Amateur Radio

Volume 85
Number 7
July 2017
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WIRELESS INSTITUTE OF AUSTRALIA

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Technical

General

This month's cover:

Our cover this month features some images from the Come and Try activities at Hahndorf on the Sunday of the AGM weekend. At the top is an image captured in near space by the camera on the Horus high altitude balloon. The lower images feature some of the local Hahndorf Primary School students eagerly participating in School Amateur Radio Club activities. Photos courtesy Stuart Filmore VK5STU (bottom photos) and Amateur Radio Experimenters Group inc and Project Horus.

Columns

Contributions to Amateur Radio

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

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editorial

Peter Freeman VK3PF

Another road trip

As foreshadowed last month, I had another road trip ahead of me: a trip to Hahndorf for the Annual General Meeting of the WIA.

This trip was a little shorter in both time and distance, in part due to the forecasts for both terrestrial and space weather – it is not as much fun playing portable radio when the ionosphere is not cooperating and it is raining on you!

I departed home on Wednesday prior to the AGM and met the rain as I approached a target SOTA summit in the Grampians National Park. The result was a short activation – only five contacts made in between rain showers. I then progressed south and west to Mount Dundas for another short activation, with more rain either side of the actual time on the air. But both summits were qualified for SOTA. I then headed into South Australia and found accommodation in Penola.

The following morning saw me on Mount Burr, after making contact with the District Ranger with ForestrySA. The activation went well, with me using the special event callsign VI5WOW for the day. Propagation was ordinary, but the summit was qualified. I then set off further west and north, eventually setting up and operating in two Conservation Parks during the afternoon. In the first Park I operated for an hour, working around 20 stations. In the second Park, I operated until I had the qualifying 44 contacts for the WWFF qualification. As I was driving to the highway, the rain started again. So I decided to head to the Adelaide Hills, with a stop at Meningie for dinner.

Friday saw me out operating on Mount Gawler in the morning and Mount Lofty in the afternoon – two new SOTA summits, plus Mount Lofty is also in Cleland Conservation Park. I then headed off to the Conference venue to pick up my registration pack. The evening saw a somewhat crowded space as people gathered for the social dinner. It was terrific to meet up with so many friends.

Saturday was the Annual General Meeting, the Open Forum and the Conference session after lunch. It was an interesting day. The evening saw the dinner, with plenty of social interaction, some good food and drinks and three excellent presentations.

We gathered at the Conference venue on Sunday morning to head out to activate another Park. I was joined by Robert VK3DN. We headed to a target Park, finding one of the locals already set up. So we exchanged greetings and then we headed off to the next nearest Park. I set up my station with a little assistance from Robert. After working a few stations, Robert declined an offer to make some contacts and departed to assist with setting up at the Hahndorf Oval for the afternoon Come and Try activities. I continued until I had my required 44 stations in the log, packed up and headed toward Hahdorf.

There was much to see and discuss at the Come and Try activities and many people who wanted to chat.

Continued on page 5

Board comment

Justin Gile-Clark VK7TW

The magic of radio is alive and well! I attended along with many others the fantastic AGM and Convention weekend in Hahndorf in VK5 and came away from the experience convinced that the hobby of amateur radio is alive and kicking and we need to get the message out to the rest of the world and show them what they are missing!

I offer a huge thank you to the VK5 Organising Committee who put on a very entertaining and informative weekend showcasing the WOW of amateur radio.

The AGM weekend saw the hand-over to an almost completely new Board and this will provide a challenge in itself as the new Board begins a period of discovery and adjustment.

I thank Past President Phil VK2ASD and the past Board for all their work during a challenging period and especially thank them that they have volunteered to continue in their committee roles. This helps the new Board immensely with keeping the organisation running.

The AGM saw the presentation of the President's Report highlighting the release of the new Radiocommunications Bill and the major body of work this will create for the Spectrum Strategy Committee, options for *AR* magazine, the bookshop, youth and STE(A)M, office and accounting, the Volunteer Charter, the consultation portal, the new voucher system for attracting new members as part of the examination pack and the development of trial on-line examinations. Phil thanked the Board and Bruce and Petra which was acknowledged by all present with applause. There were 78 Silent Keys in the last year that were acknowledged by one minute of silence.

The minutes of the 2016 AGM Minutes were read and there were some procedural delays in relation to approval of the 2016 AGM which saw detailed counting of votes and proxies. The AGM then moved to the auditors' report, some questions were asked and referred to documents in the AGM information packs, it was then established that an Agenda was not included in the AGM pack. This was an unfortunate oversight. Some questions were taken on notice in relation to the 2016 financial report and the meeting was advised that the operating loss was because of a reduction in membership, a reduction in examinations and increases in accounting and book keeping costs.

Outgoing President Phil outlined the large amount of work that was put into the WIA by Directors on a voluntary basis and acknowledge that in future the Board needs to rely more heavily on the committees and other volunteers within the organisation. Phil outlined that legal advice was sought because of motions received after the notice period and the advice stated that the Financial Report did not need to be put to a vote. The auditors and returning officer were appointed for the coming year. Accolades were given to John Marshall for service over and above during the Board election campaign.

Phil then announced the new Board members and the new Board members introduced themselves. A vote of thanks was then given to the past Board. The past Board agreed to append the Questions and requests for further information document to the minutes of the meeting for next AGM. The certificates and awards were then presented by Phil and these are covered in another part of this magazine.

At the Open Forum the new Board outlined some of the areas that we will be seeking to improve and these include...

We are looking for greater openness and transparency and this starts with us releasing a synopsis of board minutes for members' perusal via MEMNET. The 2017 AGM and Open Forum videos are also available on MEMNET.

Another key area the Board is progressing is the establishment of the Strategy Committee to guide the development of a member driven strategy and vision for the WIA. Whilst this is going on, the Board also resolved to continue the important work of the existing committees and any vacant committee positions will be filled in accordance with the Volunteer Charter. The Board is also looking to give committees greater responsibility and extract itself from many committees to enable it to steer not row the organisation and this will form part of the important work of the Strategy Committee.

A recurring theme at the Open Forum was membership and the fact that there are at least 8000 amateur radio operators who are not members of the WIA. The Board will certainly be investigating this and looking for help to improve this

Continued on page 5

WIA news

2017 AGM Award now available

The 2017 AGM award is now available to those who qualify. To apply for your award you must use the WIA online award system to upload your log with all qualifying QSOs. Don't forget that you must "Verify DXCC" before any of them count. Then select "Show Award Status" and select "2017 AGM". If you qualify you should have an "Apply" link shown.

Your award will be approved within two weeks (probably much sooner), and available for you to download as a PDF and print out at home.

WIA Trial Exams getting plenty of use

By early June at least 150 people have logged on to register for the WIA trial exams with feedback from them asking that the initiative been expanded. Among these are potential upgraders and people wanting to enter the world of Amateur Radio and are encouraged by what they see.

In response Fred Swainston VK4FE/VK3DAC has now uploaded two Advanced Licence trial exams and a Regulations trial exam to add to the existing Standard level exams. He advises that following requests, a couple of Foundation licence exams will join them soon. Fred Swainston VK4FE/VK3DAC says the response to the trial was higher than expected and the demand is continuing.

The on-line trials are similar to the actual examinations using the same mix of questions. The system is still being tested but the registration process has achieved the desired result.

Australian Air League talks to ISS astronaut

An excellent Amateur Radio on the International Space Station (ARISS) contact was held with 19 questions being asked by cadets at the Australian Air League (AAL) South Australia Wing, Elizabeth, South Australia. The AAL is for boys and girls aged 8-18 years of age, founded in 1934 to encourage an interest in aviation as a career, or as a hobby.

Gathered for the hook-up were 100 including Air Force personnel. All observed a minute's silence in respect of one of their staff, an experienced pilot killed with two others the day before when their Cessna Conquest crashed shortly after take-off from Renmark airport. Then the ARISS contact on May 31 began, despite initial difficulties with the new phone system that were overcome by Australian ARISS Coordinator Shane Lynd VK4KHZ. There was great audio from astronaut Thomas Pesquet KG5FYG who used the callsign NA1SS via the Santa Rosa Junior College Amateur Radio Club W6SRJ telebridge.

Among questions asked by the cadets was the space junk hazard, the experiments conducted, the training required to be involved, how a 3D printer element acted in zero gravity space, through to more personal matters like food and having a haircut in space. Thomas KG5FYG also talked about the views he had from space, achievements being made, his spare time activity and the return to earth.

Thank you to Bill Hillendahl KH6GJV and Don Dalby KE6UAY who were at the W6SRJ telebridge from 2 am local time, and Shane VK4KHZ who moderated the contact.

Future licence conditions – consultation

The WIA has advocated and promoted reform of the Amateur licence conditions since it was invited by the ACMA to provide a submission on the subject in 2014. The Board and Spectrum Strategy Committee made extensive efforts since then to "prepare the ground" with the ACMA on the proposed changes to Amateur licence conditions and the principles underlying the proposals.

In April 2016, an updated submission was provided to the ACMA, again, at its request, which consolidated what had transpired over the period since the first submission, along with Amateur community and member feedback, periodic discussions with the ACMA, and the federal government's Spectrum Review.

In summary, the underlying purpose is to enable greater self-determination for the amateur service, along with proposing updates to the licence conditions for all licence grades in order to ensure amateur radio remains relevant in the digitally-connected age. Key proposals include:

- enabling use of digital modes for Foundation licensees
- access to more bands for Foundation and Standard licensees
- relaxing permitted bandwidths for all license grades
- removing mode restrictions
- enabling DIY construction for Foundation licensees
- review of Foundation callsigns to provide 3-letter suffixes
- increased maximum power for all licensees.

The WIA is conducting a consultation exercise during May and June to provide the ACMA with formal evidential support for the proposed changes to the Amateur licence conditions.

The key principle is that future licence conditions should not unnecessarily limit the breadth and depth of experimentation amateurs can explore and the technologies

capable amateurs may wish to adapt and exploit.

WIA member or not, your responses have equal weight.

60 metre band: Note that, as the ITU adopted a world-wide secondary allocation at 5.3 MHz at the World Radio Conference 2015, the WIA is already working with the ACMA to make this band available to Australian amateurs. It is already noted in the Australian Radiofrequency Spectrum Plan, which came into effect on 1 January 2017, but note that Amateur access to the band has not yet been authorised.

Editorial

Continued from page 2

Thus the afternoon passed quickly, with a little excitement when the Horus balloon was launched and contacts were made through the small cross-band repeater carried in the payload. All too soon, it was time for the evening barbeque meal and the formal events were over.

I departed Mount Barker on Monday morning. I activated two Parks before arriving in Murray Bridge for the night. More discussions occurred over the late afternoon and evening and again in the morning. I was not feeling that well, as a head cold had hit me overnight Sunday.

Tuesday saw me heading back towards home, with a short diversion to activate a new VKFF reference near Bordertown. I only operated long enough to qualify the Park for the VKFF award scheme – 10 contacts is the minimum. Then on the road to Horsham and a quick chat with Mick VK3GGG which resulted in an invitation to drop in for a coffee. That coffee stop ended up being an overnight stay.

On the road again in the morning and I decided to attempt a couple of SOTA summits. This went well. It was then back onto the highway and head toward Melbourne and a slow transit across the road network, as I hit the suburbs at the start of the evening peak. But eventually I made it safely home – one simply needs to remain calm in the face of heavy traffic.

Many thanks to all involved in organising the events in Hahndorf – it was a terrific series of events, with a very good attendance.

Special thanks must go to Paul and Marija, who hosted me for the weekend, to Peter and Jenny with whom I stayed on Monday at Murray Bridge, and to Mick and his wife.

Until next month,

Cheers,

Peter VK3PF

Board comment

Continued from page 3

situation. If each member of the WIA was to recruit just one additional member then this would go a long way to strengthen and grow this organisation.

The Board will also be investigating improvements in the finance and budgeting systems and processes to ensure we can support the future organisation and live within our means.

By the time this Comment goes to print, the consultation period on the Spectrum Review changes will have closed and the WIA Spectrum Strategy Committee will have melded the comments received into the WIA submission.

This is an important time for amateur radio within Australia and this review signals changes to Legislation, Regulation and Spectrum Management within Australia. The WIA needs to foster and build the relationship with the ACMA and be ready to take on the opportunities that present to assist members and all amateurs in Australia.

We are always happy to hear from you – if you have a constructive suggestion on how the WIA can improve things then please contact the Board through the Consultation Portal on the WIA website.

Justin Giles-Clark VK7TW on behalf of the WIA Board.

Plan ahead

GippsTech 2017 Annual VHF/UHF/ microwave Technical Conference 1-2 July

WIA AGM and Convention 2017 – Hahndorf, South Australia

Grant Willis VK5GR

RADIO IS MAGIC!

Many years ago a young amateur was visiting one of his mentors. He had a problem, he'd been asked to teach what Radio was to young adults.

His mentor then asked a very odd question. *"What is Radio?"*

The young amateur, who was studying engineering at the time began with, *"well, you start with Maxwell's equations....."* and proceeded to describe the physics of radio.

After about a minute, the mentor shook his head and interrupted. *"What is Radio?"* Our young amateur stopped and looked perplexed. The mentor then explains *"Radio is Magic"*.

You see, we talk into a microphone, and our voices are conveyed around the world for another person to hear. No wires, nothing but air. Magic! You need to show young adults the Magic and give them a memorable experience that they won't forget in their lifetime.

For our young Amateur this was the first of many "Wow, that's amazing" moments, that inspired him to keep exploring and experimenting!

Inspiring Leadership: the future of Amateur Radio.

This year, the WIA and the Radio Clubs of Adelaide combined to hold the WIA AGM and Convention in Hahndorf, South Australia. The idea to bring it to VK5 was first suggested 18 months ago by a group of Amateur Radio clubs based in Adelaide. This culminated in contributions from the Adelaide Hills Amateur Radio Society, Amateur Radio Experimenters Group, Elizabeth Amateur Radio Club, North East Radio Club and South Coast Amateur Radio Club, who collectively represent over 400 amateur radio operators here in South Australia.

The theme the committee based the event on was "Inspiring Leadership: the Future of Amateur Radio". We wanted to bring together the most interesting and innovative activities being undertaken from across the hobby and inspire our hobby's leadership to help drive Amateur Radio forward into the future.

Along the way, we wanted to rekindle the enthusiasm and excitement we all felt when each of us started out in this hobby. We chose the message "Radio is Magic!" to carry that though.

By the end of the weekend, we had people telling stories of how they got into radio and what triggered their own "WOW" moments that inspired them. It was fantastic to see how this one little idea was able to spark such enthusiasm in the eyes of all who came.

So, if you couldn't make it, and are wondering what all the fuss was about, here is a short summary of events.

The curtain goes up: Friday night

The event kicked off with a social dinner. It was great to meet so many people you ordinarily only get to talk to on radio.

We must thank the Adelaide Hills Convention Centre for their efforts in accommodating this event activity at such short notice. (We had to relocate at the last minute due to the more than 170 people who registered to attend. What a fantastic problem to have!)

Saturday morning: the Annual General Meeting

Next came the AGM meeting and Open Forum. I will leave it to the new Board to comment on the detailed business aspect of the meeting and the various awards that were presented.

The morning session then wrapped up with an introduction by Doc VK5BUG to his MF and LF publications before lunch. These books are an invaluable addition to any amateur's shack if they are in any way interested in operating on 2200, 630 or 160 m!

Saturday afternoon: "Radio is Magic" showcase

At 1.30 pm, the "Radio is Magic" showcase kicked off, with the Master of Ceremonies, Matthew VK5ZM introducing the "Radio is Magic" story to the audience (He was the young engineer the story talked about).

Iain VK5ZD and David VK5KK then began their presentation on amateur microwave communications, which surprised everyone when the audience realised that David was 9 km away on Mt Lofty, communicating with the audience on 47 GHz. He had a 10 GHz back channel so he could hear what was going on and then, to top it all off, we crossed live via 1.2 GHz digital HD ATV to see what David was using at the other end of the link, ably assisted by Tim VK5ZT as cameraman. Huge thanks to the microwave team from the Elizabeth Amateur Radio Club for that demonstration!

Next up, continuing the ATV theme, we had David VK5DMC from Port Pirie talk about how the VK5RDC digital ATV repeater came about, as well as how DATV was once again giving the general public an opportunity to access this unique window into Amateur Radio.

Following David, Mark VK5QI took us up into near space, as he presented the latest developments around Project Horus and the new HD imaging systems now flying using new advanced modems on 70 cm.

David VK5DGR then spoke about the latest FreeDV HF digital voice developments, including his new FreeDV 700C and D modes, which now can better SSB in performance. The audience were amazed by the digital system's ability to transmit useable voice on such weak signals.

Iain VK5ZD and David VK5KK (via the DATV link) during the Microwave Presentation.

We then broke for afternoon tea, before returning to hear from Paul VK5PAS, who took us through the joys of HF portable operation. A highlight was watching Paul assemble his station before your eyes in under five minutes right there in the auditorium.

Steve VK5SFA was up next. He introduced the work he had been doing with Lee Turner VK5KLT and Paul Lawson VK5SL on designing and constructing Transmitting Magnetic Loop Antennas. A huge amount of interest was shown and the results Steve demonstrated on 160 m in particular speak for themselves!

Our attention was then turned to how we can build on all of these magical things by taking them into the classroom. Joe VK3YSP and Julie VK3FOWL talked about their School Amateur Radio Club program and showed us how it was inspiring young people, by giving them a "wow" moment on air. The kids are not likely to directly take up a Foundation licence through this exposure, but it does light the fire of scientific curiosity in the young, something that can be built upon later.

Finally, Matt VK5ZM and Grant VK5GR spoke about taking all of these amazing things, and then using them when promoting the hobby. They demonstrated how they could be used when engaging with multiple age groups into many different STEM type programs within University and High school environments, as well as into the community at large through Maker Movements, Hacker Spaces, etc.

Everything tied together to reinforce the theme that "Radio is Magic", leaving everyone with the parting thought that there is something magical to go out there and discover.

Saturday – Partners' Program

While all of this was going on, two other major programs were running in parallel. The partners' tours to either Mt Lofty or the Barossa Valley took the opportunity to showcase the best that the Adelaide region has to offer, taking in our arts, crafts and culinary delights at venues from across the Adelaide Hills.

Barossa Valley Tour Highlights

By Shirley Tregellas VK5YL

There was beautiful weather, wonderful company and an exciting day ahead. Sixteen ladies headed off from the Hahndorf Convention Centre on Saturday morning (20 May) on a small bus driven by our

very able driver Nathan. Oh yes, he was waiting with the bus at a different area of the Centre than where we had assembled but he very obligingly made a quick trip up the road to pick us up.

Our first stop was the Whispering Wall. This is a dam wall built at the Barossa Valley Reservoir and it was later found that if one whispered at one end of the dam wall your whisper could be heard at the other end, all due to acoustics. Naturally some of us experimented with our call signs.

Morning Tea was served at the Barossa Chateau where we nibbled on Devonshire Tea then inspected the wonderful antique collection in the adjoining room. Some wonderful pieces were viewed but one of our number was reprimanded for touching one of the glorious pieces of carved wood, and then nearly fell backwards over a priceless chair. I quickly retreated to the back of the group. Then it was time to inspect the Rose Garden opened some time ago by Queen Elizabeth II.

The partners on the Barossa Valley Tour.

A short drive to the Lavender Farm found us tasting lavender cookies and marvelling at the numerous different kinds of lavender. The long awaited lunch at Yaldara Winery was next with a tour underground of the wine cellars and a wine tasting session where we were really sure we should have had something else to eat before this section.

Our tasty lunch was served in a small rotunda off the Herman Restaurant where we lingered over yet more wine. We then piled into the bus and headed for the Opal Shop where we were promised a discount on any purchases. I know a few purchases were made and hope the ladies were happy with the prices. On the drive back to Hahndorf, our bus driver was heard to say "I thought they would have been asleep by now"!! But like all YLs and XYLs, we have to keep talking otherwise we won't get a word in edgeways with our OMs. A happy day was had by all.

The partners on the Mt Lofty Tour.

Mt Lofty Tour Highlights

By Joy Robins

The Adelaide Hills is one of Australia's prime destinations for a spectacular canvas of autumn colours - deciduous trees, orchards and vineyards come to life in autumn and are very popular with all visitors.

Our Partners' tour with twenty-one participants and our cheery driver David set off after a welcoming coffee and chat at the Three Gums Bistro and headed straight to the Mt Lofty Summit Lookout for a viewing of the city of Adelaide. Although the day was still a little foggy, we could see the city and surrounding suburbs. We viewed many red faces of the young people who walk or ride to the summit and relaxed as we walked around the viewing platform and gift shop. We left the summit and drove around Mr Lofty House one of Adelaide's grand old residences - built originally in 1858 and rebuilt after the 1983 bushfires it shows a stunning viewing of the Piccadilly Valley. The lower car park was used by VK5KK and VK5ZT to make the digital TV link back to the Convention Centre.

Returning to Hahndorf our next stop was the Cedars the most gracious and charming family home and rambling cottage garden of the Heysen family. In 1912 Hans and Sallie Heysen purchased this home and later built studios for both Hans and their daughter Nora to use for their many art works. The house has been left in original condition and we all felt thrilled to view the many artworks and personal items on display. A welcoming morning tea overlooking the garden and wander up to Nora's studio meant that we overstayed our time there – it was hard to leave until we had seen every corner!

Our lunch at the Hahndorf Mill was waiting for us and being a buffet we were all happy with our selections. Moving on from there we first stopped at the Beerenberg Farm shop to see their range of amazing jams, chutneys, sauces and condiments - all made on the local family farm. We found some combinations that we had never heard of and purchases were made to take home.

We spent the rest of the afternoon travelling on some of the many scenic tourist drives of the Adelaide Hills. We visited the pretty village of Stirling and one of the many local craft shops and then drove across the freeway to Woodside the home of Melbas chocolate factory and shop and the award-winning Woodside Cheeses. More purchases and tastings and another coffee or hot chocolate were all enjoyed together. We drove the "long" most scenic route home back to Hahndorf to enjoy once more the spectacular colours and ambience of autumn in the Adelaide Hills. Our very happy and relaxing day ended at the Convention Centre. I am sure that we all look forward to catching up once again in the future.

A big thankyou must be given to Joy and Shirley who led those events and to all of the venues who hosted them across the day!

Saturday Evening: Guest Speakers

Saturday evening was held at the Convention Centre, with a three course dinner. Three guest speakers entertained everyone throughout the evening, with David VK5KK acting as the Master of Ceremonies.

Sue VK5AYL opened with the launch of her new Parks and Peaks application for the iPhone. The

Craig VK5CE & team on Sandy Islet OC-294 – VK6ISL.

new app is especially designed for the park activator and chaser to keep up to date with spots and information about parks, and is a great link from the ParksnPeaks website into the mobile arena. She also told us about the trials and journey she had been on learning how to develop applications for those devices.

Sue was followed by our Keynote Speaker, Craig VK5CE who presented both the serious and humorous side of being an "Islands on the Air" or IOTA activator in Australia.

Craig gave a humorous look at what the stages of planning an IOTA DXpedition are and then explained some of the obstacles you can encounter, such as crocodiles, snakes and Australian government bureaucracy. Craig was a great ambassador for the IOTA program, and we would encourage you all to consider getting involved either as an activator or as a chaser!

Finally, Grant VK5GR revisited the Project Horus balloon flights from the 2012 AGM Convention in Mildura. Two short videos were shown, the first giving everyone a look at what happened after the chase teams left the car park, and the second which revealed what the payloads actually were used for on the second balloon that was flown that day. Rising Sun Pictures, a Hollywood Special Effects house based in Adelaide, used the footage captured from the second balloon to help build the academy award winning special effects for the major motion picture "Gravity". It showed just what extraordinary places amateur radio can take you in the world!

Sunday Morning: Parks Activations

First up on Sunday, following Paul VK5PAS's presentation on Saturday, five teams were organised to take visitors out into some of the local parks around the Adelaide Hills.

Paul VK5PAS, John VK5BJE, Chris VK5FR, Peter VK5PET and Les VK5KLV took teams of three out into five different parks around the Adelaide Hills to show first-hand what it was like to operate on HF with a beautifully quiet noise floor, using modest equipment.

Those that went had a great time!

Sunday Parks Activation by Stuart VK3STU, hosted by Paul VK5PAS in VKFF-0782 5CP-127 with Al VK2OK and Gerard VK2JNG.

Sunday Morning: National Motor Museum – Birdwood

Approximately 50 people took the opportunity to explore one of the nation's iconic motoring museums on Sunday morning. Located in Birdwood, about 20 minutes drive north of Hahndorf, the National Motor Museum is a treasure trove of automotive history which is well worth a visit if you come to South Australia.

Sunday Afternoon: Come and Try Radio Day – Hahndorf Oval

To cap off the weekend, the main event on Sunday was the "Come and Try Radio" activities day at Hahndorf Oval. It was designed to showcase as many different aspects of Amateur radio as possible, and to demonstrate the "Magic of Radio".

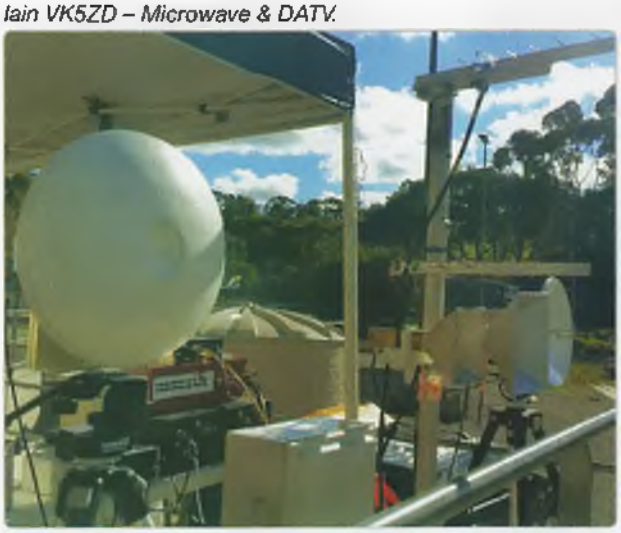
Each of the presenters from the Saturday Showcase brought their equipment along for people to come and take a much closer look at. They were also joined by many others as we attempted to have as many aspects of the hobby represented as possible.

Chris VK5CP brought his remote HF station system and operated from the venue using his transmitters over 100 km away. Ben VK5BB brought his D-STAR hotspot and talked to people about how to use the VK5RWN D-STAR system. WICEN was also represented, bringing their field portable repeaters and displays along to encourage people to get involved with the community service aspects of Amateur Radio, thanks to Arno VK5ZAR, Louis VK5FLY and David VK5LSB.

Andrew VK5CV also came down and set up his MF 630 m band receiving system, which he used to copy the VI5WOW beacon on 476 kHz running from his home QTH and David VK5DMC with Roger VK5YYY brought a host of ATV related equipment and demonstrations, including a new Raspberry Pi based 1.2 GHz DATV transmitter that Roger is developing as a spin off from the BATC system.

One of the highlights was David VK5KK who set up his 10 GHz EME station on the oval. No two way contacts were established (as the stations he planned to contact in Europe couldn't get on the air at their end) but the DL0SHF EME

Iain VK5ZD – Microwave & DATV.



Chris VK5CP – Remote HF.

Paul VK5PAS – Parks Portable.

David VK5DMC – Digital ATV.

David VK5KK – 10GHz EME.

Steve VK5SFA – Magnetic Loops.

WICEN station.

Andrew VK5CV – 630 m Band.

David VK5DGR – FreeDV Digital HF.

Tim VK5ZT – Optical and Microwave.

beacon was successfully decoded!

Steve VK5SFA also did a roaring trade with a great deal of curiosity and interest generated in his magnetic loop antennas. Several people were extremely surprised at the performance of the antenna when 5x9 contacts were had into VK7 on 40 m!

Iain VK5ZD and Tim VK5ZT from the EARC Microwave team brought along an extensive array of microwave equipment and placed it on display. Iain VK5ZD demonstrated equipment from 1.2 GHz to 122 GHz across the oval while Tim VK5ZT brought along his curious collection of optical communications equipment as well as his microwave portable rover van. They were joined by some amateurs from VK2 (sorry I didn't get their names) who also set up their own equipment on the oval and joined in the fun!

David VK5DGR also brought down a FreeDV HF digital voice demonstration while Paul VK5PAS assisted by Chris VK5FR demonstrated portable gear for use in parks. Sue VK5AYL was also there demonstrating her new iPhone App for the ParksnPeaks website.

The Project Horus team from the Amateur Radio Experimenters Group also put on a major display of their High Altitude Balloon tracking equipment, and also flew a balloon for the event.

Project Horus also mounted a large display which included a tracking ground station setup by Bob VK5FO and Ray VK5RR, a chase car displayed by Mark VK5QI, and a ground station for making contacts via the balloon repeater provided by Andrew VK5AKH and manned by Kim VK5FJ and others.

Ray VK5RR – Project Horus Tracking.

Mark VK5QI – Project Horus Chase.

The Horus launch also took place from Hahndorf Oval. AREG, with support from the WIA, arranged special permission from the Civil Aviation Safety Authority to use Hahndorf Oval as a launch site especially for this event. The ground crew, which included Matt VK5ZM, Mark VK5QI, Andrew VK5AKH, Darin VK5IX and Gary VK5FGRY prepared the payloads and balloon.

The flight, which was designated Horus 45, carried aloft a RTTY telemetry beacon on 434.650, the Wenet HD Imaging Payload on

Horus 45 Payload Train – VK5ZM and VK5AKH.

441.200 and a FM voice repeater operating on 145.775 MHz uplink (91.5 Hz CTCSS) and 438.850 MHz downlink.

The launch itself had its own little piece of drama, when it had to hold for 15 minutes at the direction of Air Traffic Control, due to other aircraft movements in the area. Finally, launch release authority was given and away it went.

Once in the air, the special event call VI5WOW was activated. QSOs started rolling through the balloon repeater with 36 QSOs made through the balloon to VI5WOW during the flight. Meanwhile, the AREG chase teams set off down range. 14 stations helped us track the balloon throughout the flight.

Finally, it burst over Karoonda and commenced the descent back to earth. By now it was getting late, and the recovery team was still some 40 km from the balloon when it landed. The recovery ended up occurring just at sunset after an 800 m hike off the main highway.

The other major highlight of the day was the demonstration of the School Amateur Radio Club program that Joe VK3YSP and Julie VK3FOWL have developed. We were visited by students and their parents from the Hahndorf Primary School and Joe and Julie put them through a complete introduction to science and technology through the vehicle of Amateur Radio, ably assisted by Ron VK3AFW.

The students were given an opportunity to use HF voice and data modes, VHF repeaters and radio direction finding as hands on activities. They were also introduced to many of the customs and quirks of Amateur Radio like the phonetic alphabet and Q-codes.

Making digital contacts using the Olivia mode on HF proved

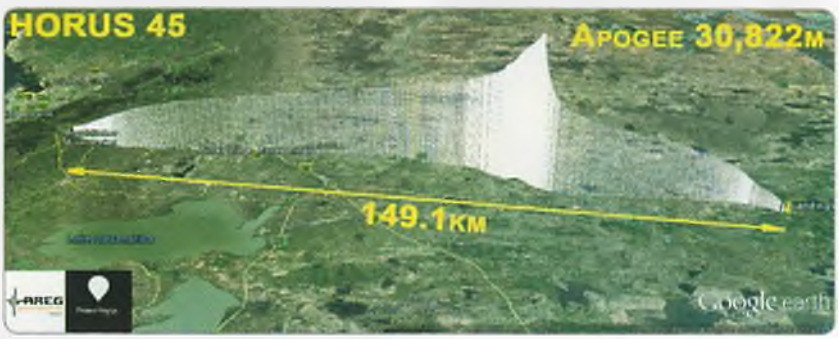
AREG & Project Horus – Preparing Horus 45 for launch with Hahndorf Primary School watching closely guided by Joe VK3YSP.

fascinating as they listened to the musical like tones on the receiver, while learning to tune SSB signals and wearing man packs while carrying GPS linked ARDF equipment proved to be lots of fun. It is a fantastic example of the value Amateur Radio can bring to demonstrating STEM principles in the classroom.

The students also got to see the balloon launch and were shown how to track the flight via the Internet. They also made enough contacts across the demonstration stations to qualify themselves for the "Radio is Magic" award, making five contacts each with different modes across the venue.

The work that Joe and Julie did brought into focus the importance of inspiring young people to consider careers or at least self interest in science, technology, engineering and maths as planting that early seed is one of the best ways of getting young people to take up those disciplines in their later careers. It is great to think that Amateur Radio has a role to play in that area.

Horus 45 VI5WOW Ground Station – Kim VK5FJ and Louis VK5FLY.



Horus 45 Flight Track (courtesy Google Earth and habhub.org).

Horus 45 – Balloon Camera looking over Adelaide from 29.74 km.

Darin VK5IX, Matthew VK5ZM, Andrew VK5AKH, Daniel Cook & Oliver Cook at the Horus 45 recovery site near Lameroo (Photo by Gary VK5FGRY).

Joe VK3YSP and some of the SARC activity participants.

SARC Event - Students from Hahndorf Primary School.

All up, we estimate that around 400 people visited the site on Sunday. Many were amateurs who just came up from Adelaide for the day. Everyone who came found something to spark their interest in trying something new, and could see a hobby that indeed really is alive!

Sunday Evening: BBQ

At the end of the "Come and Try Radio" event, the displays were packed up and thoughts turned to celebration and winding down a hugely successful event. That evening, a Barbeque was held at the Hahndorf Football Club oval, sponsored by the Adelaide Hills Amateur Radio Society and supported by the Hahndorf Football Club and Lions Club.

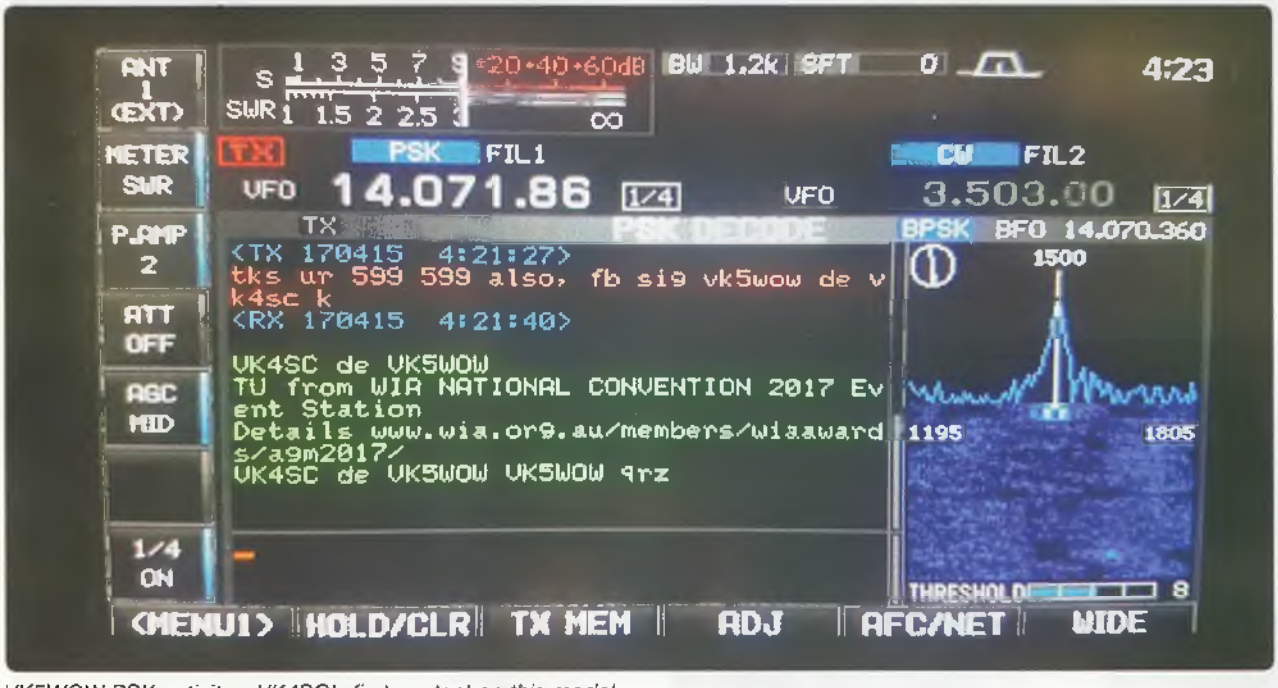
The organising committee can't thank our volunteers and supporting clubs and organisations enough for the commitment and enthusiasm they showed to making this event a success. Who knows, it may just spark a new regular event on the VK5, and indeed national Amateur Radio calendar!

"Radio is Magic" Award Program

Another hugely successful aspect of the AGM and Convention 2017 was the VK5WOW/VI5WOW award. These two special event call signs were created to promote the message that "Radio is Magic" and to inspire people to get out there and try new things.

The award was set up with a structure that rewarded diversity. We used it on a huge variety of modes and from lots of different places.

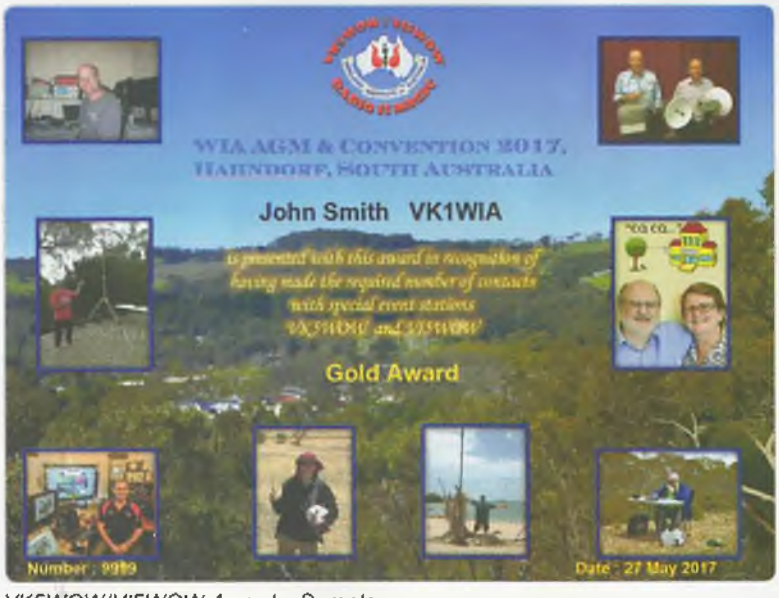
VK5WOW SSTV Contacts on 20 m.



VK5WOW PSK activity – VK4SC's first contact on this mode!

Some of the modes it appeared on include HF SSB, 6 m AM, 2 m/70 cm FM via a Balloon repeater, HF RTTY/ PSK/ Olivia/ JT65 and other digital modes, JT65 via the moon on 2 m, WSPR on 630 m (476 kHz), FreeDV on HF, D-STAR on 2 m, DMR, 2 m FM repeaters, SSTV and many more. It was activated from over 17 parks and even was used as the identification for the WIA VK5 Sunday Broadcast for the two months leading up to the event as part of a massive publicity campaign promoting the event.

Over that time we logged nearly 2000 contacts spanning 51 countries and 105 band slots. The logs are available currently via



VK5WOW/VI5WOW Award – Sample.

VK5SFA 6m + 60-30m Magnetic Loop.

VK2JDS joining the Microwave fun on Sunday.

Clublog and we are working to put them into LoTW and eQSL as well.

Some fantastic stories came out of the operation as well. Just getting active and making calls led to several amateurs giving new modes a try for the very first time, including Stu VK4SC who tried PSK on 20 m one afternoon, having never operated the mode before as

VK3YSP Explaining Radio to Hahndorf Primary School Students.

one example. It really embodied the spirit of the event to see people getting out and trying something new!

So, to everyone who got out there and stalked VK5WOW around the bands, if you haven't done so already, the 2017 AGM award is now available to those who qualify.

To apply for your award you must go to the WIA online award system (www.wiaawards.com) and upload your log with all qualifying QSO. Don't forget that you must "Verify DXCC" before any of them count. Then select "Show Award Status" and select "2017 AGM". If you qualify you should have an "Apply" link shown. Your award will be approved within two weeks (probably much sooner), and available to print out.

Special 4-sided QSL cards for the activations are now being prepared, and will be firstly made available via OQRS through M0OXO. Details of how to apply will be posted on social media and on the WIA website once they are available.

It is over for another year!

At the end of the event, we can now sit back and take stock of what went on. This year we had a total of 254 registrations, not quite an all-time record but close. From what we saw, every single person left with a smile on their face and their enthusiasm for Amateur Radio fired up and alive, all from one simple idea – that "Radio is Magic". It would make an old mentor of Matt VK5ZM and myself, Harro VK5HK (SK), smile to think that 25 years on his words have come to mean so much to so many.

All that is left for now is to simply say a heartfelt thank you to everyone who came, to everyone who volunteered, and to each of the clubs who contributed to making this year's WIA AGM and Convention one of the best.

In particular, we wish to thank the Adelaide Hills Amateur Radio Society, Hahndorf Football Club and the Lions Club who sponsored and provided the BBQ on Sunday night, the North East Radio Club who organised the VK5WOW/VI5WOW special event call signs, the

Amateur Radio Experimenters Group who organised special permission to fly a balloon from Hahndorf Oval for the event, the South Coast Amateur Radio Club who sponsored the gifts for the presenters and the Elizabeth Amateur Radio Club for the fantastic work of the microwave team and their input into the organising committee.

We also must thank all of the volunteers who contributed in ways both big and small, from leading the partners tours, to dealing with the venue bookings. In particular, we must thank the WIA Board and Robert VK3DN for his contribution again to the running of the event. It is only through the partnership between the WIA and the regional radio clubs that events of this magnitude can be successfully staged, and so to everyone involved, we say thank you!

See you hopefully at next year's AGM and Convention, wherever it is held in Australia!

Acknowledgements and Thanks

- WIA Board: For staging the event
- ALARA: Donation towards the cost of Lavender Farm entry.
- NERC: Application for special call signs and management of the roster for VK5WOW and VI5WOW.
- AREG: Balloon launch.
- SCARC & WIA: Thankyou gifts for the presenters
- John VK5DM and Peter VK3RV: History booklets.
- AHARS: Sponsor of the Sunday night BBQ.
- The willing team of volunteers who helped make this possible.

Special thanks to the SA AGM Organising Committee:

David Clegg VK5KC, John Dawes VK5BJE, Jim Tregellas VK5TR, Shirley Tregellas VK5YL, Stuart Fillmore VK5STU, Roy Gabriel VK5NRG, Grant Willis VK5GR, Matthew Cook VK5ZM, David Minchin VK5KK, Iain Crawford VK5ZD, Joy Robins, Dan Flakelar VK5DF.

AR magazine Media Sales

The WIA is seeking a passionate, motivated and energetic volunteer to assist with the sales and management of advertising space in *Amateur Radio* (*AR*) magazine.

THE ROLE

This is a consultative and relationship-focussed role, reporting to the WIA Communication Committee leader and being a member of the Publications Committee.

THE CANDIDATE

The ideal candidate would be a marketing manager or salesperson with experience in print and media sales. The role is focused on prospecting, cold calling, presenting, negotiating, selling advertising space with new *AR* clients as well as maintaining the relationships with existing advertisers. The successful candidate will manage advertisement bookings, ensure the supply of appropriate artwork to the WIA's magazine production company, provide invoicing details to the WIA National Office, and follow up client payments as required.

EXPERIENCE

The ideal candidate would possess:

- 5+ years' sales experience.
- Ideally having worked in the print and media sales industry (past or present) or have had experience working for a company where the role and responsibilities included marketing and advertising.
- A good track record of securing new business and achieving sales targets.
- Outstanding business acumen.
- Excellent presentation and communication (both written and verbal).

All applicants should have read and agree with the draft WIA Volunteer Charter.

To apply please send your resume via email to: *president@wia.org.au*

A programmable two-tone signal source for transmitter testing

Dale Hughes VK1DSH

When building a linear amplifier it is useful to assess its linearity and power output. One way of making the required measurements is to use a two-tone signal source in which two non-harmonically related tones are fed into the input of an SSB transmitter which then drives the amplifier under test. The amplifier RF output is then examined with a power meter, an oscilloscope and possibly a spectrum analyser. There are many references to the measurement techniques and designs for suitable test signal generators in the various amateur texts (Ref. 1) and on the internet (Ref. 2).

This article presents a test signal generator which uses an Atmel ATmega328P microcontroller to generate the required audio test waveform from 1024 eight bit samples held in the microcontroller program memory. A digital to analogue converter (DAC) converts the waveform samples to analogue values which are then band-pass filtered and the resulting waveform is a relatively accurate representation of the required waveform. A number of different waveform samples are stored in the microcontroller program memory:

1. A 1000/1050 Hz two-tone signal
2. A 1000/1800 Hz two-tone signal
3. A 1000 Hz sine wave signal
4. A 1800 Hz sine wave signal

Why use a microcontroller to do what can be done with a sound card program running on a PC or with a pair of conventional analogue oscillators? The idea was to build a small stand-alone and compact unit that generates a low distortion two-tone signal with good frequency and amplitude stability. This approach also allows flexibility as the required tones are programmed into the microcontroller and can be changed to suit particular needs. The low cost and ease of use of the Arduino programming environment (Ref. 3) made it an obvious choice for the application.

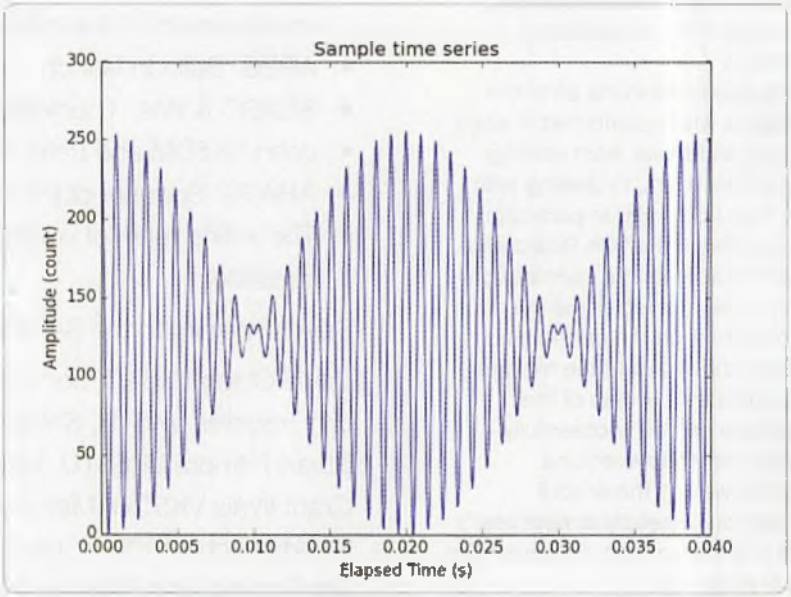


Figure 1: Waveform of the 1000/1050 Hz two-tone signal plotted by the Python script which generates the waveform samples.

Background Information

Tone waveform samples for the signal generator were calculated from a standard trigonometric identity which allows us to compute the sum of two equal amplitude sinusoidal waves at any instant in time. See equation below.

Where:

A is the amplitude of the input waves

f_1 and f_2 are the input wave frequencies

t is the time at which the sample is calculated

Waveform samples for 1024 time steps were calculated from the right-hand side of the below equation by a Python script. The Python programming language (Ref. 4) runs on a PC and/or other platforms, is free and is a very useful and flexible programming language with many technical applications. The Python script produces an output file containing the waveform sample values formatted so that it can be easily inserted into the Arduino source code. For this project the calculated time increment for each sample is 39.0625 microseconds, so the total time for 1024 samples is 40 milliseconds. The start and end points of the waveform samples are aligned so that the reconstructed waveform is phase continuous with

$$Acos(2\pi f_1 t) + Acos(2\pi f_2 t) = 2Acos\big((f_1 + f_2)\pi t\big)cos\big((f_1 - f_2)\pi t\big)$$

no sudden changes in output signal amplitude due to a phase mismatch between samples. The calculated values are restricted to 8-bit values between 0 and 255 and are rounded to integers in that range. When the Arduino source code is compiled, the Arduino compiler includes the waveform data from the file output by the Python script and programs the AVR instructions and waveform data into the program memory of the ATmega328P microcontroller.

More sophisticated designs would not use a stored waveform and would calculate the required waveform samples 'on the fly'; however in this case the simplest possible approach was taken as it meets all the requirements of the project.

Figure 1 shows the waveform calculated for the 1000/1050 Hz two-tone signal. While the rounding of waveform sample values to integers leads to some distortion of the reconstructed waveform, the spectral measurements shown in figures 2 and 3 indicate that the resulting output waveform is acceptable for the intended purpose with all noise and spurious components at least 50 dB below the peak of the desired signals. Very similar results are obtained for the single tone outputs.

Some subtlety was required in the Arduino software to achieve acceptable performance:

- The first point is that the internal microcontroller interrupts were disabled to avoid uncontrolled and unwanted changes of program execution time due to background processes in the Arduino code. Stability of the timing improves the spectral characteristics of the output waveforms.
- The second point is that the number of waveform samples chosen (1024) was because the number is a power of two making it easy to setup a repetitive loop that always executes at the same time increment i.e. the timing is completely determined and is not subject to timing jitter. The loop that reads the waveform samples and writes them to the DAC uses an index which is limited to the range 0 through 1023 which can be represented as a 10 bit binary number. The loop index (i) is then 'bit-wise anded' with the hexadecimal number 3ff which results in a loop index which repeats endlessly through all integer values between 0 and 1023 without having an explicit loop end value which would require extra code and, a probably variable, execution time which would cause timing jitter and reduce the output spectral purity.

The operative loop is only a few lines long:

```
void loop()
    {
    PORTD = RamSample[i++];          //get and write sample to output DAC, update index i
    i = i & 0x3ff;                   //bit-wise and keeps the index i in the range 0..1023
    delayMicroseconds(37);           //this value determines the frequency
    }
```

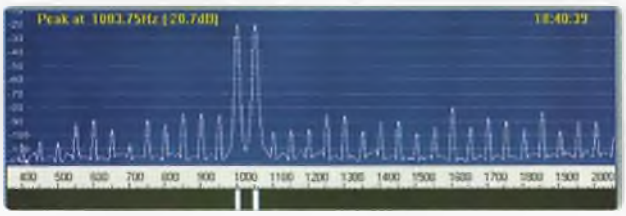


Figure 2: Spectrum of the 1000/1050 Hz two-tone signal. The measurement was obtained using the Spectran program (see Ref. 9) and samples recorded by a PC sound card.

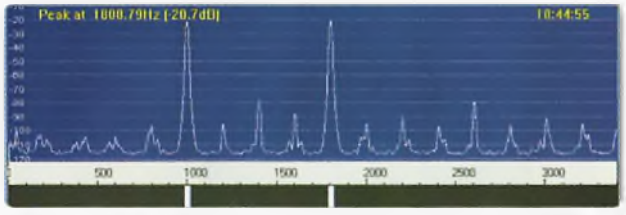


Figure 3: Spectrum of the 1000/1800 Hz two-tone signal. The measurement was obtained the same way as that shown in figure 2 except a wider frequency range was used as the two tones were more widely separated.

This loop can easily operate at the required sample rate and the frequency of the output signals can be trimmed, if required, by adjusting one value in the Arduino source code - the value 37 in the code fragment above. With the default value applied the frequency of the (nominally) 1000 Hz wave was measured to be 1003 Hz.

It must be noted that the approach taken in this design is only useful for continuous signals like sine waves and sums of sine waves or any other repetitive signal which is phase continuous across the 1024 sample boundary. Waveforms that don't comply with this requirement will be reconstructed with spurious spectral artefacts.

Circuit and construction details

The circuit, shown in figure 4, of the waveform generator is straight-forward. The required waveform is selected by pulling one of four inputs to ground using the FUNCTION switch (SW3) and pressing the RESET/LOAD (SW1) button. After reset the microcontroller reads the FUNCTION switch then loads the selected waveform samples from its program memory into its static random access memory (SRAM) and the samples are then continuously output to the DAC at the required rate until the device is switched off or another waveform is selected and the microcontroller is reset.The microcontroller (U1) is an Atmel ATmega328P device preprogramed with the Arduino UNO bootloader (Jaycar Cat ZZ-8726, Ref. 5). U1 operates at 16 MHz and the waveform samples are output to an 8-bit port (Arduino outputs D0

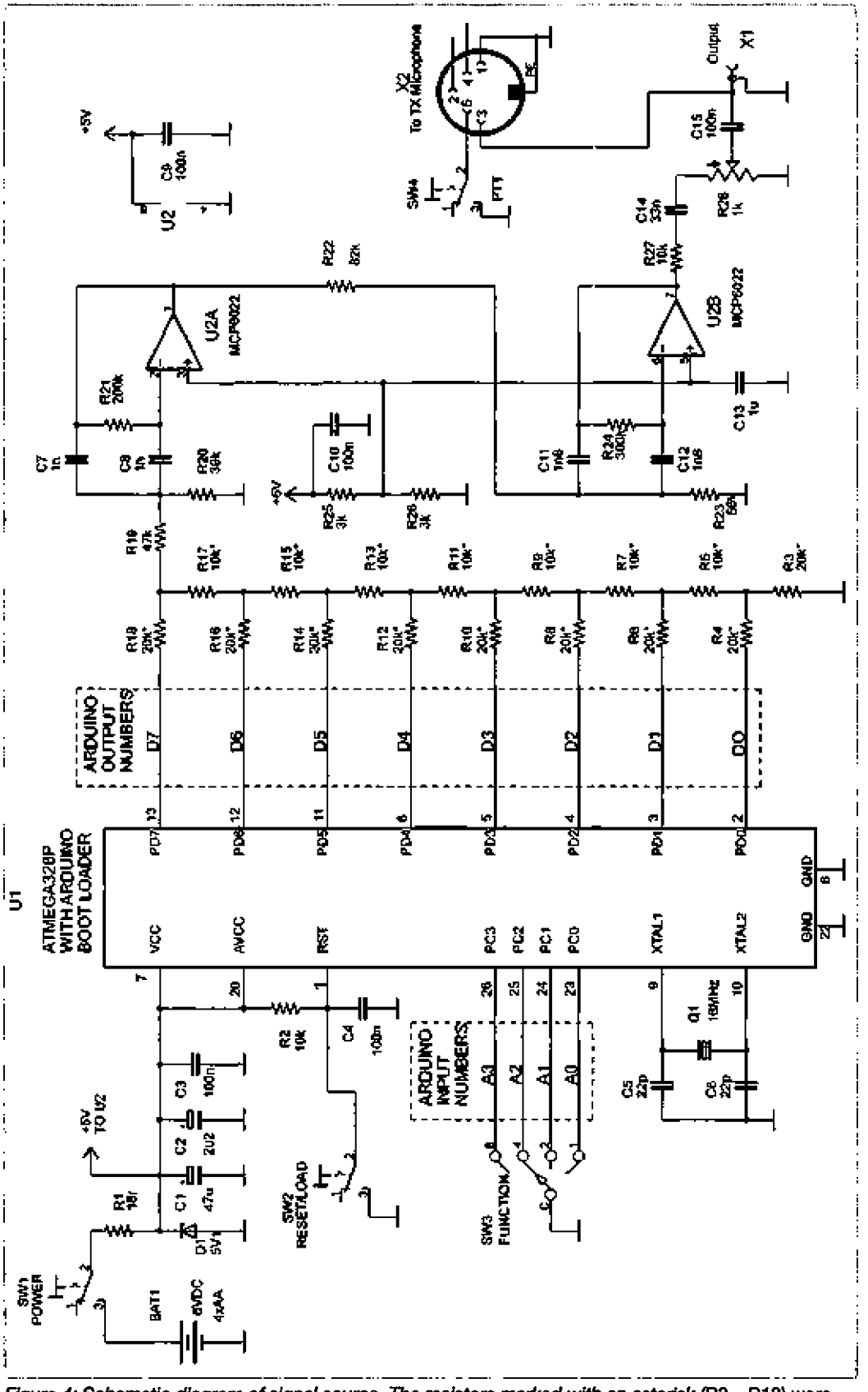


Figure 4: Schematic diagram of signal source. The resistors marked with an asterisk (R3 – R18) were specially selected for the closest values; see the text for details.

through D7) which is connected to a DAC made up of a R-2R resistor ladder network (Ref. 6) and then to a band-pass filter which converts the individual samples into a continuous analogue waveform of the required type i.e. a pure sinusoid or a two-tone signal. The filter was designed using the web-based filter design tool on the Analog Devices website (Ref. 7); the filter is a fourth order Chebyshev type with a 0.3 dB passband ripple. The filter centre frequency is 1.4 kHz and the 3 dB bandwidth is 2 kHz. Amplifier U2, a Microchip MCP6022, is a rail-to-rail output, low voltage device and resistors R25 and R26 bias the device so that the output is centred on one-half of the supply voltage – approximately 2.5 VDC.

To achieve the lowest distortion levels in the output waveform the resistors that make up the DAC, resistors R3 through R18, were selected from a larger number of 1% resistors. The resistance of each resistor was measured and the units with the

Figure 5: The complete unit built into 119 x 94 x 34 mm diecast box (Jaycar HB-5067 or equivalent).

closest values were used in the DAC circuit. The selection process meant that the resistors used were matched to better than 0.15% and this reduced the spurious frequency products by several decibels. The components used in the band-pass filter around U2 were standard parts and not specially selected: R19 through R24 were standard 1% units and capacitors C7, C8 and C11, C12 were standard 5% units.

Two signal output connectors have been provided: a connector which provides the tone output and a switch output that goes to ground which can be used as a 'Press-To-Talk' control and another socket which only delivers a tone output. Power for the circuitry is provided by a six volt battery (four AA type cells) and the supply voltage to the microcontroller and band-pass filter is regulated using a 5.1 volt Zener diode. Current consumption of the prototype unit was measured and found to be 50 mA.

The circuitry was built onto a piece of Vero board and mounted inside a small diecast box along with the battery pack. The microcontroller was programmed in a stand-alone Arduino Uno module (Jaycar XC-4410 or similar, Ref. 8) and then transferred to the signal generator circuit board.

Conclusion

A programmable and easy to build signal source which generates a number of useful audio signals has been presented. Using two-tone signals is an accepted and straightforward method of assessing amplifier linearity and measuring amplifier peak envelope output power. The user can generate other signal types by changing the contents of the waveform file which is stored in the microcontroller program memory. The Arduino source code, Python source code and waveform files are available from the author.

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Marconi legacy 80 years after his death

Jim Linton VK3PC

Known popularly as the 'father' of radio is Guglielmo Marconi; though some commentators quickly name those they think deserve or share that accolade.

Heinrich Hertz, Sir Oliver Lodge, Sir William Preece, Alexander Popov, Jagadish Chandra Bose, Captain Henry Jackson, Nikola Tesla, Dr Mahlon Loomis and Reginald Fessenden; are among many who had a part to play in the early development of radio.

The link of electricity and magnetism was the subject of experiments in the 1820s, with a theory of electromagnetism developed by British scientist James Clerk Maxwell, which predicted the existence of electromagnetic waves.

Maxwell published his theory in 1873, stimulating many people to experiment. It was this theory that bought together those earlier experiments on electricity, magnetism and optics.

German Physicist, Heinrich Hertz (1) conclusively proved the existence of what became known as Hertzian Waves, which before then were only a theory.

Hertz practically transmitted and detected the waves at a distance, in purely elementary laboratory fashion. These produced the famous spark-gap radio waves detected by another unpowered gap acting as an antenna.

He described this work in papers in 1887 and 1890. At the time Hertz did not think that the waves would have any practical application, but admitted much later they had uses through Marconi.

Early days of wireless

In the late 19th century, Guglielmo Marconi was among a few keen people experimenting with radio waves.

One was Captain Henry Jackson (2) (later Admiral Sir Henry) described as independently having the idea in 1893 of using Hertzian Waves for naval signalling. His experiments were based on the writings of Hertz and Lodge and later the work done by Bose.

Photo 1: Guglielmo Marconi.

By early 1896 he had developed wireless telegraphy equipment and began trials on the HMS Scourge that were a success and continued for about a year, leading to further improvements.

Captain Jackson's earlier experiments had been without the knowledge of Marconi although the pair had similar equipment. Both men met in the War Office on September 1896 and exchanged information through correspondence.

Between them they convinced the Admiralty to include wireless during fleet manoeuvres in 1899 and there were impressive results with both Marconi and Jackson sets.

In comparative tests, the Marconi gear was more sensitive and Jackson's more reliable under the maritime or damp conditions.

By 1904 the Navy standard was the Captain Jackson developed 'Service' set which had a hybrid of Jackson and Marconi components.

Key highlights from the life of Marconi

1894 - Experimented with wireless signals at home near Bologna Italy.

1898 - Successfully transmitted across the English Channel.

1901 - Sends trans-Atlantic signal from Cornwall to Newfoundland.

1909 - Wins the Noble Prize for Physics.

1912 - Wireless saves lives in Titanic sinking.

1918 - Message from England to Australia.

1923 - Joins Benito Mussolini's Fascist regime.

1929 - British and Dominion Governments take over 'beam wireless' network.

1937 - Dies in Italy a hero and has a huge funeral.

Inspired and passionate

Marconi had been an avid reader of popular scientific journals where there were reports of Hertz and experiments by Tesla, and he saw that the waves could carry communications.

It was his vision as an entrepreneur that any two points on earth could communicate – an idea readily dismissed at the time.

He remained convinced, having sent signals in late 1894 across a room of his parent's home Villa Griffone at Pontecchio near Bologna, Italy.

That was with assistance of Guglielmo's older brother Alfonso, who joined the board of Marconi's Wireless Telegraph Company and the Marconi International Marine Co Ltd

Photo 2: The Marconi Company logo.

in July 1909 (3). Also an avid collector of stringed instruments, he died on April 24th, 1936.

Marconi stuck to an idea others strongly believed would not result in much. The public was aware of the work of Maxwell and Hertz and saw wireless, as shown by Marconi, as marvellous and mysterious.

At 21-years of age, Marconi, who could fluently speak English and Italian, left for England in 1896 with a device that could send Morse code signals across a room without any connecting wires, a system he called 'wireless telegraphy' There he met Jackson with the two continuing correspondence. Within a year, Marconi patented his invention and launched a company.

Making the first trip to the United States in 1899 he demonstrated the worth of his invention to the Navy.

His pitch both in the US and in Britain was that, while under-ocean cables (linking the world) could be cut, wireless signals kept communication flowing including with ships at sea.

In 1901 he sent a message across the Atlantic making the first wireless contact from England to Newfoundland.

Trying to break Marconi

Aiming to keep a monopoly on spectrum use, Marconi only leased his devices and never sold them, falsely claiming that any competitor could not communicate.

The Germans were suspicious of the new technology. (More related to the story of Marconi's competitor Telefunken in Germany later.) At an international conference, a treaty was signed by many countries, specifying that use of the air should be open to anyone. The Marconi Company continued with its branded transmitters and services.

At 35-years of age, he was the first inventor-entrepreneur to win a Nobel Prize for Physics in 1909.

It was Marconi wireless equipment that played an important role when the RMS Titanic struck an iceberg and sank on April 1912 and 705 passengers were rescued.

In the aftermath of that disaster, Marconi advocated for wireless operators at sea and ashore to maintain a listening watch for distresses around the clock. The then powerful figure was a witness to the US Senate Inquiry into the disaster.

His practical application and commercialisation had established the Marconi name around the world and included the training of many wireless operators.

Marconi wanted to link the British Empire by 'beam wireless'. The project first raised in 1906 was delayed until 1924, mainly because of World War I but by then the research staff on his yacht Elettra had developed directional shortwave transmission.

While adopted by Australia, Canada, South Africa and India for the British post office, the

Photo 3: Marconi Jigger – the device kept secret as it made the system more selective - really a form of resonant coupling (patented by Oliver Lodge in 1897) used in the aerial circuit of the receiver and later the transmitter. Image courtesy Peter Wolfenden VK3RV.

Marconi Company built its own beam transmitting station for communicating with Argentina, Brazil, the USA and Japan.

The Imperial Wireless Chain was a great threat to the Empire's cable interests. In 1929 the British and Dominion Governments set up Cable and Wireless Ltd to take it away from Marconi's Wireless Telegraphy Company.

His enterprise included building a shortwave broadcast station in 1931 - Vatican Radio (Radio Vaticana), with Marconi personally introducing the Pope on air.

It was on two shortwave frequencies using 10 kilowatts (kW) on 12 February, 1931 and expanded in 1937 with higher power, directional antennas and more frequencies.

In 1932, he researched the propagation of still shorter waves, resulting in the opening in that year the world's first microwave radiotelephone link between the Vatican Palace and the Pope's summer residence Castel Gandolfo in 1933.

He became a supporter of Italian dictator Benito Mussolini but his death meant he did not see the enormous development of radio during the World War II 1939-1945.

With failing health, his interest in wireless never diminished (4). Not resting on his past achievements he worked to push the boundary through experimentation. A venture of discovery in the face of scientific scepticism epitomised his life and work.

His quest for further knowledge continued and he had a passion for a harbour direction-finder for ships using reflected waves.

The revered Marconi had many honours both in Italy and overseas and was welcomed wherever he went.

When Marconi died on July 20th, 1937, aged 63, (5) there was a large funeral procession and radio stations around the world went silent out of respect.

Guglielmo Marconi, the Italian inventor, electrical engineer, Nobel Prize Laureate and scientific hero of the 20th century, will always be synonymous with the early development of wireless, which we now call radio and acknowledge his vision on communication.

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Australian wireless experiments

Interest in the Hertzian Waves had spread to Australia in 1888. The arrival of Professor Richard Threlfall from England saw him repeat the Hertz demonstration at Sydney University (6).

His prophecy that electromagnetic radiation might be used in communication affected wording of the Australian Constitution that began in 1901 in relation to telegraphic and telephonic services.

Another experimenter was Professor William Henry Bragg at the University of Adelaide (7). From about 1888, Bragg had an interest in Hertzian Waves and in September 1897, delivered a lecture at the University on "Telegraphy without Wires".

With the help of a laboratory assistant he gave the first reported public demonstration of working wireless telegraphy in Australia.

Two years later, in September 1899, the University of Adelaide advertised that Professor Bragg was to deliver a series of three Extension Lectures on Wireless Telegraphy.

These lectures were largely the result of public interest in a number of wireless tests conducted between Henley Beach and the Adelaide Observatory, culminating in two-way communication on 15 July 1899.

This was Australia's first successful two way wireless telegraphy communication over a distance of about 8 km and involved Charles Todd (later Sir Charles), the man responsible for the Overland Telegraph stretching from Adelaide to Darwin that was completed in 1872.

There were many other events. They included Australia's first ship-to-shore wireless contact in 1901, the founding of the Wireless Institute of Australia (WIA) in 1910 by a meeting of experimenters, a broadcast across Bass Strait to Tasmania in 1906 and the first wireless message Marconi sent from England received by Ernest Fisk at Wahroonga, Sydney 1918 (6).

Editor's note

The WIA published a book 'Wireless Men & Women at War' in 2017, which details the stories of the use of wireless from WWI to the 1960s (8).

The WIA Archive is actively seeking to preserve the important historical documents and stories. The aim is to build up a more complete history of Amateur Radio in Australia that can include minutes, writings, audio, photographs or newspaper clippings.

If you think you can help please read the **'WIA Archive Collection Policy 2016'** on the WIA website (9) *www.wia.org.au/members/history/about/*

SOTA & Parks

Allen Harvie VK3ARH

Amateur radio operators have embraced microprocessors and computers and welcomed them into the shack. Initially deployed as a replacement for the paper logbook, the computer in amateur radio is now controlling the radios, sending and receiving CW, data modes and with specialist digital voice protocols as well as linking your shack to thousands of others through the Internet. A review of the modern transceiver shows it's actually a collection of microprocessors, a computer in disguise.

As the technology shrunk, we now have smart phones and tablets that can be taken into the field. These devices are computers in their own right and include the ability to reliably communicate with the internet over the phone network from the majority of sites. It has become common practice for activators to comment as to service availability as well as site access in activation reports.

We have been well supported in Australia with the ParksnPeaks web site (*http://ParksnPeaks.org*) which has provided an online interface since 2013 and now has a iOS application you can take into the field.

iOS ParksnPeaks

Developed by Sue VK5AYL (*https://www.vk5ayl.com/*), it represents over 12 months of planning and development and was launched at the recent WIA AGM on 21 May 2017.

Sue has been an amateur radio operator since 1978 and a professional programmer since 1985. She was looking for a challenge and recognised the opportunity to provide an interface on an iOS device that would extend her abilities and give back to amateur radio.

Supporting the two main types of portable activity within VK being, Summits on the Air (SOTA) and World Wide Flora and Fauna (WWFF), the

Photo 1: Sue VK5AYL with Allen VK3ARH at the launch during the WIA AGM May 2017.

ParksnPeaks app allows amateur radio operators to alert, spot and chase portable radio activity. The application's emphasis is on Australian and NZ operations due to the availability and quality of site data.

Small screens can create problems when trying to read information. The Parks & Peaks app reflects a lot of design and layout planning to bring a convenient interface for these activities to the iOS user, both activator and chasers alike. Users are presented data formatted for a small screen from the ParksnPeaks website and are able to view and create spots as well as alerts and it also contains tools such as Nearest Sites to support the activities.

Whilst the application requires mobile network connective to interface with ParksnPeaks site you can record Alerts for later upload when the network is available.

The application's features include:

- Display current Spots
- Display upcoming Alert
- Send Spots
- Send and Save Alerts

Photo 2: View of the Find Nearest Sites screen.

- Uses GPS to provide the user location the to display
- Current Shire ID
- Current Grid Square Locator

Photo 3: Spots Screen.

- Close WWFF Parks
- Close SOTA Peaks

Developed with a small team of dedicated and patient testers (VK3ARH, VK1DA, VK3AV, VK2NP and VK5ZNC) which included location verification from a hospital bed.

Available from Apple Store since 17 May 2017.

A comprehensive user manual is available at *www.vk5ayl.com* The link is on the right hand side under About Me.

ParksnPeaks API

ParksnPeaks has developed an API allowing data to be recorded on activations and to provide position information available to use for integration into applications.

This is a RESTful service where external applications will access then manipulate textual representations (XML (RSS), HTML or JSON format) of ParksnPeaks data using a predefined set of stateless operations. By making use of a stateless protocol and standard operations, this interface will provide fast and reliable access to data and be managed and updated without affecting ParksnPeaks as a whole.

More information is available: *https://parksnpeaks.org/api/* or contact Allen on *support@parksnpeaks.org*

VK port-a-log

Android users will be thinking 'what's the big deal' as they have had access to Peter VK3ZPF's VK port-a-log since 2016.

This is a stable application that Peter initially developed to assist with remote logging and has expanded with functions to support SOTA, WWFF, VK Shires and portable activations.

This is a local application that has many international users and receives excellent support with regular updates as well as user requested enhancements.

The application has been written for use on Android phones and tablets running Android version 4.0 or later.

VK port-a-log features include:

- QSO logging info including time, call sign, name, location, signal reports, mode, rig and power
- Easy transfer of QSO info between spots and log
- Send and receive SOTA watch spots
- Send and receive ParksnPeaks spots
- Use of GPS to determine:

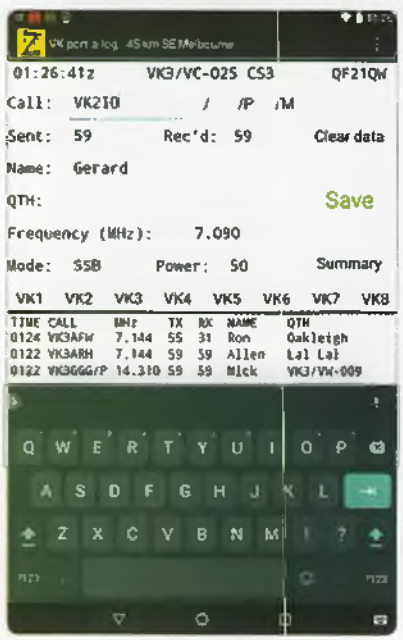


Photo 4: VK Port a Log.

Photo 5: VK Port a Log ParksnPeaks Spots.

- Current Grid Square Locator
- Distance and compass bearing from major landmark – VK capital cities
- Current Latitude and Longitude saved in ADIF and CSV logs
- Outputs SOTA CSV file formats for upload to SOTA data
- Outputs WWFF ADIF file format for upload to WWFF log search
- Outputs ADIF file for import to loggers such as Log4OM
- Outputs CSV format of all data for logging in Excel
- Convenient call sign lookup to return chasers name

For the latest info visit *www.vk3zpf.com/vk-port-a-log*

The app is available from the files section of the vk3zpf_logger Yahoo group - *https://au.groups.yahoo.com/vk3zpf_logger*

The applications and sites mentioned are all developed by volunteer amateur operators. They reflect hours of planning and effort to achieve the level of quality and rich feature set. All are provided for no cost, so next time you meet any of the developers, buy them a beer.

73, 44

Allen VK3ARH

Contests

Trent Sampson VK4TS
e *vk4ts@wia.org.au*

Contest priorities for July 2017

Contest	Date (UTC)	Rules	Difficulty	Software	Modes
IARU HF Championships	12:00Z 8 July	*http://www.arrl.org/iaru-hf-championship*	Easy	VKCL, N1MM, TR4W	SSB/CW
Trans-Tasman 160 80 40	08:00 - 14:00Z 15 July	*http://www.wia.org.au/members/contest/transtasman/*	Easy	VKCL	SSB/RTTY/ CW
RSGB IOTA	12:00Z 29 July	http://www.rsgbcc.org/hf/rules/2017/riota.shtml	Easy	VKCL, N1MM, TR4W	CW/SSB

What does it take to be the best in VK?

Martin VK5GN had a good station near Adelaide that is responsible for the majority of CQ Contest Single operator records from Australia.

The station consisted of:

Two Icom IC-765 radios and an impressive antenna farm consisting of:

- beverages,
- 80 ft (24.4 m) vertical for 160 m,
- quarter wave vertical for 80 m,
- sloping dipoles with reflector wires on 40 m,
- 9 el log periodic at 60 ft (18.3 m) for 20 m to 10 m,
- 4 el Yagi at 70 ft (21.3 m) for 15 m
- 6 el Yagi at 70 ft (21.3 m) for 10 m.

One of the secrets to the station is getting a low angle of signal to work DX. The majority (90%) of long term dx signals into Australia on all bands 40 to 6 m are at very low angles (below 10 degrees) - to get a low angle you need height. There is a reason that the successful 6 m DXer antennas are up at 20 to 30 m above the ground.

Unless you are on a very high hill you will miss out on a huge amount of possible DX and therefore contest contacts if your antenna is not high up. Analyse the radiation pattern of your antenna and think of how much more could be worked if you can get those very low angles.

Contester of the Month

Hary 9M2GET/9M2SM/9M2M/ W9UN

Crew for 9M2MI, 9M90IARU

Hary is a very active Malaysian Contester. One of the first to obtain a shortened contest callsign for use in Malaysia 9M2M for his club, The Ara Boys Contest and DXers Team.

The team is active from Hary's QTH with a more than adequate array of antenna for a suburban block including a 2 element 40 m Yagi. Hary's callsign is 9M2GET and his XYL Oja is 9M2OUT.

We had the pleasure of catching up with the 9M2M team when we were last in Malaysia and they are an awesome bunch. Keep an ear out for them on the bands.

What is your favourite Contest?
I like the AADX contest, even though its 48 hours and quite tiring but I really enjoyed it. For 7 years the MCMC has allow us to use the 9M2M as a special call-sign. It's a great opportunity to allow new contesters from 9M and 9W, a chance to operate pileups especially in the AADX contest where lots of stations are hunting for Asia. If I work single op all band, my favourite contest is WAE. I love pile ups from EU and also enjoy keying in QTC.

What is your favourite Rig?
Anything by Icom. We use IC-756 Pro 3 and IC-7600 loaded with 4O3A filters at the contest station. The CUBEX antenna and some mono band Yagi talks to the radio and our antenna is always optimised.

What modes do you contest in?
Mainly SSB and CW but my interest is CW.

What is your favourite contest band and why?
Upper Bands: 20, 15, 10 m. I have a 2 element cubical quad on a tri-bander and we are proud and loud on these bands.

What is your preferred Contesting Software?
N1MM is our logger (it's a bit of a learning curve to get it all networked and Weerut W2RUT is in charge of that).

What is your preferred Mic and Key?
Heil Pro-Set 6 and Pro 7 - they are light and robust, I also use Heil FS-2 Footswitch.

What is your "not so secret" weapon?
Enjoy the contest with all the crew. Don't think about points and winning. BBQ, F n B and chat also helps me a lot during break time before handling pile up. Credit to Vietnam Coffee for always making us stronger.

What is your best tip to a newbie contester?
Jump in and operate, practice on the JA and EU pileups if you are not big enough to run, search and pounce until you get your DXCC. For CW lovers, you can train with Morse runner. This software helped me a lot in CW pile ups.

What are your aspirations in contesting?
To be Asean Champion. Beat E2X, E2A, YE2R, YE2A, HS0ZIA, HS0ZAR, HS0ZHC, 9V1YC..... all big guns from Asean.

What would you like to improve in either your skills and/or station?
I really hope can get a second tower for low band antenna system. Also a solid state Amplifier that can give us 1 kW easily. Some Stub or triplexer for BPF.

Who is 9M2GET?
I work as a Teacher at SMK SYED ALWI Secondary School. I started off on 10 metres in 2008 with my B licence as 9W2LLK. My electronics and amateur knowledge is self-taught, so I leveraged off my Elmers 9W2DI, 9M2PZ and 9M2AR.

Contest Terms

M2 - Multiple operators Two Transmitters

MM - Multiple Operators Multiple Transmitters

Lockout - A device that stops multiple transmitters keying at once outside contest rules

VK4TS Trent is the admin of VK Contest Club (VKCC) web (*www.vkcc.com*) and Facebook pages and has been an active contester since the 1970s.

Emails can be sent to *vk4ts@wia.org.au*

WIA Contest Champion Results 2016

Jim Linton VK3PC

Avid contester Alan Shannon VK4SN had the best combined effort in three out of seven Wireless Institute of Australia (WIA) sponsored contests for 2016, and was declared the WIA Contest Champion.

Announced by the WIA Contest Champion Scorer, Peter Richardson VK2PR, he congratulated Alan VK4SN on the win, having also won the title in the years 2012 and 2014.

The Trophy, named in honour of WIA stalwart Peter Brown VK4PJ (SK), encourages log entries in at least three WIA contests.

Peter Brown died in 2013 aged 100; was the Contest Manager in the 1970s and 1980s. After an absence of 25 years, the Trophy he had initiated was reintroduced as a fitting tribute.

Alan VK4SN was first on 380 points, second place with 280 points went to Barry Simpson VK2BJ, and in third place Gerard Hill VK2IO having 220 points.

Peter VK2PR said: *"Congratulations to the winner, and special mention goes to Barry VK2BJ who increased his tally in 2016 compared to the previous year by 200 points; that included winning his categories in both the Oceania DX Phone and Oceania DX CW contests."*

The Peter Brown VK4PJ Trophy goes to highest scoring WIA member who has participated in at least three WIA contests and submitted log entries.

The full championship rules can be read at: *http://www.wia.org.au/members/contests/contestchampionrules/*

Plan Ahead

JOTA/JOTI | 20-22 October

Plan ahead and contact your local Scout or Guide group. They may be unaware that you might be able to help their young people discover Amateur Radio.

The purpose of **JOTA-JOTI** is to enable and encourage Scouts around the world to communicate with one another by means of amateur radio and the internet, providing a fun and educational Scouting experience and promoting their sense of belonging to a worldwide Scout Movement.

37th ALARA Contest 2017

Australian Ladies Amateur Radio Association Inc. A0031101B

Saturday 26 August 2017 0600 hours UTC to Sunday 27 August 2017 0559 hours UTC

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

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

CONTEST: Combined phone and CW run over 24 hours:

SUGGESTED FREQUENCIES: All HF Bands to be used except 160 m and WARC bands.

Contacts made on ECHOLINK and TWO METRES will also be accepted. (Separate logs for these would be preferred)

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

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

Every individual phone or CW contact may be counted.

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

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

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

EXCHANGES: ALARA member: RS (T) A, name. (59A /599A)

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

OMs work YLs only

SCORING:

Phone: 5 points for ALARA member logged
4 points for YL non-member logged
3 points for OM logged

CW: All contacts made on CW count for double points

OM: 5 points for ALARA member logged
4 points for YL non-member logged

Multipliers: 1 per VK/ZL Call area worked per band and 1 per DX YL Country.

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

Paper logs and electronic logs both welcome.

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

VKCL Version 3.14 6 August 2017 ALARA Contest, 26-27 August 2017

The rules for the ALARA contest have been significantly revised recently and you will need to upgrade your copy of VKCL if you wish to use it in the contest. VKCL can now be used to log not only HF bands but also the 2 metre and EchoLink contacts too so that a single log can be submitted for convenience. The link to download is *http://www.mnds.com.au/vkcl/*

Logs must be received by the Contest Manager by: **30 September, 2017**

CONTEST MANAGER:

Mrs Diane Main VK4DI
PO Box 546, Gatton Qld 4343, AUSTRALIA
or: *alaracontest@wia.org.au*

Certificates will be awarded for the following:

Top score YL overall
Top score YL phone only
Top score YL Echolink
Top score Australian YL CW
Top score DX YL CW
Top score DX YL
Top score ALARA member in each country & VK call area
Top score OM in each continent & VK call area
Top score VK YL Foundation Licence holder

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

Top scoring Australian YL and Top scoring Foundation licensee ALARA.

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

PLEASE NOTE: This contest is always held on the last complete weekend of August.

WIA Contest Website

To keep up to date with all of the major Australian contests, including rules and results, at the WIA Contest Website at:
www.wia.org.au/members/contests/about

DX Talk

Luke Steele VK3HJ

There were a few interesting activations during May. Cezar VE3LYC was on air from Pukapuka Atoll in the North Cook group. North Cook Islands are not often on air, and then it is usually from Manihiki Atoll, but Cezar activated the much rarer IOTA OC-098 as E51LYC. Milan continued all month from Rarotonga in the South Cook Islands as E51DWC. Tuvalu was on air in the last week of May. John KK7L was back in Funafuti at the T2R club station, continuing his club outreach and education efforts to the authorities and individuals there, including participation in the CQ WPX CW Contest. Tom KC0W was in Zimbabwe, operating as Z25DX. Eritrea was on air as DXpedition E31A led by Zorro JH1AJT who also continued with his humanitarian connections there. Ken TN5E was on air from Brazzaville, Congo.

The CQ WPX CW contest was on at the end of May, with plenty of activity across the bands noted. One surprise participant was George operating as SV2/SV1RP/A. This was widely reported as the very rare Mount Athos entity on the cluster comments, but it turned out that George was merely operating from his "alternate" station at Giannitsa, so counted as Greece.

There is very little to report on solar and geomagnetic conditions, apart from the usual recurrent coronal holes and periods where there were no visible sunspots. Propagation has been similarly unremarkable, but 20 m was running hot on the first afternoon of the WPX contest.

Craig VK2KDP offers the following tip to work out when may be your best chance to work that rare DXpedition that has been eluding you, using some handy tools offered by Club Log.

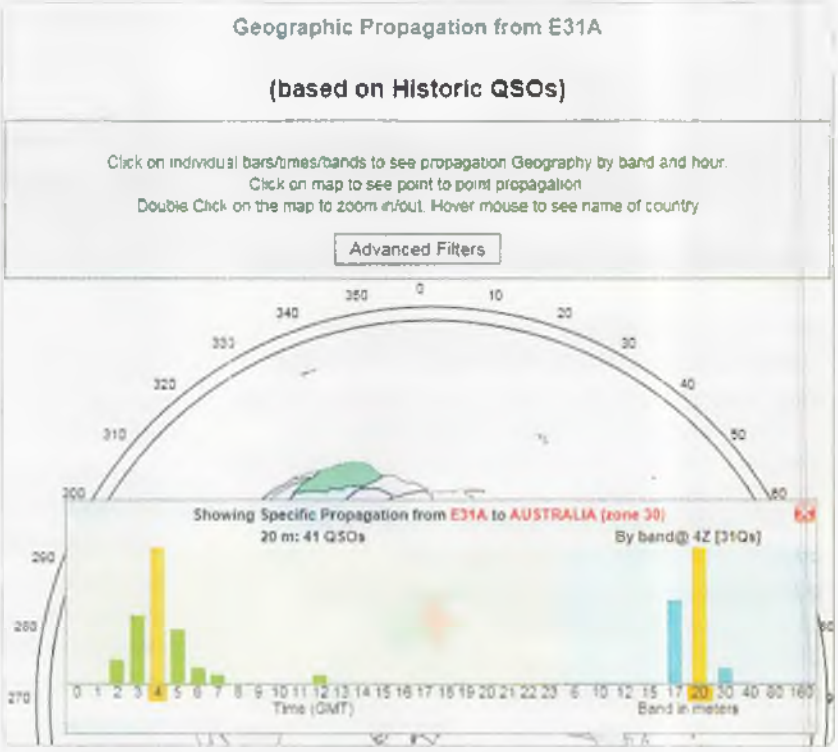


Figure 1: The ClubLog Geographic propagation screen shot.

"My secret won't be a secret to many, but it may be helpful to new DXers or even those that have been around for a bit.

Once Eritrea was on air, I was watching the clusters but could never hear them when they were on. Once I heard the stations calling them, but could not even hear E31A at all.

I saw Eritrea was using Club Log "DXpedition Log". That provided me with the "Geo Propagation" tool that enabled me to see when other VKs from zone 30 had worked them and on what bands. From that I was able to determine the two hours that E31A was confirming QSO with Zone 30 stations and the most successful band. Those hours were 4 - 5 UTC (1 - 3 pm local time in Sydney) on 20 m. Although it isn't common for 20 m to be open then, I gave it a shot. Precisely at 1 pm I had the radio on and saw them spotted on 20 m. I turned first long path then short path. I could barely hear them short path but with some luck and a bit of calling I got through.

If it wasn't for the Geo Propagation tool, I would have never known when they were getting the most Zone 30 VKs in the log and

would never have worked them. My station is modest with a 3 element tribander 9.5 m in the air. When I tried to get them in the log the day before (from the club station with a 5 element tribander 22 m in the air), I couldn't hear them as it wasn't during that 2 hour time slot. Being on during the best time, based on logged QSO, made all the difference.

Anyway, I thought this might be a good tip for those wanting to work a new one.

73 Craig VK2KDP"

Upcoming DX

DXpedition activity scheduled for June includes the following.

FP/KV1J **St Pierre & Miquelon**, 4 - 18 July. Eric KV1J will be returning to Miquelon, and plans operation on 80 - 10 m, CW, SSB and RTTY. QSL via LotW and Club Log. For more information see website *http://www.kv1j.com/fp/July17.html*

YJ0GA **Vanuatu**, 6 - 13 July. Geoff ZL3GA will be returning to Benjor Beach Club, Efate Island (OC-035). He will be again taking supplies to the Little Lights Preschool in Mele Village, this time soccer and rugby balls, a parachute and milk powder. QSL via LotW, Club Log or bureau and direct to ZL3GA.

RI0C Asiatic Russia, **Iony Island** (AS-069). Four Russians will be activating the Most Wanted Russian IOTA and second Most Wanted Asian IOTA. They will be on 40 - 10 m, CW SSB and digital. For more information see website *http://www.iony2017.com/eng*

Other news

Kure and Midway Islands Reinstated

On 31 March, the ARRL DXCC Desk announced the deletion of Kure and Midway Islands as separate entities, due to the change in administration of the Marine National Monument in which the islands were included. After further review it was found that the deletion of these two entities was not supported by the change in administration, therefore they are reinstated to the DXCC List as separate entities.

The Current List is back at 339, with Honour Roll entry at 330.

Mellish Reef DXpedition

VK9MA will be the callsign of a DXpedition to Mellish Reef (OC-072) scheduled for 3 - 16 November this year. Mellish Reef is now #29 Most Wanted on Club Log. Up to nine operators and four stations will be active on 160 - 10 m, with a focus on 160 - 20 m given the current propagation. They will be using CW, SSB and RTTY. For more information see their website *http://vk9ma.com/*

St Brandon News

In a recent update, Seb F5UFX announced a revised date for this DXpedition. It is now scheduled for March - April 2018 to take advantage of more favourable conditions. They will make an effort to work Oceania stations, Japan and West Coast of America. For more information see their website http://www.saintbrandondx.com/

Please email me with any DX related news for inclusion in this column. I am particularly interested in hearing about DX worked or heard in other states. *vk3hj@wia.org.au*

73 and good DX,
Luke VK3HJ

Silent Key

Peter Carter VK2ETK

Peter passed away on Friday 28 April after a short illness. He was born in 1930 and lived his early life in Sydney. Like so many young boys at that time, he had built his first crystal set while still in short pants. His involvement with "amateur radio" began with his attempts to send messages to a young lady down the street via short-wave radio using Morse code. When it was pointed out to him that this sort of clandestine operation during WWII was frowned on by the authorities, he had to revert to more conventional ways of communicating.

Peter served his electrical apprenticeship at the Garden Island Dock Yard in Sydney, while at the same time following his interest in classical music attending the Sydney Conservatorium. Early in his career (1953), Peter went to Orange to work at Email for a period. It was while he was at Orange that he met Phyll, who eventually became his wife. He returned to Sydney and, always eager to learn and gain further qualifications, studied at technical colleges for several years finishing the "diploma entrance" exams and then completing several courses in management.

Although he was a qualified electrician, Peter spent the early years of his working life in Sydney selling to the electronics and television industries with technical matters and deals often being discussed at the 729 Club, a well-known venue patronized by nearly everyone involved in the television industry.

Together with Phyll and his family, Peter moved to Orange in 1977 and quickly established himself as a valuable and

respected member not only of the local Amateur Radio community but of the general community.

Peter gained his Amateur licence (VK2ZPC) in 1960 and was actively involved with the NSW VHF & TV Group. (The writer first met Peter at meetings of this group which were held at the then recently purchased Atchison Street property). He upgraded to a "full" call in 1971 (VK2TK). Due to an oversight, Peter's call sign lapsed and he was issued a new call sign (VK2ETK), which in Morse (dit dah dah-dit-dah) is certainly a more melodic sound.

Peter was an enthusiastic and valued member of the Orange Amateur Radio Club for forty years. He fully participated in all Club events, held various committee positions and edited the Club newsletter for several years. He was an active member of WICEN and was responsible for the detailed organisation of many events. In 2009 Peter was awarded Honorary Life Membership of the Club.

In the final ten years or so of his working life, Peter returned to his trade and became the senior electrician for the Orange City Council. It was during this time that the Council was introducing new technologies and Peter was able to make the most of his radio and electronics knowledge to oversee the installation of PLCs (programmable logic controllers) and telemetry systems needed to upgrade various Council systems.

In his retirement Peter continued his interest in Amateur Radio and with the Orange Amateur Radio Club. He also volunteered his time to assist the local community radio station with technical matters and with the training of presenters. For several years he presented a weekly session titled A Touch of Classical. Peter also developed his interest in audio technologies and was actively involved with the Orange Conservatorium of Music, recording, editing and finally producing CDs from dozens of concerts.

Peter was one of Amateur Radio's true gentlemen who built his life around a near perfect balance between the needs of his family, his work and his hobbies. His many Amateur Radio friends will remember that Peter was always ready for a bit of a rag-chew, was eager to assist any new comers and was, above all, always helping to foster camaraderie and fellowship between Amateurs. Vale Peter VK2ETK.

Notes and photograph submitted by Bruce VK2DEQ.

VK3news Amateur Radio Victoria

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

The Amateur Radio Victoria (WIA Victoria) Annual General Meeting was held at Ashburton on Tuesday 16 May, 2017 at Victory Boulevard, Ashburton.

Those attending were encouraged by the good financial health of the organisation, the interest shown in the Homebrew Constructors Group and also the redevelopment of our investment property adjacent to the rooms.

It has been refurbished jointly by Amateur Radio Victoria and the new tenants who will shortly be opening 'The Habitat' which is a new coffee shop. Members will be able to enjoy first class coffee as well as having a bite to eat when visiting the rooms.

Immediately following the AGM, the Council held its statutory meeting to appoint office bearers for the following 12 months. There was no change to positions from last year.

President Barry Robinson VK3PV, Vice President Peter Mill VK3APO and Secretary/Treasurer Ross Pittard VK3CE.

ARV holds elections for Council every two years and this year (2017) is an election year. Please give careful consideration to nominating or perhaps finding a suitable candidate to nominate. Anyone interested in joining Council or would like to help out in the office please contact the Secretary.

Fiercely contested Awards granted

The Local Government Award has now seen two recipients who activated all 79 municipalities making a sustained effort over four years each.

First was Peter Freeman VK3PF who qualified 22 days earlier than Nick Lock VK3ANL. Peter commenced his LGA activations in early 2012 and completed on 3 April 2017 with a contact to Paul Simmonds VK5PAS/P who was activating SOTA peak VK3/VE-132.

Peter previously received the "Worked All VK3 LGA Award" in 2014, meaning he has now added the Grand Slam #1 VK3 Local Government Area Award to his Keith Roget Memorial National Park Grand Slam Award received in April 2014.

The Award Manager, Tony Hambling VK3XV, commented that it was a great achievement requiring much planning, dedication and enthusiasm. Well done Peter!

Nick VK3ANL has submitted an eligible Activator log starting in April 2013 with the City of Banyule and the 79th was from East Gippsland Shire, while activating a SOTA peak Mount Cope VK3/VG-001 on 24 April 2017. Nev Govan VK5WG was the last QSO to secure the LGA Activator Award.

Nick was also working towards the LGA "Grand Slam" of 79 Activated and 79 Worked. He has two more Councils to complete his goal. Please keep a look out for him; you may have the one he is hunting.

Tony VK3XV reports that Nick has shown a huge amount of dedication, planning and tenacity to achieving this goal and congratulated him heartily on his Activator Award.

There has been activity too for the Keith Roget Memorial National Parks Award (KRMNPA). Mick Geraghty VK3PMG has submitted an eligible Log for the activation of 15 VK3 National Parks, which qualifies Mick for the basic activator award.

He started VK3 National Park activations in May 2015 with the Grampians National Park and completed Park #15 in May 2017 with the Yarra Ranges National Park.

Marija Simmonds VK5FMAZ was to get the KRMNPA Hunter Award. She started in April 2016 soon after becoming a radio amateur and recently completed the needed 15. Well done to Mick VK3PMG and Marija VK5FMAZ.

Tony VK3XY reminds us that the annual KRMNPA activity weekend is 10-13 November 2017. At this stage five East Gippsland Parks are listed across the four day weekend and more are welcome.

DX Awards

Marc Hillman VK3OHM/VK3IP

Below are listed all New awards issued in May 2017, plus all updates to DXCC awards.

Go to http://www.wia.org.au/members/wiadxawards/about/ to use the online award system.

New awards

2017 AGM

#	Call	Name	Category
1	VK3OHM	Marc Hillman	Gold Award
2	VK3PF	Peter Freeman	Gold Award
3	VK5SA	Chris Levingston	General Award
4	VK5PAS	Paul Simmonds	General Award
5	VK3PF	Peter Freeman	General Award
6	VK5PAS	Paul Simmonds	Gold Award
7	VK7CW	Steven Salvia	Gold Award
8	VK7CW	Steven Salvia	General Award
9	VK5SFA	Steve Adler	Gold Award
10	VK5SFA	Steve Adler	General Award
11	VK5FMAZ	Marija Simmonds	Gold Award
12	VK5FMAZ	Marija Simmonds	General Award
13	VK2IO	Gerard Hill	General Award
14	VK2IO	Gerard Hill	Gold Award
15	VK2NP	Clifford Hynds	General Award
16	VK2NP	Clifford Hynds	Gold Award
17	VK5FANA	Adrian Addison	Gold Award
18	VK5FANA	Adrian Addison	General Award
19	VK4FMAX	Mark Rutherford	General Award
20	VK3ANL	Nicholas Lock	Gold Award

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
169	VK3JLS	John Seamons	Phone	20m	191

DXCC Multi-band (3)

#	Call	Name	Mode	Band	Count
104	VK5BC	Brian Cleland	Digital	30-20-15m	335

DXCC Multi-mode (CW)

#	Call	Name	Count
249	VK3FZ	Roger Stafford	217

DXCC Multi-mode (Digital)

#	Call	Name	Count
65	VK3FZ	Roger Stafford	115
66	VK3JLS	John Seamons	100
67	VK4CAG	Graeme Dowse	107

DXCC Multi-mode (Open)

#	Call	Name	Count
451	VK3FZ	Roger Stafford	283
452	VK5SA	Chris Levingston	105

DXCC Multi-mode (Phone)

#	Call	Name	Count
617	VK3FZ	Roger Stafford	243

Grid Square

#	Call	Name	Mode	Band
279	VK3FZ	Roger Stafford	Open	HF
280	VK3FZ	Roger Stafford	Phone	HF
281	VK3FZ	Roger Stafford	CW HF	
282	VK3FZ	Roger Stafford	Digital	HF
283	N6VH	Jim Preston	Open	HF
284	N6VH	Jim Preston	Phone	HF
285	N6VH	Jim Preston	CW HF	
286	N6VH	Jim Preston	Digital	HF
287	VK3JLS	John Seamons	Digital	HF
288	OH8LXT	Veikko Pennala	Open	HF

DXCC updates

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
43	VK7CW	Steven Salvia	CW	20m	268
83	VK6APK	Aleksandar Petkovic	CW	30m	202
94	VK4SN	Alan Shannon	CW	15m	110
146	VK2RT	Bruce Beresford	Digital	20m	122
164	VK5BC	Brian Cleland	Digital	20m	126
13	VK2VEL	Edwin Lowe	Open	20m	136
20	VK3SX	Bob Robinson	Open	20m	319
55	VK5BC	Brian Cleland	Open	20m	248
81	VK6APK	Aleksandar Petkovic	Open	20m	282
93	VK4SN	Alan Shannon	Open	15m	114
141	VK8GM	Gregory Mair	Open	20m	157
145	VK2RT	Bruce Beresford	Open	20m	138
14	VK2VEL	Edwin Lowe	Phone	20m	123
21	VK3SX	Bob Robinson	Phone	20m	319
37	VK5BC	Brian Cleland	Phone	20m	209
82	VK6APK	Aleksandar Petkovic	Phone	20m	264

DXCC Multi-band (3)

#	Call	Name	Mode	Band	Count
24	VK3EW	David McAulay	CW	30-20-17m	876
37	VK7CW	Steven Salvia	CW	30-20-17m	732
66	VK3EW	David McAulay	Digital	30-20-15m	473
30	VK3SX	Bob Robinson	Open	20-15-10m	678
48	VK5BC	Brian Cleland	Open	20-17-15m	692
59	VK6APK	Aleksandar Petkovic	Open	40-30-20m	697
102	VK3FZ	Roger Stafford	Open	20-15-10m	539
31	VK3SX	Bob Robinson	Phone	20-15-10m	671
49	VK5BC	Brian Cleland	Phone	20-15-10m	594
60	VK6APK	Aleksandar Petkovic	Phone	40-20-10m	496
103	VK3FZ	Roger Stafford	Phone	20-15-10m	434

DXCC Multi-band (5)

#	Call	Name	Mode	Band	Count
21	VK3EW	David McAulay	CW	40-30-20-17-12m	1356
35	VK7CW	Steven Salvia	CW	40-30-20-17-15m	1118
66	OH8LXT	Veikko Pennala	Digital	20-17-15-12-10m	831
31	VK5BC	Brian Cleland	Open	20-17-15-12-10m	1104
43	VK6APK	Aleksandar Petkovic	Open	40-30-20-15-10m	944
47	VK3SX	Bob Robinson	Open	40-20-17-15-10m	935
72	VK3FZ	Roger Stafford	Open	40-20-15-12-10m	797
33	VK5BC	Brian Cleland	Phone	20-17-15-12-10m	923
52	VK3SX	Bob Robinson	Phone	40-20-17-15-10m	915

DXCC Multi-band (7)

#	Call	Name	Mode	Band	Count
10	VK3EW	David McAulay	CW	80-40-30-20-17-15-12m	1743
14	VK7CW	Steven Salvia	CW	40-30-20-17-15-12-10m	1466
15	VK7CW	Steven Salvia	Open	40-30-20-17-15-12-10m	1559
23	VK6APK	Aleksandar Petkovic	Open	80-40-30-20-17-15-10m	1158
24	VK5BC	Brian Cleland	Open	40-30-20-17-15-12-10m	1459
35	VK3FZ	Roger Stafford	Open	40-30-20-17-15-12-10m	1011

DXCC Multi-band (9)

#	Call	Name	Mode	Band	Count
12	VK3EW	David McAulay	CW	160-80-40-30-20-17-15-12-10m	2057

DXCC Multi-mode (CW)

#	Call	Name	Count
190	VK6AJ	Alfred Jeffrey	316
219	VK3DGN	David Green	207
222	VK5BC	Brian Cleland	182

DXCC Multi-mode (Digital)

#	Call	Name	Count
20	VK3EW	David McAulay	278
29	VK5BC	Brian Cleland	200
37	VK3DGN	David Green	122
58	VK2RT	Bruce Beresford	135

DXCC Multi-mode (Open)

#	Call	Name	Count
342	VK2VEL	Edwin Lowe	150
363	VK3OHM	Marc Hillman	241
364	VK3DGN	David Green	303
389	VK6AJ	Alfred Jeffrey	316
403	VK2KDP	Craig Valosin	202
431	VK2RT	Bruce Beresford	151
451	VK3FZ	Roger Stafford	283

DXCC Multi-mode (Phone)

#	Call	Name	Count
549	VK2VEL	Edwin Lowe	136
554	VK4KEE	Robert Hollis	324
567	VK3DGN	David Green	279
617	VK3FZ	Roger Stafford	243

Marc Hillman VK3OHM/VK3IP

VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

The Geelong Connected Communities

As part of the GARC syllabus for 2017, Calvin VK3ZPK arranged for a presentation from the Bendigo Bank in Newcomb Victoria, who last year generously donated $1,200 towards the cost of re-roofing the second half of the GARC club house, on how the grant categories and donations are implemented.

The Branch Manager of the Bendigo Bank at Newcomb, Cathie Kerr-Nelson explained that the Geelong Connected Communities or GCC is a local company, set up by the Bank in July 2013, to assist local, not for profit groups, by means of grants and sponsorships, along with thirteen other local organisations.

Cathie confirmed that the Geelong Connected Communities has handed out in excess of $310,000 in the last twelve months and has just surpassed $1 million in investment back into the Geelong Community and in the Geelong region. The Bendigo Bank contributes in excess of $300,000 per year to Geelong Connected Communities. Over the past ten years, the Bendigo Bank alone has contributed in excess of $6 million to local not for profit groups in the Geelong region, such as the GARC, via the Community Bank and Connected Communities as well as company sponsorships.

There was considerable discussion between the club members with Cathy and Gayle on the manner in which the grants are allocated to organisations, such as the GARC. Vice President George VK3AGL then thanked the both ladies for taking the time to come to the club house on a Friday evening and delivering their presentation.

Photo 1: Cathie Kerr-Nelson and Gayle Weeding from the Bendigo Bank and the cheque.

The GARC Wins the Oceania Award for the Fifth Consecutive Year

Extract from Oceania web site: *The Australia Club plaque is awarded to the local club from Australia with the greatest number of member stations making at least 50 valid QSOs in the PHONE or CW sections in the contest. The Geelong Amateur Radio Club wins this plaque again (for the fifth year in a row in 2016) with a total of 17 eligible logs being submitted from members VK3ACG, VK3ALB, VK3AMI, VK3AMZ, VK3DJ, VK3FRJF, VK3HQ, VK3LIJ, VK3NX, VK3PK, VK3PY, VK3VLA, VK3WK and VK3ZIB. Another great effort from this club!*

In addition to the above, the following eight members also participated in the contest submitting logs but, due to extremely poor conditions, failed to get the 50 contacts required in the allocated time frame: RexVK3ARG, Carlo VK3BCL, Jenni VK3FJEN,

Chris VK3FRJD, Colin VK3NCC, JohnVK3NRW, Bert VK3TU and Nik VK3TY.

The following reflection by Past President Lou VK3ALB on Ken VK3NW/VK3AKK and his major involvement in the GARC's Oceania Successes:

This year in particular will be bitter sweet for our club. In May this year, our great friend and club Life Member Ken VK3AKK/VK3NW was in hospital nearing the end of his life after a four year battle.

I wasn't sure how our club would go this year and I was quite certain that even if we did win again Ken would never know of it. I spotted the club award in early 2012 and together with Ken we hatched a plan to motivate our club to get on the air and to get involved. This involved a tag team of presentations to the club both before and after the contest and talking up the participation aspect of the event. Ken was the lead motivator and explained the simple requirements for the contest and how using a few simple techniques even occasional hams could get involved in the contest and have some fun and perhaps, along the way, help their club. It was a winning combination.

Photo 2: Ken VK3NW/VK3AKK.

Through Ken's encouragement, people I'd never heard on the air got involved as well as seasoned operators who had perhaps forgotten the fun of contesting. Our club record is proof that the plan worked.

Last year, Ken was laid up in bed and couldn't get to the club, so one afternoon I made a 3 minute video interview with him asking him about the Oceania Contest and why our members should be involved. I had the benefit of a script which I spent some time writing but Ken worked ad lib and we did the whole video in one take without edits or mistakes. A most powerful motivation for the club! The day the results were released, we went to the hospital to give him the good news. Ken was in a lot of pain and heavily sedated but when I told him the news he cracked a big grin, sat up in bed and gave a thumbs up. He was proud of his club and proud that so many of the members made the effort to join the contest. Motivation indeed!

GippsTech 2017

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

GippsTech 2017 will be happening on the weekend of 1 and 2 July, at Federation University Australia Gippsland Campus in Churchill, Victoria, about 170 km east of Melbourne.

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

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

Registration closes 25 June.

Those wishing to present at this year's conference should contact the Chair as soon as possible:

vk3pf@wia.org.au

Peter VK3PF

Conference Chair

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

VHF/UHF - An Expanding World

David K Minchin VK5KK

Introduction

Winter Tropo is "Alive and Kicking".. thanks to Alan VK3DXE for that quote! This month we have the regular report from Leigh VK2KRR on WSPR activity on 50 and 144 MHz in VK/ZL as well as details on a new 122 GHz Australian Record. There is a report on EME activity on 432 MHz and 10 GHz as well as Kevin VK4UH's regular Meteor Scatter Column.

WSPR May 2017 Propagation Report

Leigh Rainbird VK2KRR reports on WSPR activity for April 2017:

"Not a great deal of propagation to report for the month of May. Winter type Tropo openings have a high chance of occurring now until around the beginning of Spring. The winter solstice occurs on 21 June and then the sun will be heading south again towards us. Keep on the lookout for sporadic E around the winter solstice, and those intense winter Tropospheric duct openings into July and August.

Running VHF WSPR is not always about being heard every single time, more so than being patient and consistent with your station and let the prevailing propagation conditions bring the signals to you; there is no need to try and force it to happen. While sometimes running 100 watts on VHF WSPR does have its time and place depending on the situation, such as trying to crack that last few miles to a DX station and the occasional blast to see how bad conditions may or may not be, but in most cases many of the stations running VHF WSPR are using 10 to 20 watts. It's really about letting the propagation work for you and making observations with a particular antenna and power level, and over time you're going to know what constitutes a significant opening from any particular station in the area.

Only one minor Tropospheric ducting enhanced path occurring for May and a number of brief 50 MHz Sporadic E openings.

***50 MHz WSPR**: May 1, VK2EFM to ZL3TKI @ 2162 km. May 2, VK4TVL to VK2KRR @ 1775 km E skip. May 4, VK4TVL to VK2XN @ 1262 km. May 16, a brief opening between VK5KAA & VK2EFM @ 1162 km. And ZL4JW & VK2EFM @ 1972 km. May 25, 26 & 27, brief openings between VK2EFM & ZL4LV @ 2132 km, plus ZL2IT @ 2375 km. Rob VK1KW managed a path with ZL4LV @ 2150 km, ZL2IT @ 2496 km & ZL4JW @ 1992 km. ZL2IT to VK2ZMT @ 2361 km, VK2HC @ 2380 km, VK2FAD @ 2364 km. May 29, one signal from VK8ZI heard by VK4TVL @ 1853 km.*

***144 MHz WSPR** : May 10, a minor morning Tropo opening noted between VK2KRR and VK5 stations east of Adelaide hills such as VK5GF, VK5PJ and VK5ACY, with signals being noted deep into the +dB figures with 10 watts, low power, indicating easy paths achievable on SSB voice.*

It is hard for me to keep across everything that may be going on, so if you happen to be involved with or observed a good propagation opening on VHF WSPR, please draw my attention to it so I can include it in the following months report, just email me at vk2krr@wia.org.au"

As predicted by Leigh, Tropo conditions started with a rush in early June 2017 with 144 and 432 MHz signals and contacts out to 900 km between VK1, 2, 3, 4, 5 & 7. A series of large high pressure cells with centres of >1032 mB pressure have slowly moved through central VK2 enhancing propagation. The unusually cold weather that accompanies these systems has broken a number of records for cold temperatures over extended periods. Do we have another unusual year on the way?

New 122 GHz Australian Record

In preparation for the 2017 EU "Microwave DXpedition" the four Australian participants (VK3XPD, VK5KK, and VK5ZD & VK5ZT) have been busy preparing equipment for 10 - 122 GHz. This is the third year the group has travelled with equipment to Europe to operate from various locations around Northern Europe. This year operations are planned between 8/7/2017 and 22/7/2017 in Italy, Switzerland, Germany, Austria and the Czech Republic border. As always our "Tour guide" is Wolfgang OE4WOG.

The group has been working on better equipment and more power so we can attempt some longer paths than we have attempted in Australia. Having a number of accessible mountains between 6,000 and 10,000 feet does

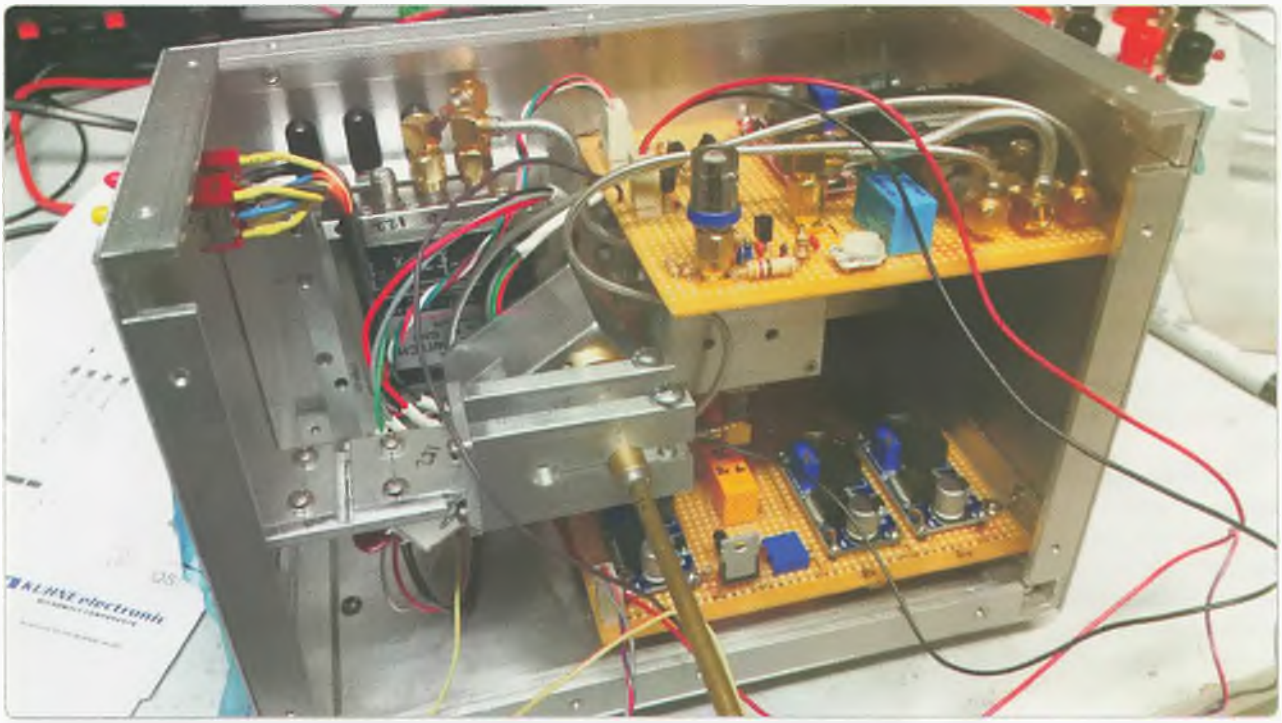


Photo 1: Iain VK5ZD's 76/122 GHz Dual band transverter.

help though! If you would like to follow our activity via the regular operational update emails just send an email to *mmWave@vk5kk.com* There will be a full report in the September column.

Previous years 122 GHz has been a bit of a disappointment, mostly due to a lack of optimised equipment. The best distances have only been a few kilometres with a high performance system at the other end. For this year, VK5ZD and VK5KK have built a pair of new 122 GHz transverters to have a better chance of working some reasonable distance. This band unfortunately suffers doubly from both oxygen and water vapour absorption being close to the peak for both. Losses under normal atmospheric conditions can amount to more than 3 dB per km! The current world record (OE4WOG and OE5VRL) of 132 km was set between two mountain tops 6,000 feet up when the temperature was below zero degrees C!

For equipment, there really is no other option for receive and transmit than a harmonic diode mixer and a diode multiplier. There are currently no amplifier hybrids available that are usable at 122 GHz. The "state of the art" is two separate modules; one with a 1317 "low noise" (~25 dB!) microwave diode as a receive converter and one with a 1310 mixer/Tripler diode for transmit. The world record holders used this same combination achieving a QRO power of 2 mW on 122 GHz after much tweaking! The local oscillator needs to be the most stable and lowest phase noise option you can find. That in itself is a fair amount of work as per the previous series on PLL oscillators.

Being carried in luggage to Europe, the transverter size and weight is important so we went for just a single harmonic diode mixer/Tripler. The choice of diode ended up being a receive diode (1317) as we figured it was better to have good receiving capability so we can hear things over a greater distance rather than having more power and noisy receiver. Tests with a reasonably well calibrated power meter confirmed the power to be about the same for both with 30 - 40 uW on the tripled "LO" frequency. There is no filtering so when you add an IF signal you end up with LO and two sidebands about 12 dB down on the LO.

The local oscillator will still need good performance, or else we will never be found! Both use 10 MHz OCXO's with current technology 13 GHz PLL based LOs. Completely different IF frequencies have been used (147 & 444 MHz) to avoid the problem when testing in close proximity of IF bleed-through. Both LOs have been set up so you can select "Transverter" and "Tx Tripler" mode. The latter is the PLL set to a higher frequency to directly produce a CW signal on 122250.15 MHz. This is primarily so we can find each other. Once peaked, we can go to transverter mode and (hopefully!) hear each other. If that doesn't work we could plug a key in and use CW as the OEs did for the world record!

The first tests were done over a short (3 metre!) distance to optimise mixer current, LO injection levels, feed positions, etc. Fiddly but very engaging as improvements are a series of small steps taking the best

part of an hour! The next step was to try some DX so Iain drove down the road about 130 metres. After some initial alignment checks, we had very strong signals both ways and had the first official contact. Some strange reflection effects were seen as well as the odd pedestrian causing a complete signal drop out!

The next step was to try some real distance so on 1/6/2017 Iain VK5ZD went to Medlow Road above Craigmore (PF95ih) and David VK5KK went to the Munno Para area (PF95hi). Being perhaps a bit too confident for the first test VK5KK was parked near Bunning's on the Northern Express, 8.1 km from VK5ZD. Our LO signals were detected without much effort but after half an hour of optimization SSB was only just readable in one direction so no confirmed contact occurred. VK5KK then drove a bit closer (5.3 km) to VK5ZD and parked in the Munno Para library car park. Signals had now improved by around 10 dB making SSB quite readable both ways. A confirmed contact for a new Australian record was made on SSB on 122250.15 MHz at 0745 UTC. Weather conditions at the time were 6 deg C dewpoint, 15 deg C air temperature.

Photo 2: David VK5KK's 10 GHz portable EME system.

The distance of 5.3 km is more than three times the previous Australian record, not bad for the first go! We still have room to improve equipment so by the time you read this it might be a bit longer. For those interested there is a YouTube of the contact available at *https://www.youtube.com/watch?v=aO18lBrAKMs*

EME Report

Some EME news this month, first from Allan VK4EME detailing his activities during the May activity weekend on 432 MHz EME ..... *"On 27 May I worked Mike G3LGR, -21 dB received at my end and I was received -23 dB at his end. Mike's setup is a SINGLE 14 element Yagi and 80 watts and a good preamp. Conditions were better than usual and some better than average contacts were made. DK3WG -08/-10, DL8DAU -13/-27. 28 May, KF8MY -10/-15, KN0WS -11/ O, NC1I -04/-08, K5DOG -10/-19, DL7APV -01/-15, UT5DL -09/-17, YL2GD -06/O, OK1TEH -10/-28, RN6MA-10/-23, YL2FZ -23/12, F8DO -22/-15. 30 May, NC1I -01/ -09 , N7NW-12/-26, K5DOG -18/O. Getaways were R1NW -/- , DL6YBF no RX at my end but I was -21 at Helmut's end ??, OZ9PZ -27/ -, VK2MAX -19/-. All in all, four initials and 17 x 750,000 km contacts! If anyone would like to have a go, a sked, try out your RX OR TX, please send me an email at vk4eme@westnet.com.au, Skeds are always welcome. Cheers Allan, VK4EME (QG63kq)"*

In other EME news, as part of the recent WIA AGM VK5KK was asked to provide a 10 GHz EME demonstration on the Hahndorf oval on the Sunday as the moonset was at 2.10 pm local time (see the article in this issue). Checking the predicted moon pass for 21/5/2017, it wasn't going to be optimum to work Europe as the moon well south but as PF94 had not been activated on 10 GHz EME before it was worth a go.

After some discussions on the HB9Q logger, it become clear that for Northern Europe we had a virtually no window as the moon would be below 10 degrees. Peter OZ1LPR was keen to work us but he has tree that is in the way until the moon is above 15 degrees elevation. On the day it turned out the moon cleared the tree about 15 minutes after the moon set here so there was no opportunity!

So we proceeded with the EME demo and caught a few glimpses of the DL0SHF beacon on 10368.024 MHz CW when it turned on at around 0330 UTC. We had some bona fide EMEers to give a hand, David VK2JDS and Steve VK2KFJ. Wondering why the DL0SHF signal kept disappearing, David picked up that the dish was trailing the moon a bit. After moonset, we tracked the sun to check calibration and confirmed it was about a degree off. We then tracked the sun perfectly until sunset, and over 250 people wandered through the tent. It was an exhausting but rewarding day!

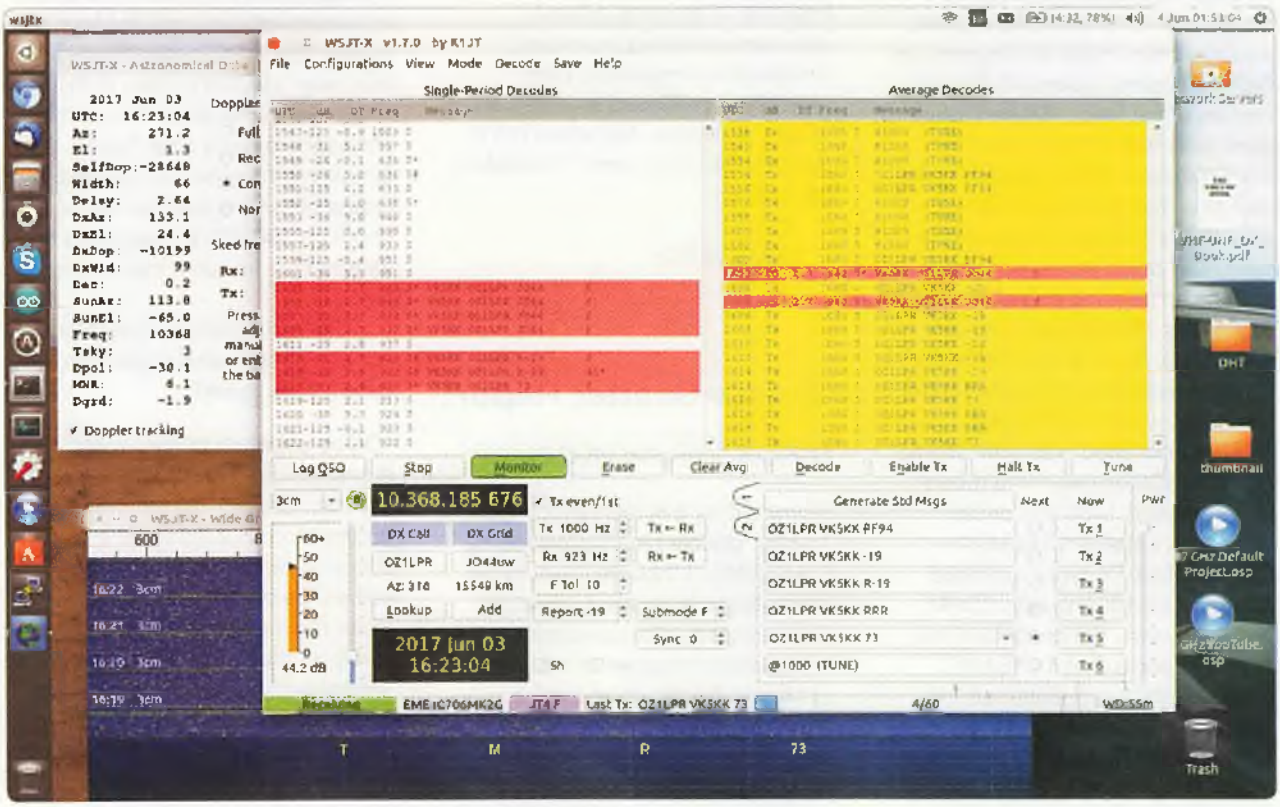


Photo 3: Screen grab of OZ1LPR – VK5KK JT4f EME contact.

Having promised to activate PF94 on 10 GHz, we set another date for EME Skeds. Balancing everyone's commitments, the best available date was 3/6/2017 with the moon still well south but not as far as two weeks prior. The window to Europe would between 1430 and 1600 UTC. In the meantime I decided to add an "Analogue" readout to the tracking system by way of a good rifle scope provided by VK5AKM (Dad). If you look at the photo you will see the scope with the sun in the view finder whilst doing sun noise measurements. The scopes field of vision is a little bit wider than the beam width of the dish but now gives a quick way to set up portable. The VK5DJ tracking system described has an inbuilt GPS that sets the time, latitude and longitude on start up. The elevation is set by a digital spirit level so the only remaining variable is finding an azimuth reference point.

On 3/6/2017 VK5KK, assisted by Wayne VK5APN, went to a spot looking over St Vincent's Gulf at PF94gw to set up. We were set up at 1300 UTC when the moons elevation was below 40 degrees (as high as tracking goes with the 24 degree offset feed). We had a test sked with Rex VK7MO (QE37pc) from his home QTH. Spreading was well over 100 Hz so we only saw bits of Rex's signal. We spent the next hour doing more verification checks on pointing and eventually saw Rex's 1000 Hz tone around 1430 UTC. A few adjustments and now we seemed to be tracking the moon OK within 0.3 degrees.

The next Sked was with Charlie G3WDG (IO92rg) who had moon rise at around 1430 and could see moon noise at 1445 UTC. Charlie's first TX cycle was solid and right on 1000Hz with COFM compensation. We confirmed the first JT4f contact at 14:56 UTC (-19, -22) then experimented for the next few periods and then completed a QRA64 – D contact at 1522 UTC (-18, -23). Later Charlie optimised his feed polarisation to the predicted offset of 20 degrees improving signals by about 1 db. Spread by now as around 100 Hz, all the way through we saw the frequency vary only a few Hz from 1000 Hz!

The last sked was with Peter OZ1LPR. The same tree that impacted us last time was still in play! Peter estimated that he wouldn't have a clear shot at the moon until around 1555 UTC when our moon elevation would be around 7 degrees. Peter had rain at his end but at 1553 UTC we started to see his 1000 Hz tone are saw decodes at 1603 UTC. The contact took another 12 minutes to complete as signals slowly dropped. At 1617 UTC the contact was confirmed (-19, -19); our moon elevation was now only 2.1 degrees (see the screen grab). Peter later related to us that he had water in the feed from the rain but his 250 watts had probably helped to dry that out!

In closing

Feel free to drop me a line if you have something to report. Contributions regarding club projects or proposed activities are always welcome. Just email me at *david@vk5kk.com* and I'll include in the column.

73's

David VK5KK

Meteor Scatter Report

Dr Kevin Johnston VK4UH

Prompted by a screen shot (Figure 1.) of a "double ping", provided by Col VK4MIL, I thought it would be interesting this month to discuss Geospecificity. Geospecificity is the final piece of "magic" in the physics of Meteor Scatter propagation, the piece that at the end of the day allows multiple stations to be operating at the same time on the same frequency and yet still able to complete QSOs without all interfering with each other.

So, we know that the fundamental basis of MS propagation is the transient reflection of our radio signals from the ionised trails of superheated or incandescent air molecules remaining after the "burning-up" of meteors, drawn into the earth's gravitational field from outer space. Meteors of interests to us for MS propagation are tiny fragments of extra-terrestrial material ranging in size from a grain of sand to a garden pea (0.1-1.0 g). These meteors of interest must enter the earth's atmosphere at velocities between 10,000 m/s and 100,000 m/s. We know those meteors of this size and velocity "burn-up" completely at around 100 km above the earth, the same height as the E-layer, where the enormous kinetic energy of the particles is dissipated in the highest part of the atmosphere dense enough to slow them down by frictional forces. We know that the radio reflections we are interested in are from the track of superheated air and not from the meteor itself. Estimates suggest that over 100,000 tonnes of extra-terrestrial matter enter the earth's atmosphere every year. Some simple mathematics of how many grains of sand would be required to make up 100,000 tonnes gives an idea of how frequent meteors really are.

These simple facts however do not explain the whole question. As others have asked:

"OK so a meteor comes in and burns up, big flash of light – OK got that, ionised trail left behind – got that too. But if there are half a dozen stations transmitting at the same time on the same frequency when the meteor trail forms then surely all the transmitted signals will be jumbled-up at the far end, all superimposed one on top of the other – how is that going to work?"

The answer is Geospecificity.

Meteor trails, as described above, do not appear as "flashing mirrors" in the sky which reflect radio signals simultaneously between all stations. In reality, each meteor track only supports propagation along a very narrow geographic path at any specific instant in time. Consequently, meteor scatter propagation frequently provides signal returns (pings and burns) between two stations 1000 km apart but not between others separated from the first by only a few "extra" tens of kilometres. Further the meteor trails themselves are not static in the atmosphere; rather they also move under the influence of upper atmospheric winds and cause the "supported path" to effectively sweep across the earth's surface. The effect of this phenomenon is to separate out stations from one another. Some pings light-up station A, the next ping might only light-up station B or a single meteor may light up both stations but at fractionally different times.

Often, when two stations are located close together, a single meteor return may bring decodes from both but separated by a fraction of a second. As in the example shown in Figure 1, MSK144 signals received from VK3HY and VK3ZL, two stations located in close proximity to each other, decoded in period 202300 (upper trace) became separated by over a second in time as received in VK4. While using FSK441 mode, this required forcing "manual decodes" using the mouse keys at either end of a loud ping. Multiple sequential decoding available in MSK144 mode however does this automatically. The phenomenon of Geospecificity can separate out stations less than 50 km apart at a range of 1200 km; the angular difference between the two heading for the two stations being a fraction of a degree at that distance.

Previous articles have explained that most VHF meteor returns do not propagate along the direct path between any two stations. Most meteor returns between two stations appear to propagate from two "hot-spots", one on either side (10-15 degrees off) the direct heading. These two hotspots have been termed A and B and statistically one or other of these hotspots gives more usable returns depending on the season and time of day. The WSJT software platform provides the operator with guidance on which hotspot (bearing) to use for any particular station and time of day provided that the grid squares of both are known. It is not uncommon to receive two pings from the same distant station separated by a second or more. Double pings of this type almost certainly originate from the same meteor. Close examination often shows a different Doppler shift and may be explained by the earth sweeping effect, as the ionised trail moves across the two hotspots one after the other. Again, close inspection of the trace in Figure 1 may also show this phenomenon. There are two distinct and separate pings visible in the upper trace at 202300, both originating from VK3HY at around 25.5 seconds into the sweep and separated by about 0.5 seconds. In this example, the Doppler shift was similar on

Figure 1: MSHV/MSK144 screen capture of multiple stations May 20 2017 – courtesy VK4MIL.

both pings, with a DF of 3 Hz; other observations have shown significant differences in Doppler.

During hyper-dense meteor returns (burns), propagation may persist for more than a full thirty second sweep. Such burns are characterised by long durations and high but rapidly fluctuating signal strength. This phenomenon is thought to be due to reflections occurring from multiple points along the same ionised trail "interfering" with each other, i.e. alternately reinforcing or cancelling the received signal due to the different path lengths and the Doppler effect. A similar effect is seen on Aircraft enhancement propagation. A further example of geospecificity is seen during Hyper-Dense Meteor Burns where these rapidly fluctuating signals from two stations do not peak at the same instant. This allows the software to successfully decode multiple stations as they peak in signal strength at fractionally different times.

Since the last column was prepared there has been a further update in the MSHV platform, now up to version 1.41. The new versions include a new PI4 reception mode, although information on its use is sparse at the time of writing. From comments seen on the VK-ZL Facebook page there is the possibility of a bug in this latest version, so it may be worthwhile retaining a copy of the earlier version before trying the upgrade.

As was discussed last month there has been a clear move from FSK441 mode in favour of MSK144 during the weekend Meteor Scatter activity periods. Clearly many operators consider the trade-off between improved decoding of weak and short pings against the loss of flexibility and option to be in QSO with multiple stations at the same time to be worthwhile. In my own opinion, I think this is probably true for 144 MHz MS, particularly at this time of the year. However, I still think FSK441 may still be a better option for 50 MHz MS, where pings are longer and louder even during the winter months. At the end of the day our community will decide.

For a fascinating interactive visual presentation of meteor showers have a look at the amazing visualisation produced by Ian Webster: *https://www.meteorshowers.org/#Eta* Aquariids

Meteor Showers

The next major Meteor Shower event for 2107 will be the Perseids Shower expected to peak around 13 August.

Contributions for this column are as always welcome. Please e-mail to *vk4uh@wia.or.au*

Kevin Johnston VK4UH
Brisbane

Over to you

A touch of Spice

Dear Editor,

VK2ASD owes me a black tie dinner! To say that I was totally stunned when I read Phil's article "A Touch of Spice" AR June 2017, is a huge understatement. I rushed to the old cardboard box encasing my log of the voyage of Gipsy Moth V in the Spice Race and read my entry for 1 April 1980. In part it reads:

Day 21. Noon position: 30 degrees 05.3' South, 53 degrees 17.8' East. Fixed the ship's chronometer. ...Lots of April Fool's jokes going around, especially on the wireless with Batavier. The old Penguin Cookery Book is coming in for a lot of use!

During the past 37 years I have never met anyone in Australia who had even heard of the Spice Race, let alone sailed in the race. Once again the amateur radio community has proven what a unique, eclectic and diverse group of people we are.

This year I sailed on a Sydney Hobart boat from Eden to Sydney and kept the crew awake during the graveyard watch with stories of the Spice Race and the lack of any electronic navigation equipment, including HF radio on the Atlantic leg. I think they thought I was straight from Nelson's Navy! To sail half way around the world using only a sextant, charts, compass and barometer seems to be inconceivable to modern yachties. To us it was normal.

Phil, if you sail down to Eden it will be a black tie dinner in the Fisho's Club and a heap of reminiscing! Thank you so much for your article.

73

Chris Simkin VK2CXM

Participate

Remembrance Day Contest 12-13 August
ALARA Contest 26 August

VK6news

Steve Kennedy VK6SJ

Ham College

Ham College continues to provide courses and assessments at all levels and welcomes the NCRG into this area. Close liaison has occurred with NCRG members observing our latest Foundation course and assessments and also the currently running Standard licence course. The Advanced course starts in August and expressions of interest are welcome at *www.hamcollege.com.au*

The NCRG has been provided with Ham College teaching material including the Standard and Advanced course manual as well as all of our on-line content. All of the Assessors who currently provide assessments at the College have indicated their willingness to perform assessments at the NCRG HQ in Whiteman Park and they remind all amateurs and potential amateurs that they are Assessors and Learning Facilitators for the WIA and not for any particular club or organisation.

Teaching, Learning and Assessment is given freely and shared in the true spirit of Amateur Radio. Nominated Assessors, Assessors and Learning Facilitators do not charge for their time. On occasions they may claim travel expenses from the WIA. The fees for attending courses are to cover expenses such as venue hire and insurance etc. The College does collect fees for assessments on behalf of the WIA but charges for licenses are now invoiced by and payable directly to the ACMA after the release of a WIA Certificate of Proficiency.

The Club's VHF beacon is fully up and running and we hope to have a new transmitter shortly as the old one is well past its retirement date, more of that later in the year!

Thanks to Andrew VK6AS
Enrolments Officer

Photo 1: NCRG 4-square array.

Photo 2: NCRG Antenna farm.

Northern Corridor Radio Group (NCRG)

Time is running out fast for NCRG Amateur Radio Courses so get your applications in at the NCRG website ncrg.info. The first foundation course will be held on the weekend of 22-23 July 2017. Exams are on following Saturday. Students need to be enrolled three weeks in advance. NCRG will also be holding a Standard Course starting on 25 July 2017.

It has been a busy month at NCRG with the new equipment room / training room extension

continuing to take shape. The equipment room has brought order to chaos with all HF antennas now brought in via 600 V lightning protectors at a dedicated earthed gland plate before being run to a separate patch panel for routing to either the remote station or either of the two radio operating rooms. There is a solar and battery backed 12 V DC supply system complete with remote monitoring and control (via a Kingfisher PLC) and the HF broadcast amplifiers (re-purposed commercial Codan amplifiers) have been relocated into the new equipment room along with a couple of spare 19" rack cabinets for future expansion.

The 10 m beacon (VK6RWA) is back on air at our new repeater site. The beacon runs 10 W and is on 28.264 MHz.

We have new antennas ready for installation at the new repeater site which will improve the coverage of all repeaters including the new 23 cm repeater installed last month.

Over the weekend of 27/28 May, 10+ members of the club turned up to finally install the 80 m 4-square vertical array. This project has been six years in the making and has been managed by Arthur VK6CY. To further complicate this task, we have elected to run an elevated earth mat so the 20 m long vertical antennas are mounted on 6 m poles. We used a cherry picker and nine people manning guy wires to erect each vertical. It was a very good exercise in discipline to get these in the air without serious incident! We found that radio communication people are not always good communicators! Still left to do on the project is to complete the phasing circuits, tension guy wires and complete ground plane wiring. It will be great to see this project completed.

Photo 3: HARG members being show a high powered AM transmitter.

Hills Amateur Radio Group (HARG)

Recently, our long serving treasurer, Cliff VK6LZ, decided to step down from the role due to some health concerns. Cliff has been a great treasurer and his departure from the committee will be our loss. The club would like to thank Cliff for his dedication to the role over the past few years. Thankfully, Alan VK6AN put his hand up and will fill the role until the next AGM. Alan has some big shoes to fill.

HARG's activity this month was a tour to a high-powered broadcast station. Members turned up to be taken on a comprehensive tour of the site, looking at some big broadcast transmitters up to 50 kW. We got to see the entire chain from how the program contents get to the site to how the 50-ohm output of the transmitter is matched to the impressive antenna. What struck most was that when shown the circuit diagram of the antenna coupler, it was less complicated than most shack antenna tuners as it doesn't have any band switching. Sure, you could crawl through the inside of the inductors and you'd need a good-sized garden shed to house components but it was just some inductors and capacitors. We also got to see some smaller digital television transmitters and a FM broadcast transmitter.

Everyone enjoyed the day. Next month we will be touring a high-powered TV site.

Photo 4: Ray VK6ZRW showing Steve VK6CS a FM transmitter.

We will be participating in the VK Shires QSO party coming up in June so look out for us on air and have started planning for the ILLW weekend & RD contest coming up.

HARG Meetings are held twice a month at their club rooms at the Paxhill Guide Hall near the corner of Brady and Sanderson Roads in Lesmurdie. The social and practical meeting is held on the second Saturday of the month and the last Saturday of the month has the general meeting, often with a technical talk or demonstration. Doors open at 1.00 pm for a sausage sizzle and the meeting starts at 2.00 pm. More information at *www.harg.org.au*

73

Ray VK6ZRW.

Avon Districts Radio Group

Peter VK6PK reports that Cedric VK6CD has shone through with a suitable 6 m beacon transmitter for VK6RTU with the 6 m beacon located in Kalgoorlie on 50.307 MHz.

Bunbury Radio Club

The next monthly meeting of the Bunbury Radio Club will be held on Saturday, 8 July 2017 from 2:00 pm. at 21 Halsey Street, Bunbury. This will be the Annual General Meeting and election of officers of the Club. There will be no technical talk.

At our May meeting, Richard VK6PZT gave an excellent talk on his efforts to work QRP CW. Richard's goal is to work CW using minimum power at a minimum cost. He is currently experimenting with a Rockmite transceiver kit purchased at a cost of approximately $50 and constructed over two nights, together with a home brew trans-match. Due to antenna restrictions in his community, he is currently limited to a secretive end fed long wire arrangement. This led to a constructive discussion on possible antenna systems for his place.

The technical talk is at our August meeting where Steve VK6HSB, will talk about antenna developments at his QTH.

Proposals to install a DMR repeater have been put on hold due to uncertainties about the preferred technology have been resolved.

Alek VK6AP continues to organise monthly "Ham and Cheese" social gatherings. These are gathering momentum with a steadily increasing number of members attending. The gatherings are not limited to Bunbury but will be held at various regional locations in the South West.

Any South West based amateur (or anyone interested in radio or electronics) is more than welcome to join and participate in our activities. Because so many of our members come from near and far we are evolving into a semi "virtual" club. Consequently, regular attendance at meetings is not a requisite for membership. The annual fee is only $50.00. Those wishing to join can contact the Club via our Secretary, Nick Evans on 0429 201 343 or *vk6brc@wia.org.au* Further details can be found on our website at *http://www.bunburyradioclub.com*

WA VHF Group

The VHF Group club rooms are located at Wireless Hill in Ardross, just south of Perth CBD. Meetings are the fourth Monday of the month, except December and all radio amateur operators and interested people are welcome. The WA VHF Group INC (1958) is based in Perth and is the single largest license holder and operator of terrestrial VHF, UHF and SHF beacons in Australia.

Interests include:

- Terrestrial beacons
- Weak signal working
- GPS-disciplined and other high-accuracy, high-stability frequency references
- Digital modes
- EME (Earth-Moon-Earth)
- Fox hunting (hidden transmitter)
- Satellite communications
- Software defined radios
- Antenna design and construction
- Transverters
- Test equipment
- Embedded controllers

In April, Phil VK6ZKO presented a project commenced by Alan VK6ZWZ (SK) centred on the construction of a 10 GHz Transverter belonging to the group.

On Tuesday 28 March Bob

VK6KW, Phil VK6ZKO and Terry VK6ZLT worked on storing and collating assorted club and ex-museum material in the club container. All thanks must go to Bob VK6KW on his untiring effort in obtaining the container and the transportation of the material within. On behalf of the WA VHF GROUP; many thanks Bob for all your effort on our behalf.

VK6 Nets

While strictly speaking, not clubs as such, below are some interesting nets hosted from VK6 but with participation from all over VK and the rest of the world.

VK6BQQ Friday night Worldwide TechNet:

The TechNet started from a whim in Burlington over 14 years ago by Reg Bagshaw VE3BQQ on 146.550 simplex. His first contact was the late Dave VE3DLK in Hamilton. Over 500 weeks later and still going strong, the net has become a Friday night ritual with an average of 50 or more check ins. Using the Internet via IRLP, EchoLink, e-mail and of course good old fashion RF radio. The net initially ran as a technical net and as interest and support grew, offered online support for those looking to upgrade from basic to advanced licences, with the Help of Reg and his knowledge and experience from many years in the communications industry. Today the Net has evolved more into a social gathering place for amateurs worldwide to meet and gain insight into what is happening in the world of amateur radio.

On Saturday 26 May, the 800th net occurred and to celebrate the occasion, the net was broadcast from the Aviation Heritage Museum in the Perth suburb of Bull Creek aboard an Avro Lancaster.

F-Troop Net

F-Troop is a Saturday morning net hosted by Onno VK6FLAB – who is also the author of the weekly article "What use is an F-Call" which is broadcast nationally on the WIA broadcast.

The net is specifically for new and returning hams and in Perth is hosted on VK6RAP on 146.700 MHz.

The net features regular announcements on how to use the repeater in order to make that first contact less daunting! The net is not only for new Foundation licence holders. All amateurs are welcome and the mix of experienced and brand new operators make for an extremely good meeting place for enhancing your newly found knowledge in radio!

VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

May Meeting

Gerard VK5ZQV gave us a very interesting talk about HamRadio at Friedrichshafen. For those who have not been there, it probably inspired them to put it on their bucket list. For those who have been there, the talk brought back lots of good memories.

This is the biggest gathering of amateurs and of all aspects of amateur radio in Europe. Dayton in the US may be bigger but it is doubtful if it has as many different ways amateur radio can be enjoyed on display. Gerard went to Friedrichshafen by road and boat ferry but it can be reached by train. However, whichever way you reach the town, you will be almost certain to use the free bus from the town to the enormous building that houses HamRadio. Parking at the venue is almost entirely used for buses.

During and for some years before WWII, Friedrichshafen had been a manufacturing centre. The largest buildings were where the Zeppelin airships were produced but there were a number of other aircraft made there, including the Heinkel as well as various other manufacturing businesses. Almost everyone that visits Friedrichshafen will spend some time wandering through the marvellous Zeppelin Museum as well as visiting whatever exhibition they are there for specifically, as we did in 2010. The series of attached building where the HamRadio is held are used for many other conventions and exhibitions throughout the whole year and retired people living there now because it is a lovely area of Germany.

Photo 1: Ham Fest Friedrichshafen information.

Friedrichshafen is situated on Lake Constance, the largest fresh water lake in Germany, so there are many boat and sailing clubs centred there as well as all the other facilities of modern life. On an island in Lake Constance is one of the most beautiful and well known gardens in Europe. One of the features of this garden is the "sculptured garden beds". These are designed to create living pictures; the beds shaped and filled with flowers to really make a picture.

AHARS involvement in the WIA AGM

The 2017 WIA AGM was organised by members of AHARS just as several of the recent AGMs have been arranged by local clubs. The group who planned it all are shown in the photo. The venue was in the beautiful Adelaide Hills in Hahndorf only 15 km from the city, a town settled by German migrants coming to Australia to escape persecution in their homeland. The German influence is everywhere in the buildings, the eating places and the sound of the oompa bands.

Photo 2: Ham Fest Friedrichshafen sign.

The weather was magnificent although each day the forecast was for some rain. It couldn't have been better. The autumn leaves everywhere were at their best. These reflect the plantings by early settlers with the seeds they had brought out with them from home. South Australia is proud that we were never a convict colony so the free settlers actually could bring things from Home with them.

There were over 150 for the informal dinner on the Friday, 270+ on the day of the actual AGM. Two Partners' tours were arranged and both were reportedly great fun. A series of very diverse lectures were presented in the afternoon of the actual AGM and most of the topics were demonstrated on the Hahndorf Football Oval on the Sunday with a barbecue to end the day.

Full details of the AGM are elsewhere in this edition of *Amateur Radio*, along with introductions to the members of the new Board of the WIA. Our congratulations go especially to the new President of the WIA, Justin Giles-Clark, the son of a long-time member of AHARS.

Our regular meetings and the small group talks continues

Regular meetings are held on the third Thursday of each month at the Blackwood Community Centre in Main Road Blackwood. We start at 7.30 pm and welcome everyone.

For more information go to our website *www.ahars.com.au* or contact our President Phil VK5SRP or Secretary Jean VK5TSX, QTH the callbook.

The Shack is open on the second Saturday of the month for a social morning. Many of the member's projects are first seen at these regular gatherings and many a technical issue has been solved on these mornings. The collective expertise of the folks who gather is impressive. Remember admission is via a gold coin donation with tea and coffee provided.

On the fourth Saturday of the month technical sessions are held at the shack. Check out the AHARS web site regularly for details of these events. *http://www.ahars.com.au/*

SOTA and the National Parks Awards

These two awards, sponsored by AHARS, were demonstrated at the AGM and the oval and can now be found through an app (called PeaksnParks) on your iPhone or iPad at the App Store. This app was designed by Sue VK5AYL and introduced to us at the dinner on Saturday night. The story of designing such an app and then getting it accepted by Apple was certainly interesting and gave us a smile.

Photo 4: WIA AGM VK5 Organising Committee: (L2R) David Minchin VK5KK, Joy Robins, Iain Crawford VK5ZD, David Clegg VK5KC, Stuart Fillmore VK5STU, Shirley Tregellas VK5YL, Jim Tregellas VK5TR, John Dawes VK5BJE, Roy Gabriel VK5NRG. Not in photo: Matt Cook VK5ZM and Grant Willis VK5GR.

Photo 5: VK5 ALARA at the meeting: (L2R) Irene VK2VAN, Shirley VK5YL, Jean VK5TSX, Jenny VK5FJAY, Christine VK5CTY, and Leslie VK5LOL.

Photo 3: Parks&Peaks App Nearest Parks page.

Photo 6: Parks&Peaks App introduction.

VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *https://groups.yahoo.com/neo/groups/vk7regionalnews/info*

VK9N Norfolk Island Mini QRP DX-Pedition

Al VK7AN staged a mini QRP DXpedition to Norfolk Island between 14 and 21 March 2017 using the callsign VK9N/VK7AN. Equipment was a Yaesu FT-817ND with 5 watts and antenna was a SOTA dual band linked dipole for 40 and 20 metres. There were 380 contacts made. Most contacts were made on 20 m. Al thanks Peter VK7PD for lending the FT-817. The holidaying group made contact with John Anderson VK9JA and Ray Sills VK9NMZ who live on the island and were blown away by the Norfolk Island generosity and kindness.

L2R: Holidaying convicts – Kay and Nick Gee, Anne and Allen Burke VK7AN. (Photo courtesy of Allen VK7AN).

VK7 Broadcast News - Round-up

The WIA AGM weekend signals the start of a new broadcast year and Graham VK4BB has published the figures for the 2016/17 broadcast year. VK7 was fifth on the WIA broadcast list with 4709 callbacks and the VK7 breakdown is:

Band/Mode	Total
2 m Repeaters	2809
70 cm Repeaters	440
6 m Repeaters	94
VK7AX video stream	266
VK7AX ATV	99
DMR	26
80 m	443
40 m	179
20 m	140
10 m	213

North West Tas. Radio & TV Group (NWTR&TVG)

http://www.vk7ax.id.au/atvgroup

Thanks to Roger for the report about the Tall Timbers Hellyer Car Rally that was recently held in the Smithton area. There were seven special stages, north and south of the Bass Highway in the Britton's Swamp, Togari area. NW Car Club radio equipment was used but this was unable to fully provide the necessary coverage. NWTR&TVG members Dave VK7DC, Bob VK7MGW and Roger VK7ARN filled in the holes, providing links between difficult special stage locations and Rally Command at the Togari Community Centre, where Graeme VK7NGA also applied his skills. Thanks to all involved.

Northern Tasmanian Amateur Radio Club (NTARC)

http://www.ntarc.net/

Silent Key: Paul Sarre VK7BBW

It is with sadness that we let you know of the passing of Paul Sarre VK7BBW. Vale Paul, dearly missed by his friends. Thanks to Tony Stevens, VK7AU who let us know.

RSBG Commonwealth Contest 2017

Thanks to Alan VK7BO for the report on the RSGB Commonwealth Contest for 2017. Australia ran two teams and congratulations to Australia Team 1 for coming first and Australia Team 2 for coming third. There were 17 teams in the contest and NTARC member Alan VK7BO was a team member. Congratulations to Alan and to all the other contestants.

Update on Mt Arthur repeaters

Thanks to Tony VK7YBG, Paul VK7KPA, David VK7JD and Joe VK7JG who have repaired the CB repeater and installed a Yaesu DR-1x repeater running D-STAR. The D-STAR frequencies are receive on 438.4625 MHz and transmit on 431.4625 MHz. The DMR repeater is also performing well with the local VK7 News being run through it thanks to Clayton VK7ZCR on TG 505 (VK wide) at 8.30 am each Sunday morning. DMR repeater frequencies are receive on 431.4125 MHz and transmit on 438.4125 MHz.

NTARC's May BBQ meeting saw a good roll-up and a presentation by Peter VK7PD on his 1296 MHz experiments using the VK7MO 1296 MHz Yagi. The presentation included a demonstration of a contact between Peter and Joe VK7JG on the other side of the Tamar River.

Radio and Electronics Association of Southern Tasmania (REAST)

http://www.reast.asn.au/

As heard above, there is a DMR rebroadcast on a Sunday morning by Clayton VK7ZCR from Lenah Valley on channel 505 around VK. If you are DMR capable why not give him a call. The 23 cm QSO parties are continuing on a Sunday morning with a regular roll-up and concluding with North-South JT-65 contacts being made. The FSQ Fridays Net continues on 2 metres 145.225 MHz USB at 8 pm, then 7105 kHz USB at 8:30pm. There is also an active group experimenting with AX-25 packet radio again using RaspberryPis and PiTNCs. The group is active on the VK7 Online Chat Channel which can be found at: *http://www.reast.asn.au/contact/vk7-online-chat/*

NBN Comes To Queens Domain – the REAST Clubrooms and Tasmanian Maritime Racio now have separate Fibre NBN services. We would like to especially thank Tasma Net for their generous support in donating an Internet service to both REAST and Tasmanian Maritime Radio and stay tuned for the benefits this will bring to members.

REAST's May presentation night was fascinating with Larry VK7WLH taking us through Near Field Communications devices that are available in the market. There is a printed coil that picks up RF energy at around 20 MHz and this energy powers the chip on the NFC device and the chip then provides information. Authenticity is what Larry is using it for and with link it geolocation information it becomes a powerful marketing and authentication tool. Thanks Larry.

Scott VK7LXX then took the audience through his FSQ Beacon development. This uses about $20 worth of parts including an Arduino and a couple of easy to use libraries and you can have a stand-alone FSQ, WSPR, JT65 etc low power beacon. Scott is using it for intermittent information transfer in applications like weather stations, tank and gate levels. Thanks Scott.

AMSAT-VK

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

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

Website:
www.amsat-vk.org

Group site:
group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial amateur radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft. AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net

Australian National Satellite net

The Australian National Satellite Net is held on the second Tuesday of the month (except January) at 8.30 pm eastern, that's either 9.30 or 10.30Z depending on daylight saving. Please note we will be taking check-ins from 8.20pm-ish. 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. Operators may join the net via EchoLink by connecting to 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 numbers 9558. 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
VK4RFC Redcliffe 146.925 MHz -ve offset IRLP node 6404 EchoLink 44666

In South Australia
VK5TRM, Lokton on 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, EchoLink node 399996

In Tasmania
VK7RTV 2 m. Repeater Stowport 146.775 MHz. IRLP 6616

In the Northern Territory
VK8MA, Katherine on 146.750, CTCSS 91.5, IRLP Node 6800

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.

ALARA

Diane Main VK4DI

Dayton 2017

After a series of flights from Brisbane spanning 33 hours, Bill VK4ZD and I landed in Dayton, Ohio for the Hamvention. The first day of the Hamvention saw us lined up in a long queue of cars just to get in. This year is the first at the new venue and there was only 1 entrance. Once we got into the fairgrounds, we were dazzled by the array of tents and buildings full of big and small "toys". Anything available from kits to build to multi-thousand dollar radios, amplifiers, towers and antennas. Some really great forums on a wide range of topics were held as well. We didn't even make it to the Flea Market!

Many YLs of all ages enthusiastically engaged in the forums and talked to the vendors.

On Friday night Bill and I attended the DXer's dinner at the Marriott Hotel. Close on 300 people attended the dinner with a very inspirational YL Guest Speaker in Ruth Willet KM4LAO, an 18 year old university student. Her biography states she is majoring in Mechanical Engineering and Engineering Physics. She alternates academic terms at school with a co-op job at Textron Specialised Vehicles in Augusta, Georgia. She is a member of multiple clubs nationwide, including the ARRL and YLRL. Ruth enjoys many aspects of Amateur Radio including operating SSB and CW on HF, satellite operations, working community service events, mentoring new hams and DXing.

Ruth was proud to be a member of the 2016 Dave Kalter Memorial Youth DX Adventure which operated from the island of Saba in August 2016.

The title of the presentation was *"Experiencing the Hobby of a Lifetime"*.

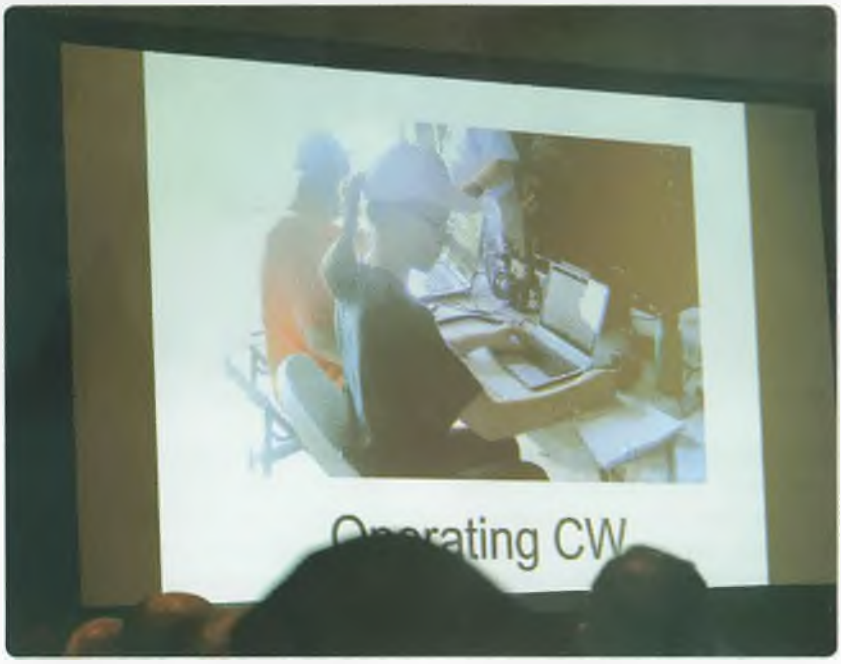


Photo 1: Ruth Willett KM4LAO.

Ruth's entry into Amateur Radio came about from her desire to learn Morse code and when she was told she could use it to talk to people via Amateur Radio she studied and obtained her Technician licence in 2015. No one else in the family had a licence but they were very supportive of her. Ruth was given an HF Radio as a Christmas gift and her local club members assisted her in setting up her shack and installing antennas.

She was first active on a Field Day and absolutely loved it; she then became involved in contests and activating Parks. Club members and friends assisted by her to activate parks.

Ruth's enthusiasm was so infectious that her Mother decided to join the hobby and Ruth was very excited to obtain her Extra licence on Mother's Day 2016, sharing the joy with her mother who passed the Technician licence. What a great way to mark Mother's Day! Ruth continued to mentor her mother, who now has passed her General licence. They love doing radio activities together. Her passion for CW culminated in her attending the CW Ops Academy. Ruth was thrilled to be chosen to join the YDXA (Youth DX Adventure) to Saba Island in August 2016. She loved being at the end of the pile ups on both CW and Phone obtaining experience in operating both VHF and HF. An integral part of the YDXA was learning new skills and modes. Learning about satellite operations excited Ruth and she now makes satellite contacts in between studying and working.

Ruth attributes her passion to

Photo 2: YL Forum with Diane VK4DI, Cheryl N0WBV (publicity officer) and Anne Manna WB1ARU.

three things from her Club: being welcomed, being taught and being encouraged. The most important message she imparted was that new amateurs at any level matter. She loves being active on air with her club friends. She also said new amateurs can be overwhelmed and fail to become good operators unless they are taught how. Mentoring is what kept her passion alive and she wants to give back to the hobby by continuing to mentor new amateurs. Ruth suggested all amateurs share their passion for the hobby. It really is a Hobby of a Lifetime.

In closing Ruth offered a Challenge: she asked everyone present the question - *"How will YOU impact on new hams?"* She believes that new amateurs need positive feedback and mentoring which leads them to share their passion and continue the cycle of growing the hobby. Ruth's presentation deservedly received a Standing Ovation.

I also managed to win a $40 voucher to the DX Store, which has been spent on a foot switch for my Heil Pro7 headset.

I also attended the YL Forum on Saturday facilitated by the Young Ladies Radio League (YLRL). I was one of the few DX YLs present. The forum was well attended and I was given a chance to promote ALARAMeet, our ALARA contest and especially the VI4ALARA activation. There was a great deal of interest in the call. I was also sponsored into YLRL.

One of the highlights of the Hamvention was the Contesters' Dinner where I didn't win the first price of an Icom IC-7610 but did manage to win a Radio Sport Deluxe Dream Edition RS60CF headset with mike and correct cable for my radio. Naturally I had to buy the matching foot switch.

Photo 3: VK5 Luncheon Group. Front: Elsie (Jean VK5VIP's mum) and Christine VK5CTY with her birthday flowers. Middle: Jean VK3VIP, Kaye VK3FKDW, Shirley VK5YL, Marilyn VK5DMS, Jenny VK5FJAY, Pat XYL of Phil VK5SRP. Back Row Tina VK5TMC, Donna VK4FRET and her Mum Noreen, Christine's daughter Heather (also hidden - deliberately!), Lesley VK5LOL, Sue VK5AYL (hidden) and on the end Jenny VK5ANW/3WQ.

ALARA at the WIA AGM

There were at least twelve ALARA members at the WIA AGM in Hahndorf in the Adelaide Hills. Unfortunately no photo is available.

Leslie VK5LOL and Hans VK5YX had Irene VK2VAN and her OM Jan VK2FEB staying with them for the AGM. Irene and Jan also visited the YL International meeting in England.

ALARA members Jean VK5TSX, Jenny VK5FJAY, Tina VK5TMC and Shirley VK5YL, worked on organising the Partners Tours. Joy, XYL of David VK5KS, along with Shirley were bus captains for the tours which were a great success. There were two Partners' Tours this time to cater for the large number expected and the reports from both of these were very positive.

Sue VK5AYL gave us a very interesting talk about the challenges of designing a ParksnPeaks app for the iPad and/or iPhone. The app is also available for Android. The guidelines she had to abide by to have the app accepted were also interesting.

See the AHARS report in this month's AR for more information on the app.

The YL Luncheon for visitors to VK5

Whenever there are visitors from other states in Adelaide, an extra ALARA luncheon is often arranged. As there were several visitors after the AGM we met on the Wednesday at the Police Club on Carrington Street in the city.

It was Christine's birthday as well and a card was signed by everyone present. The card was hand made by Jenny VK5FJAY. Jean VK3VIP, Donna VK3FRET and their mothers drove down from Wallaroo. Tina VK5TMC came down from her shack near Swan Reach.

The Higginbottom Award

Congratulations must go to Christine VK5CTY, as a worthy recipient of this Award. It was awarded for her long standing efforts to ALARA and Women in Radio, commencing in November 1995, including the ALARA column and AHARS Club news.

Amateur Radio In Schools

Jenny VK3FOWL and husband Joe VK3YSP have been running classes for children in Primary schools in Victoria, for a number of years. In some schools these are lunchtime classes but at others are included in the curriculum. The children are introduced to all aspects of Amateur Radio. On the Sunday they had a group of children in a range of ages from the Hahndorf Primary School who discovered the 'wonders' of amateur radio.

Julie and Joe were also presented with an award for their work which was definitely well deserved.

Photo 4: School Amateur Radio Club preparing to go walking around the Hahndorf Football Club Oval.

Date Claimers:

ALARAMEET 2017

Last Minute Registrations are still being accepted for the ALARAMEET in Cairns *www.alara.org.au*

ALARA Contest

The 37th ALARA Contest will take place on 26 -27 August 2017 (see Contest Rules in this issue). The rules have not changed from last year. Please take the time to read them as they contain important information to make scoring simple.

Diane Main VK4DI
ALARA Publicity Officer

Silent Key

Nick Allsopp VK6VAX

Many amateurs will be saddened to hear of the passing of our DX mate Nick on 21 May 2017. He passed away peacefully at home after a short illness.

Nick was first licensed as VK6FNIC only a few years ago and progressed quickly to his Standard call. He was talking about going for his Advanced call, which I am sure he would have achieved without any problem.

Nick was a very active DXer and contester. He had one of the top stations in VK6 if not VK. In the World Radio Sport Team Championship qualification standings, he ranked #11 in VK and #14 in OC, #2 with only 7 contest entries from the allowed 12.

His LP All band entry for the CQWPX SSB contest gained #1 VK and a maximum 950 points.

He was #1 in VK in 2015 and 2016 in the CQ WW DX SSB contest LP Classic overlay and 4th and 3rd in Oceania respectively. Always up for a challenge, he entered the 2016 CQ WW DX CW contest and took out #1 for the LP Classic overlay, #3 in Oceania and #61 in the world. His CQ WW WPX SSB LP Classic overlay entry was #1 in VK and #2 in Oceania.

Photo courtesy by Clive Blewitt VK6TN.

He entered other contests with notable results namely the CQ WW RTTY, JMM Field Day, ARRL DX SSB, IARU HF Championships and the All Asia DX which earned him #1 in VK6.

When it comes to the hobby of amateur radio, some choose to stick with one mode or band and enjoy doing so. Nick operated the most modes possible, with contacts on SSTV (both analogue and digital), SSB, FM, PSK31, PSK63, RTTY, CW and notably a packet confirmation through the International Space Station. He also built a dual band 2 m/70 cm Yagi for a few dollars and worked through satellite SO50 using a handheld.

If you look Nick's call on QRZ.com, you will see a note of his mobile operation on 80-mile beach in WA. It's not often one sees a full-size Hustler 6- band trap vertical on the front of a car. Mind you, Nick told an interested observer he was fishing with it. His page also shows the issue he had with Corellas. His use of homemade chilli sauce and a rubber snake on the antenna never deterred them.

There is nothing better you can give than your time to help and Nick was very generous in that department. He would help all who asked for it and always turned up to lend a hand when he knew it was required. He was actively assisting with the creation of VK6RT, a portable DX contest radio team.

The DX community will miss Nick with messages already posted on the DX Cluster from as far as Valencia in Spain from Paul EA5IKJ.

Rest in peace Nick 73 DR OM.

Dah Di Dah

Steven Koncz VK6SMK.

WIA Callbook Editor

The WIA is seeking a passionate, motivated and energetic volunteer to coordinate the annual Callbook production.

The Role

This is a consultative and relationship-focussed leadership role, reporting to the WIA Communication Committee leader and being a member of the Publications Committee.

The role involves leading the full lifecycle of Callbook production from planning, updating content, coordinating layout, and scheduling production by end of September each year.

The Candidate

The ideal candidate would have experience in publications, content editing, communication, and project management. The role is focused on collecting information updates from various sources (i.e. other WIA volunteers), refining data, identifying changes, and coordinating layout with the nominated graphical designer who produces the print ready files.

These files are then scheduled for printing with the nominated printer. The Callbook Editor is responsible for obtaining quotations from any external organisations required during the process to be approved by the WIA Board.

Experience

The ideal candidate would possess:

- Project management experience
- Publications experience
- Ability to coordinate delivery of information from other sources, including other WIA volunteers
- A keen eye for detail
- Ability to edit documents and identify changes
- Excellent presentation and communication skills

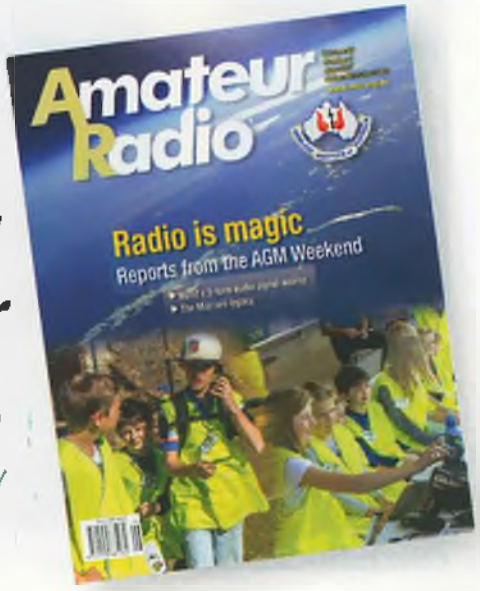
All applicants should have read and agree with the WIA Volunteer Charter.

To apply, please send your resume via email by to ***armag@wia.org.au***

Wanted

Articles and high quality photographs for *Amateur Radio* and *Callbook*.

See *http://www.wia.org.au/members/armag/contributing/*



Operating HF from a solar boat in the middle of Pumicestone Passage

John Titmuss VK4JWT

Photo 1: The solar powered boat. The Bimini top holds the 200 watt flexible solar panel.

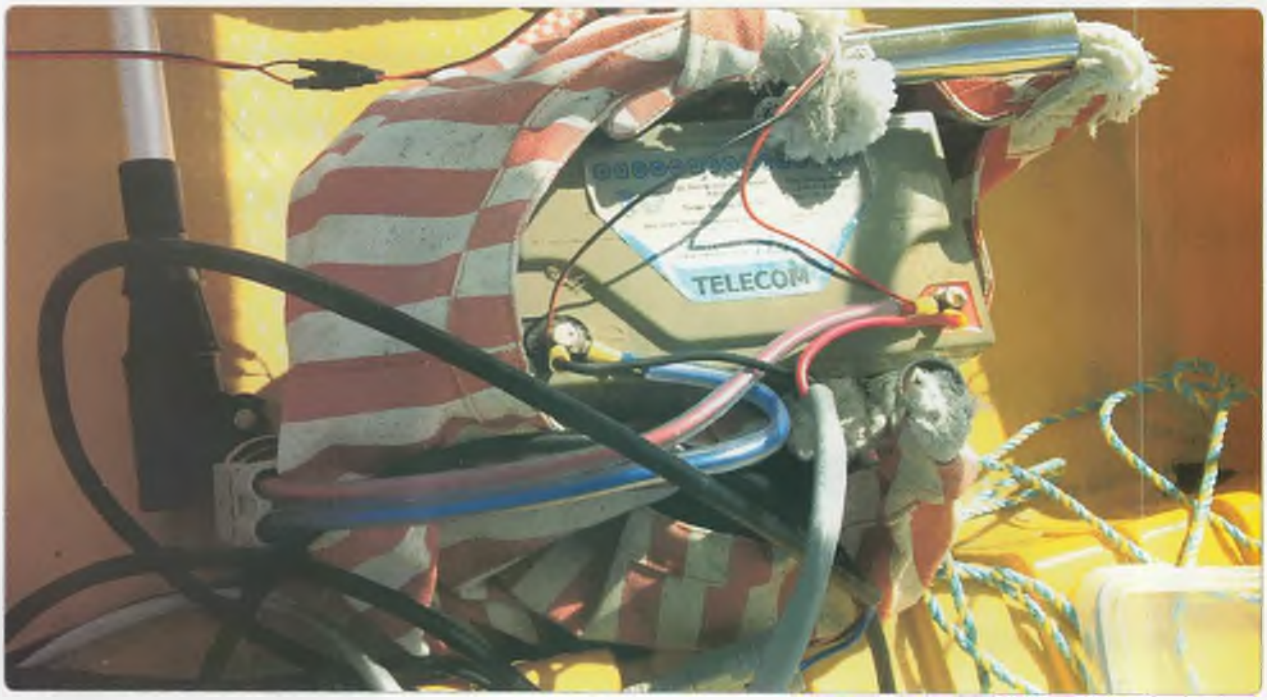


Photo 2: The charge regulator and electric motor.

Photo 3: The HF antenna mount at the bow.

Photo 4: The FX-9A transceiver and antenna matching unit sitting on the battery box.

Pumicestone Passage is the body of water that separates the mainland from beautiful Bribie Island, Queensland, my home QTH. Last weekend, I decided to go portable on a sandbank in the middle of the passage.

My two main passions in life (besides the XYL) are solar boating and radio. When I got the opportunity to combine the two, I couldn't wait to try it.

I had previously built a small solar powered boat; comprising of a 2.6 metre poly hull and Bimini top,

Photo 5: The author with transport and gear.

which I had cut to fit.

The solar panel charges the 50 amp hour battery, which powers the Watersnake 12 volt motor and the radio gear. The MPPT solar regulator charges the battery at around 10 amps, and supplies 10 amps to the motor when moving.

It all works very well and gets me along at a top speed of about 7 km/h.

The main attraction is boating free from the sun and no noise or pollution.

I attached the HF Helical whip to the front of the boat with a boot mount bracket and used a 10 metre long piece of wire as a counterpoise.

After setting up the little Chinese made FX-9A HF Transceiver, I was in business. I also used a little QRP antenna tuner that I had built (about $14.00 on eBay).

This is a great little radio; covers 10 bands including 60 m and puts out 10 watts high power and 5 watts low power. It is very small and just the thing for backpacking or solar boating!

After a few calls on 40 m, I made contact with Les VK2DSC, Dennis VK4SX and RobVK8RC. I decided to change bands to 30 m, which is usually very good at 10am and spoke to Grant in Orange, NSW who gave me a 5/6 signal and Warren VK4FWH in Townsville who gave me a whopping 5/9 signal report! Not bad for a solar powered 10 watts from a sandbank in the middle of the ocean!

I will definitely be taking my radio gear with me next weekend when I go solar boating!

Cheers,

John VK4JWT.

Hamads

FOR SALE – NSW

I have a Kenwood TS-2000 for sale in excellent condition with no mods and covers TX 160,80,40,30,20,15,12,10,6,2 and 70 cm.

Power is 100 watts output and it comes as a complete package with a GAP DX Antenna and a Diplexer which covers 80,40,30, 20,15,12,11,10, 6 and 2 meters.

Price $2,2.00.00 Firm.

Julian VK2FJCQ

Phone: 02 6377 1322 Mobile: 0457021137 Coolah.

FOR SALE – NSW

CTCSS Encoders. The Hunter Radio Group has produced another batch of CTCSS Encoders, 91.5 HZ-123 HZ Switchable, Crystal Locked, which fits most VHF/UHF Transceivers. Cost is $18.00 plus postage.

Rodney VK2CN. 0249446393 or *rprout@idi.net.au*

FOR SALE – VIC

Shack clean out: Yaesu FT-480R 2 m all mode transceiver with handbook, $200.

FT-780R 2 m all mode transceiver with handbook, $200.

FT-2900 R/4 2 m FM transceiver with handbook, never used, $300.

FT-480/4 FM transceiver with handbook, $250. FT-208 R2 2 m FM HH with handbook, $100.

Icom IC-730 HF transceiver with abnormal figure in display, $60.

Mirage 2 m linear amplifier with remote control and instructions, $200.

All prices as quotes or the lot for $1000.

Call Brewster on 03 9527 2661 after 6 p.m. and before 10 p.m. If no answer, leave a message.

FOR SALE – VIC

Three used antennas: Hy-Gain TH3JR Yagi three bands (10, 15, 20 metres) $100.00.

Cushcraft R5 Vertical five band (10 – 20 metres) $200.00 and Butternut HF6V-X Vertical (10 – 80 metres) with 160 metre adaptor $200.00.

Handbooks provided. Buyer to collect and take away.

Phone (03) 9836 0151, VK3BJN - QTHR. Many thanks, Charles R. Welch, Camberwell 3124.

WANTED TO BUY – VIC

Wanted a working VK3XDK 10 GHz Transverter (version 2), as featured in *Amateur Radio* magazine (December 2013), that may be surplus post upgrading to another transverter or have just lost interest in.

Reply to Phil VK2JDL at *vk2jdl@wia.org.au* or 0439 130 403

MISSING – SA

PRESUMED STOLEN TRANSCEIVER

Defective Barrett SB950 transceiver removed from my workshop store. Serial number 95201835.

Remote head and leads were with transceiver for repair. Radio faulty when taken.

Fault: radio was NO TRANSMIT and diagnosis had shown the PA/Driver fuses to be blown with charring / arcing during the fuse link blow-out.

Unit was last programmed in 2015 for VKS737 and amateur radio.

The programming reflects this. Richard (Rik) A. Thiel VK5MU.

Contributions to *Amateur Radio*

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

Your contribution and feedback is welcomed.

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

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

About Hamads

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

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

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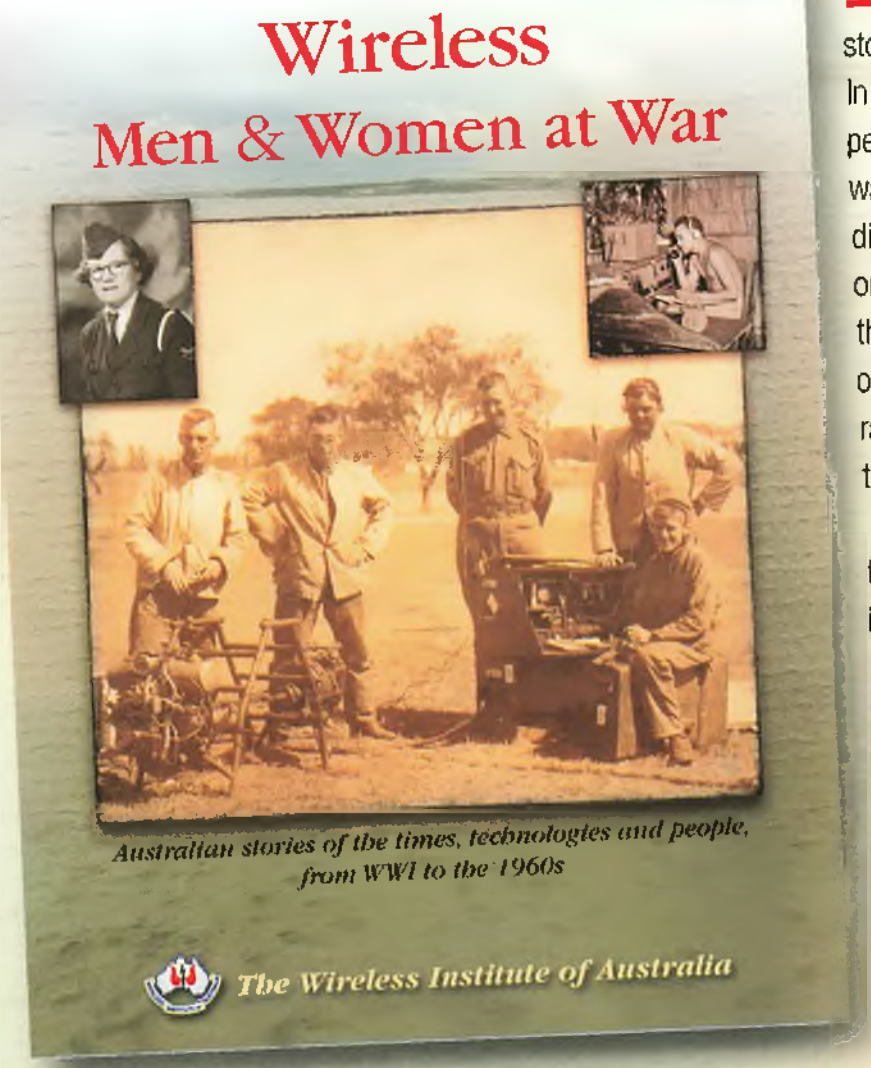
VICTORIAN CONSUMER AFFAIRS ACT
Advertisements with only a PO Box number address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

ADVERTISERS INDEX

Wireless Men & Women at War



REAL LIFE STORIES of unusual people in unusual situations. Many of these war-time stories have never been told before. In many ways, most of these 'unusual people' lived an ordinary life – that was until they found themselves in difficult situations, often far from home on the other side of the world. It was then that they bloomed and made use of their hidden talents developed as radio amateurs. This book contains their stories.

In the eyes of the general public today, more than likely these individuals would be thought of as 'electrical nerds' but it was the skills they possessed, mainly through 'self-education' and 'hands-on experiences', skills which allowed them to step outside their normal responsibilities and make their substantive and often unusual contributions to their colleagues and country.

Young men and women who behind the scenes, were able to successfully use their developed skills in such a way as to make a difference – sometimes a big difference brought about largely by their interest in private radio communications.

Visit the WIA Bookshop at:

www.wia.org.au/members/bookshop/page_data.php?id=258

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Introducing the IC-7300 Transceiver.

The unit features a high quality real-time spectrum scope and features top level performance in resolution, sweep speed and dynamic range. The IC-7300 is fitted with a new RF direct sampling system, the latest high performance technology seen in Software Defined Radios.

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