Amateur Radio

Volume 86
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WIRELESS INSTITUTE OF AUSTRALIA

QRP portable

Latest VK Mountain Goat

Season's Greetings

- ▶ Review of the Peak Electronics Design LCR45 LCR meter
- ▶ 5.7 GHz ATV in Sydney
- ▶ Etiquette and Calling CQ

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Amateur Radio

The Journal of the Wireless Institute of Australia

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General

Technical

Columns

This month's cover:

Our cover this month shows David VK3IL operating QRP portable on a SOTA summit on his way to becoming Mountain Goat: achieving an Activator score of at least 1000 points. David achieved the milestone with an impressive average score per activation. Read about David's SOTA journey in this month's SOTA and Parks column on page 29. Photo supplied by David Giddy VK3IL.

Contributions to Amateur Radio

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

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

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Editorial

Peter Freeman VK3PF

The Amateur Code?

Most amateur radio operators are aware of the Amateur Code and/or the related DX Code of Conduct. If you are not familiar with the Code, then you should search out a copy!

Yet I frequently observe actions on-air which are in breach of the Code; if not the letter, definitely the spirit. After all, it is the spirit of the Amateur Code which is the key and should be lore with all operators.

So what prompted me to start writing these comments? I had been considering making comment a couple of weeks ago, but I shall endeavour to remember to recount those instances a little further down....

I had been monitoring the nominated frequency for a DXpedition station on a rare island location – Ducie Island. I was monitoring on FT8 mode. The frequency was away from the usual FT8 focus frequency, so any operator would understand that the focus on the frequency was to work the DXpedition. Yet when I stopped calling the DXpedition station as their signal had dropped down in strength and I was no longer hearing them, all of a sudden a US station was calling me! I ignored the station for several minutes and then looked up the callsign on *QRZ.com*. I sent him an email advising that I would not work him on the DXpedition's frequency. I remained in listening mode for several minutes, but the US station persisted in calling me during the period when I would normally be calling the DXpedition..... Needless to say, I was bemused!

After several minutes of monitoring, the DXpedition came up in strength and I started calling again. They dropped down again and I stopped transmitting. You guessed it – the US station was still calling me. The next thing I see in the next transmit period for the DXpedition is a red stripe on the screen (meaning they were sending me a report) and soon a contact with VP6D was in the log, confirmed soon after via the DXA web site. Success for me, but the US station certainly would have added to the confusion!

Another common situation is operators tuning up or calling on the DXpedition transmit frequency, when the DX station is clearly indicating that they are listening up. Such behaviour is totally unproductive; as the DX will not be listening on their transmit frequency!

I have been listening to portable stations and have heard operators just come up and start calling, or a Net controller coming up on a frequency and starting to call, with no apparent effort to listen on the frequency before calling: no asking if the frequency was in use, and no response to stations advising that a QRP field station was using the frequency – just jump on the usual frequency and start calling in operators for the net as if the frequency was "theirs" at that time without consideration for other operators.....

Such behaviours only ferment frustration and contempt for the inconsiderate operators. It lessens their on-air reputation and causes frustration for the QRP portable station. The latter will need to find a new clear frequency and then be found by the chasers.

Continued on page 4

Board comment

Justin Giles-Clark VK7TW

Representation, Education and Promotion – what has your WIA been doing in these areas?

In preparation for the 2019 WIA AGM I encourage everyone to consider how they can contribute to their national representative body – the WIA. There are a couple of items in this edition of *AR* magazine that you could consider. There is a nomination form for becoming a WIA director. There is also an advertisement for new members for a number of WIA committees across a broad range of areas. The WIA is only as strong as those who contribute to its running so, if you believe you have something to contribute then I encourage you to nominate and apply.

What has the Board been up to in the last two months?

Representation

The 17th International Amateur Radio Union (IARU) Region 3 Conference was held in Seoul, Republic of Korea, in mid-September. Greg Kelly VK2ZPK and Dale Hughes VK1DSH attended on behalf of the WIA and Peter Young VK3MV attended as an IARU Region 3 Director. The conference was hosted by the Korean Amateur Radio League (KARL). There were 13 amateur radio societies attending the conference (ARRL/ BDARA/ CRAC/ CTARL/ HARTS/ JARL/ KARL/ MARTS/ NZART/ ORARI/ RAST/ SARTS/ WIA) and three groups by proxy (PARA/ RSSL/ RSGB). The conference was also attended by Timothy Ellam VE6SH, President of the IARU, Vice President Ole Garpestad LA2RR and Secretary Dave Sumner K1ZZ, from Region 1 President Don Beattie G3BJ and Secretary Hans Blondeel Timmerman PB2T, Region 2 President Reinaldo Leandro YV5AM and Vice President Ramon Santoyo XE1KK.

To get through the large and complex meeting agenda items, there were three working groups formed. One to cover policy matters including education, training, development of amateur radio and international and regional conferences involving radio administrations, with special concentration on IARU Branding and the threat to amateur radio spectrum from the Wireless Power Transfer (WPT). The second working group covered operational and technical matters, including emergency communications, digital modes, APRS common frequencies with special attention on proposed interim band plans. The third group was the Finance committee.

There were a total of 42 papers that were discussed by the working groups and recommendations brought back to the conference plenary sessions. Elections were held for Region 3 Directors and the following amateurs were elected and we congratulate Peter Young VK3MV for being re-elected:

- Mohd Aris Bin Bernawi 9M2IR
- Jakkree Hantongkom HS1FVL
- Ken Yamamoto JA1CJP
- Peter Young VK3MV
- Wisnu Widjaja YB0AZ
- Don Wallace ZL2TLL

Wisnu Widjaja YB0AZ was elected Chairman and Shizuo Endo JE1MUI was appointed Secretary. The 18th Regional Conference of IARU Region 3 will be held in Bangkok, Thailand and will be held in September/October 2021.

The WIA is moving ahead with a team of Frequency Assigners and I thank all the people who have expressed interest in becoming a Frequency Assigner. We are currently working through ACMA requirements. The role of a Frequency Assigner is to assess frequency allocation applications for potential radio frequency issues for that site and to analyse, negotiate (if necessary), appove and enter the details into the ACMA Spectra System.

World Radio Conference 2019 planning is well underway with a number of preparatory meetings to both form the Australian Government and IARU views. Dale Hughes VK1DSH has been attending the Australian Government preparatory meetings and will be attending the Asia-Pacific Telecommunity meeting. Peter Young VK3MV has also been attending the IARU Administrative Council meetings in preparation for WRC-19.

Promotion

Director Aidan Mountford VK4APM attended via video conference a meeting with the Gippsland Gate Radio and Electronics Association on behalf of the WIA and reports were that it was a productive and informative session. WIA Directors has been invited to present to a meeting of the Norfolk Amateur Radio Club in Norwich, Norfolk, United Kingdom. They are seeking to strengthen ties with VK.

On the weekend of 22 September 2018, the Ku-ring-gai Historical Society & Hornsby

Continued on page 4

Board comment

Continued from page 3

and Districts Amateur Radio Clubs celebrated the Centenary (1918 - 2018) of the first direct wireless message from United Kingdom to Australia. This was a fantastic and well attended event celebrating the heritage of radio within Australia and congratulations to both organisations for making the centenary a very memorable occasion for all who attended.

The centenary Armistice Commemoration stations have proven popular with callsigns VI#PEACE and VI#LWF (Lest We Forget) being rostered along with VK100PEACE used by the WIA to provide for the event's on-air opening and closing addresses.

JOTA/JOTI in 2018 saw many Guides, Scouts and Venturers participate in activities. I listened across the airwaves over the JOTA weekend and heard many great conversations. I thank the many clubs, amateurs and non-amateurs who organise and take part over the JOTA weekend to demonstrate to Guides, Scouts and Venturers what radio is all about.

The Remembrance Day Contest has been run for 2018 and I congratulate VK7 on winning for the third time. This year was particularly relevant given the Centenary of ANZAC commemorations coming to a close and the Armistice centenary commemoration.

Education

The Australian Communications and Media Authority (ACMA) has released the Approach To Market package for the provision of Services related to amateur radio qualifications. This package outlines the future services that the ACMA require for the:

1. Conducting examinations to assess amateur radio proficiency,
2. Issuing amateur radio certificates of proficiency,
3. Making recommendations to the Customer about the allocation of callsigns to amateur licensees,
4. Participate in the Syllabus Review Panel, and
5. Associated non-statutory administrative functions

At the time of writing the WIA team was working on a comprehensive response to the ACMA in relation to the above services.

It has been bought to the Board's attention that Learning Facilitators are not given service recognition like Assessors. The Board sincerely apologises for this and this is in the process of being rectified. Learning Facilitators will receive the same recognition at each Annual General Meeting from now on.

Band planning is a topic that is dear to the hearts of most amateurs. The WIA has received a submission from Radio Amateurs Society of Australia in relation to accommodating and extending digital segments in the 160 and 40 m bands. Take a look at the Technical Advisory Committee section of this edition for details. Comments are welcomed.

I finish with a thank you to our WIA Complaints Officer, Phil Patterson who needs more time to complete his PhD in complex legal studies. Thanks to Phil, the Board has been able to put more structure and rigour around the complaints handling area.

On behalf of the WIA Board
Justin VK7TW

Editorial

Continued from page 2

The next season for amateur gatherings begins

As I write these notes, a new season of amateur gatherings are beginning – hamfest / hamvention / radiofest / Buy and Sell, whatever they are called. These days, I see such events as primarily a chance to interact and catch up with amateurs: old friends and new acquaintances.

I recently had the pleasure of travelling to Ballarat for the Ballarat Amateur Radio Group Hamvention. I travelled up on the Saturday and played a little radio with a SOTA activation inside a Park, joined by a local as part of the VKFF Team Championship. We operated in a rather low key fashion and after I had the Park qualified, we packed up and moved to another Park to move away from the QRM on the SOTA summit. We then returned to the local's home before heading into the nearby town for a delicious pizza dinner. On the Sunday, myself and Kaye VK3FKDW manned a table for the WIA at the Hamvention, selling the new 2019 Callbook and some other WIA merchandise. But the key to the day was the many personal interactions. The drive home for me was around three hours, so I was rather glad when I could sit and relax once home.

The weekend reflected a key aspect of the hobby: communication, be it via the radio or face to face.

Until next month,
Cheers,
Peter VK3PF

WIA news

ACMA releases Approach to Market (Tender) document.

The ACMA has released the Approach to Market document for Amateur radio licencing and administration.

The ACMA is seeking appropriately qualified and resourced organisations for the provision of certain statutory functions and administrative services associated with amateur radio licencing.

The services to be provided include:

- conducting examinations to assess amateur radio proficiency
- issuing amateur radio certificates of proficiency
- making recommendations to the Customer about the allocation of callsigns to amateur licensees,
- participate in the Syllabus Review Panel, and
- associated non-statutory administrative functions

The WIA is currently working on submitting a tender response.

The deadline for responses is 26 November 2018.

Latest from IARU Region 3

The International Amateur Radio Union Region 3 has just released its latest Newsletter.

The highlights include:

- A word from the incoming chairman Wisnu YB0AZ
- Summary of the 17th IARU Region 3 Conference Seoul, Republic of Korea
- IARU Administrative Council Meeting Focuses on WRC-19 Preparation and Succession Planning
- To IARU Member Societies and
- IARU Region 3 Directory

For more detail take a look at the newsletter available on the WIA website:

https://www.wia.org.au/newsevents/news/2018/20181015-1/documents/r3nl-18-10.pdf

73 de Ken Yamamoto JA1CJP
Secretary, IARU Region 3.

International HF Interference Complaint

In recent times a number of operators within and outside Australia have reported interference on 7190 kHz between 1500UTC and 1535UTC.

The source of this interference was traced to an Australian organisation, Reach Beyond Australia, from their global transmission complex in Kununurra, Western Australia.

The WIA has been in contact with Reach Beyond and the ACMA. The organisation has voluntarily elected to cease their programming on 7190 kHz whilst the ACMA assesses this situation.

The WIA would like to thank the members of Reach Beyond for their open dialog and working in the spirit of cooperation to rapidly mitigate the impact of this issue.

The WIA will update when further information comes to hand.

2200 m VK Beacon on Air

The Caboolture Radio Club is proud to announce the commencement of operation of a new Beacon Station on the 2200 m band.

The Australian Communications and Media Authority has granted permission for continuous operation of a Beacon on 137.444 kHz

Details

Callsign: VK4RBC

Location: Caboolture, Queensland, Australia

Maidenhead: QG62lw

Frequency: 137.444 kHz

Mode: WSPR2 (6H00F1D) plus CW Ident

Power: 1 Watt EIRP

Antenna: 500 m Long Wire, 40 m max height
TX %: 50 %
Status: On Air

In the gaps between transmission, the station will report all WSPR decodes to WSPR.net.

There are many beacons on 2200 m operated by individuals like WH2XND. This beacon is a little different. It is an official beacon specifically licensed as such by the Australian Government. The first to be granted permission to operate below 1.8 MHz. It has been given the frequency 137.444 kHz only. It cannot change frequency. It cannot make QSOs.

It operates 24/7 and must be reliable, so that anyone can check their station at any time. It also receives, which is unusual for a beacon. Last night it got its first decodes of WH2XND, so its receiver is working well using that great long wire as the antenna for Tx and Rx. With WH2XND also reliable, we will now see exactly how good the path from USA to VK really is on 2200 m.

Information sourced from the 600 m mailing list and Roger VK4YB, President Caboolture Radio Club.

Remembrance Day 2018

The eleventh of November is always a significant historical day. Remembrance Day 2018 is especially significant as it is the centenary of the signing of armistice between the allies of World War I and Germany.

It took effect at eleven o'clock in the morning of the eleventh hour of the eleventh day of the eleventh month - one hundred years ago. The war to end all wars was finally over.

WWI saw the mobilisation of over 70 million people and left 16 million people dead, with over 60,200 being Australians. As many as one third of those 16 million have no known grave.

At the first anniversary in 1919, a two minute silence was instituted as part of the main commemorative ceremony. A little known fact is that the silence was proposed by Australian journalist Edward Honey who was working in London at the time. After WWII the Australian and British Governments changed the name to Remembrance Day.

We remember all those who died or suffered for Australia's cause in all wars and armed conflicts on this day.

So at eleven o'clock on November the eleventh, all are encouraged to pause and remember.

Reminder that VI100PEACE was operating up to 1100 hours on the eleventh when the transmitters fell silent.

Review of the Peak Electronics Design LCR45 LCR and impedance meter

Peter Parker VK3YE

Ability to measure capacitance and inductance is indispensable for the radio experimenter. This is particularly the case for variable capacitors (that normally do not have their values marked) and inductors you salvage or wind yourself. A project might specify a certain number of turns on a toroid but, especially if your wire is a different gauge to specified, it is helpful to measure the overall inductance.

I was recently given the opportunity to review the LCR45 from Peak Electronics Design. Marketed by SOTABeams, it is designed and made in England.

The LCR45 is pocket sized. It uses a small commonly available 12 volt battery. Control is via two buttons, with short and long presses having different functions.

Measurement options include automatic (where you don't know whether the component is a resistor, capacitor or inductor) and manual (where you do). You also have a choice of automatic or manual selection of the frequency used for the measurements. The frequencies offered are 1 kHz, 15 kHz and 200 kHz.

The LCR45 is strictly an 'out of circuit' tester. That is you must measure the unknown part in isolation. Otherwise you will get interaction from other components and the risk of damage to the meter if stray voltages are present.

I found the LCR45 easy to use. Of particular interest to the radio experimenter is that it gives useful capacitance readings from a few pF upwards and inductance from a fraction of a microHenry and upward. However if you wish to accurately measure nanoHenries (such as would be used above 50 or 100 MHz) another, more elaborate, instrument would be desirable.

Photo 1: LCR45 testing a beehive trimmer capacitor.

Unlike many cheaper instruments, the LCR45 comes with a real paper manual. This was concise and easy to understand. I particularly liked the explanation of complex impedances such as what this instrument can measure.

This gets us on to the second part of why you might use this instrument: the impedance measuring function. Here you can measure the capacitive or inductive reactance of the components under test at 1 kHz, 15 kHz or 200 kHz.

Those a little rusty on theory will find this instructive. A fixed capacitor's reactance declines with frequency while a fixed inductor's reactance increases with frequency. You read about this in theory books but testing a box of parts with an instrument like this makes complex impedances (which feature imaginary numbers) more real.

Even more interesting is what happens when you connect an inductor and capacitor in series to form a tuned circuit. I chose a 1 mH RF choke wired in series with 110 nF (100 nF + 10 nF connected in parallel).

The results on the LCR45 were revealing. At 1 kHz this network was heavily capacitive reactive. Bridging the inductor had little effect. In contrast it was the opposite at 200 kHz with the circuit having a high inductive reactance. Here removing the capacitor had little effect since it contributed little reactance.

At 15 kHz, our middle frequency, the behaviour was different again. The reactance of the capacitor cancelled out that contributed by the inductor. Consequently the overall load presented was much less reactive than at the lower and higher test frequencies. At 15 kHz the circuit was series resonant and

offered little opposition to signals at that frequency – it had a low impedance.

A similar demonstration with the capacitor and inductor connected in parallel (instead of series) would show a very high impedance at 15 kHz. Such characteristics explain how series and parallel tuned circuits work and how they can be useful in passing or rejecting signals at their design frequency.

I recommend the LCR45 as a useful and educational instrument for the electronic experimenter or student. It costs $AU 120 at the time of writing. Thanks to Richard G3CWI from SOTABeams (*sotabeams.co.uk*) for the review unit. A video showing the LCR45 in action can be seen at: *youtube.com/vk3ye*

Photo 2: Close-up of LCR45 display.

Almost Ultimate HF/VHF/UHF Full Power Portable

Anthony Smith VK4TC

Introduction

Moving house necessitated packing up my modest station. Instead of setting it up again inside, I decided to make it totally portable, so it could be used whilst camping or as a non-permanent home station. My requirements were full power, automatic tunable, multi band (HF, VHF and UHF) operable, independently and local powered, field serviceable, setup within five minutes and CAT computer controlled if desired. I needed it to be indestructible (crush proof and waterproof) during transport. Finally it needed to look cool.

The plan

My existing setup was a Yaesu FT-857D and LDG YT-100 autotuner, already suitable for portable use. I selected a Dry Power 14 Ah sealed lead acid battery, the heaviest option, but generally the safest when charging and transporting.

I chose a waterproof CTEK MXS 7.0 battery charger, for its convenient size and ability to operate as a power supply (7 A).

The antenna I decided on an end fed half wave (EFWH) with a 60:1 (approx) impedance transformer and traps for 20 and 30 metres.

The station

After much rearranging of the transceiver, autotuner, battery and project box (acting as a front panel), I found a configuration that occupied the minimum volume in an ergonomic configuration.

An arrangement for the front panel was decided upon. Holes for the UHF and type N antenna sockets, power switch, audio selector, headphone jack, tuner button and power supply socket were drilled on the front. On the left side four holes for cable glands were drilled. Speaker holes were drilled on top of the project box.

Photo 1: All components secured on the base plate, and the large cover.

Photo 2: The station in the waterproof bag, and then placed in the padded wrap, that came with the backpack.

Labels were printed on silver tape and sealed with PCB sealant.

A base plate of 3 mm aluminium checkerplate was cut just larger than the configured components. The components were then secured to the base plate of by a selection of brackets (commercial and homemade). The cables were then installed with a variety of heatshrink, cable ties, Loctite and a large compression bracket to ensure nothing came loose. The weight of all the components was designed to be held by the bottom plate, which was lined on the back and side edges with 3 mm aluminium angles to provide rigidity.

A large box cover and small front cover were then constructed from the same aluminium plate. A microphone holder was fixed to the right inside of the cover. The two covers were secured with hooks and bungee cord straps used by boaters. This meant the cover could be easily removed in field for repairs.

All metal pieces were bolted together with countersunk machine screws, secured with Nyloc nuts or half hex nuts with glue. Any nuts that still protruded unacceptably, where ground down to quarter height. The bare steel was then sealed with PCB sealant. All corners and edges where filed and sanded to prevent chafing.

For extra protection and to prevent chafing of the waterproof bag, a 4 mm layer of rubber foam was

wrapped around the box, secured with bungee cord (cut, end melted and heat shrunk for neatness).

The padded box was then placed in a bright yellow 20 litre Sea to Summit waterproof bag.

A Lowepro Photo Sport 200 AW Backpack was purchased. It was exactly the right size, but also contained a grey padded wrap that was suspended from the pack's internal frame to support the station.

Construction of the antenna components

My objective was to build a wire antenna that could be tensioned without any physical force on the electrical connections. This meant the antenna needed three parts; a continuous core from the far end to the radio end to absorb the tension and provide support, the active components (wire, traps and transformer) and a sheath to contain the first two parts.

I selected TAS paracord (1), (4 mm OD, 220 kg breaking strain) that had seven internal polyester strands in a braided polyester sheath. I cut the cord to each antenna section length plus 50 cm. I then unwound a short section of both ends of the cord. I joined the wire (DX-Wire UL (2)) to one of the strands with a slim knot and heatshrink. I then tied together the remaining six strands together at each end. These six strands were then put under tension, and the seventh strand was pulled though the sheath, dragging the wire with it. The wire was a few centimetres longer than the section of cord it went through, so that when the cord was under tension (suspended between two supports), the antenna wire inside the cord would be slack and not be stressed. It also meant the wire could be cut for tuning. For the section between the radio and the transformer, two strands were replaced with RG-316/U, using the same method.

The traps (Sotabeam HF traps) were assembled as per instructions for 100 W use. A unique step I added, was to use a drill press to drill a 2 mm hole through the centre of the nylon bolt. A wire loop can be inserted through it to measure the resonant frequency in situ, once the nut had been tightened (which can change the resonant frequency).

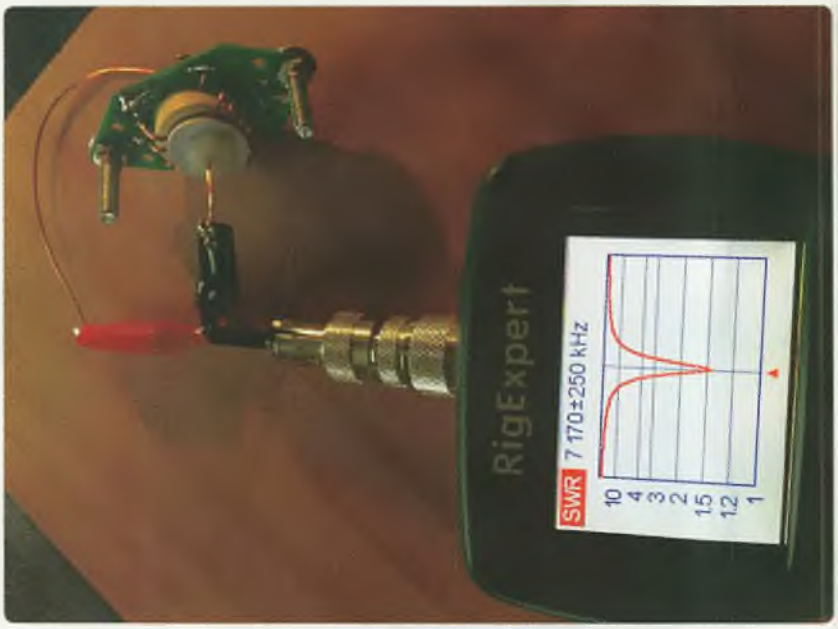

Photo 3: Measuring the resonant frequency of an assembled trap in situ.

The transformer was built as described by Dutch amateur Pleun Vermeulen PA3HHO (3).

The traps were labelled with their band and resonant frequency. The transformer and traps were then coated in two coats of lacquer for waterproofing. A piece of heavy heat shrink was cut to length and shrunk around the circumference of the traps and the transformer to protect their edge.

Assembly of the antenna

The whole antenna system was then temporarily assembled and raised into position. SWR readings were taken and as expected the resonant frequencies were low.

The first section to be permanently assembled was the coax segment from the radio to the transformer. At the radio end, the coax was carefully extracted from the cord by making a hole in the sheath 20 cm from the end, by carefully separating the cord sheath braid with an unpicking tool for sewing. The coax was then pulled through 15 cm and terminated in a BNC plug. The section just before the coax exited the cord down to the BNC plug was covered in heat shrink. The coax-less end of the cord was tied in loop and the knot and also covered in heatshrink. A carabiner was inserted through the loop.

The process then was to assemble each antenna segment piece from the transformer outwards.

The antenna wire inside the first segment was cut for resonance.

Next the antenna segment was labelled. A 30 mm piece of black heatshrink was shrunk 10 cm onto the near end of the segment. On this, a label was applied with the transformer or trap details (resonant frequency and band). A 40 mm piece of clear heatshrink was applied over the label to seal it.

Preparations were then made to protect the transformer and trap. A piece of 20 mm adhesive heat shrink was slid onto the far end of the near segment, and a piece slid onto the near end of the next antenna segment. 12 cm of self-closing braided wire wrap (4) was placed over the first segment.

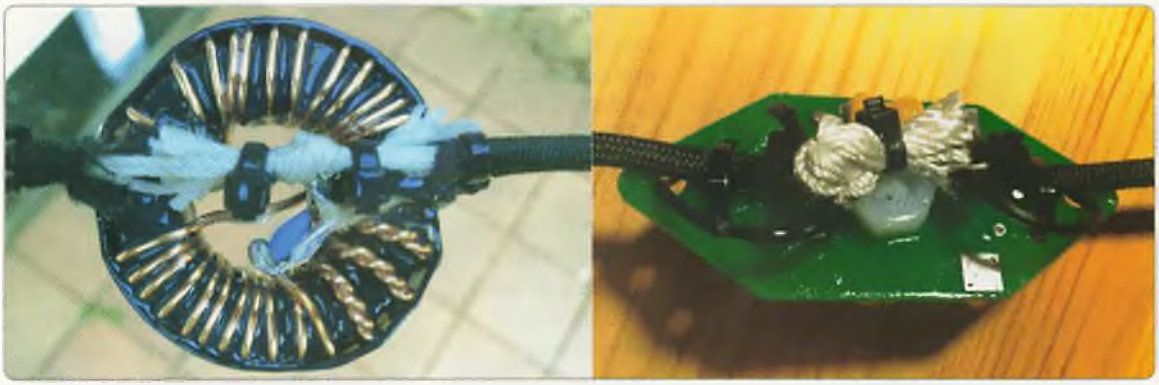

Photo 4: The transformer and a trap showing the strands of the cord tied together, and the ends of the sheaths are cable tied to prevent them sliding back down the strands.

The far end of the first segment was then joined to the near end of the next segment by tying the two lots of six strands of the cords together with a reef knot. The tails of the knots were tied back with cable ties for neatness.

The antenna wires were then soldered to the trap or transformer. The carabiner at the radio end was fixed to a post and the other end with the six strands tied together, was put under tension. The antenna wires were pulled in a centimetre or two towards the trap, to ensure there was slack in the antenna wire.

Two small cable ties were then placed over the cord sheaths where they terminated next to the trap or transformer to stop them sliding back down the strands.

The self-closing braided wire wrap was slid over the transformer or trap. The previously placed heat shrink pieces were then slid over the ends of the wrap and shrunk, where it overlapped the cord sheath.

The process was repeated until all the segments were connected. In the final 40 m segment, the antenna wire terminates about 6 m before the cord ends. This allows the antenna to be tied off to a support without compromising the active section. The termination position of the wire was labelled the same way as the traps.

The antenna is simply wound up using the "over and under" winding technique (5). This technique puts a half twist on every second loop, so when the antenna is unwound it is not twisted.

For 2 m and 70 cm use, a duo band whip antenna is simply screwed onto the VHF/UHF antenna socket. The antenna is stored in the back pack.

The antenna poles

Antennas need to be as tall as possible to lower the angle of radiation. As all the equipment needed to fit in the backpack, a compromise was made regarding the maximum segments lengths of the telescopic antenna.

A pair of CMS Electracom telescopic fiberglass cable puller poles (6) were purchased. Their extended unmodified length was 4.8 m, and the collapsed length was 60 cm. The maximum length to fit in the backpack was 55 cm, so 2 to 5 cm was cut off the base of each of the 10 segments. As the OD of the base needed to be wider than the ID of tip of the next segment, the 'new' bases of each segment were coated in fiberglass resin to increase the diameter, and wedge in the tip of the preceding segment upon extension. The final length of the modified poles was 4.1 m.

The tips of the antenna supports came with a brass fitting that had a convenient thread on the top. An aluminium plate was machined with

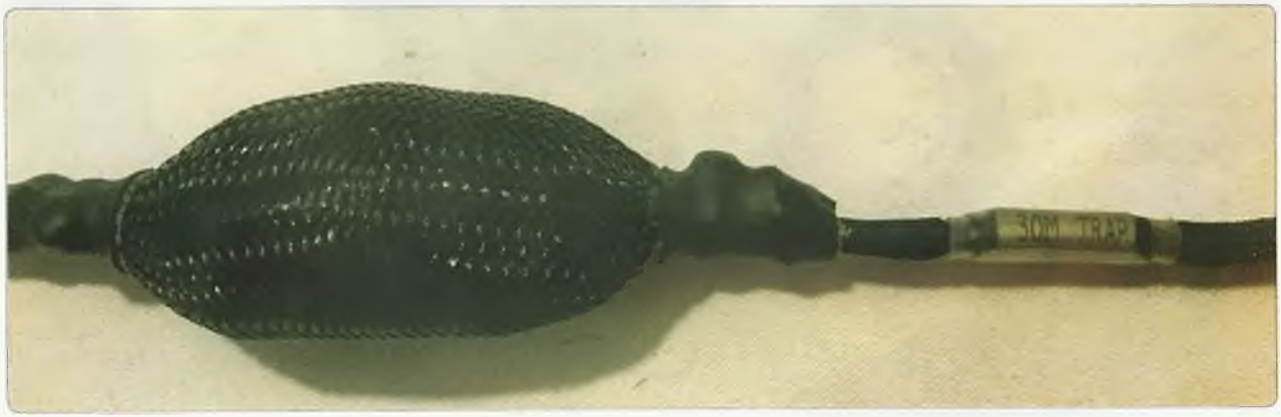

Photo 5: The braided wrap in position over a trap, secured to the cord with heatshrink, and the label of the trap.

Photo 6: The end of the pole in the fully retracted position. The poles come with a handy bungee loop to prevent the pole from inadvertently extending.

two holes, one went over the thread and kept on loosely (for rotation) with a Nyloc nut. A small carabiner was inserted through the other hole. The antenna was to be threaded through the carabiner.

A protective case for the poles was constructed by cutting to length a fishing rod tube. One end cap was glued on, and the other end cap was secured to the tube by a length of bungee cord. Self-adhesive neoprene foam was stuck on the inside of two galvanized steel pegs. Three nylon straps with friction buckles were stitched through holes in the back of each of the pegs. The pegs were hammered into the ground, the bases of the poles were put into the pegs and the straps tightened.

A simple protective cover for the pegs was made by sealing off one end of a neoprene tube that is normally used for insulating pipes.A plastic peg, with a carabiner is used on of the end of the antenna if required to anchor it to the ground. A plastic mallet was included to complete the antenna setup.

Performance

Trimming was required on the 40 m segment to get into band, but overall the antenna was resonant on all the bands. Power output was a little less than expected on SSB, hitting about 60 watts.

Contacts have been made from my Brisbane QTH to the US, Indonesia, Japan and New Zealand, mainly on 40 m.

After completing this project I realized some gains could be made in weight and simplicity. As the antenna is resonant, the auto tuner can be

Photo 7: All the antenna components, including optional coax extension.

Photo 8: In full operating mode.Conclusion and improvements.

deleted. The lead acid battery could be replaced by a much lighter LiPO version. The front panel of the radio already had a headphone socket, and the radio (obviously) had an internal speaker, negating my need for a headphone socket, audio selection switch and speaker all contained in the custom made front panel.

Next time I would use a sheet metal bender and welder to build the metal box. Also, I would cut out circle shaped sections in the panels of the box to save weight.

Finally, I would invest more time in selecting higher quality switchgear and connectors.

About the author

Anthony Smith achieved his Foundation licence VK4FANT in 2010. He then graduated to a Standard licence VK4LAD in 2011, and finally his Advanced licence VK4TC in 2017. He holds a BSc and a MAppSci and works in the medical device industry. He can be contacted at *anthonybernardsmith73@gmail.com*

Notes

1. I tried many different brands and diameters of cords, until I found this one to be suitable: *https://www.tentworld.com.au/buy-sale/tas-paracord-roll-black-50m*
2. This cable itself has a high breaking strain, but with weighty traps and constant set up and pulldown, it could kink or become scuffed. However, it did make an ideal wire to use with small diameter and slippery insulation: *http://www.dx-wire.de/lng/en/dx-wire-antenna-wire-litz/dx-wire-ul/*
3. I simply followed the diagram, but experimented with different capacitor values: *https://pa3hho.wordpress.com/end-fed-antennes/multiany-band-end-fed-english/*
4. I bought all the diameters before deciding on this one: *https://www.jaycar.com.au/self-closing-braided-wire-wrap-13mm-x-2m/p/WH5634*
5. There are lots of videos. This is one of the superior ones: *https://www.youtube.com/watch?v=cpuutP6Df84*
6. Jaycar in Australia used to stock this product, but now it appears to be sold by this company: *http://www.radioparts.com.au/product/52641015/tcgp48-4.8m-telescopic-cable-grab-tp16-collapsing-pole#.WcoulLIjGpo*

A visit to DECCA

Steve Page VK6HV and Jono Bucktrout VK6DF

Photo 1: The Woodbrook antenna and station.

The DECCA Navigational System

What was DECCA? The DECCA Navigator System was a VLF hyperbolic navigational system which allowed ships and aircraft to accurately determine their position by receiving radio signals from fixed VLF radio beacon transmitters. These transmitters operated in the VLF portion of the spectrum from 70 kHz to 130 kHz. Each navigational VLF system was known as a "chain" and normally consisted of one master transmitting station and three slave transmitting stations. Occasionally two slave stations were used to form a complete chain. A specialized Decca receiver on-board a vessel or aircraft would be required to make use of these VLF signals.

Early days

This VLF system was invented in the US, but developed by Decca in the UK. It was first deployed by the Royal Navy during World War II when allied forces required a system which could achieve accurate landings but was unknown to the Germans forces, thus free of jamming. After the war, this system was further developed and deployed around the world including transmitting stations in England, Ireland, Scotland, South Africa, Nigeria, India, Bangladesh, Australia, Canada, Bahamas, Iran, Japan, Vietnam just to name a few. Decca's primary use was ship navigation in coastal waters, offering much better accuracy than the competing LORAN system.

Later days

Possibly with the advent of GPS or other more accurate technologies than DECCA, the Port Hedland and Dampier Australian "chains" shut down around 1988-1989. Many DECCA stations around the world continued to transmit well into the late 1990's with the last DECCA navigational transmitting chain shutting down in Japan around March of 2001.

Photo 2: The porcelain insulators at the tower base, together with a spark gap for static discharge and lightning protection.

Australian transmitting sites

From online research and personal site visits, it appears there were five VLF Decca transmitting sites along the North West Pilbara coast to service the ports of Dampier, Cape Lambert and Port Hedland. The Port Hedland chain consisted of a VLF master station at Turner River and VLF slave transmitting stations at Mundabullangana Station and De Grey River. The Dampier chain consisted of a VLF master station at Woodbrook (Roebourne) and VLF slave stations at Mardie Station and Mundabullangana Station. Hence the Mundabullangana Station was a shared station between both "chains".

According to a few web sites, the North West of Australia was the only location in Australia where this type of VLF navigational system was installed. Other chains at Wallaw Downs, Derby and Gladstone were proposed but never built.

The Woodbrook VLF site

20°53'S 117°08'E TX on 85.635 kHz

This VLF site is located about 12 kilometres inland from Roebourne on a dirt road servicing Harding Dam. The security fence around the whole site, antenna, coil house, transmitter building and original office buildings are still there. It appears a few other

out buildings have been added to the site by the prison authority and aboriginal corporation who currently occupy this site.

There was an odd and interesting feeling about our first site visit back in 1999. It appears when the official word was issued to close this station down, the technicians literally just walked out. It was like they shut the transmitters off, turned the lights off, locked the door and walked out leaving everything behind. Even a 1980s vintage oscilloscope was still on the technician's workbench in what appeared to be a "clean room". The transmitters were all still in place along with trays full of spare electronic parts and a shed with a backup generator.

Photo 3: The feeder exiting the transmitter hut.

The Woodbrook Antenna

As you can see in Photo 1, the antenna is quite large at 288 feet (87.8 m) and sits on three large porcelain insulators with a simple lightning protection spark gap as seen in Photo 2. Lead length does not appear to be critical at such low frequencies as the feed line from the coil house goes through the window and connects to the base of the tower was literally 1" (25.4 mm) copper pipe as seen in Photos 3 and 4. The antenna seems to be extremely short for the transmitter's very low frequency; hence the guy wires appear to form an extremely large capacitance hat.

Photo 4: The Woodbrook antenna base and feed arrangement.

The Woodbrook Coil House

As seen in Photo 5, there are five coils that occupy a large wood rack. It appears the coils are moved to and from each other along the rack for tuning purposes. This coil rack is professionally constructed and appears to be made of varnished mahogany wood as seen in Photo 6. Also in Photo 7, the RF watt meters and large mica transmitting capacitors. Unfortunately most of the gear in the coil house has been vandalised.

The De Grey VLF Site

20°21'S 118°59'E TX on 127.230 kHz

This site is located about 60 km to the east of Port Hedland and adjacent to what we believe is the old BHP Shay Gap train rail. There are numerous remnants at this VLF DECCA site.

The long security fence still mostly surrounds the whole property. The antenna sitting on top of three porcelain insulators is still standing at 240 feet (73 m) as seen in Photos 8 and 9 with all guy wires still attached. An extra set of three additional guys attached to the top of the antenna and spread out at odd angles probably helped form a massive capacitance hat for this antenna.

The old transmitting shed can be seen in Photo 10 with two large air ducts protruding from the side of the shed.

Photo 5: Inside the Woodbrook Coil House showing the impressive tuning coils in their timber mounting rack.

Photo 6: Part of the Woodbrook Coil House tuning mechanism on the side of the coil mounting rack.

Numerous connected lengths of 8" (203 mm) diameter pipe was still on the ground which appear to have formed a wire way or duct to house the feedline between the transmitter shed and coil house.

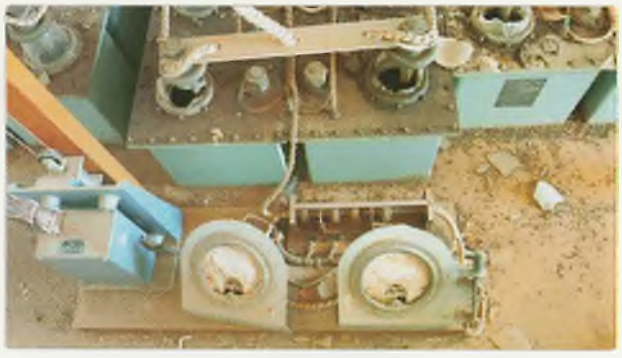

Photo 7: The RF meters and transmitting capacitors, showing damage from age and vandals.

Also, the emergency wind generator triangular tower was lying out in the back paddock of this property. When talking to the current occupants of this site, they stated they were the third family to occupy this property since the station shut down and were unsure as to what happened to the DECCA transmitting equipment for this site. One thing we noticed during our site visit was the coil house at the base of the tower and an out building which appears to have been a repair shop or offices were permanent brick buildings on concrete foundations, whereas the outbuildings at the Woodbrook site were all transportable buildings. At both VLF sites the transmitters were in metal sheds. Our guess was possibly for RF shielding requirements?

The Turner River VLF Site

20°33'S 118°29'E TX on 84.820 kHz

The exit off the Great Northern Highway for this site is on the east side of the highway approximately 20 kilometres south of South Hedland. This decommissioned transmitting site is now subdivided private property with blocks approximately 1 acre each. During a recent site visit, no obvious antenna, transmitting equipment or structures from the previous DECCA installation could be found. Although some transportable buildings on a few different properties could have been remnants of DECCA as their appearance was similar to those buildings at the Woodbrook VLF site. This site can be easily seen on Google Maps or Google Earth.

Photo 8: The antenna at the De Grey site.

Photo 9: View of the antenna mounting at the De Grey site.

The Mundabullangana VLF Site

20°25'S 118°04'E TX on 113.0933 kHz and 128.435 kHz

According to the Lat. and Long. coordinates, this site was almost on the beach well west of the Great Northern Highway and south of Port Hedland. With an expert eye, this site can vaguely be seen on Google Earth. Correspondence with the current owners of this cattle station stated that they were not owners of the station back in the 70s and 80s and don't know much of the history of this old VLF transmitting site but believe there is a generator on their station that was probably from the old Decca station.

The Mardie VLF Site

20°59'S 116°21'E TX on 114.118 kHz

This VLF site appears to have straddled the North West Coastal Highway proximately 60 kilometres south of Karratha. It has been professionally rehabilitated in the past as there is almost nothing recognisable except some ground disturbances from the original vertical antenna radial system as viewed by Google Maps or Google Earth. When visiting this site many years ago, all that could be found were a couple small cement pads with cut off 50 mm steel pipes as if they were corner posts for the security fence around the antenna. Also found was a rusted out Peugeot model 404 automobile in a small rubbish pit on the opposite side of the North West Coastal Highway where some transportable buildings may have once been installed.

Additional Information

Additional information about DECCA and other navigational systems can be found at the excellent website of Jerry VE3FAB: *http://jproc.ca/hyperbolic/*

The web site of G4FTC: *http://www.qsl.net/g4ftc/decca/home.htm*

Wikipedia

Photo 10: The rear of the transmitter hut at the De Grey site.

Sydney Amateur Television goes 5.6 GHz

John O'Shea VK2ATU

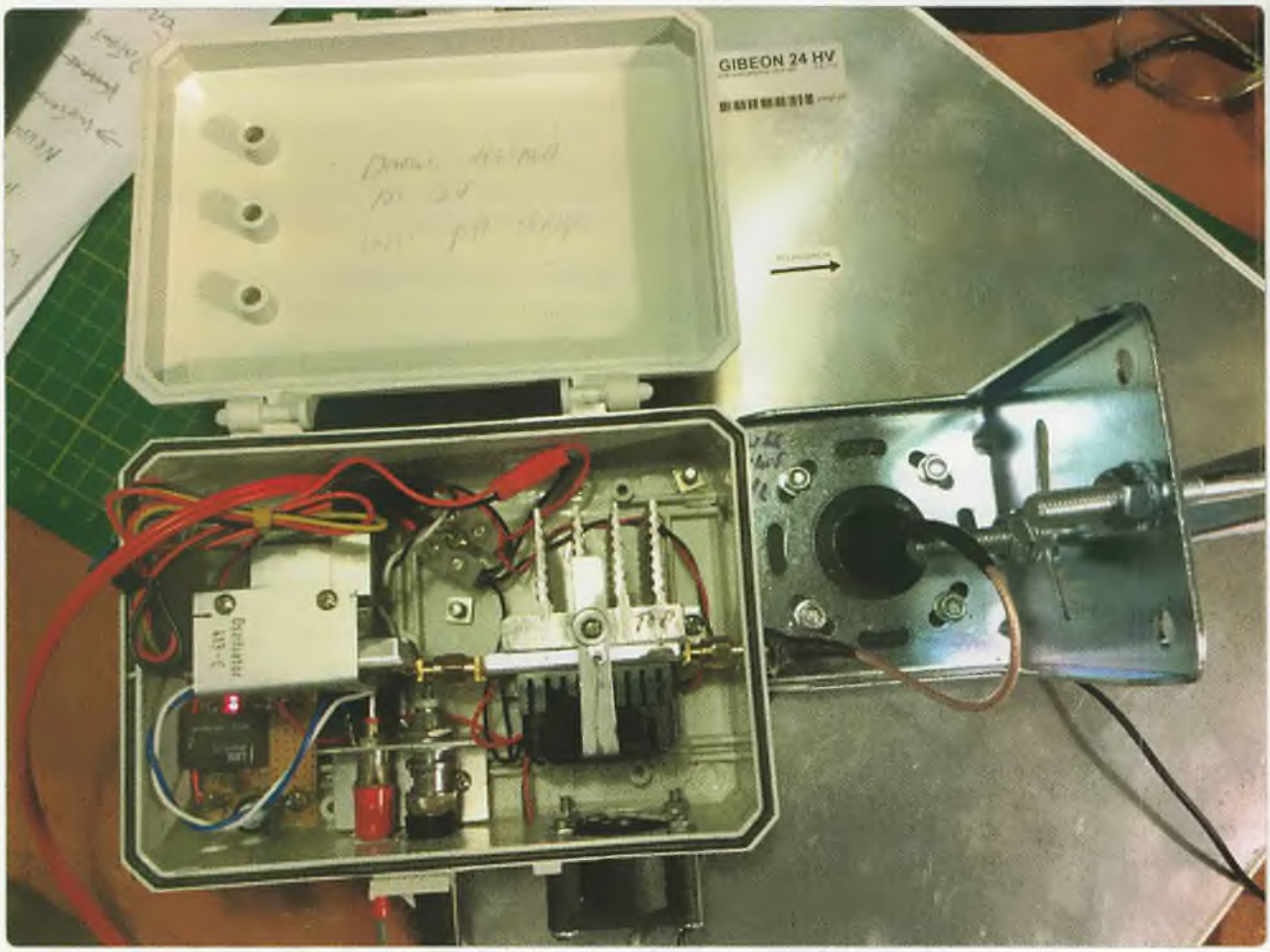

Photo 1: The 6 cm transmitter.

With the popularity of drones has come the availability of low cost 6 cm video receivers and transmitters. This has been exploited by UK amateurs with distance records of over 150 km being achieved with only 600 mW power levels.

I had thought for some time about adding a 5.6 GHz input to our Lawson ATV repeater VK2RTS located in the Blue Mountains west of Sydney. Lawson is 728 m above sea level and according to the web site "hey-what's-that?" is line of site to my QTH at Revesby 60 km away but would such low cost equipment do the job?

I purchased a matching transmitter and receiver from a Chinese model shop. They are labelled TS832 and are made by a number of manufacturers. The drone FM transmitters and receivers have 40 fixed frequency channels with a small display showing the channel number selected by two buttons. Most of the channels are in the Wi-Fi band but the "Race Band" is below that and there are three frequencies, 5.695, 5.752 and 5.820 GHz that are close to the Australian ATV 6 cm band centre frequency allocations. Check before ordering as there are other channel combinations that don't include the Australian frequencies.

I mounted the transmitter and receiver each in portable cabinets with small 6x6 cm patch antennas with a claimed 14 dBi gain and headed off to a local park to see what range could be achieved.

Setting up occurred on one side of the park with the 600 mW transmitter on 5.695 GHz and the receiver on the other side, some 700 m away.

Video received was P5 excellent. But turning the receive antenna showed only minor variation in the received signal strength even at right angles. This made me doubt the claimed gain figures of these small patch antennas.

The next range test was to be a hill top at Liverpool, some 11 km from my QTH.

Arriving at the site, I set up the tripod, mounted the receiver with the small TFT screen and audio amp. Telephoned my helper back home to turn on the transmitter now mounted on an 8 metre mast at my QTH with a confirmed lined of site to the hill top. No picture at all, both locations were using the small patch antennas.

Reading the British Amateur Television Club magazine, CQTV, an article caught my eye regarding the Polish made Gibeon patch antennas, 33 cm by 33 cm square and has 24 dBi gain with female N connector. I ordered two of them from a UK eBay seller. The manufacturer's SWR graph shows the best match is closest to our 5.695 GHz frequency. Now with the much larger patch antenna in place at the QTH and fitted to the portable receiver, I was off to the hill again. Success! A beautiful P5 picture with good sound!

Having confirmed line of site to Lawson some 60 km away, it was time to see if video could be received there. I purchased a 3 W power amp from the same Chinese model shop and added a substantial heatsink to improve cooling and mounted it up on the mast with the transmitter. I included a 5-second timer to power up the transmitter before the PA. There have been reports of PAs failing when powered up before RF drive. Also, I tapped threads into the heat sink with screws to hold tight copper wire to keep the heat sink firmly in place. First remove the yellow sticker and apply thermal grease. Always have an antenna or dummy load connected when powering up drone transmitters and power amps; they fail very quickly otherwise!

Arriving at Lawson, I set up just down the road from the repeater site with an unobstructed view to the distant CBD. With the receiver and large patch antenna on a solid tripod, it was time to phone my helper to power up the transmitter. It was a calm warm day and all my fingers where crossed. The screen sprang to life with a good picture, not P5 but close. The audio tone was audible but in and out of the noise. I swapped over to the small 6 cm patch antenna and not expecting to see anything to my surprise was a weak but viewable picture. So now I tried a small omnidirectional three loop cloverleaf

Photo 2: The 6 cm receiver mounted at the rear of the antenna.

Photo 3: Installing the receiver and antenna on the tower.

antenna; I couldn't believe it, a reasonable picture! This was showing real promise.

I packed up, drove up the road and knocked on Paul VK2JPL's door, the home of the ATV repeater. We set up the receiver on Paul's backyard shack roof. We were looking right at the neighbour's tile roof but still received a passable black and white picture. This was looking promising.

After showing the other ATVers in the group the video of the field tests, it was decided to set a Saturday to install the 5.6 GHz receiver on the tower at Lawson.

Saturday dawned fine and sunny and we had agreed to meet at the repeater site at 10 am and all were on time: Garry VK2CRJ, young Paul VK2KZO, Paul VK2JPL and I with the receiver and DTMF controller. Young Paul volunteered to go up the tower on the extension ladder with tool belt and patch antenna with receiver attached. Garry delved into the ATV workings and connected the new controller in front of the original. We then fed the three cables up the tower, one to feed the 12 VDC up to the receiver and two to feed the audio and video down.

Paul called down from the tower "the wire with the black stripe is positive right?" thinking he was joking I replied "yes that's right ". All finished up top so we connected power, a flash of the power LED then nothing. No power, fuse blown, what's wrong, um. Paul, you did connect red to positive? No, was the reply "I was taught by the company I worked for that the wire with the black stripe was positive". Reversed the polarity replaced the fuse and all was OK, the receiver must have a protective diode to ground, lucky.

The distant transmitter was activated and a perfect full colour picture was received with clear audio; success! Further testing of the DTMF tones confirmed on and off operation and the original analogue and digital inputs were working as normal, all in all a very successful result. A few weeks later with heavy rain we observed that over the 60 km path no observable attenuation occurred.

Photo 4: Close up of the receiver and antenna in position.

My previous testing through heavy tree foliage showed that 6 cm video RF can penetrate more than theory would suggest.

Lawson ATV is active on Monday nights from 7 pm on digital 446.500 MHz and streamed on the British Amateur Television Club website by Garry VK2CRJ. Voice liaison is on FM, 147.325 MHz + offset. Interested Amateur operators are always welcome to call in.

Many thanks to the Sydney ATV Group for their help and cooperation.

John VK2ATU

References

British Amateur TV Club: *https://batc.org.uk/live/*

UK Ebay seller: *http://www.ebay.co.uk/usr/3gwifi_warehouse?_trksid=p2047675.l2559*

Antenna Manufacturer: *https://yagi.pl/antena-gibeon-24hv-z-obudowa-zlacze-ufl*

Heywhatsthat, line of site checking: *https://www.heywhatsthat.com/*

Drone video, Banggood: *https://www.banggood.com/*

The Wireless Institute of Australia

Committee Revitalisation

Positions Vacant

The Board of the Wireless Institute of Australia have been implementing a committee revitalisation process over the last 18 months.

The aim of the project is to ensure that all committees and groups are operating at optimal efficiency and to implement succession planning as well as to establish a central repository for documentation, information and records for the committees and groups.

Each committee have been charged with reviewing their Terms of Reference (ToR) and where none already exists to develop the ToR utilising a standard template model.

The Committees will:

- Be reviewed every year shortly after the AGM
- Have WIA Board Members appointed as committee members (not Chair)
- Appoint a Secretary for keeping records of meetings.
- Be required to submit quarterly reports to the Board on activities and decisions.
- Have appointment terms. Something like two years staggered (half the committee each one or two years). Members are eligible for re-appointment once their term has ended.
- Document all Procedures and Roles.
- Plan for succession.

The Board of the WIA wish to fill vacancies on the following Committees and groups immediately:

- Finance Committee
- Sales and Marketing Group
- Standards Committee
- Legal Standing Committee
- Digital Publications Group
- Executive Advisory Panel

Expressions of Interest should be directed to *secretary@wia.org.au*

Peter Clee VK8ZZ
WIA Secretary

Silent Key

Sandro Bertolone VK4II

I wanted to let you know of the sad passing of my father Sandro Bertolone on 3/5/18 (DOB 16/12/36).

My Dad had been a HAM operator for many years. He has been off-line for the past 6 years since developing dementia and moving into a nursing home. However, he insisted that I keep up his membership and enjoyed reading the magazine each month.

Please add Dad to the SK notices so that his radio friends whom he lost contact with will know of his passing. Feel free to contact me if you would like any information.

juliagough@hotmail.com

Julia Gough

Etiquette and Calling CQ

Ade Larsen VK4SOE

Standardised international radio etiquette, procedure and protocol dictates that we operate as efficiently, clearly and succinctly as is possible.

The Australian Communications and Media Authority's legislation and our own Licence Condition Determinations lay down rules of which we must obey. Whilst this is the basis for how we conduct ourselves it is up to each of us to strive to be the best we can and go on-air in such a manner as to display our courtesy, politeness and good behaviour.

When I first learned to fly my instructor asked me if I wanted to be a good pilot and I said yes. The instructor then lambasted me and then again asked if I wanted to just be a good pilot or a great pilot to which I replied a great pilot.

Do you want to be an average amateur operator? Or do you perhaps yearn to be a cut above the rest?

I'd say that most us would answer that question with a definitive 'yes'; however some folk for one reason or another are not exposed to the full banquet and platter of radio operation etiquette and protocol and so never attain the best operating conduct that is possible.

Aside from self-improvement, I believe we have a duty to demonstrate fastidious and impeccable conduct on the bands which includes utilising traditional radio etiquette which has not gone out of fashion nor indeed changed.

Believe it or not, for the first eighty years of radio or so, the operators in the amateur service tried to be as efficient and to-the-point as possible and this was when the bands were less congested and had little interference.

Whilst not wanting to relive the past glory days of radio, we can still take a command lead from how the operators of yesteryear conducted themselves. Further to this, we may also like to aspire to on-air behaviour tantamount to our current Maritime, Aviation, Military and Rescue Services who maintain strict radio procedure and etiquette.

Everyone's on-air demeanour and style is different and this is ok. We all have our own ways of doing things. The over-arching question we must ask ourselves is: *"Can we become better operators?"*

Everyone can be a better on-air operator. Here are some tips.

Pre-Start Up Check List

How many times have you tuned through the band on your radio and just heard some station call out? Well folk's; that is not good conduct.

As an operator who wants to be the best you should turn on your radio and choose a clear frequency and then listen. After determining the frequency you wish to use is clear, you may like to put out your intentions with the following: *"VK4SOE is the frequency in use, is the frequency in use?"*

This is not just done once. You need to be patient and repeat two or three times more and proving over a minute or so that there truly is no one else on the frequency.

If you can't wait that long and perform this step then perhaps you might consider taking up knitting because it's the right thing to do.

I would also draw your attention to an important point. If you examine the words I used above you will discern two things. One is that the very first thing spoken is the call sign. That's important. You can go on-air and ramble on and then give your call sign but this is not best practice. You must say your call sign first.

Remember, we are striving to be better operators. Let there not be any doubt about your identity – get it out there immediately.

The second point about this frequency-check call is that the question of the frequency being in use is asked twice just in case another station that is nearby is moving his or her variable frequency oscillator over your frequency and there is no doubt about what is being asked.

It's optional and in fact redundant to add the letters QRL because this is a CW (Morse Code) term but if one gets in the habit of saying it on a telephony frequency then one is likely to also conduct oneself in a similar manner whilst on Morse Code. There is never any harm in announcing your intentions more than once. For those not up with their Q codes, QRL means: The frequency is in use.

All this bother and you haven't even put out a call yet.

Calling CQ

Firstly, as an amateur, you can call CQ any way you like. All you have to generally include is the letters CQ and your call sign.

Again, there may be better ways which are more efficient, succinct and help cut through noise and interference and grab the attention of other operators.

This is an example of how one might put out an efficient CQ call on a telephony frequency: *"CQ CQ CQ, CQ CQ CQ, CQ CQ CQ*
This is Victor Kilo Four Sierra Oscar Echo
I say again
Victor Kilo Four Sierra Oscar Echo
Calling CQ CQ CQ and Listening"

Whilst only a template and guideline, much can be gleaned by the study of this particular call structure.

The call starts off with the internationally recognised method of using groups of three. In the professional world, everything is done in groups of three and it doesn't hurt if we follow this pattern.

By calling CQ with three sets of three you can be sure that a station cruising with a VFO will have no

doubt about what your signal is.

The salient point about the make-up of this call type is that when a station that is moving across the band comes across your signal, he or she only needs to hear any snippet of the entire call to realise that it is a CQ and hopefully the person stops and answers you back. Can you see how this works?

You may reasonably conclude that there is nothing useless or time-wasting in the call. It's succinct with only useful information.

The calling of the band, the frequency and just about anything else is a waste of your time. The person at the other end knows he's on 20 m and so do you. No need to call it.

The practice of calling the band and or frequency is left over from the old telegraphy and radio room days where there was multiple radios' in a room which created confusion so it became polite etiquette to call the band or frequency to help the operator pick up the right microphone or telegraph key.

An important action that any operator can take to make themselves better on-air is to liven up the call. Be punchy, positive and firm and enunciate your words clearly and fully like an English school boy saying How Now Brown Cow. If you don't get that then look it up.

You can't be asleep and boring. More people will reply if they detect your radiant, fresh and up-beat CQ call.

Try to say your call so as the alpha-numerics are fully pronounced with a tiny space between but without letting the radio ramp down and ramp up again. What I am trying to put across is a little hard since I am not a radio engineer however what I am saying is to keep your call flowing as well as that of your radio's transmitter.

Leaving a gap between CQ calls is a personal choice however 5-10 seconds is usually enough for a station to respond.

One very important point is consistency. Keep your calling consistent. Don't change from saying your alpha-numerics to spelling them. This creates confusion. Other stations that are picky might ignore you. People like consistency.

Once you have established contact then by all means shorten it down to spelling which will save time.

Learning to Listen

They say that contesting creates good listeners. I agree with this, however I am not a contester and I suspect that neither are most reading this article.

So, how do you become a good listener? Well surprisingly the answer is not found in attempting to become better at hearing. The secret is attitudinal. You must train yourself to give only what is required or requested.

If a station asks for your call sign suffix then only give them that.

Train yourself to answer the question. It's up to you to decide to actively pursue this change in attitude. On a noisy frequency keep it short, consistent and only the information asked for to prevent confusion.

QSL

By now this may start to sound like some authoritarian rant but it's not. I wish to put across my views, opinion and experience.

There is however one part of the amateur radio operators vernacular which drives me up the wall - QSL.

Again, Amateur radio is a hobby and we can all do it in our own way within the rules however the over-use of QSL is annoying.

QSL has its place, especially during a difficult QSO where saying the letters QSL assists the other station with acknowledgement. Outside of this scenario the use or misuse, is not wanted, warranted nor desirable. Obviously, there is nothing wrong with asking for a QSL card.

Many good operators have unknowingly picked up the QSL bug like influenza.

On air, you'll hear those people who have it so bad that they say QSL at the beginning and end of every sentence.

Please, ask yourself; Do I over use the acronym QSL? Chances are that you do.

Some time ago I discovered that I too was afflicted with the QSL bug. It took watching a video on You Tube made by Jim W6LG, who some of you will know, to realise I had picked up this hideous and incipient disease. His video clearly shows how many folk have copied and pasted QSL into their lives without thinking.

There is many ways to beat the QSL bug and I suggest substitute words such as Receive All OK, Roger, Yes I got all that or anything. Simply carrying on with the conversation is all that is often warranted.

From a psychological point of view, catching the QSL disease is the same as yawning. You can put this knowledge to good use by refusing to use QSL in a conversation where the other station is carpet bombing them all the time and it's funny to see how you can get them to reduce or eliminate it from the QSO altogether by not using those said letters.

It's a breath of fresh to have a QSO without QSL, QSL?

Conclusion

We can all improve and become better radio amateurs.

It is my belief that if you follow these ideas as a guideline and you adopt an attitude of best practice which reflects international radio etiquette then you will be successful and respected during your amateur career.

After all, there is nothing wrong with displaying style, finesse, grace, hue and class on the air. A little respect and time taken to consider others goes a long way and will stand you in good stead for ever.

In aviation you are judged neither on your take-offs nor how you fly your aircraft. You are judged on how you land. Similarly, how would you like people to think of your conduct and on-air behaviour when you go QRT?

International Lighthouse Lightship Weekend 2018 at Grassy Hill Light AU0019

Mike Patterson VK4MIK

The team for the Grassy Hill 2018 ILLW activity.

The Tableland Radio Group (TRG) once again participated in the 2018 International Lighthouse Lightship Weekend on 18-19 August 2018 for the 14th consecutive year from the Historic Light atop Grassy Hill Cooktown in North Queensland. The light was constructed in 1886 and is still in operation although it is now owned by the people of Cooktown.

The TRG assembled at Mareeba on Friday morning for a convoy to Cooktown with Wayne VK4ARW, Dennis VK4JDJ and Sue, Bob VK4BOB, Alan VK4HBN and Val and Mike VK4MIK. Jamie VK2YCJ arrived later in the day after his trip up from Newcastle – for the third year. Dave VK4FUY was in Cooktown hospital and XYL Pat VK4MUY was keeping a 'close eye" on Dave's progress and later recovery.

During Friday afternoon discussions took place about frequencies, based upon recent predictions, and the attributes of the antennas, transceivers, etc.

It was a source of amazement at the range of equipment and the important back up that we had managed to take up with us including transceivers, ATUs, cables, rope, batteries, solar chargers, tools and computers and hard copy of the list of lights etc. All vital as if "Murphy" found us it could very well be necessary!

After a hearty breakfast and more assessment of the propagation we commenced setting up. The rotatable dipole for 20/15 and 10 metres and the ¼ wave vertical on 40 metres were soon up. Transceivers IC-7300 and FT-891 were soon in operation and the battery being attached to the solar charger hence environmentally friendly operation!

We also had the QSL card and list of lights on display to visitors and we had quite a few stop by and they were amazed and thought the event a great idea.

Jamie was monitoring the propagation and other lighthouses and his expertise with the multitude of computer programs was a bonus and helped give us an enhanced appreciation of conditions. We had am almost continual stream of radio contacts with a few short openings which saw a "pile up". In one of these we heard the Townsville Amateur Radio Club operators at Cape Cleveland lighthouse but we could not get back in touch with them unfortunately.

During the course of our operating we had a total of 81 contacts - including the famous Cape Todd Lighthouse at Alice Springs which gained a lot of good "PR for AR". The weather reports from the southern Australian stations gave us an appreciation of our warm and sunny QTH for the event. We had 20 Australian

lighthouses, four New Zealand Lighthouses, two USA lighthouses and an Indian lighthouse. We also had DX contacts into Japan, Moldova, Oman, USA and New Zealand plus many Australian stations.

We also appreciated the support of Cook Shire Council and the Cooktown History Centre and many of the people of Cooktown and visitors who stopped by. Ms Jean Stephan, a long term supporter of the ILLW, cooked us a very nice cake and delivered it to us at Grassy Hill.

The International Lighthouse Weekend is regarded as the premier international Amateur Radio event due to both the public nature of the event and the actual numbers involved.

Our thanks go to the Organisers of this event for their very hard work over the many years.

De Mike Patterson
For Tableland Radio Group
VK4GHL
Cooktown Australia

Over to you

OTY PL259 connectors

I've had a call from a VK4 who has had a similar experience to me re: male PL259 connectors and female SO239 connectors.

He has found that some connectors may have imperial size centre pins and others may have metric size pins which means that the centre pins may not be making proper connections; e.g. there may be an open circuit in the connections so it will be well worth checking that the pins (male and female) receptacles in the SO239 connectors are compatible and making proper connections..... It may save a lot of grief!

73 Scotty VK2KE

Due dates for publication

Dates for submission can be found at the bottom of the page:
http://www.wia.org.au/members/armag/contributing/

First Australian HamTV Chain Event, 11 November 2017

Martin Diggens VK6MJ

Photo 1: Paolo Nespoli IZØJPA.

An article appeared in the January 2018 edition of this magazine announcing the event for the first time. This article describes how the four VK HamTV ground stations made it happen.....

On Friday 11 November 2017, an historical event took place when four VK Amateur Radio Stations *(VK6MJ, VK5EI, VK5ZAI and VK4KHZ)* formed a combined S Band HDTV downlink from the ISS as part of an ARISS Schools Contact between two schools, one in Rutigliano, Italy, and the other in Terlizzi, Italy and ESA astronaut Paolo Nespoli IZØJPA on-board the International Space Station. The school contact was a telebridge phone patch to VHF FM voice contact on 145.80 MHz performed by ARISS Telebridge Ground Station VK4KHZ (Shane) located at Glenden, Queensland, Australia. However, for this contact, Paolo Nespoli had also powered up the ARISS HAMTV transmitter, on-board the ISS, for the express purpose of testing the VK HamTV space to ground network using the four stations listed above.

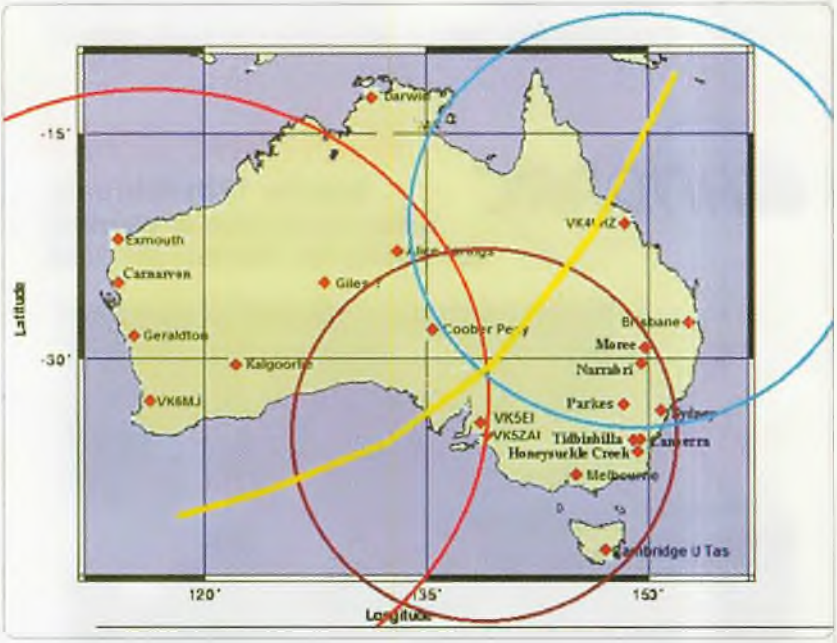

Photo 2: Map showing the ISS path (yellow) and the coverage of the four ground stations: VK6MJ (red), VK5EI and VK5ZAI (maroon) and VK4KHZ (blue).

Photo 3: VK6MJ 1.2 and 2.4 metre dish antennas.

Photo 4: VK4KHZ 1.2 metre dish antenna.

Photo 5: VK5ZAI 1.2 metre dish antenna.

The following map (Photo 2) shows the path (in yellow) taken by the ISS on its pass across Australia from the south west to the north east. The circles create a Venn diagram outlining possible S band reception areas of the four VK ground stations.

The difference plots are based on experimental results of previous test transmissions from the ISS. VK6MJ = 2.4 metre dish; VK5EI = 1.8 metre dish; VK5ZAI = 1.2 metre dish; VK4KHZ = 1.2 metre dish.

The S Band signal is received by the dish antenna with Right Hand Circular Polarisation (RHCP) and down converted to L band at the antenna, decoded with a Minitiouner HDTV decoder running the Minitioune software by Jean-Pierre F6DZP and displayed on a computer. Once the TV signal is decoded it is streamed via the internet to the British Amateur Television Club (BATC) and distributed via their streaming server found at the following URLs:

https://ariss.batc.tv/hamtv/

https://ariss.batc.tv/tsmerger/

The streaming server does some clever signal comparisons and switches between the incoming feeds,

Photo 7: This is due to the position of the S band patch antennas on the nadir or earth pointing side of the Columbus Module.

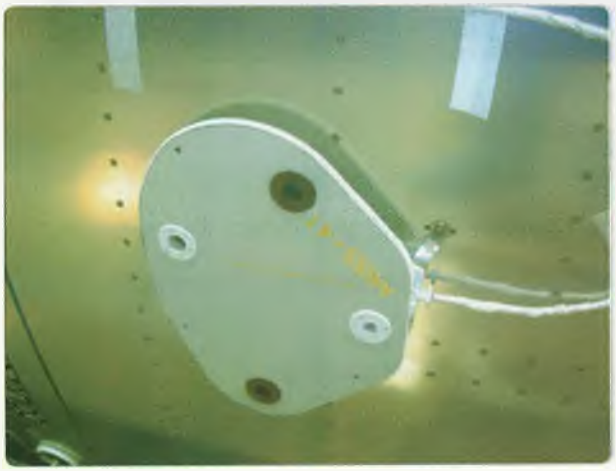

Photo 6: VK5EI 1.2 metre dish antenna.

one feed from each of the ground stations, to provide a seamless flow of TV from one ground station to the next. A recording of the streamed video can be seen at the following URL:

https://www.youtube.com/watch?v=Lc-1fPKKk-A

During this event the ISS TV signal was received firstly by VK6MJ when the ISS was due south of the west coast and remained the primary signal source until about 3 degrees above the eastern horizon – some 1800 km, where the primary station changed to Joe VK5EI and then eventually handballed to Tony VK5ZAI who maintained the signal until received by Shane VK4KHZ. The recording is captioned with the callsign of the primary station providing the video feed.

Photo 8: The patch antennas do not point straight down at the Earth but point some 5 to 10 degrees towards the back of the ISS and subsequently the S Band signal points away from the direction of travel. This is further complicated by the attitude of the ISS in relation to the Earth as it frequently flies with a pitch of -1 (nose down), a yaw value slightly to the left and a roll value slightly to the right causing the signal to be even further from the direction of travel.

When viewing the recording you will notice that VK6MJ maintains the video signal as the ISS comes into range of the VK4KHZ telebridge station and the astronaut is seen and heard calling Shane on VHF.

The overall result is that S Band Acquisition of Signal (AOS) is some 15 to 30 degrees in elevation on approach. Whereas the signal video lock remains until Loss of Signal (LOS) down to around 1.5 to 3 degrees. It was at this point in the pass that both Joe VK5EI and then Tony VK5ZAI were able to see enough of the signal to acquire video lock. Throughout this phase of the pass Shane VK4KHZ could not acquire video lock until it was over 25 degrees of elevation at Shane's QTH. During all of this Shane was conducting the voice VHF school contact as his 2 metre Yagi array AOS was at 1 or 2 degrees on approach and similarly for LOS. The students at the two Italian schools were able to see Paolo Nespoli preparing for the contact while the ISS was below the VK4KHZ horizon and then to see the astronaut in real time during the voice contact.

Dish antenna tracking requires very good accuracy and the larger the dish the narrower the beamwidth and the more difficult it is to keep the ISS in view. Originally it was thought that the ubiquitous Yaesu 5500 Az/El combo rotator system would not be suitable. We have proven this is not the case as this system is in use by both VK4KHZ and VK6MJ. The standard tracking programs such as Orbitron and SatPC32 are also quite suitable for this application. It has also been proven that computer to rotator interface systems such as the Yaesu GS232B and the VK5DJ (John) antenna controllers are up to the task. Both VK5EI and VK4KHZ have verified the upmarket Spid rotators are also an excellent choice.

The following link gives a description of the decoding hardware and software known as Minitioune by Jean-Pierre F6DZP:

http://www.ariss-eu.org/documents/presentations/HamTV_receiver_F6DZP.pdf

Finally Gaston Bertels ON4WF has produced a HAMTV website which is an excellent resource for those interested in HDTV from the International Space Station:

https://www.amsat-on.be/hamtv-summary/

73 Martin VK6MJ
VK6 ARISS Telebridge Earth Station

Photo 8: F6DZP MiniTioune Decoder.

Photo 9: F6DZP Minitioune Software.

SOTA & Parks

Allen Harvie VK3ARH
e *vk3arh@wia.org.au*

Congratulations go to David VK3IL, for becoming the latest VK Mountain Goat.

In this case a 'Snow Goat'. The Snow Goat is a member of the SOTA Goat family endemic to sub-alpine and alpine areas; it is a sure-footed climber, skier and hiker commonly seen on remote summits navigating snow and ice during bonus season. Whilst common in Canada, it is classified as rare in Australia.

David achieved the GOAT milestone with his 90th activation from Mt Feathertop.

Activating Mt Feathertop (Victoria's second highest peak) during winter completed the 5-year journey to Goathood. It was recognised early that it would take a while, with family and work commitments leaving little time to go out activating, so David decided that his particular challenge would be to make Mountain Goat in the least number of summits. To achieve this he exploited Victorian High Country adjacent to Mt Hotham and Mt Buller often incorporating skiing with his family.

VK3/VE-002 (Mt Feathertop) in winter was his 90th summit qualifying for seasonal bonus thus achieving an average of 11.2 points per activation. The average for most activators is around 6 points per summit. Whilst activating summits in the bonus period certainly helped, these high end Alpine summits do not give up their points easily. Timing and access has to be planned. Nothing happened by chance.

The first activation set the standard, (July 2013) from Mt Hotham and Mt Loch with a KN-Q7A 40 m SSB transceiver from CR Kits. Other snow covered summits have included The Twins, Mt Stirling,

Photo 1: David VK3IL working the pileup with an audience – they soon got bored! (Blue Rag Range VK3/VE-015 in April 2014.)

Photo 2: David VK3IL on Mt Feathertop VK3/VE-002 in warmer conditions 2014.

Photo 3: David's camp on Talbot Peak VK3/VT-011.

Mt Buller, Mt Tabletop, Mt St Phillack and Talbot Peak with the last two completed fairly recently in somewhat marginal weather. *http://vk3il.net/baw-baw-plateau-under-snow-1-2-sep-2018/*

It was not all snow and in order to maintain the stream of suitable summits, David teamed up with other activators to venture into remote areas to access Alpine summits including the grade 5 rated Razor-Viking Wilderness area - *http://vk3il.net/razor-viking-wilderness-jan-feb-2018/*, multi night walks past Mt Howitt and Mt Magdala and a good selection of 4WD drive-ups such as Blue Rag Range, Mt Murray and Mt Kent. His most memorable contact so far has been working Mark KM4AHP in South Carolina on 20 m 10 W SSB from Mt No. 3 (north of Mt Stirling).

In terms of memorable activations, the one that stands out for him is when he combined an activation of Mt St Phillack with the John Moyle Memorial Field day. He carried a 100 W transceiver and enough batteries to run it for 6 hours over the 5 km to the summit and operated the contest until the approach of a thunderstorm caused a hasty pack up. He left the summit just on sunset as the heavens opened and walked the 5 km back to the car in the dark with heavy rain and lightning flashes illuminating the bush! *http://vk3il.net/mt-st-phillack-jmfd-15-march-2014/*

Not content with just activating, David spent time and effort reviewing, challenging, building and improving radios, antennas and hiking equipment. As you venture further into the bush, the weight of both the camping gear and radio gear becomes more and more important. He has contributed the results back into the SOTA community. This has benefited not just the locals (my MTR3 runs David's firmware and my go to antenna is a clone of the 80 m EFHW) but the entire SOTA community:

- EFHW - *http://vk3il.net/projects-antenna/multiband-end-fed-80-10m-antenna/*
- MTR FW- *http://vk3il.net/projects/mtr-2-firmware-new-features/*
- Hiking pole guy - *http://vk3il.net/two-sota-sewing-projects/*
- Multi-band Soda Pop rig - *http://vk3il.net/projects/multi-banding-the-kd1jv-soda-pop/*

Finally over to David:
It's been a great journey and it has taken me to lots of summits I would otherwise never have visited. It has also given me a strong impetus to work on getting both my radio gear and camping gear as light as possible! It has got me on the air on CW which I doubt I would have done without SOTA.

Thanks to all who've chased over the years, particularly Peter VK3PF who has chased me 65 times and Nev VK5WG, Gerard VK2IO and John ZL1BYZ who have all chased me more than 30 times. Without dedicated chasers, SOTA would be much harder.

Congratulations David on your Mountain Goat achievement. Good luck with the next 1000 points. Enjoy and continue to enjoy!

Other recent SOTA milestones include the 5-year anniversary for VK2 and four years for VK6.

And Peter VK3PF recently reached 3500 Activator points placing him in the top 50 for all SOTA Associations and 30,000 Chaser points. Well done Peter, keep going!

4th Annual SOTA Summit @ Mt Hotham 1 February 2019

Following on from the previous SOTA SUMMIT tours of Mt Hotham in 2015, 2016 and 2017, Brian McDermott (VK3BCM) is planning another event in 2019. The purpose of the HOTHAM SUMMIT is to activate as a small group a number of local 8 and 10 point summits around the Victorian country from Friday 1 February through until Monday 4 February. In past years most participants manage to activate around 10 summits.

Brian has spent the last five winters at Mt Hotham and has an excellent knowledge of how best to access the local summits.

Of course the event provides a great base for partners with excellent bush walking opportunities around Mt Hotham with the Huts and Mt Loch walks on offer. For those amateurs wishing to Chase those activating, then Mt Hotham

Photo 4: David's operating position on Mount Tabletop VK3/VE-028 in June 2018.

provides an ideal base. HF and VHF facilities will be setup at our accommodation to allow contact with our Activators.

For those new to SOTA this presents an opportunity to join the SOTA Goats and SOTA Shack Sloths at work.

The event presents a great opportunity to share stories of good and bad activations, show case how each of us are setup and the process we go through to activate. A highlight in prior years has been the collective sunset activation of Mt Hotham next to the fire tower. The sunset over Mt Buffalo is generally spectacular.

Propagation in past years has not been ideal, this year we are hoping for improved conditions.

The weekend will be based at Anton Huette ski lodge at Mt Hotham, details are currently being finalised and will be published via the OZSOTA Group on Groups.io.

Please feel free to lodge an expression of interest via *bcmcdermott@tpg.com.au* or ring Brian direct on 0425 721860.

Upcoming Activities

KRMNPA Activation Weekend - Friday 9 - Monday 12 November 2018 - Tony VK3XV.

VKFF Activation Weekend - Saturday 24 - Sunday 25 November 2018 - Paul VK5PAS.

Stay safe.

73 & 44,

Allen VK3ARH

AMSAT-VK

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group.amsat-vk.org

About AMSAT-VK

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

AMSAT-VK monthly net

Australian National Satellite net

The Australian National Satellite Net is held on the second Tuesday of the month (except January) at 8.30 pm eastern, that's either 9.30 or 10.30Z depending on daylight saving. Please note we will be taking check-ins from 8.20pm-ish. Check-in starts 10 minutes prior to the start time. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. Operators may join the net via EchoLink by connecting to either the "AMSAT" or "VK3JED" conferences. Past experience has shown that the VK3JED server offers clearer audio. The net is also available via IRLP reflector numbers 9558. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales
VK2RBM Blue Mountains repeater on 147.050 MHz

In Queensland
VK4RRC 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.

ALARA

Jenny Wardrop VK3WQ

ALARA Contest

We start this issue with the results of the 2018 ALARA contest from our Contest Manager, Marilyn VK5DMS.

A disappointing contest, partly due to unfavourable conditions but, also, with such a small number of entrants. It was good to have 11 ALARA members taking part but alas only 2 OMs this year. Where were you all, fellows? Many thanks to those who did join in and I'm sure the contest was enjoyed.

Congratulations to Linda VK7QP and Leonie VK2FHRK for their sterling effort.

We can only hope that it is better next year and we can welcome back some of those who have supported the contest in the past.

33 Marilyn VK5DMS,
ALARA Contest Manager

VK7QP Linda	719	Top overall, Top Phone YL, Top VK7 member
VK5LOL Lesley	197	Top VK5 member
VK2FHRK Leonie	180	Top VK Foundation licence, Top VK2 member
VK5AYL Sue	88	
VK3WQ Jenny	86	Top VK3 member
VK3VIP Jean	85	
ZL3VZ Bill	85	Top ZL OM
ZL2UJT Ngaire	67	Top DX YL
VK4SWE Lyn	60	Top YL CW
VK2DB Dot	51	
VK2FENG Helen	41	
VK3AVV Mike	35	
VK5YL Shirley	10	

2018 ALARA Contest Results.

Anniversary of Fisk/Marconi Contact

As we reported in the last issue Dot VK2DB and OM John VK2ZOI have spent the last few months organising the 100th anniversary of the first radio contact between Wales and Wahroonga by Signor Guglielmo Marconi and Sir Ernest Fisk, which was on 22 September 1918. As Dot put it, "this Centenary had taken over our life for so long."

Dot continues...

It had been planned meticulously right down to dotting the last full stop.

OM John VK2ZOI, President of Hornsby and Districts Amateur Radio Club had been working with Jo Harris OAM from the Ku-ring-gai Historical Society to make sure the celebrations ran smoothly. Jo had been in contact with, and invited, some very important guests. John had secured the VK100MARCONI callsign for the event and then worked on the special QSL card.

Photo 1: John VK2ATT receiving the message in CW.

On the all-important day, John VK2ATT was receiving the Morse, which was a spark gap signal not the clear Morse we hear today. It sounded like Morse with a croaky throat! The Channel 7 camera man was filming his hand writing and that made him nervous in case someone who could read Morse saw if he made a mistake. He didn't actually make any mistakes anyway - I think he knew it off by heart!

After the re-enactment ended, the Town Crier led the crowd to St Andrew's Church Hall where the local radio station Triple H FM was broadcasting live.

The speeches of the many dignitaries took place, John VK2ZOI beginning with dit, dit, dit, dit, - dit, dit ... bringing puzzled smiles to a lot of faces. John had the row of dignitaries behind him when he made his speech. They included Dick Smith VK2DIK, the Mayor of

Photo 2: The Town Crier and the crowd at the Memorial.

Ku-ring-gai, the local Member of Parliament, and the grandson of Sir Ernest Fisk.

The church had given permission for us to put aerials over the roof the day before and to set up the grounds and large hall for displays. They ran the kitchen with tea, coffee and cake and there was a sausage sizzle too. The displays included old and new wireless equipment, an enigma machine, local museums and historical club items and the Post Office had provided a stall with special envelopes and official stamps for the day. HADARC (Hornsby and District Amateur Radio Club) ran radio stations with a special call-sign VK100MARCONI as well as a table of ancient equipment.

A small ALARA table was set up, not to expressly advertise ALARA but more to show Women in Radio. Having my display table as a "Women in Radio" table and not an "ALARA" table was different. When I have the ALARA table at field days, they all know about ladies playing/working radio. This time many of the people still thought of it as a hobby of stuffy old men locked away in back rooms, seemingly chatting to themselves, wires everywhere and aerials strung over their property. 'Did I have a stuffy room, wires and cables, aerials and those big beams?' The idea that ladies may be interested in something so old fashioned when there are computers and mobile phones to play with was one of the questions put to me many times. I really thought that way of thinking was gone.

Anyway I now have a new series of pictures to put on my ALARA table at the next field day and something else to talk about.

Almost 500 people attended the celebrations and 360 watched the YouTube live stream. We have had good reports from Australia and countries around the world".

The 1¼ hour YouTube video can be viewed at: *https://www.youtube.com/watch?v=Lb5r4qp3v0M&feature=youtu.be* or from the WIA page: *http://www.wia.org.au/*

33 Dot VK2DB

Photo 3: John VK2ZOI making his speech, with Dick Smith VK2DIK and other dignitaries behind him.

Lyn VK4SWE reports from Sweers Island

After a very hectic work season beset with staff dramas, my OM and I are looking forward to our own holidays this year! We have the usual boating trip in Nov/Dec, once again heading to the Whitsunday Islands, so I will be hoping to operate Minnie Mouse (Maritime Mobile), and also get ashore to activate some of the islands for the IOTA (Islands-On-The-Air) award scheme. If you hear me on air, please come back to my call.

I've had a few visitors in my own shack; not hams, but interested onlookers, including the film crew for popular television series 'Back Roads'. Initially they were just going to take still shots of my Morse Key collection but, while the cameraman went off to get a light, the presenter Paul West started playing around with the Morse Key and got the hang of it so quickly that the producer decided to start filming! Ham buddy Col VK4CC was standing by and with me sounding out the various letters on the little Buzza practice set, that some of you saw at ALARAMEET, Paul had a good ear and copied the sounds on the key attached to the radio and thus made a solid contact with

Photo 4: Lyn VK4SWE with "Back Roads" presenter Paul West.

Col! Everyone was excited when Col came back to Paul's message, giving him a 599 report which Paul reciprocated, beaming at his first ever Morse contact! He was very enthusiastic and quipped: "I feel like I'm in a World War Two bunker!" Hopefully you will all get to see some footage next June when it goes to air.

And the last word from me

A few weeks ago our President, Shirley VK5YL, advised us that she would be driving from Adelaide to Melbourne, en-route to Tasmania, for a Conference and AGM of the Lace Guild of which she is a member. She also expressed a wish to catch up with some of the VK3 YLs if possible.

So on Tuesday 9 October, a group of three YLs, two OMs and Jean's mum, Elsie, plus Peter VK3RV and I had a pooled lunch at our place and a good opportunity to discuss things with Shirley.

The YLs were Jean VK3VIP (VK3 State Rep.) and her mum Elsie; Kaye VK3FKDW and OM Dennis VK3BGS; Judy VK3FJAG and OM Jim VK3ZKK, plus myself and Peter. After lunch Peter entertained us with a short demonstration and talk about very old glass lantern slides, before Shirley had to dash off to catch the ship to Tasmania. Thank you Shirley, it was a pleasure to have you here and thank you to the others who made the effort to attend.

We seem to have had a spate of accidents recently to family members of the Committee. We wish you all a speedy recovery. To all our readers, we wish you a very safe and happy Christmas and New Year.

33, Jen VK3WQ.

Photo 5: L to R: Jean VK3VIP, Elsie, Kaye VK3FKDW, Shirley VK5YL, Jen VK3WQ and Judy VK3FJAG after a pooled lunch at Jenny and Peter's home.

Participate

Spring VHF/UHF Field Day	24-25 November
Summer VHF/UHF Field Day	12-13 January
Ross Hull Contest	January 2019

DX Talk

Luke Steele VK3HJ
e *vk3hj@wia.org.au*

The Low Bands, 160 and 80 m are starting to show a bit of life again, with North America, Pacific and Asian stations starting to be heard again.

Around the end of September, the sun was mostly quiet but the geomagnetic field has been at unsettled to storm levels from recurrent coronal hole high-speed solar wind streams. In fact, this effect has been amplified due to what is known as the "Russell-McPherron effect". This has the greatest effect around the equinoxes and the least effect around the solstices. The sun's relationship with the Earth varies with the seasons and we have just passed our Spring Equinox, where the length of day and night is equal all over the world. This may be observed on a "Grey line Map" tool offered in many logging computer programs. One may observe the changing length of dark and light globally, as we pass through the seasons, marked by the solstices – the longest and shortest daylight hours and the equinoxes – where the day and night is equal.

For an interesting weekly report on Space Weather, see Space Weather Woman, Tamitha Skov's YouTube channel. *https://www.youtube.com/user/SpWxfx*

The Spring Equinox has also brought us improved propagation on at least the lower bands. Whilst it is a long way from conditions we enjoyed a few years ago, it is definitely busier on the bands, not to mention the frequent Contests and more DXpeditions on air.

After a mostly spotless October, a small sunspot group appeared from 12 - 17. There is not much more to report on the sun's activity. There has been a lot of thunderstorm activity during most of October. This has made the Low Bands very noisy.

Around the bands

Forty metres continues to offer the most regular and reliable DX, with signals being heard from all over the world. From mid-afternoon, Europe may be heard on the long path. Later, North and South America, Pacific and Asia come in on short path. From the early hours of the morning, Europe and North America may be workable again on the short path.

Twenty metres still offers some DX daily, with the long path quite okay most afternoons into Europe and short path into Europe late evenings. There has also been some activity apparent on 17 m. Fifteen metres is sometimes open to Asia and the Pacific and even North America during the day.

The Low Bands are picking up, with some good openings on 160 and 80 m but the high level of storm static makes it challenging.

If you look at the FT8 segments, these bands run just about all day and night. At times they are absolutely buzzing with DX from nearly all over the world, especially 30 m, which runs DX day and night. 40 m and 20 m are also quite good most days on FT8.

DX Heard or Worked

FG/HG0R was active daily from Guadeloupe and workable on 80 and 40 m in the evenings in September.

Diego CX4DI has been active on the 80 m DX Window, Pavel ZA/OK1MU was worked on 30 m CW, Tony 3D2AG continues to be active on the low bands, OJ0DX was a DXpedition to Market Reef and WH0RU Northern Marianas Contest Club was active around the All Asia Contest.

Norbert VK0AI is seen fairly regularly on 30 and 20 m FT8. DXpeditions are bringing some more activity to the bands. TO6OK Mayotte was good on 160 - 40 m, with weaker signals on 30 and 20 m. 9X0T Rwanda has been weak on Low Bands, and mostly not heard on higher bands, however, this DXpedition was also running as 9X0Y on FT8 and has been quite workable – at least on 40 m in the morning. Christmas Island is often difficult to work due to the fact that the island itself blocks the view towards Australia. There were two DXpeditions on Christmas Island; VK9XG and VK9XT. There has been quite a bit of activity from Samoa: 5W0GC, 5W7X and 5W2TB were visitors and 5W1SA is resident.

E6Y was a DXpedition in Niue. VK9QR and a few others were on air from Norfolk Island, YJ0GC was a DXpedition in Vanuatu, ZL77X was a DXpedition in Chatham Islands and 8Q7YC and 8Q7PE were on air from Maldives. John OZ1LXJ was in Greenland for a work assignment and was active most evenings on 160 m; a few VKs were fortunate to work him.

There has been quite a bit of South American activity also, with OA1F Peru and CX2AQ active just about daily. Also heard has been Walid OD5ZZ in Lebanon on 20 m SSB, Sal C31CT in Andorra on 30 m and 40 m and Marc V31MA in Belize has been active on a number of bands and modes.

The highest profile DXpedition in October was VP6D Ducie Island, east of Pitcairn Island. Ducie Island was last activated in 2008 so had moved right up to #19 Most Wanted. Heading into their last half day of operation, they are approaching 120,000 QSOs! *(Ed: VP6D closed a little earlier than they had hoped due to changing sea and landing conditions. The DXA site reports a total of 121,136 contacts were made, with 67,686 on CW, 28,736 on SSB and 24,714 on digital modes.)*

VK0HZ Davis Antarctic Base

Matt VK5HZ advises he will be commencing at Davis Base late this year and for most of 2019. He hopes to get some time on air while he is there. This is not a DXpedition but just some activity in his spare time. Matt plans some SSB and digital modes activity. More details to follow as he gets his gear together.

3DA0A0 Aborted

HA5AO was unable to get on air from eSwatini, as he was not allowed to put up his antenna. He has left his radio gear there and has gone back home to Hungary, with plans to return to eSwatini.

TT8KO QRT

After only 24 hours of operation in N'Djamena, Ken was ordered to cease operating by the security police. After some delay and interrogation by the security police, Ken was informed that whilst he had the correct authorisation by the Chad telecommunications authority, they had not notified the security police. By 17 October, Ken still had not received permission to continue operating, so he planned to return home on the 18th. Then, he was advised by the security police that he was not able to leave Chad! Finally on the 24th, he was given permission to leave and to remove all his antennas immediately. He left Chad on the 25th and arrived home in Norway the next day.

3Y0I Bouvet Island

The Rebel DX Group is in advanced stages of planning for their DXpedition to Bouvet Island this summer. We wish them the best of success, especially after the last attempt at Bouvet which was unable to land. For more information visit their website: *https://www.rebeldxgroup.com/tag/3y0i/*

DXpedition and Contest Season

After a somewhat long and dismal winter, we are at last enjoying a little more activity on the bands and a seasonal lift in propagation. Make the most of it now, while it lasts. We should see somewhat improved conditions through summer but nothing like we had a few years ago. There is the odd sunspot group appearing but they are small and short-lived.

Make the most of what we have. Look at different modes of communicating when SSB becomes difficult, such as CW and the very popular FT8 digital mode. The amount of activity in those FT8 band allocations is incredible. If nothing else, you have the opportunity to work new countries or at least band fills.

Every QSO is appreciated

Sometimes one finds it a bit of a chore when those stations just keep lining up in the pileup and it is all pretty routine DX calling, such as from Europe. After one such session recently, I found an email message in my inbox from a French station who let me know just how excited he was to make the QSO using low power and an indoor dipole cut for another band from his rented house near Paris. This reminded me just how magical our hobby is, where two stations on opposite sides of the planet can communicate using the resources we can muster as hobbyists and the natural phenomena that enable our little bits of energy to reach each other.

Upcoming DX

DXpedition activity scheduled for December and January includes the following:

4S7KKG Maldives (AS-003), 1 November - 1 April. DC0KK will be operating mainly CW and Digital modes. QSL via LotW or Club Log.

5R8IC Madagascar (AF-013), 3 - 13 November. OE7AJH and OE7KUT will be operating 40 - 10 m, maybe 80 m, CW and SSB. QSL via OE7AJH.

JD1/JG8NQJ Minami Torishima, 15 November - mid February. JG8NQJ will be operating 20 and 17 m CW and RTTY, in his spare time around his work commitments. QSL via JA8CJY.

XV9D Vietnam, 18 November - 2 December. RM9D will be operating 40 - 10 m, maybe 80 m. QSL via LotW or RM2D direct.

JD1BPH, JD1/JI1CRM Ogasawara, 22 November - 7 December. JH1HHC and JI1CRM will be operating from Komagari, Chichijima Island (AS-031), 160 - 6 m, CW, SSB, RTTY and FT8. QSL via LotW or home calls.

4W/DS3EXX Timor Leste, 25 November - 2 December. DS3EXX will be operating from OC-148, on HF. QSL via LotW or DS3EXX.

4W/HL1AHS Timor Leste, 26 November - 3 December. HL1AHS will be operating HF, SSB, CW and FT8. QSL via HL1AHS.

FS/ Saint Martin, 28 November - 7 December. K9NU, W9ILY, W9MK, FS4WBS and K9EL will be operating as FS/home call, with a focus on 160 and 80 m. For more information see: *http://www.k9el.com/SaintMartin2018/SXM2018.htm*

VP2M Montserrat, 30 November - 10 December. VP2MLB (K7NM), VP2MSA (WM7Z), VP2MSK (NS7K), and VP2MZN (AC7ZN) will be operating 160 - 10 m, CW, SSB, PSK, FT8 and RTTY. Active as multi-operator entry in ARRL 160 m Contest using VP2MSK. QSL individual callsigns as per

information on *QRZ.com*.

TX0A **French Polynesia**, 4 - 18 December. VE3LYC and KO8SCA will be operating from Maria Est Atoll (OC-113) last activated 28 years ago and as TX0M from Morane Atoll (OC-297p) which is a newly listed island in the IOTA program. QSL via Club Log.

T32NH **East Kiribati**, 5 - 11 December. JA0JHQ will be operating from Christmas I (OC-024), 160 - 6 m, CW and FT8. QSL via LotW or via JA0JHQ direct: Nobuaki Hosokawa, 1458-25 Okagami, Asao-ku, Kawasaki, Kanagawa, 215-0027, Japan. For more information see: *https://www.qrz.com/db/t32nh*

YJ0AFU **Vanuatu** (OC-035), 25 December - 8 January. VK4AFU will be operating from Esnaar (25 December - 1 January) with a focus on 160 and 80 m, then from Irririki Island (1 - 8 January) 160 - 6 m with a vertical H (HB9MTN design). Main mode will be FT8 with some CW, SSB and WSPR when resting. QSL via LotW or Club Log.

9LY1JM **Sierra Leone**, 9 - 21 January. Team F6KOP will be operating from Banana Island (AF-037); further details and Web page forthcoming.

ZF2PG **Cayman Islands**, 12 - 20 January. K8PGJ will be operating from Grand Cayman Island on HF. QSL via LotW or via K8PGJ.

News from Doc VK5BUG

Doc VK5BUG reports that some serious health issues had taken his mind off radio activities and he was going to QRT, but with the support of many amateurs from around the world, has restructured instead. His focus has been on the Low Bands but now he is active on the 30 m band.

A homebrew Cootie Key enables CW operation of an FT-990 at 20 - 100 watts to either a roof-mounted ground plane, ground mounted vertical over 60 radials, 2.1 x 2.1 m helically wound full-wave receiving Frame Loop, a low height full-wave horizontal receiving loop, with plans for a corner-fed Bobtail Curtain antenna. Doc runs a CQ "call tape" on 10110 kHz when he is in the workshop, two to six times a day for about half an hour, to stimulate activity on the band. He also has infrastructure for 630 m, 160 m and 6 m and operates only CW.

In addition to the SSN Sideswiper Net on Sunday evenings, Doc has worked the following prefixes in mid-October during the following UTC hours:

0001: VK2

0100: VK2, VK4

0400: RK3, ZL2

0600: VK1, VK2, DL4, IS0

0700: VK2, V73, S50

0800: JA2, JA0, JE2

0900: VK2, VK3, VK7, JH1, JL1, 4E1

2000: LA1, HB9, S57, ZL4, 4S7

2100: NC4

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. I do welcome news from other DXers to add to the DX News!

73 and good DX,
Luke VK3HJ

VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

Award	Recipient	Sponsor	Recipient
AUSTRALIA Club Plaque	Local club from Australia with the greatest number of member stations participating in the Contest	VK Contest Club	Geelong Amateur Radio Club

The 2017 Oceania Contest

With the spirit of Ken VK3NW (SK) (The historical prime driver in this contest, for the GARC) still with us; the GARC won the 2017 Oceania Australia Club Plaque for the sixth consecutive year.

On next column is an extract from the Oceania DX Contest 2017 Plaques and trophies Results.

ILLW Weekend

The club operated from two locations during the IILW Weekend, the Point Lonsdale Lighthouse and adjacent to the Queenscliff's famous Black Lighthouse; one of only a handful in the world that are unpainted black.

Once again the club had the shed belonging to the Point Lonsdale Board Riders, which Ian VK3ZIB organized for the club the previous year. It has plenty of space, a great Koonarra heater and good facility BBQ, tables and chairs.

Prior to the ILLW, Ken VK3DQW had visited the Point Lonsdale lighthouse and built dipole antennas for 20 & 40 metres which saved a lot of preparation time. All that had to be done on the Saturday was to set up and start the Honda generator and hook up the rigs, as a result contacts were being made about 30 minutes after arriving.

At the Point Lonsdale Lighthouse, early Saturday morning, the members that arrived were Lee VK3PK, Rex VK3ARG, Ken VK3DQW, Ian VK3BFR, Bert VK3TU, Nick VK3TY Russ VK3KRS, Jennifer VK3WJ and George VK3AGP. In addition there was a number of passing curious visitors.

Operations at the Lighthouse started at 9.30 am to about 18.00, working about 30 lighthouses and other stations.

On the Sunday, at around 9.00 am start up, the members that turned up at the Point Lonsdale Lighthouse were Lee VK3PK, Rex VK3ARG, Ken VK3DQW, Russ VK3KRS and Gerhard VK3HQ.

This time the visitors to the lighthouse included about a 20 strong Seventh Day Adventist youth group; but it was suspected they were seeking refuge from the extremely cold winds , rain and hail and had spotted the smoke coming from the Club House chimney!

The same group, who visited the lighthouse the previous day tipped off a reporter/photographer from the Geelong Advertiser, who later came and interviewed the operators and took lots of pictures published in their Monday edition.

In all on Sunday about 20 more ILLW contacts were made for the day followed by a BBQ, the group then packed up before the weather turned foul again by about 2.30 pm.

On both days, they had a visit from Les Sim ex-VK3ZLS.

At the location adjacent to the Black Lighthouse, on Saturday, Gerhard VK3HQ worked some 20 stations on 40 m and 20 m between 10.00 am and 16.00 pm; he also had visits from GARC members Lee VK3PK, Bert VK3TU and Dallas VK3DJ.

All being considered, once again, a great time was had by all that participated from the club.

Photo 1: Outside the Lighthouse Facilities.

Photo 2: The Point Lonsdale Lighthouse.

WIA QSL Bureau News

John Seamons VK3JLS
e vk3jls@wia.org.au

The following has recently been received from the IARU, following their September meeting in Seoul. It is reproduced in its entirety for the information of members:

To IARU Member-Societies:

At its September 2018 meeting in Seoul the IARU Administrative Council discussed the past, present and future of the IARU QSL bureau system.

The exchange of QSL cards by radio amateurs is a practice that is almost as old as radio itself. It began as postcard reports of distant reception at a time when two-way contacts over significant distances were relatively rare and the reports were valued as the best evidence of a transmitting station's range. It developed into a social gesture – "A QSL is the final courtesy of a QSO" – as well as a means of documenting achievements.

IARU QSL bureaus – national-level clearing houses for cards sent in bulk from one country to another – came about initially because the addresses of individual stations were not widely available (in part because amateurs in some countries operated without the benefit of a license) and international postage for individual cards was relatively expensive. For many years the QSL bureau system was reliable, inexpensive and almost universal for countries with more than a handful of amateurs.

In recent years several developments have impacted the QSL bureau system:

- Computer-generated QSLs have flooded the system with cards that are not desired by the intended recipients.
- Amateurs have become more environmentally conscious and regret the large volume of undeliverable and unwanted cards.
- Electronic confirmation systems, including but by no means limited to the ARRL's Logbook of The World (LoTW), have reduced the necessity of collecting cards to earn awards.
- Newer, younger amateur licensees are not as wedded to the tradition of QSL card exchange as their older counterparts.
- The cost of sending packages of QSL cards internationally has increased dramatically.
- Holiday-style "DXpeditions" and contest operations by visitors have burdened smaller bureaus with cards that cannot be delivered locally, causing some to cease operation entirely.
- Budgetary pressures are forcing member-societies to reassess their priorities, especially in countries with declining amateur populations.
- Some member-societies find it increasingly difficult to recruit volunteers or to pay staff or contractors to operate their QSL bureaus.

Administrative Council policy on QSL bureaus is set out in Resolution 85-9, first adopted in 1985 and revised most recently in 2009. In 2016 the Administrative Council sought the views of member-societies on the possible suppression of Resolution 85-9. With the exception of the IARU Region 2 Conference that year, this expressed support for the resolution while also endorsing electronic confirmation; there was very little response.

In Seoul, the Administrative Council concluded that Resolution 85-9 should be replaced with a new Resolution 18-1 that better reflects the current situation. Because this represents a significant change in policy it is being communicated to member-societies in advance of the effective date of 1 January 2019.

RESOLUTION 85-9
(Revised 2009)
(TO BE SUPPRESSED EFFECTIVE 1 JANUARY 2019)

Concerning QSL bureaus

The IARU Administrative Council, Auckland, November 1985:

recognising that the exchanging of QSL cards is a "final courtesy" in an Amateur Radio communication,

recognising that the cost of exchanging cards between individual amateur stations is prohibitive in most cases, unless an efficient international bureau system in operation,

recognising that an amateur who sends a card via the bureau usually has no way of knowing whether the amateur to whom it is addressed is a member of his national IARU society and

recognising that most IARU membersocieties operate incoming bureau systems that are available to members and nonmembers alike but that some are unable, for good and sufficient reason, to provide service to nonmembers even if the expenses of doing so are fully reimbursed,

resolves that membersocieties are strongly encouraged, whenever possible, to provide incoming QSL bureaus service to nonmembers within their

operating territory, if such nonmembers agree to pay the full cost of this service; and if they are not already doing so, to explore appropriate means and methods for delivering QSL cards to non-members and *further resolves* that membersocieties shall not forward QSL Cards to bureaus operated by nonmembers of IARU, if there is an IARU membersociety in the country concerned that forwards cards to nonmembers who agree to pay the full cost of this service.

RESOLUTION 18-1
(EFFECTIVE 1 JANUARY 2019)

Concerning methods of confirming (QSLing) radio contacts (QSOs)

The IARU Administrative Council, Seoul, September 2018;

recognising that many radio amateurs wish to receive confirmations of the radio contacts (QSOs) they make with other amateurs, either in the form of physical QSL cards or by electronic means,

recognising that the cost of exchanging QSL cards between individual amateur stations in different countries can be prohibitive unless an efficient means of international bulk exchange is in operation, as has been the case for decades thanks to the IARU QSL bureau system,

recognising that systems for exchanging electronic confirmations now exist that are much faster and less expensive than exchanging QSL cards and therefore are growing in popularity as additional or alternative methods of confirmation,

recognising that an amateur who wishes to send a card via the IARU QSL bureau system usually has no way of knowing whether the amateur to whom it is addressed is a member of his national IARU member-society and often does not know whether the other amateur wishes to receive cards via the bureau,

recognising that most IARU member-societies operate incoming bureau systems that are available to members and non-members alike but that some are unable, for good and sufficient reason, to provide service to non-members even if the expenses of doing so are fully reimbursed,

recognising that many QSL cards that enter the bureau system are not desired by the intended recipients and may not be deliverable, either for this or some other reason, and

sensitive to the importance of avoiding the unnecessary environmental impact of QSL cards being printed, transported and ultimately discarded without being delivered,

resolves that member societies are encouraged to continue to offer QSL bureau service in their countries, exchanging cards with the bureaus of other member-societies, for as long as doing so is economically justifiable and *further resolves* that amateurs are encouraged to adopt confirmation practices, including but not limited to using electronic confirmation systems, that reduce the volume of unwanted and undeliverable QSL cards being introduced into the bureau system.

So what does this all mean for the WIA QSL Bureau? Firstly, the WIA Board at its October meeting formally adopted the new IARU policy, effective from 1 January 2019. This will require the QSL Card Committee to re-visit our QSL policy in at least the following areas:

- The current IARU resolution related to member societies being encouraged to provide incoming QSL Bureau services to non-members within their territory, has very much been watered down. With the new resolution, it is appropriate that we re-visit that section of our policy, likely resulting in the outcome that we will no longer store non-member's cards.
- The current resolution that member societies shall not forward cards to Bureaus operated by non-members of the IARU has been removed. This presents an option that perhaps we may decide to start sending cards to the non-IARU Bureaus that operate around the world. Again, this will be something that we will re-visit.

The new resolution has picked up on many aspects that our Bureaus continually see and for which we have already implemented some changes; for instance, we are now discarding a large number of QSLs received, particularly where QRZ.com indicates such things as "No paper QSLs", "LoTW only" etc. and for us, this mainly applies for Special Event and VK9 callsigns. (In the last 6 months, we have in fact discarded over 800 such cards). Similarly, we have applied some restrictions on the use of the outgoing bureau for DXpeditions that can generate large numbers of QSL cards.

I have written a previous article in *AR* regarding the cost of the QSL Bureau and at this stage, the WIA QSL Bureau operation is still considered to be economically justifiable, thanks largely to the number of volunteers who freely

give of their time in keeping the Bureaus operating.

With recent changes in practices at the Bureau, while these actions have helped to contain postage costs, the Bureau will always continue to be subject to postage cost increases outside of our control. And, as expressed in the IARU report, we are seeing a HUGE increase, particularly from JA, of automatically computer-generated QSL cards (mainly FT8) that may well not be desired by the end recipient.

Finally, with the adoption of the IARU policy by our Board, the WIA will continue to offer a QSL Bureau service within VK, for as long as doing so is economically justifiable. Notwithstanding that point, nevertheless we would encourage all amateurs to adopt confirmation practices that reduce the volume of unwanted and undeliverable QSL cards being introduced into the Bureau system.

WICEN Digital Training

Mark Hudson VK3MDH

We train to be ready if and when called upon

WICEN Victoria is an organization consisting of amateur radio enthusiasts who provide communications support to emergency response agencies and NGOs (Non Government Agencies) in times of need. WICEN use real world events to hone and practice their operating skills in case of activation requiring members to be deployed into the field. These events are usually large public events in country/remote Victoria where traditional forms of communications are not possible due to terrain and distance. The emergency and logistics communications support WICEN provides enable many of these events to take place as it may be a requirement of their insurance under-writers.

As radio operators (ready responders) we need to ensure our equipment and operating skills are ready if called upon which could be at short notice. Not all of the events we participate in each year require the use of digital modes. Ian VK3SV, State Data Officer for WICEN Vic, organised a two day digital mode training weekend. The event was held at Lauriston, about two hours North West of Melbourne and was well attended by more than a dozen members from across the state. The aim was to provide training and certify and recertifications for operators in the specific digital modes that WICEN use. Recertification every four years for TRAK, Winlink and Winmor will be required by all members who operate in these digital modes.

The training participants with their certificates of completion.

Many of the attending operators are seasoned experts when it comes to these modes but the training weekend was far more than just a competency based training program. Training together as operators we get to know each other, as when deployed on events we often go direct to our control points and not actually meet other members. We often know the call sign and voice well before we meet in person. Also mentoring from the more experienced members was tremendous with everyone sharing their knowledge and experience helping with equipment (radio and software) technical issues to get those stations on the air. In real world deployment scenarios what only matters is the ability to send and receive messages in the field. So having a team that works well together in problem solving is critical to being able to deliver while operating long hours in extreme and adverse conditions.

WICEN is a non-government, self financed and volunteer-based organisation. It operates under the respective State Disaster Plans within each of Australia's States and Territories. In Victoria, WICEN is listed as an emergency response unit under the emergency response plan. For more information on how you can get involved contact Gerard Werner Membership Officer *membership@vic.wicen.org.au* or go to WICEN *www.vic.wicen.org.au*

VHF/UHF - An Expanding World

David K Minchin VK5KK

Introduction

This month we have a report from Rex VK7MO on his recent trip to ZL and the new 10 GHz World EME record. We also have a report from Keith VK5OQ and Paul VK5NE on the recent VK5 Microwave Activity Day, an updated national 122 GHz record and Kevin VK4UH's ever popular Meteor Scatter notes.

NEW 10 GHz EME World Record ZL/VK7MO to G3WDG

Rex VK7MO reports ..."*On 25 October 2018 VK7MO operating portable in New Zealand worked G3WDG portable to extend the existing 3 cm EME World Record between WA3LBI and VK7MO by some 156 km to 19107 km. Key issues are absorption and absorption noise combined with ground noise which can increase losses significantly at 10 GHz at the low elevations that are necessary to achieve such long distances. To gain an adequate window both stations operated portable with take-offs over the sea. In the case of VK7MO it was necessary to fly to New Zealand and develop a flyable dish for the exercise. Within New Zealand operations were supported by Roger ZL3RC and Dave ZL3FJ. In the UK it was a combined operation between Charlie G3WDG and Petra G4KGC.*"

"*In addition to the World Record, grid locators were activated at RE66, RE57 and RE46 and the following stations completed contacts at one or more grid locators: W5LUA, UR5LX, OK1KIR, HB9Q, VK3NX, EA3HMJ, UN6PD and OK1CA. A number of these QSO resulted in new National Records. A 10 GHz EME demonstration was held in Christchurch New Zealand with W5LUA who completed QSOs with ZL3RC, ZL3OY, ZL3NW, ZL3TCM, ZL3MH, ZL3OF and ZL2IC.*"

"*Date and Time: 25 October from 1801 to 1835 UTC*
Distance: 19107 km
Spreading: 19 Hz
Lunar Degradation: 1.1 dB

Both stations portable running horizontal polarization to minimise the ground noise from the sea."

G3WDG Portable EME Station

"*Location: Start Point South Coast of UK; IO80ef, Lat 50.223637 N, Lon 3.649925 W, 70 metres elevation looking over the sea.*

Dish: 1.22 metres, Sun Noise 10 dB
Power to Feed: 65 Watts".

Photo 1: G3WDG at Start Point.

ZL/VK7MO Portable Station

"*Location: Knights Point Lookout South Island of New Zealand; RE64og, Lat 45.715308 S, Lon 169.225414 E, 80 metres elevation looking over the sea.*

Dish: 1.13 metre cut-up flyable dish, Sun Noise 8.4 dB Power to feed: 60 Watts".

Photo 2: ZL/VK7MO Location at Knights Point on the South Island of New Zealand at RE46og.

Air-flyable Dish used by ZL/VK7MO

"A commercial solid Aluminium prime focus 1.2 metre dish was cut up with a jigsaw so it could break down to fit in a standard airline size luggage case (see Photo 3)."

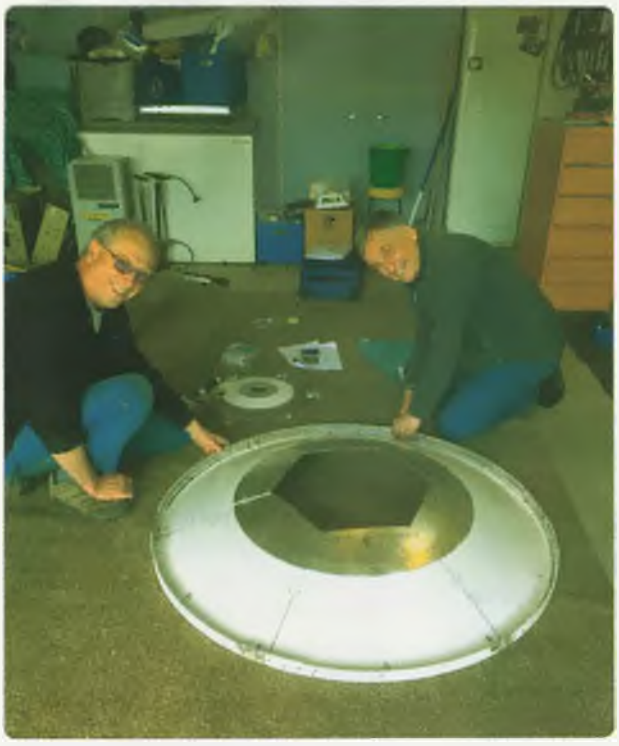


Photo 3: Roger ZL3RC (left) and Rex VK7MO (right) assembling cut-up petal dish.

Low Elevation losses

"Prior to going to New Zealand noise tests were conducted in Tasmania to gain an appreciation of the losses due to absorption attenuation, absorption noise and ground (sea) noise at low elevations as shown in Photo 4."

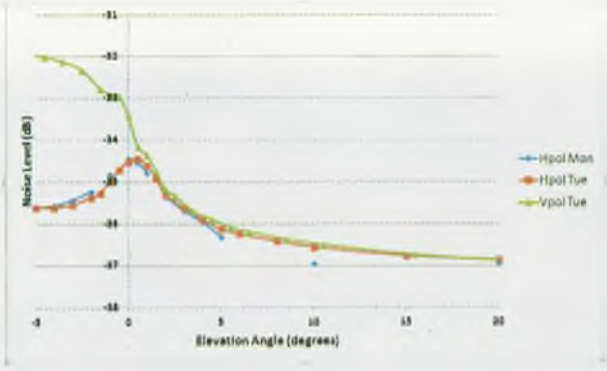


Photo 4: Noise plotted against elevation from a 20 metre cliff overlooking the sea in Tasmania.

"As expected Photo 4 shows the noise level rising at low elevations such that there is a significant increase when the elevation is close to zero. The blue and red curves were for horizontal polarization and are one day apart; in both cases the noise was similar and at the horizon was around 2.5 dB above that at high elevations. The drop in noise below zero degrees is likely explained by the fact that at negative elevations the absorption noise comprises a shorter path to the sea plus a reflection from the sea through the atmosphere to space over a similar shorter path compared to a much longer path when right on the horizon. The green curve shows that for vertical polarization the noise temperature increases to what is speculated is close to the sea temperature. It is thought this is because vertical polarization does not reflect as well from the sea surface and thus emits noise at the sea temperature. Based on these results it was concluded that to minimise noise, long distance 10 GHz EME operations should be over the sea at both ends and use horizontal polarization."

"To gain a better appreciation of the low elevation losses a test was conducted from a 200 metre site in Tasmania looking over the sea to Moonset with G3WDG transmitting both periods with his 3 metre home station dish and around 30 watts, with the results in Photo 5."

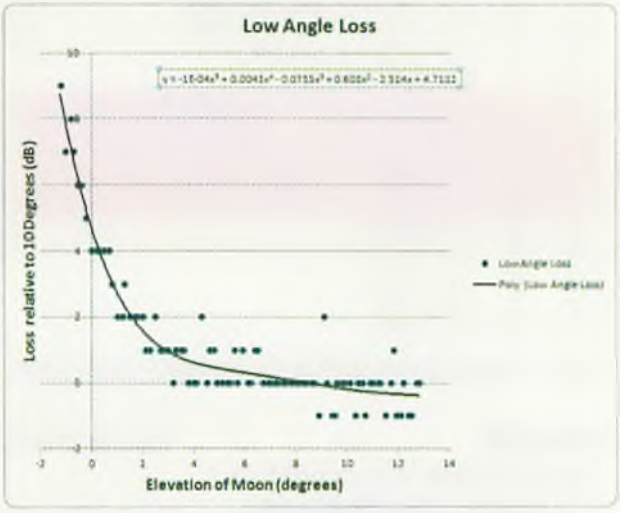


Photo 5: Low elevation losses measured over the sea in Tasmania from G3WDG home station.

"It is noted that at elevations below a geometric angle of zero degrees it was still possible to receive signals but that these were up to 9 dB less than at 10 degrees. With a take-off over the sea one would expect to receive signals up to around 0.7 degrees below the horizon due to refraction and slightly more with an elevated take-off. But the penalty is that one must cope with significant low elevation losses. The additional loss down at -1 degrees could also be due to only a part of the moon being visible at one end. What this shows is that at elevations below the geometric horizon the losses are significant for small portable operations which have only a few dB margins."

"It is interesting to note that while working from a high site increases the window, the signal goes through

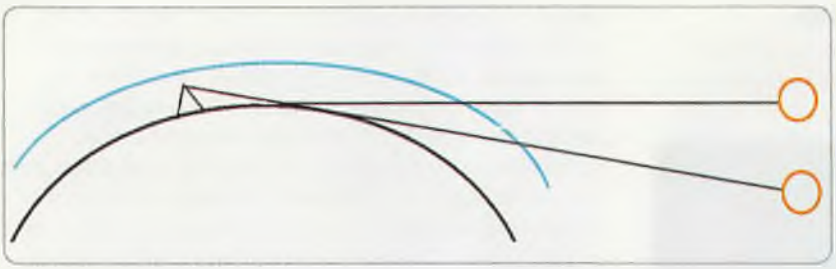


Photo 6: Increased height improves window but increases path loss/noise.

much more atmosphere with the penalty of increased absorption attenuation and absorption noise. See Photo 6."

1801	-21	2.8	1010	:*	
1803	-27	2.9	1016	:	
1805	-22	2.8	1015	:*	ZL/VK7MO G3WDG 0
1807	-21	2.9	1014	:*	VK7MO G3WDG R-24 0
1809	-21	2.9	1014	:*	VK7MO G3WDG -23 0
1811	-23	2.9	1013	:*	VK7MO G3WDG 73 0
1813	-27	2.9	1012	:	
1815	-23	2.8	1015	:*	TNX SO HAPPY 0
1817	-20	2.9	1013	:*	TNX SO HAPPY 0
1819	-20	2.9	1015	:*	TT FB 19105 0
1821	-20	2.9	1015	:*	TNX WR 73 0
1823	-25	2.9	1013	:*	
1825	-22	2.9	1013	:*	VK7MO G3WDG -20 0
1827	-22	2.9	1015	:*	VK7MO G3WDG -21 0
1829	-23	2.9	1014	:*	VK7MO G3WDG IO80 0
1831	-21	2.9	1012	:*	VK7MO G3WDG RRR 0
1833	-23	2.9	1014	:*	VK7MO G3WDG 73 6
1835	-29	2.9	1016	:	
1837	-29	1.2	1011	:	
1839	-29	1.5	1019	:	
1841	-29	2.0	1003	:	
1843	-29	0.7	1003	:	

Photo 7: Decodes from G3WDG for the World Record QSO.

Attempts

"The ZL attempts were timed for 22 to 25 October when the spreading varied over the range 40 Hz to 3 Hz with the 3 Hz day being 24 October. Lunar degradation dropped from 1.7 dB to 1.1 dB over this period."

"On 22 October the common window did not rise above 1 degree at the same time at both ends and only a single tone was detected. On 23 October G3WDG did copy ZL/VK7MO but could not TX due to an attenuator failure. On 24 October ZL/VK7MO did not set up due to heavy rain and wind which likely would have penetrated the rain cover and affected the equipment. The successful QSO was completed on the very last opportunity on 25 October with spreading of 19 Hz and a predicted window of 35 minutes above zero degrees at both ends and 20 minutes above 1 degree at both ends. In fact signals were decoded for 30 minutes (Photo 7)."

Decodes with No Degradation

"It appears there was a valid sync at 1801 when the geometric elevation was -0.4 degrees but the first decode was not obtained until 1805 when the elevation at G3WDG was +0.2 degrees. At the end of the QSO the last decode was at 1833 when the elevation at VK7MO was -0.1 degrees and there was a valid sync at 1835 at – 0.4 degrees. G3WDG sent single tone 73s at 1837 at -0.8 degrees and 1839 at -1.1 degrees that were copied as shown in Photo 8 & 9."

"Based on the results at the ZL/VK7MO end it appears we cannot expect decodes when the geometric elevation is below zero degrees but single tones should get through at -1 degrees."

"With 3 dB degradation it was still possible to transfer messages with no AP in the middle of the Window and some with AP over 25 minutes. Thus it seems that the World Record would still have been possible with 3 dB extra loss."

Acknowledgements

"I thank the following who contributed to this very successful result: Charlie Suckling G3WDG for setting up an excellent portable system that made this World Record QSO possible, his work in planning the exercise and for his participation in the low elevation loss experiment (Photo 5). Petra Suckling G4KGC for operational support of G3WDG and support in planning."

"Roger Corbett ZL3RC and Dave Brown ZL3FJ for operational support of ZL/VK7MO and arranging accommodation and transport in ZL and providing the generator, power

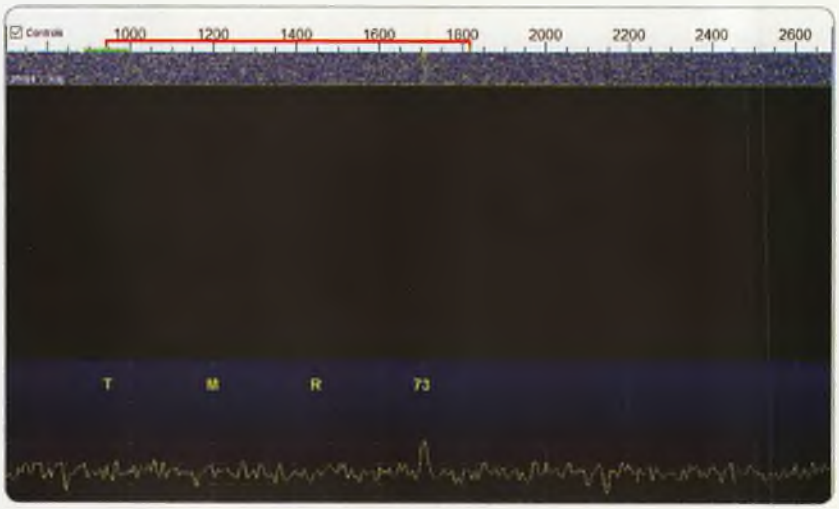


Photo 8: Single Tone 73 at -0.8 degrees at ZL/VK7MO end.

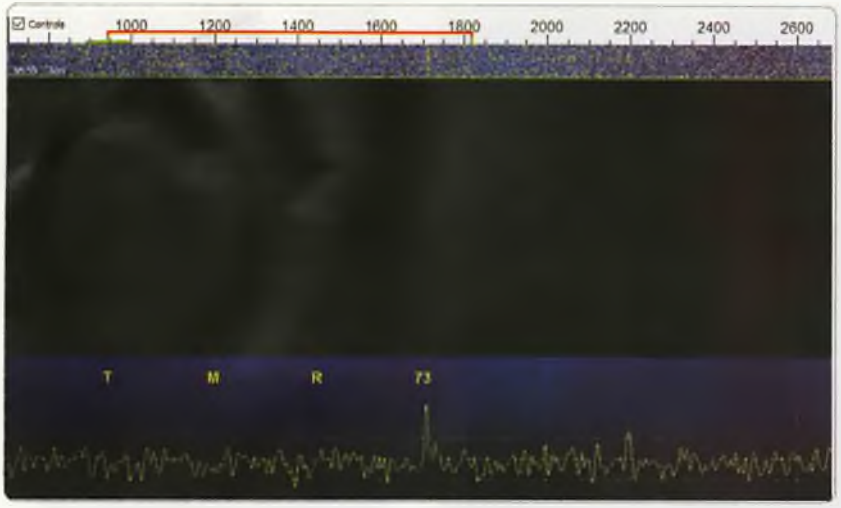


Photo 9: Single Tone 73 at -1.1 Degrees at ZL/VK7MO end.

```
1801 -21   2.8 1010 :*
1803 -26   3.0 1017 :
1805 -26   2.8 1018 :
1807 -24   3.0 1017 :* VK7MO G3WDG R-24          6
1809 -24   2.9 1015 :* VK7MO G3WDG -23           0
1811 -24   2.9 1013 :* VK7MO G3WDG 73            6
1813 -27   2.9 1009 :
1815 -26   2.9 1015 :
1817 -24   2.9 1012 :*
1819 -23   2.9 1015 :* TT FB 19105               0
1821 -24   2.9 1016 :* TNX WR 73                 0
1823 -25   2.8 1013 :
1825 -25   2.9 1014 :*
1827 -25   2.9 1013 :
1829 -27   2.9 1012 :
1831 -23   2.9 1014 :* VK7MO G3WDG RRR          6
1833 -26   2.8 1015 :
1835 -29   2.8 1021 :
1837 -28   1.2 1013 :
1839 -29  -0.4 1007 :
1841 -28   2.0 1004 :
1843 -29   4.5 1023 :
```

Photo 10: Decodes with 3 dB degradation.

Conclusion

While there was around 3 dB in hand it is considered unlikely that a QSO would be possible unless the Moon elevation rose above the geometric horizon for the exchange of callsigns and reports although single tone RRR and 73 look possible down to -1 degree. Thus any significant increase in distance will require some improvement in system performance.

supplies and 144 MHz transceivers. Dave Smith VK3HZ for providing a prototype differential GPS unit that proved invaluable in finding the Moon when it was obscured by cloud. Glen English VK1XX who contributed to our understanding of low elevation losses and provided critical discussion to challenge our understanding.

Larry Hower VK7WLH, who assisted with the cliff top noise tests in Tasmania (Photo 4). Colin Fuller VK7ZCF, who assisted with the low elevation loss test in Tasmania (Photo 5)".

VK5 Microwave Activity Day

Keith VK5OQ reports ... *"With the next VHF/UHF Spring Field Day coming up in November, it was decided to hold a practice in the Adelaide area to test equipment on the microwave bands, that is bands 1.2 GHz and above. The principal instigator was Iain VK5ZD and the date selected was October 14. The weather forecast for the day was a bit of a mixed bag; warm but not too hot but showers and some thunderstorm activity predicted."*

"The following people came out to play: Simon VK5TE and Barry VK5KBJ at O'Halloran Hill (200 m ASL) about 10 km south of the CBD; David VK5KK at Skye (415 m ASL) in the foothills to the east of the CBD; Iain VK5ZD, Tim VK5ZT and Steve VK5AIM were at Black Top Hill (200 m ASL) about 25 km NE of the CB; Keith VK5OQ at Kulpara (230 m ASL) about 100 km NW of the CBD; Wayne VK5APN at Ardrossan Lookout (120 m ASL) on the western side of Gulf St and Vincent about opposite Adelaide. Paul VK5NE operated from home at Angle Vale."

"It was decided early in the day that everyone on air on 1.2 GHz would work each other before going on to 2.4 GHz and repeating the exchanges. In this way progress would be made up through the bands until everyone was satisfied. The activity was timed to start at 10 am and I (VK5OQ) was ready to start soon after."

"I have equipment for the six bands from 1.2 to 24 GHz and had no problem working everyone on 1.2 GHz with my 8 watts to a 14 element Yagi. Problems then showed up on 2.4 and 3.4 GHz as the receivers were well down in sensitivity such that I couldn't hear anyone. I had tested them on the Elizabeth Amateur Radio Club beacons when the sensitivity problem wasn't apparent. My transmitter signals could be heard on these bands OK so some work is required in the front end of these transverters."

"Contacts on 5.7 and 10 GHz were made without too many problems but by this time a heavy shower of rain passed through the northern gulf area and I could see thunderstorms crossing the gulf to the south. David VK5KK had to pack up due to the rain before we were able to make contact on 24 GHz but Iain VK5ZD being a bit further north was able to persist and we made a contact, my first at a distance on this band. I have about 10 mW of

Photo 11: Iain VK5ZD's 1.2 to 10 GHz Portable station.

transmitter output to a 400 mm dish and I was very happy with the result as the distance was 93 km."

"I have a control box for the six transverters which uses a Picaxe to select the desired band, set the FT-817 IF radio to the required band, 2 m or 70 cm and select the mode and power level. The control unit was designed by Iain VK5ZD and several have been built by Club members. It makes operating very convenient as each band is selected by the push of a button, making band changing virtually instantaneous. The operating frequency including the IF offset plus the mode are displayed on a two line character display."

Paul VK5NE also reports... *"I had other things on but luckily for me Ian VK5ZD had set up early. Currently I have transverters in the shack for 1.2 and 2.4 GHz with coax fed small Yagi antennas up my tower. I managed FM and SSB QSOs with VK5ZD which was quite pleasing as I had set up everything about five months ago before I went away on an extended trip. It was great to see that it was all still operating OK. I also had FM QSOs on both bands with VK5KK and after refining our antenna headings I managed a 1.2 GHz FM QSO with VK5KBJ. I was aware of VK5APN at Ardrossan just breaking my squelch on 1.2 GHz FM but as time was getting on and I had to go out we did not attempt switching to SSB. It is nice to know however that I am in with a chance of getting across the gulf from my home QTH."*

"My Arduino powered control box gave me remote control of my IF rig allowing me to change bands with a single rotary switch. The control box also displays and controls the TX/RX frequency, the IF Frequency and power setting. All I need to do is add more transverters."

"Unfortunately my 3.4 GHz Panel Transceiver failed before I went away and I have not had any time to try to resurrect it but hopefully we will get something working soon for 3.4 GHz."

Other activity on the day included 24 GHz, 47 GHz and 76 GHz contacts between VK5ZD and VK5KK over close range (20 km!)

Australian 122 GHz record extended

On 10 October 2018 at 0145 UTC, Iain VK5ZD/P (Angle Vale area) worked David VK5KK/P (Medlow Rd) on 122250.150 MHz SSB, signals 5x1 both ways. The distance was 8.0 km extending the current record by another 3 km. Equipment at VK5ZD's end was a DL2AM mixer running approx. 20 - 40 uW into a 400 mm dish. At VK5KK's end equipment was the same but using a 250 mm Procom dish. Dewpoint on the day was around 5-6 deg. C at midday. The timing of the contact was almost exactly at the lowest point of atmospheric absorbed water according to data from the

Photo 12: Keith VK5OQ's 1.2 to 24 GHz Portable Station.

nearby RAAF Edinburgh weather station.

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 the material in the column.

73

David VK5KK

Meteor Scatter Report

Dr Kevin Johnston VK4UH

This edition: Update on WSJT-x-2, Report on Orionids Meteor Shower and evidence of yet another MS enhanced propagation mode.

Just a short report in this edition. General levels of Meteor Scatter propagation and activity have remained disappointingly low over the preceding few months. In the "Reverse-Contest" effect, (Contest-Effect:- The observation that propagation appears to get better whenever contests are running but really just reflecting more stations active on-air) during periods of poor propagation it is very tempting perhaps to "sleep-in" rather than get to the shack on the very early weekend mornings to participate in the MS activity sessions. As we approach the summer enhancement period for MS and some of the best of the annual Meteor Showers in the next few months let us hope that trend is reversed.

As mentioned in the last column, there are changes in motion for an improved version of the MSK144 mode for Meteor Scatter. Beta-testing is underway on a major update of the WSJT-x platform and the latest test version WSJT-x-2 RC3 is available to download. As this column was being prepared, the RC3 version was downloaded at VK4UH but has yet to be tested on-air. Full information during this period of rapid development is incomplete but there is a Quick Start Guide to WSJT-x 2.0 available on-line (http://physics.princeton.edu) which covers many of the new features being implemented. The new platform includes changes to several digital modes including FT8, MSK144 and WSPR and the most important fact to observe is that these new mode versions are not going to be backwards compatible with the existing modes currently in use. In regard to Meteor Scatter activity this means that, as a group, we should avoid running any new version of MSK144 on the primary focus frequencies on both 2 m and 6 m during the normal Saturday and Sunday morning activity sessions for the time being. My suggestion is to conduct some trial activity sessions for the new mode either on the secondary focus frequency (144.330 MHz) or at other times to avoid mode-conflict and frustration. This is how we, as a community, managed the introduction of MSK144 and 15 second periods from established practice using FSK441 and 30 second periods without disrupting everything. I suggest following posts on the VK-ZL Meteor Scatter Facebook page where testing periods will be advised. As well as improved decoding efficiency from the implementation of 77-bit information payloads and extended cyclical redundancy checks, the new changes should enable new and more flexible message formats to be employed. How flexible these changes will be is yet to be seen. Be aware also that the RC software versions have built-in redundancy – the RC3 version will auto-expire at the end of November 2018.

The Orionids Meteor Shower was underway as this column was being prepared. The Orionids is a Major Shower which occurs annually as the orbit of the Earth around the Sun takes it across a cloud of extra-terrestrial debris remaining after the passage of Halley's Comet across our solar system. The Shower typically has a Zenith Hourly Rate (ZHR), an index of predicted visual meteor observations, of around 25 meteors/hour. This shower however is predominantly a Northern Hemisphere event. In VK the position of the constellation of Orion is far up in the northern sky at this

Figure 1: Orionid MS enhancement 20.9.18 VK3ZL and VK3DUT in a single 6 m burn.

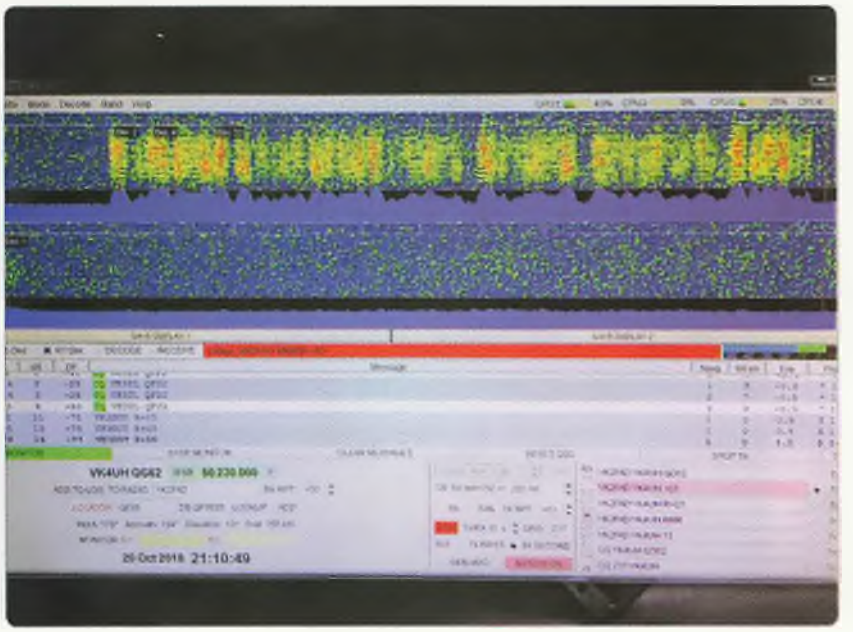


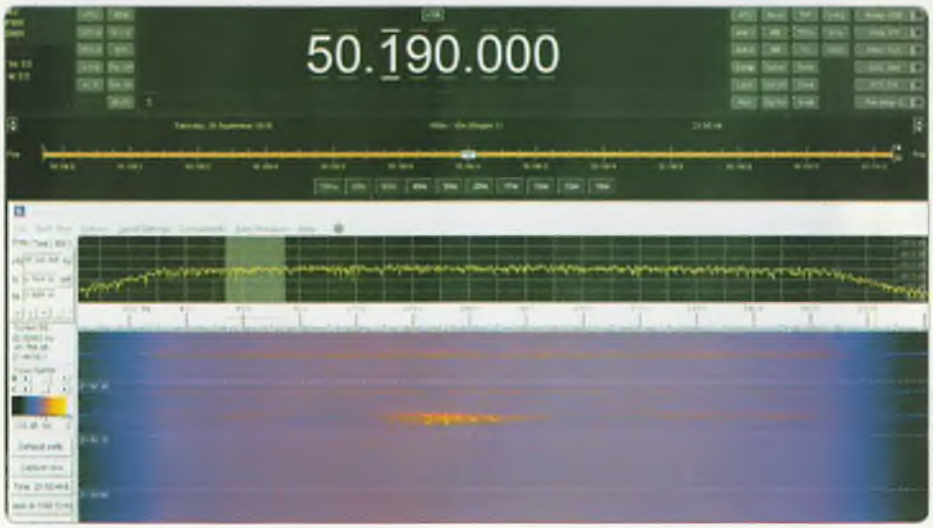
Figure 2: Orionid Meteor shower as shown in VIRGO 20.10.18.

time and only over the radio horizon for stations up in VK4 for most of its path. Further there has been a progressive fall in meteor activity, from this source, over recent years. Despite, or perhaps because of, the low level of background random meteor activity.

Another amazing observation, curtesy of Scott VK4CZ, is shown in Figure 3. The image shows a burst of Meteor Scatter enhancement observed on a 50 MHz JT65 EME return during the recent ARRL EME contest. The recording was made after local moonset when EME signals had already faded out but transiently reappeared from a simultaneous meteor return "filling in the gap" over the horizon. The usual JT65 signature of the EME signal is clear in the recording, even though the ping was not of sufficient duration to allow decoding and the period of reception confirms this was not from a local source. It is presumed the originating station was C21GI.

The next major showers on the calendar will be the Leonids peaking around 18 November (Class-1 shower, ZHR 20 meteors/hour).

Figure 3: Meteor Scatter enhancement of 6 m EME signal after Moonset 29.9.18 (presumed C21GJ) -courtesy VK4CZ.



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 50.230 MHz Current Preferred Mode MSK144 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

VK2 news

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

ARNSW has set Saturday 13 April 2019 to hold their AGM at the VK2WI Dural site. 11 am start. Committee nominations will close on 2 March.

VK2WI News will observe the usual end of year sessions with morning only transmissions on 23 and 30 December 2018 and 6 January 2019. The evening sessions will resume on 13 January 2019. Besides the range of transmission frequencies from 160 m to 23 cm, the news is also streamed on *www.arnsw.org.au/audio*

The ARNSW education courses have concluded for the year. The Foundation weekends are scheduled to recommence in March 2019 and will usually be two weeks before that months Trash and Treasure, which are always on the last Sunday of the odd numbered month. There is no decision on whether there will be an upgrade course in 2019. An antenna day for all those who under took the ARNSW Foundations weekends is planned for Sunday 17 March 2019. The ARNSW Library is operational on most Monday's late afternoon / evenings, except public holidays. They can be emailed at *library@arnsw.org.au*

The ARNSW Experimenters Group meeting after the bi monthly Trash & Treasure event at the Dural site. They also hold at about quarterly intervals QRP by the Harbour, sometimes the same day as VK3 holds their QRP by the Bay.

Dick Smith VK2DIK is scheduled to give a talk at VK2WI Dural in the early afternoon on Sunday 2 December 2018. More details will be given in VK2WI news sessions in late November.

SK Norm Partridge VK2TOP

ARNSW lost one its long time country workers when Norm VK2TOP from Walcha became a silent key. Norm was at the time their Membership Officer handling renewals and in the past had held positions of President and Secretary. Membership renewal operations are now conducted in the office at VK2WI. Contact is *membership@arnsw.org.au*

DISTRICT ARC News

The 2019 **Central Coast ARC** Field Day is schedule for Sunday 24 February at the Wyong Racecourse. The US exam group plan to be one of the exhibits and will be conducting exams at the field day. They can be reached by email at veexams.com

The Centenary of the first direct wireless message from the UK to Australia was celebrated at the Wahroonga location on Saturday 22 September 2018 with an attendance of several hundred citizens. This was a joint operation by the **Ku-ring-gai Historical Society** and the **Hornsby and District ARC**. A special event callsign VK100MARCONI was operated by HADARC and a QSL card, on exchange, is available from their address, P. O. Box 362 Hornsby 1630; include a self-addressed envelope. HADARC meet on the second and fourth Tuesday evenings, usually at Mt. Colah. *www.hararc.org.au*

The New England region of VK2 has been hard at work with repeater upgrades and linking. The **Armidale and District ARC** held their AGM late October. The Summerland ARC, based at Lismore, has been working on their repeater network with various improvements. Oxley Region ARC has their 6 metre repeater operational from the Telegraph Point site. They will be holding their Xmas party on the first Saturday of December in place of the regular meeting. ARNSW has added a 70 cm DRM repeater to the Dural site. After a long wait for Council approval, work on the new pole for the VK2RWI repeaters at Dural is getting underway. This pole is to replace the existing shorter triangular tower.

As we approach the festive and holiday season many clubs and groups take a break until next February. To help visitors who may like to attend your meetings and events drop a note to VK2WI News at news@arnsw.org.au with the activity dates. The Hunter Radio Group is able to trace their origin back 95 years and in October celebrated this event. They now meet at the Adamstown Bowling Club. November was their last meeting for the year and these will resume in February 2019. **Manly Warringah RS** advised in October that their WebSDR was off air pending replacement of audio hardware. They record many of their lectures which can be found on the YouTube channel VK2MB-TV. Check out their education and other activity at *www.mwrs.org.au*

There are some who hunger for high power and large beams and look down on our Foundation licensees with their limited power levels yet don't give a second thought to those who operate QRP. In future notes it is hoped to run a story on how to work the world and win contests from a noisy suburban location with a simple long wire. What has become a challenge to licensees these days is HF operation from the ever increasing high rise which is becoming a way of living. Some have solved this problem via internet access on a remote transceiver or listening to an SDR.

Now I have a request to VK2 clubs and groups who are planning their 2019 activities. When you have determined your Foundation course, assessments, field activities and meetings would you let me know so that details can be included in these notes? Email to *vk2ztm@wia.org.au* by 10 December 2018.

Thanks.

73 Tim VK2ZTM

WIA Awards

Marc Hillman VK3OHM/VK3IP

Below are listed all New awards issued from 2018-08-15 to 2018-10-14, plus all updates to DXCC awards.

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

New awards

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
189	VK3BDX	David Burden	Open	20 m	169
190	VK3BDX	David Burden	Digital	20 m	159
208	VK6BMW	Richard Grocott	Digital	20 m	103

DXCC Multi-band (3)

#	Call	Name	Mode	Band	Count
131	VK3BDX	David Burden	Open	40-30-20 m	418
132	VK3BDX	David Burden	Digital	40-30-20 m	403

DXCC Multi-band (9)

#	Call	Name	Mode	Band	Count
20	OK3UA	Reinhard Michaelis	Open	160-80-40-30-20-17-15-12-10 m	1511

Grid Square

#	Call	Name	Mode	Band
356	VK5MPJ	Patrick Morgan	Open	HF
357	VK5MPJ	Patrick Morgan	Phone	HF
358	VK2IO	Gerard Hill	Open	HF
359	VK2VLT	Scott Davis	Open	HF
360	VK2VLT	Scott Davis	Digital	HF
361	VK3ZZX	Oscar Reyes	Open	HF
362	VK3ZZX	Oscar Reyes	Digital	HF

IARU Worked All Continents (Basic)

#	Call	Name	Mode	Band
81	VK4CDI	Philip Moat	Open	
82	VK4CDI	Philip Moat	Digital	

Worked All VK Call Areas HF

#	Call	Name	Mode
2380	VK6WX	Wesley Beck	Open

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

DXCC updates

DXCC Multi-band (1)

#	Call	Name	Mode	Band	Count
4	VK2CA	Allan Meredith	CW	30 m	214
12	VK3EW	David McAulay	CW	30 m	324
31	VK3HJ	Luke Steele	CW	30 m	283
83	VK6APK	Aleksandar Petkovic	CW	30 m	205
97	VK6WX	Wesley Beck	CW	20 m	143
3	VK2CA	Allan Meredith	Digital	20 m	194
50	VK6DU	Lance Martin	Digital	20 m	229
54	VK3EW	David McAulay	Digital	20 m	209
146	VK2RT	Bruce Beresford	Digital	20 m	143
149	VK3GA	Graham Alston	Digital	20 m	204
190	VK3BDX	David Burden	Digital	20 m	159
191	VK4CAG	Graeme Dowse	Digital	20 m	133
29	VK3HJ	Luke Steele	Open	20 m	310
47	VK6DU	Lance Martin	Open	20 m	320
138	VK4CAG	Graeme Dowse	Open	20 m	272
145	VK2RT	Bruce Beresford	Open	20 m	157
166	VK3FZ	Roger Stafford	Open	20 m	217
189	VK3BDX	David Burden	Open	20 m	169
205	VK5SA	Chris Levingston	Open	20 m	137
30	VK3HJ	Luke Steele	Phone	20 m	234
39	VK6WX	Wesley Beck	Phone	20 m	170
48	VK6DU	Lance Martin	Phone	20 m	255
139	VK4CAG	Graeme Dowse	Phone	20 m	252

DXCC Multi-band (3)

#	Call	Name	Mode	Band	Count
18	VK2CA	Allan Meredith	CW	30-20-17 m	590
24	VK3EW	David McAulay	CW	30-20-17 m	902
29	VK3HJ	Luke Steele	CW	40-30-20 m	788
41	VK6DU	Lance Martin	CW	40-20-15 m	780
62	VK6DU	Lance Martin	Digital	20-17-15 m	490
66	VK3EW	David McAulay	Digital	30-20-15 m	562
111	VK2CA	Allan Meredith	Digital	20-17-15 m	469
118	VK4CAG	Graeme Dowse	Digital	40-30-20 m	375
22	VK3EW	David McAulay	Open	40-20-17 m	1008
27	VK3HJ	Luke Steele	Open	40-30-20 m	863
30	VK3SX	Bob Robinson	Open	20-15-10 m	705
39	VK6DU	Lance Martin	Open	40-20-15 m	883
59	VK6APK	Aleksandar Petkovic	Open	40-30-20 m	701
91	VK4CAG	Graeme Dowse	Open	20-17-15 m	730
102	VK3FZ	Roger Stafford	Open	20-15-10 m	605
112	VK6WX	Wesley Beck	Open	40-20-15 m	490
28	VK3HJ	Luke Steele	Phone	40-20-15 m	549
31	VK3SX	Bob Robinson	Phone	20-15-10 m	697
40	VK6DU	Lance Martin	Phone	20-15-10 m	613
92	VK4CAG	Graeme Dowse	Phone	20-17-15 m	609

DXCC Multi-band (5)

#	Call	Name	Mode	Band	Count
17	VK3HJ	Luke Steele	CW	40-30-20-17-15 m	1241
20	VK2CA	Allan Meredith	CW	40-30-20-17-15 m	916
21	VK3EW	David McAulay	CW	40-30-20-17-15 m	1402
35	VK7CW	Steven Salvia	CW	40-30-20-17-15 m	1164
37	VK6DU	Lance Martin	CW	40-30-20-17-15 m	1236
79	VK3EW	David McAulay	Digital	40-30-20-17-15 m	845
88	VK4CAG	Graeme Dowse	Digital	40-30-20-17-15 m	610
16	VK3HJ	Luke Steele	Open	40-30-20-17-15 m	1378
29	VK3EW	David McAulay	Open	40-30-20-17-15 m	1664
34	VK7CW	Steven Salvia	Open	40-30-20-17-15 m	1229
36	VK6DU	Lance Martin	Open	40-20-17-15-10 m	1383
42	VK4CAG	Graeme Dowse	Open	40-20-17-15-10 m	1065
43	VK6APK	Aleksandar Petkovic	Open	40-30-20-15-10 m	950
47	VK3SX	Bob Robinson	Open	40-20-17-15-10 m	995
72	VK3FZ	Roger Stafford	Open	30-20-15-12-10 m	895
41	VK4CAG	Graeme Dowse	Phone	20-17-15-12-10 m	900
45	VK3HJ	Luke Steele	Phone	40-20-17-15-10 m	802
49	VK6DU	Lance Martin	Phone	40-20-17-15-10 m	854
52	VK3SX	Bob Robinson	Phone	40-20-17-15-10 m	975

DXCC Multi-band (7)

#	Call	Name	Mode	Band	Count
9	VK2CA	Allan Meredith	CW	40-30-20-17-15-12-10 m	1198
10	VK3EW	David McAulay	CW	80-40-30-20-17-15-12m	1803
12	VK3HJ	Luke Steele	CW	40-30-20-17-15-12-10 m	1601
14	VK7CW	Steven Salvia	CW	40-30-20-17-15-12-10 m	1524
17	VK6DU	Lance Martin	CW	40-30-20-17-15-12-10 m	1608
6	VK2CA	Allan Meredith	Open	40-30-20-17-15-12-10 m	1817
7	VK3EW	David McAulay	Open	40-30-20-17-15-12-10 m	2303
11	VK3HJ	Luke Steele	Open	40-30-20-17-15-12-10 m	1796
15	VK7CW	Steven Salvia	Open	40-30-20-17-15-12-10 m	1612
16	VK6DU	Lance Martin	Open	40-30-20-17-15-12-10 m	1829
23	VK6APK	Aleksandar Petkovic	Open	80-40-30-20-17-15-10 m	1165
35	VK3FZ	Roger Stafford	Open	40-30-20-17-15-12-10 m	1150
36	VK4CAG	Graeme Dowse	Open	40-30-20-17-15-12-10 m	1391

DXCC Multi-band (9)

#	Call	Name	Mode	Band	Count
12	VK3EW	David McAulay	CW	160-80-40-30-20-17-15-12-10 m	2126
15	VK3HJ	Luke Steele	CW	160-80-40-30-20-17-15-12-10 m	1867
19	DK3UA	Reinhard Michaelis	CW	160-80-40-30-20-17-15-12-10 m	1479
1	VK3EW	David McAulay	Open	160-80-40-30-20-17-15-12-10 m	2791
13	VK3HJ	Luke Steele	Open	160-80-40-30-20-17-15-12-10 m	2081

DXCC Multi-mode (CW)

#	Call	Name	Count
189	VK6DU	Lance Martin	329
212	VK3HJ	Luke Steele	315
245	VK4CAG	Graeme Dowse	165

DXCC Multi-mode (Digital)

#	Call	Name	Count
12	VK6DU	Lance Martin	280
19	VK2CA	Allan Meredith	255
20	VK3EW	David McAulay	297
27	VK3HJ	Luke Steele	183
35	VK4CDI	Philip Moat	127
55	VK3GA	Graham Alston	230
58	VK2RT	Bruce Beresford	157
65	VK3FZ	Roger Stafford	146
67	VK4CAG	Graeme Dowse	195
71	VK3BDX	David Burden	195

DXCC Multi-mode (Open)

#	Call	Name	Count
328	VK6DU	Lance Martin	335
368	VK3HJ	Luke Steele	326
413	VK3WE	Rhett Donnan	165
414	VK4CDI	Philip Moat	127
431	VK2RT	Bruce Beresford	173
452	VK5SA	Chris Levingston	159
458	VK3BDX	David Burden	204

DXCC Multi-mode (Phone)

#	Call	Name	Count
328	VK6DU	Lance Martin	330
579	VK3HJ	Luke Steele	290
617	VK3FZ	Roger Stafford	271

Plan ahead

WANDARC Hamfest
17 February

Central Coast Field Day
24 February

John Moyle Field Day
16-17 March

VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *https://groups.io/g/vk7arnews*

Remembrance Day Contest 2018

Congratulations to all VK7s who participated in the contest. VK7 took out the RD Contest for the third year running thanks to the efforts of many VK7 amateurs and especially Vince Henderson VK7VH. Vince promoted the contest and the band dance which proved to be the winning combination given the weather and RF conditions over the contest weekend. Special mention is given to Team TrickyMuzzVince who was Vince, Murray VK7ZMS and Richard VK7ZBX who won the team section with 2398 points.

Other VK7 news

Sunday 14 October 2018 saw the President of ALARA Shirley VK5YL and President of WIA Justin VK7TW meeting and enjoying lunch together along with many other ALARA members and partners. This took place at the Christmas Hill Raspberry Farm in North West Tasmania. Thanks to Linda VK7QP, VK7 ALARA coordinator for organising this event.

Please note that the VK7 Regional News Yahoo Group has been replaced with the VK7 Amateur Radio News groups.io group. The address for this can be found in the header of this column.

Photo 1: Justin VK7TW and Shirley VK5YL (Photo courtesy of Martin VK7GN).

A huge thank you to Richard Rogers VK7RO, who has been helping out with re-broadcasting the VK7 AR News for over 20 years. Richard has decided to give it a rest following a knee replacement. From the VK7 AR News broadcasting team and all who listen to the broadcast, we wish Richard a speedy recovery and thank him for always being there.

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

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

NWTR&TVG have introduced student memberships and the club welcomes recent Foundation licensees: Rhys Orders VK7FORD and Gorgie Lloyd VK7FGJL as the first two students to join the club.

Northern Tasmanian Amateur Radio Club (NTARC)

The September NTARC meeting was a BBQ meeting which lead into a presentation on Astronomy and Photography by guest speakers Michael Booth and Martin Harvey VK7JAH. The presentation included the similarities between amateur astronomy and amateur radio, as both uses the electromagnetic spectrum and both have to overcome noise. A comparison of equipment was also included as well as description of the equipment and the software used to capture and process images.

The snow damaged antenna on Mt Wellington on VK7RTC has been replaced with a heavy duty version thanks to Michael VK7MRS and Hayden VK7HH. VK7REC on Snow Hill was visited by Tony VK7YBG and Norm VK7KTN and checks undertaken on the links, repeater and APRS. David VK7JD went to Mt Arthur to work on the 6 m repeater antenna mount secure, ready for the antenna install. A reinstall of the original VK7RJG antenna and the link between VK7RJG and VK7REC seems to be working well. The Fusion repeater was put back online for local use and the batteries are at full capacity. All licensing for VK7RAA and VK7RJG has been completed by the WIA and ACMA. The VK7RAF North-South link is back up and running, thanks to Murray VK7ZMS who took the link back up to Mt Faulkner. A CTCSS tone of 141.3 Hz links VK7RAF in the South to VK7RJG in the North and a CTCSS tone of 121.3 Hz puts VK7RAF into local Southern operation. Thanks to Brian VK7RR for that information.

NTARC provided communications for the National Equine Endurance event – the 2018 Tom Quilty Gold Cup at Santarena Park Scottsdale on Saturday 6 October. This is a 100 mile (160 km) event over 24 hours. The event saw a total of 141 starters, with over 70 from the mainland and overseas. There were four checkpoints and RFID scanners utilised at each checkpoint, beaming signals back to the communications trailer. There were some technical issues that were all overcome. A special thank you to Peter VK7SP (remote software support from Switzerland), Idris VK7ZIR, Andre VK7ZAB, Stefan VK7ZSB, Bill VK7MX, Ken VK7KKV, Wayne VK7FWGH, Bill VK7AWT, Rick VK7RI, Peter VK7KPC, Stuart

VK7FEAT, Ron VK7RB, Norm VK7KTN, Lorraine, Margie and Marie.

The Wednesday night technical sessions are in full swing with some interesting activities. These included - Kevin VK7HKN and Trevor VK7TB with their home brewed magnetic loop antennas, computer and networking repairs and installations with Kevin VK7KJL, Colin VK7ZCF, Simon VK7FSRM, Idris VK7ZIR and Stuart VK7FEAT; Arduinos with Trevor and André VK7ZAB. Peter VK7PC brought along some interesting test equipment, Ross VK7ALH brought along some interesting Collins and other gear, Trevor and Andrew VK7DW were home brewing a 35 to 4400 MHz Signal Generator, André re-purposed a TNC-Pi to for use with an Arduino Mega; Bernie VK7BR and Stefan VK7ZSB were experimenting with driving a stepper motor. Peter VK7PD has been conducting tuition sessions in the radio room with several students.

Radio and Electronics Association of Southern Tasmania Inc.

http://www.reast.asn.au/
https://www.facebook.com/reasttas/

The VK7RST GPS Locked beacons are now fully operation.

Photo 2: VK7RST GPS Locked Digital Beacons (Photo courtesy of Justin VK7TW).

Photo 3: Warren VK7WN and Scott VK7HSE programming code plugs for DMR (Photo courtesy of Justin VK7TW).

The frequencies are 432.470 MHz, 144.470 MHz and 50.297 MHz all at 20 W with horizontally polarised antennas. On 6 metres the minute long sequence is CW, JT4B, JT65A and on 2 metres and 70 cm it is CW, JT4D, JT65B. Grid square is QE36 PV. Thanks to Justin VK7TW for getting these beacons up and running.

The new VK7RAD Yaesu DR-1X digital repeater has been installed at the Domain Club Rooms and operates on 438.675 MHz with an input 7 MHz lower on 431.675 MHz (note the minus 7 MHz input / no tone required) at a power of 50 W. The DR-1X has a MMDVM module installed and is capable of DMR on the BrandMeister network, DSTAR , NXDN, P25 and YSF digital modes. Thanks to Scott VK7HSE and Damien VK7SD for getting this DV repeater operational.

The REAST October Presentation was all about DMR by Scott VK7HSE. Scott gave a brief history, usage examples, modes, talk groups, encoding and configuration details. Scott then took questions and even updated attendee's code plugs. The session was streamed and there were people watching from all over the country. The session is available at REAST YouTube channel.

The REAST Experimenter's Nights continue with 10 GHz EME portable rigs and DL0SHF beacon shootouts with Richard VK7ZBX and Justin VK7TW, Mike VK7DMH home-brewed turnstile 70 cm antenna so he can receive JT4 from the recently launched Chinese Lunar orbiting satellite, resident radio artists Pip and Julia brought along interesting old test equipment items, Ron Cullen with LDR switching circuits, LED strip lighting, fixed-wing aircraft digital control box and smart watches, Rex VK7MO showed a lightweight aluminium telescope mount for a 600 mm dish, Richard was playing with the K3NG Az/El rotator controller, John VK7FJPA bought along his restored 27 MHz CB base station and AWA Teleradio 80 rigs, Warren VK7WN bought along his camera remote controlled Az/El mount and Justin homebrewed a K3NG Arduino based antenna rotator that he configured.

SK Ian Filby VK7ZIF

It is with sadness that we let you know the passing of one of Tasmania's best known amateurs, Ian Filby VK7ZIF. Born on 22nd August 1937 and died on 2 September 2018. He obtained his Z call in the late 1960s and thereafter was very active in building equipment for use on air and operating, principally on 6 metres. He was a prolific operator, becoming good friends with amateurs around the country who he worked on "the Magic Band" 6 metres. Many of them made a point of visiting him if they were in Hobart.

Ian's technical abilities were available to anyone who asked him for help. He was always building some project or other at his home in Lindisfarne. In particular he designed many antennas and a lot of beams used in Hobart on 6 metres were either designed by or built by him.

In later years Ian suffered from too many years of exposure to too

much cigarette smoke and had emphysema, such that he required constant use of oxygen.

As well as his work with amateur radio, he was a founder with his wife Jenny, of the Australian Rosny Children's choir which performed with distinction in Australia and as far afield as China and the United Kingdom. Ian built all the electronic equipment used by the choir.

Ian was well known for his antenna designs and his work with satellites and many amateurs will be familiar with his dual band mobile whips, known as the "Zif Stick", some of which are still in use today.

Vale Ian Filby ex VK7ZIF.

(Brian Morgan VK7RR, Ben Short VK7BEN and Mike Jenner VK7FB.)

SK Don Cripps VK7AY

It is with sadness that we inform you of the passing of Donald Vernon Cripps born 5 September 1929 and died 8 October 2018 aged 89.

Don was a well-known amateur around the world and within Australia and Tasmania.

Don was the net controller for the Sewing Circle for many, many years and started the Meet the Voice BBQs in Ross.

Don shared with Cedric VK7CL at a Meet the Voice dinner that his heart specialist had suggested that he "get his house in order" after Don had a heart related incident when he was 54 year of age. Well, he lasted another 35 years after that advice so, he must have been doing something right!

Vale Don VK7AY

(Cedric Lockley VK7CL, Alan Burke VK7AN and Eric Edwards VK7EK.)

TAC Notes

John Martin VK3KM

Digital Modes on 160 metres

There are continuing reports of interference between digital and voice stations on 160 metres, where two different modes have been claiming the same portion of the band. (See the report in *AR* magazine December 2017, page 33). FT8 operation has become established on 1840 kHz using upper sideband; but voice activity uses lower sideband on a carrier frequency of 1843 kHz. Thus they both occupy the same passband.

It is clear that this overlap between 1840 and 1843 kHz is not working, and there needs to be a new dividing line between the digital and SSB segments. There appear to be two options - 1840 kHz as at present, or 1843 kHz.

A dividing line at 1840 kHz would allow SSB operation to continue on dial frequencies (LSB) down to 1843 kHz. But FT8 stations, using USB mode, would have to avoid using dial frequencies higher than about 1838 kHz. This would deny them access to part of the spectrum that is used internationally for FT8.

Alternatively, a dividing line at 1843 kHz would allow FT8 stations to use a dial frequency (USB) up to 1840 kHz, so that their sideband would extend no higher than 1843 kHz. But for AM or LSB stations, it would mean keeping their passband above 1843 kHz - i.e. a carrier frequency no lower than approx. 1846 kHz.

This is clearly not a win-win: one side or the other loses access to about 3 kHz of the band. Which option is the more practical?

Digital Modes on 40 metres

Much the same kind of problem has also occurred on 40 metres. Most digital activity is below 7060 kHz, but there is also increasing activity between 7074 and 7080 kHz. In our band plan this segment is SSB territory.

We need to keep our band plans in line with overseas practice. The rest of the world will not fall into line behind us! So it is proposed to change the 40 metre band plan to allocate 7074 - 7080 kHz as an additional sub-band for digital modes.

Updated IARU Region 3 Band Plans

At its conference last September, IARU Region 3 adopted revised band plans in a new format. There are details on the R3 web page at *http://iaru-r3.org/*

There is further band plan information on the Band Plans pages on the WIA web site.

Any further comments about the proposed Band Plan changes can be sent to: *support@wia.org.au*

John Martin VK3KM
TAC Coordinator
tac (at) wia.org.au

Silent Key — Chris Dodd VK6CV

We have been advised that Chris Dodd VK6CV has become a Silent Key.

VK6news

Steve Kennedy VK6SJ

Northern Corridor Radio Group

Another couple of busy months at NCRG. We hosted the Ellenbrook Scouts for JOTA. In addition, a number of club members supported other JOTA stations including Stu VK6BG in Two Rocks, Glynn VK6PAW and Steve VK6SJ with Guide callsign VK6GGS at the WA Guide House. Plans are already afoot for next year with Ellenbrook looking at their own callsign to be used at the club and a dedicated station for the Guides at Guide House.

Keith VK6EME is continuing to work on the EME station at the club with the antenna needing to be moved to better access the horizon. In September, Larry and Dean completed a VK5DJ controller for the station. The club also purchased four heavy duty lamp posts to eventually mount one of our EME domes above the equipment room.

We completed a tidy up of the new Ultrabeam UB40 after its installation in August. The antenna is working exceedingly well. We received an email from a W6 ham letting us know that if we were operating remotely from Washington State (WA) on 40 m, we should be signing W7/VK6NC. We explained to him that WA also stands for Western Australia and that we weren't operating remotely from the States.

A working bee is set for our repeater site on 4 November to replace the 2 m antenna as well as carry out a site clean-up. James VK6FJA manages the repeater and is planning a replacement for the old KL repeater that has served the club for many years. The club has a new RFT Eclipse2 repeater and a 100 W amplifier ready to install over the next month or so.

Four new members have joined the club over the past two months. Welcome to Ben, Chris Ainsley, John Rosijack and Allen Tighe.

The club participated in the Oceania DX contest, scoring 2.2 million points but not quite beating the 4KW gang this year.

Ham College

"Ham College continues to be busy with courses and assessment; by the time AR magazine is published we expect that our Advanced course and two Foundation courses will have completed and that the final two assessment days for 2018 will have been done and dusted. The club assumes that the ACMA will have produced the tender documents for the RTO that is to control assessments from February 2019 and we wait with interest and some trepidation as to what the future will bring. We did note that the ACMA has already determined that there will be no attempt to regulate the provision of training in Amateur Radio and so the good news is that Ham College will be continuing to provide courses in 2019 and beyond. As usual however we are always on the lookout for volunteers so please be in touch at: hamcollege.com.au

Season's Greetings and a Happy New Year, Kathi VK6KTS, President."

Kind regards
Andrew VK6AS

Christmas Island Amateur Radio Club

CIARC has now started receiving membership applications and soon some revenue. The clubrooms are now ours with the sink removed so we can install the bench as planned. As with most things on the island, they move at crab speed partly because they can and partly to take in the scenery as they go!

In negotiating with IOTA over the installation of the newly acquired power poles, in a generous, one off, offer towards setting up the club, they have agreed to install a 300 mm square footing to house the main mast for the club.

In two weeks, we will have our second visiting major DX group with Paul and team arriving Saturday 29th for a week, contest and DX work. This will be followed up two weeks later by David's group from the UK who will be here for two weeks DX work. We welcome both groups, offer our support and trust they will have an enjoyable time while here.

During a recent holiday to Christmas Island, Geoff Robinson VK3KGR and Doug VK9JD set a new record for 2 m from Christmas Island. On 30 August, 2018 they conducted a 2 m contact. Being the first, any distance was a record so we had a contact of a mere 0.8 km. Our hope is that someone in the future will extend our record. It should not be too hard to extend to about 12 km across the island. Contacts across to Indonesia 400 km, Cocos 1000 km or mainland 1600 km should be possible with a bit of effort.

While our record of 0.8 km may seem short, it is not the shortest record. This is held by VK3KH and VK3XPD on the 324 GHz band for a distance of 0.025 km.

The CIARC is also focused is supporting visiting amateurs, especially coming for DX operations and is providing as much support and infrastructure as possible, in order to assist the DXers and remove any possible issues and hazards to safety for local residents.

Coming Visits to end of 2018

- 29 Sept - 5 October: Paul A65DR
- 16 - 30 Oct Tony G2NF, Chris G3SVL, Nigel G3TXF, David G3WGN and Mike G3WPH

- 3 - 6 Nov DF8AN
- 10 - 15 Nov DF8AN
- 20 - 27 Nov Allen VK3ARH

Founding President – Douglas Haig VK9JD

News West

WA Amateur Radio News is the club behind the production of the weekly NewsWest Amateur Radio news programme. NewsWest goes to air along with the WIA National News on the linked repeater network that covers a fair slice of the South West corner of Western Australia and on forty and eighty metres at 0700 and 1900 Western Standard Time.

For the last month or so the club has reviewed the content and presentation style of NewsWest and plans to have a revised format in place for the New Year.

At the same time, the club reviewed the *VK6.NET* website, looking at content and appearance and trying to reduce the amount of time and effort required to maintain the site.

In November the club held the VI6PAX Armistice Day Centenary activation and there will be a full report submitted for the next issue of *Amateur Radio*.

WA Amateur Radio News welcomes new members and especially new contributors to the news content. For that, you don't have to be a member of WAARN. Whether or not you want to become a member, NewsWest Amateur Radio News exists to promote Amateur Radio in Western Australia. It's your news, and your contribution is valuable.

Finally, WAARN is an Amateur Radio Club, and from time to time participates in contests, special event activations, Hamfests etc. The WAARN website is *VK6.NET*

Bob Bristow VK6POP

Secretary, WA Amateur Radio News

VK5news Adelaide Hills Amateur Radio Society

Phil Storr VK5SRP

The months of August and September have been quite busy here at the Adelaide Hills Amateur Radio Society with further work being done on the Crafers repeater site and the repeaters. Now the work is almost finished the results are outstanding. The coverage of the repeaters has increased and the crackling noises as the creaky old tower flexing in the breeze has stopped. No more rusted and loose joints.

There is still a repeater linking project to be done to further increase the range of the South Australian network.

Technical sessions are held at the shack on the fourth Saturday of the month and the August presentation was about using Oscilloscopes and Spectrum Analysers presented by Jim VK5TR and Barry VK5BW. With the low price of these objects these days, compared to only a few years ago and many "Hams" not coming from a technical background, I had been asked for a session on these instruments by quite a few members. Another source of low cost instruments is the auctions and our own Buy and Sell events.

Photo 1: VK5ZFZ and one of his workshop items.

The September technical presentation was by Graham VK5ZFZ and was entitled "discovering the ESP8266 and WiMOS processors" by Graham VK5ZFZ. This is a low-cost Wi-Fi microchip with full TCP/IP stack and microcontroller capability produced by Shanghai-based Chinese manufacturer Espressif Systems. The purpose of this chip is to communicate with other projects using Wi-Fi. Look up the vast range of resources for the ESP8266 chip already on the internet.

The talk at the August general meeting was about Earth Moon Earth communications by Wayne VK5APN and he has been actively perusing this technology for quite few years. He has an impressive list of contact with people all over the face of this earth and he uses quite simple equipment compared to many of the people he has contacted with using this fascinating branch of our very diverse hobby.

In September, the general meeting topic was a presentation outlining the history of the development of the beacons here in the Adelaide Hills. Thanks to Mark

Photo 2: AHARS crew at the show and tell.

VK5AVQ and Colin VK5ACE for this session. They have been building, upgrading and maintaining these for many years; thanks for your efforts fellows. Pity I missed this session; my wife and I were swanning round in Europe on a cruise ship.

When we held our 2018 show and tell session in March this year, we had quite an over flow of presenters wishing to show their projects so I decided to have a second show and tell this year. This was held at the October general meeting and was well attended.

The most outstanding presentation was Ian's VK5ZD's amazing microwave transverters. These are a series of modules that are interchangeable in a microwave dish and tripod and they cover most of the allocated bands from 13 cm to 1.25 cm.

Other presentations included a Rubidium frequency standard, a very well made HF linear amplifier, how to decode SSB signals on an AM radio using another radio as the source of the BFO, a collection of workshop instruments in a briefcase and a very timely talk about Ferrite cores and the baluns and chokes used in the end fed Olandesina antenna. Quite a number of our members are building this very compact antenna.

Photo 3: Ian VK5ZD and his dish.

The Wireless Institute of Australia ACN 004 920 745

Election of Directors - Call for Nominations

Pursuant to clause 14.1 (c) of the Constitution the WIA Board has determined that the election of directors shall be conducted by postal ballot.

Four directors retire at the conclusion of the next Annual General Meeting which will be held in Sydney in May 2019, namely Justin Giles Clarke VK7TW, Peter Clee VK8ZZ, Greg Kelly VK2GPK and Marcus Berglund VK5WTF. Each retiring director is eligible for re-election.

Nominations are called for from persons seeking election as a director of the WIA.

A director must be a voting member of the WIA and must hold an Australian amateur radio licence.

Any person wishing to nominate as a candidate for election as director of the WIA must deliver or cause to be delivered to the Returning Officer by not later than 31 January 2019:

A statement signed by the candidate signifying their willingness to be a candidate for election as a director together with: the full name, age, occupation, membership number and callsign of the candidate, and such other biographical details or other information as the candidate wishes to accompany the ballot papers, but in all not exceeding 250 words.

Delivery to the Returning Officer may be made by hand when the WIA national office is open at:

Unit 20
11-13 Havelock Road
Bayswater
Victoria 3153

or by mail to:
PO Box 2042
Bayswater
Victoria 3153

Nominations received by facsimile or by electronic means cannot be accepted.

John Marshall
WIA Returning Officer

A nomination form is printed on the reverse of the mailing sheet of this issue.

VK3 news Amateur Radio Victoria

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International Lighthouse and Lightship Weekend 2018

Amateur Radio Victoria participated in the 2018 International Lighthouse and Lightship Weekend (ILLW) which was held on the weekend of 18-19 August. 440 Lighthouses/ Lightships around the world were registered to be activated in this year's event. ARV elected to set up "Portable", once again, at the Williamstown Time Ball Tower, which is designated AU-0036. 215 Contacts were made (205 Unique) across the two days including QSOs with 19 VK Lighthouses, 1 VK Lightship and 4 ZL Lighthouses. DX contacts, outside of Oceania, were rare this year with only one Russian station exchanging details on 20 m -evidence of current difficult DX band conditions.

ARV have Registered the Williamstown Time Ball Tower once again for the 2019 ILLW Weekend. (17 & 18 August) Hope to see you there!

Photo 1: Julie VK3FOWL/p making a contact on HF, with the satellite antenna system on the left.

Also active on site was Joe VK3YSP who demonstrated his portable satellite gear, with software automated tracking "Arrow" antennas.

Peter reports the HF band conditions were average on the day, however many contacts were made from VI50IARU3. All attendees had a great Radio and Social day.

VK3 Portable Activators gathering

ARV member Peter VK3TKK organised a VK3 "gathering" of Portable Operators at the Macedon Regional Park in late June. The day was a typical winter day in the region - grey, overcast and with the ambient temperature hovering around 10 degrees.

Attendees were Peter VK3TKK, son James, dog Charlie, Joe VK3YSP and Julie VK3FOWL, Geoff VK3SQ and his wife, Marc VK3OHM, Peter VK3PF, Brett VK3FLCS, Peter VK3RV and John VK3IC.

As part of the day, a Special Event Station, using allocated call sign VI50IARU3, was set up and operated across several bands by Peter VK3TKK, Geoff VK3SQ and Peter VK3PF.

Photo 2: Some of those present at the Macedon gathering: Geoff VK3SQ, Julie VK3FOWL, Joe VK3YSP, Peter VK3TKK and Marc VK3OHM (seated).

Thanks to Peter VK3TKK for his efforts in making the day a success.

Homebrew Group

The Homebrew Construction Group of Amateur Radio Victoria aims to promote the good fellowship and exchange of ideas between amateurs who are enthusiastic builders of their own equipment. It does this through monthly meetings in the ARV rooms located at 40 g Victory Blvd, Ashburton on the first Saturday of each month (excluding January), at 2.00 pm.

The meetings are generally very informal but commence with a "Show and Tell" session where projects can be displayed and described. The following discussion usually generates a wealth of ideas for the new-comer and experienced constructor alike. The session is followed by a guest speaker, when possible.

Homebrewing encompasses almost every aspect of our hobby and those who might not necessarily regard themselves as dedicated homebrewers will find something of interest in this group.

2018 / 2019 meeting dates

1 December 2018 / 2 February 2019 / 2 March 2019 / 6 April 2019

Foundation licence course

The next Foundation licence weekend will take place on 17 & 18 November 2018.

Enrolments can easily be made "On Line" at *https://www.amateurradio.com.au/licence/foundation*

Foundation Manuals (and Log Books) are always available via the ARV web shop. Great Christmas presents!

Keith Roget Memorial National Parks Award

This ongoing Award scheme is boosted by the popular annual activation period.

8 November - 11 November 2019 will see the ninth KRMNPA activation period.

Amateur Radio Victoria wishes all Amateurs and their Families a Merry Christmas and a Happy New Year!

Ross Hull Memorial VHF-UHF Contest 2019

Retiring Contest Manager: John Martin VK3KM

The next Ross Hull Contest will run through the month of January. Work as much DX as you can during the month, then send in your log. You can enter your log for the best seven days in the contest period, or the best two days, or both. You can count Summer Field Day contacts (one contact per station per band per day) in your Ross Hull Contest log. Logs are due in by February 11.

Wanted Alive - One Contest Manager

After a final effort last year, here I am again announcing my retirement for the third time. This definitely has to stop. So, volunteers needed for next year. Who will step forward to offer a few hours of their time to keep this contest going? Log sheets, certificate artwork etc. all provided. More details on the contest web page.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The contest is open to all amateurs. Certificates will be awarded to all entrants, including certificates for the top scoring amateurs in each licence class.

Duration

0000 UTC 1 January to 2400 UTC 31 January.

In Eastern Summer Time, that is 11 a.m. on 1 January to 11 a.m. on 1 February.

Sections

A Best 7 days, analog modes.

B: Best 7 days, digital modes.

C. Best 2 days, analog modes.

D. Best 2 days, digital modes.

Digital modes are defined as those in which the decoding of the received signal is done by a computer.

Entrants may submit logs for more than one section.

General Rules

One callsign and one operator per station. Stations may operate from any location. You may claim one contact per station per band per UTC day. Repeater, satellite, EME and crossband contacts are not permitted. Split frequency operation is allowed, for example on 50/52 MHz. Calling frequencies should be kept as clear as possible so as not to interfere with other stations making or listening for calls. If contact is established on a recognised DX calling frequency (i.e. 50.110, 144.100 etc), stations should QSY up to .150 or higher to make the contest exchange. All rulings of the contest manager will be accepted as final.

Contest Exchange

For Section A or C, Entrants must exchange RS (or RST) reports plus a

serial number. Serial numbers need not be consecutive. *NOTE: For propagation modes such as meteor scatter or short-lived sporadic E openings, it is sufficient to exchange callsigns plus two further digits that cannot be predicted by the other station.*

For Section B or D, exchange callsigns plus two further digits that cannot be predicted by the other station.

While not an essential part of the contest exchange, Maidenhead locators may also be exchanged as an aid to distance calculations.

Logs

Logs must contain the following for each contact:

- Date and UTC time.
- Frequency and callsign of station worked.
- Reports and serial numbers sent and received.
- Approximate location or grid locator of station worked.
- Separate scoring columns for each band would be helpful.

Scoring

Scoring will be based on the best 7 UTC days nominated by the entrant.

For each contact, score 1 point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 – 199 km: 2 points, etc.).

Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher bands
x 2	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered.
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Please use the following format for your scoring table. If you wish you can cross-check by adding the daily totals across the table, but please make sure that you include the separate band totals. See Table at bottom.

A cover sheet and scoring table is included in the postings on the WIA web site. Copies can also be obtained from the e-mail address given below.

Penalties

Minor errors may be corrected and the score adjusted. Repeated use of recognised DX calling frequencies (especially when the reports indicate strong signals) may lead to disqualification. Inclusion of any false log entries will lead to disqualification.

Entries

Paper logs may be posted to the Manager, Ross Hull Contest, PO Box 2042, Bayswater Vic 3153. Electronic logs can be e-mailed to *rosshull@wia.org.au*. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, MDB, PDF, or any Open Document format.

Logs must be received by **12 February, 2019**. Early logs would be appreciated.

Note on Calculating Distances

Absolute accuracy is not required. You just need to know whether each station is above or below the nearest multiple of 100 km, so you can use a compass to draw 100 km circles around your location on a map. Alternatively, you can use contest logging software that can calculate distances. If so, you will need to exchange 6 digit Maidenhead locators to get an accurate distance measurement. You can also calculate distances from six-digit Maidenhead locators using a computer program that is available on the Ross Hull Contest page of the WIA web site.

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

Date	6 m		2 m		70 cm	23 cm	etc				
Day 1	xxx		xxx		xxx		xxx		xxx		
Day 2	xxx		xxx		xxx		xxx		xxx		
2 Day Subtotals	xxx	+	xxx	+	xxx	+	xxx	+	xxx	=	xxxx (2 DAY SUBTOTAL)
Day 3	xxx		xxx		xxx		xxx		xxx		
Day 4	xxx		xxx		xxx		xxx		xxx		
etc.											
7 Day Totals	xxx	+	xxx	+	xxx	+	xxx	+	xxx	=	xxxx (7 DAY TOTAL)

VK3news MDRC

Ken Millis VK3KIM

ILLW 2018 at McCrae Lighthouse

The International Lighthouse and Lightship Weekend (ILLW) is an activity for radio amateurs worldwide to commemorate the service rendered by Light Houses and the men and women who operated them, often in remote places where the weather was mostly atrocious. While not a competition, participating stations do like to work as many of the over 400 Lighthouses listed as being involved each year.

This year two of the stalwarts of the Moorabbin and District Radio Club (M&DRC) Ian VK3IFM and Gerard VK3GER were unavailable to participate so the call went out to other nearby clubs to help. Roy VK3BG from the Frankston and Mornington Peninsular Amateur Radio Club (FAMPARC) responded and together with Ron VK3AFW formed the backbone of the activity. The activity took place adjacent to the Eastern (McCrae) Light once essential for navigation by shipping entering and departing Port Philip. The light was the tallest in Victoria at 34 m and is an impressive sight.

Both Roy and Ron arrived just before 10 am on Saturday 18 August. Guy Bancroft of the McCrea Yacht Club was there and opened up the rooms. While not raining at that time, the wind was very strong and it was obvious worse was to come. It was appropriate weather for the ILLWE. Roy and Ron erected five aerials; a 80 m double bazooka dipole, a 40 m OCF dipole, a 5 MHz 300 ohm OCF all frequency wire doublet, a 20 m vertical with radials on the beachside lawn and a 2 m "white stick" mounted off the balcony. This took much longer than intended but all aerials except the 2 m one withstood the overnight gale.

Photo 1: The McCrae Lighthouse on a better day.

One inside, the weather did its worst but all were well protected inside and could watch with smugness as nearby 80,000 tonne vessels disappeared into the fog of rain.

Roy started on 40 m but the band was a noisy band with propagation below normal. Ron concentrated on FT8 on 30 m, 20 m, 17 m and 15 m where there were some signals. With help from

Photo 2: Roy VK3GB working 80 m.

Peter VK3IJ, one of the FAMPARC members to visit on Saturday, a couple of lighthouse stations were found on 20 m and worked on SSB but the band was bereft of strong signals. Peter also brought hot chips and potato cakes, so he was doubly welcome.

We had a good contingent of FAMPARC members in attendance, apologies for not recording all names and call signs.

After sunset Roy turned his attention to 80 m and much better propagation was enjoyed. The evening meal consisted of pizza and some cakes baked by Roy's wife. Heavy rain crashed against the big glass windows of the club room and the bay was lit by flashes of lightning.

Bedtime was about half past midnight and reveille was 7 am. Ron cooked and enjoyed the traditional egg and bacon muffins with strong black coffee. 80 m continued to be in good form. Overall just over half our SSB contacts were on 80 m.

Overnight some water got past the electrical tape into a join in the 40 m coax but this was easily fixed on Sunday morning. The 2 m antenna was reinstated to a vertical position.

We looked for interstate members, Gerard VK3GER/4 at Longreach and Graham VK3KMG/4 on the coast. Gerard was worked but he was on the edge of the skip zone and it was a difficult contact. 40 m on SSB was noisy and propagation was fickle.

Two members from the nearby Southern Peninsula Amateur Radio Club (SPARC), Roger VK3VKI and Paul VK3CRT visited after we had checked into their Sunday morning net and worked six SPARC members.

Three members of the M&DRC were worked, Denis VK3BGS, Graham VK3GL and Gerard VK3GER.

At noon on Sunday we had a light lunch, packed up and cleaned up.

QSO count

We worked 18 unique Australian lighthouses and lights and two unique ZL lighthouses. On HF (shortwave) SSB we had 85 contacts on SSB (voice) and one on CW (Morse code). On 2 m FM (very high frequency, voice) we worked 8 different call signs, all via the SPARC repeater.

As mentioned before, 14 MHz provided little action on SSB or CW and nothing was heard on these modes on any higher frequency.

On FT8 we had 48 contacts from 80 m through to 15 m but no one else indicated they were a lighthouse activator. Without this mode our tally on 10 MHz and above would have been miserable.

Countries worked were: Japan, USA, New Zealand, Germany, Fiji, France, Portugal, Indonesia, China, South Korea and on Morse code, Papua New Guinea.

This is a great activity and hopefully more will commit to taking part next year. There are some things we could have done a bit better and they will be considered next year.

Special thanks to Graham Mason and Guy Bancroft of the McCrea Yacht Club for their facilitation of the weekend and to the Club for their hospitality. It is a wonderful facility in which to celebrate the contribution of light houses and the light house keepers.

Ron VK3AFW

Thanks Ron.

Moorabbin & District Radio Club 70th Anniversary

The Moorabbin & District Radio Club will be celebrating its 70th Anniversary on Saturday 15 December. The Club was founded in 1948 and arose from informal meetings of a number of amateurs living in the Moorabbin area.

The Committee would like to hear from past members with their recollections and anecdotes of their time in the Club to assist with the preparation of material for the Anniversary Celebration.

The Club invites past and present members to attend the celebratory function to be held in Bentleigh, Victoria.

Please contact the Secretary, Ken Millis VK3KIM at *secretary@mdrc.org.au* should you wish to attend or contribute to the event.

A report on the 70th Anniversary Event will appear in the next edition of *AR*.

Photo 3: Roger VK3VKI and Paul VK3CRT enjoying a cuppa.

Hamads

WANTED – NSW

Copy of short story from 14 years ago: "In Charlie's Way." Story appeared in *Amateur Radio* March 2004 to September 2004. I need good quality photocopies of each article (including the cover of each of the magazines), or relevant copies of magazines (March 2004 to September 2004). I will pay you what you want for them, including postage. Operator's manual for TTC transistor checker (Model Number: C3023). I need good quality photocopies of the operator's manual of this model or a similar model, please. WIA Morse code tapes. I have a 12 WPM tape but was hoping to get a couple more Morse code tapes. All postage, photocopying costs etc. will be paid to the sender.

Send email first. Ross Fraser VK2WN QTHR.
Email: *vk2wn@wia.org.au*

WANTED – NSW

Want to buy Kenwood TS-820 transceiver / VFO b unit / and speaker unit K Matheson VK2HBO 0407 160 804.

FOR SALE – VIC

Elecraft T1 Automatic Antenna Tuner. Excellent condition. Hardly used. Ideal for QRP. $130 (plus shipping cost) Contact Alex VK3AMX (03) 9850 7493 (Melbourne)

WANTED – VIC

RCA WW2 Aircraft radios for a flying Stinson L5. Looking for: Transmitter Model AVT-112A, Receiver Model AVR-20A, Power supply Model AVA-126A, Antenna system Model AVA-120. Complete units preferred, but anything considered.

Contact please Don Jackson, VK3DBB on mobile 0408 332 740.

FOR SALE – QLD

KENWOOD AT-230 Antenna Tuner with inbuilt coax switch. Excellent condition, Very rare. $400.00 with genuine manual.

HEATHKIT 2040 Legal Limit Antenna Tuner Good condition. Has had spinner knob added. $250.00 with genuine manual.

KENWOOD TS-130S Transceiver. Works well. Small fault in LCD readout – takes a few minutes to settle. Appearance fair for age. Good "F" call starter rig. $350.00 ono. With owner's and service manual.

TEN-TEC Model 715 RF Speech Processor. The best genuine RF speech-processor. Read reviews on "E-Ham". As new complete with manual, 4 pin and 8 pin mic plugs. $200.00.

ALL Plus postage at actual cost. Pay-Pal or Direct Deposit only. Contact Ron VK4EMF on *ron.ferri@westnet.com.au*

FOR SALE – QLD

TS-480hx (200 watts) for sale as parts. Does not work but complete. Price $300 including postage.

Contact Merv Deakin VK4DV *vk4dv1@gmail.com*

FOR SALE – QLD

TS-480hx (200 watts) for sale as parts. Does not work but complete. Price $300 including postage.

Contact Merv Deakin VK4DV *vk4dv1@gmail.com*

WANTED – QLD

Collins KWM-2/2A transceiver together with power supply. Must be in good working condition. John VK4VK QTHR phone 0438 146 323 *vk4vk@bigpond.com.au*

WANTED – QLD

Information on brand/type of amateur band HF transceivers and automatic antenna tuners successfully installed in a light aircraft, for amateur use using 12-volt DC power. Capability to transceive (in emergencies) USB voice on airband spot freqs around 3.4 MHz, 5.6 MHz, 6.5-6.6 MHz, 8.8 MHz, 11.3 MHz, 13.2-13.3 MHz, and 17.9 MHz would be a distinct advantage.

Please send recommendations to Gareth VK4AGD-10 via aprs.fi or email *vk4agd@outlook.com.au* Gareth Davey VK4AGD. T* 0408 697 515 E* *vk4agd@outlook.com.au* *If unreachable, email *vk4agd@wia.org.au* or SMS/call 0147 182 515.

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 Secretary: *armag@wia.org.au*

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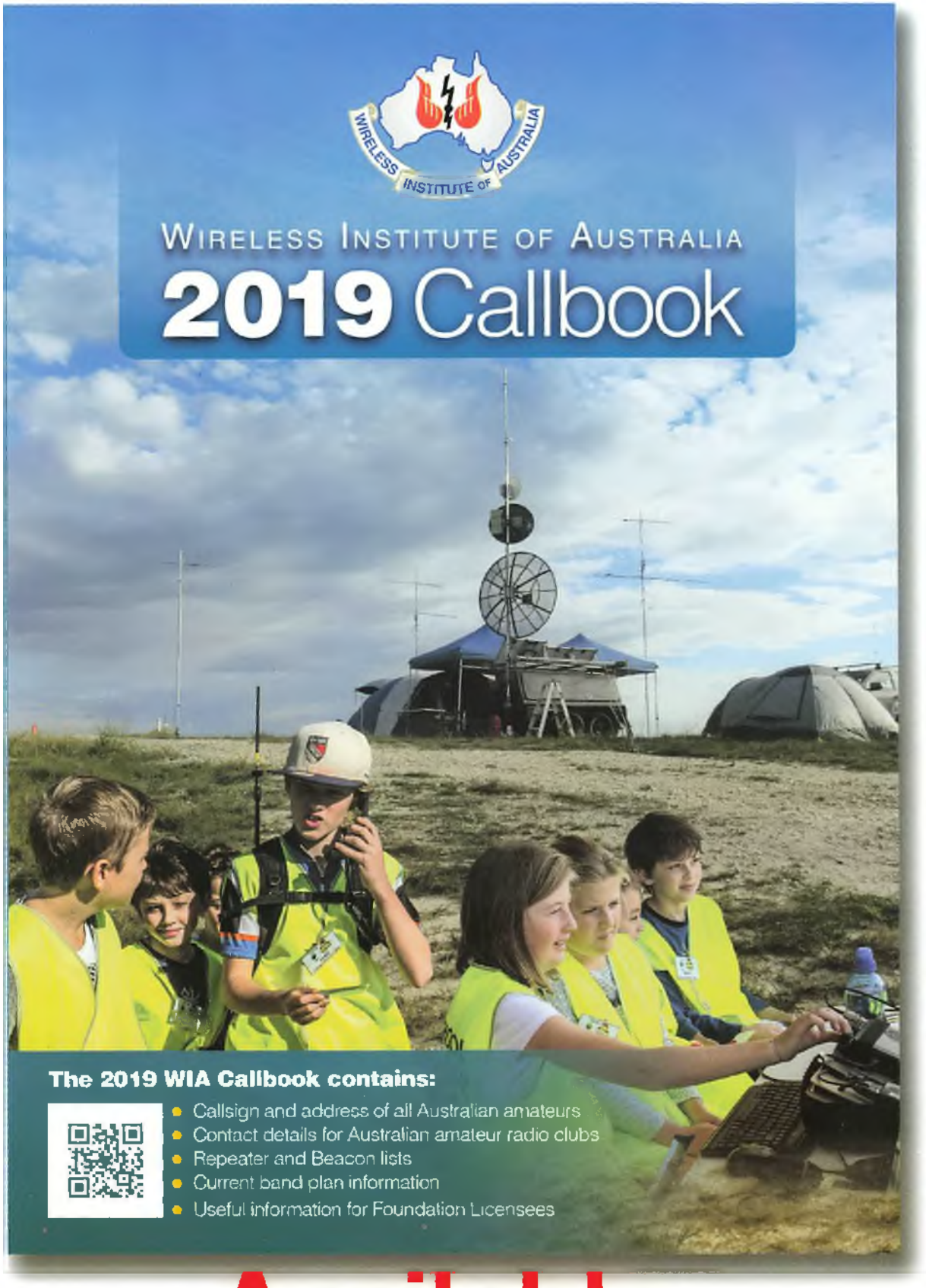

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