

QTC

October 2024



The Radio Amateur Society
of Australia

WA Amateur Radio News Inc

Welcome to PerthTech 2024

Programme Commences at 8:30am



WAARN and NewsWest are at vk6.net



Going Extra Mural - Venture out of your shack

ACMA News - RASA obtains clarification on VK9 use and club callsigns application process

IARU - engages PR Firm

Save 40 metres - an update



Antennapalooza

On again in 2024

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Publication Information

3 Contact: info@vkradioamateurs.org
4 Website: <http://vkradioamateurs.org>

4 **QTC** is a publication of The Radio
Amateur Society of Australia Inc.

5 ABN: 64 687 227 446 (RASA)

6 **QTC** is published monthly. If you would
6 like to receive your copy you can either
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12 **Cover picture credit:**
PerthTech -Caroline Trenfield
13 AntennaPalooza - Ian Jackson

Contributing Items For QTC Magazine

16 QTC Magazine welcomes contributions for
future editions. When planning to submit
an article, please read our submission
guidelines first.

Following the guidelines will save you and
the editing team a lot of time and effort.
The guidelines are [HERE](#)

RASA
The Radio Amateur Society
of Australia

Needs Your Support

RASA PRODUCES HUGE RESULTS FROM A TINY BUDGET

- Foundation Level Study Guide
- QTC Magazine
- QRM Guru
- ARTS, VKRegs
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Foundation Level Study Guide

QRM.guru
Resolving Interference for Amateur Radio

Welcome to Amateur Radio
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RASA relies on member fees and donations, so that we can offer our resources free to everyone. We're inviting you to sign up or renew your membership, or simply donate. You can do this at our website: vkradioamateurs.org



Foundation Level Study Guide Ver. 2 Published

RASA's Foundation Level Study Guide Version 2.0 has been published.

Following on from the successful launch of the Foundation Study Guide on June this year, RASA has been editing and updating the Study Guide, with additional information about available resources, and of course fixing typographical errors.

RASA appreciates the unsolicited contributions by a handful of Amateurs from around the country listing suggested amendments and corrections. This support of our resource initiatives is heartwarming. Thanks folks.

The Foundation Level Study Guide is available from the [RASA website](#).



Your Gateway to the World of Amateur Radio

Amateur Radio provides virtually unlimited opportunities for you to explore the technical, scientific and social aspects of this truly global hobby.

A Free Amateur Radio Learning Resource

This multimedia learning resource has been developed by RASA and is provided free of charge.



From the Editor



The QTC editorial team has discussed how frequently QTC, QTC Lite and bulletins are published, and has decided to trial publishing only one journal, QTC Magazine, on a monthly schedule.

What this means is that QTC will be published on a monthly basis, with fewer articles, but with more up to date news.

We will still send out bulletins when the need arises to get news or an announcement out to members and the Amateur Radio population quickly.

In this issue of QTC, we're encouraging Amateurs to venture outside of their shacks, to discover the world outside of their caves. The article "Amateur Radio Extra Mural" discusses only a few of the options available to get you out into the world. But don't panic. You can return to your cave whenever you're ready.

You can read of RASA's response to an enquiry from a club that was interested in applying for a club callsign, but they were not able to find instructions on the ACMA website how to go about it. RASA responded quickly and the matter was resolved.

QTC invites contributions from the Amateur Radio general public. We're interested in stories of achievements, commentary about the hobby, and stories about events coming and past.

We're not interested in lengthy construction articles, which in our experience, very few people actually read. You could, however, talk of your experience constructing a piece of equipment and include links to further information.



Auroras and Us

This photo was taken 11th October by Allen VK6XL in Cradoc, Tasmania. Many people saw the Aurora Australis in those few days.

QTC would like to hear from you about your Aurora experience as an Amateur. Did you get around to testing propagation, or the lack thereof?

Send your notes and photos to info@vkradioamateurs.org and let's see if there's a story in it.



The Radio Amateur Society of Australia

Being Heard is Important

The President's Column

In Amateur Radio - What sort of "taker" are you? Risktaker? , Partaker?, Caretaker?, Overtaker? Or Undertaker?

Are you a combination of one or more of the below?

I was watching the interaction of the membership of a radio club, and saw definite role patterns which I have attempted to describe here. Your views may be different.



Risktaker

An innovative amateur who loves to come up with fresh ideas and activities. Open-minded and a creative thinker, this person is a real go-getter. They're all about supporting newcomers and seasoned pros, giving back to the amateur radio community more than they take. They are a key player in both new and ongoing events and tech, always encouraging others to push their boundaries. They challenge people to think outside the box, which might ruffle some feathers among the traditionalists. They truly believe that amateur radio is a modern diverse hobby and enjoy every moment of it. Excited!

Partaker

An enthusiastic amateur who is open-minded and loves chasing after whatever piques their interest. They are keen to follow the lead of the Risktaker and Caretaker. They are friendly to newcomers and have a solid group of friends in the AR community. They take part in AR activities, participating, showing up at events and at some level, pitching in. One day they may join the risktakers, or just be happy where they are. They enjoy the journey of Amateur Radio. Enthusiastic.

Caretaker

An active or partially active amateur. Open minded. Supports fresh ideas while valuing the old school. Always ready to greet newcomers and has plenty of friends in the AR world. Supports the Risktakers and Partakers. Keeps things rolling, organises events, and is often a crucial part of Amateur Radio. Understands that for AR to survive in the future, change is essential. Waiting for the right people to join in. Hopeful.

Overtaker

An Amateur who is enthusiastic, but domineering, who has fixed ideas of how AR should be and is not listening to others. They're convinced that their interests are the only ones that matter, even if it means sidelining others. You'll usually spot them in positions of authority, using the organisation like it's their own toy to further their own interests. They're not exactly open-minded. Intolerant.

Undertaker

This person is totally living in the past. They resist change and mock anything that's different. It's like they go out of their way to stir up trouble and spread negativity. Nasty and discouraging to newcomers and old hands alike. They love to sabotage the efforts of the more adventurous and supportive members of the community. It seems like they get a kick out of being a troublemaker in the amateur radio world. They even manage to rally some easily swayed folks to join their negative vibe, some believing that amateur radio is doomed to fail. Negative.

Food for thought... 73, Paul Anslow VK2APA

IARU Region 1 Appoints PR Firm

Amateur Radio is in desperate need of a modern and relevant public relations exercise. The International Amateur Radio Union (IARU) Region 1, has appointed global PR firm Milk & Honey PR to drive this initiative.

IARU Region 1 President, Sylvain Azarian, stated: "Our team of dedicated volunteers, partners and officers work tirelessly to keep the voices of amateur radio alive, and now we have a PR partner that will help us amplify our stories, events and milestones so we can better communicate the wonders of amateur radio. We are looking forward to working with Milk & Honey PR in the lead up to IARU's centenary and beyond."

You can read more [HERE](#)

Elsewhere, IARU Region 1 reports a "Shaping the future" program, initiated in 2021, but there are no updates to this program since 2022. You can read more [HERE](#).

IARU Region 1 covers Europe, Africa, Middle East and Northern Asia.

It would be good to see some form of PR here in Australia. Addressing the public image of Amateur Radio was a key issue identified in RASA's Strategic Plan which was developed in 2021. That

document was shared with key stakeholders, including the WIA and AR Victoria.

Kicking off important strategic programs is easy, but keeping them alive requires focus and dedication. It also requires all stakeholders to be pulling in the same direction. This is an area that requires the attention of every amateur if we want to see our hobby grow and thrive.

Antennapalooza 2024



The Amateur Radio event of the Year – Nov 30 / Dec 1

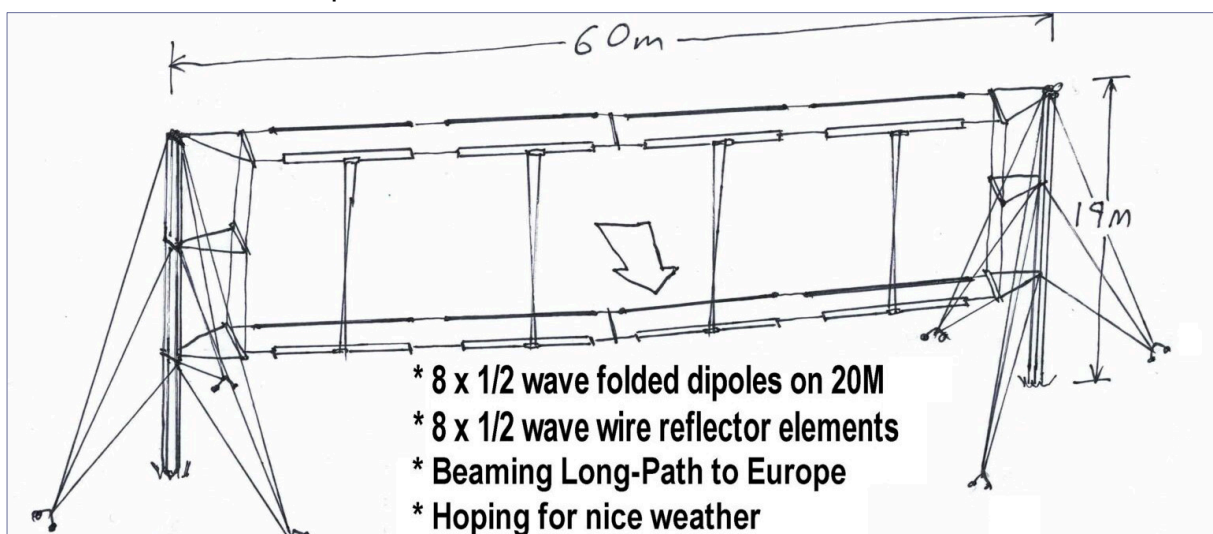
Antennapalooza returns for 2024. Now in its 9th year. Many who haven't already attended will wonder what it is all about.

The theme for 2024 is:

'LARGE WIRE ANTENNAS'

To kick things off we are planning to have a temporary installation of a Curtain Array on 20 Metres.

Find out more about Antennapalooza [HERE](#)



Amateur Radio Extra Mural

In this edition of QTC, we're taking a look at getting you out of your shack and doing something you may not have considered doing, or more typically, you just haven't got around to it.

As we always strive to be helpful, here's your very own Round Tuit, and now that you've got a round tuit, enjoy your outing.



What will it take to get you out of your shack? It could be a new experience, or a rehash of something else that you've enjoyed before.

We're covering two outings in this issue of QTC - PerthTech and Antennapalooza. PerthTech was on in September, and Antennapalooza is at the end of November early December.

There are so many Amateur Radio activities that give you both an excuse to go out and an opportunity to have new experiences.

Are you a member of an Amateur Radio Club? You could get some of the members together for a field day. A field day can take any format, but when it boils down to it, a bunch of Amateurs go to a park or reserve, taking their portable gear and a picnic lunch. It's a sort of "show and tell" for Amateurs.

Many Amateurs are more solitary in their habits, however that doesn't mean your solitude should be confined to your cave.

Have you heard about VKFF - VK Flora and Fauna. POTA - Parks On The Air? SOTA - Summits On The Air.

These activities get you out and about, with an almost guaranteed group of contacts.

All that remains for you is to take your Round Tuit, get out from behind those walls (that is what "extra mural" means), and do something different.

You may be surprised to discover that your other half will enjoy the outing too if you invite them.

Emirates Bans H/Ts and Pagers

DUBAI, Oct 5 (Reuters) - Dubai's Emirates Airlines has banned passengers from carrying pagers and walkie-talkies on its flights, following last month's attacks on Lebanese group Hezbollah involving communication devices that explode.



"All passengers traveling to, from, or via Dubai are prohibited from transporting pagers and walkie-talkies in checked or cabin baggage," the airline said in a statement on its website on Friday. It added that any prohibited items found will be confiscated by Dubai Police as part of heightened security measures.

Read more [HERE](#)

We will monitor the news to see if these prohibitions become more wide-spread. It would certainly place huge impositions on DX-peditions and radio amateurs wishing to carry radio equipment on aircraft.

PerthTech 2024

PerthTech is an annual event organised by WA Amateur Radio News. The programme consists of a number of presentations of a technical or practical nature. This event is provided as a service to Amateur Radio, and is provided free to anyone wishing to attend. I should explain now that “free” doesn't mean no expense for those attending. There is a charge to cover the catering.



PerthTech 2024 was the third time the event was staged at the beautiful bush location, the Gidgegannup Recreation Centre, about forty five kilometres North East of the Perth CBD. The venue forms the background image on the front cover of QTC. This venue was chosen because it provides everything we need, including facilities for caravans and campers. The camping arrangement makes it possible for Amateurs from country areas to attend.

There were a number of presenters, with a range of topics. I kept an eye on the audience, and nobody seemed to be nodding off. That is always a good sign.

The first presenter was Mooneer Salem, K6AQ, on a ZOOM connection, who spoke about Machine Learning and FreeDV . Digital voice (especially on VHF/UHF) is something that hams have been doing for several decades. While it does have advantages over traditional analogue voice, one big disadvantage is the lower perceived audio quality. This is despite being able to decode and copy digital voice transmissions at lower signal to noise ratios than would otherwise be possible.



HF, meanwhile, adds additional complications that affect the ability to decode a signal that's of acceptable audio quality. Mooneer spoke about how the FreeDV project is using machine learning to improve digital voice on the HF bands.

Peter VK6PBs, jointly presented with the Mandurah SES Manager, Chris Stickland, ESM, talking about the close relationship between the Mandurah State Emergency Service unit and the Peel Amateur Radio Group (PARG).

Some amateur radio operators were also volunteers of the Mandurah SES at the time PARG was formed. Today some members of PARG are also members of the Mandurah SES.

PARG has a formal Memorandum of Understanding (MoU) with Mandurah SES. PARG has a specific callsign for use on amateur radio frequencies for training exercises and operations with Mandurah SES. It is VK6SES. Mandurah SES has allocated a callsign to the PARG Mobile Communications Trailer for use on SES channels for training and operations involving PARG.

There is also an arrangement termed PARGESS - the Peel Amateur Radio Group Emergency Service Support. "PARG maintains a supportive stance to assist the radio



communications needs of the emergency services in and around Mandurah."



Also talking about the role of Amateur Radio in times of emergencies, was Bob VK6KW, who is leading the revival of WICEN in Western Australia.

Peter, VK6YSF, spoke on the theme "My Journey Maintaining My Radio Equipment" Peter discussed how necessity propelled him into maintenance of his radio equipment.

He also walked through a couple of example repairs; what he did wrong and what he learned from the experience. Peter is well known for his helpful website containing documentation of his experiments with building and testing antennas and associated accessories.

Chris VK3QB made two presentations - in one he spoke about working CW DX on HF, and discussed some tools he uses to help. In his next session Chris spoke about the challenges connected with the 40m Band Plan Harmonisation project, especially for CW operators.

Dennis VK6AKR and Dave VK6KV jointly spoke about "Measuring Permittivity of Uncommon Dielectrics" with the sub-title of "Spend more time on air, less time tuning that new antenna"

They presented the design and outcome of a project to characterise uncommon dielectrics such as building wire insulation and radome materials such as reticulation pipe and electrical conduit. That proved interesting.

VK6MJM: A New LF/MF Station, presented by Emeritus Prof. Peter Hall, VK6HP.

Low and medium-frequency radio often appears arcane and difficult, while remote station operation frequently involves specialized IT solutions. Peter showed how new-generation radio and related hardware (both commercial and homebrew) and standard remote desktop software, together with a 4G LTE data link, has made possible a world-class LF/MF station at Manjimup, South of Perth. The station is built around a de-commissioned aeronautical NDB facility, the morse ident of which was "MJM".

A/Prof Randall Wayth, VK6WR, described how digital slow scan television (SSTV) is a version of SSTV that takes advantage of modern communications and information theory to transmit images in noisy and/or fading communications channels. He summarised the challenge of data transmission in the HF band and gave a summary of how digital SSTV works.

The next presentation was a joint appearance by the Presidents of the WIA and RASA, Paul VK2APA, and Scott VK3KJ, this time by ZOOM. Each spoke about what their respective organisations were up to.



The final item of the day was from Bob VK6POP (Disclosure: that's me), who posed the question about Amateur Radio "Are we on the path to the future, or are we prophets of doom?" We hear people saying that Amateur Radio is going the way of the Dodo. But we've been around for more than 120 years. Is this the first Amateur Radio Apocalypse to be predicted? Probably not. Let's talk about it - are the prophets of doom on the ball?

This provoked quite a lot of very positive discussion, and the consensus was that the prophets of doom are the minority, and that we have a good future. It was agreed that we (Amateur Radio), in looking to the future, must be very aware of who we target with our promotions.



The afternoon wound up with a thank you to everyone, including sponsors.

A huge thank you to those clubs and businesses who supported PerthTech, and special thanks to all the individuals who simply jumped in and did what needed to be done.

Photos by Caroline Trenfield.



Thanks Phil VK6ADF for the mugs which were given to presenters.

Save 40 metres CW

On 4th October, IARU Region 3 issued a news release with updates on this important topic. It is important to note that the process has now been passed from the WIA to IARU Region 3.

Overall, the WIA TAC has made a lot of concessions and have listened to our feedback. They are to be congratulated for listening and acting on our feedback.

In summary, the new proposal (which is only provided as an example of how it could all be put together) is:

- CW – 7000 – 7040 kHz
- Data – 7040 – 7080 kHz
- Voice – 7080 – 7200 kHz

Overall, a far simpler and more equitable solution. This position will be far easier to negotiate with Regions 1 and 2, and also to communicate and adopt, both domestically and internationally.

You can read more [HERE](#)



RASA DX Contest

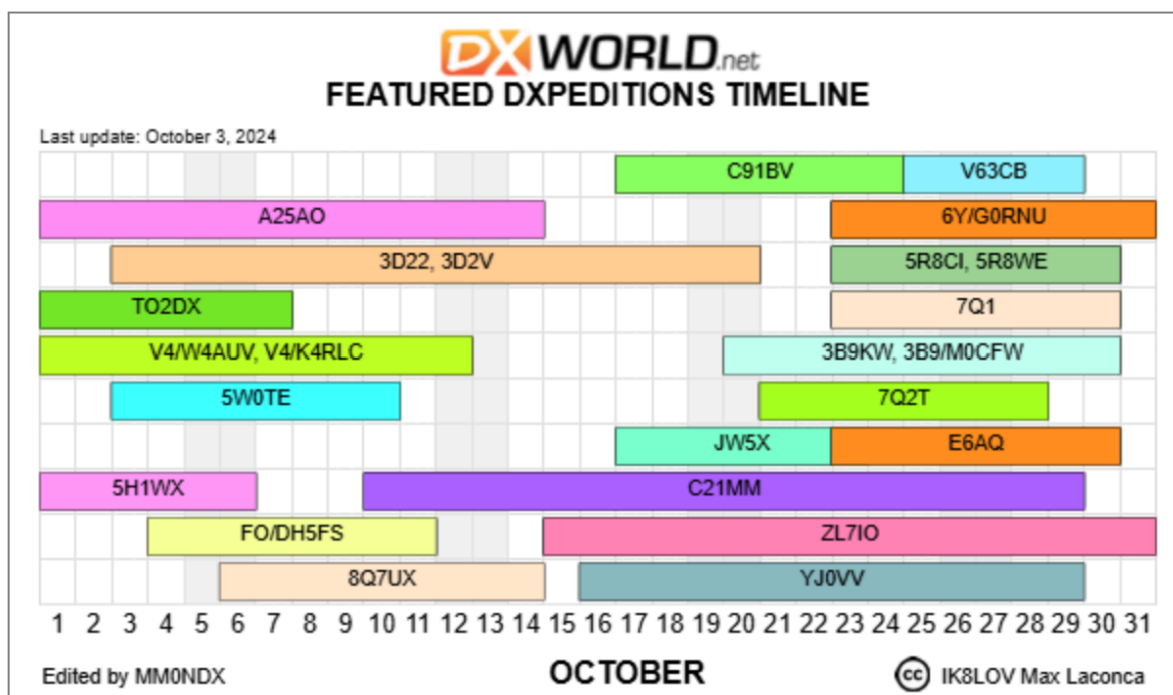
Click on the image to find out more about the RASA DX Contest.

It's a different kind of contest, based on a year of your on air achievement.

Powered by ICOM



What's coming up in October? Check [DX-world](#). for up-to-date DX news. If the sun settles down a bit there's plenty to keep the DX chaser busy.



TV OR NOT TV? – a Case Study

By Ian Jackson VK3BUF

Editor's Note: Whilst this article relates to a television reception problem, the underlying issues and processes employed by Ian apply to amateur radio. The subject could just as easily have been an amateur radio receiver as opposed to a television.

It's August 2024. I visited my father a few days ago, and he advised his TV had stopped working. Sure enough, the digital TV had a No Signal message on every channel. A second TV in another room suffered the same symptom. This ruled out a fault on the TV itself as the problem had to be common to both sets. The antenna system was an obvious candidate.

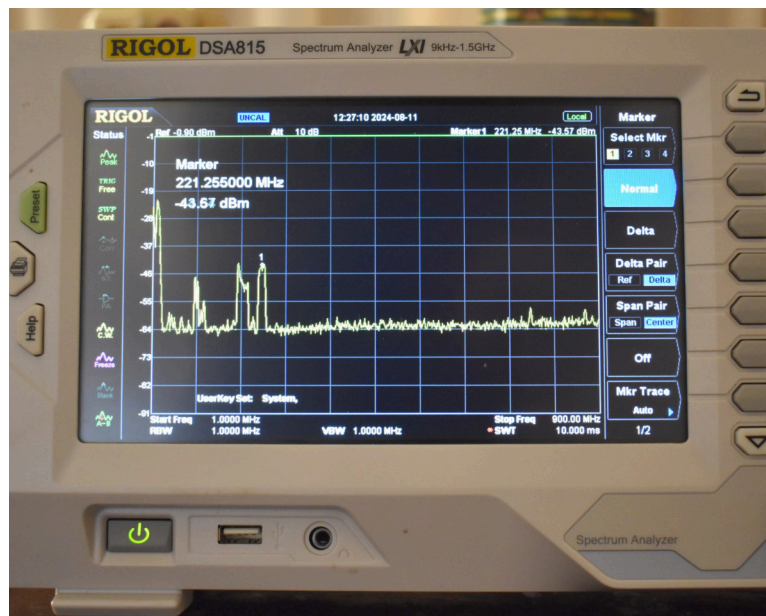
My father's TV antenna is a common log-periodic with a masthead amp and a splitter designed for digital TV. It was only a couple of years old and seemed to be in good condition. It was dark at the time, but a sturdy shake of the antenna pole did not resolve the problem, so an intermittent mechanical problem was unlikely. Likewise, a shake of leads and connectors between the TV and the wall connection introduced no telltale fluctuations. The DC supply which fed power up the antenna appeared intact and working. I resolved to return the next day and continue diagnostics in daylight.

The following morning I received a call to say that the problem had 'fixed itself' and nothing had to be done. Later that day I received another call. "Yeah, it stopped working again."

Once more I planned to return with test gear and portable TV receiver to see what was going on. At that point I had a followup call with a pivotal observation: "When I turn on the lounge room lights, the stations all disappear, when I turn them off, everything works again."

Ok so this had shifted the focus of the problem from an antenna continuity issue to a QRM issue. Evidently one of the four LED down lights servicing the room had gone rogue and was generating extreme interference, wiping out both television sets.

I packed up some gear and returned to the house. My first step was to set up the spectrum analyser next to the TV and shift the TV antenna from the telly to the analyser. I started wide, selecting a receiver range from 1 MHz to 1 GHz. With the lights off, it looked like this:



All was normal. Not too much noise and a couple of commercial transmissions were evident.

Then I turned on the lounge room downlights and it looked like this:



This was a mess, with an obvious noise source disrupting a good part of the spectrum. These LED lamps had been in place for 6-7 years. It was probable that one or more of the filter capacitors in the lamp regulator had dried out and were no longer cleaning up the high-speed switching that was applied to the lamp elements.

Two different size lamps were in use, but they were all under control of a common wall switch.



The next action was to visit Bunnings to purchase replacement LED lamps. I had previously assessed some of their lamps. They were inexpensive and all proved to be RF quiet. It was not worth trying to determine which lights had failed, but simply replace all of them.

The lamp upgrade proceeded without difficulty. With the new lamps in place and activated, both television sets performed normally. A good outcome.

While this case did not directly relate to Amateur Radio, there are strong implications for us.

1. Although none of his neighbours were Amateurs, conceivably they could have been. Had a prominent Amateur antenna been nearby and interference was being experienced, some residents would be fast to conclude that this was the cause. In such situations, the non-technical neighbour can't be relied upon to behave rationally or systematically. The effects of the interference are very real for the people concerned.

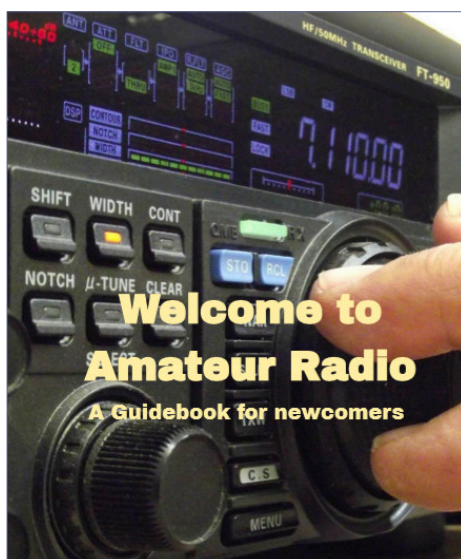
2. If the broadcast signal into the neighbour's TV was strong enough to penetrate the interference caused by their own LED lamps, the lamps could still produce S9 noise on several HF bands over a large radius. The house owner could be unaware of the problem. Maybe their wifi runs somewhat slower, but they hadn't noticed. The consequences for a sensitive HF receiver next door could be tragic and obliterate the enjoyment of an Amateur Radio installation.

These situations are relevant and more likely to occur as society embraces modern electronic appliances. More and more, the process of identifying interference sources has become part of the hobby of Amateur Radio. We cannot rely upon or expect the ACMA to dispatch field operatives to resolve these issues for us. (Editor's note: It's fair to say the ACMA are unlikely to assist Amateurs with interference unless they can illustrate they've conducted their own analysis and can provide supporting evidence of the noise source) The website QRM.guru is a resource dedicated to dealing with exactly these sorts of situations. It describes the process of identifying the origins of interference and lists the actions that can be taken to resolve these issues. Fundamentally, if there is radio noise, there must be a noise source. Once it has been identified, the goal should be resolution, rather than tolerance..

Readers are encouraged to visit the site and read up on some of the case studies.. For the shack wall, download a copy of the QRM tracking flowchart that helps those suffering QRM to correctly profile radio noise sources.

In this instance, the interference issue was resolved and that trashy, advert filled medium known as 'free-to-air TV' has now been restored to its former glory. The old lamps were disposed of as recyclable scrap metal.

If you haven't already, visit QRM.guru and get informed on how to identify and minimise unwanted RF interference.



Welcome to Amateur Radio Guidebook

The RASA Welcome to Amateur Radio Guidebook provides an introduction to our hobby for new Foundation class amateurs.

The book is published digitally. It contains many hotlinks to external websites with useful information.

It is available as an Acrobat pdf file suitable for reading on a PC or tablet. It can be printed if required.

Download the Guidebook [HERE](#)

RASA asks ACMA to Clarify Club Callsign Application Process

RASA received a request for information on how a club should go about applying for an Amateur callsign. This should be a straightforward process, as for many decades Club Callsigns have been an integral part of the Australian club scene. Back in 2022 the ACMA affirmed the use of Club Callsigns in their response to submissions about Class Licenses, but no detail was provided at that time.

A search of the ACMA website did not reveal any details about the processes and obligations associated with Club Callsigns under the new Class licence arrangements. Accordingly, RASA wrote to the ACMA seeking clarification on this issue so that we could pass this information on to our sector. These details are important as they would also apply to scout groups preparing for upcoming JOTA/JOTI. Club callsigns are allocated to a group or organisation, not an individual operator.

RASA received a productive reply. It contained links to an ACMA website with an updated document. We do thank the ACMA for their timely and comprehensive response.

Here is that link: <https://www.acma.gov.au/amateur-radio-resources>

On this page there is a list of downloadable documents. The last item is the new Amateur Radio Callsign Policy, dated September 2024. It contains many interesting details about callsign allocation processes.

On Page 21 there is now a comprehensive breakdown relating to Club Callsigns. It describes both the application requirements and conditions of its issue. This will be of interest to our readers.

Club call signs

Amateur radio clubs can apply to be assigned special event, contest, 2-letter and/or 3-letter call signs.

An amateur operator can transmit the club call sign if they are a member of the relevant club, or they could elect to transmit the call sign that is assigned to the individual amateur operator – or both their call sign and the club call sign.

When making their application, the representative of the club should indicate on the application form that they are applying on behalf of the amateur radio club.

Only amateur operators who hold a recognised advanced qualification can apply for a call sign on behalf of a club. In addition, the club representative will be required to demonstrate that the club is considered a 'separate legal person' from its members. This means that the amateur radio club should be able to show that its organisational structure is an entity that stays the same even if its members change, for example, an incorporated association.

Sufficient evidence that the club is considered a ‘separate legal person’ should include a statutory declaration signed by the leadership of the club, confirming that it meets the ‘separate legal person’ requirement.

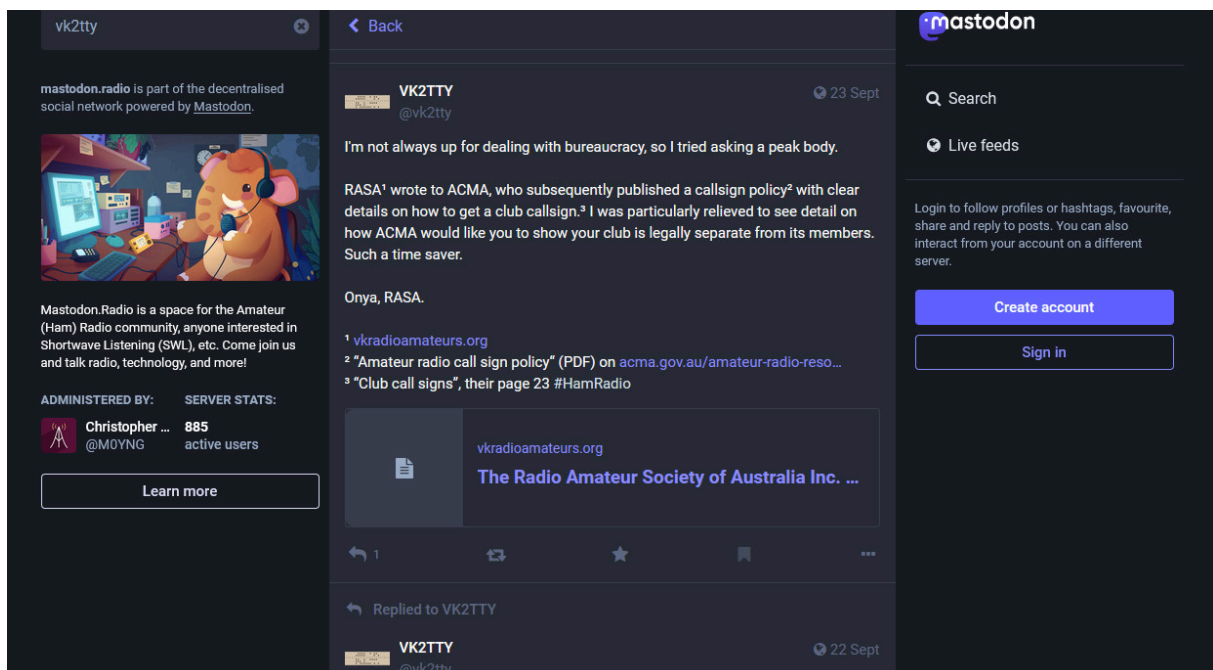
An amateur operator applying for a call sign on behalf of a club will be required to:

- provide proof of their recognised advanced amateur radio qualification
- provide evidence which confirms that the club is considered a ‘separate legal person’
- pay the fee applicable for the call sign type they are applying for.

Fees for call signs are set out in our Cost Recovery Implementation Statement: Fees for radiocommunications, telecommunications and broadcasting services.

The limits placed on the number of call signs that can be held by amateur operators (see ‘Limits on the number of call signs’) also apply to clubs. However, if a branch of a club applies to be assigned a call sign on behalf of affiliated groups in the same organisation, the usual limits on the number of call signs do not apply.

For example, if the state or territory branch of Scouts Australia or Girl Guides apply for a call sign on behalf of individual groups in that branch, there are no limits on the number of call signs that can be held by the branch.



Isn't it nice to see positive feedback?

RASA is grateful for the prompt action taken by the ACMA to rectify the omission.

Butternut HF6V vertical antenna repair

By Klaus Illhardt VK3IU

The Butternut HF6V is a 6 band vertical antenna, without traps. It uses large coils and capacitor to accommodate the 6 HF bands 80m, 40m 30m, 20m, 15m and 10m. In my case it also operates reasonably on 12m and 17m with the help of an antenna tuner.

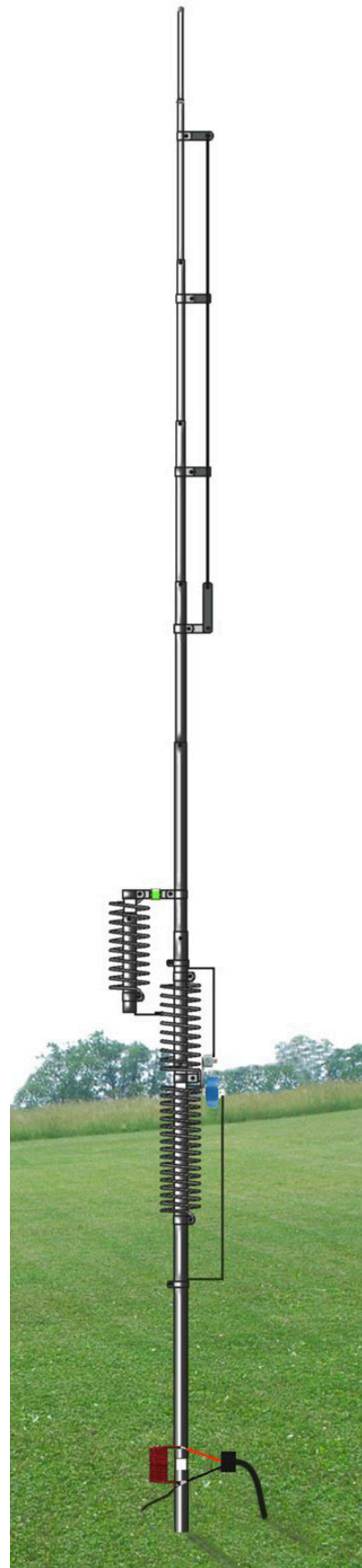
I installed the antenna in 2021 in its current installation, after I owned the antenna since 2015, apart from the occasional installation in the backyard, it spent most of its time in storage. Until now.

The Butternut HF6V is mounted on top of my two-story home. My QTH is located on a small hill, therefore the antenna experiences frequent strong wind gusts. As recommended by Butternut, I guyed the antenna above the 30m coil

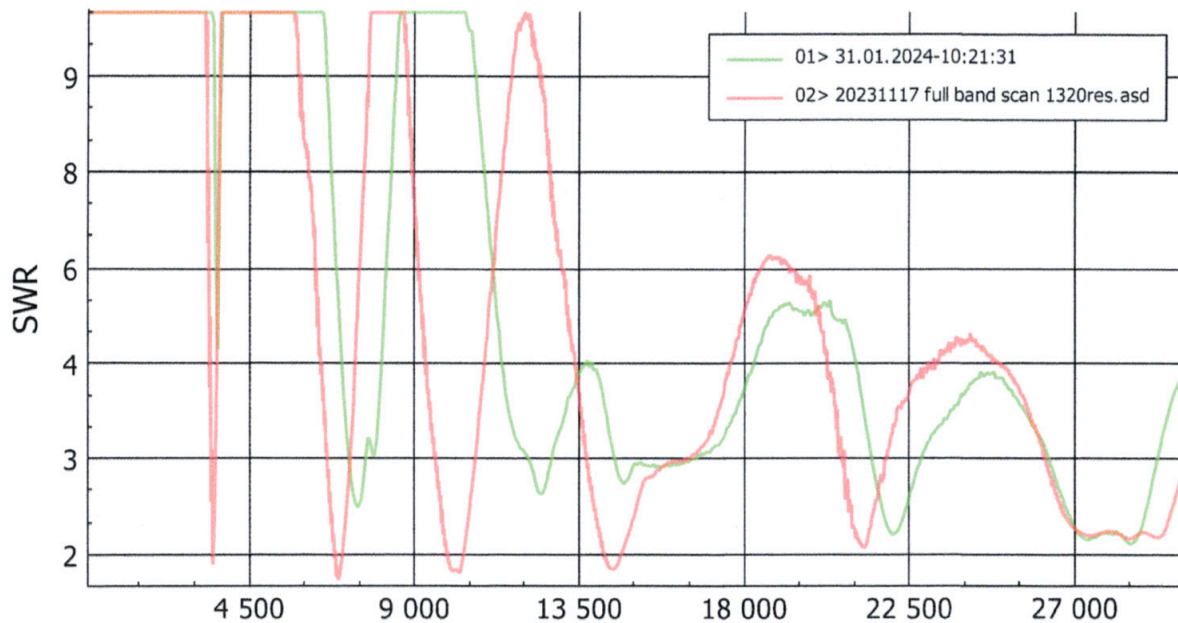
Somewhere around mid January 2024, I noticed a sudden worsening of the SWR for the 20m and 30m band. Other bands had a moved from their resonance frequency. This was initially intermittent. It had good and bad days and eventually had a complete failure of the 20m and 30m band.

My suspicions about the failed HF6V fell immediately to the 30m assembly of the antenna, as this influenced the 20m and 30m band. I posted a description of my problem in the forum of eHAM.COM and got a lot of good replies which lead me to believe that the culprit is very likely the 68pf doorknob capacitor of the 30m assembly.

Unfortunately the cost of the original 67pF doorknob capacitor imported from the US would almost have been \$200 AUD. Fortunately I found a supplier in Ukraine which specialised in such items. I purchased two 68pF doorknob capacitors for \$50 AUD which was shipped within 2 weeks.



With the new capacitor fitted, the antenna analyser measurements confirmed a major change in the SWR curve.



GREEN shows the damaged antenna, compared to RED which shows the original SWR match.

There were many comments on the eHam.com site about this antenna. There was a modification and detailed description provided by Phil AD5X. I exchanged several emails with him about my issues. Apparently the 30m doorknob capacitor is exposed to mechanical stresses due to the way the antenna was originally assembled. There was a modification to build a small aluminium bracket and connect one side of the capacitor to the antenna with a flexible wire.

Replacement of the 30m, 67pF doorknob capacitor with a 68pF and the modified mounting.



In my situation the antenna had been mounted on top of a two-story home. Two years ago I build a tilt mechanism which allows me an easier access to the antenna. When tilted down, it allows the antenna to lay flat on the roof for easy access and maintenance.

Nevertheless over the more than two years on the roof exposed to strong wind gust, some screws lost their nuts. Otherwise the antenna looked mechanically fine. I replaced the lost nuts and tightened the rest. The first scan after replacing the capacitor showed that the antenna had returned to normal operation, but still required some tuning. I scheduled this activity for the next day.

As multi-band vertical antennas are complex, the tuning after the repair took about 2 hours. I had to tilt the antenna down to the roof tiling multiple times to make the adjustments. This included the cleaning of the oxidised aluminium with sandpaper and the re-application of the conductive copper cream. It was very convenient to have the handheld antenna analyser to measure the antenna directly from the roof.

With the repair completed, the antenna is back to its original SWR curve and functioning very well.

The Radio Amateur Society of Australia

Foundation Level Study Guide
V2 October 2024

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