

Amateur Radio

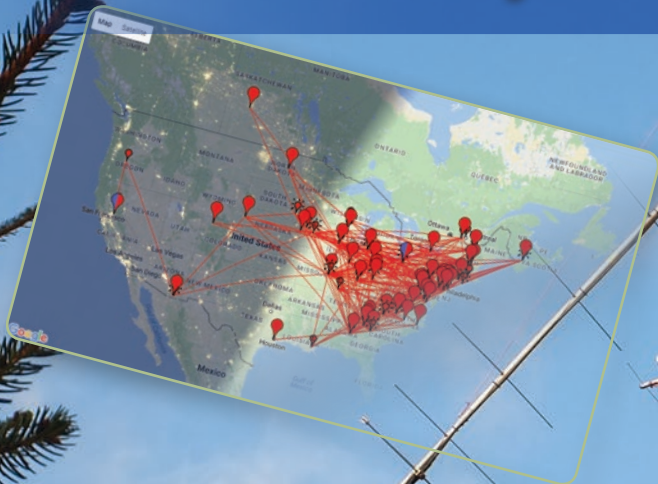
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- Australis OSCAR 5 revisited
- Meeting the challenges

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Contributions to Amateur Radio



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

Technical

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This month's cover:

The WSJT-X software provides several Machine
Generated Modes each tailored to particular
conditions. Part 1 outlines the operating
capabilities of the software. The main photo
shows the 12-element Yagi antenna used by
DL1VPL to complete DXCC on 144 MHz.
The story commences on page 14.
Main photo by Thomas Hartig DL1VPL.

Back Issues

Back issues are available directly from the WIA National Office
(until stocks are exhausted), at \$8.00 each (including postage
within Australia) to members.

Photostat copies

If back issues are unavailable, photocopies of articles are
available to members at \$2.50 each (plus an additional \$2 for
each additional issue in which the article appears).

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The opinions expressed in this publication do not necessarily
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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

More portable radio fun

I spent the first few days of February travelling and participating in the now annual SOTA Hotham Summit weekend. I left home early on Thursday afternoon. After a stop for a quick catch up with friends in Bairnsdale, I travelled to a SOTA summit in the hills to the north for a dose of radio activity and some exercise before heading towards Swifts Creek and then Omeo. On Friday, I activated three summits before returning to Omeo to purchase some supplies prior to heading up to Hotham. You can find summary of the SOTA activities on Saturday, Sunday and Monday in this month's *SOTA and Parks* column. Several of the participants have also posted accounts to their personal blogs.

I then spent Monday and Tuesday in northeast Victoria catching up with family prior to the trip home. During that drive, I completed a further five SOTA activations, including three summits that I had not previously visited and saw some spectacular terrain whilst travelling some tracks that were at times very rough.

A couple of weeks later saw the VK3 SOTA Conference held at MDRC, for another opportunity to talk about all things SOTA. The following day was the WANDARC Hamfest in Werribee where I caught up with many amateurs.

Contest column

Trent Sampson VK4TS has indicated that he can no longer supply a regular column focussing on Contesting. We therefore need a new columnist if the column is to continue. The task requires a little

thought and submitting material according to our production schedule. We can provide editorial assistance if needed. Anyone interested should send an Expression of Interest to the Editor using: editor@wia.org.au

Articles

Our supply of articles is dwindling. If you the reader wants to read articles about your hobby here in Australia written by locals, then we need more contributions from you and/or your colleagues. We need both Technical and General articles. We provide guidelines for authors on the WIA website: <http://www.wia.org.au/members/armag/contributing/> Material is best supplied in electronic form, with the text in a Word document and any images as jpg format of at least 1 MB. We can assist with technical drawings if needed.

We always review all material, so do not expect your material to appear immediately. Some patience will be required. We attempt to publish material as quickly as possible, but must also attempt to produce a magazine which has a balance of material across several areas.

Death of Jim Linton VK3PC

It is sad to note the death of Jim Linton VK3PC in late February. A tribute is published elsewhere in the issue.

Continued on page 5



Board comment

David Ford VK4MZ

In February 2018 the WIA Board conducted a workshop with members of the WIA Strategy Advisory Committee to take a high-level, long-term view of the Institute. The workshop considered the core purpose of the WIA and the value engine that drives it.

The goal of the workshop was to form a draft statement of the WIA's core purpose. The statement is to be used as a model to be tested and considered by WIA members and the Amateur Radio community. A core purpose is:

- Inspiring
- Valid today, and 100+ years from now
- Expansive and thought provoking
- Helps identify what activities to do, and what not to do
- Authentic and brings pride to those that identify with it

The core purpose helps frame services, initiatives, and what the organisation will and won't do. It also helps identify what its shorter-term missions will be. The core purpose statement is extremely helpful in aligning efforts, across many people, to move towards a common goal pursuing what is at the heart of the WIA's identity.

There is some precedent. Within the WIA's existing constitution the objects of the WIA are stated as:

- to promote, advance and represent in any way it thinks fit Amateur Radio and the interests of Radio Amateurs, [...],
- to protect and enhance the privileges of Radio Amateurs,
- to encourage an awareness of the value of Amateur Radio,
- to educate and encourage potential Radio Amateurs,

- to represent Radio Amateurs both nationally and internationally, to provide services for Radio Amateurs and those interested in Amateur Radio, [...]

The workshop independently produced core purpose statements that were similar to the WIA's objects. Keeping in mind that the organisations core purpose statement is to operate to a timeline that will rarely be exhausted and will be an aspirational goal to stand the test of time, a key difference from the workshop was the definition of "Amateur Radio". Amateur Radio is a difficult definition to frame in a 100+ year time line. The core purpose needs to account for this shifting definition to assist the organisation to remain relevant. In the longer term Amateur Radio will look very different to what it is today and the WIA's strategy must support these changing times.

Arching back to previous models, to a time when Amateur Radio was in significant growth, the Amateur Radio community existed to promote experimentation with electronics and technology. The first steps in the hobby involved building simple circuits that did not necessarily involve radio and those first steps built and cultivated curiosity towards more complex pursuits. Amateur Radio was the pinnacle of experimentation and an end-goal rather than its current position as the initial landing point in the Hobby. Having the first step in the hobby as becoming licenced causes a high initial hurdle for new entrants. The progression through building simple circuits to more complex pursuits

came in a time when learning about electronics was a key first stepping stone in many people's career. Today, and tomorrow, that environment is different. Technology careers are moving towards systems engineering, outsource management and away from component engineering. These points were informed and supported by the recent WIA member and community survey. A thought to ponder, in a 100+ year time frame is Amateur Radio better being considered as "technology experimentation"?

These preliminary discussions highlight missions that the WIA may need to maintain going into the future, such as:

- Aiding the hobby electronics community to prosper
- Reducing the barriers to entry into the hobby and reducing the contributors to abandoning the hobby.
- Setting Amateur Radio as a pinnacle technology within the hobby electronics community. This includes supporting the allocation of resources to Amateur Radio operators, supporting market innovators, and celebrating pioneers.

These potentially need to be supported by core competencies such as:

- As it is unlikely that the WIA will have the resources to have a large team of full time employees, coordinate volunteers in a manner that demonstrates respect, identifies common goals, recognises achievements, builds team

Continued on page 5

WIA moves towards 24/7 ticketing system

We live in an age of digital transformation where organisations providing 24x7 self-service digital delivery to all help to improve service levels.

Over the past few months the WIA office team have been trialling an enquiry, complaint and request management system to provide members with better service and status updates: a system that will also enable self-service, 24x7 via an online portal. This means you can check the details of your WIA enquiry or respond to clarifications 24 hours a day, seven days a week without needing to wait for when you can call the office.

After successful initial trials, a broader trial is now underway where selected WIA enquiries and requests will be managed in the new system. As a member, if your enquiry is selected as a trial case, it will mean you will be sent automatic email updates, and a link to your enquiry so that you can manage your enquiry 24x7 via the website. Now, this doesn't mean that the office hours are changing, or that the phones will have any less support. The offices contact methods are not being reduced, rather they are being expanded. Privacy and security is important to the WIA and depending on the type of enquiry only relevant staff or volunteers will be able to see the details of your enquiry.

Also, we are aware that not all members have reliable access to the internet, so we will continue to provide services in a way that means you will not have to use the new system if you can't, instead it will be used to compliment your experience if you do have access. WIA staff and WIA volunteers will all now have a better understanding of how enquiries and requests are progressing. It will also highlight common queries or issues giving

us an opportunity to address them in a broader sense. In summary, it will help the WIA deliver a better service.

Thanks go to Aidan Mountford VK4APM, Petra and Bruce for making this all happen. Feedback is, of course, welcome.

New Policy for WIA QSL Bureau Operations

Late last year, the WIA QSL Card Committee developed a policy paper which updated the manner in which the WIA QSL Bureaus operate. That paper was submitted to the WIA Board for their consideration at the December Board meeting. The paper was ultimately approved by the Board at that meeting, and is now the agreed policy for the WIA Bureau operations.

A revised description of the QSL Bureau operations, reflecting the changes contained within the Policy, is now included on the website (see 'WIA QSL Services' under the 'For Members' dropdown menu). The web page includes the full policy information.

The QSL Card Committee is preparing a PowerPoint presentation pack that can be utilised by Radio Clubs to help publicise the changes to both members and non-members of the WIA.

The main changes introduced within the policy include:

- Any member proposing to use a Special Event or DXpedition call, and wishing to use the Outwards Bureau at no cost, will need to gain approval from the Board.
- There are stricter rules for non-adherence to the sorting of cards sent to the Outwards Bureau
- There are stricter rules for non-adherence to the recommended QSL card dimensions for cards sent to the Outwards Bureau.
- The WIA will only pay for one delivery per year of inwards

cards to a member's QTH.

- Inwards Cards will be distributed to State and Territory Bureaus at least every 3 months.
- As per IARU guidelines, the Bureau will make incoming cards available to non-members. This will be done strictly at the convenience of the Inwards Bureau manager, and may include a cost recovery aspect.

All members currently utilising the WIA QSL Bureau, or intending to utilise this facility, should refer to the revised description on our website.

WIA Response - ACMA Five Year Outlook

The Wireless Institute of Australia board and its Spectrum Strategy Committee (SSC) recently held a workshop to review the submission to the 5-year spectrum outlook. This ACMA planning tool is taken seriously by the WIA in identifying the spectrum related matters for the amateur service and amateur satellite service that are expected to require ACMA resource allocation over the next five years. It draws on the IARU decisions and domestic matters concerning the spectrum.

WIA President Justin Giles-Clark VK7TW says the workshop went through the submission item by item, but concluded with minimal change from the draft from the SSC. The WIA submission has now been sent to the ACMA. Justin VK7TW says the WIA is also about to submit a comprehensive evidence-based submission to the ACMA recommending changes to the Licence Conditions (LCD).

The WIA suggestions will soon appear on the WIA website, and we expect the ACMA will release a public discussion paper on the proposed changes later this year.

AX prefix use

The Australian Communications and Media Authority (ACMA)

automatically allows all radio amateurs to substitute their normal VK callsign prefix with the letters AX, every Australia Day, ANZAC Day and World Telecommunication Day.

Whilst Australia Day has passed for this year, ANZAC Day will be on 25 April and World Telecommunication Day is 17 May.

The AX prefix is popular among

prefix hunters and others. The use of a special QSL card is encouraged by the Wireless Institute of Australia.



Board comment

Continued from page 3

spirit, provides development and training opportunities, and is accommodating of a wide range of skills and availability.

- Being able to coordinate initiatives so that they do not degrade the effectiveness of the institute.
- Maintain a high level of project execution capability in an environment where inputs and constraints are highly variable.
- Ability to collect, coordinate and collate outputs from consultation processes with the community in a short amount of time.
- An ability to communicate effectively across a wide range of channels (print, web, mobile, radio and so-on) in a manner that is engaging and targeted to a wide range of audience segments.
- Marketing and the promotion of developments to support the enthusiasm of hobbyist technologists.
- Support social interaction and an effective community. Including supporting clubs, events and virtual gatherings.
- Hobbies are competing with mostly entertainment products so help people continue to find the fun in the hobby.

To support these core competencies there are shorter-term tactical steps required, such as:

- Leverage common access to resources, content and common branding. Align media, communication and the different communication methods to engage members of the community.
- Move closer to a customer centric perspective. For services like AR magazine this means moving advertising and readership closer to the product producers and owners rather than the historic separation that has been in place. For other services this means leveraging better consultation methods, quantitative and qualitative understanding of community interactions (the new ticketing system helps here) and building more service agility.
- Working with, and lobbying regulators for resources and authorisation to operate (such as bandwidth, modes and power).
- Stepwise and continuous improvement of the WIA's application of its limited resources.
- Review, update and capture media and communication

channels for the purposes of engaging members of the community.

- Maintain and nourish the steps between electronic experimentation and Amateur Radio. This is where initiatives such as the WIA associate program assist.
- Promote and support hobby electronics along with component and system engineering.
- Supporting learning, assessment and exploration.
- Promote the positive activities of the amateur radio community to the public.

These are just a few of many possible outcomes from a strategic process. The first step is in defining the WIA's core purpose as an anchor point. The Board enjoyed the workshop and we look forward to opening the discussion through a community consultation soon. Ultimately these discussions will help us form a strategy that will be robust and see the WIA and the hobby into an exciting future and period of uplift.

On behalf of your WIA Board,
David Ford VK4MZ,
WIA Vice President.



Editorial

Continued from page 2

WIA Radio and Electronics Convention and AGM

Most readers will have by now seen the basic details for the forthcoming WIA Radio and Electronics Convention and AGM to be held in mid-May at the Gold Coast. Details

are available at the WIA website. It is important that those considering attending should register as soon as possible.

These events are a great opportunity to catch up with old friends and to make new

friendships, plus it is one of the few opportunities to actively participate in the democratic processes of your organisation.

Until next issue,
Cheers,
Peter VK3PF



50 years old and still circulating!

Australis-OSCAR 5 revisited, and a book about it launched

Peter Wolfenden VK3RV - WIA Historian



Photo 1: Australis OSCAR launch 23 January 1970 on board a Thor/Delta rocket. AR March 1970.

Preamble

From the earliest days of “wireless”, radio amateurs or “hams” have been noted for their passion for experimentation. They made many major contributions to the new science of electronics. Today they are still at it.

In the early 1960s a group of West Coast U.S. amateurs designed and built the first amateur experimental communications satellite and persuaded the U.S. Air Force to launch it for them as a “hitch-hiker” on a regular space vehicle. They called their satellite OSCAR for Orbiting Satellite Carrying Amateur Radio.

Construction of subsequent amateur communication satellites involved amateurs in other countries as well, notably Australia, Canada, and Germany, so the program has been truly international. The OSCAR

group in California was joined by an East Coast group which named itself the Radio Amateur Satellite Corporation or AMSAT (1).

OSCAR 5 was unique in several ways. Most important, it was an international effort, the package having been designed and built by students at Melbourne University in Australia, as indicated by its full name, Australis-OSCAR 5.... (2).

Introduction

The World’s first satellite, ‘Sputnik’, was launched by the Soviet Union in October 1957, operating on air for 21 days, before deorbiting.

It was about 10 years later, on 1 June 1967 and just over 50 years ago, that Australia’s first ‘home grown’ satellite was taken on board a Boeing 707 in Melbourne, by three young university students, bound for the USA and launching into space. However, this did not take place until January 1970 when NASA finally launched it from the Vandenberg Air Force Base.

Unfortunately, for all concerned with the Australis package, another Australian satellite beat them into orbit. This was WRESAT, also an Australian designed and hurriedly built satellite, the design of

which apparently did not commence until early 1967!

WRESAT (Weapons Research Establishment Satellite) was launched from Woomera in South Australia by the WRE on 29 November 1967.

However, **there is no doubt**, that the first Australian designed and built satellite package was Australis OSCAR 5. Further, it was the product of a keen group of enthusiasts from the University of Melbourne, together with a number of radio amateurs, with the WIA able to provide through its international and local networks, some assistance, finance, and guidance. AO-5 was the first amateur satellite built outside of America and the first launched since OSCAR 4 in 1965.

Although the satellite was in America and available for launch in mid-1967, a suitable launch vehicle was not available until late 1969, so it sat around in storage for some time. When final pre-launch tests were conducted, a few problems appeared in the 29.450 MHz beacon command



Photo 2: Australis OSCAR 5 book by Dr Owen Mace.

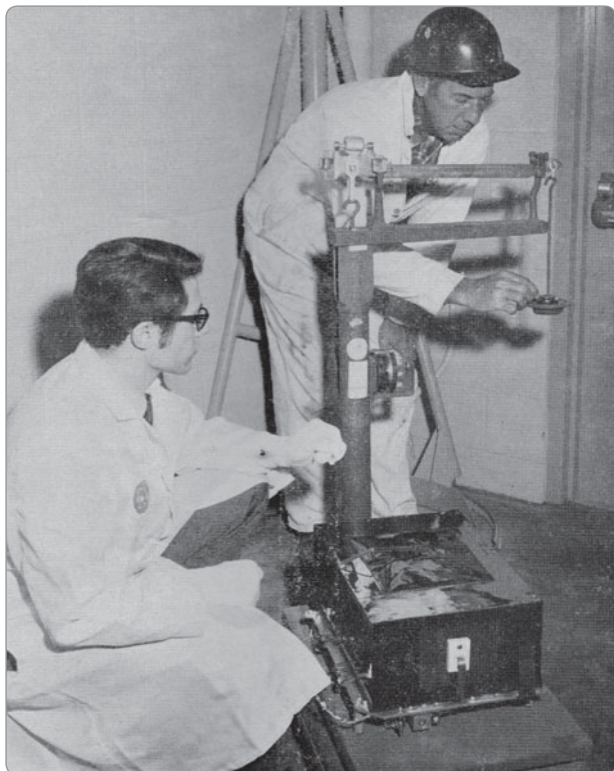


Photo 3: Jan King K8VTR weighing in Australis OSCAR 5, AR March 1970, p7.

receiver operating on 147.850 MHz, which were largely overcome.

Final pre-launch tests and adjustments on the transmitters revealed that the 29.450 MHz transmitter had an output of 180 mW and the 144.050 MHz transmitter, 120 mW (although this conflicts with another report which stated power levels were 250 and 50 mW respectively) and entirely powered from its chemical cell batteries – no solar panels then (3).

Following these and other tests, all was in readiness for launch by a Thor/Delta rocket as a secondary payload to a TIROS weather satellite (4).

Amateur Radio magazine for January 1970, quoting from a letter supplied by the Radio Amateur Satellite Corporation (AMSAT), reported that: *Australis Oscar 5 was scheduled for launch on 9th January and that details of when the satellite could be heard in each State, may be obtained from the State OSCAR co-ordinators or from the Divisional (State) WIA broadcasts.*

Any amateurs and SWLs intending to track the satellite were encouraged to contact their State co-ordinator in order to obtain telemetry reporting forms.

The article went on:

If the AO-5 satellite goes into orbit as planned, it will be the fifth Amateur Radio Satellite put into space. OACARS 1 to 4 were built by radio amateurs in California. Australis Oscar 5 was built in Australia and is, therefore, the first foreign-built amateur radio satellite.

Jaycar

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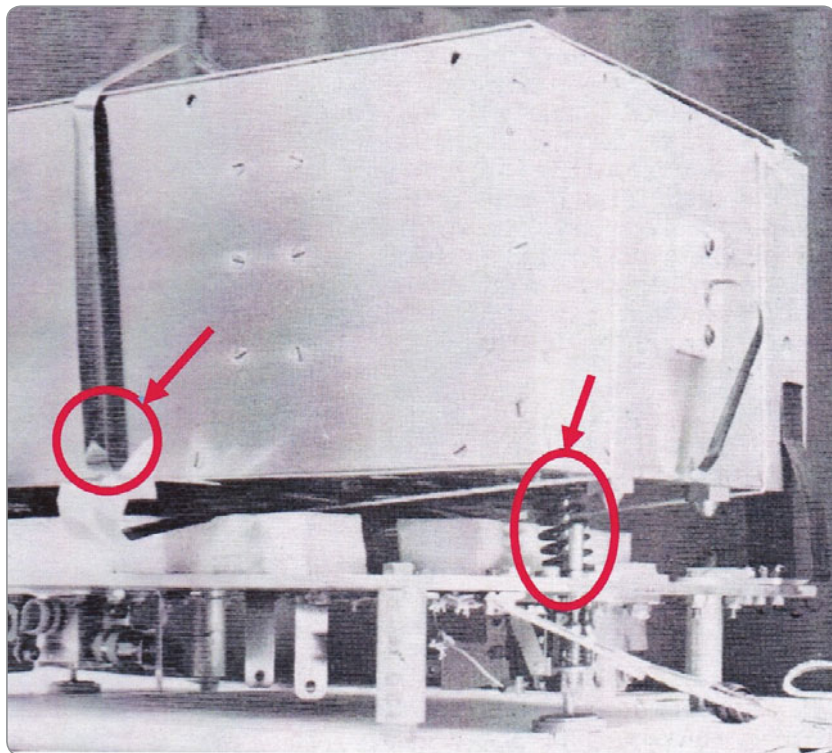


Photo 4: Measuring tape aerals and separation springs (circled). *AR* December 1969.

A succinct, contemporary report

Bill Rice VK3ABP was the initial Victorian Co-ordinator for tracking and long-time *Amateur Radio* magazine editor. In an archival recording made by Bill in January 1970, he said:

'Although it was built by the Melbourne University Astronautical Society during 1966 and taken to the United States in mid-1967, it was not launched until 23rd January 1970, following the formation of the AMSAT organisation which took over the responsibilities of the by then defunct OSCAR organisation.

The launch was from the Western Test Range, Vandenberg, California, by a Thor/Delta vehicle which also placed a weather satellite, TIROS-M, (later ITOS-1) into a near polar orbit, at about 900 miles (1300Km) height.

OSCAR 5 had no translator facility, but did carry the most elaborate telemetry system of any amateur satellite to that time. Telemetry was transmitted on

144.05 MHz and also on 29.45 MHz. The latter transmitter could be commanded off and on by ground stations and this was done on several occasions, mostly by VK3ZBJ who had built the command receiver for the satellite.

The eight consecutive 6.5 second beacon channels carried tones, signifying battery current, battery voltage, internal temperature and skin temperature, these alternated with horizon sensors for the X, Y, and Z axes the tones from these being at different frequencies depending on whether the sensor was seeing Earth or space. The eighth channel carried the familiar 'HI' identification.

Australis OSCAR 5 operated successfully up to mid-February 1970, when it's batteries failed, although the 29.45 MHz transmitter continued to radiate carrier only for a week or two thereafter.' (5)

Satellite and Space reports published in *AR*

Between 1969 and 1970, Space

activities occupied the minds of many Australian amateurs and numerous articles appeared in the Institute's journal *Amateur Radio* and elsewhere. Many articles in *AR* of course reflected the activities surrounding Australia OSCAR 5, its construction, pre-launch activities and information about AO-5 in space. Some of these were written by those directly involved with the project in Australia, but others were supplied by people such as George Jacobs W3ASK, Space Communications Editor for *CQ* magazine. He wrote an article entitled *Australis OSCAR 5: It's in Orbit* which was published in March 1970 *AR*.

At the end of his article, George listed some Firsts achieved by AO-5 including:

- First Amateur radio satellite to be launched by NASA.
- First satellite to operate on the 10 metre band, allowing more amateurs to monitor it.
- As a piggy-back to TIROS-M, Oscar 5 was the first satellite to be launched by a two-stage Delta-N, strap-on, solid-fuel, booster rocket for additional thrust at lift-off.
- First Radio Amateur satellite to be command controlled from the ground.
- First Amateur satellite to contain a magnetic self-stabilising system (MASS) to reduce spin, roll and signal fading.

To this list of "firsts" we can add:

- First Satellite package designed and built in Australia.
- According to The Satellite Experimenter's Handbook (ARRL), the demonstration of command capabilities was to prove very important in obtaining FCC licences for future amateur satellite missions.

Eric Jamieson VK5LP reported in his *AR* VHF Column in for April 1970 that:

'The 144 MHz beacon on OSCAR 5 has finally gone into silence after operating so efficiently for several

weeks and giving more amateurs the thrill of hearing a signal from space than any former orbiting package has done. The signal was so strong on occasions that even rapid tuning of the band would make anyone stop and listen.....All in all, however, a triumph of engineering for all concerned in the Project and I feel sure that I speak for the Amateur fraternity when I say: A job well done.'

The *Australis* OSCAR 5 book launch

On Wednesday 20 September 2017, invited guests, including representatives of the WIA, together with dignitaries and most of the students involved in the original project, assembled in the Jim Potter Room of the University's Old Physics Building, for the launch of a new book *Australis* OSCAR 5, written by Dr Owen Mace, one of the original students involved in *Australis* OSCAR Project.

The Master of Ceremonies for the evening was Emeritus Professor Rod. Tucker, one of the original team and at the time, also a radio amateur. He introduced Richard Tonkin who was then studying law and was the oldest of the youthful Melbourne University Astronautical Society enthusiasts. Richard was one of the drivers of the satellite project and he provided background information to the assembled guests about the team and the project itself: Richard commenced his address by saying:

'Australis in truth was part of our youth! We were a group of very young; I was 22 and considered the old man of the team. We were Science, Engineering and one Law student, myself and a talented amateur, Les Jenkins, who happened to come together to try to build a satellite, to try to get it launched into space - to have it work...'

The M.C. then introduced the author, Owen Mace. Owen studied Electrical Engineering (Electronic Engineering) and was another key player in the project. He explained how *Australis* OSCAR 5 was 'born' in the building in which we were all seated and gave some background to the M.U.A.S. together with a few humorous incidents during the satellites gestation period. Owen remarked that just as the satellite itself was a team effort, so was the preparation of the book. He concluded by wishing the students and staff of the current Melbourne University Space Program, good luck!

The Dean of Engineering Iven Mareels then officially launched the book to acclamation (6).

The Book itself – *AUSTRALIS* OSCAR 5 by Dr Owen Mace

This is a high quality book of 195 pages, published by ATF Press in Adelaide, available as a paperback, hard-back and in various electronic formats. It is a clean, well designed and laid out book and contains many photographs (most in colour) of individual satellite component boards, views of the assembled OSCAR



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Photo 6: Book launch team. Back row: L to R: Owen Mace, Peter Hammer, Rod Tucker. Front row: Paul Dunn and Richard Tonkin holding the book. (Courtesy of Dr. Peter Hammer).

including the collapsible tape-measure aerials together with various testing procedures.

The book contains 13 chapters which cover many of the practical aspects associated with the project, from what triggered the desire of the MU students to 'enter the space race' to the physical aspects requiring detailed attention such as 'the sophisticated' environmental testing, carried out in a Melbourne house kitchen, and information about the MUAS team and how they successfully covered their expenses for transporting the satellite to America.

In addition there are five appendices covering topics from Australis OSCAR 5, including the original Users' Guide, to a postulated conspiracy theory - all good books need a conspiracy theory!

Although this story of endeavour is from another time, it is rightly about how this team of enthusiastic, young university students took up the baton of their driven desire. It is also their story about success against many odds. No doubt this was a far reaching and now, in many ways, an Australian 'folk-law' electronics project! The book is a 'good read'.

You can purchase a copy of this well produced book, from Adelaide Publisher, ATF Press. A paperback version (ISBN: 9781925309805) costs \$50 + pack and post. Go to: www.atfpress.com

WIA Historian's comments and requests

During the mid-1960s, I was also a young engineering student (not MU) and a member of the WIA

Victorian VHF Group. I can well remember the Australis project being discussed at our meetings at the old Victorian WIA rooms in Victoria Parade, East Melbourne and there, meeting members of the Melbourne University team who were trying to sell us the "good word"! Within the VHF Group, there were many enthusiastic amateurs - mostly "Z calls" (VHF operators), but there were also the doubters and my recollection is that many of those were the newly dedicated FM users who had recently discovered the availability of cheap, second-hand Taxi radios and were more intent on trying to establish nets, transponders and repeaters! The thought of a future space based "repeater" was a step too far for many. Not so the Melbourne University team who

amateur radio

Vol. 37, No. 12
DECEMBER, 1969
Published at 10 P.M. Melbourne, for
membership by post at a minimum
PRICE 30 CENTS

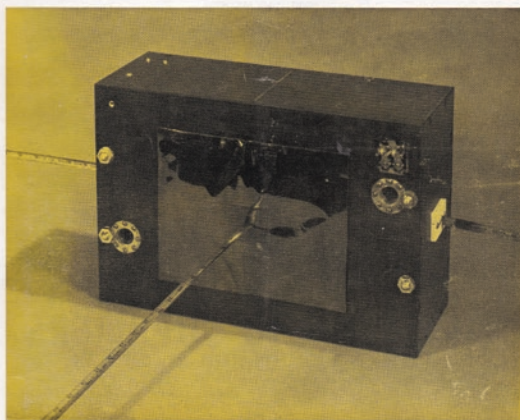


Photo 5: Completed Australis Satellite, AR Cover December 1969.

remained convinced that they were onto something worthwhile and that Space was the future!

As a matter of interest, many of the MUAS team held amateur licences at the time: Rod. Tucker was VK3AIE, Peter Hammer VK3ZPI, Paul Dunn VK3ZPD and Owen also held a call sign for a short period, but it has been 'lost in time'! In America, key man, Jan King held K8VTR, later taking out a Queensland call sign, VK4GEY.

We are also aware that finally, many Australian amateurs were involved in some way with AO-5, a few helping on the design side, others associated with command and many with tracking it during its six week life.

Local Co-ordinators were:
NSW, A. Swinton VK2AAK, (later P. Healy VK2APQ and the WIA NSW, VHF and TV Group), Victoria, initially W. Rice VK3ABP, (later, D. Graham VK3BAC), Queensland, L. Blagborough VK4ZGL, South Australia, B. Tideman VK5TN, West Australia, D. Graham VK6HK, (later K. Bicknell VK6ZCB), Tasmania,

P. Frith VK7PF, Japan, Kenso Sano JA1EC, Malaysia, C. Richards 9M2CR, and New Zealand, B. Rowlings ZL1WB.

Others involved at some stage with the OSCAR work in Australia, (including Australis-B), were: David Hunt VK3ZDH, Rick Matthews VK5ZFH (now VK5BGN), Ed. Schoell, VK5ZTS (later VK3BDS), Cyril Edmonds VK3AEE.

• We know there were others, but details have been lost in time. If you can help in this respect, we would be really pleased to receive any

information.

- There are but a few, extant AO-5 telemetry recordings. The WIA has a couple of short tape recordings which have now been digitised. Again, if you can help in this regard, both the WIA and Dr. Mace would be interested.

More information about Australis OSCAR 5 and other satellites

If you are interested in obtaining more information about the activities surrounding Australis OSCAR 5, *Amateur Radio* magazine is but one good source.

Here are some of the articles published over the years leading up to and following the launch:

Project Australis Report, VK-Keyer to change to HI-Keyer, AR November 1966, p21.

Project Australis Report, Successful balloon launching tests, AR May 1966, p14.

Project Australis, Progress report & technical details including Ground

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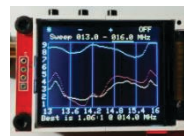
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Swan 500C- \$500
Drake T4XB - \$500
Drake R4B - \$450
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ICOM 701 - in orig box - \$465
Astatic D104 - \$90
Hallicrafters SR500 - \$650

VFO - ZL1CVD - Assembled \$98 plus P&P On order.

Support plans, AR, July 1966, p11.

Project Australis Newsletter, Problems caused shipment delay, AR, May 1967, p21.

Australia's First Orbiting Satellite, Details of satellite and delivery to USA complete with "Made in Australia" labels! AR August 1967, p3.

Australis Oscar A - Users' Guide, by Project team, AR, February 1968, p3.

Australis Oscar A - Users' Guide - Part 2, by Project team, AR March 1968, p10.

Using a Phase Comparator, by K. Bicknell VK6ZCB, AR April 1968, p12

Project Australis Hi-Bal. Australis II Balloon flight Mildura, by Les Jenkins VK3ZBJ, AR, May 1968, p14.

World Administrative Space Communications Conference, AR, December 1968, p16

New Amateur Satellite Group negotiating for Australis Launch, by Richard Tonkin, Chairman, Project Australis, AR July 1969, p25.

"Project Australis" now "WIA Project Australis", Fed. Comment, AR September 1969, p6.

Australis Oscar 5 Satellite ready for Launch, by Don Graham VK3BAC & Richard Tonkin, AR October 1969, p7.

Australis Oscar 5 Launch Imminent, AR November 1969, p19.

Australis Oscar 5 Progress Report, by Richard Tonkin, AR December 1969, p18.

Observations from Australis Oscar 5, by Jan. A King K8VTR, AR December 1969, p19.

Australis Oscar 5 Launch due on 8th January, AR January 1970, p25.

World Administrative Radio Communications Conference for Space Telecommunications, Federal Comment, by Michael Owen VK3KI, Federal President, AR, February 1970, p5.

Australis Oscar 5 orbits the Earth, by Richard Tonkin Chairman WIA Project Australis, AR March 1970, p7.

Australis Oscar 5: It's in Orbit, by George Jacobs W3ASK, Space Communications Editor, CQ Magazine, AR, March 1970, p8.

WIA Project Australis Report to 1970 Federal Council, AR April 1970 p17.

Australis Oscar 5 Interim Report, by Owen Mace, AR May 1970, p8.

AO-5 Experiment Results, by Jan A. King, K8VTR, AR May 1970, p9.

WIA's Preliminary Comments on the 1971 Space Conference, Federal Comment, AR July 1970, p4.

Oscar 6 – The Australian "Bit", by Les Jenkins VK3ZBJ, AR July 1970, p19.

Balloon Test for Translator, Australis News, AR August 1970, p23.

AMSAT Hosts Distinguished Guests, AR October 1970, p12

Space Conference – Geneva 1971, Federal Comment, AR November 1971, p2.

Equipment Recommended for Operation with Amsat-Oscar-B, AR December 1971, p14.

Of course there were also many articles about AO-5 in *Electronics*

Australia, *QST*, *CQ* and other amateur radio magazines.

Footnotes

Much of this article was drafted on 24 and 25 September 2017. On 25 September, the Australian Government announced that it was establishing an Australian National Space Agency which was promulgated at the International Astronautical Congress 2017 (IAC2017), then being held in Adelaide.

Evening television news about the announcement, included Australian Astronaut Dr Andy Thomas VK5MIR strongly supporting the proposal.

Meantime, current Melbourne University students are now well advanced to build a nanosatellite, with the WIA assisting in the IARU frequency and other coordination processes.

Through the Melbourne Space Program affiliated with Melbourne University, the nanosatellite is planned to be launched in late 2018 or early 2019.

WRESAT's battery lasted about five days and the satellite re-entered the Earth's atmosphere after about 42 days, over the Atlantic Ocean.

AO-5 remained operational for about six weeks and is still in orbit. It is expected to remain so for many thousands of years!

References

1. *Space Science Involvement*. ARRL, USA, 1974 Foreword.
2. *Space Science Involvement*, ARRL, USA 1974 p7.
3. *The Satellite Experimenter's Handbook*, ARRL, USA, 1984, p3.1
4. *Australis Oscar 5 Progress Report*, Richard Tonkin, AR December 1969, p18
5. *Voice recording*, Bill Rice VK3ABP, 1970 WIA Archival Recording.
6. *Voice recording of AO-5 Book Launch*, 2017, CD40, WIA Archival recording.

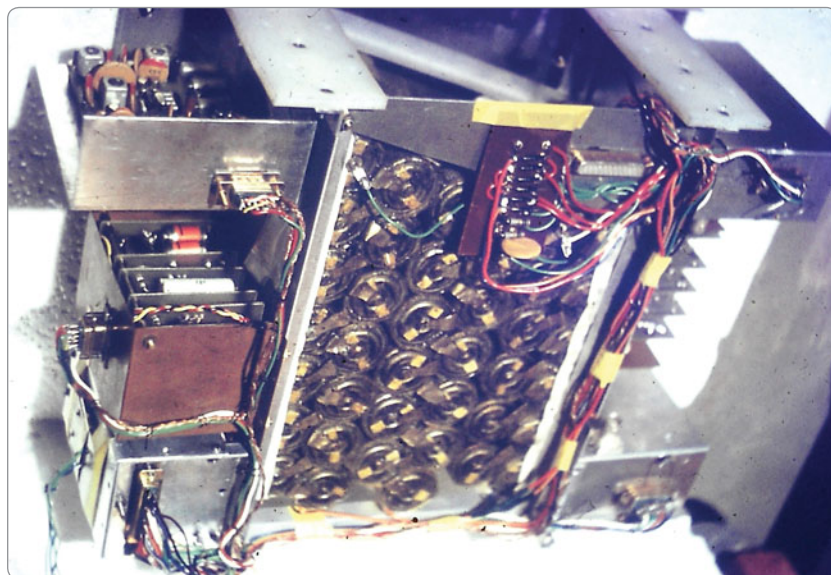


Photo 7: Interior of Australis assembly, note chemical battery bank in centre. (MUAS).



Notice of Annual General Meeting

Saturday 19 May 2018, Seaworld Resort, SeaWorld Drive, Main Beach QLD

Business

1. To receive and consider the Annual Financial Statements, Directors Report and Independent Auditors Report for the year ended 31 December 2017.
2. To announce the results of the election of Directors.
3. Vote on proposed changes to the Institute's Constitution. *Ed: See page 30 of this issue for details.*
4. To transact any other business that may be brought before the meeting in accordance with the Institute's Constitution.

Notice is hereby given that the Annual General Meeting of The Wireless Institute of Australia will be held at SeaWorld Resort, SeaWorld Dr, Main Beach Queensland on Saturday 19 May 2018 at 9.00 am.

By Order of the Board

Peter Clee VK8ZZ

Secretary

1 March 2018

Note:

A member is entitled to appoint one proxy only who must be another Member or a representative of another Member, and that proxy is entitled to vote on a show of hands or on a poll. The Instrument of Proxy is downloadable from the WIA web site (Information about the WIA), or upon written request to the National Office.

While non-members of The Wireless Institute of Australia are welcome to attend the Annual General Meeting and the Open Forum, only members are entitled to vote, and will be identified by a coloured card at the time of registration.

Members must register and receive identification cards and documents at the registration table which will be open outside the meeting room from 8.00 am. Section 250S of the Corporations Act provides that the chair of an AGM must allow reasonable opportunity for the members as a whole at the meeting to ask questions about or make comments on the management of the company.

Open Forum:

Immediately following the Annual General Meeting an Open Forum will be conducted. An additional detailed report will be submitted on behalf of the Board, and the Institute's co-ordinators and those responsible for particular aspects of the Institutes activities will be asked to submit a written report which will be available for those attending the forum. Any major issues affecting each area of responsibility will be identified and the author of each report who is present will be given the opportunity to briefly comment.

Members are encouraged to discuss any matter arising from any of the reports, and to raise any other matter affecting Amateur Radio or the Institute. This format will avoid any restriction arising from the requirement to give notice of business to be formally raised at the AGM.

Work the World with WSJT-X

Part 1: Operating Capabilities

Joe Taylor K1JT, Steve Franke K9AN and Bill Somerville G4WJS

Weak-signal digital modes enable reliable two-way contacts with signals that may be too weak to hear, or perhaps last only a tenth of a second. Here's an overview of what the remarkable protocols in WSJT-X can do, from those who designed them and developed the software.

One of the greatest pleasures in Amateur Radio is the thrill of establishing two-way communication with like-minded hobbyists far away, using one's own equipment. We enjoy making such contacts on our own, without recourse to commercial carriers or infrastructure. Since the 1930s, amateurs have known that world-wide communication is possible on the HF bands (at least some of the time) with power levels no more than 100 W and antennas as simple as half-wave dipoles. Twenty-first century digital communication techniques based on information theory make these things possible at much lower power levels, even with compromise antennas. Optimized methods of coding and modulation enable these and many other surprising feats – for example, DXCC using low power and an indoor antenna; two-way contacts on the 6- and 2-metre bands at any time over distances of 800-2100 km using reflections from ionized meteor trails; and Earth-Moon-Earth (“moonbounce”) contacts over world-wide distances, whenever the moon is up at both ends of a path.

Starting in 2001, the software program *WSJT* has facilitated making two-way contacts with extremely weak signals. The latest version of this open-source, multiple-author software package is called *WSJT-X*. It supports eight distinct protocols or modes, each optimized for a different frequency

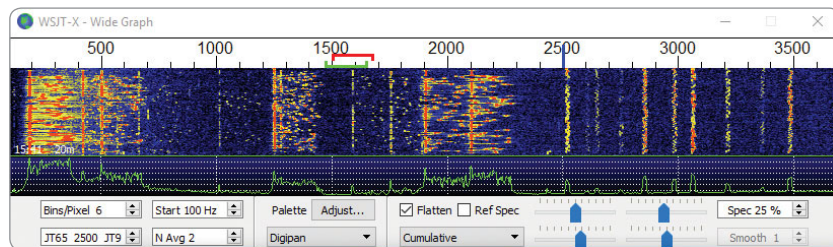


Figure 1: Waterfall spectrogram recorded by WSJT-X at 14.076 MHz on September 19, 2015. The frequency scale gives audio frequencies in Hz above the transceiver dial frequency. Of the 23 decodable signals in this one-minute recording, 8 are so weak that they would be inaudible to a human – even if they were the only signal in the passband.

range or type of propagation. These modes are not designed for long conversations or “rag chewing”; rather they concentrate on efficient exchange of such basic information as callsigns, Maidenhead grid locators, signal reports, and acknowledgments at the lowest possible signal-to-noise ratios, in the space of a few minutes. Short user messages are encoded into audio-frequency waveforms that can be transmitted and received with standard SSB transceivers. At the receiving end, recovered audio is converted back to digital samples and the software carries out a reverse transformation to decode the message. All transmissions are timed and synchronized with Coordinated Universal Time (UTC). Information required for a minimal valid QSO is typically exchanged and acknowledged after two or three successful transmissions from each station.

The first publicly available

version of *WSJT* (1) was designed for meteor scatter on the VHF bands. The software has been in continual development since 2001, with improved performance, added user-convenience features, and new operating modes. The current program version supports four modes that use one-minute transmit/receive (T/R) sequences. Each of these “slow” modes, JT4, JT9, JT65, and QRA64, uses a distinct coding and modulation scheme designed to optimize weak-signal communication on a particular type of propagation path, with high reliability and good bandwidth efficiency. The program also supports three “fast” modes, MSK144, JT9 (fast), and ISCAT, with selectable T/R sequence lengths of 5, 10, 15, or 30 s. The fast modes are optimized for meteor scatter, aircraft scatter, and other propagation types that yield short bursts of usable signal strength. Finally, *WSJT-X* supports a quasi-



Figure 2: PSK Reporter world map showing open propagation paths for spotted JT65 and JT9 signals over a one-hour interval around 1630 UTC on February 13, 2017. Different colours indicate signals on different bands: for example magenta is 80 m, blue 40 m, yellow 20 m, and brown 15 m.

beacon mode known as WSPR (2) (for “Weak Signal Propagation Reporter”), used for probing worldwide propagation conditions, and Echo mode for measuring reflections of your own signals from the moon.

Except for ISCAT, all protocols in *WSJT-X* include a strong form of forward error correction (FEC). This mathematically sophisticated method of encoding information ensures that with very high probability, messages displayed by the decoding software will be exactly those that were originally encoded. Among many other obvious advantages, strong FEC means that in nearly all circumstances received callsigns, grid locators, signal reports, and other information are highly reliable.

This article is not a “How To” guide for using *WSJT-X*; that purpose is best served by an extensive *WSJT-X User Guide* (3)

and an active and user-friendly online support forum (4). Instead, in Part 1 we provide highlights illustrating the sort of things that can be done with *WSJT-X*, and we briefly outline the station equipment required. In Part 2, “Codes, Modes, and Cooperative Software Development,” we explain how the various protocols work and offer some insight into how this all-volunteer software project has created an extremely capable, open-source, fun-to-use software package that is freely available (5)

to all radio amateurs — including its internal source code (6). We invite others with programming, documentation, testing, and related skills and interests to consider joining and participating in our

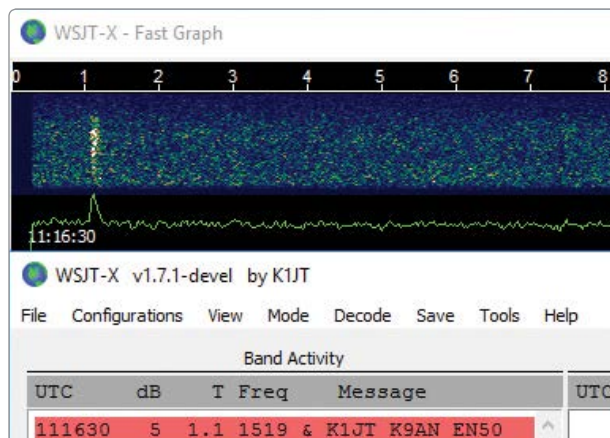


Figure 3: Screen shot showing small portions of the *WSJT-X* “Fast Graph” window and main window when running in MSK144 mode. The bright vertical stripe at time $t = 1.1$ s is a moderate strength meteor “ping” lasting about 70 ms. The decoded message shows that K9AN is calling K1JT.

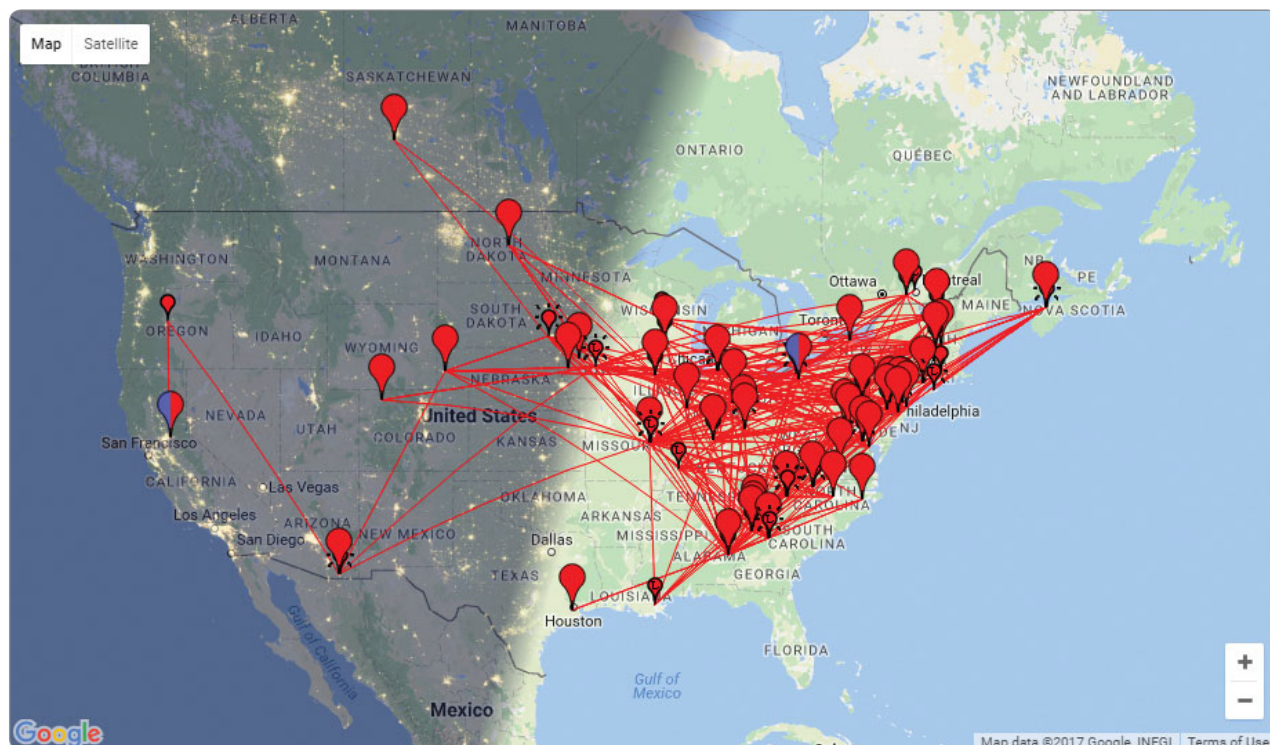


Figure 4: A map from PSK Reporter showing activity with MSK144 on a Saturday morning (Eastern US) in February.

ongoing development project.

Open sharing of our protocol specifications and source code has had the desirable and beneficial side effect of encouraging other programmers to create offshoot open-source programs such as *JT65-HF*, *JTDX*, and *MSHV*, which typically implement and support a small and targeted subset of the *WSJT-X* capabilities. At the time of writing we estimate there are roughly 5,000 users of *WSJT-X* active in a typical week, around the world. Almost as many more are using the *WSJT-X* modes and their encoding and decoding algorithms in one of the offshoot programs mentioned. This state of affairs is a fine example of good-ham-spirit cooperation in an age when state-of-the-art communication engineering usually involves software as well as hardware.

What *WSJT-X* Can Do DXing with Weak Signals

The oldest of our slow modes, JT65, was designed for Earth-Moon-Earth (EME) communication (7) and is

widely used for that purpose today. However, even greater usage of JT65 (and the newer mode JT9) can be found in spectral slices less than 4 kHz wide on bands from 160 through 10 metres. An example of the *WSJT-X* waterfall spectrogram for one such slice is shown in Figure 1, recorded on the 20 m band about 18 months ago. *WSJT-X* decoded thirteen JT65 signals in this arbitrarily chosen one-minute time segment. All but three of these signals overlap in frequency with one or more others, but nevertheless they are decodable without errors. Ten JT9 signals appear at the right side of the spectrogram, above 2500 Hz, and they are also decoded without errors. Evidently at least 23 error-free QSOs are taking place simultaneously in about 3.5 kHz of spectrum. More recently we have sometimes seen almost twice this number of decodable JT65 and JT9 signals in a single minute, in one of the 4 kHz slices.

JT65 and JT9 are the most widely used *WSJT-X* modes, and

probably the most popular machine-generated modes of any kind in amateur radio today. Thousands of QSOs are made with them every day, on amateur bands from MF through microwaves. Many amateurs have completed WAC, WAS, DXCC, and other awards using these modes, often with low power and simple antennas. Signals at least 10 dB below the threshold of audibility are generally decodable in all the *WSJT-X* slow modes. For most humans the audible threshold for such signals (and for Morse-coded CW) occurs at signal-to-noise ratios around -15 dB, measured in a reference bandwidth of 2500 Hz.

By informal convention, the JT65/JT9 sub-band slices begin at the upper-sideband dial frequencies listed in Table 1. If you're curious and have not previously used one of these modes, try downloading *WSJT-X* from the *WSJT Home Page* (5). Install the program on your shack computer or laptop, set your transceiver to upper-sideband mode at 7.076 or 14.076 MHz, turn

up the speaker audio, and start monitoring in JT65 mode using the computer microphone for audio input to *WSJT-X*. Be sure that your computer clock is set to the correct time, within a second or so. On an open band you should hear the musical tones of JT65 signals, starting at the top of each UTC minute, and see the signals on the waterfall display. Near the end of each minute, decoded messages should appear in the *WSJT-X* Band Activity window. The messages will probably look something like these examples:

CQ UX1LW KN89
W3DJ LU2BN 73
PY4SM CP6UA -15
PY1ME PY6JB R-07
K7PWL K1NOX RRR

Two-way contacts in any of the *WSJT-X* modes usually start in the traditional way, with someone answering another operator's CQ. Messages exchanged in a minimal contact then proceed roughly as follows:

1. CQ KA2ABC FN20
2. KA2ABC G8XYZ IO92
3. G8XYZ KA2ABC -17
4. KA2ABC G8XYZ R-21
5. G8XYZ KA2ABC RRR
6. KA2ABC G8XYZ 73

Standard messages in *WSJT-X* usually consist of two callsigns followed by a grid locator, signal report, acknowledgment, or 73; CQ or QRZ may be substituted for the first callsign. Signal reports are expressed as signal-to-noise ratios measured in a 2.5 kHz bandwidth. You can also send any free-text message containing letters, numbers, basic punctuation, and spaces up to a maximum of 13 characters – one might say, roughly equivalent to a “deci-Tweet.” (We already mentioned that these weak-signal modes are not designed for rag-chewing!) Consult the *WSJT-X User Guide* for additional details and limitations concerning message

structure — for example, how to accommodate compound callsigns like PJ7/KA2ABC.

Monitor Propagation Conditions

About a decade ago it was realized that since callsigns and locators are decoded very reliably in FEC-enhanced modes like JT65, and since the computers in most ham shacks are connected to the Internet, it should be possible to create “reverse beacon” networks that show where a signal is being copied and what world-wide propagation paths are open at the present time. The central hub of one of the most successful such networks was developed by Philip Gladstone, N1DQ, and is called *PSK Reporter* (8). *WSJT-X* optionally sends reception reports to its web site, where you will find a world map showing open propagation paths color-coded by frequency band. *PSK Reporter* can also display reported callsigns, locators, and other information, and can filter the displayed map by band, callsign, operating mode, and other criteria. In the background it carries out other tasks such as

statistical analysis and limited archival storage of data. More than a million reception reports are currently received by *PSK Reporter* every day, about 95% of which are for JT65 and JT9 signals. Figure 2 is an example screen shot showing open world-wide signal paths on the HF bands at a time when it was mid-morning in the central United States.

WSPR mode provides another popular tool for probing propagation conditions. In this case the relevant signals are not part of two-way conversations between amateurs, but rather one-way, low-power quasi-beacon transmissions received at another location and reported automatically to the *WSPRnet* web site (9). All WSPR-mode capabilities including coordinated band-hopping have now been incorporated in *WSJT-X*. See the earlier article about WSPR (2) and the *WSJT-X User Guide* for further details.

Meteor Scatter

About a year ago we started experimenting with MSK144, a new protocol designed explicitly for amateur meteor-scatter (MS)

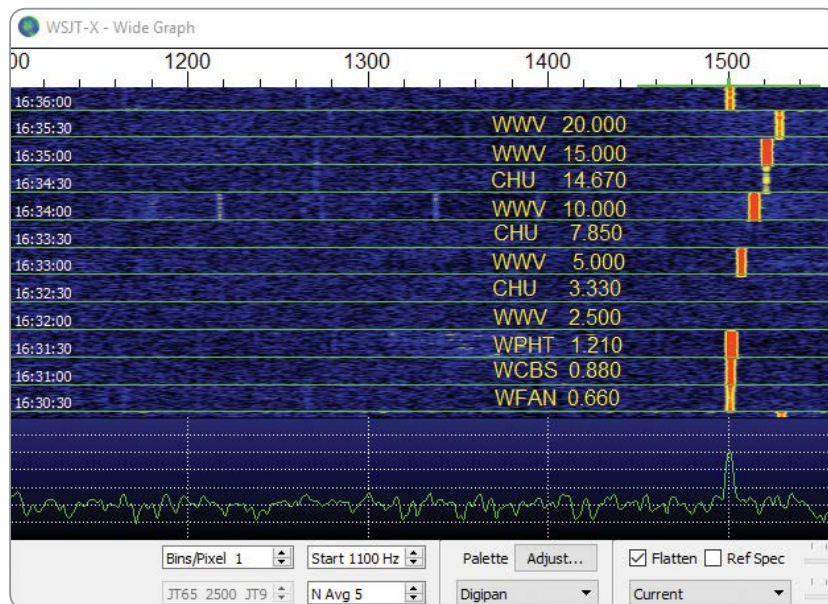


Figure 5: The *WSJT-X* frequency calibration procedure cycles through a list of AM signals with reliably known frequency, spending 30 seconds with the radio dial set 1500 Hz below each frequency. Station callsigns and frequencies in MHz have been added to the figure.



Photo 1: The 12-element Yagi antenna used by DL1VPL to complete DXCC on 144 MHz.

communication. MSK144 has rapidly become the dominant mode for MS contacts, world-wide. On the 6-metre band, with 100 W and a modest antenna — say a 3- or 4-element Yagi, a 2-element Moxon, or even a dipole or omni-directional halo up 6 metres or more — you can make contacts out to beyond 1600 kilometres at essentially any time. More power and a better antenna will make for more (and quicker) QSOs. On 2 metres a good starter station for MS is 100 W and a 10-element Yagi. Figure 3 shows what a short, moderate-strength meteor-induced “ping” looks like on the *WSJT-X* horizontally scrolling spectrogram.

As an example of what can be done, we note that many hundreds of MSK144 QSOs were made during the January 2017

VHF Sweepstakes. Most of these contacts yielded additional contest multipliers for the participating stations. Figure 4 provides another informative example: a pictorial summary of 50 MHz MSK144 activity on a Saturday morning in February 2017, taken from the *PSK Reporter* web site. February is generally a slow month for meteor-scatter activity, since it includes no major and few minor meteor-shower events. Sporadic meteors are present at nearly all times, and are sufficient for making MSK144 QSOs.

MSK144 is a “fast” mode with selectable sequence lengths. In North America and Europe T/R sequences of 15 s have become the default standard. The MSK144 decoder operates in real time, so you see decoded messages

immediately after each decodable ping. Pings as short as 0.1 s are usually decodable if the signal-to-noise ratio is 0 dB or higher. Weaker pings lasting half a second or longer can be decoded at signal-to-noise ratios as low as -8 dB. Such pings are barely audible, if at all.

The MSK144 protocol uses strong FEC and the same structured messages as the *WSJT-X* slow modes. The resulting nearly error-free decoding makes it possible to use automatic message sequencing: the program can keep track of where you are in the standard QSO sequence and automatically select the appropriate message to send for each transmission.

Meteors are several times more frequent around sunrise, so MS QSOs are quicker in the morning

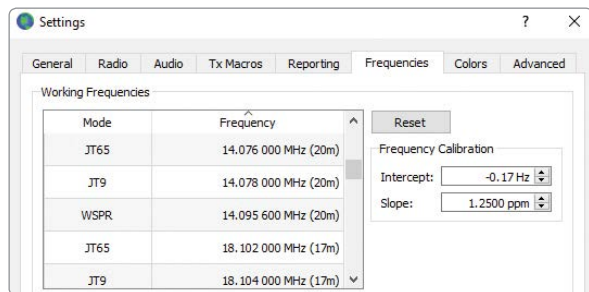


Figure 6: Upper portion of the Settings → Frequencies tab, showing the entry fields for frequency calibration of your radio.

than in afternoon or evening. The duration of “pings” is inversely proportional to the square of frequency, so usable pings at 144 MHz and higher bands are both shorter and less frequent than those at 50 MHz. Nevertheless, MS QSOs are still fairly easy at 144 MHz using MSK144, and with persistence they are possible at 222 and 432 MHz.

Moonbounce with modest equipment

The extremely high sensitivity of the slow modes in *WSJT-X* is particularly important on VHF and higher bands, especially on such difficult links as the Earth-Moon-Earth path. Simply stated, EME communication is at least “10 dB easier” with these modes than with CW or other traditional modes. The default mode for digital EME on the VHF and UHF bands is JT65. The new mode QRA64 is gaining popularity on these bands as well, and both JT4 and QRA64 are used for EME on the microwave bands 2.3 GHz and higher.

As one example of what can be done, we know of at least three amateurs with modest single-Yagi stations who have worked 100 or more different countries on the 2-metre band. Of course, most of the necessary contacts were made over the EME path. Photo 1 shows the 12-element Yagi used by Thomas Hartig DL1VPL, to complete his 2-metre DXCC. Another example of “doing the most with the least” is the 10 GHz portable EME setup of Rex Moncur

VK7MO, shown in Photo 2. Rex’s setup includes a 10 GHz transverter, a 50 W solid state power amplifier, and a 75 cm dish mounted on a collapsible tripod. He has made hundreds of EME contacts with this equipment using the JT4 and QRA64 modes. Most of

these contacts are with stations in Europe, close to his antipodes.

Rig Control and Frequency Calibration

WSJT-X provides for optional computer-aided transceiver (CAT) control of nearly all modern radios. The necessary communication between radio and computer takes place over a USB or serial port. Relevant rig-control features include T/R switching, frequency and mode setting, and options such as split operation and automatic Doppler compensation for the EME path. The CAT-control portion of our software makes use of an open-source library known as hamlib (10),

to which many active amateurs have contributed.

Many capabilities of *WSJT-X* depend on the software’s use of signal-detection bandwidths no more than a few Hz. This puts a special premium on frequency accuracy and stability. *WSJT-X* provides tools that enable accurate frequency calibration of your radio, as well as precise frequency measurement of on-the-air signals. The calibration procedure works by automatically cycling through a series of preset frequencies of carrier-based signals at reliably known frequencies. We find that major-city AM broadcast stations can serve as frequency calibrators at the low frequency end of the spectrum, and in North America we use the standard time-and-frequency broadcasts of WWV and CHU at higher frequencies. Similar shortwave signals are available in other parts of the world (11). During the calibration procedure, the radio’s USB dial frequency is offset 1500 Hz below each frequency in the list. As shown in Figure 5, detected signal carriers therefore appear at about 1500 Hz in the *WSJT-X* waterfall.



Photo 2: The portable EME-capable 10 GHz station of VK7MO, set up at roadside in the Australian outback.

With modern synthesized radios, small measured offsets from 1500 Hz will exhibit a straight-line dependence on frequency. You can approximate the calibration of your radio by simply dividing the measured frequency offset (in Hz) at the highest reliable frequency by the nominal frequency itself (in MHz). For example, the 20 MHz measurement for WWV shown in Figure 5 produced a measured tone offset of 24.6 Hz. The resulting calibration constant is $24.6/20=1.23$ parts per million. This number may be entered on the Frequencies tab of the Settings window (see Figure 6). A more precise calibration can be effected by fitting the intercept and slope of a straight line to the whole sequence of calibration measurements, as shown for these measurements in Figure 7. Software tools for completing this task are included with the *WSJT-X* installation, and detailed instructions for their use are available online (12). Using these tools and no specialized hardware beyond your CAT-interfaced radio, you can calibrate the radio to better than 1 Hz and compete very effectively in the ARRL's periodic Frequency Measuring Tests.

Aircraft Scatter

The ISCAT mode is especially effective for microwave contacts using signals reflected from high-flying aircraft. ISCAT copes well with the rapid changes in Doppler shift

Band Frequency (MHz)			
(m)	JT65	JT9	WSPR
160	1.838	1.840	1.8366
80	3.576	3.578	3.5926
40	7.076	7.078	7.0386
30	10.138	10.140	10.1387
20	14.076	14.078	14.0956
17	18.102	18.104	18.1046
15	21.076	21.078	21.0946
12	24.917	24.919	24.9246
10	28.076	28.078	28.1246

Table 1. Conventional dial frequencies for JT65, JT9, and WSPR on the HF bands.

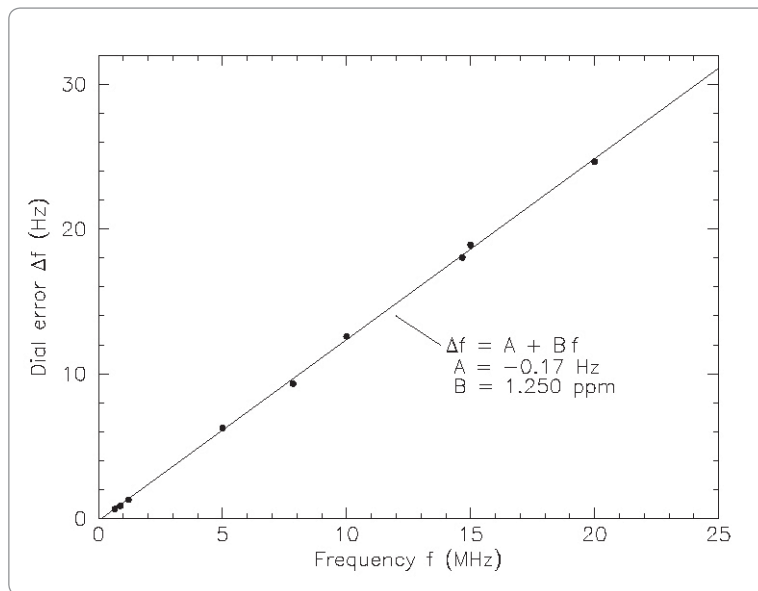


Figure 7: Dependence of dial error on frequency, measured for a Yaesu FT-2000. Parameters of the best-fit calibration line are indicated in the figure.

and short bursts of signal lasting a second or so. VK3HZ, using a 60 cm dish and 7 watts at 10 GHz and working VK7MO as a rover, has increased his 10 GHz grid locator total to over 80 using mainly this mode of propagation. Their longest contacts are over 900 km.

Echo Mode

Echo Mode allows you to make sensitive measurements of your own signal's echoes from the moon, even when they are too weak to be heard. In this mode *WSJT-X* transmits a 1500 Hz fixed tone for 2.3 s, waits about 0.2 s for the leading edge of a return echo from the moon, records the received signal for 2.3 s, and then analyses, averages, and displays the result. The whole cycle is repeated every 6 s, and the program calculates and compensates automatically for continually changing Doppler shifts. As shown in the screen shot in Figure 8, return echoes should appear at frequency offset 0 Hz, the centre of the Echo Graph window.

Station Requirements and Summary

Station requirements for using *WSJT-X* are essentially the same as those for other computer-assisted

modes. You will need a SSB transceiver, an antenna, a computer preferably built in the past six or eight years, and a monitor with at least 1024×768 pixels resolution. Computer-to-radio interfacing usually requires a serial port or equivalent USB device for T/R switching; using your rig's VOX is also possible. T/R switching uses CAT commands if your rig supports it, or serial port signals on either a CAT connection or a separate port. Output from the computer's sound card (or equivalent) should be patched to the radio's Data input, or Microphone if no Data input is available. Received audio goes to the computer's Line input or a combined Line input and Microphone connector. Auxiliary devices that handle these connections are widely available as home brew projects or commercial products, and some recent radios have everything built in so that only a single USB cable is needed between computer and radio. You will also need a means for synchronizing the computer clock to UTC within ± 1 second. Further details and setup instructions can be found in the *WSJT-X User Guide* (3). We recommend particularly its Basic Operating Tutorial and the

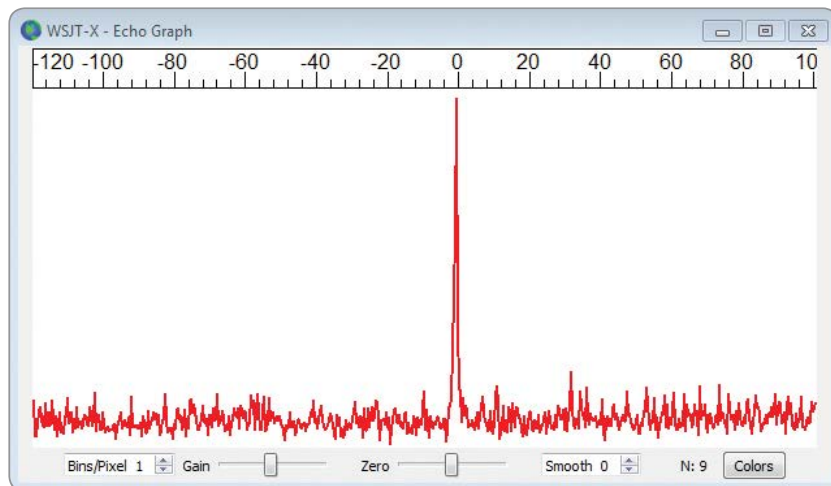


Figure 8: Lunar echo of the K1JT signal on 144 MHz measured using Echo mode in WSJT-X.

downloadable sample files for each mode. You can get answers to specific setup questions from the online support forum (4).

Space requirements have limited us to a list of WSJT-X capabilities that is far from complete. Nevertheless, we hope to have given you a good feeling for the program's wide range of capabilities. In Part 2 of this two-part article we outline some fundamentals of communication

theory, describe the distinguishing features of each WSJT-X protocol, and explain how the program's seemingly all-but-magic tricks work. We then give a brief overview of the project's cooperative software development tools and procedures.

Notes

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2. Joe Taylor K1JT, and Bruce Walker W1BW, "WSPRing Around the World," QST Nov 2010, p 30.
3. <http://www.physics.princeton.edu/pulsar/K1JT/wsjsx-doc/wsjsx-main-1.7.1-devel.html>
4. <http://groups.yahoo.com/neo/groups/wsjpgroup/info> email address wsjpgroup@yahoo.com
5. <http://physics.princeton.edu/pulsar/k1jt>
6. Source code for WSJT-X and its sister programs is publicly available at <https://sourceforge.net/projects/wsjs>
7. Joe Taylor K1JT, "The JT65 Communications Protocol," QEX, Sept-Oct 2005, p 3.
8. Philip Gladstone, N1DQ, <https://pskreporter.info/pskmap>
9. <http://wsprnet.org/drupal/node>
10. <https://sourceforge.net/p/hamlib/wiki/Hamlib>
11. <http://www.smeter.net/stations/hf-time-frequency.php>
12. https://physics.princeton.edu/pulsar/k1jt/FMT_User.pdf

This article first appeared in the RSGB journal *Radio Communications* (RadCom) July 2017.

Over to you



Digital television interference

Dear Editor,
I recently updated my digital TV antenna and to my horror I found that I was causing pixilation to the digital TVs in the house when transmitting on 80 m at 100 W. I was also causing some minor pixilation next door some 150 - 200 metres away from my OCF dipole.

I then found the frequencies that the digital system uses in the central west of NSW. These are from 578.50 MHz to 606.50 MHz.

I have since found a filter to alleviate this problem and that filter is a Matchmaster 09MM-FD04 bandpass filter. The filter frequencies are from 568 MHz to 610 MHz pass.

I was surprised that this occurred as my own antenna is 50 metres from my Off Centre Fed Dipole and next door's is more than 150 metres from my antenna.

Next door had only minor pixilation and further away had none.

I was on 80 metres this morning and

explained what I had found and two other amateurs said that also needed the filter to alleviate the problem.

All this at 100 watts transmit power.

The Matchmaster filter is available from electrical wholesalers TV Installers and eBay for \$43.

Amateurs may find that this or similar filters may be useful in eliminating TV interference.

Jack VK2TUT



Plan ahead

WIA Radio and Electronics Convention and AGM 2018 Gold Coast

18 - 20 May 2018

Review of the Digitech AR1780 HF Portable Receiver

Peter Parker VK3YE

For anyone into radio, a small HF receiver is great to carry to the beach, bush picnics or on holidays. You can hear numerous amateurs, weather, air and broadcast services and get to experience propagation at a different location, away from the noise at home.

The cheapest receivers of this type aren't very useful. They only cover the broadcast bands and receive AM only. That excludes more than half of what's worth listening to on shortwave.

However, when the September issue of *Amateur Radio* carried Jaycar's advertisement for a compact mid-priced receiver with SSB, I just had to get one.

What is the AR1780? It tunes LF/MF/HF and even some VHF frequencies. AM and SSB modes are offered below 30 MHz. FM stereo reception is available between 65 and 108 MHz. A welcome feature for aviation buffs is 118 - 137 MHz VHF air band coverage.

I was initially worried when I looked at the box. It gives HF reception as being 2.3 to 26.1 MHz and MF reception as being 522 to 1620 kHz. Would I be able to tune 27 - 30 MHz, narrowcast station above 1.6 MHz and the amateur 160 metre band? The answer is yes to all three. 150 to 450 kHz is also available. This allows reception of most air navigation beacons but just misses our 630 metre band.

The receiver comes with instructions and carry strap but that's it. There is no protective case. But it looks the right size to snugly fit into an old pencil case. The manual wasn't quite in Queen's English but was mostly easy to follow. The main exception was



Photo 1: Front of AR1780 receiver.

the omission of the 'Page' function which is needed to store and retrieve memory channels beyond the first ten.

The 15 to 30 minutes required to master the memory system will be time well spent. Lists of four wheel drive, weather and aviation frequencies are available on the web. Programming these plus broadcast and amateur frequencies will make the receiver much more of a pleasure to use.

Power is via 4 x AA batteries. A socket is provided for external DC power with a somewhat unusual 7 volts required. The only other sockets are 3.5 mm types for earphones and the external antenna. Measured current consumption is 50 to 80 mA – a good result for a digital display synthesised receiver.

Frequencies can be entered either directly via the keypad, by

retrieving a stored memory or reached with the tuning knob. The latter requires you to select the nearest memory or shortwave band segment and dialling the frequency. Two tuning step options are available. These vary by band – on HF it's 1 and 5 kHz. A fine tuning control allows clarification of SSB signals.

A disadvantage of cheaper synthesised receivers is the 'chugging' or 'muting' when tuning in up or down steps. This was evident on this receiver, although it varied with frequency. It could prove fatiguing as it limits how fast you can tune around.

Casual users won't have problems with this receiver. However it's something that the dedicated listener would wish to pay extra to overcome. Otherwise you can minimise the effect by making as much use of the memory

channels as possible. The AR1780's 50 banks (or 'pages') of 10 channels should be sufficient once you've worked out how to use them (not obvious in manual).

The AR1780 is quite sensitive. I could readily hear HF broadcast, amateur, CB, weather and aircraft transmissions with just the telescopic whip, even on 160 and 80 metres. On VHF air band terminals up to about 40 km distant could be heard. You can even take it to bed and hear many signals from there.

HF receiver designers understand the difficulty of building a receiver that delivers excellent strong signal performance yet draws little current. As expected the designers of the AR1780 went for low current use. Even a 200 mW WSPR transmitter was enough to spoil reception on adjacent frequencies. However, other than my own transmissions, in no case did I hear other signals strong enough to cause problems.

The receiver has no attenuator or RF gain control. There is however a possibly too effective AGC. This was evident on band noise – there was not much of an increase in volume when an external antenna was connected.

The effect of a strong signal is not so much an increase in volume but an improvement in signal to noise ratio. Internally generated noise from the synthesiser is likely another contributing factor. It's a very different experience to the wide dynamic range exhibited by simple homebrew receivers with little internally generated noise and no AGC.

A few strong birdies were noticed. One was just above 7 MHz and another just above 14 MHz. They are not stable and can vary by at least 50 kHz. Overall though, the chances of hearing one on a transmission you want to hear is small.

There are six or seven selectivity positions available. On SSB you have several between 500 Hz and 4 kHz while on AM it is 1 to 6 kHz. The effect is not as dramatic as a crystal or ceramic filter but still worthwhile. An oddity was that the SSB 1.2 kHz setting seemed narrower than the 1 kHz setting, which I confirmed with the FrequenSee Android mobile phone audio spectrum analyser app. Unless very strong, you should be able to hear weaker signals on channels 9 kHz up or down from locals on the AM broadcast band.

The signal strength indication is unusual. Instead of a bar graph there are two numbers on the display. The left is strength (labelled dBu) while the right is signal to noise ratio. The right reading maxed out at 25 on the AM broadcast band but could reach 40 on FM. It isn't there all the time and you may need to press the display button to get it.

I loved the AR1780's small size, low power consumption, frequency coverage, selectivity options and frequency stability. Audio quality and volume was sufficient on all AM, FM, SSB and CW signals received.

Improvements I'd like to see include smoother tuning, fewer birdies, less internal noise, better instructions and a power switch that doesn't as easily switch on when the receiver is being carried in a bag.

To sum up: the Digitech AR1780 is a capable receiver for its size and price. It is just the thing for a walk, holiday or even in-bed listening. It would make a good gift for a prospective ham wishing to discover the HF bands. Jaycar stores have them for \$129. A video demonstration appears on my YouTube site at youtube.com/vk3ye

AR

TAC Notes

*Peter Mill VK3APO, Repeater Coordinator,
Peter Cossins VK3BFG, ATV Advisor,
John Martin VK3KM, TAC Coordinator*

70 cm Digital ATV Repeaters

It is proposed to make a variation in the 70 cm band plan to overcome interference issues with digital ATV repeaters.

The problem is that a DATV signal occupies a full 7 MHz bandwidth with virtually no guard band, and filtering under these conditions is quite a challenge. ATV repeaters presently occupy 443 - 450 MHz, and this has led to interference involving other services immediately above 450 MHz.

The proposed solution is to move the DATV channel down 1 MHz to 442 - 449 MHz. This would provide a guard band for DATV, and as a bonus it would also allow a new link segment to be created at 449 - 450 MHz.

Existing 442 MHz links could in most cases stay on their current frequencies, but some would need to move down to 440 MHz or up to 449 MHz. AM ATV repeaters could also remain, but as they change over to DATV it would be recommended that they change to a channel centre frequency of 445.500 MHz.

AR



The Challenges of Hamming Blind

Joseph Stephen VK5JKS

The design and practice of accessible development ensures compatibility with assistive technology.



Through the history of Amateur Radio there has been what we once quaintly called 'white stick operators' or nowadays the term for the blind is being visually impaired.

In the days of high voltage valve circuits the upmost concern was the safety of the operator, who until they talked on air about the vision problem sounded like an ordinary amateur.

The barriers are still there but with technology aids they have been lessened. There are still hurdles to jump like setting up a station so it does what you want; however we all face those challenges.

These include the display on a transceiver, setting up a repeater and of course those program channels, let alone split operation.

Let me share some of the experience gained as a totally blind software engineer and author of several books. My work has been in the area of assistive technology for more than 30 years.

My main job for the past two decades has been developing screen reading software to enable blind people to use a Microsoft Windows based PC for study, work and recreation.

I have been married for 21 years and am a father of nine. My interest in communications began back in the 80s on the 27 MHz Citizens Band. Part of my listening equipment was a Radio Shack scanner used on various emergency service transmissions, until they went digital and encryption. I then moved to the UHF CB band



Joseph VK5LDR on air with the magnetic loop antenna behind.

first, then gained the Foundation licence in 2016 and upgraded to the Standard licence in 2017.

Through the WIA Exam Service (1), two Nominated Assessors were chosen - Paul Hoffman VK5PH and Trevor Quick VK5ATQ. The same knowledge in the syllabus is needed but the testing materials and techniques used suit the visually impaired.

These may be Braille or large print to access the needed knowledge. Among the resources available is a LDG Talking Watt Meter to measure the transmitter power output and the standing wave ratio (SWR) of an antenna system (2).

After proudly getting on air as

VK5FBHE with my Foundation licence, it was off to the online Radio & Electronics School (3) where Ron Bertram VK2DQ, with vast teaching experience, went through the theory including explanations of diagrams and visual concepts to bridge the knowledge gap resulting in an upgrade.

A remote assessment was then held with Ron VK2DQ using Skype with Paul VK5PH supervising and both marking the answers. Following further study, upgrading to the Advanced licence occurred in December 2017.

Some options available

There are many partially accessible options for a blind ham but very

Accessibility or 'fingurability' means counting the number of button presses needed.

An example is: if there is a button that resets the radio to a home state, you can count the presses to be able to select the mode. This requires a good memory.

few fully accessible transceivers and only one fully accessible hand-held. Many think that just by adding speech to some functions of the radio, you will qualify for accessibility but it's deeper than that including ease of navigation.

Just because a radio talks does not mean a blind person can program it without sighted assistance. From experience, many Chinese-made radios have basic voice prompts such as announcing the current channel number or menu items but don't read the VFO (variable frequency oscillator) display or the actual menu setting of a given menu item.

On the other hand, a blind person can use a radio completely independently, including programming it, given the right conditions.

Some Kenwood handhelds such as the TH-F6A use distinct beeps when toggling settings on or off, at the first in a series of menu items or when reaching channel 0.

If a blind person has a cheat sheet with the order and number of menu options, CTCSS codes etcetera, they can actually program such radios without sighted assistance.

The Icom IC-T90A does not speak, nor have distinct beeps but can provide the current frequency by way of CW feedback at the press of a button. Thanks to its multifunction knob not wrapping at the bottom of a menu, it is possible to program it by counting clicks and memorising menu and setting position numbers.

This is obviously not for the faint-hearted. The Icom ID-51 speaks the VFO frequency, mode and channel number but nothing in the menu system and to the author's knowledge, has no keypad,

making it impossible to program without sighted assistance.

A built-in numeric keypad is essential for a blind person to directly enter frequencies or channel numbers. Some base stations or mobile transceivers can speak limited information if an optional voice chip is installed but, again, few offer full accessibility.

Many blind hams take the risk of buying a transceiver and trying it out for accessibility, then writing reviews or cheat sheets to help others in their situation. This is currently necessary since most manufacturers do not place 'accessibility' in their feature list.

Even if one includes 'voice prompts' in the feature list, this is no guarantee that the radio is actually accessible. Ultimately, if a radio does not speak all of its functions, a blind person must be able to get the radio into a known and predictable state through a series of key presses and by remembering the number and order of menu items and available options.

If there is inadequate speech feedback, if all key presses issue the same tone or no tone at all, if the menu system wraps around once you navigate to its start or end, or menu options dynamically change according to context, one can't predict where they are in the menu system. Such transceivers can be a frustration.

Accessibility includes test equipment

Sighted hams take for granted simple tasks like tuning an antenna using an SWR meter or testing a battery with a multimeter.

Some 25 years ago one could pick up a talking multimeter from Tandy Electronics for around \$50. Today, blind hams have no options

for a talking multimeter. In fact, some companies dismiss that a blind person could even be using a multimeter. I believe this perception needs to change. I use an ingenious audible SWR meter from SOTabeams called the Go4Lo to tune my magnetic loop antenna on HF. This came in kit form and was kindly assembled by Barry Williams VK5BW from the Adelaide Hills Amateur Radio Society (AHARS).

Help from hams when soldering components is not possible and is incredibly important and I was grateful to Barry for his generous time. Most of us believe in a fair go and Aussie hams are even more aware of the need to help each other out.

Companies like SOTabeams recognised that audible test equipment was not only useful for those with low vision but sometimes it is more convenient to tune a radio by ear while visually concentrating on some other task.

Also two blind hams in the USA have made it easier to use digital modes by producing an app (4). Digital modes use low level signals and are increasingly popular. The application called 'Accessible Digipan' allows operation on the popular PSK31 digital mode and works in conjunction with the screen reader I develop, called JAWS for Windows (5).

Spreading the word

I have made myself available as a contact, advocate and assistant to other blind hams around Australia. This could be just to give encouragement and advice, sharing information and ideas, through to training in the use and programming of radios.

My experience so far has been that manufacturers and some

retailers show little knowledge or interest in helping blind hams with their specific needs. JVC Kenwood has kindly given me a distributorship to the visually impaired enabling me to offer extra training and assistance.

Another success was with Uniden, which made their latest range of UHF handheld CB transceivers more accessible. (Models include the UH810S, UH820S, UH850S and UH950S later firmware version.)

Several manufacturers have been also asked to consider accessibility in their future designs. However some have introduced half-baked solutions over the years and most blind hams have had to put up with little to moderate accessibility.

The line taken is that considering the ease and use of a radio at the design stage is not just for those without eyesight now but for radio amateurs that may have failing sight and lower dexterity with age.

Although being a distributor to the blind community, so far JVC Kenwood has decided not to import one of its latest models, the only fully accessible hand-held, the TH-D74 transceiver into Australia. Any help with a campaign to get the fully accessible radio here would be welcome.

And of course advice is always given about the experience with Amateur Radio, its scope in terms of self-learning, diversity and socialisation, with steps needed to join in.

Notes

- (1) All cases require proof of a disability that affects an assessment in the form of a medical certificate provided to the WIA Office, PO Box 2042 Bayswater 3153, nationaloffice@wia.org.au or (03) 9729 0400.
- (2) Resources For Conducting Assessments For The Vision Impaired www.wia.org.au/licenses/assessor/visionimpaired/
- (3) Radio & Electronics School res.net.au or ron@res.net.au
- (4) 'Accessible Digipan' www.amateurradio.com.au/news/digital-modes-app-white-stick-operators
- (5) The developers of JAWS for Windows www.freedomscientific.com



AMSAT-VK

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About AMSAT-VK

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

AMSAT-VK monthly net

Australian National Satellite net

The 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

VK4RRK Redcliffe 146.925 MHz -ve offset IRLP node 6404 EchoLink 44666

In South Australia

VK5TRM, Loxton on 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278,
EchoLink node 399996

In Tasmania

VK7RTV 2 m. Repeater Stowport 146.775 MHz. IRLP 6616

In the Northern Territory

VK8MA, Katherine on 146.750, CTCSS 91.5, IRLP Node 6800

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.

Plan ahead

21st Annual GippsTech Conference | 7 & 8 July 2018

Landing Whales on Wet String

My first ever CW contest, the 2017 CQ WW DX CW Contest, QRP Category

Michael J. Charteris VK4QS & VK4XQM

Hi, I'm Mike Charteris VK4QS and you might recall I recently wrote about Contesting from a Non-Contesters point of view. A couple of weeks after expressing my long held feeling about this subject, I thought I'd embark on a journey of discovery. I decided to actively participate in the CQ WW DX CW Contest as a QRP entrant on the 15 m band. As this was my first ever attempt at a CW contest in 33 years as an Amateur Radio operator, I was a little unsure of what I would achieve. My station is pretty basic really and consists of a Yaesu transceiver, a homebrew 5/8th Vertical I built for 20 m and a Yaesu FC301 antenna tuner.

My CW journey, motivation & inspiration: What is yours?

Back in 1995 while I was still in the Royal Australian Navy, stationed at HMAS Albatross, I passed the required 10 wpm whilst gaining my advanced licence. I then spent the next 22 years solely operating SSB. From time to time, I did attempt a little CW on air but it always ended with anxiety, followed by a cracking headache. I thought how could anyone in their right mind actually enjoy such a torturous form of communication? Then I started reading about the history of the pre-World War II Amateur operators of the State of Queensland, where I live. This information was compiled in a book called "*Halcyon Days*", written by a good friend of mine, Mr Alan Shawsmith VK4SS, who sadly passed away many years ago. From here I started collecting pre-WWII VK QSL Cards with the great assistance of my good mate, Tony Ricicki W2VRK from New Jersey. Back in the 1920s and 30s, CW was king and most of the stations were Home-Brew. What these guys achieved

with just a few watts of power by and homebrew equipment was truly inspiring.

Books on wireless in World War II

I then bought a few books on Naval and Military Intelligence, Bletchley Park and Code Breaking in World War II. Within these pages I learned about the brave and resourceful Coast-watchers up in the islands of the Pacific. And who could fail to be inspired by the courageous SOE Agents in Occupied Europe. Nobody would deny the absolute bravery of these people, who by number paid dearly with their lives in the fight for our freedom. Thus I have taken my inspiration to operate QRP CW from those who have used it with such skill and daring during the dark days of World War II.

Success & encouragement

25 April 2017, ANZAC Day, saw me sending CW CQs at 150 watts on and off (pardon the pun) on the HF bands with varying degrees of success. Two days later on 27 April 2017 at 0950 UTC, I was rewarded with a reply from Roger ZL2RX, as my first ever international 80 m DX CW contact. I was over the moon with this, especially so when I dropped the output power down to just five watts and was still making a good contact. There was no stopping me now and my next landmark was to work Josip 9A57AX, out of Croatia on 7.018 MHz, for my first ever European CW DX contact. The floodgates really opened up after that and my confidence grew as I worked stations in Sweden, Russia, Austria, Denmark, Serbia and Japan. By November 2017 I was looking for a greater challenge to quench my new found thirst for CW.

The CQ WW DX CW Contest

I then became aware of the CQ WW DX CW Contest that ran over the weekend of 25/26 November. Now this was the Big League as far as I was concerned and I sincerely wondered what was in it for me. I thought "*What the Hell I'll have a crack at the QRP section for 15 m and see how I go*". This was the best decision I could have made because if I ended up making no contacts at all then it was all down to band conditions and operating QRP. But the upshot was that any contacts I did make were all victories. I reckoned that in a contest everyone is searching and more importantly listening for any contacts. Therefore I stood just a good chance as anyone else even though I was only using five watts QRP. My greatest fear though, was that everyone would be sending at 25 to 35 plus wpm.....!!

Utilizing modern technology: Reverse Beacon Network

In order to gauge my chances of success with 5 watts I set about experimenting with the Reverse Beacon Network in the week leading up to the contest. Each morning, afternoon and evening I transmitted in sequence as follows; 150 W, 100 W, 5 W on three different frequencies 5 kHz apart on any given HF Band. I would then wait and observe the SNR dB signal return for each transmission. The results across the week showed that 150 W was mostly received with signals in the order of 32 dB, whilst 100 W returned at 25 dB and 5 W more than often came back at 15 to 20 dB SNR. Of course it also depended on the band of operation, the time of day, the MUF and the propagation, let alone QRN & QRM. Try it sometime and you might just be surprised how amazing

your signals are with 5 watts and a simple antenna.

The nostalgia of vintage keys on air

I had always wanted to use a WWII German Kriegsmarine Key on air and finally bought one from a good friend of mine, Phil VK2FGBR, a former Royal Navy Submariner Telegrapher. My other key is a fairly rare Pre WWII Japanese Navy Spark Key which I picked up at a hamfest years ago. To be able to hold in your hand, let alone put to air, a Morse Key that was used in anger during WWII on warships or at shore stations is just an amazing experience. The German key is made by Junker (not the aircraft manufacturer). It is stamped with "D.R.P" which stands for Deutsches Reiches Patent, which indicates that it was manufactured prior to the end of WWII. These early Junkers have a wonderful micrometer-feel adjustments and an exceptionally crisp and light action (W1TP). The Junkers key was apparently designed by Joseph Junker, a German Navy Wireless Officer during the Great War. Junker patented his design in the 1920s and the keys went on to be used by the German Navy as well as NATO Navies post World War II (morsex.com). As for the Japanese Naval Spark key, I have been unable to find out any information on it.

5 watts CW and a 5/8th Vertical

On Saturday 25 November 2017, 0000 UTC, at 1000 am Queensland time, the bands suddenly showed signs of life. I knew from this moment forward that it was going to be an uphill battle regarding any contacts. I had set myself just three goals to measure the success of my venture. The first was to actually make a contact outside of Australia. The second was to make at least one contact into Russia. And the third and final goal was to work into the USA. Each of these goals seemed like a mammoth task before the contest started and I hoped to at least achieve one of them.

Landing whales on wet string

It took more than half an hour of sending CQ TEST VK4QS, until I was finally rewarded at 0043 UTC with a reply from JH8SLS. Reports exchanged were for 59-25, my return 59-30. Sadly in all the excitement and nerves I must have incorrectly decoded his call sign. Upon checking all my contacts after the contest I found that he is not listed on QRZ.com. But at the time of actually working him on air, I was ecstatic. This first contact really gave me the enthusiasm and encouragement to soldier on to see what was actually possible with just five watts and a Vertical. My next couple of contacts were both in Asia, being a JA and then a station in Hong Kong. Once again there was about half an hour between the contacts. I next scored a contact with KH6LC at Keaau, Hawaii, as my range extended to 4691 miles. Things were really starting to pick up as I worked JH9KVF and JH3CUL followed by ZM4T in New Zealand.

Goal one & two achieved

On Sunday 26 here in Australia, I was rewarded for my persistence with a couple more JAs and V73NS in Micronesia. With my next achievement being KH6J out of Kaneohe, I seriously thought that I would not be achieving goals two and three. But you know what they say, persistence pays off and within 30 minutes at 0149 UTC, I was duly rewarded with a reply from RT0C, some 65 kilometres north of Khabarovsk, Russia. This was a distance of some 8413 kilometres from my QTH in Granville, Queensland which balanced out to more than 1000 miles per watt of power. At this stage I was blown away to have managed to work into Russia with just five watts on CW. Not long after that I shut the station down and headed off to work.

Monday & goal 3 achieved

On Monday the 27th here in Australia I ventured out to the shack at about 8:00 AM local time to see what could be gained before the Contest ended at 1000 am local. My first two contacts were ZLs, one being ZM2B out of New

Plymouth. At 2245 UTC, my world changed as I successfully worked W7AT out of Salem Oregon, for a grand total distance of 7175 miles. It was a rush to say the least and there was just one hour and 15 minutes left before the contest closed. I frantically looked up and down the 15 m band in search of another US station before falling over the signal from station K5BJ, Lawrence out of Dallas Texas at 2323 UTC. Well my friends this was indeed icing on the cake with a total distance of 8406 miles, approx. from his station to mine. By now I was feeling pretty happy with my efforts and thought I might just give it away early when I came across the signal from NA6O. Now as had been the case all weekend, it actually took a few goes to be heard, but we got three in the end at 2357 with just three minutes to spare.

Summary

In the beginning I started out with no illusions that taking on this contest using CW and operating QRP would not be easy. Like every other station participating I was at the mercy of the elements and the conditions that prevailed. My inspiration had been the people who had used CW prior to, and during times of war under very trying conditions.

All that I achieved, if it can indeed be called an achievement is available to each and every one of you out there reading this now. Find inspiration, read about our history and walk a mile in their boots. Look for a challenge and embrace one of the oldest forms of communications created by mankind, namely Morse code or CW as we know it. You too can experience the absolute exhilaration of "Landing Whales on Wet String" as I did.

I look forward to hearing and working you on the air sometime, perhaps during a CW contest. My current goal is to work DXCC by way of QRP CW and I am sure you can all help me with that when you hear my call.

All the best for now
73 Mike VK4QS.





DXTalk

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Summer propagation on a clearly declining solar cycle was mostly unremarkable, but 17 m was quite good in the evening on the short path to Europe. Higher bands were mostly quiet, 40, 30 and 20 m showed reasonable activity, and Low Bands were generally poor. There was some propagation to Europe around our sunrise on 160 and 80 m.

DX heard or worked over January and February included: P29DA Darren visiting Papua New Guinea, 6O6O DXpedition in Somalia, E31A DXpedition in Eritrea, ZC4A DXpedition in UK Sovereign Base Area Cyprus, P29VXG Papua New Guinea, and 3D2EU DXpedition to Rotuma Island.

3Y0Z Bouvet aborted

The much anticipated DXpedition to Bouvet had the ship standing off the island for several days waiting for the weather to ease. Then, one of the ship's engines suffered a failure, so the tough decision had to be made to abort the expedition and leave. The expedition was called off for reasons of safety of the team. They headed for Cape Town, and then homewards after being hosted by the local radio amateurs there. Whilst the world's DXers were disappointed in this outcome, one cannot imagine the disappointment of the DXpedition team.

The team announced plans for a future activation of Bouvet, whilst the Polish team who had cancelled their plans in favour of the 3Y0Z DXpedition, have also announced plans to activate Bouvet next summer.

New DXCC Entity – Republic of Kosovo

The ARRL Board of Directors met on 19 - 20 January and one of the outcomes was an amendment to the DXCC Rules "Section II, Subsection 1 of the DXCC Rules now will include a new Subsection (d): The entity has a separate IARU member society and is included on the US State Department Independent States in the World." As a result of this amendment, the Republic of Kosovo qualified as an entity on the DXCC List effective from 21 January 2018. This brings the DXCC List to 340 entities, with Honour Roll qualification at 331 entities.

The IARU member society of Kosovo, SHRAK club station Z60A was activated by a multi-national group of operators, to celebrate the 10th anniversary of the independence of the Republic of Kosovo.

Upcoming DX

DXpedition activity scheduled for March and April includes the following:

9M0W Spratly Islands, 6 - 13 March. A large team of operators is planning activation of Layang Layang Island (AS-051) on 160 - 6 m, CW, SSB and Digital modes. QSL via YT1AD. For more information see their website: <http://www.yt1ad.info/9m0w/>

TY7C Benin, 7 - 18 March. A team of ten operators plans operations on 160 - 10 m, CW, SSB and Digital modes. QSL via LotW. For more information see their website: <https://ty2018dx.wordpress.com/>

XX9B Macao, 9 - 17 March. A large team plans operations on 160 - 10 m, CW, SSB and Digital modes. QSL via PP1CZ. For more information see their website: <http://xx9b.py2sex.com/>

TX5X French Polynesia, 10 - 17 March. Will W0ZRJ and Bill KH6OO plan operations from Tahiti (OC-046) on 20 - 10 m, mainly CW. QSL via LotW. For more information see: <https://www.qrz.com/lookup/tx5x>

TJ Cameroon, 15 - 31 March. The Italian DX Team plan operations in the second half of March on HF, all modes. QSL via LotW. For more information see their website: <http://www.i2ysb.com/idx/>

7Q7EI Malawi, 24 March - 2 April. The EI DX Group plan activity on 160 - 10 m, CW, SSB and RTTY. For more information see their website: <http://www.7q7ei.com/>

T2AR Tuvalu, 1 - 8 April. Tony 3D2AG plans operations from Funafuti Atoll (OC-015) on HF, 6 m and 2 m, CW, SSB and Digital modes. Activity will be mainly between 0430 - 1300Z and 1730 - 2000Z. QSL via LotW, also eQSL and via 3D2AG.

3B7A St Brandon (AF-015), 5 - 17 April. A team of eight operators plans activity on 160 - 6 m, CW, SSB and RTTY. For more information see their website: <http://www.saintbrandondx.com/>

VK5MAV/9 Cato Reef (OC-265), 9 - 18 April. Andy VK5MAV plans activation of this rare IOTA activated only once more than 20 years ago, 40 and 20 m. DXCC counts for Australia. QSL via Club Log or VK5MAV direct.

Z66D **Kosovo**, 15 - 22 April. A Czech team plans activation from this new DXCC entity on HF, CW, SSB, RTTY and FT8. QSL via LotW. For more information see: <https://www.qrz.com/db/Z66D>

YJ0AG **Vanuatu**, 17 - 29 April. Grant VK5GR will visit Efate Island (OC-035) with his family. He plans operation on 80 - 10 m, SSB and Digital modes. QSL via M0OXO.

FJ **St Barthelemy**, 18 - 27 April.

AI5P, N0KV, W0ZA and WD0E operating as FJ/AI5P and FJ/N0KV plan operations on 80 - 10 m, CW, SSB and RTTY. QSL FJ/N0KV via LotW.

H44 **Solomon Islands**, 22 - 25 April. Bernhard DL2GAC as H44MS and Cezar VE3LYC plan operations from Mbanika, Russell Islands (OC-168) on 40 - 17 m, CW and SSB. There is no mains power and no Internet, so they will be using a

generator and batteries. For more information see their website: <https://oc-179.weebly.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, and from newer DXers.

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73 and good DX,
Luke VK3HJ



Proposed changes to the Constitution of the Wireless Institute Of Australia

Preamble

The Constitution of the Wireless Institute of Australia was last updated in May 2008. A copy of the Constitution of the Wireless Institute of Australia (WIA) is available on the WIA web site.

The existing constitution is a robust document which generally meets the current requirements of the WIA. The Board has agreed that the constitution probably needs to be re-written to meet the ongoing and future requirements of the Institute. It is common in most organisations that a constitution be written in a plain English format. Whilst the current constitution is not overly filled with legal speak, it has some shortcomings and some clauses of the current constitution have become outdated and until such time as a plain English document becomes available, a few minor changes are in order.

The Board decided in January 2018 to make the following changes to the Constitution of the WIA:

1. Add a definition for "Officer" under Clause 4.2 "Definitions" to clarify the meaning of officer referred to in various clauses of the Constitution.
2. Delete Clause 7.2 "First Annual Subscriptions" as the First Annual Subscriptions is outdated.
3. Delete Clause 12.6 "First Board" as the First Board is outdated.
4. Insert a new Clause 14.1 "Election of Directors" to allow for voting by electronic means in addition to voting by postal ballot when conducting any election/re-election of Directors. This will allow for electronic voting in the future.

Details of the proposed changes and a copy of the proposed new constitution are available on the WIA Web site. Members who require paper-based copies of the proposed changes can request a copy by writing to the national office or by sending an email to nationaloffice@wia.org.au

In accordance with the Constitution of the WIA (Section 30) and the Corporations Act (Sect 136), a Special Resolution has been proposed to affect these changes. A special resolution requires 75% agreement of those members present in person or by proxy to be approved.

Proposed Special Resolution

The Board hereby advises members that the following special resolution will be put to the members at the Annual General Meeting to be held on 19 May 2018.

To consider and, if thought fit, to pass the following resolution to be proposed as a special resolution:

That the Wireless Institute of Australia amend its Constitution as follows:

1. In Clause 4 INTERPRETATION in Clause 4.2 "Definitions" insert a new definition "Officer" after the definition of "Office" and before the definition of "Provisional Member" with wording as follows:

"Officer" has the same meaning given to it in Clause 29 (d) (i) of the Constitution.

All references to "officer" in the Constitution will be replaced with "Officer".

2. In Clause 7 ANNUAL SUBSCRIPTION delete Clause 7.2 "First Annual Subscriptions" so Clause 7.2 will now read:

7.2 (Not Used)

3. In Clause 12 DIRECTORS delete Clause 12.6 "First Board" so Clause 12.6 will now read:

12.6 (Not Used)

References to Clause 12.6 in the current Clause 14.1 (which will become Clause 14.2 – see point 4 below) will be removed so that the new Clause 14.2 (a) and (d) will read:

- (a) At every annual general meeting one-half of the Directors or if their number is not a whole multiple of two then the number nearest to but not exceeding one-half must retire from office provided that no Director may retain office for more than two years or after the second annual general meeting following the Director's appointment, whichever is the longer. A retiring Director must act as a Director throughout the meeting at which the Director retires. An election of Directors must take place each year.
 - (d) No person except a Director retiring by rotation or a person recommended by the Directors for election is eligible for election to the office of Director at any meeting unless the person (being a Member) or some Member intending to propose the person has at least 45 days before the meeting left at the Office a notice in writing duly signed by the nominee giving the nominee's consent to nomination and signifying the nominee's candidature for the office or the intention of such Member to propose. Notice of each and every candidature must be forwarded to all Members not less than 28 days (or such lesser period as is from time to time permitted by the Corporations Act) prior to the meeting at which an election is to take place.
4. In Clause 14 APPOINTMENT AND REMOVAL OF DIRECTORS insert a new Clause 14.1 "Election of Directors" as follows:

14.1 Election of Directors

Election of Directors shall be conducted before each annual general meeting by postal ballot or electronic means in accordance with the WIA Ballot regulations as amended by the Board from time to time.

The current Clause 14.1 "Directors' retirement by rotation and filling of vacated offices" will now be Clause 14.2 "Directors' retirement by rotation and filling of vacated offices".

The current Clause 14.2 "Removal of Directors" will now be Clause 14.3 "Removal of Directors".

References to the current Clause 14.1 and current Clause 14.2 will be amended to refer to Clause 14.2 and Clause 14.3 respectively.

The references to "postal ballot" in now Clause 14.2 (c) will be replaced with "postal or electronic ballot".

SOTA & Parks

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SOTA 2018

On the weekend of 3 and 4 February 2018, 12 SOTA activators travelled to Mt Hotham for Brian VK3MCD's now annual VK Mt Hotham SOTA Summit.

Staying in Hotham during summer allows for clear access to remote mountains for activators of all experience levels and travelling through remote regions with experienced 4WD blokes opens many opportunities.

This year's attendants were Brian VK3MCD (now VK3BCM), Phil VK3BHR & Cathy, Paul VK3HN, Allen VK3ARH, Peter VK3PF, Alan VK3FABT, Leigh VK3SG, Ron VK3AFW & Ruth, Glenn VK3YY, Andrew VK3JBL, Ken VK3KIM and Compton VK2HRX as well as non-operators Alan and Steve. It was great to see wives and non-ham friends of some activators coming along to enjoy the mountains and company.

This year we were based at the Anton Huetter ski lodge at the Mt Hotham Resort. This spot was centrally located in Hotham Heights and provides individual rooms with bathrooms and a large shared kitchen. Whilst we went to The General for dinner Saturday night, the facilities were put to good use with a mad procession of breakfast and lunch preparation each morning. Most took the opportunity to activate summits on the trip up.

Paul VK3HN picked up Falls Creek summits (Mt Cope VK3/VG-001 and Mt Nelse VK3/VE-004) after having stayed at Mt Buffalo camping at Lake Catani picking up summits at Mt Buffalo (The Horn VK3/VE-014 and The Hump VK3/VE-019: <https://vk3hn.wordpress.com/2018/02/08/mt-hotham-sota-weekend-2018/>



Photo 1: View to Hotham from The Horn.

Compton VK2HRX took the long way to Hotham picking up Mt Hope VK3/VG-014 and Mt Gibbo VK3/VG-004 on the way.

Peter VK3PF came up through Omeo activating numerous summits including Toke Gibbo Hill VK3/VG-028 gaining S2S with Paul VK3HN/p on The Hump VK3/VE-019 and Compton VK3HRX/3 on Mt Hope VK3/VG-014. Peter then worked his way into a previously unactivated summit VK3/VE-053, working Phil VK3BHR/p calling from Mt Hotham VK3/VE-006 for another S2S first up. He also worked Compton VK2HRX/3 on Mt Gibbo VK3/VG-004 before packing up the station. Peter then moved to Mt Sassafras VK3/VE-029 and again worked Compton VK2HRX/3 on Mt Gibbo VK3/VG-004. Peter activated more summits than we have space for here with more details here: <https://vk3pf.wordpress.com/2018/02/10/2018-hotham->

[sota-summit-the-trip-up/](#)

Glenn VK3YY arrived Friday evening after spending three days with David VK3IL activating remote summits in the Razor-Viking Wilderness area and surrounds. By the time he arrived at Hotham he had enough energy left to take a shower then bid us all good night. Not at all surprising given this walk had its challenges: <http://vk3il.net/razor-viking-wilderness-jan-feb-2018/>

Friday night consisted of fine tuning plans that were laid in the week running up essentially synchronising our timings to maximised S2S opportunities then generally catching up with friends not seen for 12 months.

Day 1

There were three groups finalised the night before and an early start for all.

The first group consisting of VK3PF, VK3HN, VK3ARH and



Photo 2: Alan VK3FABT and Ken VK3KIM at lunch Brumby Hill.

VK3YY went off to activate VK3/VT-023 (VK3/VT-023), VK3/VE-032 (Mt Sarah), VK3/VE-049 (Mt Selwyn), VK3/VE-066 (VK3/VE-066) and VK3/VE-025 (Mt Murray).

The second group consisted of VK2HRX/3 and VK3JBL headed for the Blue Rag Range circuit (Mt Blue Rag, Blue Rag Range, Basalt Knob & White Timber).

And the final group had three vehicles with eight people, six of whom were operators that travelled to peaks East of Omeo. This included VK3MCD, VK3AFW, VK3FABT, VK3SG, and VK3KIM with their eyes on Mt Pendergast VK3/VG-022, Brumby Hill VK3/VG-012, Mt Nunniong VK3/VG-011 and Mt Bindi VK3/VG-017.

Report from VK3KIM as to their first day's activations:

"The weather was fine with part cloud cover and low twenties temp. The first summit was Mt Pendergast, just off Limestone Road and they all qualified quickly on 2 metres with mostly S2S contacts with other Mt Hotham activators on VE-015 and VT-023. Next was Brumby Hill this time a mix of 40 m and 2 m contacts with S2S from VE-032 and VE-039. Notable was Paul VK2/G4ODK in Sydney who was preparing to visit summits in the Hunter region in the coming days. There was plenty of evidence

of brumbies along the roads in this area.

A leisurely lunch was had here before heading to Mt Nunniong where 2 m signals from the other groups became marginal; however with the Slim Jims we managed S2S to VE-060 and VE-049. VK3AFW managed a 20 m ZL contact. After negotiating some interesting 4WD tracks, they arrived near Mt Bindi and due to a large tree across the track walked the final 1 km to the summit. We had to work hard here for contacts although we had contacts with Andrew 3JBL and Compton 2HRX/3 at VT-018 and Gerard VK2IO in Sydney on 40 m."



Photo 3: VK3YY Glenn and Peter VK3PF working ZL on 20 m with the 'Cute Antenna' before VK3ARH could raise a HF dipole.

Mt Hotham SOTA Summit - Bust a Gasket award

This year there was the 'The Bust a Gasket' certificate on offer. The award is in memory of Ron VK3AFW's Subaru which blew a gasket during the previous Hotham weekend (2017). This will be awarded to Hotham weekend activators who achieve at least 50 points on Saturday 3 February 2018 (sunrise to sunset) with bonus points for S2S contacts with VK3AFW.

The following had earned this prestigious award:

Leigh VK3SG, Phil VK3BHR, Ken VK3KIM, Paul VK3HN, Allen VK3ARH, Peter VK3PF, Glenn VK3YY, Andrew VK3JBL, Compton VK2HRX and Brian VK3MCD (as he was then).

There was a welcome large skip zone for a lot of the weekend with HF contacts coming from distant VK3s, interstate chasers and ZL. ZL S2S were secured on Sunday which was a highlight itself.

Mt Hotham VK3/VE-006

After a hard day activating the group meet on Mt Hotham for drinks and one more activation. The cold hard wind forced a rapid series of contacts. Warren VK3BYD had headed up to Mt Stanley VK3/VE-126 that afternoon and armed with a 1296 MHz hand held with small Yagi gave us the opportunity to secure Microwave S2S contacts from our final sites as well as Mt Hotham. The use of 23 cm is attracting more interest in these tight environments.

Day 2

Once back at the lodgings we proceeded to again finalise plans and prepare for the next day. Again, an early start as groups had ambitious plans.

Glenn VK3YY and Andrew VK3JBL headed out to Mt Loch VK3/VE-005.

VK3MCD, VK3SG, VK3KIM, VK3BHR and VK3AFW went southwest to activate Mt Blue Rag VK3/VE-021, Blue Rag Range VK3/VE-015 and Basalt Knob VK3/VE-039.

Finally, VK3PF, VK3HN, VK2HRX and VK3ARH went east to activate Mt Misery Range VK3/VG-008, VK3/VG-009 (VK3/VG-009) and Davies Plain VK3/VE-010.

Report from VK3ARH as to their second day's activations:

"On Sunday VK3PF, VK2HRX, VK3HN and VK3ARH travelled in a 2-vehicle convoy to activate three 10-point summits to the east of Mt Hotham. First was Mt Misery Range VK3/VG-008 where we secured an unexpected S2S with Andrew VK3ARR/p on Mt Alexander VK3/VN-016. Then across to VK3/VG-009 to S2S contact with Glenn VK3YY/p and Andrew VK3JBL/p on Mt Loch VK3/VE-005 and Leigh VK3SG on Blue Rag Range VK3/VE-015. Final summit was Davies Plain VK3/VE-010. Davies Plain in Alpine National Park is the furthest we got,



Photo 4: Andrew VK3JBL and Allen VK3ARH working HF on Mt Hotham.

just 5 km from the NSW border, and only activated once before (by Compton in 2013).

It was 2+ hours of dirt road driving each way including some rugged 4WD tracks but a real experience. However, I had to force the group back so as to start my trip home that night and believe had

I not they would still be out there chasing summits on 4WD tracks."

One of the advantages of activating a local region en masse is the availability of 2 m contacts. 2 m contacts allowed all activators to qualify and provided a pool of S2S contacts, regardless of HF band conditions. This mass of operators however creates a situation where chasers can be exhausted before all have gained the required 4 contacts.

Thanks to
Brian VK3MCD

for offering, arranging and hosting the Third Annual Mt Hotham SOTA weekend, thanks also to all the participants – the camaraderie was terrific and it was great to have like-minded company to discuss a variety of topics and finally thanks to the chasers who patiently waited for us to arrive and then who tolerated us activators passing the microphones around to ensure all qualified the summits.

Plan ahead, this event has become a highlight on the VK SOTA calendar and the increase in attendance and the enthusiasm expressed by the participants evidences how much we all enjoyed it. Get your diaries out and pencil in as the first weekend of February 2019 as dates for next year's AHMSS 2019. Keep an eye out for updates from the organiser Brian with his new callsign VK3BCM.

Upcoming Activities

Saturday 10 March at 0630 UTC: VK, JA, ZL and EU S2S Party.

Saturday 10 & 11 March: 5th annual SANPCPA Weekend.

Saturday 31 March: VK 160 m / AM day.



Photo 5: Peter VK3PF, Paul VK3HN and Compton VK2HRX/3 on VK3/VE-010.



WIA Awards

Marc Hillman VK3OHM/VK3IP

Below are listed all New awards issued from 2017-12-15 to 2018-02-14, plus all updates to DXCC awards. Go to <http://www.wia.org.au/members/wiadxawards/about/> to use the online award system.

New awards

Antarctic

#	Call	Name	Mode
101	VK2CA	Allan Meredith	Phone
102	VK2CA	Allan Meredith	CW

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
198	VK2ZQ	Michael Ramsay	Digital	20m	100

DXCC Multi-band (3)

#	Call	Name	Mode	Band	Count
118	VK4CAG	Graeme Dowse	Digital	30-20-15m	322
119	VK3JLS	John Seamons	Open	20-17-15m	427
120	VK5GR	Grant Willis	Open	40-20-15m	385
121	VK3GA	Graham Alston	Digital	40-20-17m	370

DXCC Multi-band (5)

#	Call	Name	Mode	Band	Count
84	VK5DG	David Giles	Open	30-20-17-15-10m	583
85	VK6DW	Ian Cook	Open	40-20-17-15-10m	627

DXCC Multi-mode (CW)

#	Call	Name	Count
257	VK3AWG	Christopher Belmont	113

DXCC Multi-mode (Open)

#	Call	Name	Count
463	4F3BZ	Crisnick Lorenzo	100
464	VK6WE	Daniel Bedo	100

DXCC Multi-mode (Phone)

#	Call	Name	Count
623	VK9VKL	Clifford Tindall	100



Don't forget to register for **MEMNET**.

Grid Square

#	Call	Name	Mode	Band
332	VK3FZ	Roger Stafford	Open	6m
333	VK6JI	Christopher James	Open	HF
334	VK6JI	Christopher James	Digital	HF
335	VK3DAN	Daniel Phillips	Digital	HF
336	VK3DAN	Daniel Phillips	Open	HF
337	VK3BOY	Phillip Vis	Open	HF
338	VK3BOY	Phillip Vis	Digital	HF
339	VK3AWG	Christopher Belmont	CW	HF

IARU Worked All Continents (Basic)

#	Call	Name	Mode	Band
78	VK3GA	Graham Alston	Digital	

Worked All States VHF

#	Call	Name	Mode	Band
216	VK5SFA	Steve Adler	Open	6m
217	VK5SFA	Steve Adler	Phone	6m
218	VK3WE	Rhett Donnan	Open	6m

Worked All VK Call Areas HF

#	Call	Name	Mode
2377	VK3FZ	Roger Stafford	Open

DXCC updates

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
4	VK2CA	Allan Meredith	CW	30m	203
43	VK7CW	Steven Salvia	CW	20m	274
83	VK6APK	Aleksandar Petkovic	CW	30m	204
97	VK6WX	Wesley Beck	CW	20m	132
148	VK3GA	Graham Alston	CW	20m	192
196	KJ6P	David Gregory	CW	30m	133
3	VK2CA	Allan Meredith	Digital	20m	180
54	VK3EW	David McAulay	Digital	20m	197
89	VK3OHM	Marc Hillman	Digital	20m	127
130	VK5DG	David Giles	Digital	30m	106
152	VK6DW	Ian Cook	Digital	20m	117
162	VK3AWG	Christopher Belmont	Digital	20m	144
174	VK5GR	Grant Willis	Digital	20m	143
175	VK3JLS	John Seamons	Digital	20m	125
185	VK2BYI	Christopher Fredericks	Digital	20m	153
190	VK3LDB	David Burden	Digital	20m	125
1	VK3OHM	Marc Hillman	Open	20m	205
6	VK2CA	Allan Meredith	Open	20m	315
13	VK2VEL	Edwin Lowe	Open	20m	137
17	VK6WX	Wesley Beck	Open	20m	208
20	VK3SX	Bob Robinson	Open	20m	328
34	VK3MEG	Steven Barr	Open	20m	222
41	VK7CW	Steven Salvia	Open	20m	309
76	VK3JLS	John Seamons	Open	20m	218
90	VK6DW	Ian Cook	Open	20m	167

DXCC updates (cont.)

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
91	VK2ZQ	Michael Ramsay	Open	20m	234
100	VK3GA	Graham Alston	Open	20m	280
108	VK3AWG	Christopher Bellmont	Open	20m	199
111	VK3VTH	Tony Hambling	Open	20m	136
143	VK2BYI	Christopher Fredericks	Open	20m	165
165	VK5GR	Grant Willis	Open	20m	161
189	VK3LDB	David Burden	Open	20m	131
21	VK3SX	Bob Robinson	Phone	20m	328
39	VK6WX	Wesley Beck	Phone	20m	165
42	VK7CW	Steven Salvia	Phone	20m	263
56	VK3OHM	Marc Hillman	Phone	20m	167
82	VK6APK	Aleksandar Petkovic	Phone	20m	265
92	VK2ZQ	Michael Ramsay	Phone	20m	216
101	VK3GA	Graham Alston	Phone	20m	180
107	VK3AWG	Christopher Bellmont	Phone	20m	143
151	VK6DW	Ian Cook	Phone	20m	117
167	VK3FZ	Roger Stafford	Phone	20m	180
169	VK3JLS	John Seamons	Phone	20m	200

DXCC Multi-band (3)

#	Call	Name	Mode	Band	Count
18	VK2CA	Allan Meredith	CW	30-20-15m	539
24	VK3EW	David McAulay	CW	30-20-17m	890
37	VK7CW	Steven Salvia	CW	30-20-17m	749
117	KJ6P	David Gregory	CW	40-30-17m	381
66	VK3EW	David McAulay	Digital	30-20-15m	518
111	VK2CA	Allan Meredith	Digital	20-17-15m	428
17	VK2CA	Allan Meredith	Open	20-17-15m	881
30	VK3SX	Bob Robinson	Open	20-15-10m	692
36	VK7CW	Steven Salvia	Open	30-20-17m	791
42	VK5DG	David Giles	Open	30-20-15m	378
59	VK6APK	Aleksandar Petkovic	Open	40-30-20m	700
63	VK2ZQ	Michael Ramsay	Open	40-20-10m	535
69	VK3MEG	Steven Barr	Open	20-15-10m	545
73	VK3GA	Graham Alston	Open	20-17-15m	664
95	VK3OHM	Marc Hillman	Open	40-20-15m	481
97	VK6DW	Ian Cook	Open	40-20-15m	423
102	VK3FZ	Roger Stafford	Open	20-15-10m	593
112	VK6WX	Wesley Beck	Open	40-20-15m	462
2	VK2CA	Allan Meredith	Phone	20-17-15m	714
23	VK3EW	David McAulay	Phone	40-20-15m	981
31	VK3SX	Bob Robinson	Phone	20-15-10m	684
60	VK6APK	Aleksandar Petkovic	Phone	40-20-10m	499
64	VK2ZQ	Michael Ramsay	Phone	20-15-10m	494
68	VK3MEG	Steven Barr	Phone	20-15-10m	499
72	VK7CW	Steven Salvia	Phone	20-15-10m	503
96	OH8LXT	Veikko Pennala	Phone	20-17-15m	527
103	VK3FZ	Roger Stafford	Phone	20-15-10m	475

DXCC Multi-band (5)

#	Call	Name	Mode	Band	Count
20	VK2CA	Allan Meredith	CW	30-20-17-15-12m	836
21	VK3EW	David McAulay	CW	40-30-20-17-12m	1380
35	VK7CW	Steven Salvia	CW	40-30-20-17-15m	1144
64	OH8LXT	Veikko Pennala	CW	20-17-15-12-10m	869
66	OH8LXT	Veikko Pennala	Digital	20-17-15-12-10m	888
79	VK3EW	David McAulay	Digital	40-30-20-17-15m	765
29	VK3EW	David McAulay	Open	40-30-20-17-15m	1656
34	VK7CW	Steven Salvia	Open	40-30-20-17-15m	1211
43	VK6APK	Aleksandar Petkovic	Open	40-30-20-15-10m	947
47	VK3SX	Bob Robinson	Open	40-20-17-15-10m	965
65	OH8LXT	Veikko Pennala	Open	20-17-15-12-10m	1252
70	VK3VT	Greg Williams	Open	40-30-20-17-15m	811
72	VK3FZ	Roger Stafford	Open	20-17-15-12-10m	871
73	VK3GA	Graham Alston	Open	40-30-20-17-15m	966
2	VK3EW	David McAulay	Phone	40-20-17-15-10m	1601
19	VK2CA	Allan Meredith	Phone	20-17-15-12-10m	1067
52	VK3SX	Bob Robinson	Phone	40-20-17-15-10m	945

DXCC Multi-band (7)

#	Call	Name	Mode	Band	Count
9	VK2CA	Allan Meredith	CW	40-30-20-17-15-12-10m	1107
10	VK3EW	David McAulay	CW	80-40-30-20-17-15-12m	1777
14	VK7CW	Steven Salvia	CW	40-30-20-17-15-12-10m	1496
6	VK2CA	Allan Meredith	Open	40-30-20-17-15-12-10m	1777
7	VK3EW	David McAulay	Open	40-30-20-17-15-12-10m	2295
15	VK7CW	Steven Salvia	Open	40-30-20-17-15-12-10m	1587
23	VK6APK	Aleksandar Petkovic	Open	80-40-30-20-17-15-10m	1162
35	VK3FZ	Roger Stafford	Open	40-30-20-17-15-12-10m	1112
36	VK4CAG	Graeme Dowse	Open	40-30-20-17-15-12-10m	1302
39	OH8LXT	Veikko Pennala	Open	40-30-20-17-15-12-10m	1527
40	KJ6P	David Gregory	Open	40-30-20-17-15-12-10m	1529
8	VK3EW	David McAulay	Phone	80-40-20-17-15-12-10m	2173

DXCC Multi-band (9)

#	Call	Name	Mode	Band	Count
12	VK3EW	David McAulay	CW	160-80-40-30-20-17-15-12-10m	2098
19	DK3UA	Reinhard Michaelis	CW	160-80-40-30-20-17-15-12-10m	1392
1	VK3EW	David McAulay	Open	160-80-40-30-20-17-15-12-10m	2780

DXCC Multi-mode (CW)

#	Call	Name	Count
202	VK2CA	Allan Meredith	306
223	VK6WX	Wesley Beck	193
234	VK3MEG	Steven Barr	147
243	VK3WE	Rhett Donnan	120
246	VK6DW	Ian Cook	132

DXCC Multi-mode (Digital)

#	Call	Name	Count
20	VK3EW	David McAulay	285
25	VK3OHM	Marc Hillman	152
33	VK7CW	Steven Salvia	141
41	VK6DW	Ian Cook	145
47	VK3AWG	Christopher Bellmont	166
48	VK2ZQ	Michael Ramsay	142
56	VK2BYI	Christopher Fredericks	164
60	VK6BMW	Richard Grocott	121
62	VK5GR	Grant Willis	181
65	VK3FZ	Roger Stafford	129
66	VK3JLS	John Seamons	133
71	VK3LDB	David Burden	155
72	VK3VM	Stephen Ireland	113

DXCC Multi-mode (Open)

#	Call	Name	Count
363	VK3OHM	Marc Hillman	247
370	VK3MEG	Steven Barr	264
376	VK6WX	Wesley Beck	252
381	VK3VT	Greg Williams	317
383	VK5DG	David Giles	197
385	VK2ND	Ian Hawkins	140
394	VK3JLS	John Seamons	240
397	VK3AWG	Christopher Bellmont	241
407	VK6DW	Ian Cook	209
413	VK3WE	Rhett Donnan	160
417	VK2ZQ	Michael Ramsay	296
419	VK3GA	Graham Alston	309
429	VK6BMW	Richard Grocott	129
440	VK2BYI	Christopher Fredericks	177
444	VK5GR	Grant Willis	199
451	VK3FZ	Roger Stafford	307
454	VK9VKL	Clifford Tindall	159
458	VK3LDB	David Burden	160
459	VK3VM	Stephen Ireland	114

DXCC Multi-mode (Phone)

#	Call	Name	Count
549	VK2VEL	Edwin Lowe	137
569	VK3OHM	Marc Hillman	226
573	VK6WX	Wesley Beck	216
575	VK3MEG	Steven Barr	250
583	VK2ND	Ian Hawkins	132
586	VK7CW	Steven Salvia	283
587	VK3JLS	John Seamons	224
596	VK2ZQ	Michael Ramsay	287
599	VK6DW	Ian Cook	157
602	VK3AWG	Christopher Bellmont	184
617	VK3FZ	Roger Stafford	267

Hamads

WANTED – WA

ICOM IC-700R HF Receiver, any condition.

Phil Harman, VK6APH/VK6PH, 08 9245 2973,
email: phil@pharman.org

WANTED - NSW

Plug- in inserts for a Sola Basic thru line RF wattmeter (it appears to be a copy of the Bird ThruLine wattmeter, so Bird plugins may suit). The main insert plugin I need is to cover approx 3-30 MHz.

Scotty VK2KE gsco8077@bigpond.net.au



Over to you

Radio 4KZ Innisfail on 5055 kHz

Just a note to let you know that Radio 4KZ Innisfail, as part of our 50th Anniversary commenced shortwave broadcasting on 20 December 2017 (same date as Radio Australia's commencement in 1939). The transmission site is East Innisfail, co sited with 4KZ 531 kHz and 4AY 873 kHz transmitters.

The frequency is 5055 kHz and the antenna is an inverted V. Operating times are 6 am to midnight daily QLD time. Power is only 250 watts. We hope to get that up to 1 kW in the not too distant future. So far, we have received reception reports from across Australia and 12 other countries.

Any reports from SWLs or Amateurs most welcome to al@nqradiocom.au All correct reports will receive a DL size QSL card. Return postage is NOT required.

Sincerely,

Al Kirton VK4FFKZ



Participate

HARGfest

22 April 2018

Harry Angel Memorial 80 m Sprint 2018

Presented by Dr. Kevin Johnston VK4UH

Saturday May 5th 2017 1000 UTC - 1146 UTC

The Harry Angel Sprint is an annual 80 m contest event, first established in 1999, to commemorate the life of Harry Angel VK4HA who, at the time of his death at the age of 106, was the oldest licensed amateur in Australia. The duration of the contest is 106 minutes in commemoration of Harry's age, one minute for each year of his life.

The "HA" is held on or around the first Saturday in May each year. The contest is open to all grades of license holder and is structured specifically to suit both seasoned contesters and operators new to contesting. The rules for this year's event are essentially unchanged from 2017. Place winners in the Harry Angel Contest are also eligible to claim points for the WIA Contest Champion (Peter Brown) Trophy.

"Harry Angel" Rules

The contest is open to all amateurs, who are licensed to use 80 m, including individual operators and those entering on behalf of a licensed club or society. The aim of the competition is to make as many contacts as possible in the allotted time. Each station may be worked on one occasion only per mode.

This year there will be four sections PHONE, CW, MIXED and SWL (Short Wave Listener - receive only).

Entries may only be made in one section.

Frequencies

CW 3500 - 3535 kHz. Phone 3535 - 3665 kHz

Exchange

RS (T) and serial number commencing at 001

Scoring

2 points per CW QSO, 1 point per

ST. LUCIA, BRISBANE, QUEENSLAND

To Radio ZL2RA Your FONE on 18-5-37 at 2250 B.M.T.

QSA 5 Note Tg QSB Nil ORN - ORN - QRG 3-5 QRH 3-5 Mc

R7.

TRANSMITTER
3 STAGE XTAL
Input 20 Watts
HE IS Modulation

RECEIVER
4 TUBE
TRF
A.C.

REMARKS Main lnx for ry fb QSO on 18-5-37 to C. J. J. soon

QRK? Pse QSL

Best DX & Vy 73 fm H. B. ANGEL, M.W.I.A. Owner-Operator
Harry

Phone QSO, 1 point per station
logged SWL

Log

Transmitting logs must show Time UTC, Callsign of stations worked, mode, RS (T) sent and received and a serial number commencing at 001.

SWL logs

Listener entries must include Callsign of station heard, callsign of station being worked and the report being given to station being worked, listeners RS (T) and a listener's serial number commencing at 001. Listeners may only log stations actually heard but need not have reception of both stations in order to claim points.

Each entry shall be accompanied by a statement to the effect that "Operation was conducted within the rules and spirit of the competition" - this occurs automatically with entries from the VKCL logging software.

Entries

VK Contest Logger (VKCL) is the recommended logging software

Logs may be submitted via e-mail in electronic format, the preferred method, or by post.

Entrants are specifically requested not to send more than one e-mailed log file.

Postal entries must be clearly legible and by preference printed in the above VKCL format.

The contest managers request that all logs clearly indicate the callsign of the contest station itself - not the callsign of the operator of person filing the log where this is different.

Hand written and typed entries will still be accepted provided that they are clear and legible and in the same basic format as VKCL.

Entries must be received by last post on Monday 21st May 2018

Electronic submission to:
harryangel@redclifferadioclub.org.au

To ensure all electronic logs are captured all e-mailed entries must contain the following string in the subject line:

"Harry Angel Log (CONTEST STATION CALLSIGN)"
eg: Harry Angel Log (VK4UH)

Postal submissions to:

Harry Angel Sprint Manager
Redcliffe and District Radio Club
PO Box 20, Woody Point, Qld 4019

All entries must include a return postal address and a current e-mail address. Receipt of all logs will be confirmed by e-mail within two working days.

The managers would also welcome a short note with entries indicating some brief details of the station and antenna used and any comments regarding operating conditions occurring during the contest. (Suitable for printing please)

Results

Results will be announced first on

the WIA Sunday Morning News Broadcast and then published within 28 days of the closing date on:

- WIA Contest website,
- Redcliffe and Districts Radio Club website
- Contest Column of *Amateur Radio* magazine

Award

Certificates will be awarded at the discretion of the contest manager for the top three entries in each of the transmitting sections and for the top entry in the SWL section.

The Harry Angel Sprint 2018 is being coordinated on behalf of the Redcliffe and Districts Radio Club and the WIA by Contest Managers Kevin Johnston VK4UH and Charlie Strong VK4YZ, who this year will be the lead manager.

Full information regarding the contest is available on the WIA Contest website <http://www.wia.org.au/members/contests/harryangel/index.php> and R&DRC website: - <http://www.redclifferadioclub.org.au>

Harry Angel 2017 Results and Certificate winners (*)

CW Section		
STEVE SALVIA	VK7CW	48 *
SKIP HODGSON	VK2ALR	42 *
KUND OLESEN-JENSEN	VK2KJJ	38*
GAVIN BRAIN	VK3HY	34
PATRICK NOVAK	VK2PN	34
HILARY BRIDEL	VK2IUW	34
GEORGE DOWN	VK4XY	30
MIKE DOWER	VK2IG	30
CHRIS THOMPSON	VK1CT	30
GRANT LA DELLE	VK2GEL	8
MIXED Section		
WIA AGM station	VK5WOW	105*
LAWRIE MEW	VK5LJ	78*
ALAN SHANNON	VK4SN	75*
PETER MUTCH	VK4LAT	71
JOHN EYLES	VK2YW	61
LAURIE GORDON	VK2GZ	51
MARK RUTHERFORD	VK4FMAX	31
BILL COUSINS	ZL3VZ	29
Hills ARG	VK6AHR	26
PHONE Section		
CHRIS CARROLL	VK2SR	79*
CHRIS PLATT	VK5CP	74*
ROB McKNIGHT	VK2MT	72*
ROGER CROFTS	VK4QD	69
CHARLIE STRONG	VK4YZ	67
PAUL SIMMONDS	VK5PAS	63
LES SIDEBOTTOM	VK2CPC	62

DOUG HUNTER	VK4ADC	59
PETER PRATT	VK2TTP	53
TED POWEL DX CLUB	VK2AU	51
PAUL MAINEY	VK2YX	49
RIK THIEL	VK5MU	41
JOHN WATT	VK2QN	38
Northern Corridor group	VK6NC	38
DAVID ROLFE	VK3JL	34
GARRY DUENCE	VK7JGD	32
DAVE JOYCE	VK5FFAU	32
RHODERICK ROWE	VK2TTL	31
PETER MURPHY	VK5KX	30
DERRICK HARCOURT	VK2DEK	29
EPOCH XENOMANIA	VK3FVKI	29
JOHN BENNETT	VK3BSE	24
DARREN JURY	VK5DT	24
GORDON GAM	VK2MTM	23
DOUG McDONALD	VK4KET	22
ALAN WILLS	VK4NA	20
ROB HEYER	VK2XIC	19
GERARD VIAL	VK6QM	17
KEITH WOODLEY	VK6WK	11
CHRIS HENDRY	VK3PAT	10
CLIVE WALLIS	VK6CSW	9
WESLEY PURDY	VK4HWP	7
JOHN KESBY	VK4FKES	6
ROBERT HUDSON	VK2AOR	3
SWL Section		
MARCUS BERGLUND		61*
JOHN RAMSEY		27*

Congratulations to all stations participating.

Kevin Johnston VK4UH

Manager, Harry Angel Sprint



Antennapalooza 2018



In a first for Amateur Radio in Australia, four Victorian Radio Clubs are joining forces to host a major field event.

Antennapalooza, now in its fifth year, will return to Drouin West on April 7 & 8 (the first weekend after Easter)

The theme for 2018 will be about what it takes to get started in the hobby of Amateur Radio. Visit: <http://antennapalooza.org.au/>

Set in a 6 acre field, 50 km due East of Dandenong, visitors can bring their tent or caravan, or just stay for the day. Set up an antenna and have a play on-air, or just listen to a few short talks on different aspects of getting into Amateur Radio. Free Entry, just come along, relax and enjoy the day. Bookings are not essential, but please email a registration with your **name** and **callsign** so we can plan logistics. Let us know if you plan to camp or just stay for the day. Email us at: bookings@antennapalooza.org.au

The website <http://antennapalooza.org.au/> will provide info on how to find the venue, what to expect when you get here and list the short lectures that will feature on the Saturday and Sunday.



Free tea, coffee & barbecue facilities will be on hand. Toilet facilities are provided. In the evening a warming fire will be lit in the Treed Area. (if no fire danger alerts are pending) Experienced Amateurs can try their field equipment, meet old friends and throw some snags on the barbie. Visitors, who have heard a little about Amateur Radio, but want to know more, will benefit from this event. The brief lectures in the central pavilion will answer many questions that prospective operators will need to know.

Antennapalooza 2018 is jointly sponsored by:

- ♦ *The Gippsland Gate Radio & Electronics Club,* (GGREC)
- ♦ *Eastern & Mountain District Radio Club* (EMDRC)
- ♦ *Frankston & Mornington Peninsula Amateur Radio Club* (FAMPARC)
- ♦ *Moorabbin District Radio Club* (MDRC)

Silent Key

Ron Fisher VK3OM

14 June 1930 - 2 February 2018

Amateur radio was a major part of Ron Fisher's life. For much of the time that Ron was a licensed amateur radio operator he was one of the better known, respected and admired Australian amateurs both here in Australia and overseas.

Ron first became a licensed radio amateur in January 1950 at age 19 and joined the Wireless Institute of Australia in August that year - he was still a member of the WIA at the time of his death.

I first met Ron on-air in 1960. We met shortly thereafter in person when I helped him install a WWII vintage radio, an Army surplus No 122 set - in the Elwood Life Saving Club's Miss Ampol cabin cruiser. From that time on Ron became one of my best friends and at the time of his death was my oldest surviving friend.

Ron and I served together on the Publications Committee of the WIA's monthly magazine *Amateur Radio* for over 50 years. During that time Ron wrote countless articles for the magazine, including 148 equipment reviews which covered from complex multi-thousand dollar transceivers down to coaxial antenna switches. He also wrote countless other articles over the years, including from time to time co-authoring several well-known columns such as *Random Radiators*, *Novice Notes* and *Technical Topics*.

Ron was one of the early members of the Radio Amateurs Old Timers Club, having joined in 1976 as member No 103. He served on the management committee of the Old Timers Club with me for 20 years. For many years he relayed the club's monthly news broadcasts on several frequencies. At the time of his passing Ron was the longest serving member of the RAOTC.

Although Ron was an extremely valuable member of several amateur radio committees over the decades, he never once took on any administrative position. That was not Ron's scene. But his encyclopaedic knowledge of just about anything to do with amateur radio was invaluable to every committee on which he served.

Many amateurs knew Ron for his excellent sounding voice transmissions. He had an ABC quality announcer's voice and made sure his equipment broadcast it faithfully.

There were not too many days in Ron's life since 1950 that he did not have at least one contact on-air. Apart from radio contacts all around Australia he made countless overseas



contacts as well, particularly with hams in the UK. In fact he had so many radio friends there that the first time he ever travelled overseas was to the UK and for the several weeks he was there he did not book into a hotel or motel once, but stayed in the homes of amateurs he had made friends with on air, moving from one to another.

From 1972 until 1990 Ron and I presented what was known as the *Federal Tapes*, a ten minute news segment played in every WIA news broadcast.

One of the consequences of these 'Federal Tapes' was that quite a number of people had trouble differentiating between Ron's and my voices. I am not quite sure what Ron thought when people inadvertently called him 'Bill' on air, but I felt flattered when people called me 'Ron' because I always envied Ron his most magnificent microphone voice. Even today, I still occasionally am called 'Ron' on air.

Although Ron's and my lives took different paths over the decades, we still remained connected through on-air chats, the regular committee meetings we attended, the many hamfests we attended together around Melbourne and the Victorian countryside, the odd family barbeque, games of squash - you wouldn't believe how competitive the normally placid Ron became on the squash court - several flights as a passenger during Ron's flying days, and my involvement in later years in assisting Ron with many of his much lauded equipment reviews.

Ron was very knowledgeable in the buying and selling of second-hand amateur radio equipment. If amateurs wanted to sell or buy equipment, often they contacted Ron first to see if he was interested or knew where they could find what they were looking for.

Ron was very generous in his advice to new amateurs, and was always there to assist. However, he was a stickler for accuracy of operating procedure on the amateur bands. Sometimes he would politely offer advice when the miscreant really did not want it, but he usually did it tactfully.

Ron's radio shack was always impeccable with lots of equipment. Photos of Ron's 'shack' were published in various magazines over the years and raised the admiration and envy of all who saw them.

In 2010 Ron was awarded the GA Taylor Medallion in recognition of half a century of voluntary service to the Wireless Institute of Australia, mainly associated with the WIA journal *Amateur Radio*. This award is only conferred by the WIA irregularly and rarely, in acknowledgment of exceptional voluntary service to the WIA. Ron was a well deserving and popular recipient of this prestigious award.

Sadly, Ron's life changed dramatically just a few years ago when he suffered a massive stroke, completely paralysing the left side of his body. Despite his disabilities, when he was eventually settled into the Villa Maria Nursing Home, Ron was soon back on-air with his beloved amateur radio, albeit only talking to local amateurs on 2 m FM, thanks mainly to the efforts of John Piovesan VK3GU.

During his time in the nursing home, I spoke to Ron on-air virtually every day. Initially we talked about technical matters but gradually Ron mainly wanted to reminisce about the past - particularly about the many radio amateurs we had both known over the years.

Eventually, however, his ability to operate even the simplest of radios diminished as he slowly slipped away from us and he finally went off air towards the end of last year.

Since Ron had the last, major stroke and went into care, I have responded to countless enquiries from amateurs, from around Australia and from overseas, wanting to know how Ron was going.

To me and to many others, Ron's passing is almost the end of an era.

But one thing is for sure. Ron, will be long remembered and live on in the annals of amateur radio in this country for his contribution to this wonderful hobby which was so much a part of his life.

Au revoir, Ron and very 73 old friend.
Bill Roper VK3BR



Participate

2018 South East Radio Group's Convention and
Australian Fox Hunting Championship

9-10 June 2018

Ross Hull Memorial VHF-UHF Contest

2018: Results

Retiring contest manager: John Martin VK3KM

This year the winner of the analog section is again Ted Thrift, VK2ARA, and the digital winner is again Rex Moncur VK7MO. Congratulations to them and to all other entrants. The contest still seems to be a largely VK2 affair, so I am hoping that next year will see an upsurge of activity to give these VK2s more competition!

Call	Name	50 MHz	144 MHz	432 MHz	1296 MHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	24 GHz	47 GHz	TOTAL
Section A: Analog modes, best 7 days												
VK2ARA	Ted Thrift	1124	1038	360	136	60	-	-	-	-	-	2718
VK2AH	Brian Farrar	1240	702	365	112	-	-	-	-	-	-	2419
VK2YW	John Eyles	430	480	-	-	-	-	-	-	-	-	910
VK2XIC	Rob Heyer	136	366	150	112	60	-	-	-	-	-	824
VK3AV	Bernard Petherbridge	326	102	95	112	30	20	-	-	-	-	685
VK2BLS	Darrell Harman	128	84	140	168	150	-	-	-	-	-	670
VK2AZ	Hilary Bridel	458	141	30	24	-	-	-	-	-	-	653
VK6ADI	Barrie Burns	494	30	-	-	-	-	-	-	-	-	524
VK2FLJD	Jason Dickens	-	237	260	-	-	-	-	-	-	-	497
VK4LHD	Robert Garland	-	-	-	16	-	-	-	-	-	-	16
Section C: Analog modes, best 2 days												
VK2ARA	Ted Thrift	392	513	150	48	60	-	-	-	-	-	1123
VK2AH	Brian Farrar	366	441	150	40	-	-	-	-	-	-	997
VK3AV	Bernard Petherbridge	326	102	95	112	30	20	-	-	-	-	685
VK2YW	John Eyles	144	411	-	-	-	-	-	-	-	-	555
VK2AZ	Hilary Bridel	316	18	20	16	-	-	-	-	-	-	370
VK6ADI	Barrie Burns	362	-	-	-	-	-	-	-	-	-	362
VK2XIC	Rob Heyer	8	243	40	24	20	-	-	-	-	-	335
VK2FLJD	Jason Dickens	-	147	140	-	-	-	-	-	-	-	287
VK2BLS	Darrell Harman	96	24	40	48	40	-	-	-	-	-	248
VK4LHD	Robert Garland	-	-	-	16	-	-	-	-	-	-	16
Section B: Digital modes, best 7 days												
VK7MO	Rex Moncur	4050	261	-	64	-	-	-	10	-	-	4385
VK2AZ	Hilary Bridel	2016	-	-	-	-	-	-	-	-	-	2016
VK4SN	Alan Shannon	516	-	-	-	-	-	-	-	-	-	516
VK4TS	Trent Sampson	292	-	-	-	-	-	-	-	-	-	292
VK4LHD	Robert Garland	90	84	-	-	-	-	-	-	-	-	174
Section D: Digital modes, best 2 days												
VK7MO	Rex Moncur	1460	111	-	48	-	-	-	-	-	-	1619
VK2AZ	Hilary Bridel	954	-	-	-	-	-	-	-	-	-	954
VK4TS	Trent Sampson	292	-	-	-	-	-	-	-	-	-	292
VK4LHD	Robert Garland	60	51	-	-	-	-	-	-	-	-	111

Contest web page: <http://www.wia.org.au/members/contests/rosshull/>

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



VHF/UHF - An Expanding World

David K Minchin VK5KK

Introduction

This month we have a report on the Sporadic Es openings on 144 MHz in January 2018 as well as a report on the Dorsten “GHz Meeting” in Germany. The question on whether Tropo works on 47 GHz is answered (!) as well as Kevin’s Meteor Scatter notes can be in the next few pages.

January 2018 Sporadic Es on 144 MHz

When everything lines up in the E layer and a cloud of ionization slowly drifts across a populous area everything lights up! Such was the case a number of times in January, 2018. The number of contacts over 2000 km during this period easily eclipses any other period for years. It is impossible to report on all however Figure 1 shows some of the activity (Courtesy of VKLogger) for just 90 minutes on 15/1/2018. Of note in this clip is Colin VK5DK’s contact at 0839 with ZL1RQ at 2939 km.

The longest contacts recorded seem to be “triple hop” Es. Garry VK5ZK, Phil VK5AKK and Peter VK5PJ worked a number of ZLs over the 3000 km barrier on 6/1/2018. VK5ZK to Nick ZL1IU was the longest recorded 144 MHz contact on 6/1/2018 at 0358 UTC, for a new VK5 state record of 3166 km. Other ZLs worked on the same day from VK5 over ~3000 km included ZL3NW, ZL3RC, ZL3TLA & ZL3OZ. Rex VK7MO also had an FT8 contact with ZL1HD (2526.9 km) also on 6/1/2018 at 0243 showing the diverse area and timing of this opening.

In VK3 Steve VK3ZAZ worked ZL1AKM on 30/1/2018 at 0542

09:15 15-Jan	VK2ZT	QF57WF	> ZL1IU in RF64VR on 144.100.0 SSB 53 > @ 2042.0km 104°
08:56 15-Jan	VK5DK	QF02JE	> ZL1IU in RF64VR on 144.100.0 SSB 53 > @ 2957.0km 95° Very short peak with other weak signals also but too weak to read
08:51 15-Jan	VK5DK	QF02JE	> ZL1RQ in RF64SX on 144.100.0 SSB 51 > @ 2939.9km 94°
08:50 15-Jan	VK3DUT	QF32VF	> ZL1AKW in RF82CG on 144.100.0 SSB 58 > @ 2488.0km 99°
08:39 15-Jan	ZL1RQ	RF64SX	> VK5DK in QF02JE on 144.100.0 SSB 51 > @ 2939.9km 254°
08:34 15-Jan	VK2DCT	QF56IG	> CONCERT FM in RF73IE on 92.600 WFM 57 > @ 2205.5km 106°
08:28 15-Jan	VK3VG	QF23RO	> ZL1IU in RF64VR on 144.100.0 SSB 52 > @ 2556.1km 96°
08:24 15-Jan	VK2ZT	QF57WF	> ZL3NW in RE66HO on 144.100.0 SSB 59 > @ 2160.8km 129°
08:21 15-Jan	ZL3RC	RE66FL	> VK2ZT in QF57WF on 144.100.0 SSB 57 > @ 2151.9km 297°
08:21 15-Jan	VK2ZT	QF57WF	> ZL3RC in RE66FL on 144.100.0 SSB 59 > @ 2151.9km 130° Plus 20
08:18 15-Jan	VK2ZT	QF57WF	> ZL3VHF in RE66GL on 144.285.000 BCN 599 > @ 2164.0km 130°
08:16 15-Jan	VK3PP	QF02XF	> ZL1IU in RF64VR on 144.100.0 SSB 51 > @ 2853.0km 94° Thank you
08:16 15-Jan	VK2HBT	QF46SO	> CONCERT FM in RE66HL on 89.700 WFM 59 > @ 2295.0km 126°
08:03 15-Jan	VK3BBB	QF31GT	> ZL1RQ in RF64SX on 144.100.0 SSB 59 > @ 2479.5km 91°
08:03 15-Jan	VK3BBB	QF31GT	> ZL1IU in RF64VR on 144.100.0 SSB 55 > @ 2496.6km 92°
08:01 15-Jan	ZL1RQ	RF64SX	> VK3XPD in QF22ND on 144.100.0 SSB 59 > @ 2559.5km 255°
07:59 15-Jan	ZL1RQ	QF22PF	> ZL1IU in RF64VR on 144.100.0 SSB 57 > @ 2562.8km 93° Thanks Nick, second only ZL on 2m after 47 years on air!
07:44 15-Jan	VK3BY	QF22MB	> ZL1IU in RF64VR on 144.100.0 SSB 52 > @ 2581.0km 92°
07:38 15-Jan	VK3ZYS	QF22QE	> ZL1IU in RF64VR on 144.100.0 SSB 55 > @ 2555.5km 92°

Figure 1: Snapshot of 144 MHz activity 15/1/2018 – VKLogger.

UTC SSB to set a new state record of 3009 km. Other VK3s amongst the action with +2600 km contacts on the same day included VK3PP, VK3ZL, VK3MEG, VK3BY, VK3YFL, VK3VG, VK3ZYS, and more.

There were many more SSB/CW contacts in this period between VK1, VK2, VK3, VK4, VK5, ZL1, ZL2 and ZL3 as well as WSPR, JT65 and FT8 contacts. Next edition Leigh VK2KRR’s regular section will return. All contributions on propagation and WSPR are welcome; just email Leigh VK2KRR at vk2krr@wia.org.au or myself.

Dorsten “GHz Meeting” in Germany, Feb 2018

The “GHz Tatum” (Meeting in German) in Dorsten deal is similar to our own “GippsTech” except dealing only with frequencies above 1.2 GHz. Dorsten is in north west Germany not far from the Dutch border. The conference is organized by the DARC, the local club “Herrlichkeit-Lembeck”, and the DARC district “Westphalia-north”. The 39th conference was held this

year on 17/2/2018. This is one of a number of regular VHF/Microwave only conferences in Europe and the UK, others include Heelwig (Holland), Weinheim (Germany) and the biannual EME Conference.

Each year it is visited by more than 200 radio amateurs, discussing the newest developments on microwave bands. Numerous specialized technical lectures make up the basis of the GHz-Tagung giving the opportunity for personal discussion. The lectures are usually held in German (as with all conferences in Germany!) however plenty of English was used in other areas.

This year was no different to others with a lot of “bleeding edge” microwave equipment on display as well as the latest products from vendors such as Kuhne Electronic (DB6NT), Eisch, etc. and a small flea market. Wolfgang OE4WOG has provided some photos of the equipment on display. One assembly that created great interest was a multiband mmWave transverter system built by Gert



Photo 1: DG8EB's Multiband mmWave transverter front view.

DG8EB. The all-in-one transverter operates on 24, 47, 76, 122, 134 and 241 GHz! Photos 1 and 2 show the unit mounted in a surplus Ericsson mmWave Outdoor unit. One wonders how hard the 600 mm dish would be to aim with 0.04 degree beam width on 241 GHz?! To that end the fine adjustment of elevation and azimuth is done by fine thread adjusters and the azimuth readout is to 0.1 degrees courtesy of a digital protractor (Bunnings \$30 type!).

The complexity of the unit to achieve effective operation on all bands is mind blowing. Quick statistics, there are four feeds, 24, 47 and 76 GHz have their own and 122, 134 & 241 GHz use a common mixer/horn arrangement using a harmonic mixer pumped at 60 - 67 GHz. A single Kuhne MKU LO 8 - 13 PLL is used as the LO. The 3.2" (81 mm) touch screen display is a simple add on for the LO that makes changing frequency easy. These are an iTeard NX4024T032 obtained online for around \$40. They have a STM32 F03 CPU onboard with a boot loader, all you need to do is download the firmware from the Kuhne website and plug it in to the LO. There is a rubidium 10 MHz reference oscillator buried in there somewhere! To change the feed positions there is vertical tilt

arrangement that uses a modified video recorder capstan that rotates adjustable positioners to move pivot the feed into position.

Another interesting device was the "RDR Pocket" SDR receiver created by Burkhard Reuter. There are various models in the range, the most interesting one is the "C4" transceiver model that covers 0 - 156 MHz and will also transmit an output of 2.5 mW (Photo 3). Perfect for microwave transverter use! The unit has a 4.3" (107 mm) touch screen and internal LiPo batteries (4 hours operation). Even though the unit is perhaps still in development, it created great interest. For more information go to <http://www.reuter-elektronik.de/html/pocket.html>

Michael DB6NT has "semi-retired" from the Kuhne business which now gives him more time for microwave operation. This seems to have had a spin off in new products for 47 GHz and above so he still has an active role in development! In 2016, Kuhne released a 30 mW (most >60mW!) monoblock 47 GHz transverter; for Dorsten Michael had on display the prototype of a new monoblock 76 GHz transverter the same size as the 47 GHz version. Both transverters need the MKU LO 8 - 13 GHz PLL local oscillator or one of the other 10 - 13 GHz PLLs we have discussed in this column to complete the system. The transverter is either single conversion (144 MHz IF) or double conversion (28 MHz) if you use the 116 MHz output of the MKU LO 8-13 PLL. The 28 MHz IF option may seem a bit retro but the popularity of the SDR Icom IC-7300 HF-50 MHz as an IF is on the increase given its

far better performance than what is usually used for a transverter IF! Next issue we will talk about the simple modifications you can do to an IC-7300 to add a low level 28 MHz drive out. Final specs, release date and pricing are still TBA but this will not be a low power transverter, stay tuned!

In the meantime, Hans OE2JOM and Rudi OE5VRL have created a WR12 76 GHz version of the HL style waveguide switch that mates up with the prototype transverter (see Photo 4). The pair has already manufactured 25 of a WR19 47 GHz version with attachments that perfectly mate up with the Kuhne 47 GHz transverter. The HL style waveguide switch uses a sliding probe (effectively a 1/4 wave pin on each end) that alternatively couples the outer receive or the transmit waveguides to a central antenna waveguide. The probe is inserted in a thin Teflon tube (the Teflon inner of 0.085" hardline!) and positioned by a latching solenoid. The precision required to manufacture such a relay is

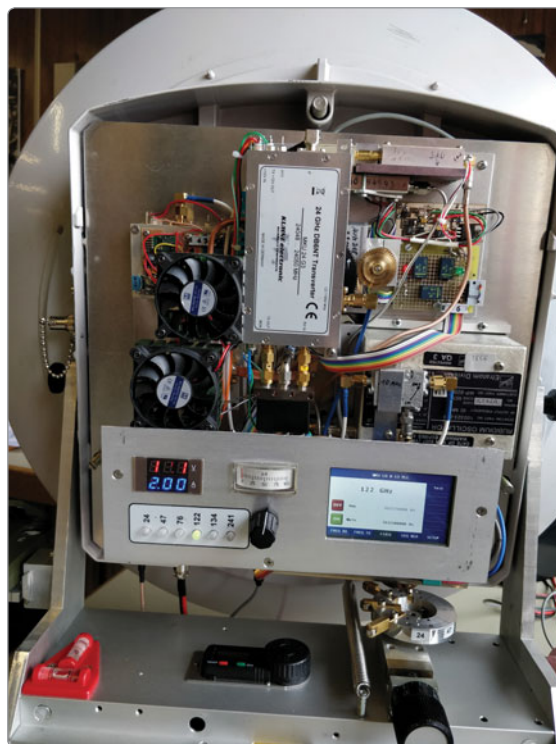


Photo 2: DG8EB's Multiband mmWave transverter rear view.

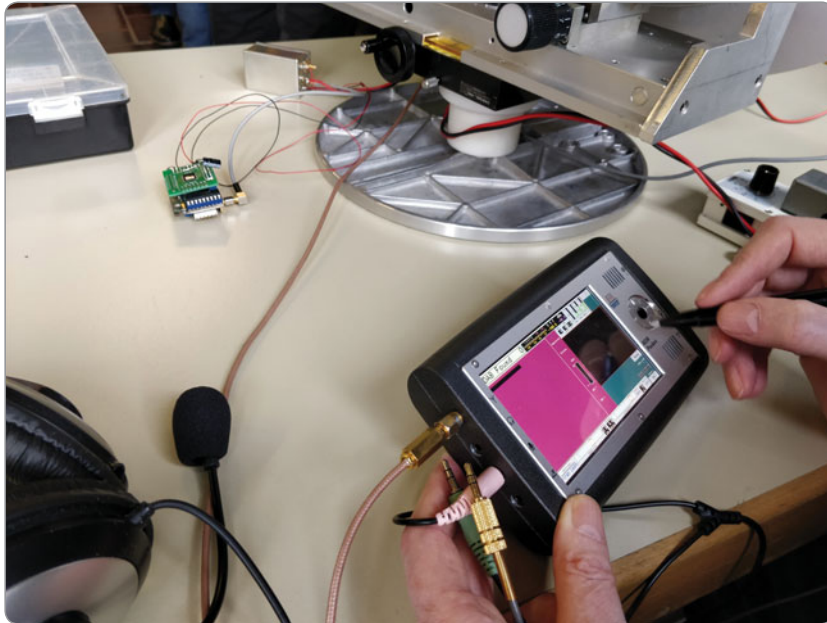


Photo 3: The RDR Pocket SDR Transceiver.

extreme but luckily Rudi OE5VRL is a master machinist and has access to modern CNC equipment. For interest, the waveguide cavities are formed by wire erosion techniques and then machined out to the WR12 waveguide section (3.0mm x 1.5 mm!). BTW: a quarter wave on 76 GHz is approximately 1 mm long!

An optical sensor is used to confirm when the probe is fully in position before the TX is enabled. Hans OE2 JOM has created

a control board that provides sequencing and safety protection of the transverter should the relay not switch. The control board is very similar to that used for the 47 GHz HL switch and has full DC over current or voltage protection as well as voltage regulators to run all ancillary modules in the transverter.

Does Tropo work on 47 GHz?

To date most of the experiments on 47 GHz have been limited to line

of site contacts, in fact the current VK distance record is around 175 km over what is probably the longest clear radio LOS path in VK3 with low (RST 52) signals. In the meantime VK5ZD, VK5TE and VK5KK have been doing more experimenting over various LOS and non LOS +150 km paths. VK5ZD located at a wind farm (Hope Gap) in the mid north of SA and VK5KK at Mt Lofy set a new 47 GHz VK5 record of 154 km on 8/1/2018 over a true optical line of sight path. Signals were strong as expected but we still had QSB despite being clear LOS! Later the same night Tim VK5ZT copied Iain VK5ZD on "light waves" (red) over the same path. The red light was actually visible to the naked eye (once we found it!).

We have previously reported in this column working over water on 47 GHz in the middle of the day with a low level evaporation sea duct but what about those super strong local conditions that occur over 200 - 300 km with a stable high pressure cell? Our local indicator here is the Port Lincoln VK5REX 438.825 MHz repeater 275 km west of Adelaide. Whenever VK5REX is audible on a small whip in Adelaide the band is open in the GHz region. The other indicator is the Adelaide weather radar when ghost reflections occur from the small (200m) hills north Pt Lincoln (previously reported in this column). From 23 - 26 January we had such a system sitting over VK3/5, with a relatively low level inversion (300 - 400 metres) and all the indicators.

Work commitments prevented operation until sunrise on 26/1/2018 (Australia Day). Simon VK5TE and David VK5KK set off at 4.30 am to get to two sites on a North/South path 157 km apart to do a Tropo test. VK5KK went to Nantawarra (PF96ca) and VK5TE went to a spot near Aldinga (PF94eo). Both locations were around 220 metres ASL so nowhere near a radio LOS path. From PF96ca the Port Lincoln 438.825 MHz repeater was easily accessible with a handheld.

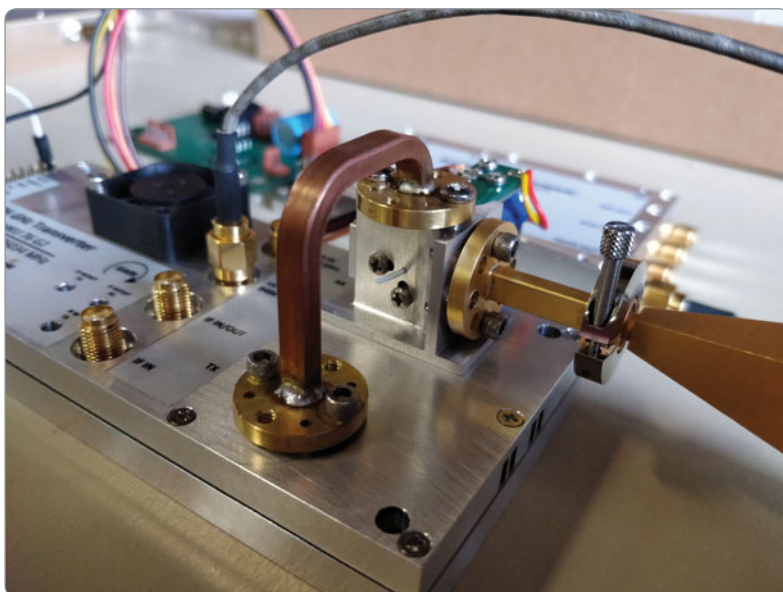


Photo 4: Kuhne 76 GHz prototype transverter with OE WG switch.

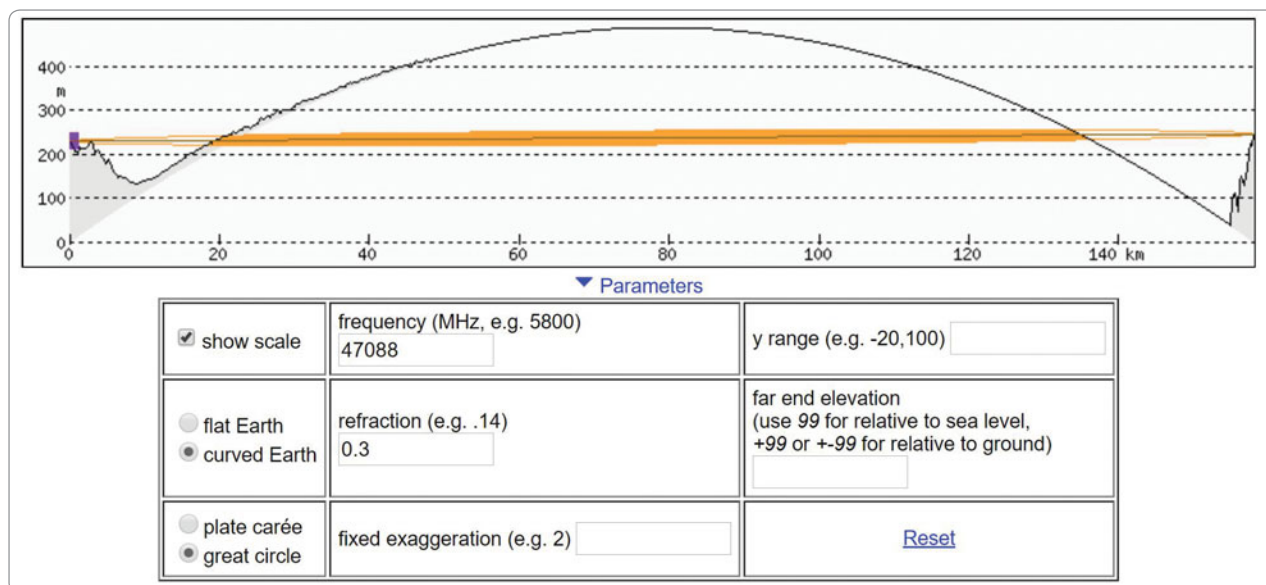


Figure 2: PF96ca to PF94oe 47 GHz path – Non LOS!

Contacts were made on both 24 & 47 GHz SSB with 59+ signals from 2100 - 2200 UTC. Dew point was average (around 10 C) but interestingly with all things like power and antenna gain factored in, the signals on 47 GHz were NOT weaker than 24 GHz. QSB set in towards the end as the wind came up at Simon's end with the approaching cold front system. The Port Lincoln repeater disappeared around 2210 UTC; soon after the contacts the conditions disappeared and it started raining!

The answer is yes, "certain" Tropo conditions do work at 47 GHz! Clearly more experimentation is needed but now strong confirmation that we can bust the "LOS" myth above 10 GHz and we can go much further. Water vapour and oxygen absorption will come to play at some point but maybe the mode will work higher. Stay tuned!

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

David VK5KK

Meteor Scatter Report

Dr Kevin Johnston VK4UJH

This month, another new digital mode was released for Meteor Scatter (MSHMS), more on path extension by mixed mode propagation, a reminder about regular operating periods and forthcoming Meteor Shower event for 2018.

Much of the discussions during the latter half of 2017 revolved around the introduction and adoption of MSK144, the "new" digital mode, for Meteor Scatter operation. Like its predecessor FSK441, which had held the title as preferred mode for over 17 years, MSK144 came from the Joe Taylor K1JT "stable" and the resources of the international WSJTX software design team.

Paralleling the world-wide adoption of FT8 mode, and its replacement of JT65 for many HF and VHF applications, the introduction of MSK144 represented a quantum leap for Meteor Scatter operation and hence its widespread uptake around the globe. Here in VK and ZL a series of

tests during the weekend activity sessions led in quick order to the near universal adoption of MSK144, with 15 second transmit periods, as the go-to mode and format. The Forward Error Correction capability of the new mode offered a significant improvement in system performance particularly on 144 MHz when meteor pings were both weak and brief. Pings that would have been unresolvable with FSK441 were for the first time giving reliable decodes in MSK144. The "cost" of switching to the new mode included a significant reduction in flexibility of the allowable message string and the adoption of a different format of signal reports transmitted. As many will remember, the clever adoption of a VK-devised protocol for reporting in FSK441 allowed operators to be conducting QSOs with two or sometimes three stations simultaneously. The less flexible or more formalized structure of allowable message strings at the core of the MSK144 FEC system limited the system to working only a single station at a time. While this was a clear disadvantage in terms of operating technique this was accepted as a positive trade-off for the overall enhanced system performance by the MS community

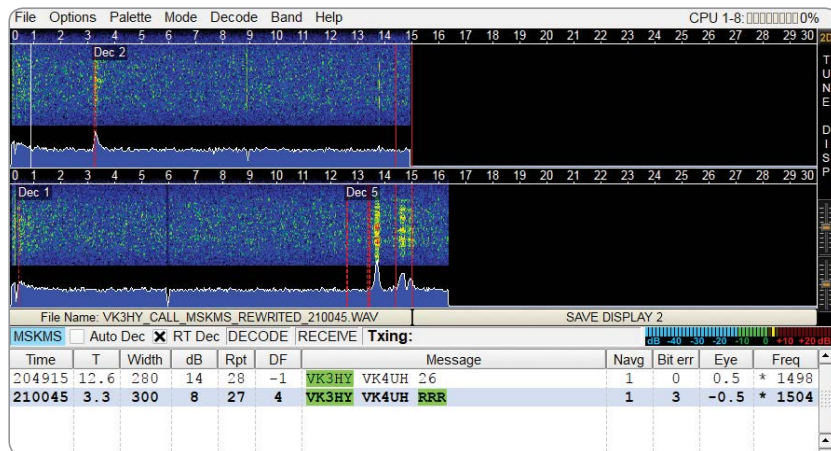


Figure 1: Screenshot of MSHV software running MSKMS mode (Courtesy VK3HY).

in this region.

Another change that was incumbent in the change of mode was the change in reporting format. Traditional MS reporting dating back to the days of High Speed CW for MS and incidentally still remaining as the IARU recommended standard, required reporting of both received signal strength and ping duration. This was the basis of the 2-figure report (e.g. 26) where the first digit (1-5) indicated the received signal strength and the second digit (6-9) indicated the ping duration. MSK144 mode adopted a simpler report only indicating the signal to noise ratio in dB. All of the various software user platforms also stopped indicating the received ping duration on screen. Many operators found the signal strength only report less than ideal and a poor indicator of meteor scatter conditions.

As this report was being prepared came news of another new mode MSKMS for Meteor Scatter. There has just been sufficient time to conduct some very early on-air trials before publication. Currently MSKMS is only available in the latest trial versions of the MSHV platform (ver. 1.66 1.67 1.68 to date, with new versions appearing in quick succession). MSKMS mode is still based on the K1JT FEC encoding format but as far as the author can confirm has not come directly from the WSJTX

team. The major difference and potential advantage apparent is the return to the IARU approved 2-digit reporting format. As a long-time MS proponent, I think this may be a beneficial improvement. A “back to the future” move.

In the limited time available since its release, local tests confirmed that even though MSK144 and MSKMS both use the same FEC encoding, the two modes are not inter-compatible and neither system will successfully decode pings from the other mode. Armed with this knowledge a number of on-air tests were conducted on 2 m on the secondary MS frequency 144.330 MHz in parallel to the normal weekend activity sessions. Over the UTC weekend 3-4 February, from QG62kp, successful completions were achieved with Arie VK3ZL (QF22fe), Matt VK1MT (QF44nm) and Gavin VK3HY (QF22pd). Although general MS conditions were very poor over that weekend the mode appeared to work as well as would be expected for MSK144. Reports ranging from 26 to 28 were received. In most other regards operation of the MSKMS mode within the MSHV platform was very similar for both modes. The only significant difference identified so far, other than the different reporting format and screen display of ping duration, was the non-functioning of the

“Sh” (Short text) sub-mode when MSKMS was selected. For those not familiar, Sh mode can be used to complete QSOs when conditions are very poor and deteriorating. Whether this is a simple glitch in the software version or a permanent “cost” of using MSKMS is unknown at this early stage.

Discussion with other MS operators raised concern that a knee jerk “26” MS report, like a contest “5-9”, was about as much use as chocolate teapots. This may be true, however the saving grace in this context is that the report in MSKMS is electronically generated by the software on each received ping and so actually represents something real. In the current version it appears that the generated report will change and represents the last received ping. The author’s preference would be to increment the report to the “best received” rather than the “last received” in later versions.

For those preferring a signal-to-noise based report then there is always the possibility to devise a future format providing a “dB-based” signal report with an index of ping duration into a final report: food for thought for future development. Further on-air test sessions will be run for those wishing to try out the new mode on the secondary MS focus frequency to prevent interference between the two incompatible modes. With the move to less frequent HY publications, up to date schedules are best sourced for the VK-ZL MS Facebook page. The MSHV software and operating instructions are available as free downloads from LZ2HV website (Note 1) or by conducting an internet search on MSHV.

Regular followers of this column will be aware of reports of successful QSOs involving Meteor Scatter propagation well beyond the normal expected maximum distances. The “normal” distance limit is generally agreed to be around 1800-2000 km and is

determined by the geometry of the 100 km height of E-layer, where the majority of meteors are ablated, and the curvature of the earth itself. Distances achieved beyond this limit generally require support from another mode of propagation to fill-in the gaps at one or both end of the path. In general, the most likely secondary modes of propagation capable of extending meteor scatter on VHF include Sporadic E (Es) and Tropospheric Ducting (tropo). In the December *HY* column were reports of 6 m MS contacts from VK4CZ and VK4UH (QG62) to Alan ZL1RQ (RF64sx) over distances of 2139 km, well beyond the accepted limit. On this occasion there was no evidence on IPS ionograms of any significant E-layer ionisation over the path although review of the Hepburn Chart for that time suggested a good chance of Tropospheric ducting on that day. The presumed propagation made was a MS-Tropo combination (See Figure 2).

Figure 2

This mode of propagation requires coupling of a meteor reflection from the height of the E layer at around 90-100 km into a tropospheric duct at a much lower altitude possibly as low as a few hundred metres. The critical determinant of whether coupling occurs or not in this situation is the angle of entry of the wave into the duct. Coupling may be direct or following a ground reflection as in the case shown. Once coupled into a duct however there is the possibility to propagate for very long distances with very low attenuation. It is likely that such dual modes of propagation are not uncommon rather the opportunities to make use of them for communication is limited by stations being in the right place at the right time. While looking for evidence of 50 MHz Trans

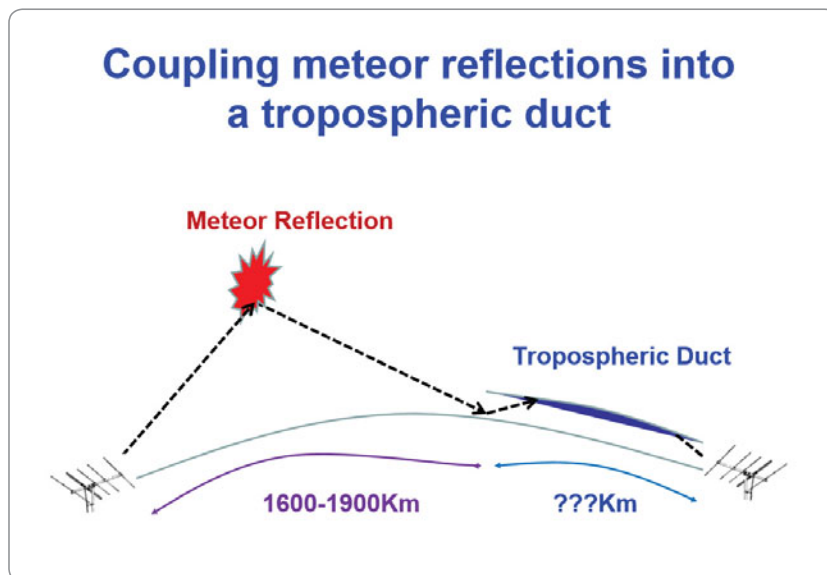


Figure 2: Diagrammatic representation of meteor reflection coupling into tropospheric duct (courtesy G4SWX).

Equatorial Propagation (TEP) into Asia, using one of the few remaining Chinese Television Video Carriers at around 49 MHz, I have frequently seen meteor pings when there is no trace of constant TEP propagation. Whether this represents a dual mode MS-tropo, MS-TEP or some other mode is uncertain but it does occur more commonly than we think. Our European MS colleagues believe it should be possible to bridge the Atlantic using dual-mode propagation if enough attempts are made. Scott VK4CZ drew attention in a recent Facebook entry to an article by John G4SWX entitled "Regular 3000+Km Contacts on 144 MHz by MS-Tropo". The link to the article, which is well worth reading, is given at the end of this column (note 2.).

Meteor Showers

The next major shower on the calendar will be the Lyrids Shower expected around 23 April and then the Eta Aquariids around 6 May

2018.

Activity Sessions

The weekend activity sessions run on Saturday and Sunday mornings from before dawn (around 20:00 UTC or earlier) until propagation fails.

Frequencies: 2 m 144.230 MHz, 6 m 50.230MHz.

Mode MSK 144 15 second periods.

Southerly stations running 1st period beaming North, Northerly stations running 2nd period beaming South.

Register with VK-ZL Meteor Scatter Facebook Page (Closed group of AR operators) for up to the minute advice and information.

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

Kevin Johnston VK4UH
Brisbane

Notes

1. lz2hv.org/mshv
2. http://www.ok2kkw.com/more/g4swx_trms_final_en.pdf



Participate

World Amateur Radio Day | 18 April 2018

Always in the thick of it – Jim Linton VK3PC SK

Roger Harrison VK2ZRH

From the 1960s to the present day, in the affairs of Amateur Radio, be it bringing new blood to the hobby, WIA administration, weekly broadcasts, special event occasions, radio club activities or advocating future directions, Jim was generally to be found prominently in the thick of – if not leading from the front, then bringing up the rear.

Jim and I first met in the early 1960s as teenage SWL members of the Victorian Division of the WIA, which held regular monthly meetings at its Victoria Parade premises in East Melbourne. The weekly VK3WI broadcasts on HF and VHF went out from there, too. The Institute's premises played host to regular meetings for WIA members, the SWL group, the VHF group and WICEN. Enthusiastic newbies have a tendency to volunteer for things, both to 'help out' and to become immersed in their newfound interest. Jim became an exemplar of that philosophy, which lasted the rest of his life.

Joining the Victorian Division of the WIA in 1962 as a Junior Associate member (for young people with an interest in amateur radio but without a licence), Jim was issued Listener Number L3129. Like a number of ambitious SWLs of the era, this writer included, Jim volunteered for the Broadcast team, to join a roster to put the weekly VK3WI broadcast to air. To be honest, the motives to join the Broadcast roster were not solely altruistic. As an SWL, you got to play "big radio"! The VK3WI station, located in the upstairs back room of the Institute's premises, included



Jim VK3PC (L) and Ron Cook VK3AFW (R) operate a portable event station, while Barry Robinson VK3JBR looks on.

a pair of BC-610 transmitters for 80 m and 40 m, each running 300 watts AM, as well as decent-power transmitters on 6 m and 2 m AM and ex-carphone/taxi rigs on 6 m and 2 m FM. The main HF receiver for taking callbacks was an ex-defence Murphy B40. Jim served on the Broadcast team through the 1960s and early 1970s.

VK3WIA station operations necessitated at least two people, the announcer and the engineer (who had to have a Full licence). Notes to form the content of a broadcast were provided by various contributors the week prior to the Sunday broadcast – the VHF Group, the divisional council, DX notes and sundry others. A confluence

of circumstances, it seems, conspired to leave insufficient material to broadcast on Sunday 3 October 1971. But Jim, the rostered announcer, was determined that a broadcast **would** go out and convinced the station engineer to go along with him.

More than an hour long and styled after the patter heard on commercial broadcast stations, Jim's broadcast broke the mould into which VK3WI broadcasts had been comfortably cast. It was clearly aimed at the younger audience and to combat listener boredom; the snappy delivery included the chiding of contributors about lack of broadcast notes and – shock horror – the playing of a song: CQ Serenade (google it)! Previously, the playing of music on VK3WI was confined to the National Anthem on notable occasions (God Save the Queen, then). Naturally, in the furore that followed, Jim resigned from the broadcast

team, which was "... not therefore greatly regretted". However, some aspects of broadcast operations changed subsequently, in particular to ensure that there was always content for announcers. In applying what is now called "disruptive innovation", Jim was ahead of the times; decades ahead of the times.

In his work life, Jim entered the profession of journalism around 1970, first with 3UZ Nilsen Broadcasting Services and later with Australian Associated Press (AAP). The skills he gained as a journalist – in writing, editing, meeting deadlines, issues analysis and issues management, marketing and promotion – were subsequently applied to his volunteer roles with the WIA.

Jim maintained his interest in amateur radio over the 1970s, studying for his 'ticket' and gaining a Novice licence (NAOCP) in 1978. He quickly upgraded to the AOCPL, following which he progressed to full voting membership of the WIA Victorian Division in September 1979. VK3PC first appears in the 1980/81 Callbook, published in July 1981.

With his newly-minted AOCPL, Jim joined the VK3 Division Council and was elected President in 1983. He became one of the WIA's longest-serving office holders, serving as VK3 President over 1983 to 1986, then from 1988 through 2005, and as Amateur Radio Victoria President to 2011 following the formation of the National WIA in 2005.

With journalism coursing through his veins, Jim began writing contributions for *Amateur Radio* magazine, his first story being published in the April 1983 issue. It was about the role of WICEN Victoria in the disastrous bushfires of February that year, known as the "Ash Wednesday" fires. Over the 35 years since then, Jim contributed hundreds of articles covering the full gamut of topics to be found in *AR* magazine, from news snippets to major feature articles, from international news to personality pieces, with the exception of construction projects and technical articles.

After I left a career in science and engineering in 1977 to embark on a full-time career in technical journalism with *Electronics Today International* (ETI) magazine, Jim and I maintained more than occasional or accidental personal contact, swapping story leads and discussing issues of the day. In 1984, I wrote an article about the place of amateur radio in a society undergoing rapid technological and cultural change. As Jim had an abiding concern with attracting new people to the hobby, he invited me to give a talk on the subject at the Eastern & Mountain District

Radio Club shortly after that article appeared. It was a large, lively audience on the night I did that, but divided. I got the feeling that I was considered either Beelzebub or the Messiah. Jim and I discussed the issue at length and we agreed to produce a "discussion paper", which we worked on over 1985 and published on 7 December that year.

Titled "*Amateur Radio – Future Direction*", it was subsequently published in its entirety in the February 1986 issue of *AR* magazine and simultaneously in *Amateur Radio Action*. It focussed on attracting newcomers through restructuring the licensing system to attract young people with entry level licences and bridging the gap with computer hobbyists to bring them into amateur radio. Presciently, we advocated allowing digital modes for entry level licensees. To anglicise a French aphorism: the more things change, the more they stay the same! That discussion paper is online here: www.armag.vk6uu.id.au/1986-february-AR.html

Having advocated disruptive innovation of the amateur licensing system, with deliciously ironic déjà vu, WIA member reaction to the publication necessitated Jim standing aside as VK3 President during 1987. Undaunted, he returned to the Presidency in 1988. Despite all that, the Publications Committee awarded Jim and myself a Higginbotham Award for the discussion paper.

Other contributions to *AR* magazine by Jim also earned him a well-deserved Higginbotham Award. On one occasion, he served as Guest Editor and for a period was *AR* News Editor. Always in the thick of it. Jim's last-published contribution was an article in the January/February 2018 issue of *AR*, titled "Historical changes 60 years ago shape today".

Fast forward to 2002, when the removal of Morse as a requirement for access to HF privileges on amateur licences was about to disrupt amateur

licensing across the globe, Jim made a compelling argument to me that a new Linton-Harrison paper was needed. So, well before the Australian Communications Authority embarked on its program to reform Australian amateur licensing, Jim and I co-authored the new discussion paper, titled "*Amateur Radio and the Challenge of Change*". It was published in the April 2003 issue of *AR* magazine. We advocated completely revised and modernised syllabuses for the examination system and proposed a two-tier licence system – Unrestricted and an Entry Level licence with privileges to suit both those who want to "operate on the air" and those interested in learning by experience and experiment, as per the ITU definition of amateur radio. Again, allowing digital modes privileges for the basic licence was advocated. This time, there was no reactionary penalty for Jim, instead, he was seen as a visionary. In recent emails, before last Christmas and while he was undergoing chemotherapy, Jim reiterated to me two issues of top significance to highlight in upcoming submissions to the ACMA about future licence conditions – digital modes for Foundation licensees and early release of the 60 m band.

Further evidence of Jim's strong concern with attracting new talent to amateur radio must include his response to the devolution of examinations by the Department of Post & Telecommunications in the late 1980s. Implementation did not go well. In response, Jim became the inaugural exam assessor for the VK3 Division, establishing an examination system that provided certainty and accountability, and worked with other WIA Divisions to shore-up the system. Following the wholesale changes to Amateur Licence Conditions, licence examinations and assessments introduced by the ACMA in 2004, Jim became an Assessor from 2007 and was actively involved in 196 assessments, no mean

achievement.

In the early 1990s, Jim left AAP and worked as a freelance journalist for some years. At that time, I became a freelance journalist, too, and picked up a regular gig as Editor of trade magazines. Naturally, Jim became my Melbourne correspondent until he gained employment with the City of Whittlesea in 1995, working as a communications advisor in the Marketing & Communications department. He kept that gig until 2016, and then retired.

When the WIA's 75th anniversary came around in 1985, Jim became closely involved as the focal event was a grand dinner held in Melbourne with significant international guests from the International Telecommunications Union (ITU), the International Amateur Radio Union (IARU) and other national amateur radio societies. When the WIA's 100th anniversary arrived in 2010, Jim was again heavily involved behind the scenes organising and promoting the weekend event in Canberra.

Jim was forever devising ways and means to publicise amateur radio to the great unwashed and unappreciative 'public'. Probably one of his best efforts was the 2014

"PR4AR" project, which set out to encourage individuals, small groups and clubs to set up public displays showcasing amateur radio over 11-12-13 April that year, to attract and interact with the public, gain media attention and lift the profile of public relations activities among the radio amateur community. It was judged a worthwhile event, with a dozen clubs getting involved across the eastern states, plus some small group and individual displays, and WIA Director participation. The event gained 'media hits' with both print and broadcast media.

Over recent years, Jim involved himself in international amateur radio affairs, attending a number of IARU Region 3 Conferences and chairing the Region 3 Disaster Communications Committee. Meanwhile, "back at the ranch", Jim was appointed WIA Board Secretary following the 2016 AGM on Norfolk Island. His talents and experience in issues management and stakeholder communication came to the fore. He continued in the role when the new WIA Board took office in May 2017, to provide additional continuity for Institute operations while the new Board found its feet.

Along the way, during his parallel

careers in amateur radio and WIA volunteerism, Jim was awarded the Institute's top three honours: Honorary Life Member, the GA Taylor Medal and the Chris Jones Award. Life membership is awarded for meritorious contributions to the Institute. GA Taylor was the founding Chairman of the Institute of Wireless in 1910, which later became today's WIA. The Taylor Medal is awarded for exceptional service to the Institute. Chris Jones VK2ZDD was the first Secretary of the newly-formed National WIA in 2004, whose vision and commitment was instrumental in forming the modern WIA. The Chris Jones Award is presented in recognition of exceptional contributions to the WIA and the hobby of amateur radio.

Jim passed away in the early hours of 22 February 2018 at Epworth Hospital in Box Hill, Victoria, after a short battle with thyroid cancer. He was 71 years of age. Too young to leave us. Vale Jim Linton VK3PC.

I would like to acknowledge the assistance of Peter Mill VK3APO, Robert Broomhead VK3DN, and Peter Wolfenden VK3RV, with grateful thanks.



Silent Key

Bruce Bell VK4TRS

Treasurer Kevin VK4ZR, his wife Dawn and President Les VK4LEZ attended the funeral of Bruce Bell VK4TRS who was a member and former President of BARC in our Maritime Museum meeting days.

Those who had contact with Bruce knew he was passionate about everything he did in his life and he was a pioneer in lots of emerging technology over his life, being mostly self-taught in electronics, computers, radios etc.

As President he instituted monthly raffles and BBQ nights to raise funds for our Christmas party which was always well enjoyed and attended by members.

- Involved himself in many of the new club projects
- Assisted members to understand their new computers and how to use them for radio



in the early days of personal computers

- Ran a packet station over several years for data on 2 metres pre the internet days
- Managed the club's 70 cm repeater at his house for a number of years running on his own design of a solar powered battery system

- Designed his own domestic solar hot water systems before they were common
- Recently he was into 4WDing/camping, manufacturing his own awnings and refurbishing firstly his camper trailer and then his upgrade to a caravan too.

Bruce approached all areas of his life with gusto and that was enjoyed by everyone he met. What more can you want from your life but to live it passionately in everything you do.

Well done Bruce you are missed and thanks for the memories
Have a great day.

Les Neilson VK4LEZ
Rosedale Sth Qld
BARC President





VK5news Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

After all the excitement and activity of the Buy and Sell in November, the main emphasis in the holiday months are the Christmas Dinner and the January Picnic. Approximately sixty people signed up for both activities but unfortunately some people did not turn up on the day. This is a shame because the club has to nominate the number of guests and pay for them. For the dinner this was only a few but for the picnic there were many absentees.

The weather for the picnic day was unfortunately very hot. Although there are some enormous shady gum trees at the Rotary Park at the Bridgewater Mill, too many people decided to stay home, mostly without letting the committee know. Those that did go said the shade was perfect and that there was a breeze for most of the afternoon. They thoroughly enjoyed it all.

In fact it was fortunate that the club had booked the local Rotary Club to cook our Barbecue as, despite the weather there were quite a number of other groups who used the electric BBQs and the tables provided. We managed with the small tables some people had brought along, and some that the locals went home to collect. However we DID have to pay for about 30 absentees.

The new committee

February is always our AGM month, so we have a new committee. We thank the out-going committee members and wish the new ones a good year.

Looking into the future

Recently the care of the repeater on Mount Bevor, near Murray Bridge,



The photo has L-R: Phil VK5SRP, Roy VK5NRG, Barry VK5BW, Peter VK5PAR, Trevor VK5NIX and Jim VK5TR.

has been taken over by the LMARC. As this club is an affiliate of AHARS, some of our members have been involved in the project.

VK5RMB can be heard over much of South Australia, but does not reach most of the city of Adelaide which has been served, for many years, by VK5RAD on Mount Lofty; the idea of creating a link between the two repeaters has been mooted.

However, because RAD was erected so long ago, it also needs some attention. In the early years of RAD, the WIA (SA Division) dealt with its maintenance. When the whole concept of the WIA changed about 15 years ago, this care was accepted by AHARS as the largest amateur club in the state.

Now the decision has had to be taken to move the repeater equipment to another site while the tower is lowered and completely overhauled. The photos of the rusty bolts were quite shocking but not surprising after more than 45 years. Yes, the tower needs help.

However, with the idea of linking RMB and RAD eventually, other considerations are being discussed. There have been many advances in

technology in those 45 years, especially miniaturisation and digital modes. There is no longer a need for mains power to run a repeater, there is no need for large buildings but there is still a need for tall aerials and, even more important, perhaps there is a need for a "radio quiet" location.

If such a site can be found the possibility of adding HF equipment and HF 'gateways' could be considered. At a quiet radio site, not only

amateur frequencies but LF, RF and MF frequencies could be practical. In this area, a quiet site not too far from Adelaide, but one that can 'see' either RMB or RAD would be needed as well as all the practicalities.

Paul VK5SL outlined these new possibilities and even suggested that amateurs could offer their expertise to build such link systems for use by and input from some government and semi-government agencies such as the CFS, Red Cross, and RFDS, Marine services or even the Police.

The other part of all these ideas is, of course, the cost and the continuing involvement, so to make it works the other radio clubs in VK5 would have to be asked for their expertise and assistance.

It was stimulating talk by Paul and produced quite a number of suggestions and interest.

The first priorities are the repair of RAD and maintain RMB. But other ideas are in the wind.

Watch this space.

73

Christine VK5CTY





ALARA

From the ALARA Committee

Dot VK2DB VK1/VK2 State Rep

"The New Year began with heat and humidity in Sydney which brings thundering summer storms. You know they say lightning never strikes the same place twice? Don't believe it. After a strike in March which caused major havoc to our station etc., the insurance company was great and we managed to get things back to 'normal'. Mid-December we had another storm with lightning and lost our phone again; our neighbours also lost their TVs again. Are we paranoid? Yes! We have had some tall trees that were leaning over the house removed and now I can move my beam again. Fantastic!"

News from Karen VK2AKB, QTH Kulnura

"Now that I have a good antenna installed, I'm having a ball on the radio. Over the past three months, I've made over 900 QSOs on SSB, RTTY and mostly FT8. I have applied for my ARRL LoTW (Logbook of The World) DXCC Mixed and Digital."

Karen was hoping to be at the Wyong Field Day on 25 February doing a lecture on the newest data mode FT8; and hoped to see some ladies there.

News from Diane VK4DI

"In September 2017, ALARAMeet was held in Cairns with various activities based around the Cairns Colonial Club. At the Gala Dinner (with pirates attending) on the Sunday evening, the treasure chest on each table held donations for the ALARAMeet organising team. However, some of the team had spoken with Morgan, one of the members of staff, who was about to undertake a Cardiac Challenge bike ride for charity, and came up

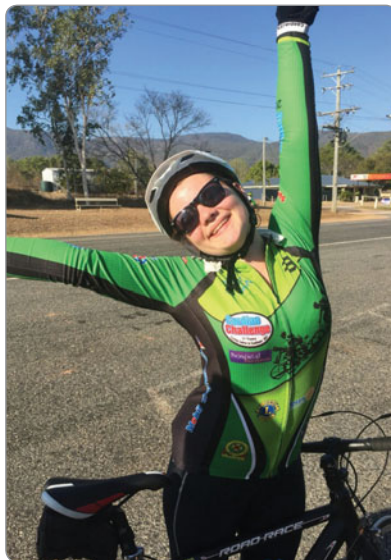


Photo 1: Morgan with her bike after the event.

with a different idea. All present at this event agreed that this money should be donated to Morgan for her charity ride."

From Morgan

"Hi, it's Morgan from Colonial Club. I just finished the Cardiac Challenge on Monday. And I am sooooo very thankful to you and the whole ALARA group for sponsoring me."

It's been an amazing adventure and one I hope to partake in again next year".

From Jenny VK3WQ

"While we are talking about ALARAMeets, the first planning meeting for the 2020 Bendigo ALARAMeet was held in Bendigo on Saturday 10 February 2018. The team of five VK3 ALARA members held a very constructive meeting chaired by Heidi VK3FHID. This will be something to look forward to, ladies!"

Jean VK3VIP VK3 State Rep

Our ALARA Christmas lunch was held on 25 November 2017 at the home of Jenny VK3WQ and Peter VK3RV at Sunbury. The entertainment included a quiz on ALARA and our usual Kris Kringle. We were also treated to a slide show of the Cairns ALARAMeet, so thank you both Jenny and Peter.

Jean also reported that on their Christmas cruise, she and OM John VK3DQ were surprised to hear an announcement that there was to be an amateur radio meeting on the ship that day and they were more



Photo 2: VK3 YLs at their Christmas lunch.



Photo 3: Amateurs on the ship.

than delighted to meet four other amateurs; Mike G4LTS and XYL Helen, Nelea VK2FGEM and OM Peter VK2EMO and Rae VK3FRAE. Jean wasted no time in signing Rae up as an ALARA member. Well done Jean!

Jean goes on to say:
"Can I encourage as many of you as possible to be active on the air? Many OMs say how nice it is to hear an YL voice on the air, so let's not disappoint them."

In the Melbourne, Geelong and Bendigo areas, we hold a Ladies net at 7 pm Tuesday Evenings on VK3RMM repeater, 147.250 MHz, so please join us and of course don't forget our national net. It is held at 1000Z during Daylight Saving Time and 1030Z for the rest of the year. On the first Monday of the month, EchoLink is used exclusively. On all other Mondays it is on 3570 kHz, however, every third Monday of the month, the 3570 net is also run in conjunction with EchoLink.

If any member is visiting Melbourne from interstate, please let me know so I can organise a lunch or a coffee with some of the VK3 ladies."

At the end of March is the EMDRC Hamfest and for a number of years, ALARA has taken a table with displays

of ALARA activities and recruiting information. This year will be no different. So, if you can help with running our stall please contact me. A short visit will be a big help."

News from Townsville ARC from Lyndall VK4ZM

For the last Ann Renton Memorial Net for 2017, Kerry VK4TUB enabled an 'AllStar' node allowing Lyn VK4SWE to participate on the Net from her home QTH of Sweers Island in the Gulf of Carpentaria. She used EchoLink on her smart phone to get into the node which is on the Townsville UHF repeater. Kerry had been trialling it on 146.500 MHz for a few weeks with good results and now it is connected to the 70 cm repeater. Who knows, in 2018 we might even



Photo 4: Lyn VK4EI at Nara Inlet hidden under the new beach umbrella with her portable station.

get more ladies from across the country participating on the Net via the AllStar node. The Ann Renton Memorial Net is held on the fourth Tuesday of every month and is a friendly net for any one, especially those new to amateur radio and who may feel a bit shy to join in for a chat. It starts at 1930 local time (0930 UTC).

Lyn's IOTA Fun Nov. 2017 from Lyn VK4SWE/VK4EI

This year's annual boating holiday was south to the Whitsunday Islands, with a brand new antenna and beach umbrella! The old long whip was finally retired and after some research and discussion with ham friends, I opted for a brand new *Bushcomm* Highlander 8 – a short multi-tap whip – with the idea being that it would be quick to set up on the beach and switch between bands, for the short times I get ashore. However, I found that there is a lot of fine-tuning required with the adjustable "tip" and thus far I have only mastered the 20 m band! Still a 20 m junkie hihi!

We were dogged with bad weather this year, delaying our departure from Townsville by two days due to strong winds. The squally weather continued throughout November and although we enjoyed the company of friends and family in sheltered anchorages, it was difficult to get ashore to activate the islands for the Islands on the Air (IOTA) award program.

When the opportunity arose, however, it proved much easier to lug all the gear ashore with the shorter antenna – I was able to load the rubber ducky on my own, put ashore, set up the station and be on the air in about 20 minutes.

The first activation was on a tiny beach in Refuge Bay, Nara Inlet, which is on the south-eastern end of Hook Island. The Bay is just inside the entrance to a high-sided Fjord, so you would not



Photo 5: The base of the antenna before the trip.

expect too much compared with a sand cay with salt-water take-off all around; but the high radiation angle of the whip seems to combine nicely with some diffusion off the rocky mountainsides and soon I was working Italy, Russia, Croatia, Germany and Japan, as well as stations around Australia. "Angus" the Highlander Whip was doing well!

On the beach, I found that the tip was pretty much true to design length, working well without a tuner into the Icom IC-718, the whip bolted onto my metal sand spike at low tide into wet sand, with three metal measuring tape radials at full 8 m length.

On the boat it was a different story. I'd been spoilt with the old 5 m long whip being resonant on 20 m just grounding through the hull of the aluminium boat. The shorter antenna was having none of this simplicity and after a lot of testing connections, sanding and conductive grease, all to no avail - I was advised to wind a length of wire around the base of the antenna and drop it straight into the sea. It worked!

I peeled back the insulation for the submerged part and attached a couple of fishing sinkers to keep it in position in the wind and current and this reduced the SWR considerably. Thus I was able to join in the ANZA DX net and keep in contact with ham buddies. Although being at anchor does not count for IOTA, it still counts for Grid Square collectors so it is worth operating from the boat, so long as there is no confusion - I tend not to operate from the boat on the same day as going ashore.

We arrived at Chalkey's Beach late one afternoon and I took the radio gear ashore but half an hour of calling CQ resulted in only one contact, although it was well worth it as it turned out to be fellow ALARA member Catherine VK4GH operating MM from Lizard Island, having just returned from a couple of years cruising the islands of Indonesia and Malaysia! We met up with Catherine and OM John later in Cairns; they have a fantastic maritime mobile ham shack built into their motor catamaran "Catchcry I" so keep an ear out for her signal.

A few days later I got ashore again, back at Hook Island but this time at Macona Inlet. Angus the



Photo 6: The base of the antenna after the trip.

Highlander worked well again, SWR was similar to the previous beach, so it may not require too much adjusting once I have established tip lengths for the various bands. One ham buddy told me that he has worked out a table for his multi-tap and carries that with him.

Don't worry, I have brought the antenna home to Sweers Island with me and will practice on the beach here to master the fine-tuning for the other bands!"

(Apologies to all the contributors, as we had to condense their contributions somewhat.)

73

ALARA
Committee



Photo 7: Lyn VK4EI and Catherine VK4GH.





VK2news

Tim Mills VK2ZTM

e vk2ztm@wia.org.au

As we move into autumn, activity increases at ARNSW. In March, the Upgrade course got under way on a Monday evening and there is still time to join. It continues until November. Then there was the first of the Foundation weekends for the year. Nominations for the ARNSW committee closed on 17 March 2018 and the bi-monthly Trash & Treasure is on Sunday 25 March. In April there is an antenna Talk Fest planned for a Sunday and the date will be advised on VK2WI News bulletins. The ARNSW AGM is on Saturday 28 April at the VK2WI site with a start at 11 am. In May there is another Foundation weekend – 12/13 – and the Trash & Treasure on Sunday 27. Details on the various courses can be obtained by an email to: education@arnsw.org.au

The long weekend in June will see the Port Macquarie - Oxley Region ARC annual two day field day held on Saturday 9 and Sunday 10 June 2018. It should be noted that there has been a venue change to earlier advice given in media releases. It was to have been at the usual location of the surf lifesaving hall but this venue is scheduled for renovations. One of the high schools' then looked a likely venue until it was discovered it had a [unknown] prior booking. After much looking, the Wauchope High School hall, in Nelson Street, has been secured. The Saturday evening dinner is at the Port Macquarie Golf Club. Visitors for the weekend should acquire their accommodation early in this popular holiday destination. There

will be further details in the May - June issue of AR. In the meantime, remember to mark up your calendar with the field day in Wauchope.

While on field day activities don't forget the annual Urunga Convention over Easter on the VK2 mid north coast. It is a long running event which commenced after WW2 in the late 1940s. Other activities in April include an open day at Westlakes on Saturday 21. This day is also the International Marconi Day and HADARC will be activating VK2IMD. Later this year is the Centenary of the first wireless message to Australia.

The 60th Central Coast field day has just been held at the upgraded Wyong Race course. The Illawarra ARS will be back at their usual meeting location after its renovation. Waverley ARS conducted another Ferry Contest on 11 March and this day was also the 108th anniversary of that first meeting of Experimenters "trying to get a better deal" to which both ARNSW and the WIA can trace their origins.

ARNSW has spent the past several months planning and seeking permission for a new support to replace the ageing tower which carries the antennas for the VK2RWI repeaters. It will be in the form of a concrete pole of a third greater height than the present triangular tower.

The Summerland ARC in its present form commenced on 31 July 1959 with a meeting in a shelter shed at Brunswick Heads. Its name then was the Far Northern Radio Club. Before that there was

some activity in 1900 to 1920.

In 1924 there is reference to the Lismore and District Radio Club. In the period 1933 to 1939 there is reference to the Richmond River Listeners League. After 1959 there were many changes of meeting locations before arriving at the present club rooms at Richmond Hill. In 1975 there was a name change to the Summerland Radio Club with a further change in 1978 - up to the present - to the Summerland Amateur Radio Club. There is a good history report to be found on their web site.

The Summerland ARC had their AGM in February with a couple of minor changes of personnel. They have an extensive library at the club rooms with a wide range of magazines and technical books which you read on site – no borrowing. They have a digital net with an interesting report in the weekly electronic newsletter. There is a new repeater in the region on 70 cm, VK2RTH at Terronora, 438.400 MHz, -7 MHz offset and a 91.5 CTCSS. Currently it is an FM/Fusion machine with plans for expansion into additional modes.

Here is a reminder that I am always on the lookout for news for this column, which can be emailed to the address listed at the top. In the new bi-monthly format, a long lead time on event planning is required and next cut off is mid-April.

73

Tim VK2ZTM.



Participate

SCARC Buy and Sell

22 April 2018

Ross Pittard VK3CE

e arv@amateurradio.com.au

w www.amateurradio.com.au

Silent Key

It is with sadness that I inform members of the death of John Adcock VK3ACA, a life member of both Amateur Radio Victoria and the WIA. John spent several years as the Secretary of the old Victorian Division and was its historical officer. After the creation of the National WIA, John was a keen supporter of Amateur Radio Victoria attending most of our AGMs. He will be sadly missed on the bands.

AGM

A reminder to all members that our Annual General Meeting will be held at the rooms on Tuesday 15 May 2018 at 8 pm. Notice of the meeting, financial reports and proxy forms will be emailed to financial members in due course. This is not an election year.

Members should be aware of the extensive refurbishment undertaken at our investment property next door to the rooms. This has occurred over the past six months involving toilet upgrades, re-wiring, new front window, hot water service and removal of the old floor covering which contained asbestos. Our new tenant is now established and operates seven days a week, so if you are coming to the rooms we invite you to have a coffee or snack at the Habitat Cafe 40F Victory Blvd.

Mt Wombat

As part of the rebuilding of the site on Mt Wombat, ARV volunteers recently installed a new Motorola 70 cm repeater. This will eventually be linked along the Hume Highway with others in the ARV 70 cm network. The new repeaters frequencies are:-
Input 438.650 MHz
Output 431.650 MHz
91.5 Hz tone on both directions.

Reception reports are invited and can be sent to arv@amateurradio.com.au

Victorian Local Government Award 2017 Challenge

This unique and exciting once off special operating award was initiated by Amateur Radio Victoria (ARV) to encourage on air activity based on communicating with and between the 79 Local Government Areas (LGA) in the State of Victoria, during the 2017 Calendar year. The "2017 Challenge" encouraged both Portable and Base activity with VK3 stations, and all contacts made during the "challenge" are eligible and valid for the ARV LGA ongoing Award. www.amateurradio.com.au/awards

Logs were received from seven Amateurs who all made an enthusiastic and much appreciated contribution to the "Challenge".

The overall Winner was Peter Freeman VK3PF who put in an outstanding effort to Activate and Work all 79 Victorian Local Government Areas. This is a fantastic achievement that took Peter much pre-planning and dedication to the task! Peter commenced his activation challenge on 1 January 2017 and had activated all 79 LGAs, concluding with a busy day's activities, on April 3 2017. During this time Peter mixed various SOTA and WWFF activations to make the best of the distances travelled. Peter's successful hunting was done from both Portable and Home locations and the 79th LGA work was happily achieved on 21 April.

Well done Peter! This is the Grand Slam! 79 activated and 79 worked.

2017 Challenge Activator Logs

were received from three other Portable Operators:

Nicholas Lock VK3ANL
25 VK3 LGA Activated

Tony Hambling VK3XV
24 VK3 LGA Activated

Peter Fraser VK3ZPF
10 VK3 LGA Activated

2017 Challenge Hunter Logs were received from six other Operators:

Alex McDonald VK4TE
59 VK3 LGA Worked

Nicholas Lock VK3ANL
57 VK3 LGA Worked

Adrian Addison VK5FANA
53 VK3 LGA Worked

Tony Hambling VK3XV
39 VK3 LGA Worked

Brett Churchyard VK2VW
14 VK3 LGA Worked

Peter Fraser VK3ZPF
9 VK3 LGA Worked

Amateur Radio Victoria congratulates and thanks all participants in the "2017 Challenge".

The effort and dedication by all entrants is most appreciated and we trust the VK3 LGA Award will now be set in a position of growth to promote and stimulate both Home and Portable on-air activities within the VK3 call area. Well done to all!

Foundation Courses

Course dates for this year are February 24 - 25, April 21 - 22, June 16 - 17, September 22 - 23 and November 17 - 18. To enrol, contact Barry Robinson on 0428 516 001 or via email at foundation@amateurradio.com.au





VK7news

Justin Giles-Clark VK7TW

[e vk7tw@wia.org.au](mailto:vk7tw@wia.org.au)

[w https://groups.yahoo.com/neo/groups/vk7regionalnews/info](https://groups.yahoo.com/neo/groups/vk7regionalnews/info)

Meet the Voice Event at Ross

By the time this magazine goes to print the Annual Meet the Voice event at picturesque Ross in Tasmania's Midlands will be on again: 18 March on the banks of the Macquarie River. This will again coincide with the John Moyle Memorial Field Day so those amateurs staying overnight can test their portable operation capability.

The main event is on the Sunday from 10:00 am and there will be a car boot sale along with the main presentations starting at 11:30 pm. Registration will be \$5 per licence and there will be a raffle with the main prize being a handheld which has been donated by Ross VK7ALH. Thanks Ross. Your entry fee gets you a raffle ticket and you can purchase additional raffle tickets for \$2 each or 3 for \$5.

The main event at the presentation is to pass on the Sewing Circle trophy to the most loquacious amateur for 2017 and they get to choose the next lucky participant!

I hope to see a lot of folks turn up and have a great time.

WICEN

One of the justifications we use to keep ever more valuable radio spectrum is the provision of services to the community when needed. All Amateurs take advantage of this, but how many play a role in the provision of those services when an opportunity arises?

In Tasmania, there are two groups who do so regularly: WICEN (South) and NTARC's safety communications group. There are others who engage in occasional events, especially JOTA.

Both WICEN (South) and NTARC are finding it difficult to adequately staff operations, due primarily to an ageing and declining active membership. There are relatively few younger people making a contribution. By younger I mean under sixty!

So, if the WIA is to continue to use community contribution as a justification for all Amateurs to keep our valuable spectrum, we need more people to get involved and enjoy using their mobile and portable radios for the community good. It's usually enjoyable and has a great social component, on top of being greatly appreciated by the served organisations.

It's not necessary to be mobile or portable equipped or even be licenced. Groups have equipment to use and you'll be paired with an experienced operator until you find your feet.

If you would like to give it a try, please contact:

North - Norm Thorley VK7KTN - safetycomms.ntarc@gmail.com

North West - Dave Cleland VK7DC - daveland23@gmail.com

South - Roger Nichols VK7ARN - vk7wcn@wia.org.au

Thanks to Roger for that information.

VK7RST – GPS Locked Beacons now on air

The VK7RST 6 m 50.297 MHz and 2 m 144.470 MHz beacons are now active from Southern Tasmania QE36pv. The Beacons are sponsored by the Radio and Electronics Association of Southern Tasmania Inc. The transmit sequence is currently in one minute blocks:



Photo 1: VK7RST Beacon Rack (Photo courtesy of Justin VK7TW).

50.297 MHz – OOKCW then FSKCW then JT4B then JT65A

144.470 MHz - OOKCW then FSKCW then JT4D then JT65B

This will change in the near future to just OOKCW and JT65 in odd/even minutes.

They are both running at 20 W into horizontal polarised antennas.

We have put in a licence update to the ACMA to add a 70 cm beacon on 432.470 MHz and this will be activated once the licence has been updated.

We have named the beacons the "Alan Ruthven VK7ZAR Memorial Beacons" in memorial of original Beacon keeper. A huge thank you also to Peter VK7TPE and Maureen who's property hosts the beacons. Reports are welcome to vk7tw@wia.org.au.

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

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

The NWTR&TVG Club AGM was held in February and resulted in no change in the club's executive:

President Lucas VK7LSB, Vice President Tony VK7AX, Secretary Steve VK7EQ, Treasurer Eric VK7EV and Executive Officer David VK7VDS.

Some other interesting news from NWTR&TVG in relation to the interference from an LPON transmitter in Ulverstone that was wiping out ABC FM only in Ulverstone: Eric VK7EV did some investigation and reported it to the ACMA. They found that the LPON was transmitting on 91.7 MHz not 88 MHz and was at a different location. The owners were ordered to stop transmitting and fix their transmitter. Thanks Eric for the action.

Northern over 70s SOTA Activists

This group is interested in promoting and activating Tasmanian summits and meets regularly at Launceston's Glebe Gardens Cafe 166 Henry St, Launceston between 10:30 until 12:00 Mondays and Fridays. Everyone is invited to come along and have a coffee and a chat. The group has activated peaks in many Tasmanian and Bass Strait locations. Join us and become familiar with this different facet of our hobby.

Northern Tasmanian Amateur Radio Club

<http://www.ntarc.net/>

The January NTARC meeting was a BBQ meeting followed by a presentation by the NTARC Southern Repeater Officer Hayden VK7HH on Voting and Simulcasting repeaters using VKLink. In February NTARC held their AGM and the following Executive office holders were elected: President Idris VK7ZIR, Vice-President Peter VK7KPC, Secretary Yvonne VK7FYM, Treasurer André VK7ZAB and Committee Member Roslyn.

WICEN Tasmania (South)

<http://www.tas.wicen.org.au>

February 9 and 10 saw the Southern Tasmanian Endurance Riders 80, 40 and 20 km rides take place at Dalmeny Park, about 25 km SE of Oatlands in Tasmania's Midlands. Thanks to Roger VK7ARN, Peter VK7TPE, Cedric VK7CL, Chris VK7FCDW, Michael VK7MRS, Garry VK7JGD, Dale VK7FNED and Jackson VK7FJAX. There were no real problems, nobody got lost, one horse was vetted out but otherwise it was a very successful event, thanks to all involved.

Radio and Electronics Association of Southern Tasmania Inc

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

Congratulations to Chris VK7FCAT, Mark VK7FZZY and Keith VK7FKLW who recently gained their

Foundation licences following an assessment. Welcome to the bands. The author and Reg VK7KK were assisted by Nominated Assessor Malcolm VK5MJ from Berri in the Riverland, VK5. Malcolm was in Tasmania visiting relatives and offered to help; thanks Malcolm.

The REAST February presentation night was by Hayden VK7HH on Simulcasting, Voting, VKLink and Remoting. Hayden took the audience through what each of these modes and methods are and how they were implemented on VK7RTC on Mt Wellington. The voter boards are AllStar/RTCM/Voter boards that Hayden built up from a design from the US. These boards connect to a RaspberryPi host running app_rpt application under the Asterisk (PABX) applications on the Pi. Hayden finished off with a demonstration of the remote rig boxes using the head of the Yaesu FT-857 and the base unit was at Mt Lloyd (VK7RML) and being remotely controlled. These are impressive boxes with great functionality. Thanks Hayden.

The REAST AGM was held in February and the Executive Office holders are:

President Tony VK7VKT, Vice-President Sean VK7FAZE, Secretary Scott VK7LXX, Treasurer David VK7FABE and Committee members Larry VK7WLH & Barry McCann.

The Experimenter's nights have seen a demo of a self-point/levelling 13 GHz communications dish complete with fibreglass radome, thanks to Murray VK7ZMS and Richard VK7ZBX. Martin VK7MA showed off his very professionally put together 300 W HF & 6 m power amplifiers for his HPSDR. Scott VK7LXX and the author went through the configuration of Justin's Zumspot MMDVM modem. Trent VK7HRS brought along his FT-897 complete with the matching LDG tuner which is mounted on the side in a very neat portable package. Rex VK7MO showed a DC to 600 MHz power meter. The author showed the recently compiled



Photo 2: Hayden VK7HH presenting remote rig operation – FT-857 Head connected to the FT-857 base on Mt Lloyd (Photo courtesy of Justin VK7TW).

Digital Speech Decoder software on the Ubuntu using GQRX SDR software and a RTLSDR receiver to demonstrate the decoding of DMR. Scott VK7LXX showed us his Ettus research SDR to receive the signals from his LORAWAN device

and decode the packets. Ron Cullen showed his very successful PCB making using the gloss paper and toner heat transfer method. Ron made a couple of 5.8 GHz directional double bi-quad PCB antennas from a design by Andrew

McNeil. The author showed a GPS Disciplined Oscillator using a Jackson Labs postage stamp module that drives a DEMI Labs 10 MHz four-way distribution board for portable operation.



Silent Key

Stephen Terris VK7BI

It is sad to report the passing of Stephen Terris VK7BI, (formerly VK7FUBI and VK7NZL) in his sleep on Sunday 11 February 2018, nine days short of his 53rd birthday.

Steve was born in Christchurch, New Zealand on 20 February 1965, moved to Adelaide and then Tasmania some years ago, settling in Wynyard. He was a true Radio Amateur always building, repairing or modifying some piece of equipment. He loved AM and was often heard on the low bands on that mode, usually on home-made equipment. He would acquire a transmitter with an obscure fault and would spend days or weeks on it until he solved the problem.

Steve took on the callsign VK7BI after the death of his father, who previously held the callsign.

Stephen also learnt to fly at the Parafield



Airport SA and was following a family tradition, with both him and his sister also having held pilot's licences. While away from aviation for some years, Stephen had recently again taken up flying. He was doing some refresher training and an ultralight conversion at Smithton just a matter of a week before his sudden death.

Steve also experimented with Amateur Television and transmissions from Table Cape. On another memorable day Steve loaded up his 70 cm transmitter, camera, battery and antenna and climbed Mount Montgomery near Penguin to broadcast live colour pictures from there. Steve was active for ILLW and JOTA events on the NW Coast of VK7.

Stephen was the youngest of three children and leaves behind family in Nelson, New Zealand; principally his mother Winifred aged 90 years and his elder siblings, sister Adrienne and brother Craig, along with the wider family. We extend our deepest sympathy to them all on the loss of their family member and our very good mate.

(Submitted by Winston VK7EM, NTARC and NWTR&TVG)



VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

The GARC, under the Presidency of **Lee VK3PK**, is promoting three new streams of activities to support and work in conjunction with its well established Amateur Radio activities.

- The first is promoting Linux as an alternative to Windows
- The second is the promotion of Arduino hardware modules and related software into all aspects of the hobby
- The third is promoting Raspberry Pi hardware into the Amateur Radio world.

Linux

The GARC has a now established Linux portfolio piloted by Lee VK3PY and Nick VK3TY; currently they have set up the PC in the Club lounge for members to familiarize themselves with Linux Mint 18.3 before taking the plunge. Nearly every program that runs under Windows has an "absolutely free" and equivalent or better Linux application. This will suffice 99% of likely users.

Admitted, there are around 1% of users who have some odd

program where the vendors have not bothered to put out a Linux compatible version; for these applications Wine is a Windows emulator that will run the majority of those applications; Wine 2 is the current emulator with Wine 3 coming up shortly.

The Geelong Amateur Radio Club is now registered with the Arduino Users Group

The rationale for the GARC to have this collaboration is to assist in promoting Amateur Radio and the GARC as well as the core



Figure 1: Shows the GARC on the Arduino User Group map.

requirement to provide a group through which Arduino users can collaborate in a regional area. To that effect the Club already has considerable expertise based on the Arduino Open Source electronic platform utilising their easy to use hardware and software in interactive Amateur Radio projects, such as low power radio connected to Arduino antennas and feed lines.

Other Arduino Amateur Radio related projects developed by Amateurs and available, are:

- Using Arduino to run as a Software Defined Radio (SDR) by M0XPD
- An automated antenna switch by ON7EQ
- A CW keyer by K3NG
- An automatic antenna tuner by PA3HCM
- An RF Power and SWR meter by ON7EQ
- An antenna rotator controller by K3NG

Many more Arduino Amateur radio projects are available through DXZone.com

Arduino was born at the Ivrea Interaction Design Institute as an easy tool for fast prototyping, aimed at students without a background in electronics and programming.

As soon as it reached a wider community, the Arduino board started changing to adapt

to new needs and challenges, differentiating its offer from simple 8-bit boards to products for IoT applications, wearable, 3D printing and embedded environments.

All Arduino boards are completely open-source, empowering users to build them independently and eventually adapt them to their particular needs. The software, too, is open-source, and it is growing through the contributions of users worldwide.

The Geelong Amateur Radio Club is now registered with the Raspberry Pi Users Group

The Raspberry Pi Foundation was established in 2008 as a UK-based charity with the purpose

“to further the advancement of education of adults and children, particularly in the field of computers, computer science and related subjects”.

Through their trading subsidiary (Raspberry Pi Trading

Limited), they invent and sell low-cost, high-performance computers that people use to learn, to solve problems and have fun.

Between launching their first product in February 2012 and their fourth birthday in February 2016, they sold over eight million Raspberry Pi computers and helped to establish a global community of digital users and educators.

In October 2015 the Foundation merged with Code Club, a network of volunteer-led after-school coding clubs for

9-11 year olds. In November 2015 they launched the world's first \$5 computer, the Raspberry Pi Zero.

Amateur Radio projects using the Raspberry Pi hardware can be found in <http://www.g0hwc.com/raspberry-pi-ham-radio.html>

The Foundation celebrated its 10th anniversary referred to as *Raspberry Jam* with over 100 *Raspberry Jams* registered for 3-4 of March 2018 in 30 countries covering six continents.

The GARC, one of three venues in Australia, was open on 3 March 2018 for interested parties to attend.

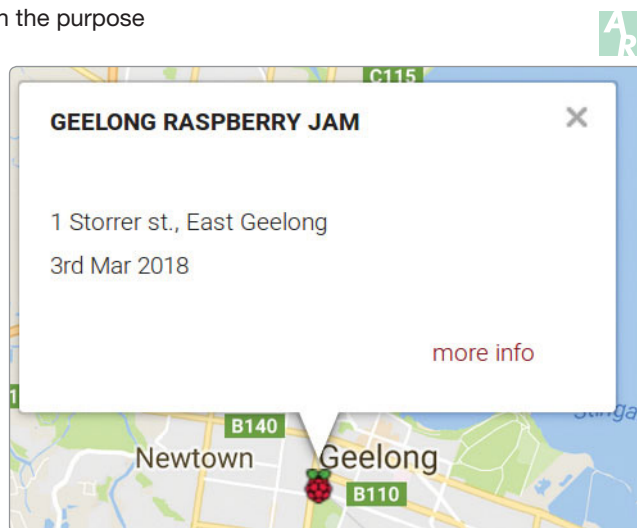


Figure 2: Shows the GARC on the Raspberry Pi web site.

Northern Corridor Radio Group

It's been a very interesting start to the year at NCRG. Following the demise of a number of our structures and antennas last year during a freak storm, planning for a complete re-birth of our HF station is now well and truly in progress with an antennas subcommittee appointed to produce a plan to take to the club for approval. Our first action for this plan will be ratified (or not) at the next meeting and includes a 40-6 m Ultra-beam on our heaviest duty mast – a 28 m square lattice, 1 m. face, self-supporting structure that has until recently supported our 3 element 40 m monoband Yagi. We are also looking at replacing all our old rotator controllers with new Green Heron controllers allowing all antennas to be controlled from either of our two radio rooms.

Some activities under consideration include:

1. Installing two towers previously used to support very large Collins Log Periodic Arrays.
2. Purchasing and constructing a 30 m butt section mast capable of supporting any of the larger antennas we are contemplating, including a new 15 m mono-bander or the Ultra beam.
3. Additional Ultra-beams for the contest station (in place of our existing separate mono-banders).
4. Refurbishment of some of our mono-band antenna towers.
5. Upgrading our winch up mono-pole tower to hold a larger antenna.

Our 23 cm repeater is now on air from our repeater site off Gngangara Road, thanks in a large part to the efforts of Stu VK6BG.

Our Satellite station is now up and running using an IC-910 with dual 2 m/70 cm Yagis and elevation/azimuth rotator fitted.

Work has been ongoing on our EME station, using a pair of repurposed dishes from Telstra. This project has been led by Keith VK6KB and Dean VK6DSL. Dean happens to work in the commercial satellite area so has brought a lot of experience and knowledge to the project. The dome is in place and stabilised and is currently capable of receiving the satellite band for which it was designed. The next step is to build a 10 GHz transceiver and amplifier to use with EME. More on this project in the coming months.

We recently exchanged our KX3 for an IC-7300 on the remote station that has by far been the most popular project undertaken by the club since we built the original building. We are also considering ideas for cooling the demountable building used for the remote station and antenna management.

The Tech nights continue to be popular with the last two months being hosted by Ian VK6TWJ on Flight Path Management and Andrew VK6IA presented the basics of DMR and two of the popular DMR networks. This included a demonstration of the DV Mega DMR Hotspot – of which many of the members of the club are already using.

The road entering the club from Gngangara Road has been sealed and extended to provide an alternate exit.

John Moyle Field Day preparations are now in progress. Our normal haunt of late has been at the Purina National Park, however there are some significant redevelopment works happening there so we are considering another site on a club member's farm in East Beverly (Barrie VK6ADI) about 90 minutes east of Perth.

Ham College

Ham College has returned from its summer vacation. Tuesday evenings are alive with the sounds of students grappling with Regulations and Standard licence theory. Our weekend Foundation licence courses kicked off in mid-February with full enrolments and an assessment day was held a week later. The next college Foundation course is on 5 and 6 May and assessments on 12 May. The course is filling up rapidly so act quickly. The Advanced course will be starting in July. Of course, as always, we are asking for experienced amateurs to share their knowledge and join our courses as instructors and tutors and so give something back to the hobby. All information about the College including enrolments is at www.hamcollege.com.au

Andrew VK6AS College enrolments officer.

Peel Amateur Radio Group

Sunday saw the third Swap Meet by PARG. Attendance from Sellers were up on last year however the buyers seemed to have dropped off a little; if the trend continues we may have to seek a larger venue. The Bortolo Pavilion in Mandurah is really great. It is air conditioned, has excellent catering facilities and is close to the train station and main road. We do look forward to making this a permanent annual event.

The highlight of the show was



DEFS Incident Control Vehicle.

the attendance of the Incident Control Vehicle of the Department of Fire and Emergency Services. Nita and her team, Ian and Steve, gave tours of their magnificent machine. You had to go inside and do a walk around tour to see it all. Nita also gave us an interesting talk on the functions of the unit and what they do in emergencies. We did think of high-jacking the vehicle; it is big enough to be a mobile club house but getting away with it may not have been so easy. Again, we owe many thanks to DEFS, Nita, Ian and Steve for volunteering their services not only for the day but for their community as a whole.

Our Sellers and visitors came from all over the country; they brought with them some magnificent gear. A lot of stuff changed hands. One would like to have bought one of everything on sale; it was all good wonderful, amateur equipment. There were sections reminiscent of the "Junk Sales" of yesteryear with some older equipment; by contrast we also had displays of Space-age amateur transceivers. It was good to see old friends again; sometimes Hamfests are the only places we get to have an eyeball. We owe the success of the gathering to the many hams and the sellers who continue to support us. A big thank you to all of our visitors from the PARG executive.

A tribute to all Aussie hams is this note from Hank a visitor from the States who has this to say:

"The swap meet was a great adventure for me. The club did a great job of organisation and I was very happy to see so many hams visiting. I was able to meet some hams I had met at the local clubs and meet some new ones. The location was perfect for me being so close to the train station. The best part was seeing that a swap meet was just like the ones I attend 11,000 miles away in Indiana. The AU hams are so friendly and helpful. I am so lucky to be able to spend my winter in your summer. Look

forward to attending next year. 73, Hank VK6AW".

Watch this space for our next Meet in 2019.

Tony VK6DQ – President.

Bunbury Radio Club

The repeater mast upgrade for VK6RBY continues at a steady pace. A new, taller tower is now vertical and concreted into the ground. Nick VK6NA has also acquired a donga to house the electronics and it will be placed on its foundations in the next few days. Once established, the club will get stuck into preparing the inside, moving the repeater, running coax cables, mounting antennae, moving the air conditioner, etc., etc. This will involve few busy bee sessions at the site, in the coming weeks.

The January meeting went well, with several interesting technical topics. Bob VK6TJ ran Bob's "Naughty Corner" on the topic of the meaning of VSWR. Not only was this entertaining, but many of us got a new insight into this topic. It's interesting how time erases knowledge. In the "Help" segment Richard VK6PZT asked for help in understanding the use and layout of long wire antennae. This resulted in a very interesting discussion on wire antennas. The discussion turned out to be useful not only to Richard, but to several others who were in attendance (no names will be given). This was followed by our usual technical talk which was a recording of an ARRL presentation on antennas for handheld radios. Essentially the ARRL experts suggested that the usual stubby antenna was effectively a dummy load and could be improved with a longer antenna. One interesting suggestion to come from these people was to hang a wire from the outside shell of the antenna connector to provide a counterpoise; in their view this would provide significant improvement. There were many other useful snippets of information about Handhelds and antennas.

A suggestion has been made, that we have some meetings on a week night to cover those who can't make it on Saturdays. This would allow members, who, due to kids and/or sporting interests, to participate in club meetings once in a while. It has been agreed that the Club will give it a try to see what the response might be. Consequently, it was agreed that the March meeting be held on Wednesday 13 March, beginning at 1700 at 21 Halsey St, Bunbury. Visitors are welcome. The technical talk will be a workshop on how to set up a station from scratch for a newly licensed ham (name withheld to protect the guilty). We suspect there might be some interesting exercise in diversity.

Katanning Ham Feast

A short report from the Katanning Ham Feast held on 25 January 2018.

Many thanks to everyone who came along to the Southern Electronics Group Katanning Ham Feast last Thursday. It was great to see everyone and catch up for a chat and some lunch. It was a nice day for a drive down to the Royal Exchange Hotel and about 40 people were gathered for the ninth Katanning Ham Feast.

The popular Ham Feast raffle was won by Terry VK6ATM (Soldering Station). Raffle prizes were also won by Hazel VK6LR XYL, Kath VK6FBOS XYL, Warren VK6VET, Roy VK6FXLR and Ian VK6TWJ. I will find out from Chris VK6JI if he has any photos up on his website and post the link.

The Treasurer Bevan VK6BL also informed me he deposited a nice amount into the SEG bank account from raffle proceeds and membership renewals from the day.

The next Ham Feast is planned for Bridgetown around September 2018 (exact date is to be advised) and hoping you can all make it along.

Thanks again all for making it a great day.





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

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