direct conversion phasing SSB receiver.

Figure 1: Block diagrams of (a) filter and (b) phasing SSB receivers.



Removing stages from receivers and noting the change in performance is always an interesting exercise. Slightly reduced performance may sometimes be an adequate trade-off for much greater simplicity and a particularly elegant circuit design.

Simplicity can sometimes be found by examining whether valve era techniques can be used with solid state parts. This was because components, and particularly active devices, were dearer relative to wages than now. There was thus a greater incentive to pursue simplicity than now. Also some old techniques discarded due to component limitations may be more usable with today's tighter tolerances and more accurate test gear.

Phase shift networks

The most distinctive stages in phasing receivers are their radio and audio frequency phase shift networks. Their role is to introduce phase change so that signals are shifted in time relative to each other.

Think of phase difference as being like a choir singing in rounds. The choir is singing the same words at the same tempo to the same pitch. However half the choir was instructed to start singing later than the first half. Having the two halves deliberately out of step by a given amount of time sounds very different to if all were singing the same words at once. Critical to the sound is the relative timing between the two groups of singers. Whereas it would make no difference to the sound if the singing started a minute later provided that the relative timings between the singers were unchanged. Phase shift networks do a similar thing to an incoming signal, however the time differences are small fractions of a second that depends on the radio or audio frequency involved.

Figure 2: Circuit of 'Less Polished' receiver.

Photo 1: The 'Less Polished' receiver.

A phase shift network can be connected as a splitter with two output signals generated from the one input. These are identical except for a 90 degrees phase difference between them. The in-phase signal is often referred to as 'I' (in-phase) and the phase shifted signal as 'Q' (quadrature). Typical applications include the front end of a phasing receiver or software defined radio.

The phase difference between the outputs from the phase splitter persist when each is mixed with a signal from a local oscillator. These two related but still differently phased signals (this time at audio frequencies) are then fed to another phase shift network. This is used in reverse so there are two inputs and one output. Its effect is to mathematically null out the unwanted sideband and recombine the two out of step signals into a single signal.

Phasing receivers need two phase shift networks, one at RF and the other at audio, for the desired 'single signal' reception.

The RF phase splitting can be applied to either the incoming signal (as in Figure One) or the local oscillator. The audio phase shifting is done between the product detectors and the audio amplifier. Filtering that determines the receivers selectivity is also done here, unlike a superhet where it mostly takes place at an intermediate frequency.

The result of all this phase splitting and combining is that unlike a standard direct conversion receiver the audio beat notes heard when tuning either side of a carrier signal are at very different volume. A large difference (or better still nothing heard on one side) indicates accurate phase shift and thus high audio image rejection.

The same principles can operate in reverse as a phasing SSB transmitter. In fact with passive circuitry it is possible to make a transistorised phasing SSB transceiver with very few more parts than is required for the receiver alone, as demonstrated by SP5AHT, earlier even simpler Russian designs, and this author.

What happens when the phase shift networks are either left out or badly adjusted in a receiver?

Without RF phase shift all you get is a standard direct conversion receiver with no audio image suppression. Whereas a more interesting effect occurs without AF phase shift. In fact some builders deliberately omit it and feed the two audio signals to stereo headphones via a stereo amplifier. Such 'binaural' reception can produce some interesting effects, particularly on CW signals. The other thing possible with a binaural receiver is to feed its audio output into a stereo sound card (and appropriate SDR software) and use the computer's processing to null opposite sideband reception.

For now we'll assume that single signal SSB reception on a stand-alone receiver is required. RF and AF phase shift will therefore both be needed. This can be achieved by various means.

Radio frequency phase shift networks can be as simple as a resistor and capacitor. Similar to the recital example, the phase shift achieved relative to this network's input signal does not matter; what is important is that the phase difference between a splitter's two outputs is held at 90 degrees.

While achieving a 90 degree difference at a single frequency is easy, maintaining it across a wide frequency range is not. Hence simple RF phase shift networks are narrow band. Degradation at band edges may be tolerable but the network will be ineffective on another band. Multiband operation requires either more complex broadband or switched RF phase shift networks. Another possibility is to use the phasing receiver as an IF, detector and audio strip and frequency converters for coverage of other bands.

The simplest and original audio phase shift networks use passive components, including resistors, capacitors and transformers. Like with RF, simple audio phase shift networks are accurate at one or two frequencies only, although better performance is possible with more complex polyphase networks. Image rejection suffers away from the network's centre frequencies. Passive phase shift networks have an insertion loss so require signal amplification at either RF or audio. However they are bidirectional, making SSB transceivers possible with a minimum of extra parts or complex switching.

A later development was the use of transistors and (particularly) audio op amps. These can form 'all pass' networks useful for audio phase shift applications. A few designs were published with this approach, but by this time the filter method of SSB generation

was dominant as crystals became cheaper. A good example is KK7B's R2 receiver, which is capable of excellent performance. However more parts are used than is desired for someone seeking 'bare bones' simplicity.

Most recently we have seen phase shift implemented in software. In this manner a computer with a low noise stereo sound card and the right software can form the back end of a phasing receiver. All that is required is a phasing receiver front end, feeding I and Q audio signals to the sound card's stereo inputs. The design presented here could be modified for this purpose. However, low noise audio preamplifiers for each channel will be required, making it little simpler than a stand-alone receiver.

Introducing the 'Less Polished' receiver

Ultimate performance may not be the only design goal sought. This may be the case where budgets are limited, there is a need to use common parts or design elegance is sought. The designer of an educational project should achieve reproducible performance sufficient to encourage the builder while also being easy to improve on.

The 'Less Polished' receiver presented here meets these aims. It can be built with common components. Just four active devices provide effective CW/SSB reception on 80 metres. It is simpler than many other direct conversion designs yet provides significant rejection of the audio image and thus tighter selectivity.

The use of passive RF and AF phase shift networks is key to the project's simplicity.

In this regard it harks back to the phasing transmitter designs from the early days of amateur SSB. Back then audio phase shift networks (such as the commercially-made 2Q4) were a specialist product, containing accurate resistors and capacitors with obscure values.

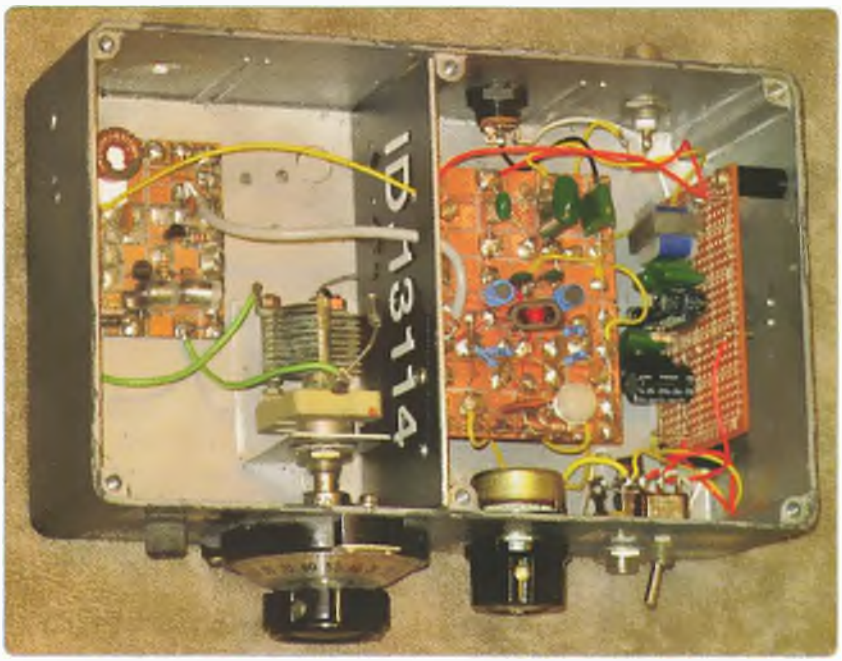


Photo 2: Inside the 'Less Polished' receiver. Note that the RF preamp board is not visible as it is underneath the phase shift/product detector board.

Today's tighter tolerance components and test equipment has made it easier to make passive phase shift networks at home. For example digital multimeters with capacitance measurement are common and even audio spectrum analysers can be downloaded as free mobile phone apps (search FrequenSee in the Android Play Store). Widespread access to commercial SSB gear also makes adjustment simpler.

The basis for this receiver was an 80 metre SSB transceiver project described by SP5AHT. It was ingeniously simple, using just ten transistors to form a complete SSB transceiver with bidirectional passive audio and radio frequency phase shift networks.

While elegant, SP5AHT's transceiver required a lot of coil winding. A high inductance, comprising hundreds of turns on a ferrite pot core was specified for the passive audio low pass filter. The reason for this is that the filtering was done at high impedance, which requires large inductors and small capacitors. Had the filtering been done at a lower impedance then much smaller coils, possibly even pre-wound RF chokes, could have worked. The transformer in the audio phase shift network was wound on a similar large ferrite that was also considered unwieldy.

The author found that both these problems could be overcome by instead using two back to back 1 k to 8 Ω speaker transformers, as used in transistor radios. These provide a 1k to 1k transformation with passive audio filtering applied between the two 8 Ω windings. This arrangement was briefly described in Sprat from the G-QRP Club.

The set here goes one simpler, using a single 3k to 3k audio transformer and less audio filtering. It also uses commercially made RF chokes in the front end. Only one frequency dependent coil needs to be wound and optimised, and even that can be removed if you substitute a 3.58 MHz variable ceramic resonator oscillator for the free running VFO circuit used.

The rest of the receiver is fairly conventional with effort made to minimise user adjustments. Incoming signals negotiate an RF gain control which also sets volume.

A series tuned circuit (10 µH RF choke in series with 180 pF) offers some rejection of signals appreciably above and below 3.5 MHz. Omitting it may cause the detector to be overloaded by strong signals on other frequencies such as the AM broadcast band.

A BC548 amplifies the incoming signal before being fed to another 10 µH/180 pF tuned circuit, this time in parallel. Both this and the front end circuit are fairly broad, though you may wish to substitute a 150 pF capacitor and 60 pF trimmer to more accurately peak signals. The RF preamp's output is taken to the product detector via a few turns of enamelled copper wire wound over the body of the RF choke.

The other signal needed is that from the local oscillator. The local oscillator is a free-running Colpitts type, tuning 3.5 to 3.7 MHz. The coil is wound on a T50-2 toroid, though an air spaced coil can be substituted. A good quality tuning capacitor and reduction drive provide comfortable tuning. These frequently appear on eBay or builders can substitute a 3.58 MHz ceramic resonator in series with a transistor radio tuning capacitor for the LC tuned circuit. This will cover approximately 100 kHz over a busy section of 80 metres.

The output from the buffer feeds the balanced mixer via a trifilar broadband inductor wound on either a two hole ferrite TV balun former or a FT50-43 toroid. This is formed from three enamel copper wires approximately 20 – 25 cm long that have been twisted in a drill chuck before being wound onto the ferrite. Polarity of windings relative to one another is important with the dots on the diagram marking one end of the winding.

At the heart of the receiver is the RF phase shift network, product detectors and AF phase shift network. This is all mounted on the one board. 3.5 MHz incoming signals are split in a phase shift network comprising of a 220 pF capacitor and 500 Ω trimpot. The trimpot's setting is critical to image rejection. I've added a parallel resistor to make adjustment easier or you can substitute a ten turn trimpot instead.

The product detector circuitry is slightly different than you might have seen. Both signal and local oscillator inputs are balanced with respect to earth. There are two audio outputs in quadrature. The SP5AHT circuit used trimpots in place of the 100 Ω resistors. Having variable resistance is essential in a transmitter to null out the carrier. However such manual balance adjustments are not so important in a receiver so stable, dustproof and cheaper fixed resistors were substituted.

The 4.7 mH and 2.2 nF networks form simple filters that strip RF remnants from signals that should by now be audio frequency. These two signals are similar except for a 90 degree phase difference between them. They correspond to the I and Q outputs of a software defined radio.

Transposing the connections between these outputs and the following phase shifter/combiner changes the receiver from receiving lower sideband signals only to one receiving upper sideband signals only. 80 metres generally requires lower sideband reception for SSB signals so the connections can be left unswitched once you have found the right polarity. However if you are adding converters for other bands and/or want LSB/USB selection you could connect a double pole double throw switch wired to reverse the polarity of signals entering the audio phase shift network.

The circuit is the AF phase shift circuit. It takes quadrature (that is, 90 degree phase difference) signals and combines them to a single signal fed to the audio amplifier via the 3k to 3k transformer. It is fairly simple so has an accurate phase shift at only two frequencies in the audio range. The more you move from these frequencies the less accurate the phase shift becomes. As a result the extent of image rejection varies with frequency.

The balanced configuration is continued through to the LM386 audio amplifier. This is otherwise of conventional design. Gentle low and high pass audio filtering is provided by the capacitors between

Photo 3: Close up of phase shift/product detector and audio amplifier boards.

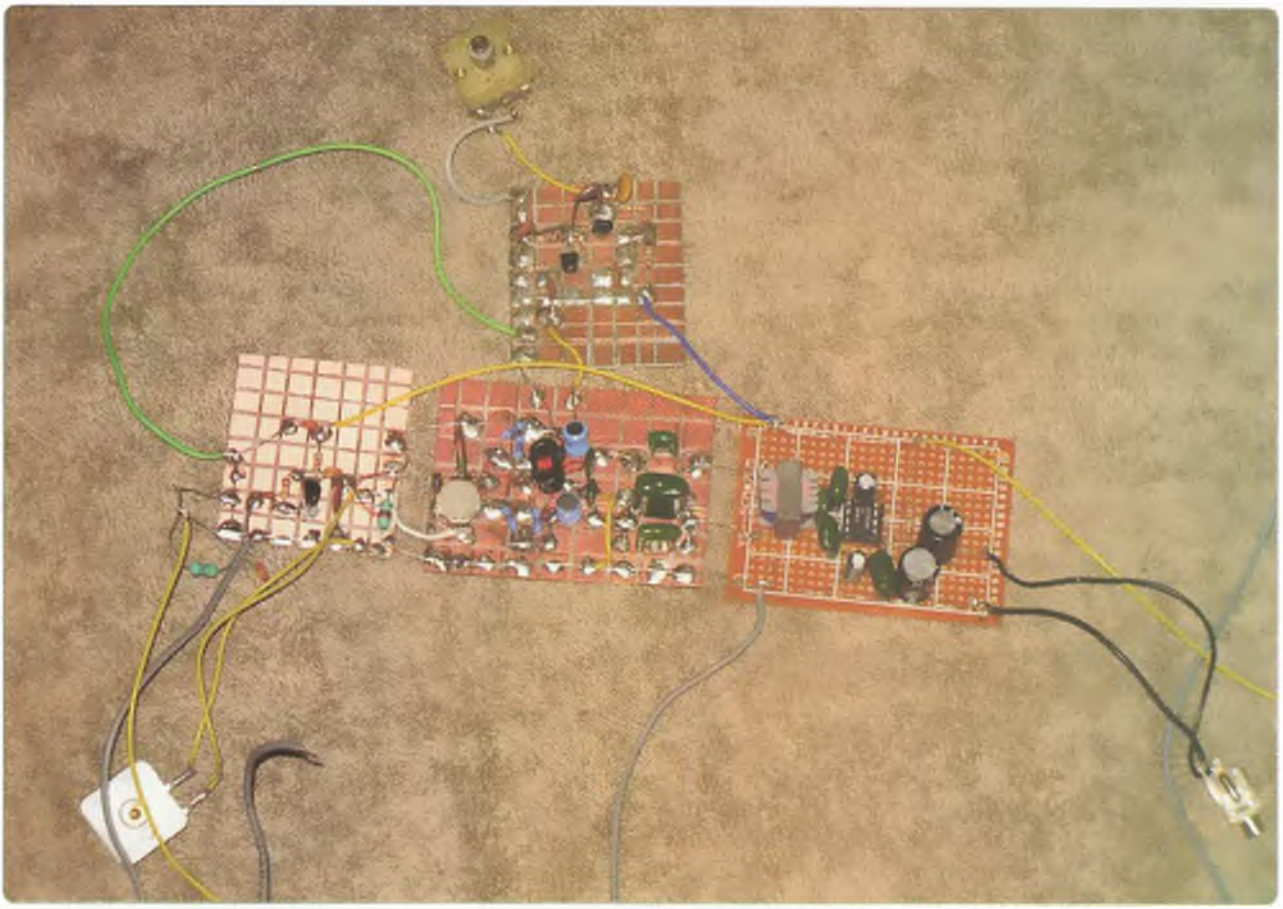


Photo 4: The working prototype – illustrating how few parts a phasing receiver needs.

the transformer and the IC. Gain is sufficient to drive a speaker on strong signals when a full-sized antenna is used. No volume control is needed as the RF gain control performs this function well.

Setting up

First, get the receiver operating as a straight direct conversion receiver and, once satisfactory, adjust for best image rejection.

Most modules are easy to test.

An RF indicator or probe is useful to determine local oscillator operation. A frequency counter can then be used to establish its frequency and tuning range. A nearby HF receiver or transceiver will also be useful but adjustment will take slightly longer. The frequency span will vary according to your tuning capacitor but aim to achieve approximately 3.5 to 3.7 MHz. A wider frequency range does no harm but makes the receiver harder to tune. This can be overcome by adding series and parallel capacitors around the tuning capacitor to lessen its range.

Add or remove turns from the toroid if the indicated frequency is a long way out. Or if within a few hundred kilohertz expand (if too low) or compress (if too high) turns on the toroid to achieve a good range. Test the local oscillator's buffer by placing a finger on its output and observing the increased strength on a nearby receiver.

The audio amplifier can also be tested with a finger. Touching the input pins of the LM386 with a finger or screwdriver should result in a click or hum.

Connect an antenna, set RF gain to maximum and search for signals during an active time on 80 metres (for example, early morning or evening). Use a full sized antenna as the receiver does not have excess gain. Those very near AM broadcast transmitters may hear breakthrough that swamps reception of desired amateur signals. Resolve this by using a narrow band antenna coupler (such as a Z-match) or adding improved front end filtering.

At this point the receiver should be providing speaker reception on at least the stronger SSB and CW signals. Performance at this point should be similar to any basic direct conversion receiver. The VK2WI Morse beacon on 3699 kHz should be plainly audible in most areas at night and is a good test.

Hearing the image

Tune either side of this beacon or a locally generated carrier such as from an RF signal generator set to 3699 kHz. The beacon should be audible at two closely separated spots on the tuning dial separated by zero beat.

If slowly tuning upwards from 3.5 MHz the first time you hear the beacon will be when the local oscillator is at 3698 kHz. This is confirmed when the pitch of the signal drops as the receiver is tuned higher (that is, capacitor plates less overlapped). Because the received signal is higher than the local oscillator frequency, this side is called the upper sideband. Keep tuning up through zero beat until the local oscillator is at 3700 kHz. The beacon will again be audible at similar strength to before. This is the lower sideband side. This is confirmed if the signal pitch rises as you keep tuning up.

Hearing both signals at the same strength means that, like ordinary direct conversion designs, the receiver has no opposite sideband rejection. In a lower sideband receiver the unwanted image signal is that above the local oscillator's frequency. A 3699 kHz carrier signal should be strong when the local oscillator is on 3700 kHz but weak (or not heard at all) when the local oscillator is on 3698 kHz. The ratio in strength between the wanted and unwanted signals is called the image rejection, and it is this which the following adjustments seek to maximise.

Adjusting and measuring image rejection

A phasing receiver can be aligned by ear but some instruments will be handy to quantify the amount of rejection achieved.

The first step is to prove the existence of a null and that some sideband rejection is taking place. Set an RF signal generator (or CW transmitter) to 3600 kHz and tune the receiver around this frequency to hear a carrier. Adjust the signal generator's output for a moderately strong but not overpowering tone in the headphones.

Confirm reception of similar pitched tones with the signal generator on 3599 and 3601 kHz and leave the signal generator on 3601 kHz.

Slowly adjust the 500 Ω trimpot with a screwdriver and listen for a change in the tone's volume. Listen for a sharp null where the volume drops greatly.

Reset the signal generator to 3599 kHz. As you've left the receiver on 3600 kHz you're now hearing the desired lower sideband which should remain at its original (louder) volume.

In completing this test, it means that you are achieving opposite sideband rejection. If it doesn't work do it in reverse. That is, have the signal generator on 3599 kHz and tweak the trimpot for a null. If you do get a null this means that the receiver is working but is on the wrong sideband. Tuning across 80 metres will reveal signals that are audible but cannot be strongly resolved.

To reverse sideband swap the connections between the diode product detector and the 4.7 mH RF chokes and repeat the test with the signal generator on 3601 kHz. This time the null should be achieved on the correct (upper) sideband and LSB signals should be tunable.

The receiver is now ready for use. However it is satisfying to measure image rejection and note how it varies with audio frequency.

There are several ways to measure image rejection.

The standard method is to use either an oscilloscope or AC voltmeter to measure and compare audio voltage on both the desired and undesired side of the centre frequency. That means taking a large number of measurements over a range of (say) 3590 to 3610 kHz. Test intervals could be every 100 Hz near the centre frequency, dropping to every 500 Hz further away. Make notes of output voltage versus frequency, either on paper or in a spreadsheet.

Graphing the result should produce a broad peak between about 3595 and 3599.5 kHz. Ideally the audio level should gently roll off below 3597 kHz and abruptly fall off on the unwanted image from 3600 kHz to above.

The variation of image rejection with frequency can be more clearly seen by making a second graph; this time comparing audio voltages above and below the centre frequency for a given variation from it. For instance you would be comparing levels achieved when the signal generator is on 3599 versus 3601 kHz. Similarly 3598 should be compared to 3602, 3597 to 3603 and so on; doing this at closely spaced frequencies up to five or six kHz away from centre. Graphing these ratios will illustrate variations including some deep nulls where image rejection is greatest. These differences arise from using a simple phase shift network that does not offer an accurate 90 degrees shift across the entire audio range.

A more modern (and recommended) approach is to download the free FrequenSee Android app and use your smartphone as an audio spectrum analyser. The screen has the audio range across the bottom and a calibrated level scale up the side. The scale is marked in 10 dB divisions.

In use the phone is simply placed near the receiver's speaker with the frequency and relative level read off the screen. If the desired sideband reads –30 dB and the undesired side –50 dB then that is a rejection ratio of 20 dB. In the prototype this was a typical ratio across much of the speech spectrum, with 30 dB nulls at optimum frequencies.

A second test is to watch the rejection vary as the RF phase shift trimpot is varied. Set the receiver to an audio image signal, adjust the phase trimpot and note how sharp the null is on the phone's screen. Repeat for various audio frequencies like 500, 1000, 2000 and 3000 Hz. The experiment shows that optimum rejection for one audio frequency is not necessarily optimum for them all. As a result, if you were to adapt this

receiver for serious CW reception one could make the phase control a ten turn potentiometer so the user can null out strong audio images, similar to a notch filter.

Improvements

This receiver makes an excellent base for a more serious set tuning several bands but only if a couple of improvements are made first.

Better selectivity is perhaps the most important. Replace the 3k:3k audio transformer with 2 x 1k to 8 Ω transformers. Connect the 8 Ω secondaries together to prove operation. Then break these connections and insert a balanced low pass audio filter comprising of 6.8 μF across each secondary and 470 μH RF chokes between the transformers (one in each line). Selectivity will be tighter with a significant roll off above 2.8 kHz and image rejection will appear better.

Any passive filter has an insertion loss and receiver gain may no longer be sufficient. Possible remedies include adding a one transistor preamp or improving the LM386 amplifier's gain by adding a few parts. Search 'Unleashing the LM386' for information.

Also recommended is a tighter front end, especially if you're near AM broadcast transmitters. Simple ways around this include using a resonant coax fed dipole and/or a narrow band antenna coupler such as a Z-match. Or add selectivity to the receiver itself, trying various 3.5 MHz low pass, high pass or band pass filters.

These two modifications will give a receiver that hears anything that a modern 'black box' will under all but the most hostile conditions. For casual listening you may even prefer the phasing receiver's 'brighter' and more 'open' reception. This is akin to a pair of binoculars (with a wide view for nearby scenes) compared to a telescope (with a narrower view suitable for distant viewing).

More advanced improvements include a better audio amplifier (to exploit the potentially 'hi fi' sound of a phasing set), converters for higher bands and even a transmitter stage to form a CW and/or SSB transceiver.

Results and conclusion

This has been a fulfilling project. The value of even modest amounts of image rejection has been demonstrated, with reception where a standard direct conversion set would have struggled. For example a narrower noise bandwidth improved weak signal reception, selectivity was tightened and handling was better on AM signals. The gain for the small number of added parts has been worthwhile.

If you've shied away from phasing circuits because winding audio coils is too hard or you can't measure large inductances, try this circuit. Get it working first then, when satisfied, try some improvements.

Bibliography

The following were influential articles on phasing SSB techniques and related topics. Web links are provided where available.

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ZL2AMJ: Tucker Tin II: Solid state version of above with valve PA. Improved opposite sideband rejection. Appeared in *Break In*, August, 1971 and later reprinted in *Electronics Australia*.

B. Aptemehko: 160 m SSB phasing transceiver. A seven transistor bidirectional SSB phasing transceiver. *http://www.cqham.ru/trx_b.htm* (in Russian - paste text into Google Translate if necessary).

SP5AHT: *MiniTransceiver Elektronika dla Wszystkich* magazine July, 2009. 10 transistor bidirectional SSB phasing transceiver for 80 metres. Similar to above Russian design but with separate TX and RX audio amplifiers. Online at *http://sklep.avt.pl/photo/_pdf/avt2906.pdf* (In Polish - paste text into Google Translate if necessary). (Editor's Note: Open the URL using the Google Chrome browser and you will receive a prompt asking if you wish the article translated).

KK7B: *Sustainable Low Power Radio QRP Quarterly*, Spring 2013. Describes simple radio circuits including a phasing CW receiver.

LA3ZA: Unleashing the LM386 LA3ZA. *http://la3za.blogspot.com.au/2003/08/unleashing-lm386.html*

A Call for Information and Articles

Phil Wait VK2ASD

In 2015, it will be 100 years since Australians became involved in World War I.

The WIA Board is looking to raise awareness of this event by producing and publishing a number of appropriate historical articles in AR or on the WIA website. In particular, we are seeking articles related to amateurs and members who served. We are also seeking stories with associated radio related activities, especially if there is a connection with amateur radio or the WIA.

Prior to 1901, only a few Australians saw active service. The first was in transporting British forces during the Anglo-Maori War of 1860. Twenty-five years later a contingent of about 770 men went to assist in the Sudan. Small contingents from New South Wales and Victoria were sent to China in 1900 when the Boxer rebellion threatened. But our first real action took place in South Africa, associated with the Boer Wars which erupted in 1899. Troops were drawn from Australian colonial (State) militias and by the end of the war in May 1902, some 16,175 Australians had served and 600 had died in service. Following Federation on January 1st 1901, a new defence structure started to take shape and more so after the Defence Act was passed in October 1903 [1].

But it was a fatal gunshot in Sarajevo on 30th June 1914 that provided the catalyst for "The Great War" – World War I. This was at a time when wireless telegraphy was rapidly expanding. Indeed in Australia, individuals had already come together to form Wireless Institutes in Sydney, Melbourne and Brisbane and in Perth the West Australian Radio Club had established. The Wireless Institute of Victoria, in April 1914, published Australia's first national call book or public listing of stations which included: 33 Land stations, 14 Australian Navy ships and 401 experimental stations! On the 4th August, all experimental stations were forced to close. We believe that a large number of experimenters became involved in the war effort, but have little in the way of formal records.

2015 is the centenary of the Gallipoli landing by Australians and members and friends are asked to submit histories, biographies or just information about amateurs involved, not only in WWI, but also WWII, Malaysia, Korea, Vietnam and Afghanistan operators, who participate in the Institute's Remembrance Day Contest, will remember hearing, at the end of the opening address, the calling of the Honour Roll of WIA members who lost their lives during WWII.

So leading up to 1915, we would like to:

- Construct a roll of all past and present veterans who were amateurs and members.
- Add to our history by calling for appropriate historical articles relating to war service.
- Seek information relating to amateurs and members, significant or otherwise, who were involved with wartime activities on active service during WWI, WWII, Malaysia, Korea, Vietnam, Afghanistan or at home.

If you wish to contribute, please forward material to the History and Archive Committee c/o the WIA office or contact the WIA Historian, Peter Wolfenden VK3RV via email *vk3rv@wia.org.au* by November 2014.

Reference

The Anzacs by Peter Pederson, Snr Historian Australian War Memorials Military History section ISBN 1357910 8642 p7-9

D-STAR on the HF bands

Ted Thrift VK2ARA

If you are feeling that normal DX using SSB is becoming boring, here is something new. D-STAR digital does work on HF, and works VERY well, just like on your VHF or UHF D-STAR repeater!

On Friday 14th February 2014 at 0234 UTC history was made when Brian VK2AH had a D-STAR contact on 29 MHz DV, into Seattle, Washington State, USA. The QSO was with Brian KE0CO, who was running 500 watts and a Hex beam, across a distance of 12,520 km. The copy was great for a short time but then dropped out. There was also a JA3 on the same frequency but his message was the only part of the transmission that was received. The audio was not readable.

On Sunday 16th February 2014 at 0003 UTC Brian had a QSO with Frank WA9JWL, in Anderson, Indiana, USA, with reports of 59 both ways. The distance was 15,047 km. Brian had about a five minute contact then again dropped out.

Also heard were K4DJL using a TS-2000 and a DV adapter and K7WLF but both stations were not readable enough to hold a contact.

At the time, the north American 29 MHz FM repeaters on 29.640, 29.660 and 29.680 were rock solid into Brian's QTH at Bulli, in grid QF55kq. When Brian keyed up he heard about four or five different tails come back, so he could not tell from which repeater they emanated.

Brian is looking forward to some 10 metre DX within Australia so he can try D-STAR on HF. The equipment used on his end was an IC-7100 running 100 watts into a five element monobander at about nine metres.

Brian also operates D-STAR on HF on 40 metres and has had about nine or ten contacts on that band. In time other bands will be used. If you have a radio that will TX on D-STAR on HF and have not tried this GREAT mode, why not give it ago?

The radio is very easy to use on HF D-STAR. Select a frequency, change to DV mode, but listen on the band, in SSB mode, before calling and then call CQ.

To use the DV on HF! Just have your call in the MYCALL field. CQCQCQ in the UR field. Brian likes to refer to this as U R calling CQ CQ CQ - and the repeater 1 and 2 leave blank. The message can be whatever you want to have.

Hopefully soon a HF D-STAR net will be running. If any reader has any suggestions, about this or anything re HF D-STAR contact Brian at *vk2ah@wia.org.au*

Maybe one day someone will come up with a transverter to make that old IC-2820, ID-800 and so on TX on a HF band, let's say 7.215!

AMSAT-VK

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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 8.30 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.

A 16 bit two channel USB soundcard using the PCM290x codec

Erich Heinzle VK5HSE

Introduction

A minimalist USB sound card designed by Andy Talbot G4JNT was featured in the August 2011 edition of RadCom. The design featured a surface mount 28 pin SSOP packaged audio codec made by Texas Instruments. Since reading this article, a bespoke PCB has been on the to-do list. A PCB simplifies not only the use of a surface mount PCM290x codec, but also the use of PCB mounted 3.5 mm stereo sockets and a type B USB socket, which do not usually feature 2.54 mm pin spacing compatible with prototyping boards.

Why build a USB sound card?

The cost of a homebrewed USB sound card is somewhat less than the commercial USB audio interface offerings, such as the popular 'Signalink' digital mode interfaces. These interfaces in fact use the PCM290x series of codecs used in this project. The PCM290x chipsets are supported under GNU/Linux operating systems, and reportedly work on MS Windows 1998 and above, and Mac OS 9.1 and above.

In addition, these devices provide stereo audio input, unlike the cheaper USB audio interfaces or 'dongles' commonly available online or in computer stores which only support single channel audio input for a microphone. Stereo input is required for I/Q audio capture from quadrature down converting software defined radio (SDR) transceivers. The PCB design presented would also be more easily incorporated into a homebrew SDR than typical dongles.

Another reason for using a USB audio interface is the profusion of 3.5 mm, four pole, tip-ring-ring-sleeve (TRRS) sockets on recent netbooks, laptops, tablet PCs and smartphones. These TRRS sockets only support one channel of audio input along with stereo output. Further complicating the use of TRRS sockets is the manner in which the audio chipsets driving the TRRS socket implement the detection of microphone insertion. The chipset looks for an appropriate impedance before concluding a microphone has been inserted and only after this is the microphone input amplifier enabled – making the use of such ports potentially hit and miss, and only single channel even when they do choose to work.

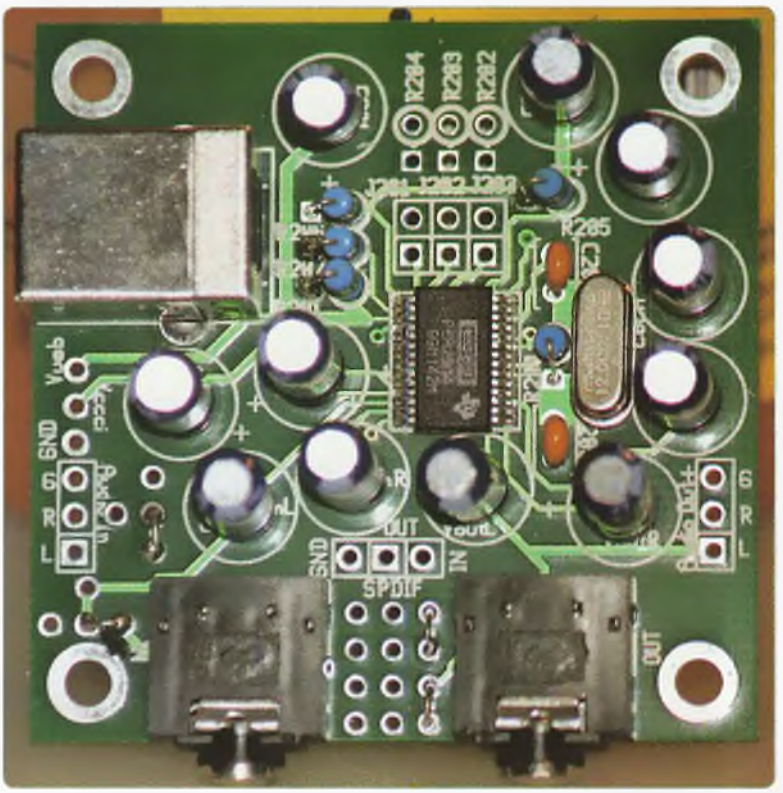


Figure 1: The assembled PCM290X based stereo USB soundcard. Optional trimpots for level adjustment have not been installed. Headers for an optional external ADC power source and for SPDIF have not been installed.

Finally, embedded Linux platforms such as the Raspberry Pi currently lack high quality 16-bit audio interfaces, and USB sound cards such as this are an ideal means of adding such capabilities for radio applications.

The PCB Design Process

The gEDA toolchain used for this project is an open source software suite which includes the gschema schematic editor and the software package PCB which - as the name suggests - is used after gschema for laying out the printed circuit board. A schematic symbol was

unavailable for the PCM290x series in gschema, but one was able to be quickly created in gschema using online tutorials. Once the schematic symbol had been created, a standard SSOP-28 footprint was allocated to it, and the rest of the schematic populated in accordance with the Texas Instruments data sheet design recommendations. A netlist was exported from gschema, which was then used by PCB to lay out the circuit board.

After a prototype double sided board was designed in PCB, Gerber files and a drilling file were exported by the software, which were then sent to the board manufacturer. The board was designed to be no greater than 50 mm to a side, as this is the threshold above which circuit boards become more expensive with my usual PCB fabrication house, Hackvana.

The final PCB

The final PCB is exactly 50 mm square, and has four mounting holes each four mm in from the edges, making the hole spacing 42 mm between centres. The mounting holes are intended for standoffs, enabling the PCB to be mounted more easily in existing

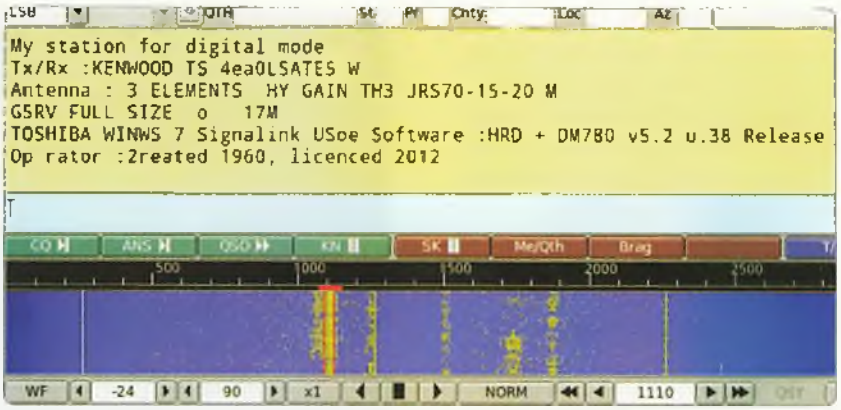


Figure 2: Putting the assembled board through its paces with a Yaesu FT-817 and Fldigi on Linux.

equipment. The PCB has provision for 2.54 mm headers in case 3.5 mm audio cables with plugs are not being used for audio signal routing. Finally, the analogue positive supply rail pin, Vccci, the USB +5 V rail, Vusb, and the S/PDIF pins have also been brought out to pads in case the builder is keen to experiment with separate power supplies or S/PDIF interfaces.

If you don't like the layout of the PCB, feel free to modify the layout and have your own design made.

PCM290x flavours

The PCM290x series includes the PCM2900, PCM2902, PMC2904 and PCM2906 and are essentially pin compatible. The devices vary in terms of having S/PDIF capability, their supply voltage options, and most importantly, some devices have a one sample delay between the sampled right and left audio data. This will not matter to builders doing audio capture for RTTY, SSTV, PSK, or similar modes, but may affect those using quadrature down conversion SDR rigs. Software can be modified to take this delay into account, but constructors are advised to review the product errata for the particular PCM290x and chip revisions available.

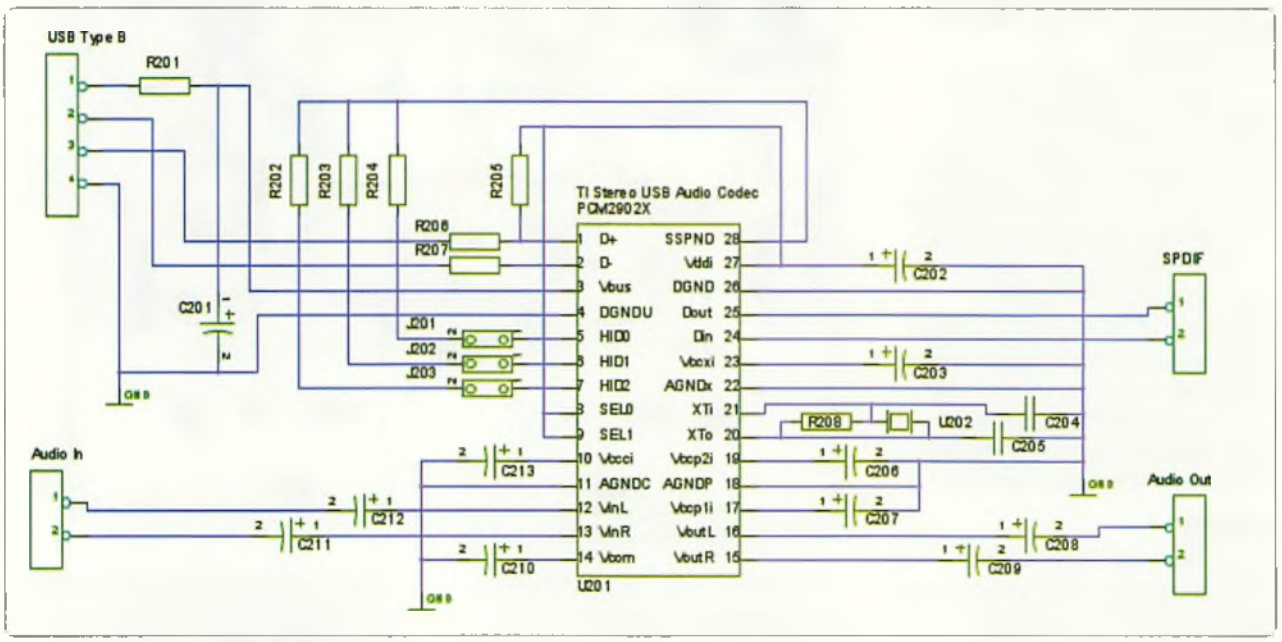


Figure 3: Circuit diagram based on the TI application note.

Construction

The component numbering reflects the intended use of this board in combination with a number of other boards, which together will add an isolating interface and rig control for mobile or shack operations.

Constructors should commence with the USB codec, which is a 28 pin surface mount device. A solder stencil could be made but the technique previously described involving a hotplate ('A surface mount resistor dummy load for QRP power levels', VK5HSE), a lift-off jig, and some solder paste proved quite satisfactory with no rework being needed. Indeed, the prototype worked the first time it was powered up.

The Codec requires a 12 MHz crystal, and two capacitors to suit, typically 18 pF or 22 pF, and a parallel one MΩ resistor, which can be installed next. Ensure the 12 MHz crystal is kept off the pads with a suitable spacer, or the crystal housing may short the pads. After this, the 22 Ω USB data line resistors and the 2.2 Ω USB power line resistor and the 1.5 kΩ resistor can be installed. The eight 1 µF electrolytic capacitors, and two 2 µF capacitors (C213, C210) can be soldered in next, being mindful of polarity, along with the USB and audio sockets.

Provision has been made for optional user pushbuttons and headers for their wiring, but the three 1.5 kΩ resistors and headers for the pushbuttons can be ignored if control buttons are not required.

As an afterthought, space was made on the PCB for installation of four optional vertical multiturn trimpots, for signal level adjustments, but most users can simply install the four wire links where indicated on the silkscreen, using component lead leftovers.

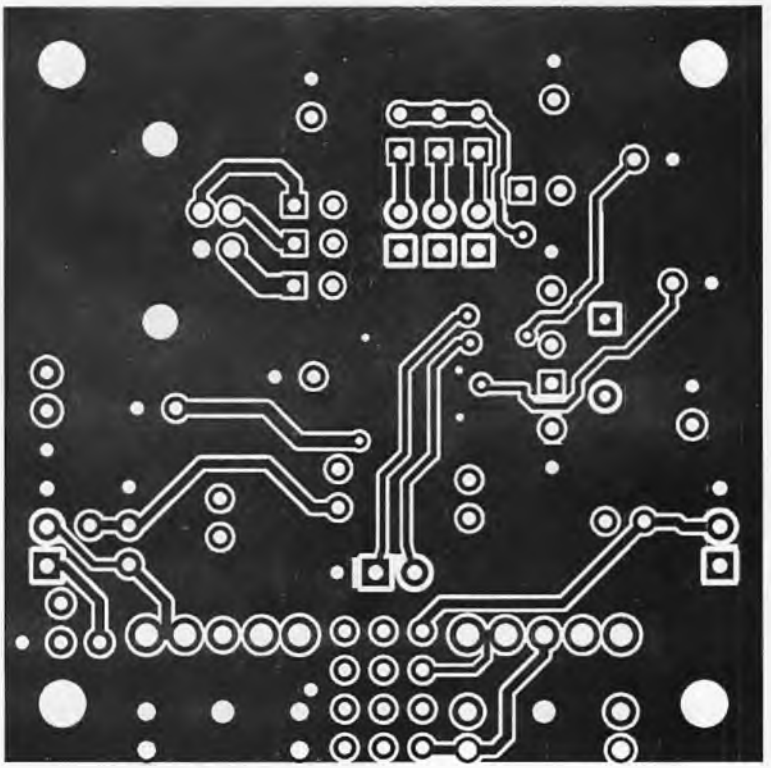


Figure 4: Bottom copper layer.

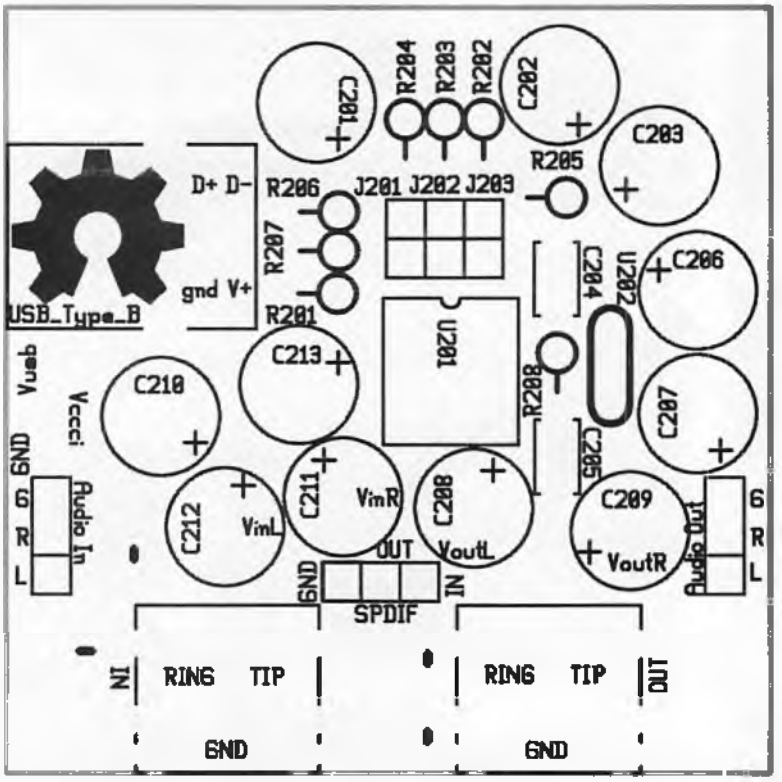


Figure 5: Top silkscreen layer.

Testing

The device was recognized immediately as a USB audio device when plugged into a netbook running Ubuntu Linux. When set as the default audio device, fldigi had no trouble capturing PSK traffic on 40 metres on a G5RV equipped FT-817. Also, fldigi had no trouble transmitting digital mode audio on one channel as well as a keying

tone on the other channel. Cautious builders may wish to apply five volts with a suitable power supply or USB hub before risking a desktop or laptop USB port.

Final remarks

Texas Instruments have done a very nice job with the PCM290x family, enabling 16 bit audio interfaces to be built with only a handful of components. Quadrature downconverting SDR users just need to ensure that they choose the right codec revision or take account of any sampling offsets in software.

Design files are available on github for those wishing to experiment with the layout, and double sided, FR4, 1.6 mm thick, silkscreen, through hole plated and soldermasked PCBs will be available from *http://www.aztronics.com.au*. The PCB design is licensed under the TAPR open hardware licence, which can be found at *http://www.tapr.org/OHL*

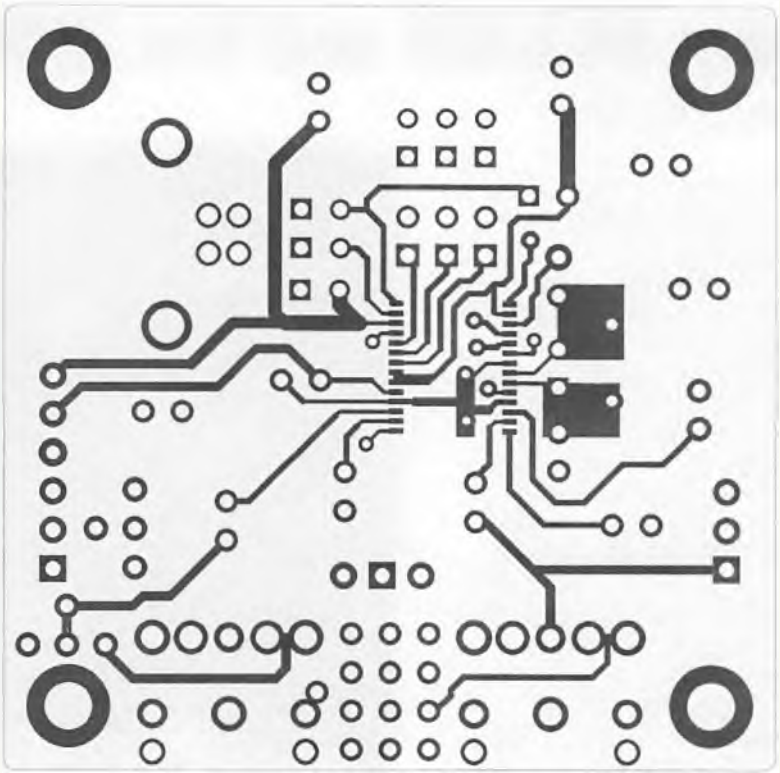


Figure 6: Top copper layer.

Component list

U201	Texas Instruments PCM290x, i.e. PCM2900, PCM2902, PMC2904, PCM2906
U202	12 MHz HC49 footprint crystal
C204, C205	22 pF or 18 pF ceramic capacitors, depending on crystal requirements
C210, C213	2 µF electrolytic capacitors
C201, C202, C203, C204, C206, C207, C208, C209	1 µF electrolytic capacitors
R201	2.2 Ω
R205	1.5k Ω
R206, R207	22 Ω
R208	1 MΩ
R202, R203, R204	optional, 1.5 kΩ, if pushbutton inputs being used
Type B USB socket	3.5 mm stereo PCB socket x2

Participate

VK Shires Contest 7 - 8 June

Winter VHF/UHF Field Day 21 - 22 June

Team VK3JNH and the JMMFD 2014

Stephen Warrillow VK3SN

The VK3JNH team headed once again to the Victorian Alps for the JMMFD in 2014. In an effort to reach one of the three highest points in the state, arrangements were made to access the Bogong High Plains and operate from a location situated at 1850 metres ASL. After an early morning drive from Melbourne to Falls Creek, we left the bitumen and drove up a rocky fire trail to above the tree line onto the high plains proper. Gradually climbing, the track meandered across creeks and through snow grass and alpine heather meadows to a massive plateau with views to Gippsland southwards and the Kosciusko Main Range in the north-east. After a short lunch-break in the warm sunshine, we deployed the camper trailer, antennas, solar panels and radios.

Photo 2: VK3SN (foreground) and VK3GT hard at work before the storm rolls in. Photo by David Warrillow.

Early on Saturday the sunrise was a glorious, but foreboding crimson against high clouds; *'red sky in morning - field day operator's warning'!* A light breeze kept the temperature down to about 11 degrees and the sun shone periodically to charge the batteries. Once the field day commenced, bands were reasonably active and contacts were made across HF as well as VHF/UHF. By evening the weather had become distinctly hostile with winds of 80 km/hr, peaking at 115 km/hr. Several rain

Photo 1: View from the third highest point in Victoria; Mt Bogong is seen directly northwards (at the left of the panorama). Photo by Stephen Warrillow VK3SN.

Photo 3: Red sky at morning - field day operator's warning! Photo by Stephen Warrillow VK3SN.

Photo 4: The VK3JNH field day set up while the sun was shining. Photo by David Warrillow.

bands blew through, dumping over 30 ml in an hour or so. These issues were manageable, but the lightning was another thing altogether...

After hearing a few distant rumbles, we decided to disconnect the antennas. Just as the HF dipoles were unplugged, a stream of blue sparks arced from the coax across a distance of four to five cm to our operating position at an aluminium camping table. The HF operator got quite a hefty zap into the bargain. This combined with a few more bright flashes of lightning and deafening thunder made it clear that sitting on the roof of Victoria alongside nine metre aluminium vertical masts was not a good place to be at that time. All rapidly agreed with a suggestion to jump into the 4WD and retreat a few hundred metres down the mountain while the thunderstorm passed through!

After a few hours, the lightning settled and we drove back to the operating position. All seemed well regarding our gear, but it was now quite late and we were weary from the ongoing strong winds which shook the camper like a small boat in a storm. From our reading of the BOM website, the alpine wind was never less than 70 km/hr and often gusted to at least 50 km/hr above this. We crept into sleeping bags to keep warm in the zero degree temperatures, which felt colder with a minus nine degree wind chill! Sleep was hard to achieve with the experience best described as a little like lying alongside a rushing freight train all night.

Sunday morning's weather remained treacherous, with strong wind, low cloud and freezing temperatures. Given that there was no likely respite from the elements, we decided to pack up early and head down the mountain. Remarkably, apart from a loose element on the six metre Yagi, all the antennas and masts were intact. After a slightly miserable few hours packing up, we coupled the camper trailer to our vehicle and drove down to the safety of the Kiewa Valley. We'd had a rather 'character-building' field day experience, but at least the period we did operate for was satisfying, with a series of decent contacts across all bands we operated. 23 cm in particular had been quite successful and all the gear had held up well. For the future, our obvious take-home lesson is to assume the worst when alpine weather predictions make specific mention of strong winds and thunder storms - *the meteorologists aren't kidding!*

Team VK3JNH 2014

The four person team consisted of Stephen VK3SN, Gerard VK3GT, Tony VK3XDL and David Warrillow SWL.

Spotlight on **SWLing**

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

Winter is certainly here and I am feeling it increasingly. I guess it is the result of the ageing process. My ongoing hearing hassles resurfaced as well in April and this required a trip to the surgery to have my ears syringed. Thankfully it mostly restored my hearing back to some kind of normality, allowing me to monitor shortwave. I am mainly utilising the Dutch University webSDR yet there seems to be an ongoing annoyingly intermittent audio fault, which they claim is confined to one specific browser, that is, Mozilla Firefox, yet I have experienced these dropouts on other browsers. Now they claim to have found the culprit, poor ventilation caused by dust build-up in a fan! Fortunately there are a number of sites available on Globaltuners yet they do not have spectrum displays like the Twente webSDR. I realise that there are other webSDR sites available but those I have found concentrate on amateur allocations and single users, compared to 200 simultaneous connections to the Dutch facility.

I received an email chastising me for comparing the Kingsley AR7 communications receiver, manufactured in Australia during World War II, with the RCS AR88. It appears that the former was indeed based on the National HRO model as the latter had different circuitry and layout. Graeme Zimmer VK3GJZ has pointed this out to me. The only AR88 models I did see were in the Deitch Surplus store ads in *Radio and Hobbies* magazines in the fifties and early sixties. How I used to daydream about acquiring those advertised receivers when I was a teenager! One of my cousins gave me his collection of that magazine covering the period from the forties through to the late 50s. Sadly these were lost after I unwisely lent them to a fellow schoolboy who moved to the mainland without informing me. They were good reading too. Gossip is that he later joined ASIO because nobody has heard of him since that day!

I notice that the Obama Administration is proposing a complete overhaul of the International Broadcasting Bureau (IBB) that oversees the VOA, Radio Marti, Radio Free Asia and Radio Svboda (Liberty). There now is such a wide variety of delivery systems and I am informed that a new strategy is needed to cope with these. Another more pressing problem has been serious administrative breakdowns within the organization, which has hampered the IBB's effectiveness in presenting their message to the world, especially during the recent Ukrainian crisis.

European monitors have been reporting increased activity on HF related to events around the Black Sea. Crimea is now part of the Russian Federation and there are continuing tensions in eastern Ukraine, close to Russia. The ethnic Russian speaking population there wants to be allied to Moscow, whilst the bulk of the central and western regions favour Ukrainian independence and to be a part of the EU.

GippsTech 2014

Make more use of that multi-mode, multiband transceiver that includes 6 m, 2 m and 70 cm! Learn more about what can be worked on VHF, UHF and microwaves through a two-day immersion experience by attending the annual GippsTech conference.

GippsTech has a reputation as a premier amateur radio technical conference. It focusses primarily on techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts.

It is almost that time again: GippsTech 2014 will be happening on the weekend of the 12th and 13th of July, at Federation University Australia Gippsland Campus in Churchill, Victoria, about 170 km east of Melbourne.

A Partner's Tour will be conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

Those of you who have more experience and have information to share with others are invited to submit titles of presentations to the Conference Chair Peter VK3PF as soon as possible.

We look forward to seeing you at GippsTech in early July.

Further details are available from the Eastern Zone Amateur Radio Club website: **http://www.vk3bez.org/**

DX-News & Views

Luke Steele VK3HJ
vk3hj@wia.org.au

April on the bands

During April, the average solar flux index and smoothed sunspot number both trended downwards. It may be that the second (or third) solar peak of this cycle is declining, but it will take some months more data to confirm this trend.

Right at the end of March there were two M-class and one X-class flare. Then the 3rd and 18th April saw strong M flares, with a coronal mass ejection reaching Earth, resulting in a geomagnetic storm. On the morning of Anzac Day, there was an X 1.3 flare and a strong shortwave fadeout for nearly an hour.

Solar flux is predicted to pick up again towards mid-May, but only time will tell what happens. As always, don't presume a band to be dead, even if there are no signals heard.

Interesting DX heard or worked were the TX6G DXpedition to the Austral islands, VK9MT DXpedition to Mellish Reef, two Germans and a Dutchman on air from American Samoa, A35V and A35X were a pair of Scots in Tonga, 3D2SE was Wes ZL3TE in Fiji, 5J0X was a DXpedition to the Caribbean island of San Andres. Vlad UA4WHX was active from Galapagos, then Easter Island, and then Paraguay and Brazil. Lee DS4NMJ is on air as D8A from then new Korean Antarctic research base, Jang Bogo. 7P8R was a DXpedition to Lesotho in southern Africa.

The United Nations, Vienna International Amateur Radio Club has been active as C7A for the World Meteorological Organization and 4Y1A acknowledging the International Civil Aviation Organization. QSL both via 4U1VIC.

In the mornings, there have been short path openings on 10 metres to Central America and the Caribbean, and sometimes to Africa on the long path. In the afternoons through to around sunset, 20 m and 17 m have been open regularly on the long path. Some nice strong short path openings on 20 m to North America have been evident from afternoon to late in the evening. Africa has been open on the higher bands on the short path around sunset into the evening.

On 160 m, the DX has been very sparse, but Robert DU7ET has been coming in like a beacon every evening, usually on 1823 kHz with his distinctive bug sending. Please observe the band plans. On 160 m on some evenings, SSB and AM stations have been operating in the CW only segment of the band. Quoting parts of Note 1 in the band plan: 'DX operation has absolute priority between 1810 and 1840 kHz.' and 'Operation may vary from the band plan during times when all stations within working range are in full daylight.'

An 'unofficial' segment around 1838 kHz is used regularly for WSPR beacons. So, after dark, please don't transmit below 1843 kHz using LSB (or AM), to keep your emissions above 1840 kHz. During the day, permissible modes may be anywhere in the band, which for VK is 1800 – 1875 kHz.

At the start of May, the bands have been winding down somewhat, but there's still plenty of DX for those who take the time to look for it.

On a personal note, the adventure of a major DXpedition in VK9MT Mellish Reef was one to remember. A long boat trip, the heat and constant wind on the island, the huge pileups and the camaraderie of working towards the common goal will remain a highlight of the author's amateur radio journey. Read all about it in a full article to be published soon.

7QNL, **Malawi.** Remco, PA3FYM and his wife Saskia plan a three week DXpedition to Malawi. In addition to working as many bands as possible using CW, SSB and RTTY, there will be sight-seeing and support for a local charity. QSL to

Some upcoming DX operations

The following table summarises some of the DX activations that may be of interest to VK operators.

Date	Call	QSL via	Information
18 May – 9 June	7QNL	PA1AW	Malawi. PA3FYM, 80 – 10 m, CW, SSB, RTTY.
28 May – 3 June	A35JP/P	LotW	Tonga, Niuatoputapu I (OC-191). JA0RQV, 80 – 6 m, CW, SSB.
29 May – 4 June	P40DM	K5NOT	Aruba (SA-036). K5NOT, W5BL, K5RAU, 20 – 6 m
4 – 18 June	J6/G0VJG	G4DFI	St Lucia (NA-108). G0VJG, 40 – 6 m, SSB.
8 – 27 June	FS/K9EL	LotW	St Martin (NA-105). K9EL, 160 – 10 m.

PA1AW. For more information see: *http://www.malawihf.org/*

A35JP/P, **Tonga**. Masa, JA0RQV plans to operate from Hihifo village on Niuatoputapu I; 80-6m; CW, SSB. He will be using 100 watts to a vertical antenna. Operation will be limited, as there is no commercial electric power. He will need to source a car battery or generator. If he is unable to make it to Niuatoputapu I, Masa may operate from Vava'u Island (OC-064) or Tongatapu Island (OC-049) instead. QSL via LotW, or JA0RQV direct or bureau. For more information see: *http://blog.goo.ne.jp/rqv*

P40DM, **Aruba**. Michael K5NOT, Douglas W5BL, and Louise K5RAU plan to operate as P40DM, with a focus on six and 10 metres, but will operate 6 – 20 m also. They plan to operate using the group callsign of P40DM, but may also operate using individual callsigns P40TX, P40DL and P40LW respectively. QSL P40DM via K5NOT, and individual callsigns via home callsign.

J6/G0VJG, **St Lucia**. Nobby G0VJG will be operating from St Lucia using 40 – 6 m SSB only. QSL via G4DFI.

FS/K9EL, **St Martin**. John K9EL will be returning to operate from St Martin. His station there consists of an IC-7000, 500 watt amplifier, verticals for 40/80/160 m and dipoles for 10 – 30 m. QSL via LotW, Club Log and eQSL.

Special thanks to the authors of The Daily DX, 425 DX News, DX World, NG3K's Announced DX Operations, and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from *www.dailydx.com/trial.htm*

Editor's note: Please note that Luke has produced the last few columns by himself, a fact not known to me until this issue of the column arrived. Luke has also indicated that he is finding the task conflicting with his work commitments. I therefore ask for someone to accept the challenge of continuing the production of this column. Please address Expressions of Interest to Ernie VK3FM at ***armag@wia.org.au*** *I thank Luke and Chris VK3QB for the efforts in supplying our DX News since the September 2012 issue, and especially thank Luke for his solo effort over recent months.*

SOTA News

Allen Harvie VK3HRA and Bernard Petherbridge VK3AMB

This month we celebrate the second VK Mountain Goat, Peter VK3PF.

This will be no surprise to any who has had contact with Peter. His enthusiasm for amateur radio and portable operations in particular appears limitless. This was completed in less than two years. Starting in May 2012, the first year of activity was long for all, often involving long activations to qualify a summit and even the occasional unsuccessful activation, none of which was a deterrent for Peter.

Heavily involved with the mapping process for VK2 and VK7, and the promotion of SOTA through *AR* magazine, Peter's support for SOTA extends to the joint activations to introduce new operators to the joys of portable operations as well as national park activations. It has been a big month for Peter as he also completed the final activation required for claiming the KRMNPA (Keith Roget Memorial National Park Award) for the activation of all VK3 national parks, plus managed to chase the last two parks to be the first amateur to have chased all 45 national parks. The latter achievement was a close call – Peter VK3ZPF worked his last needed park some 45 minutes after VK3PF had his last park in the log!

An account of the final push to Mountain Goat, together with many other SOTA trips, can be found on Peter's blog: *http://vk3pf.wordpress.com/*

Many of the more remote summits are being activated as summer has well and truly left us and we are heading towards the winter bonus period. This is the sweet period between seasons where you can go deeper into the bush without worrying about the fire risk before winter makes these remote regions too hard to access. So with the expected fine weather and opportunity to have 10 days over the Easter and ANZAC day period, many in VK headed for the hills. With so many activators out and about S2S (Summit to Summit) opportunities were aplenty.

A summit to summit contact is when an activator on one SOTA peak contacts another activator on a different summit. It allows the activator to also chase summits. VK is well represented with S2S contacts with the practice of activators travelling to local summits to avoid the inherent urban noise to chase quite common. With increased activity the opportunities for S2S contacts also increase. For example over Easter there were 66 separate activations for 1184 contacts.

A summary of the S2S activity follows with apologies to any I have missed:

Ian VK1DA – 2 activations and 7 S2S. DM/BW-228 is cool.
Andrew VK1NAM – 8 activations with 39 S2S contacts
Andrew VK1MBE – 4 activations with 22 S2S
Al VK1RX – 1 activation with 12 S2S
Gerard VK2IO – 1 activation for 11 S2S
Matt VK1MA – 3 activations for 15 S2S
Matt VK2DAG – 2 activations for 48 S2S contacts
Rod VK2TWR – 3 activations for 9 S2S
Bernard VK2IB – 9 activations for 30 S2S
Rod VK2LAX – 3 for 21 activations
Nick VK3ANL – 4 activations for 7 S2S
Mark VK3ASC – 6 activations with 26 S2S
Tony VK3CAT – 5 activations for 22 S2S
Allen VK3HRA – 1 activation for 4 S2S
Marshall VK3MRG – 4 activations for 16 S2S
Peter VK3PF – 11 activations with 31 S2S contacts
Wayne VK3WAM – 8 CW activations for 10 S2S
Glenn VK3YY – 3 for 9 S2S. One activation with S2S using dummy load.
Ian VK5CZ – 2 activations for 4 S2S
Ben VK5TX – 3 activations with 8 S2S
Michael VK6MB – 2 activations for 6 S2S

Not to be content with local contacts, the S2S contacts extended to DX contacts with expat VK2JI, now DD5LP, out for an activation with the intent to work VK. The summit (DL/BE-094) was qualified completely with VK calls (2 of these S2S) for a total of 4 x S2S (3 VK and 1 GM) and 20 contacts in all from VK1, 2, 3 and 5, KA3, EH1, YO7 and 8, YL2, EA1 and 2, LA, OH, LZ1, GM and G. An account of this activation is available from: *http://vk2ji.com/2014/04/22/sota-europe-april-20th-2014-dlbe-094-irschenhausen/*

A new face to amateur radio - introducing Amanda VK3FQSO, VK's first female Sloth

Amanda Bauer VK3FQSO

My husband Bob VK3FLAK has been a shortwave listener for many years so radios have always been in our household from the beginning. When Bob got his Foundation licence in February 2013, I was a reluctant listener on his QSOs and chirped in occasionally; however, I have never been very confident in front of microphones, and hate talking on telephones, so the idea of actually getting my licence and talking to strangers

was a scary prospect. But, slowly, I became more and more interested in amateur radio and looked forward to hearing some regular skeds on air and the DX opportunities on 15 metres and thought maybe getting my licence wouldn't be so bad after all. One day Joe VK3YSP, with whom Bob was having regular skeds, said that his wife Julie had heard of a Foundation course being run by ALARA that was coming up in September, and so, under slight peer pressure, I added my name to the list and Julie and I went along for the weekend and gained our Foundation licences and on the 15th of October, 2013 I was able to get on air and chat.

Amanda VK3FQSO with her three children in the family shack.

Although, I probably didn't start off as most new people would, as only two weeks after getting my licence, I jumped in the deep end and took part in the 2013 CQ WW DX SSB contest. I entered in the Single Operator, Low Power, Single Band (15 metres) section. That was a very steep learning curve on so many levels. Not only was it a struggle to be heard with my 10 watts, even when it was going out through the five element mono-band Yagi, but having such a long callsign made it difficult for the DX stations, some of which had never heard of a VK four letter suffix before. The official results come out in April this year and it looks like I may get #1 in VK for the section I entered.

I got my first taste for chasing points when our good friends Joe VK3YSP and Julie VK3FOWL activated some National Parks and SOTA summits on a trip they made in late 2013. If it wasn't for them, I would never have known about the various award programs available in VK. It gave me a reason to get on air regularly and I enjoy having personal goals to work towards in regard to amateur radio. With so many different award programs available, it is great to ultimately get some lovely certificates to decorate the shack. My husband is not a contester and has never been very interested in numbers and points of QSOs; he prefers to rag chew with a preference for DX and whilst that is nice, it's not really what I like to do. He doesn't get my competitiveness but does encourage me so much, and having an antenna fixer-upper and armstrong rotator on hand is always a bonus! He also knows that when it comes to radios, antennas and towers, I will whole-heartedly agree on everything, so long as I get full use of it all, so it's a win-win situation for both of us!

At the moment I use either the Kenwood TS-120V or the TS-140S and the majority of my chasing is on the 40 metre band using a half-wave dipole that is about 10 metres off the ground. We also have an 80 metre half-wave dipole and a five element mono-band Yagi for the 15 metre band which is where we do most of our DX contacts. We also have many other antennas waiting to be put up, mainly for 10 metres and 70 cm. We are in a perfect location on top of a hill on acreage and are on stand-alone solar power, with no neighbours close by so our noise levels are extremely minimal and usually any interference is from cheap power supplies from the kids' Zepads or battery chargers. I am at this stage actively chasing for the KRMNPA, WWFF/VKFF, and the SANPCPA programs and SOTA and I hope to upgrade to a standard licence this year. Not only will it allow me more power, but it will give me access to the 20 metre band which opens up lots of opportunities for DX SOTA. As of 29 March 2014 I managed to become the first female VK to reach 1000 points or most commonly known in SOTA as 'Shack Sloth', all on the 40 metre band. It has taken me three months, and 210 contacts with VK activators to gain the award. It has been a lot of fun and I hope to eventually reach the top 10 of VK3, although that may take me quite some time, as there are a few top chasers that have amassed some amazing numbers.

When I am not on the radio chasing park and summit activators, I home-school my three children, aged nine, eight and six. I enjoy scrapbooking, reading, cooking, and geocaching. Living rurally, we do a lot of outdoor activities during our day and the children have their own walkie talkies that they use whilst running around, and talk with their own callsigns and hold their own radio nets. At the moment we are all trying to learn Morse code together and, I'm sorry to say, the children are doing better than myself and often correct me when I make mistakes! They are looking forward to when they can sit for the Foundation test themselves.

VHF/UHF - An Expanding World

David Smith VK3HZ
e *vk3hz@wia.org.au*

Weak Signal

10 GHz band

For those seasoned VHF/UHF operators looking for a new challenge, the 10 GHz band provides a variety of fascinating new experiences.

Despite general belief, propagation paths on the band are much more than simply line-of-sight. When a path is LOS, the signals can be rock-crushingly strong, seeming to come from all around, reflected off trees and rocks, even over distances of greater than 150 km. Beyond that, troposcatter propagation takes over and can provide signals beyond 400 km without special conditions. The clouds and rain seem to contribute a variable amount of scatter depending on their nature, spreading the signals in frequency and introducing Doppler shift. With careful planning of the QSO path, aircraft enhancement has also been used for contacts, providing strong, if somewhat brief, signals over distances up to 850 km. Then last summer, tropo ducting was used for a contact of almost 2300 km between VK6 and VK3.

Like any band, good results require decent equipment. While there are no complete off-the-shelf 10 GHz systems available, building your own can be a fairly simple systems integration job, putting together gathered bits and pieces to form a complete unit. There are now a number of sources of transverters – VK3XDK, Mini-Kits, DEMI and Kuhne come to mind. Dish antennas are readily available, either offset-fed satellite dishes or prime-focus dishes such as the Mitec surplus ones. There are many fellow 10 GHz band operators around who are more than willing to provide advice and assistance with building a system.

Many people now run frequency locking on their systems, opening up a wide range of new possibilities. Narrowband digital modes such as WSJT JT65 or JT4 are now possible producing a substantial extension of the distance that can be worked. Even if voice contacts are your primary interest, digital modes dig much further into the noise and so can be used to test a path, peak your dish pointing and then 'play the QSB' until signal levels reach those necessary for an SSB contact. Digital modes also allow ready observation of effects like cloud and rain scatter.

Many permanent home stations are now appearing. While a reasonably clear location is an advantage, QSOs are still possible using scatter from surrounding hills, clouds, and rain bands. Building a portable system is not all that difficult using, for example, a surveyor's tripod to support the system.

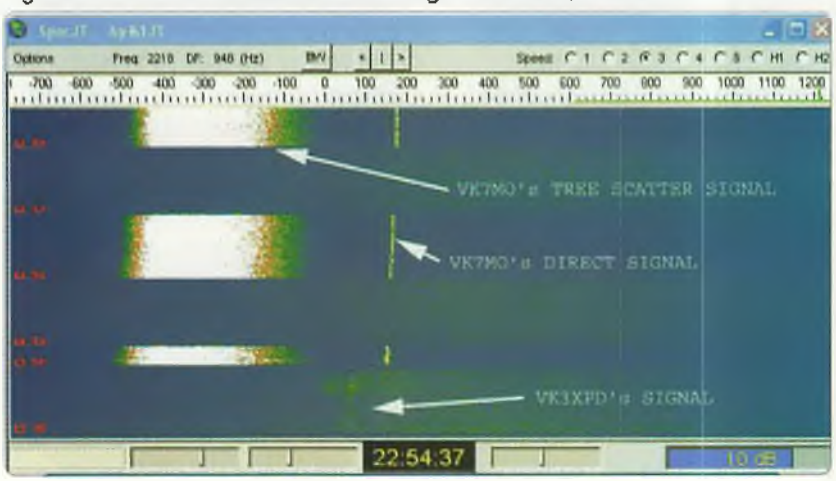
Russell VK3ZQB has a permanent home setup on 10 GHz. He has regular QSOs with Colin VK5DK in Mt Gambier over a path of about 150 km. At one stage, Rex VK7MO was operating nearby and Russell observed some unusual signals as he explains:

While Rex was in Portland operating on 10 GHz, his signal to me would have been strong enough to light a P lamp connected to my dish feed. I had a contact with Rex on phone and he was 60 dB over 9 with the dish pointed at him.

While he was working Alan VK3XPD and David VK3HZ, I rotated my dish about to see what I could hear. Rex's signal was readable regardless of my dish direction and because of the saturation of signal, I could detect scatter from cloud formations and other obstructions around my QTH.

The most significant signal was scatter of Rex's signal from a 50

Figure 1: The VK7MO scattered 10 GHz signal at VK3ZQB.



metre high Norfolk pine, 30 metres north-east of my antenna. Attached is a screen shot of Rex's signal, showing the signal I was receiving direct from Alan VK3XPD at the bottom, and Rex's direct signal received off the back of the dish, plus the enormous splotch of signal reflected from the Norfolk.

You can see the direct signal from Rex and the reflection from the tree, spread probably due to the multiple reflections from different parts of the tree. However, the strange thing is the Doppler shift that has the tree reflection at a lower frequency than the direct signal.

In later discussion with Rex about the supposed scatter from the Norfolk, there are some questions that put doubt on it. For me to see a Doppler shift, the tree would need to be moving. The Doppler shift is nearly 450 Hz from the direct signal. This is a large shift for a reflection 30 metres away and only moving slightly with the 10 - 12 km/h breeze.

The next possibility would be a significant cloud or rainstorm behind the tree, but on that day I had light drizzle rain in the morning which had cleared to a sunny day at that time. Getting signal past the tree is near impossible and earlier tests with a 9.75 GHz radar proved this tree to be a complete absorber of microwave energy.

If it is Doppler, whatever was reflecting his signal was moving at a constant speed in the shot line for more than 10 minutes without any change. Previous experience with cloud or rain scatter is that the shape of the smudge changes and moves with time requiring constant adjustment of the azimuth.

This one did not fit the mould of normal rain scatter and so I think the conclusion can only be 'Why is it so?'

So if you're looking for a new challenge, why not give the 10 GHz band a go.

VK6 23 cm net

Rob VK6LD writes about a new net:

Just a quick message to advise a 23 cm net has been running in Perth for several weeks and looking for numbers to grow and keep it interesting.

The net takes place on Thursday evenings commencing at 7.30 pm local time (1130hrs UTC). Net frequency is 1294.100 MHz, FM mode (vertical polarity).

Second half of the net we try USB for those with SSB equipment on 1296.150 MHz (vertical and horizontal polarity). Alternate/Liaison frequency for those who are Rx only or can't get through on 23 cm is 146.575 MHz FM.

Net Control Stations are Rob VK6LD (south of river) and Andrew VK6IA (north of river) taking check-ins and running the net. We hope the net will run for around 30 minutes, but the last three weeks it has been around an hour, so need to improve on that!

The net is an opportunity to meet up with other enthusiasts on air, exchange signal reports, go mobile/portable/hill-topping and to make improvements to our stations, etc. Already we have stations upgrading and planning to upgrade their antennas and putting them up higher in the air. Please spread the word and hope to hear you next Thursday night.

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

Digital DX Modes

Rex Moncur VK7MO

WSPR – Weak Signal Propagation Reporter by Leigh Rainbird VK2KRR

WSPR stands for Weak Signal Propagation Reporter and is a software program developed by Joe Taylor K1JT. The software can be freely downloaded from the K1JT pages at *http://physics.princeton.edu/pulsar/K1JT/wspr.html*

Numerous ham stations world-wide use WSPR every day, mostly for investigating and monitoring radio propagation conditions on almost all bands which not only include LF, MF, HF, but also VHF, UHF and microwaves.

This month's information will be just a brief insight but will be followed by more detailed articles in coming months. The focus will be on 50 MHz, 144 MHz, 432 MHz and 1296 MHz.

In Australia, the number of operators using WSPR on VHF and above rises and falls depending upon the time of year and how good the band conditions are. The number of stations interacting with WSPR continues to rise each year. There are a number of dedicated stations that kindly provide many hours of operation of their stations every day for the benefit of the wider VHF community, as everyone can access the resulting data about the state of the propagation on the WSPRnet site at *http://wsprnet.org/drupal/* specifically in the database or maps section.

How can WSPR be of benefit to me? WSPR has a number of different uses. Primarily, as its name states, it's a Weak Signal Propagation Reporter, which is what it does best. You can leave it running while you have better things to do than listen to noise, keep an eye on the WSPRnet site and then rush back into the shack when the band opens up! The program, when linked to your radio and the internet, will decode weak (or strong) WSPR signals from other stations and automatically upload them to the WSPRnet site for you and others to view. You will know if the band is open or not, or can review data from your station at a later time to see what you have missed out on!

Secondly, WSPR can also be used to test changes to different parts of your station in relation to its performance. The WSPR program provides you with signal reports as Signal to Noise Ratio (SNR) in dB. You could for example, test

different antennas, or antenna configurations, different beam headings. Test different coax or pre-amps. Different levels of output power, different radio's etc. Find out which combinations of equipment gives you the best or worst performance.

What are the allocated WSPR frequencies? WSPR takes up only 200 Hz bandwidth on all bands, and each transmission is only six Hz wide. Frequencies are allocated to be used worldwide. These are what the radio dial is to be set on, and all are in USB mode. The frequencies are 50.293 MHz, 144.489 MHz, 432.300 MHz and 1296.500 MHz.

What are the critical aspects of being able to successfully use WSPR? Your radio's frequency stability is most critical; this should not drift more than four Hz over the two minute transmission period. Your computers timing is next most critical and this needs to be very accurate, to within approximately two seconds, though it may work out to about four seconds if you are lucky. Your radio's frequency accuracy is next most critical, if you're not in the bandwidth for WSPR then you won't be decoded.

What results can I expect from WSPR? There are numerous variables that produce different results. If your station set up is correct and the band you are on is open, the results could be quite surprising. On 50 MHz you could expect to be heard Australia wide or even worldwide. On 144 MHz you may identify paths that you never thought would be possible and others which may catch you out by surprise at times when you may least expect the band to be open.

How much power should I use? WSPR in general uses QRP transmission levels. This is because when you're looking for band openings that can be used for SSB voice communications, you will need more power to complete the voice QSO in comparison to the weak signal, narrow band abilities of WSPR. With different propagation characteristics, the general consensus on 50 MHz is to use no more than 20 watts, and on 144 MHz most stations are settling on 10 watts.

Hope that's enough to get you going, I'll expand on this information over the coming months.

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

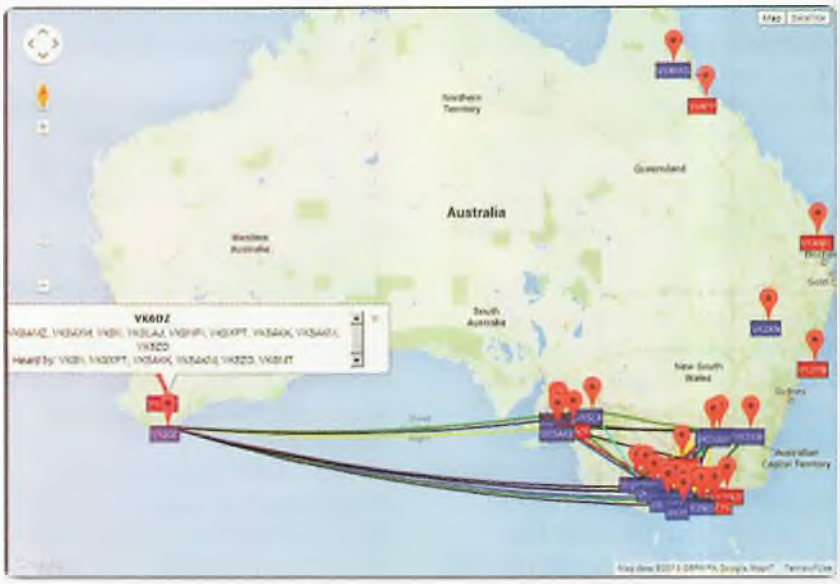


Figure 2: Two metre tropo duct paths across the Great Australian Bight identified on WSPR map from 17 December, 2013.

Meteor Scatter

Dr Kevin Johnston VK4UH

As winter approaches, conditions for 'random' meteor scatter propagation are generally declining. This was reflected through April even during the weekend activity sessions. Meteor return rates were low with 'pings' both short and weak. Activity was further decreased, at least from the point of view of the northern stations in VK4 operating in Period 2, by a lack of active stations operating from the southern states, in Period 1. This was particularly noticeable on Saturdays when only one or two dedicated stations from VK3 have been appearing.

The enhanced propagation anticipated from the Lyrid meteor shower, which peaked on 22 April, was also disappointing. Although there were hyper-dense meteor returns surrounding the Lyrid shower to be heard, resulting in intense and prolonged 'burns', some extending for tens of seconds, the peak of meteor activity from the shower fell mid-week and at times when few stations were available to take advantage.

In last month's report I made mention of the release of a new version of WJST (V9.7). This month I found reference to yet another version (V10.0 r3769). Although this proved a little difficult to track down at first, once located it was downloaded and installed without problem.

The programme can be found at *http://physics.princeton.edu/pulsar/k1jt/wsjt_10.0_r3769.exe*

The corresponding user guide was located at *http://physics.princeton.edu/pulsar/k1jt/doc/wsjt*

There is a note from Professor Joe Taylor K1JT, the author of the software, indicating that this version is an 'Old Reliable - Candidate Release' mainly aimed at VHF/UHF/microwave users for MS and

EME. He is also asking for feedback from anyone who tries this version. Most of the current useful modes are provided including FSK441, JTMS, ISCAT, JT6M, JT65, JT4, 15 WPM CW structured for EME and Echo. I ran both of the new versions in parallel for several activity sessions, and both seemed stable and reliable. The user guide above also provides useful background information for these modes and for MS and EME operation in general. This would I believe be useful for newcomers to meteor scatter and digital EME operation.

The next major meteor shower will be the Eta Aquarids (ETA). Hopefully there will be something more positive to report on this next month. The shower is expected to peak around 5/6 May but is known to have a slow rising peak and prolonged duration. There has already been a noticeable rise in meteor return rates, occurring over the weekend of 25/26 April, as this report was being prepared. It is probable that this was due to the early commencement of the ETA shower. Time to dust down the equipment in anticipation and watch the VK Logger for reports.

The ETA shower in previous years has supported MS activity extending up to 70 cm and with digital, CW and even SSB contacts being completed.

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*

VK3news Geelong Radio and Electronics Society

Rod Green VK3AYQ

One of the problems facing any committee of management is what activities to provide for members. Finding suitable syllabus items is always a challenge, and even more challenging when a society or club meets every week. However our committee rises to the challenge and provides us all with interesting and informative talks and lectures. Earlier in the year we were fortunate to have Dr Deane Blackman VK3TX as a guest speaker. Deane's talk was titled 'Schlusselzusatz', a name that is as difficult to say as it is to spell. Items covered in the talk were the history of encoding information, public coding systems such as Morse code, and the cipher machines used by Germany in WW2. Deane finished his talk with an explanation of how the people at Bletchley Park were finally able to crack the German codes.

In March members took part in the John Moyle Field Day contest. As in past years the venue was at the Eumeralla Scout Camp at Anglesea. The camp is situated at the top of cliffs which overlook the picturesque Great Ocean Road. A unit at the camp was booked for the weekend, and this provided sleeping accommodation as well as cooking facilities. It was in this unit that the HF equipment was set up. The VHF/UHF station was located in our mobile communications van which was parked close by the unit. As our members found out you had to be careful not to leave food lying around inside the unit. This was because a kangaroo came inside and helped itself to some raisin bread that was supposed to be eaten for breakfast on the following day.

Classes for members wishing to either obtain a license, or upgrade existing qualifications are being held once again. It is planned that exams will be held at the end of May. One problem facing newly licensed amateurs is having equipment to use on air. In cases like this, we have two metre FM transceivers that are loaned out for a six month period. This allows the newly licensed amateur to not only get on air, but gives them time to obtain their own equipment.

In any club or society it is important that all members can interact with each other without dissention. However we have two members who are forever trying to better each other. These are the two 'Keiths' VK3AFI, and VK3XKS. They are both involved in raising funds for our society. Keith VK3AFI looks after the collection and sale of scrap metal, while Keith VK3XKS handles the collection, testing, and sale of valves. Due to the efforts of these two members a substantial amount of money is raised each year.

Club meetings are held each Thursday at 8 pm and visitors are most welcome. Our club rooms are at 237A High St, Belmont, Geelong.

ALARA

Margaret Blight VK3FMAB – Publicity Officer

One of the highlights of a recent trip to the Barrier Reef was the opportunity to meet up with radio friends who have moved to Brisbane from Victoria, and Michi VK4FMGE and her OM Peter VK4VQ provided warm hospitality on our brief stopover in Brisbane. We were able to visit their lovely home and view the shack which bore a startling similarity to the one that was operating in Melbourne. One major difference was that, with much more land surrounding their home, there is opportunity to erect bigger and better aerials should they so wish. It is good to report they are well settled and very happy with their new property.

VK3 news

Jenny VK3WQ reports that on Saturday 29 March six YLs and three OMs enjoyed a barbecue at the home of Pam VK3NK and Graeme VK3NE, in Gisborne, in perfect weather. The reason for mentioning the weather is because sometimes in the past, when we have visited Pam and Graeme, the weather has been anything but perfect. It has ranged from cold and wet one year, to 40+ degrees on Black Saturday (we held it inside that day).

The numbers were down for various reasons in that our President Jean VK3VIP and OM John VK3DQ were away on a cruise, and our Publicity Officer Margaret VK3FMAB was also on a cruise, but not the same one! It seems as though the travel-bug is catching, as two of those present were also heading off overseas shortly. We suggested that one of the 'must see' items on their itinerary is Bletchley Park, home of the 'code breakers' and well worth a visit to anyone even slightly technically minded.

Much mirth ensued when one of the YLs (who shall remain nameless!) produced a corked bottle of wine. The cork steadfastly refused to budge, so in the end had to be pushed into the bottle. I am happy to report that the wine that was eventually shared around was well worth the wait!

Thank you to Pam and Graeme for putting on a very successful day.

Photo 1: Peter VK4VQ, Michi VK4FMGE and Margaret VK3FMAB in the new shack.

Amateur radio promotion

A most interesting article on amateur radio promotion written by Kevin Crockett VK3CKC was published in the March 2014 edition of *Amateur Radio* magazine. He detailed a number of helpful hints on the best ways to draw attention to a promotion and have a successful outcome. I recommend a reading. We are reminded each year of the need to promote our radio hobby and this year the PR4Amateur Radio was held in April. Many groups set up mobile stations in various parts of their local community to encourage interest and hopefully new participation in amateur radio.

One such group of radio amateurs set up in Ruffy Lake Park in Doncaster to help promote the hobby to the general public. The ALARA President Jean VK3VIP was present on both days and many active operators, particularly from the Eastern and Mountain District Radio Club, volunteered to man the station.

Photo 2: Jean VK3VIP and Margaret VK3FMAB together with other radio amateurs at Ruffy Lake Park.

A note from ALARA President Jean VK3VIP

On a personal note OM John VK3DQ and I have travelled quite a bit during the year and have not long returned from our cruise on board Celebrity Solstice from New Zealand to Australia. We took a hand held radio with us and made many contacts via the excellent New Zealand repeater system including via IRLP back to Australia.

During one of the days at sea we received an invitation to visit the bridge. So at 9.30 am we arrived at the meeting point on deck ten where we were subject to security procedures. From there we were taken to the deck below the bridge in the crew quarters and were subject to further security procedures before being taken on to the bridge to view the starboard bridge wing controls which were explained to us in detail.

It has been a busy time during the past year with lots of hamfests and portable operations, but I think the highlight of the year in VK3 must be the highly successful YL Foundation course where six new YLs joined the ranks of radio amateurs and then a week or so later another two YLs passed their licence exams. This was so pleasing, and I can announce that another YL course will be held over the weekend of Saturday 31 May/ Sunday 1 June.

At home the installation of our new compact two element tri-band beam for 10, 15 and 20 metres has enabled some nice DX contacts from our home station.

I would like to thank all retiring committee members for their hard work on behalf of ALARA and also would like to welcome members of the new committee, whom I'm sure will do an excellent job.

We have seen a number of silent keys over the past year which is very sad, so it was a delight to hear that Jacinta VK3VJG and Ian VK3VIG celebrated the birth of their first child Rebeccah and have already been talking about a Foundation licence for her. Congratulations!

ALARAMEET is nearly here and I am looking forward to meeting up with lots of you in Port Stephens in October. The regular Monday 80 metre net continues; it would however be nice to hear a few new voices and even some that perhaps have not been heard for a while; can I urge you all to participate.

I have recently heard that Muriel May is currently in poor health. She has been a member of ALARA for over 30 years and I am sure you will join with me to wish her a speedy recovery.

Photo 3: First Officer Kostas with JeanVK3VIP on the bridge of the Celebrity Solstice.

News from VK4

Lyn VK4SWE is a very enthusiastic radio amateur. She is seeking YLs to participate in a food related network. She has already begun to make contact with interested operators and it sounds like a lot of fun. I'll let her tell you about it in her own words.

'Hello all! I am sending this to some ham-related friends, who might have access to a radio in case you want to join our cooking net - all things food related as well as radio! Did you know the humble lemon makes a serviceable battery? Yes, I am serious: *http://www.howcast.com/videos/271445-How-to-Power-an-LED-with-Lemons*

Yesterday we didn't have a good path to South Africa as hoped, but I heard Leon though and it turns out that his wife is a ham too! Beth from Wales was booming in with some nice tasty ideas for pantry staples, hoping to hear her scrambled eggs recipe next! Also met Louise from Rochester, New York, who is going to try to join us again. Will try to listen out every day after the ANZA DX net closes on 14.183 or up 5+ if that frequency is not clear, about 0630 - 0730 UTC. Last time we had the net going regularly (it is not really a 'net' in the

strict sense, more just a meeting place for chatting about food as the main focus, as opposed to DX or antennas, radios or general radio topics. Through the ANZA DX net we found that a lot of the OMs had XYLs who were also licensed but not very active. Not interested in DXing or contesting or ragchewing about equipment. But they do enjoy talking about food! And it has been fascinating to discover how we use many similar ingredients in different ways around the world, or have similar recipes with regional variations. What we call doughnuts, the South Africans call koeksisters. We dredge in cinnamon sugar, they go one further and dip in a delicious spiced sugar syrup...the Cape Malays add shredded coconut – oh yum! And it's not confined to YLs, OMs are welcome too and have provided some very interesting recipes.

Many of these recipes have gone to air on ABC local radio as our Recipes of the Air segment last year; we usually send the recipes around by email after chatting on air. So – the last time the net ran on Sundays only, but I am throwing it open for now, to see if any days suit better than others; I am usually in the shack between ANZA time and 6 pm if not on cooking duty - we do four days on, four days off, but I don't have to be there - we also have a Morse code practice group and basically it is whoever is there, works each other – I am hoping the ROTA could be the same - just a general time and place for anyone interested in catching up about food to drop by, like dropping into someone's kitchen for a cuppa and leaning on their bench while they prepare a meal and you discuss food in general. Definitely I am keen to get those YLs on the air, who otherwise would not bother; with the good propagation two years ago this was going well, then last year was not so good, but things seem better this year so we will have another go!

Basically, 14.183 after the ANZA DX net finishes. Sometimes we have our Morse practice that time on 14.053 - but will wander back and forth. Just listen out and if you hear tasty talk, jump in!'

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

Under our new President Tony VK5KAT we had a very interesting talk from an ex-ship's radio operator, Andrew VK5OS. He has clearly had an interesting life centred largely around radio operating. Born in Latvia, he learned three or four different languages as his country changed hands. There were occasions when to know the language but not 'let on' that you knew it was very useful. He also leaned Morse code. During the war he served in several different armies, eventually going into the navy as a radio operator. When the war finished he (and his brother who had had a similar training) joined the merchant navy in the same capacity.

Travelling the world he had many unusual experiences. As a radio operator he had to act as a doctor, under instruction from a real doctor on another ship, as their ship often didn't have a doctor on board.

Once when in the middle-east, when tensions were high between certain nations he donned the Captain's uniform and used his passport as it didn't have entry stamps to 'forbidden' countries. He was the 'Captain'.

By means of instructions via the radio he acted as an engineer on one occasion. On another he was able to break up a strike by dockside workers by pointing out to them that to 'strike' on a ship you were committing mutiny. The punishment for mutiny was death or imprisonment! The strikers soon decided they would go back to work.

Most of the merchant ships on which he was radio operator were under the Greek flag. When he and his family were migrating to Australia on a Greek ship, as soon as his name was recognized on the manifest he and his family were moved to a first class cabin. The shipping people have long memories for those who have served them well. It was a very entertaining talk.

Apart from our regular meetings AHARS has continued to make good use of 'the Shack'. John VK5BJE gave an interesting talk with much good advice about setting up a station on a hilltop for the 'Summits of the Air'. John had done this often so others could participate and gain the new certificate offered by AHARS.

Lyle VK5WL gave a talk about getting the best out of your digital camera. Now that most of us have digital cameras and most of us have computers, Lyle showed us how we can enhance our photos. It is all very well to take lots of pictures but it is nicer to have finished photos you can really feel proud of.

The next meeting will be a member-only Buy and Sell but for other general meetings everyone is very welcome. Contact Tony or our secretary Jean VK5TXS QTHR for details. The Shack is open every Saturday morning for a chat with talks on alternate Saturdays.

AHARS will have an examination weekend at intervals later in the year, Contact us for more information.

VK2news

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

In March ARNSW held an antenna day of lectures with practical construction. At the end of this month (June) another day is planned, the theme this time is baluns. Those interested in attending on Sunday 29 June should email their booking to *balun@arnsw.org.au* and request that a balun kit be held for you. The VK2WI broadcasts will advise more details.

ARNSW held their AGM on Saturday 3 May 2014 at the VK2WI site. Committee nominations closed in late March with nine nominations, the number required to form a full committee, so an election was not required. The meeting was over in an hour. Details in a future issue. The ARNSW Monday evening class will have a one week break on the holiday on 9 June.

The original VK2WI building was constructed in the mid 1950s. Time has come for some renovations and during this period some of the services like repeaters, beacons and broadcasts have to be suspended while work is carried out.

After a year of mail redirection for Westlakes ARC after the closing of their local Teralba post office, they have advised that the only mail address now in operation is PO Box 5, Boolaroo. NSW. 2284. Westlakes have just concluded celebrating their 50th birthday.

The Hunter Radio Group has been producing CTCSS encoders which have been so popular that additional production runs were required. They meet on the second Friday evening. Next month they will have a Ladies lunch in place of the meeting. Details on their Monday night news net.

Rotarians have one of their international conferences in Sydney late May and early June. Part of their activities include amateur radio where they have been allocated a special event callsign, VI2R, a unique call in line with special event callsigns issued elsewhere in the world, advises Peter VK3KCD.

Peter VK2PR advised recently that the mode of P25 now has 10 repeaters on-air in the Sydney region. Recently a Facebook group has been set up for those interested - to be found at 'Sydney P25 HAM Radio User.' They also have a net Tuesday at 8 pm on Horsley Park P25 repeater 438.1375 MHz with a NAC of 293.

Waverley ARS is offering scholarships valued at over $200 to enable a number of young people under 25 not in full time employment to obtain their first license and be supplied with a radio at no cost. The scholarship has been funded by the sale of a recent deceased estate donation. Email *education@vk2bv.org* if interested. The annual Waverley auction is next month – July.

The Central Coast ARC has shifted the project group meetings from Friday evening to Saturday morning at 1000 hours. This is included in the general Saturday get together. They have a 23 cm repeater on 1273.400 MHz on test and welcome reports to Don VK2ZCZ at *ccarc@ccarc.org.au* Work is already under way for next year's Field Day scheduled for late February 2015, at Wyong.

Blue Mountains ARC held their AGM on 2 May. Details later. The Hellenic ARA operated from Bare Island IOTA OC-171 on Botany Bay for Anzac Day under the call AX2CL. HADARC had their AGM in late May. WICEN NSW has involvement in the annual BWRS Nav Shield on the weekend of 5th and 6th of July. The Urunga Convention was successfully held again over Easter, and has been an annual event since 1948.

It is only days to go until the 39th annual Oxley region two day field day at Port Macquarie. See the details in the May issue of *AR* magazine. The event will again be held in the Tacking Point Surf Live Saving Club hall in Matthew Flinders Drive, Lighthouse Beach, which is at the southern end of town. The Field Day dinner will be at the Port Macquarie Golf Club, also on the southern edge of town on the road to Laurieton, on Saturday evening. This is all over the June long weekend, on Saturday 7th and Sunday 8th. As Port Macquarie is a popular destination, book accommodation as soon as possible. Check out the Oxley web site *www.orarc.org.au*
73 - Tim VK2ZTM.

Attend **Oxley Region ARC Inc. Field Days** 7 - 8 June

VK3news Amateur Radio Victoria

Jim Linton VK3PC
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ANZAC day event

Once again HMAS Castlemaine was on air as VK3RAN, working most states during the AM and CW event run by the Tablelands Radio Club of far north Queensland. This annual event on our bands, organised by Mike 'Banjo' Patterson VK4MIK, had plenty of activity and nets in honour of those modes being used by service personnel in earlier wars. During the event Luke Steele VK3HJ was on the key and he assisted Tony Hambling VK3VTH at the microphone, in perfect weather but sometimes with noisy band conditions.

They shared the work that included checking into the event net, and also contacted the Royal Australian Navy Society VK1RAN, and Johnno Karr AX3FMPB at the Eureka Stadium in the Ballarat Showgrounds.

Among the highlights was the Lake Boga Flying Boat Museum, home of the historic Catalina Flying Boat and site of the secret RAAF repair depot near Swan Hill used in WWII, operated by Thomas Brownstein VK3EO.

Another was Mallala Cemetery 59 km north-west of Adelaide that has the graves of 12 airmen. The No 6 Service Flying Training School was in Mallala during WWII. The site was activated by Stephen Mahony AX5AIM.

On the day many used the alternative AX prefix with several going portable into national parks or operating QRP.

Tony VK3VTH also firmed up plans for ANZAC 100 next year with the Maritime Trust volunteers who run the museum ship at Gem Pier, Williamstown.

HMAS Castlemaine is home to a small part of Australia's wartime history. The restored corvette was used in World War II and is open at weekends. On board is the radio room VK3RAN activated by Amateur Radio Victoria.

HMAS Castlemaine.

The next big event scheduled for Amateur Radio Victoria is the International Lighthouse and Lightship Weekend on 16/17 August when VK3WI will be at the Time Ball Tower, at Gellibrand Point, Williamstown.

Announcing the Master Class - Portable

To encourage an even greater level of portable operation, particularly among Foundation licensees, a limited opportunity to hear from the experts is being held in July by Amateur Radio Victoria. This will be an easy 'how-to go' portable mini-lecture series complete with static displays and advice from five experienced presenters and activators.

The presentations will include advice and discussions on transceivers, batteries and antennas, locations and research, etiquette in operating, mobile installation, DXing, QSLing, logging, contesting and, of course, award chasing.

All presenters will form a panel to answer questions about how to be involved in the growing and pleasurable activity of portable operation, to activate areas of interest, or just to take your hobby on a holiday. Primarily aimed at the Foundation licence holders and others genuinely wanting to operate portable, this free session on Saturday 19 July at Ashburton is limited and requires an RSVP to attend.

There will be a few door prizes, including ARV logbooks for those attending. To make a booking or obtain further information please contact Tony Hambling VK3VTH at *vk3vth@amateurradio.com.au*

Repeater interference update

A range of solutions including some pager frequency pair changes will hopefully see an end to paging interference to our repeaters throughout Victoria.

Many radio amateurs who use the Victorian repeater network,

funded and maintained by Amateur Radio Victoria, have recently found some of the two metre repeaters not useable, owing to interference from new digital emergency services involving paging and a trunked radio network.

Amateur Radio Victoria immediately made representations to the Australian Communications and Media Authority (ACMA). Some problems have been resolved by changing pager frequencies at affected sites. Other solutions are in the pipeline and we hope most interference problems will be resolved by the end of the year. We will continue to monitor this problem and our members can be assured that we will continue to make representations to the appropriate authorities on their behalf.

Repeater group to meet

Council at its last meeting decided to re-introduce the popular annual VTAC (Victorian Technical Advisory Committee) meetings as a way for repeater custodians and clubs to share ideas and discuss common problems.

The meeting will be held at the ARV rooms in Ashburton on Saturday 28 July and all repeater custodians and clubs will be invited to attend. A light lunch will be provided and invitations will be sent shortly.

Standard theory bridging course

Enrolments close soon for the Foundation course on the weekend of 14/15 June, and the Standard Bridging course starts in July, at the Amateur Radio Victoria office.

The Foundation Licence Manual study and operational practice guide book is available at $26 delivered Australia wide through the secure online bookshop at *shop.amateurradio.com.au*

To enrol in the Standard Bridging course you must already have a Foundation licence. The course is held by dedicated instructor Kevin Luxford VK3DAP/ZL2DAP every Wednesday at 6.30 pm, on 2, 9, 16, 23 and 30 July, and 6 August. Saturday 9 August at 9 am for revision and Sunday 10 August at 9 am is assessment day.

More information is available at the 'Get a licence' tab on the Amateur Radio Victoria website.

VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

GARC in the Summer VHF/UHF Field Day

For the second year in a row Dallas VK3DJ topped the list in the ***Single Operator, 8 hour*** section operating from QF11 and QF12. In the ***Multi Operator 24 Hour*** section Team VK3UHF, operating in QF21, achieved a 3rd spot and Team VK3ALB, operating in QF11, took the 4th position.

Renovations at the Queenscliff Maritime Museum's Marconi Hut

On 12 July, 1906 the first telegraph message to be transmitted wirelessly between Tasmania and the Australian mainland was sent by Governor-General Northcote to the Governor of Tasmania, Gerald Strickland. The message was sent from an experimental two-way transmitting station at Point Lonsdale on Victoria's Bellarine Peninsula to another across Bass Strait at East Devonport. Over the years the **GARC**, along with members of the **GRES**, have operated from a replica of the original 'Marconi Hut' now located in the grounds of the Queenscliff Maritime Museum, on the anniversary of that occasion. Up until last year the HF antenna

Photo 1: The replica Marconi Hut located in the Queenscliff Maritime Museum grounds.

used was a G5RV hung between two buildings with a mobile whip antenna for VHF use. Subsequently a wooden mast was supplied by the GARC to facilitate a more convenient means of erecting the HF antenna, but it had a short life span. So a small work party visited the former home of John VK3ZPO (SK) where an aluminium mast was dismantled and recovered for use by the club at the Queenscliff Maritime Museum.

The mast was kindly donated to the museum and club by the wife of VK3ZPO for specific use at the 'Marconi Hut'. The Alcoa aluminium mast was manufactured as a lighting stanchion and John VK3ZPO had installed a centre tube, bearing and gear to provide a rotator function. It had been lying on the ground for some years. All of the internal hardware was removed to reduce weight. Later this year it is planned to reassemble it adorned with VHF/UHF antennas and a halyard to support a HF wire antenna, and erected beside the Marconi Hut.

Open day at the GARC

As a run up to the Geelong 'Blokes Day Out' festival the GARC opened its doors to visitors on one of their regular Wednesday afternoons. Rex VK3ARG set up a WIA PowerPoint slide presentation embracing the various aspects of the hobby in the presentation room and members had supplied some of the remarkable equipment builds that took place during the crystal set project a while back. Demonstrations of HF and VHF communications were given to the visitors using the club's IC-7400 and two metre Yaesu FT-8700. Refreshments were laid on for the afternoon session by Jenni VK3FJEN and Vanessa VK3FUNY.

The actual 'Blokes Day Out' festival is a unique event in the Barwon region that celebrates what it is to be male. The focus is on male health and wellbeing with a huge range of local services and groups uniting to deliver a free fun day out for boys, men, their friends and families. It was organised on the Eastern Beach Reserve in Geelong where, amongst other exhibitors, the GARC erected its own marquee with two trestle tables; one held the radio equipment and the other brochures and literature. The GARC exhibit was organised by Dallas VK3DJ and Garry VK3FWGR. Together they did the initial installation around 09.00 for the 10.00 opening, and used squid pole antennas for the HF communications. The squid poles proved useful for the other club members attending enabling them to locate the actual site amongst the sea of marquees!

Photo 2: Examples of the homebrew crystal sets constructed by GARC members.

Whilst a fair bit of interest was shown by the visiting public, some of the communications demonstrations were hampered by the excessive noise levels created by the various 'music' bands that were performing nearby. On this particular weekend there was a contest taking place with a lot of input from both Canada and Japan on 15 and 20 metres. Attempts were made to connect up to our sister club W4DOC, located in Atlanta, Georgia, via IRLP but although a link was established there was no pick up at the US end. It was a very hot day but Vanessa VK3FUNY had laid on a sausage sizzle and a supply of cold drinks for those attending.

Photo 3: Dallas VK3DJ operating the radio equipment during the 'Blokes Day Out' festival.

VK7news

Justin Giles-Clark VK7TW
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w *groups.yahoo.com/group/vk7regionalnews/*

A VK7 ANZAC tribute

Many visitors to the National War Memorial in Canberra may have seen 'Winnie the War Winner', a homebrewed transmitter put together by a group within 'Sparrowforce' on Dutch Timor in 1942. One of the group was Signalman Max (Joe) Loveless VK7ML SK. He was an amateur before WWII and became involved in the war as a signals operator. Max was part of the group who pooled their resources to build a set capable of raising Darwin. The radio was devised from pieces of other sets and from parts scrounged among the troops or stolen from the enemy.

The bulk of the work on this transmitter was undertaken by signallers Max Loveless and Keith Richards, assisted by Jack Sargent and John Donovan. On 19 April 1942 contact with Darwin was made and after convincing headquarters of the authenticity of the contact they were able to arrange for much-needed supplies to be delivered and evacuation.

The set was affectionately named 'Winnie the War Winner' after Winston Churchill and fortunately someone had the foresight to take the transmitter with them when they evacuated Dutch Timor and it now can be seen in Canberra. There is also a replica of Winnie held in the Anglesea Barracks Military Museum in Hobart that was made by Barry Riseley VK7RS who was one of the many who knew and worked with Max Loveless VK7ML SK in the PMG.

Beacon and IRLP node news

There is a new beacon in southern Tasmania – at grid square QE37.

Photo 1: Winnie The War Winner transmitter in the National War Memorial - Canberra. Photo courtesy of Justin VK7TW.

The callsign is VK7RST and it is on 144.470 MHz and is FSK modulated. IRLP Node 6239 has changed frequency to 147.575 MHz simplex and is located at the QTH of Tony VK7VKT.

Northern Tasmania Amateur Radio Club

Congratulations to Marlene VK7FEMA and George VK7FMCA who recently passed their upgrade assessments. Marlene has applied for VK7LDY and George has applied for VK7MCA. If you hear them on air please give them a shout.

The NTARC April meeting saw some interesting visitors. Ian Norton from Reptile Rescue brought along a copperhead and a couple of tiger snakes. In Tasmania there are only three kinds of snakes (copperhead, tiger and white lipped) and all are venomous. Ian took the 'cautious' audience through each type, their bite, how to bandage if bitten, handling and common places around the home and bush they can

Photo 2: A copperhead snake being held by Lyn VK7FROG with Lois taking a cautious look. Photo courtesy of Kevin VK7HKN.

be hiding. Ian then invited the brave to handle the copperhead snake.

Thanks to Norm VK7KTN for the following report. NTARC members provided safety communications support for the North East Equine Endurance Riders Club over the Easter weekend. With 150 competitors spread across the 80 and 40 km courses over the three days kept operators busy. The NTARC Equine Endurance Rider Tracking (EERT) project group were able to deploy and test their two long range RFID readers and ten 2.4 GHz active tags in the field for the first time. The system was successful and recorded all riders as they passed the readers and this data was then downloaded to logging spreadsheets. The next stage of development is to incorporate the spreadsheets in to integrating with the Australian Endurance Riders Association national software.

WICEN Tasmania (South)

Don MacDonald ZL3DMC, Section Leader with AREC, New Zealand's equivalent of WICEN, has been liaising with WICEN secretary Roger VK7ARN. Don is using WICEN's equine endurance ride tracking sheets and is very impressed with them. AREC intend to use the tracking sheets at the national championships. Roger commented that over time, the KISS principle has been applied to arrive at a flexible and useful piece of kit. Thanks to Roger VK7ARN for that information.

Radio and Electronics Association of Southern Tasmania

Over the past few months REAST has been running a standard and advanced upgrade course and we are pleased to announce that six people have upgraded with another four yet to complete their assessments. Glen Sanders and James Leech have completed their advanced licence assessments and are awaiting their advanced licences. Andrew Oostorkamp, William Osler, Susan Smith and Adam Mollineaux have completed their Standard licence assessments and are awaiting their upgraded Standard licences. Congratulations to all candidates

REAST's April presentation was presented by the author and was an introduction and review of 630 metre activity in VK/ZL. It covered some history, current experimentation, common antennas, antenna tuning, safety, propagation, grabbers, transmitters, receivers, transverters, modes, software and net resources. Martin VK7GN who attended the talk commented 'that this is a band where amateurs can still be experimental in the way that the RF is produced and received'.

The DATV experimenter's nights have been interesting with Geoff VK7HAL bringing along a battery tester, vintage Morse sounders, keys and books. Rex VK7MO displayed his 50 years of awards and records – starting with his first record on 432 MHz over a distance of 150 km (93 miles) and vintage Morse equipment from his father Len VK3LN SK. The author took the audience through the repair of a HP 4261A LCR meter, vintage documents and an ANZAC tribute with wartime communications equipment. Our videos included Ham Radio Now, Ham Nation, AmateurLogic.TV and WWII film series.

Photo 3: VK7TW's 630 metre antenna tuning unit. Photo courtesy of Justin VK7TW.

Plan Ahead

Remembrance Day Contest	16 - 17 August
International Lighthouse Lightship Weekend	16 - 17 August

VK4news QTC

Mike Charteris VK4QS
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Welcome to the June edition of VK4news - QTC as we pass the half-way point round the sun. With winter upon us and the shorter days, it is perhaps timely for clubs to pause and assess where they are with their goals for the year 2014. To preface the following I would like to paraphrase the late President John Fitzgerald Kennedy – *'Ask not what your club can do for you, but rather what you can do for your club.'*

What initiatives do you currently have in place for the recruitment of new members to your radio club in the next six months? What programs are available at the club to inspire participation in your local community? Do you have a 'Construction night' as part of the club curriculum for greater learning and enjoyment? What about a Club Learning Co-ordinator for prospective 'F' calls and licence upgrades. Do you have regular club BBQs? What about inviting another club to your next BBQ for free, run a few raffles, make it a Bring/Swap/Sell/Trade, and invite the local member. Perhaps request of him a small grant of, say, $100 to cover the BBQ to promote your local area to the other visiting club members. Try to ring the local paper to pop by for a small story about amateur radio. On that note, are you currently liaising with your local member of council for him/her to attend a few club meetings? Does your club regularly submit a paragraph or so to VK4news - QTC to let the rest of Queensland, if not Australia, know about what you are up to and where you are going?

Is your club submitting an article and photograph every so often to your local community free newspaper about amateur radio and the club's activities locally? Think of the audience you can reach through a free community newspaper. The amount of people who have perhaps never heard of amateur radio, let alone the fact that there is a club locally they can visit. But, it is a little like bit catching fish, for the bait must be fresh and tasty. You can't get people through the front door of the club, only to lose them because you have no activities in place, or no learning program for them to be part of. The truth is the wider you open your doors to the public through local media and involvement with your local member and council the greater will be your part in the community and its response to your radio club. And finally what is the most important thing you need for any of this to be possible...the answer is 'participation' in your club.

Merely paying your membership is no excuse for being an inactive member in most if not all club activities. Sadly in many clubs there are the Doers and there are the Watchers. And you can bet which of these groups is the backbone of your club. They are the ones who keep it going year in year out for not only your benefit but for that of the whole community the club serves by its mere existence. Some clubs struggle along ebbing and flowing based on the apathy of its membership. Others strive from success to success with a growing membership of true believers who will not submit to the negative apathy around them. The secret is to find new blood for your club, new life, interesting programs and projects, along with hopefully younger people, and or people who believe in the community aspect of your club. Ask yourself, is it the same people stepping up each year for the responsible executive positions. Is it time you put your hand up and decide to make a difference as President, Vice President, Secretary, or even an important role like Station Manager, and my favourite, Publicity Officer. All of these roles direct the club to a brighter future. And might I say from what I have seen, most if not all clubs in Queensland are thriving, and moving forward each and every year.

One obvious example of a club health check is the club's 80 metre net. Some clubs struggle to get three or four members up on air to put the net out there. Where the hell are the rest of your club members? How hard is it to find half an hour to come up on 80 metres as your club commitment, and say hello to your fellow club members once a week. One thing you miss by having poor attendance to such a radio public event is the possibility of a new member. I may be placing a bit too much emphasis on this, but many clubs would attest that new members often started out as a check-in to their local 80 metre net. They might well monitor the net for a few weeks before joining one night after deciding to introduce themselves to those on frequency. If they feel the response each week is negative, with the club struggling to get the net on air, then perhaps they won't join. Some 80 metre nets I have been involved with in Queensland have in the order of 10 to 15 plus amateurs coming up week in week out. And when you consider that a good few of them are regulars from other localities and other clubs, it really makes you think. So how about for the next six months you embrace your 80 metre nets. Make a point of having a few club members visit another neighbouring 80 metre club net to say hello and perhaps give a club report. This can be the basis for arranging an interclub BBQ to get to know the club nearby on a face to face basis. So give it some thought,

make a list of goals and see what you can achieve in these listed areas above in the next six months. Even if you only achieve one goal, it will be a success for everyone.

Caboolture Amateur Radio Club

Congratulations to the Caboolture club for winning the JMFD HF Phone section award.

In news from Caboolture Peter VK4QC tells us that the club came out all guns blazing for the John Moyle Field Day recently with five stations on six bands in the SSB category. The clubs location for this event was the grounds of the Caboolture Scout Group, where some very tall gum trees provided excellent support for their low band antennas. These included a bi-square for 160/80 metres operated by Roger VK4YB and his trusty Elecraft 'K' line. There was another bi-square fired up on 40 metres by Rick VK4HF and his IC-7000 feeding a Heathkit amplifier. On 20 metres Gordon VK4FO hit the airwaves with a Kenwood TS-590 driving an Emtron afterburner into a Force-12 tribander. The club's 15 metre aficionado Hugh VK4BM heralded the day with a Kenwood TS-440 with a little assistance from an Ameritron amplifier fed into a three element tribander. And finally the 10 metre station where Peter VK4QC held court over a modified four element mono-band Yagi and a pocket rocket IC-7000, with a little help from another Ameritron amplifier. The JMFD team of caterers kept the operators well supplied with food and drinks, as well as tending to the generators to allow the event to run smoothly. Contacts came thick and fast and the club was fortunate that propagation and the weather Gods were kind to them on the day. Peter says 'Our final score of 1303 contacts for 2606 points saw us win the John Moyle Field day HF phone section'. After the event, a hard working team of dismantlers got busy with pulling down the antennas and packing away the generators and all the other equipment. The caterers meanwhile treated the exhausted JMFD operators to a hearty BBQ breakfast.

In other good news from Caboolture, Peter tells us that the club welcomes the following three new members, namely Nola Matheson, Gordon Heyes VK4NN and Dennis Smart VK4BGS which now brings the club membership up to just under 50, and with a further three enquiries to follow up. Also being announced is that Roger VK4YB will undertake the role of Official Training Facilitator with a new Foundation license course starting soon. All the best for now from Peter VK4QC.

CQARA does PR4 at Jaycar

Club members turned out in full regalia for the WIA PR4 Amateur Radio public exhibition recently.

Club President Jack Chomley VK4JRC reports that a great day was had by all with a good turnout of members to support the event at the local Jaycar outlet. Jack reckons it was excellent publicity for the club, and that Jaycar were most happy indeed with the results. They had a lot of interested visitors as well as amateurs from other clubs and locations visiting the stand as well. The boys handed out a heap of pamphlets on amateur radio to the public to get the message of our great hobby out there. Lunch was kindly provided to those on the stand by Geoff VK4NJB, and it was most appreciated by all.

If there is one thing a good club has, it is a really good roll up for the club social day. Such was the case recently at the CQARA outpost at Weasel Park. Now this is a location and setup that most amateurs let alone clubs would give their eye teeth for. It has lots of tall trees, plenty of wide open spaces and most importantly a bunch of really nice people who all enjoy amateur radio. The recent social day at Weasel Park, outside Rockhampton, saw members enjoy themselves no end with Fox Hunts (not the furry kind), a mini auction and plenty of good food on the table. A total of 16 people attended and they gained a new member in Chris Comollatti VK4VKR, a former columnist for VK4news. The foxhunting was organized by Jason VK4FJGS, with efficiency as usual. Many thanks to Lyle VK4LM and his XYL Marg for the generous donation of some of the auction items. The club managed to make $160 from the mini auction fundraiser which will go towards Association Day. Thanks also to those who helped set up and make the day the success that it was. Best 73 till next time from Jack VK4JRC.

Maryborough Electronics & Radio Group

This month we hear from Geoff VK4ZPP, the club President, about an act of kindness that would rekindle the spirits of even the most jaded in our community. Geoff tells us of Maryborough club member Rod VK4FLYT who has a good friend, Kim, on the other side of the continent in Albany, West Australia. Now Kim's father had just moved from his home into an aged care facility and some of his larger possessions needed moving into the facility as well, but sadly Kim had no means to facilitate that outcome. Around this time Rod spoke to Kim and was informed of the situation. Rod's response in typical amateur style was 'let's see what we can do'. Rod then got on the net to learn a little about Albany, only to discover an amateur radio club over there by the name of the Southern Electronics Group. Rod proceeded to contact club member and old timer Tom Reid VK6TR, who is an octagenerian, to explain the problem to him. Tom promptly volunteered his car and trailer to move the larger possessions of Kim's father into the aged care facility. Now would you believe this coincidence - that Tom's own granddaughter actually works in the very wing where Kim's Dad was now located. It truly warms the heart, and a new friendship has now blossomed through the power of good will and amateur radio. Well done Tom and Rod, top job.

Brisbane Amateur Radio Club

This month Kevin Dibble tells us that BARC has also had a very good growth period for membership, from December 2013 to April 2014. This period has seen some seven new members join BARC, four of which are currently studying for their Foundation license. One of the great features of BARC membership is the wonderful lending library the club offers. In other news from BARC, Kevin tells us that club member Kevin Dalton VK4WA, one of the clubs very active members, has now built two beacons for the VLF 630 metre band. So string out the longest bit of wire you can get from the local hardware store, and keep an ear out for Kevin's beacons in the 472 kHz to 479 kHz band. This type of operation by amateurs is growing in popularity around Queensland, indeed Australia and New Zealand. For if you ever felt like Marconi of old, then here is the place to be, the 630 metre band – 'Back to the future'.

Bayside District Amateur Radio Society

The new publicity officer for Bayside, Brian O'Sullivan VK4BEO, informs us that this year the club celebrates a quarter century as an amateur radio club. Some of the founding members are still active in the society, and the club is still deciding how to celebrate this momentous occasion in October. In other news, the club participated in the John Moyle Field Day contest at the GJ Walter Park in Cleveland. Brian tells us that they erected several antennas for HF phone, JT65, two metre FM and SSB, and 70 cm. Other equipment included generators, antenna cabling, and several laptops for logging. They operated continuously with members on a two hour rotating shift from 11 am to 5 pm, in line with the six hour option in the contest that had been chosen. A typically beautiful Queensland day greeted all for these operations, while the enticing smell of the club BBQ delivered a well-earned answer to members hunger. A video of the event was professionally produced by club member Bambi VK4AYL and can be found on You Tube as *http://youtu.be/JDdN4jniPLQ*

The club has also been most fortunate to have been delivered a lecture by David VK4ZF on the subject of antenna measuring instruments. This covered a wide range of equipment from the humble SWR meter to the technical network analysers that cost more than a family car. David was also kind enough to inform all on the merits of various types of coax cables and the different types of connectors available. The lecture is available on the club website *www.bdars.org.au* And if you would like to join BDARS, as a new member or just as a visitor, the club holds its monthly meeting on the first Monday of the month, at 7.30 pm at the Alexandra State School, Windermere Road, Alexandra Hills. Best 73 for now from Brian VK4BEO.

RADAR, Rockhampton

In news from Clive VK4ACC we learn that the RADAR club is quite busy training the clubs 'F' calls for an opportunity to upgrade their license. To this end, the club runs tuition classes most Saturdays, so if you would like to upgrade, then pop down to RADAR and say hello. Clive also tells us that the RADAR repeater network is currently being overhauled by Steve VK4SM and others. The club is looking forward to a modern linkup to the central highlands repeater system that covers the central region, which is about the size of Tasmania. Cheers and 73, de Clive VK4ACC.

Bunya Mountains & District AmCom

Bunya President Neil VK4NF tells us that on the weekend of 28-30 March, 2014 the Bunya Mountains hosted their annual camp at the Somerset Dam campgrounds. The roll up was pretty good with about 40 people attending from as far away as the Sunshine Coast as well as the Bayside club. Wet weather did keep a few away, but a great time was had by all who attended. This was in fact the tenth anniversary of this annual gathering, and they are now looking forward to next year's event.

ANZAC Day AM/CW operations, Mike Patterson VK4MIK and WW2 veteran Eric Veale

Well done Mike Patterson VK4MIK who organized amateur operations on ANZAC Day 2014, using WW2 equipment and operated from former WW2 military sites throughout Queensland, and including former navy ships in Brisbane, Victoria and South Australia. The idea came about after Mike spoke to former WW2 coast watcher Eric Veale, now 95 years old. Mike has done an excellent job in raising this concept from an idea to the great success it was on 25 April. In honouring the Anzac spirit in their own special way, such radio operations are certainly overt for the world to see and appreciate. In most cases the operators used military equipment to secure contacts between each other on amplitude modulation and continuous wave transmissions. Many amateurs also fired up on air with the AX prefix to let the world know by way of SSB what ANZAC Day was all about.

How about bringing it up at your next club meeting to purchase some ex-military equipment and operate next year as a club station to acknowledge the Gallipoli landings where Australian blood stained the sand red. I am sure every one of those ANZACs looking down from above will raise their glass to you for making an effort to remember them and the sacrifice they made for every one of us.

Contests

James Fleming VK4TJF

In this month of June there are two Australian contests that should really be fun to operate, the VK Shires contest and the Winter VHF/UHF field day, one for HF and one for VHF/UHF.

The VK Shires contest goes for 24 hours starting on Saturday 7th June at 0600 UTC. The object for us in Australia is to work as many different VK shires and CQ zones as possible, while the rest of the world may only work VK shires. There are no entry categories based on bands or power. It is likely that most of your contacts will be Australian. Now the first choice in categories is if you decide to become a rover. This is a portable station that activates more than one shire. The other categories are multi-operator or single operator. There is a single operator specifically for Foundation licensees and one for DX stations. Thus there are a total of six categories for the contest. For the exchange the DX stations give their CQ zones and the Australian stations supply their shire abbreviations. Multipliers for the DX are the VK shires and for the Australian stations the VK shires and the CQ zones. There are no categories for mode, thus it may be advantageous to work SSB and CW. Scoring is simple, a point per QSO then multiply the total by the total of the multipliers.

So that was the raw information on the contest. My thoughts are that the contest is fairly egalitarian, as in doesn't matter how you operate everyone has a good opportunity to do well. It would also seem to me that the whole idea here is to have fun. This contest brings to mind many scenarios to achieve the real objective of having fun. I can envision taking your car or ute out that is set up with mobile HF and being a rover, or perhaps having a couple of camping sites waiting for you and your camper. Or perhaps you're a DX chaser trying to get all the CQ zones. Yet another possibility is that you like the 40 and 80 metre bands and just have a dipole. The possibilities and different configurations are many; however one thing is common with all these different operating styles, you have to be in it to win it. Submitting the log is easy again with VK logger, and if you are out portable just take your laptop with you to do the logging. All VK shire abbreviations are on a list located on the WIA website under contests along with the complete rules. So hope to hear you in the contest.

The next big Australian contest is the Winter VHF/UHF field day held over the weekend of June 21/22. The categories are portable single or multi-op, 24 hours or eight hours, and home 24 hours or rover 24 hours, making a total of six sections. Mode can be FM or SSB. Contest exchange is your RST report, serial number and four digit maidenhead locator *(6 digits recommended – see comments below about the second set of rules on trial – Ed.)*. You can work stations on each band every three hours; however if they are a rover and move to a new location you can work them immediately. Scoring for each band is 10 points for each four digit locator square plus 10 points for each locator square plus one point per contact multiplied by the band multipliers, 6 m x1, 2 m x 3, 70 cm x 5, 23 cm x 8, higher x 10. Again a VK contest log is the contesting logging software that is the easiest to use. Note that the WIA is trialling a second set of rules this year, with scoring based on the distance worked for each contact. Details were published in the May issue and are available on the WIA web site.

My confession is that I'm not a VHF/UHF contester; I'm into HF contesting. However I do enjoy the company of my fellow club members and camping. My advice to newcomers to this type of contesting is to link up with fellow operators for some camping on a mountain top, perhaps in a national park. Bring your own station with a beam antenna and your favourite VHF/UHF radio. It seems that this contest encourages the ability to go portable quickly and efficiently, as in emergency communications.

Contest Calendar for June 2014 - August 2014

Month	Date	Starts at	Spans	Name	Mode
June	**7th - 8th**	**0600 UTC**	**24 hours**	**VK Shires contest**	**CW/SSB**
	14th - 15th	1200 UTC	24 hours	Portugal Day contest	CW/SSB
	21st - 22nd	**0100 UTC**	**24 hours**	**Winter VHF/UHF Field Day**	**CW/SSB**
	21st - 22nd	0000 UTC	48 hours	All Asian DX contest	CW
	28th - 29th	1200 UTC	24 hours	Ukrainian DX Digi contest	RTTY/PSK63
July	5th - 6th	1100 UTC	24 hours	DL-DX RTTY contest	RTTY
	12th - 13th	1200 UTC	24 hours	IARU HF World Championship	CW/SSB
	19th - 20th	1200 UTC	24 hours	DMC RTTY contest	RTTY
	26th - 27th	1200 UTC	24 hours	RSGB IOTA contest	CW/SSB
August	2nd	0000 UTC	24 hours	TARA Grid Dip Shindig contest	RTTY/PSK63
	2nd - 3rd	0001 UTC	48 hours	10-10 International Summer contest	SSB
	9th - 10th	0000 UTC	48 hours	Worked All Europe contest	CW
	16th - 17th	**0300 UTC**	**24 hours**	**Remembrance Day contest**	**CW/Phone/ RTTY/Mixed**
	30th - 31st	**0400 UTC**	**20 hours**	**ALARA contest (10 hours each day)**	**CW/SSB**

Results John Moyle Memorial Field Day 2014

Denis Johnstone VK4AE/VK3ZUX
Contest Manager, JMMFD 2014

24 Hour Portable Operation – Multiple Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Place /Award
VK3ER	Multi	All	All	793	6,308	1 /**
VK4WIS	Multi	All	All	356	2,239	2 /
VK4GHZ	Multi	All	All	189	1,712	3 /
VK4IZ	Multi	All	HF	994	2,338	1 /
VK2CL	Multi	All	HF	777	1,738	2 /
VK2HZ	Multi	Phone	All	414	1,070	1 /
VK3ANR	Multi	Phone	All	208	958	2 /
VK6ARG	Multi	Phone	All	363	808	3 /
VK3CMZ	Multi	Phone	All	220	795	4 /
VK4WIT	Multi	Phone	All	188	497	5 /
VK3DMX	Multi	Phone	All	215	471	6 /
VK5OM	Multi	Phone	VHF	42	1,284	1 /
VK2EH	Multi	Phone	VHF	38	716	2 /
VK4OD	Multi	Phone	HF	1,303	2,606	1 /
VK5ARG	Multi	Phone	HF	927	1,852	2 /
VK2GGC	Multi	Phone	HF	812	1,624	3 /
VK1MT	Multi	Phone	HF	649	1,292	4 /
VK4WID	Multi	Phone	HF	549	1,086	5 /
VK2TG	Multi	Phone	HF	486	972	6 /
VK3CNE	Multi	Phone	HF	497	954	7 /
VK2ACH	Multi	Phone	HF	257	514	8 /
VK6ZN	Multi	Phone	HF	144	288	10 /
VK6SH	Multi	Phone	HF	100	200	11 /
VK4CHB	Multi	Phone	HF	77	154	12 /

Six Hour Portable Operation – Multiple Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Place /Award
VK4GYM	Multi	All	All	108	486	1 /
VK5LZ	Multi	All	VHF	65	1,087	1 /
VK2EWC	Multi	All	HF	45	90	1 /
VK4WIE	Multi	Phone	All	117	784	1 /
VK3JNH	Multi	Phone	All	86	622	2 /
VK4BAR	Multi	Phone	All	111	324	3 /
VK5SR	Multi	Phone	All	54	314	4 /
VK3AWS	Multi	Phone	All	63	209	5 /
VK4YH	Multi	Phone	All	85	176	6 /
VK3KQ	Multi	Phone	VHF	71	763	1 /
VK2SF	Multi	Phone	HF	231	462	1 /
VK2AOJ	Multi	Phone	HF	152	304	2 /
VK5KDK	Multi	Phone	HF	35	70	3 /
VK5GRC	Multi	Phone	HF	29	58	4 /
VK2LE	Multi	Phone	HF	24	48	5 /

/ Certificate Awarded
/** President's Cup
/S Participation Certificate

24 Hour Portable Operation – Single Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK1DA	Single	All	All	111	895	1 /
VK2JUB	Single	All	VHF	224	4,027	1 /
VK4SN	Single	All	HF	177	374	1 /
VK1SV	Single	All	HF	51	106	2 /
VK4OE	Single	Phone	All	144	1,923	1 /
VK2FAAD	Single	Phone	All	191	1,187	2 /
VK5KBJ	Single	Phone	All	181	626	3 /
VK3VCL	Single	Phone	All	132	318	4 /
VK2FWB	Single	Phone	All	49	164	5 /
VK2AWJ	Single	Phone	All	53	116	6 /
VK5VCO	Single	Phone	VHF	36	159	1 /
VK2FREE	Single	Phone	VHF	13	58	2 /
VK3FEZZ	Single	Phone	VHF	19	58	3 /
VK5UV	Single	Phone	HF	266	532	1 /
VK3KAT	Single	Phone	HF	152	304	2 /
VK4HEC	Single	Phone	HF	131	262	3 /
ZL4HO	Single	Phone	HF	96	192	4 /
VK3UA	Single	Phone	HF	74	148	5 /
VK3NCC	Single	Phone	HF	19	38	6 /
VK6FDKR	Single	Phone	HF	10	20	7 /
VK5NJ	Single	CW	HF	18	72	1 /

Six Hour Portable Operation – Single Operator

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK5TE	Single	All	All	41	274	1 /
VK3WAM	Single	All	VHF	57	846	1 /
VK3ANL	Single	Phone	All	83	496	1 /
VK3IL	Single	Phone	All	59	309	2 /
VK6ZKO	Single	Phone	All	47	293	3 /
VK1PWE	Single	Phone	All	88	248	4 /
VK2ZB	Single	Phone	All	61	126	5 /
VK6COM	Single	Phone	All	8	20	6 /
VK5KK	Single	Phone	VHF	43	632	1 /
VK5OQ	Single	Phone	VHF	33	351	2 /
VK3FIX	Single	Phone	VHF	28	292	3 /
VK3YSP	Single	Phone	HF	155	310	1 /
VK5PAS	Single	Phone	HF	155	310	1 /
VK3VTH	Single	Phone	HF	134	268	3 /
ZL3VZ	Single	Phone	HF	116	232	4 /
VK2IO	Single	Phone	HF	71	142	5 /
VK3FOWL	Single	Phone	HF	67	134	6 /
VK5KPR	Single	Phone	HF	30	60	7 /
VK6LCK	Single	Phone	HF	30	60	7 /
VK2MT	Single	Phone	HF	12	24	9 /
VK4TDI	Single	Phone	HF	9	18	10 /
VK2BNN	Single	Phone	HF	4	8	11 /
VK6FACT	Single	Phone	HF	4	8	11 /
VK2ONZ	Single	CW	HF	14	56	1 /
VK1WJ	Single	CW	HF	12	48	2 /
VK4JAZ	Single	CW	HF	8	32	3 /
VK2BJT	Single	CW	HF	5	20	4 /
VK3IT	Single	CW	HF	3	12	5 /

Home Station – 24 Hour (Part 1)

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK2ZDR	Home	All	All	180	1,132	1 /*
VK2ACD	Home	All	All	304	898	2
VK3UX	Home	All	All	115	603	3
VK3PH	Home	All	All	105	268	4
VK2WJ	Home	All	All	110	189	5
VK5FD	Home	All	All	76	164	6
VK3DGN	Home	All	All	55	115	7
VK4KLC	Home	Phone	All	213	734	1 /*
VK2PWR	Home	Phone	All	454	678	2 /*
VK5DT	Home	Phone	All	263	510	3
VK2TTP	Home	Phone	All	220	414	4
VK3FCAA	Home	Phone	All	215	315	5 /$
VK3WT	Home	Phone	All	73	271	6
VK3FMPW	Home	Phone	All	29	204	7 /$
VK3VLY	Home	Phone	All	125	193	8
VK4MAC	Home	Phone	All	107	156	9
VK3BYY	Home	Phone	All	57	110	10
VK4FPDG	Home	Phone	All	40	68	11 /$
VK5HP	Home	Phone	All	19	56	12
VK4FNQ	Home	Phone	All	9	53	13
VK6FMTG	Home	Phone	All	20	43	14 /$
VK4NL	Home	Phone	All	13	37	15
VK4PQ	Home	Phone	All	15	33	16
VK6MM	Home	Phone	All	7	18	17
VK6SN	Home	Phone	All	7	16	17
VK2WDD	Home	All	VHF	192	1,317	1 /*
VK3BQ	Home	All	VHF	44	228	2
VK2ELF	Home	All	HF	314	462	1 /*
VK2KJJ	Home	CW	HF	25	100	1 /*

/* *Certificate Awarded*
President's Cup
/$ *Participation Certificate*

Home Station – 24 Hour (Part 2)

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK2AMS	Home	Phone	VHF	47	438	1 /*
VK4DH	Home	Phone	VHF	54	352	2 /*
VK2AGC	Home	Phone	VHF	35	216	3
VK3DIP	Home	Phone	VHF	43	210	4
VK5AKM	Home	Phone	VHF	44	176	5
VK3ZQH	Home	Phone	VHF	28	162	6
VK4JAM	Home	Phone	VHF	40	154	7
VK3FASW	Home	Phone	VHF	28	111	8/$
VK5EU	Home	Phone	VHF	31	93	9
VK3DHM	Home	Phone	VHF	18	74	10
VK4NE	Home	Phone	VHF	12	28	11
VK3FHID	Home	Phone	VHF	4	14	12 /$
VK2FHRK	Home	Phone	HF	500	696	1 /*
VK2HBG	Home	Phone	HF	383	575	2 /*
VK4VBU	Home	Phone	HF	202	336	3
VK4MON	Home	Phone	HF	185	303	4
VK3MEG	Home	Phone	HF	209	302	5
VK3CCJ	Home	Phone	HF	163	270	6
VK5LJ	Home	Phone	HF	163	259	7
VK3KW	Home	Phone	HF	132	212	8
VK4QH	Home	Phone	HF	144	209	9
VK4FAAS	Home	Phone	HF	111	196	10/$
VK6MZW	Home	Phone	HF	111	180	11
VK8GM	Home	Phone	HF	117	173	12
VK5MH	Home	Phone	HF	102	161	13
VK3NCR	Home	Phone	HF	101	144	14
VK2XD	Home	Phone	HF	86	140	15
VK2EWM	Home	Phone	HF	64	109	16
VK3JUG	Home	Phone	HF	62	107	17
VK4SR	Home	Phone	HF	58	103	18
VK6YS	Home	Phone	HF	48	84	19
VK2YAC	Home	Phone	HF	79	80	20
VK4ATH	Home	Phone	HF	45	77	21
VK6SMK	Home	Phone	HF	26	48	22
VK5JGM	Home	Phone	HF	28	44	23
VK2XNH	Home	Phone	HF	24	41	24
VK7GM	Home	Phone	HF	20	34	25
VK3KIS	Home	Phone	HF	17	32	26
VK4EV	Home	Phone	HF	17	32	27
VK2XLJ	Home	Phone	HF	18	30	28

Comments on John Moyle Memorial National Field Day 2014

This year's entries came from every Australian mainland call areas and several from New Zealand, but only one from Tasmania. The total number of logs submitted was 179. This was a significant increase (59.6%) from the 111 logs received last year. Well done to all who took part and took the effort to submit a log.

I have included in the results, all of the logs that I received and if any are missing, they are completely lost. I can only offer my apologies to anyone so affected. If your log is missing, it did not get it to me, despite my most careful procedures and cross checking.

Based upon submitted logs, there were some 23, 799 contacts, (a 31.9% increase from 2013) accumulating some 74,167 points claimed, (a 21.2% increase from 2013). This was successful contesting for an Australian field day contest, and with the 5 contact rule change it resulted in 179 logs being received. More than 1,100 Australian individual call signs were logged during the contest.

Unfortunately, the numbers of stations who went to the considerable trouble of going out and setting up as a portable station and then not bothering to submit a log as an entry, is still a disappointment. Some multiple operator stations got very big scores: this perhaps simply reflects the great and varied planning and implementation efforts required to assemble and operate a multi operator station.

Activity was carried out on all bands permitted under the rules. There was an increase in activity on HF, and there was a little more activity on the higher HF frequencies as would be expected by the increasing sunspot cycle. This sunspot cycle is at the top at the moment and conditions on some bands did appear to improve. Activity on 40m showed a great increase. The other lower bands seemed largely unchanged.

In the higher UHF and Microwave bands there was an increase in activity; since it obviously follows a weather cycle, rather than the solar cycle? Maybe it only takes a couple of club stations to not operate to make the difference and the weather in VK2/3/5 was quite windy, wet and with some thunder storms so activity was reduced.

The scoring in the VHF range was about the same as for last year. However, the scoring as a ratio of contacts per station is substantially lower than for 2013. The absence of around 15 to 20 club stations, because of the miserable weather in some parts of VK certainly reduced activity, with many portable stations making such comments.

Home Station – 6 Hour

Call Sign	Operators	Mode	Band	Contacts	Score	Award
VK4ADC	Home	Phone	All	148	367	1/*
VK6IR	Home	Phone	All	137	185	2
VK6ZSB	Home	Phone	VHF	7	49	1/*
VK2JCC	Home	Phone	VHF	27	43	2
VK2FABQ	Home	Phone	VHF	2	11	3/S
VK2PR	Home	Phone	HF	216	317	1/*
VK3JLS	Home	Phone	HF	163	257	2
VK5AV	Home	Phone	HF	99	162	3
VK2MHZ	Home	Phone	HF	86	133	4
VK1HW	Home	Phone	HF	83	105	5
VK5MK	Home	Phone	HF	63	100	6
VK2AOR	Home	Phone	HF	50	76	7
VK5LOL	Home	Phone	HF	41	66	8
VK2FAJM	Home	Phone	HF	35	63	9/S
VK3SOT	Home	Phone	HF	32	50	10
VK3LDR	Home	Phone	HF	32	44	11
VK5KLV	Home	Phone	HF	26	43	12
VK5EMI	Home	Phone	HF	20	26	13
VK3YZ	Home	Phone	HF	14	23	14
VK5HCF	Home	Phone	HF	10	17	15
VK6FAIC	Home	Phone	HF	12	16	16/S
VK2IUW	Home	All	HF	91	139	1/*

The other major change noticed this year was the increase in both Portable and Home Station operation, as seen by the submitted logs. Clearly the new rule requiring all stations who contacted any station who contacted any station more than five times, should submit a log has made a positive impact. There were however reports of stations, who when contacted later by a portable station, simply refusing the contact for then they would have to submit a log. This type of activity was most unsporting and not in line with the spirit of the contest. This activity did make a very significant decrease in the number of contacts made and points earned per station. This was the real downside of the five contact rule.

The '5 Contact Rule' was devised to facilitate the checking and verifying of submitted logs. It was not devised to irritate and anger people who chose, for whatever reason, not to submit a log, but it was designed to encourage those who in the past did not see the need to submit their log – 'as they were not going to win anything'. Submitting their log is really is to help others as well as themselves.

The participation across the various call areas was patchy. There was an increase in Portable stations in most areas with only VK2 and VK8 showing a decrease. Home Station logs were greatly increased from last year in most call areas.

Call Area	Portable		Home		Total	
VK1	5	4	1	0	6	4
VK2	21	21	24	13	45	34
VK3	21	14	24	12	45	26
VK4	16	13	17	10	32	23
VK5	15	8	14	5	30	13
VK6	8	3	9	1	17	4
VK7	0	0	1	2	1	2
VK8	0	2	1	0	1	2
P2	0	0	0	0	0	0
ZL	2	2	0	1	2	3
Total	88	67	91	44	179	111
	2014	2013	2014	2013	2014	2013

All of the portable stations that went to the effort to send in a log will get a certificate. The WIA believes that those who make the effort to set up and operate a portable station should be acknowledged. In line with previous years, the Foundation License logs who did not achieve a placing were instead awarded a Participation Certificate for encouragement.

There were 17 Foundation licensed operators who submitted a log. (five from VK2, six from VK3, two were from VK4, none from VK5 and four from VK6.) There were many more Foundation call stations operating than these, who were logged during the contest, but they chose not to submit a log. All logs submitted by Foundation operators were awarded a certificate. Logs from club stations did show that a few 'F' Calls also took part as part of the club station effort, well done.

Band	S/UHF		VHF		HF	
	Points	Contacts	Points	Contacts	Points	Contacts
24 GHz	0 (0)	0 (0)				
10 GHz	247 (0)	28 (0)				
5.7 GHz	232 (64)	13 (2)				
3.4 GHz	402(0)	37 (8)				
2.4 GHz	430 (197)	36 (11)				
23 cm	3,376 (1,934)	312 (157)				
70 cm	8,259 (8,394)	823 (689)				
2 m			17,127 (16,933)	1,754 (1,371)		
6 m			6,126 (4,832)	605 (409)		
10 m					1,601 (649)	758 (345)
15 m					1,373 (1,031)	696 (429)
20 m					6,637 (7,284)	3,285 (3,985)
40 m					24,433 (16,609)	13,386 (8,932)
80 m					3,730 (3,124)	1,970 (1,632)
160 m					194 (165)	96 (85)
Total	12,946 (10,859)	1,249 (859)	23,258 (21,765)	2,359 (1,780)	37,968 (28,859)	20,191 (15,408)

Comparison between 2014 and earlier years

Year	Logs	Contacts	Points
2014	**179**	**23,799**	**74,167**
2013	111	18,047	61,213
2012	140	22,173	88,270
2011	129	20,857	71,736
2010	122	23,573	80,087
2009	124	20,773	71,041
2008	104	17,258	98,940
2007	76	12,535	64,028
2006	78	10,865	61,387
2005	67	8,423	44,080
2004	66	8,602	49,855

This year, the rules again stated that EXCEL is the preferred submission format. A sample linked EXCEL logging report was prepared and was available on the WIA Contest website. (Contact me at *vk4ae@wia.org.au* if you would like a copy of my linked spreadsheet in EXCEL for next year.) Other suitable file submission formats are WORD, or *.TXT output file from VKCL (VK Contest Log). PDF format is not acceptable as are JPG and TIFF.

All logs submitted in an electronic form this year, were usually fully readable, but a few stations had to resubmit their log in an acceptable format. I thank them for their cooperation.

There were still only 93% of logs submitted electronically this year, again up from last year. This has been due largely to the excellent work by Mike Subocz VK3AVV and his worthy program VKCL (VK Contest Log). Those that submitted a log in the VKCL export format were as usual very easy to work with. Those that simply forwarded the text output file of VKCL were also rather simpler to work with than any form of posted paper log or a log completed by hand.

Paper logs may also be used. A small log from an individual operator is, and will remain, completely acceptable. Large paper logs can require a very considerable manual work on the part the contest manager to input the data into the contest database and are no longer permitted. It is so much better to forward the computer files used to print the paper log, as part of an e-mail, for the data can then be easily extracted and used for checking purposes.

A note for all HF Stations: All HF contacts are valid HF scoring contacts, whether they are from VK, ZL or P2 stations or stations from overseas. Overseas stations cannot submit a log to the contest, but can exchange numbers with stations participating in the Field Day Contest. They are to be scored as a Portable station contact.

Comments regarding this year's contest

The comparative difference in score and scoring between HF and VHF/UHF contacts

In fact within the John Moyle Contest, the rules allow for some 54 possible alternative categories as shown below. Each category is actually completely independent from every other category and so there are in fact 54 parallel contests. In this way it is completely different from any other contest presently in Australia. This year 34 of the categories were contested.

For this reason it is not possible to have overall winner in this contest, as scores from any category, especially between different bands and different modes are not directly comparable. Only scores within the same category are correctly comparable. To reduce the number of certificates awarded to Home Stations – the contest is a Field Day after all – only one certificate is awarded for every 10 logs received in each category will be awarded again this year.

The award of the President's Cup is a further parallel contest. It is awarded to the highest score from a Club Station, affiliated with the WIA, in any category. This year again it was awarded to VK3ER.

Table of Existing categories

Operators		Modes				Bands		
	Time							
Multi	24	Phone	CW	Digital	All	HF	VHF	All
Multi	6	Phone	CW	Digital	All	HF	VHF	All
Single	24	Phone	CW	Digital	All	HF	VHF	All
Single	6	Phone	CW	Digital	All	HF	VHF	All
Home	24	Phone	CW	Digital	All	HF	VHF	All
Home	6	Phone	CW	Digital	All	HF	VHF	All
SWL	24							

The number of logs submitted to the contest is again up on previous years

The number of logs entered in this year's contest is significantly increased compared to the last few years of the contest. The number of individual stations taking part in the contest and the number of their contacts seems about the same as for last few years, it is just that the number of logs submitted last year was well down compared to the previous year and reversed the trend seen over the last 10 years where the number of stations has continued to steadily rise. This drop has been reversed by the introduction of the 5 Contact rule. This has also greatly increased the percentage of verified contacts during the contest, making the contest manager's task a little easier.

In 2014 a total of 179 logs were submitted from 88 portable stations and 91 home stations.

In 2013 a total of 111 logs were submitted from 67 portable stations and 44 home stations.

In 2012 a total of 140 logs were submitted from 77 portable stations and 63 home stations.

In 2011 a total of 129 logs were submitted from 83 portable stations and 46 home stations.

In 2010 a total of 122 logs were submitted from 73 portable stations and 49 home stations.

In 2009 a total of 124 logs were submitted from 63 portable stations and 61 home stations.

In 2008 a total of 104 logs were submitted from 59 portable stations and 45 home stations.

In 2007 a total of 76 logs were submitted from 48 portable stations and 18 home stations.

A piece of disinformation was circulated again this year that the only valid scoring contacts for the JMMFD are with VK, ZL, and P29 stations

The rumour was again circulated this year that the only valid contacts for the JMMFD are with VK, ZL, and P29 stations. Contacts with 'DX' stations should, in their view, only score 0 points for any station operating in the JMMFD. **This has never been the case and ALL contacts with any station anywhere in the world for Portable and Home Stations alike, that can exchange correct receptions reports and serial numbers, form a valid scoring contact. The overseas station is to be scored as a portable station.**

The issue of scoring for CW contacts

The number of All Mode contacts was significantly higher than in the recent past. A good sign!

While CW is no longer a precondition for obtaining an Amateur licence, it is a skill that is still widely distributed among existing operators and a skill that should be nurtured among the newer licence holders.

The rules were adjusted in the past to allow doubling the score for a contact on CW. For HF this was simple. However, for VHF contacts where

there is a significant score already for the distance involved, the rules were amended for scoring VHF contacts on CW. This has been satisfactorily received without adverse comments.

The number of people who submitted logs claiming 'All Modes' and only logging contacts using SSB or FM

The modes allowed in the rules are PHONE (SSB or FM), Morse (CW) (Manual) and DIGITAL (Computer) Mode.

The PHONE (Voice) only modes are SSB, DSB, FM, PM or AM. That is the modulation is an audio signal derived in the first instance from a microphone.

The alternative is hand CW mode, which is one where the operator simply turns the carrier on and off according to the Morse code. Digital CW by a computer is not acceptable.

DIGITAL mode is one which uses a computer to control the transmitter and to decode the information to allow the operator to complete the contact. Digital communications exclude CW.

ALL MODE, is any combination of the above modes.

It has been noted that a small number of stations with modern computer software have been using computer generated CW which sends and decodes Morse to another digital mode which the computer then sends and decodes without any operator intervention other than clicking an on-screen icon. Hence the operator of such a station especially on VHF, when they get a call from another other similarly equipped stations; can both amass a very large score with simply a click of a mouse.

A contact can be made by these stations on Phone, then a contact on Digital and finally a contact on CW as the rules are currently written, consecutively, and not have to wait for 3 hours to repeat the call if they were restricted to only phone. They can further arrange the same contact on another band and repeat the process.

There was a small group of home stations who worked with only one portable station and among themselves and all amassed large scores using this method. Some scores were revised downwards as being partially unverified. I do not think this practice is in the spirit of the contest and the rules will be revised to try to overcome this practice.

Club Stations

Club Stations were well operated and made some very big scores as a result of their combined efforts. Well done!!

The absence of a significant number of some 15 to 20 club Stations was noted for this year. Some of the missing clubs had their club call sign used and probably achieved significant scores, but the club chose not take the time to submit a log. This is a sad reflection upon the efforts made by some, not being fully supported by other members of their club.

Low Power Contest

A suggestion was made by a few stations that a QRP category could be allowed. The suggestion was that only a station that can be carried in a backpack should be allowed for the operation of the station. There were six logs entered indicating that all operation was on low power. They are acknowledged on their certificate. It is still not thought to be necessary to create another category just yet (see above) but interest is still growing and may soon require a rule change.

It is interesting to note, the scores produced by some of the Foundation licences that submitted a log, does indicate that plenty of contacts were made on the restricted lower power permitted by their LCD.

The Future

Now it is over to you. There are always ways to improve anything, but scrapping something because it does not suit you is not possible. But if benefits are shown to be available, further changes can be made to the contest to better serve the amateur community. But changes to force the majority to follow what suits a small minority is definitely not a good idea.

If you have any contribution to these topics, the Rules for this contest are available at the WIA web site at *http://www.wia.org.au/members/contests/johnmoyle/* which already contains my contact information and please feel free to contact me with your submission for further consideration.

Well done to all of those stations that participated in the contest and well done those who bothered to submit a log. It is hoped that the number of logs to be submitted next year will continue this year's increased log numbers.

I wish to thank those who did send in photographs of their equipment set-up and personnel involved for inclusion in the *AR* magazine. These have been submitted to *AR* along with this report so please give Peter Freeman via e-mail at *(editor@wia.org.au)* anything else you have for later use for the magazine.

Over to you

Masts planning: Response *(from p. 13)*

Dear Peter,

Thanks for sharing your experiences, Bruce, and also for your views about the value of WIA and affiliated club membership.

Achieving some sort of uniform accommodation for amateur radio masts and antenna structures across Australia would be a gargantuan task. Recall how long it took to wrangle the Murray-Darling Basin Agreement concerning water allocation and use across multiple states. Fortunately, opportunities arise to influence planning laws and regulations at the time state / territory governments undertake legislative reviews or reforms.

In the instance with NSW, the opportunity arose with a statutory review, which required public consultation (a.k.a. "have your say", as the NSW Government put it). With the encouragement of, and coordination by the Institute, the amateurs of NSW joined the public consultation bandwagon to effectively put a case for reasonable allowance of amateur radio masts and antenna structures. Together, we created "a voice", which was heard among the "din" of many other stakeholders.

I understand that other state government agencies are looking to the NSW experience with "code-based regulation", as it is known in the trade, to perhaps revise and reform planning laws and regulation in their own jurisdictions. In NSW, the planning reform begun in 2011 is continuing.

As circumstances arise in other states / territories, where opportunities for public consultation occur during the planning reform process, the amateur radio community should raise a collective voice through the auspices of the WIA to bring to the fore the issue of reasonable allowance for amateur radio masts and antenna structures. Even where some accommodation already exists – as in South Australia and Victoria – improvements could be gained when the opportunities arise. As the Chinese philosopher, Lao-tzu, said: "Even the longest journey must begin where you stand" (often translated as "A journey of a thousand miles begins with a single step").

Roger Harrison VK2ZRH

Hamads

WANTED - NATIONAL

Copies of *Australian CQ* magazine.

The WIA Archive is seeking early copies of the late 1920s Australian CQ for copying and/or adding to the WIA Archive's shelves.

This magazine was published by the NSW Division of The Australian Radio Transmitters League, a group which was initially formed in 1927 in Queensland and grew quite large in NSW. Later it established itself to some extent in most Australian States. The magazine possibly ceased publication in late 1929 when ARTL members in NSW re-united with the WIA. The WIA Archive holds only one complete copy and one part copy of this magazine. In addition, a small number of copies are held by ARNSW and the Kurrajong Radio Museum. Collectively, we wish to build up the issues extant.

The format was fourteen printed pages stapled; each page approximately 150 mm wide x 220 mm height. A coloured cover was included although the colour seems to have changed with each year of publication.

Please contact Peter VK3RV via email *vk3rv@wia.org.au* or c/o the National Office in Bayswater if you can help us locate this important part of our history.

FOR SALE – NSW

Radio theory books. I am clearing my shelves of theory books built up over many years of teaching. Email me at *gsco8077@bigpond.net.au* for a catalogue of books which are all in very good order (and I would like them to go to good homes).

Scotty VK2KE, QTHR.

WANTED – VIC

Fitting for antenna – 5/16th to PL-259 or 5/16th to SO-239.

Contact Sam VK3BNJ on 03 9743 6708.

Relay for Alinco two metre amplifier, model ELH-230.

Battery valve type 3A5 twin triode.

Any information, including circuit diagram, for a Ramsey electronic frequency counter, type CT-50.

Word processor Citizen model CNB-10WP, working or not, but the LCD screen must be complete and undamaged.

Phone Brewster VK3YBW on 03 9527 2661, after 6.00 pm – if no answer, please leave a message.

FOR SALE – VIC

FT-747 transceiver, with FM board fitted. Desk mike and H/H microphone. With manuals. AT11 MP auto antenna tuner with manual. Bencher low pass filter. Bencher antenna baluns. Lafayette TE-48 GDO. TRIO noise bridge. MFJ TNCR packet radio, model MFJ-1274. Alinco FM transceiver DR-112, with manual. Osker SWR-200 meter. VK Powermaster PSU. Low power dummy load. 80 metre mobile antenna. Two coils coax cable. All items are in excellent condition and working OK. Is a complete station. Will not separate. $1200.00 the lot.

Contact Norm VK3JAL anytime on 03 5456 3122 or email *bell122@westnet.com.au*

Shack clear out:

1. FT-736R base station rig with modules for six metres, two metres 70cm. Plexx tone encoder/decoder fitted and does all repeaters. SSB, FM simplex, and repeater operation, narrow FM mode. AQRS system & T/R switched DC supply for masthead pre-amplifiers. Packet radio TNC & internal power supply. Memory system stores 115 memories storing up to 230 frequencies.

Documentation & operating manual included. Nice condition. S/N 6I 060035. Price is $1200, plus postage or pick up.

2. FT-767GX base station radio. FT-736R & FT-767GX look the same. HF, 50 MHz, two metres and 70 cm, and covers 12 bands (1.8 to 430 MHz). In-built automatic antenna tuner & SWR/power meter. General coverage receiver covers 100 kHz to 29.99999 MHz as well as VHF and UHF. Electronic keyer with speed control & CAT control. Nice condition. S/N 8F120149. Price is $1200 plus postage or pick up.

3. Yaesu SP-767P. Matching speaker for FT-767GX, has phone patch system and meter on face of unit. Nice condition. Price is $130 plus postage or pick up.

4. TR-751A base or mobile radio. FM & sideband. GC but has failed lights in the readout & some small scratches on the bottom. S/N 7050395. Price is $100, plus postage or pick up.

5. Yaesu external speaker SP-8, to suit the FT-1000MP. S/N 01043. Price is $150 plus postage.

6. AR2800 wide range monitor Scanner. No longer required due to upgrade. 12 volts. Some small scratches on the top and back but otherwise GC, instruction manual included. S/N 11565. Price is $50:00 plus postage.

Contact Clifford M BilstonVK3CB, QTHR, phone 03 5346 1534, or *vk3cb@activ8.net.au*

FOR SALE – SA

The VK5JST Aerial Analyser (*AR* May 2006). Over 10,000 built, and still available from the Adelaide Hills Amateur Radio Society. For full details see *www.ahars.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'
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BAYSWATER VIC 3153
hamads@wia.org.au

ADVERTISERS INDEX

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It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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 Strategy Committee

Phil Wait VK2ASD (Board member – President); Geoff Atkinson VK3AFA (IARU Specialist); Peter Young VK3MV (Regulatory Counsel); Dale Hughes VK1DSH; Roger Harrison VK2ZRH; Doug McArthur 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.

Administrative & Finance Committee

John Longayroux VK3PZ - WIA Treasurer (Committee leader); Greg James VK2GRU - WIA Assistant Treasurer; David Williams VK3RU - WIA Company Secretary; Mal Brooks VK3FDSL - WIA Office Manager; Phil Wait VK2ASD - WIA Board member – President; Chris Platt VK5CP - WIA Board member - 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 Committee

Robert Broomhead VK3DN - Committee Leader; Roger Harrison VK2ZRH - Deputy Leader

- 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 Swainston VK3DAC - Co-Leader; Owen Holmwood VK2AEJ - Co-Leader; Ron Bertrand VK2DQ; Mal Brooks VK3FDSL – Administration; Robert Broomhead VK3DN - Systems

- 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.

Affiliated Clubs Committee

Phil Wait VK2ASD - WIA Board member – President; Mal Brooks VK3FDSL - WIA Office Manager; Ted Thrift VK2ARA - Clubs Liaison officer; John Longayroux VK3PZ - WIA Treasurer

- 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 ratios in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board

Community Service Committee

Bob Bristow VK6POP - Committee Leader; Fred Swainston VK3DAC; Greg James VK2GRJ; Ewan McLeod - WIA Director; Paul Hoffmann VK5PH

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

Radio Activities Committee

Chris Platt VK5CP - WIA Board member; Geoff Atkinson VK3AFA

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

Historical & Archive Committee

Peter Wolfenden VK3RV - Committee Leader; Roger Harrison VK2ZRH - Deputy Leader; Linda Luther VK7QP; Martin Luther VK7GN; Jenny Wardrop VK3WQ; Will McGhie VK6UU; Ian Morris VK3IFM; Drew Diamond VK3XU; David Wardlaw VK3ADW

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

New Initiatives Committee

Phil Wait VK2ASD - Board member – President; Robert Broomhead VK3DN; Roger Harrison VK2ZRH; David Williams VK3RU - WIA Company Secretary

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

IT Services Committee

Robert Broomhead VK3DN - Committee Leader; Tim Broomhead VK3KTB - Assistant Webmaster / Programmer; Marc Hillman VK3OHM - Awards System Developer

- 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.

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

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