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QTC from the Editorial Team

Welcome to our first edition of QTC for 2021. Let's hope this year can be a little more settled and that the impacts of Covid-19 are mostly behind us. We hope our readers have weathered 2020 largely unscathed.

Well, the headline news for 2021 is the ACMA Consultation process and how this may affect our hobby ("Service" in ITU Terms). ACMA are proposing moving Amateur Radio to a Class Licence.

There is a lot of misinformation and fearmongering going around; spinning the dial on HF, listening to nets and DMR, and of course Facebook (Farcebook), you could be easily mistaken for thinking it's "end of days" for Amateur Radio.

In this issue we'll walk you through RASA's analysis of the proposed changes, ACMA's preferred option and we'll answer some of the more common questions from social media and on air monitoring.

In summary, ACMA are proposing that Amateur Radio be moved from an Apparatus Licence to a Class Licence. They want to do this to reduce administrative burden, a policy directive from the Federal Government.

So, if the Class Licence goes through, what will change and what won't? For the most part, for most of us, the only changes we will "**feel**" are:

1. No annual licence fee;
2. ACMA may not intervene to assist in interference issues we may suffer.

That's it. Nothing more.

Everything else remains largely as it is today.

Anarchy will not descend on us. Thousands of rabble rousers will not suddenly gain access to our bands. To become an Amateur, individuals will still need to sit the AOCPE exams and gain a qualification.

We won't lose bands as a result of these LCD changes. The Spectrum Plan (i.e. the bands we can use) is unrelated to the class licence.

You will still be able to travel and obtain reciprocal licences; ACMA (or AMC) will provide a suitable endorsement for travellers to take with them.

RASA, like most amateurs, and indeed, the WIA, would prefer we retain the Apparatus Licence.

However, this appears unlikely.

RASA will continue to reach out to the WIA to cooperate on this critical issue. If the ACMA move us to a Class Licence then **we all need to work together to ensure some basic interference protections are retained.**

As always, we welcome your feedback and suggestions.

We hope that all our readers are safe and healthy, and we wish you prosperous 2021.

73

QTC Editorial Team
editor@qtcmag.com



In 2021 RASA will produce a monthly Podcast. This technology allows us to get regular messages to you at a time and place of your choosing.

You can download our Podcast by visiting this [link](#) – bookmark it!

Or search on vkamateurradionews on Apple iTunes.

Our email Bulletin has been re-named QTC-Lite and will include a transcript of the Podcast.

Should there ever be any urgent news, we will use QTC-Lite to alert our readers.

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RASA Membership



We believe we should be measured by our achievements. And we can only succeed with your support, so thanks to all our

members and supporters for helping us make this happen.

And thanks to everyone who has sent us emails with feedback.

We listen to our members and respond to emails and questions about our initiatives, policies and priorities.

Please support us by joining or renewing your membership today. It's just \$10 and its simple – [follow this link](#).

Key Achievements in 2019-2020

- ✓ Successful negotiation with ACMA for [2*1 Contest Callsigns](#)
- ✓ Evidence based, professional proposals to ACMA – [60m](#) and [1kW](#)
- ✓ [QRM Guru](#) – reducing/eliminating QRM - on-the-ground help for amateurs
- ✓ Club visits – 15 clubs across five states
- ✓ Donations of ten [QRM Club Kill Kits](#) to clubs (value \$1,600)
- ✓ [Welcome to Amateur Radio Guidebook](#) for newcomers
- ✓ [QTC e-Magazine](#)
- ✓ <http://vkregs.info/> “plain language” reference to the LCD
- ✓ Donations and support for events: Antennapalooza, ILLW, OCDX Contest
- ✓ Membership up 49% year on year
- ✓ Responsible financial management with a healthy surplus

In 2021 we have

- ✓ Fully deployed the Amateur Radio Tech Support service for newcomers
 - <https://amateurradiotechsupport.freshdesk.com/support/home>
- ✓ Prepared a detailed and practical submission in response to the ACMA Consultation paper (see this issue for more info)
- ✓ Launched the Welcome Pack for newcomers (see this issue for more details)

Detailed Achievements

Representation - Privileges

- **Lobbying and successful negotiation of 2*1 Contest Callsigns**
- Lead review of VK Band Plan updates with WIA to better accommodate digital modes
- Other key representation to ACMA:
 - Evidence based, professional proposal for 60m
 - Proposal for 1kW - addresses RFI and human health issues
 - Lobbying for Standard Licencees to have access to the full 50-54MHz band
 - Lobbying for Foundation Licencees to have access to Digital Modes
 - Lobbying for Foundation Licencees ability to construct equipment

Engagement with club & amateurs

- Visited 15 clubs across 5 states in 2019 (prior to Covid-19 lockdowns)
- Conducting Zoom meetings for clubs
- e-bulletin "QTC-Lite" sent to members and 125 clubs every fortnight

QRM Guru website

- Now an international resource – referenced internationally by clubs and societies
- Web site activity – 40,000 visitors, 130,000 unique page visits from over 80 countries
- 13 YouTube videos from the QRM Guru team
- 17 Case Studies from the field
- Online email support – over 30 individual amateurs supported
- QRM Kill kits – over 120 kits sold
- Informal support and endorsement from ACMA inspectors

RASA Website

- Approximately 150,000 visits over the last 12 months
- Informative articles on regulations, representation and current issues
- ACMA Lobbying information
- AR News and links
- Useful frequency lookup chart

Publications

- Welcome to AR Guidebook downloaded 1,400 times - free
- QTC-Lite e-bulletins – every 2 weeks to over 500 recipients and 120 clubs
- Podcast every 2 weeks
- QTC e-Magazine – 5,100 downloads – average of 2,600 per edition - free

On the Air

- Weekly nets during first Covid-19 lockdowns
- VI2020STAYHOME special event callsign
- WSPR Transmitter VK2RAS
- Reverse Beacon Node VK3RASA

RASA's Strategy - ACMA's Consultation Paper



The ACMA published their Consultation papers on the 3rd February 2021. RASA immediately conducted a review and on 10th February we published our first "***Interim Position Statement***". As the name suggests, this paper is an interim position and has already been modified four times based on feedback from the Amateur community.

The latest electronic version of our position on the ACMA proposals may be found [here](#).

The paper is reproduced below.

Introduction

The purpose of this document is to present an interim position on the ACMA proposed changes to amateur licencing arrangements, as detailed in their consultation paper of February 2021. The ACMA paper may be downloaded from:

<https://www.acma.gov.au/consultations/2021-01/review-non-assigned-amateur-and-outpost-regulatory-arrangements-consultation-012021>

We welcome your constructive feedback, which may be emailed to info@vkradioamateurs.org. This interim position will be refined as required.

A final position will be published and submitted to ACMA in late March 2021.

We have put together a FAQ on the changes – it will be updated as we receive questions. <https://vkradioamateurs.org/acma-proposed-changes-faq/>

Preferred option (*refined 15 Feb 21 as a result of member and non-member feedback*)

We recognise that ACMA's preferred option is C (a class licence), and that this is driven by Australian Government policy on outsourcing and reduction of regulation.

Option C has one significant shortcoming – it proposes removing protection from interference.

So, RASA is proposing a modified C – Option D, if you will.

Option C could only be accepted with safeguards regarding protection from interference and the other issues discussed later in this document.

Option B is not worth considering, as it provides effectively no advantages for either amateurs or the ACMA.

It is clear that ACMA intend to implement Option C. The consultation is simply a process to enable Option C to go forward. Whilst sector polls and letters to the Minister are, of course, democratic, our view is that they are not the most effective solution in this case.

The pragmatic response is to negotiate with ACMA on a mutually acceptable outcome. ACMA want to simplify work practices, remove any need for technical engagement and cut costs; all of which are driven by Government policy. Amateurs need reassurance that our protection from interference will remain.

Option C streamlines administration, and of course there are no licence fees, but it does introduce a class licence.

Is a class licence appropriate for amateur radio? This is discussed in the FAQ:

<https://vkradioamateurs.org/acma-proposed-changes-faq/>

Comparison table

Options A and C are compared in the following table.

Topic	Option A	Option C
Licence issue	Licences issued by ACMA	Licence not required, only a qualification. No requirement to apply for a licence, per se. This does raise issues for amateurs travelling overseas – presumably ACMA will issue a licence in this case.
Callsign issue	AMC recommends, ACMA issues	AMC issues
Fees	Current fee	No licence fee
Interference investigation	ACMA ultimately responsible	ACMA propose “no protection” basis
LCD	Complex	Simplified, with operational issues moved to a separate document
Examinations	Current system	No change
Qualifications	Current system	No change
Licence grades and privileges	Current system	No change
Repeaters/ beacons	Current system	Remain as assigned apparatus licences, with potentially more efficient assignment regime.

Protection from interference

The main issue of contention with Option C is the proposal that, under a class licence, amateurs would operate on a “no interference, no protection” basis.

This is simply not acceptable.

ACMA, as managers of the RF spectrum, have a responsibility to ensure that spectrum users can properly coexist, regardless of what licence fees they do or do not pay or what class of licence they operate under.

We do not consider that elimination of licence fees is an appropriate trade-off for a complete abandonment of ACMA’s traditional spectrum management role.

We acknowledge that ACMA field staff resources have been severely rationalised and therefore that it will not be possible for an ACMA Radio Inspector to physically attend most amateur radio related interference complaints.

It is also reasonable to require amateur radio operators, as technical practitioners, to investigate and, as far as possible, resolve interference problems.

However, our view is that ACMA must retain final responsibility for oversight of amateur radio interference problems – be they wideband noise from the next-door neighbour’s LED lights, interference to a neighbour’s television system or spurious emissions from the commercial radio site on a nearby hill.

We propose that, as with the current system, amateurs deal with interference issues initially themselves, by following a logical, documented process, such as that detailed at <https://www.qrm.guru/category/an-overview-of-the-qrm-guru-process/>

Amateurs have a responsibility to ensure that their transmitters are operated in accordance with the LCD, in terms of frequency, power output and spurious emissions. If an amateur transmitter is being operated in compliance with the LCD, then the amateur station can not be forced to shut down.

Naturally, common sense dictates that the best way to resolve an interference issue is to liaise with the other party, particularly if they are a neighbour. This may involve the amateur initially restricting transmitting until the problem can be rectified.

If the amateur has taken all reasonable steps to resolve the interference to/from their station, and the problem persists, ACMA should be called upon to provide an impartial resolution of the issue. We suggest that this would involve email communication with the amateur and the other party in most cases – i.e. no physical attendance by ACMA staff.

Deliberate amateur-amateur interference and illegal operation is another area where ACMA must retain a regulatory role. Most interference of this type will cease with the application of common sense (i.e. don’t feed the troll...), but there are some rare examples where the interference is harmful and ongoing, and the only path to resolution involves regulatory action. We note that ACMA intends to maintain this role under Option C, quote (p14):

If someone operates an amateur station without holding a recognised qualification or operates the amateur station in a way that is not consistent with the class licence conditions applicable to people

holding that level of qualification, they will not be operating in accordance with the class licence and the ACMA may investigate and take appropriate compliance and enforcement action under the Act.

This is effectively a continuation of the current arrangements.

In summary, provided the safeguards suggested previously are implemented by ACMA, RASA supports option C.

The Class Licence (replaces the LCD)

ACMA are proposing to replace the current LCD with a simplified class licence. Although it has been simplified considerably, it is still rather legalistic. We acknowledge that this may be required by AMCA's legal processes.

The proposed class licence has been reduced from the current LCD's 39 pages to 28 pages, with the following sections from the current LCD removed:

- AX callsigns for special days (Australia day, ANZAC Day, etc).
- Repeater linking provisions.
- Restrictions on portable operation.
- Restrictions on connections to/from the public telecommunications network.
- General beacon and repeater provisions (we assume that this will be transferred to a separate document).

A new section has been added on high power permits for Earth-Moon-Earth (EME) operation.

The proposed new class licence is relatively simple and much less restrictive than the current LCD. The removal of the outdated repeater link restrictions will facilitate experimentation with new technologies.

The privileges per licence class (bands, power, etc.) and the general technical conditions have not been changed.

We assume that the AX provisions will be transferred to a separate operating procedures document.

The proposed new class licence also allows you to operate portable for as long as you like – the previous 4-month restriction has been removed.

As ACMA foreshadowed in their consultation document, if Option C is implemented, the current system for licencing of repeaters and beacons will continue, albeit with some streamlining.

We suggest that, with the aim of simplification, Schedule 3 – Emission modes could be deleted, or else reference made to Vol 2 Appendix 1 of the Radio Regulations, which defines emission modes in detail.

Similarly, Section 2 on exclusion areas could be referenced to another document; it impacts relatively few amateurs and takes up a large amount of space in the document.

Schedule 1, tables A, B and C (p10) use the term “maximum power spectral density” in relation to bandwidth. The term is not referenced in the Definitions (p2) and the method of measurement is not specified.

Ongoing sector liaison with ACMA

There needs to be an agreed mechanism for sector representatives to meet with ACMA on a regular basis (perhaps biennially) to discuss sector issues – the current ad-hoc system is not efficient or effective.

To this end, it is proposed that a sector liaison committee be constituted, and that it include AMC, as the ACMA’s outsourced provider.

Publicly available callsign database

If Option C is implemented, ACMA must maintain the current on-line public callsign database.

Licensing document for amateurs travelling overseas

ACMA (or AMC under delegation) must produce some form of amateur licence document for amateurs travelling overseas – stating equivalence with CEPT T/R 61-01.

Output power for advanced licensees

One issue that is not discussed in Option C is an increase in transmitter power for Advanced licensees. RASA presented a paper from the RASA Vice President, Dr. Andrew Smith (an Oral and Maxillofacial Surgeon) to ACMA on this issue in May 2019.

The ACMA indicated to RASA that this issue would be included within the 2021 LCD review – hence its inclusion here.

The paper is summarised as follows:

Health risks with increased power

A review of world literature has identified that radio amateurs have no higher incidence of medical conditions or causes of death from RFE than the general public. (Radio-Frequency and ELF Electromagnetic Energies A Handbook for Health Professionals, Hitchcock RT and Robertson RM. Revised 1994, John Wiley and Sons.)

A review of the literature failed to ascertain any reports of damage to humans and/or animals from any amateur transmissions at power levels up to 2kW PEP. Data is scarce on issues related to microwave frequencies but yet again there are no reports of illnesses or diseases. (Ibid.)

There is no empirical evidence that supports the ACMA position that an increase of PEP from 400W to 1kW would have any deleterious effect on radio amateurs, members of the public or animals, as long as the emissions comply with ARPNSA standards. There is no validity in terms of health, well-being and OHS that supports the ACMA argument for a 400W PEP limit in the Amateur HF and VHF/UHF bands.

Interference risks with increased power

It is a *sine qua non* that with increased power, the higher and closer the source then the risk of Radio Frequency Interference (RFI) may increase.

There are multiple sources of RFI apart from Amateur Radio Transmissions.

The change from analogue to Digital TV transmissions has reduced the risk of amateurs interfering with TV broadcasting and a literature review suggests that the number of complaints over this have dropped worldwide although other factors including a lack of follow up on reports of interference through personnel shortages may have had an effect.

There is no evidence that there has been any increase in RFI complaints in countries (NZ and Canada) (Sources FCC, NZART and Radio Commission of Canada) that have increased their permitted PEP over the last decade or so.

Australia has a unique situation but in view of the evidence it would seem logical that a trial be undertaken allowing amateurs to use 1kW PEP on HF and VHF/UHF amateur bands with a well-structured reporting system for RFI complaints and investigations of these performed by the ACMA in association with Amateurs.

Conclusion

There is no health or occupational health reason preventing power limits for Radio Amateurs in the HF/VHF/UHF bands to be increased.

There is little or no evidence that suggests that an increase in power will increase complaints of RFI.

The ACMA should increase the maximum PEP from 400W to 1kW for the amateur HF/VHF/UHF bands

Anecdotal evidence from the amateur radio sector is that many stations currently operate well in excess of 400W PEP output power on HF – there have not been any reports of RFI/EMR/EMC issues with these stations.

Access to 50-52 MHz for Standard Class amateurs

Standard class amateurs are allocated only the top 2 MHz (52-54 MHz) of the 6 metre band. This anomaly serves no real purpose. Granting standard calls all of 6m (50-54 MHz) would not impact the incentive to upgrade, as the privilege gap to advanced is still considerable.

In December 2019, we conducted a survey on this issue – 71% of respondents were in favour. We discussed this with ACMA who noted that the issue would be considered as part of the LCD Review.

We therefore request that Standard Class licencees be granted access to the full 50-54 MHz band.

We understand that the WIA also support this proposal, as detailed in previous submissions to LCD reviews.

The Radio Amateur Society of Australia

10 March 2021



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ARPANSA updates RF exposure standard



Australian Government
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and Nuclear Safety Agency



The Australian Radiation Protection and Nuclear safety Agency (ARPANSA) have updated their standard for limiting exposure to RF fields.

From the ARPANSA website:

The Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz (2021), RPS S-1 (Rev. 1) sets limits of exposure to radiofrequency (RF) electromagnetic energy (EME) for the public and workers.

The exposure limits set out in the Standard provide protection against all known adverse health effects from RF EME exposure and are set well below the level at which harm may occur. The limits in RPS S-1 are aligned with guidelines published in 2020 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP), which is the international body recognised as leaders in non-ionising radiation protection.

RPS S-1 also includes requirements for protection of the general public and the management of risk in occupational exposure from RF EME, together with additional information on verifying compliance with the limits of the standard.

This publication supersedes the *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz* (2002), RPS 3.

How does the new Standard differ from the previous Standard?

A review of the scientific evidence has shown that excessive heating caused by high exposure levels remains the only established health effect from RF EME.

Consequently, the exposure limits set in the new Standard are similar to those in the old Standard with some refinements.

The limits in the new Standard have been refined to account for increased knowledge on how temperature rises within the human body when exposed to high RF EME levels.

The main changes in the limits of the new Standard relate to additional restrictions for RF EME exposure at higher frequencies, above 6 GHz, which is of importance to 5G and other future technologies using these higher frequencies.

The new standard may be downloaded from [here](#).

Amateurs are required to comply with EME/EMR guidelines published by the ACMA – these are explained at: <http://vkregs.info/electromagnetic-radiation/>

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Your FAQs – ACMA’s Consultation Paper



Since publishing our interim position statement on ACMA’s Consultation process, we’ve received many questions. And it is clear from listening on-air and observing posts on Social Media that there is a lot of confusion out there. We will update these FAQs as new questions come to hand. You can see the very latest here.

<https://vkradioamateurs.org/acma-proposed-changes-faq/>

For details on the ACMA proposed changes see:

<https://vkradioamateurs.org/rasa-interim-position-on-acma-proposed-changes/>

FAQ on the WIA position paper released 24 February 2020:

The proposal states that under the Class licence, the amateur service would now operate under a ‘no interference, no protection’ basis. This is contrary to the status of the amateur service in the Australian Radio Frequency Plan which grants multiple spectrum blocks either ‘EXCLUSIVE’ or ‘PRIMARY’ status.

The spectrum plan (primary/secondary service, etc) and licence type are two separate issues. Maritime and aeronautical, which operate under class licences, are also assigned Primary status in many sections of the spectrum plan...

Primary status in the spectrum plan has nothing to do with preventing interference to another licenced radiocommunications service if your transmitter is generating spurious emissions, for example.

However, if you are operating in accordance with the technical requirements of the LCD (power, spectral purity, etc.), you are within your rights to continue transmission.

The proposed new LCD clarifies this at 10 (1) on p 7:

A person must not operate an amateur station if its operation causes harmful interference to radiocommunications.

Note that *Radiocommunications* does not include Broadcasting (TV, radio).

Notwithstanding this, RASA does **not accept** our interference protections being withdrawn under a class licence.

The proposed Class Licence wording that amateur stations must not “exceed the general public exposure limits specified in the ARPANSA Standard” requires them to show compliance directly with that Standard, removing the additional conditions afforded Apparatus Licensees. This will substantially increase compliance costs and enforcement risk for the amateur service.

There is no evidence to support this. Why would ACMA, who intend to *reduce* regulatory burden on amateurs, require amateurs to produce complex calculations showing compliance with the standard?

Amateurs are required to comply with the ARPANSA standards using the methodology described at <http://vkregs.info/electromagnetic-radiation/>

There is no evidence to suggest that this arrangement will change under a class licence.

Removal of an individual licence document that identifies the individual operator (and includes the reference to the CEPT T/R61-01 licence), will prevent Australian Amateur Radio operators from using the CEPT international Amateur Radio arrangements when travelling overseas.

AMC would be tasked to produce said document if required under delegation from ACMA, or else ACMA would produce it as required.

Various concerns around transmitter spurious emissions standards, translations of technical requirements (particularly impacting the MF and LF bands) and the handling of secondary spectrum, that further restrict the amateur services.

This is a very sweeping statement.... An A-B comparison of the proposed new LCD and the current one demonstrates that technical conditions themselves have not changed at all.

The *arrangement* of technical conditions has been changed – for the better. They are much clearer in the proposed new LCD.

The requirements concerning radiated power at LF and MF are exactly the same – they are simply inserted directly into the permitted frequencies, power limits and limitations table (p 10), rather than being detailed in a separate section, as in the current LCD....

General FAQs

Why can't we keep the present system?

It is clear from the tone of the ACMA document that they wish to move to a class licence. The consultation document is drafted in standard Public Service (not just ACMA) style: point out the disadvantages of the current system, propose an unworkable middle ground option and discuss the advantages of the favoured option.

Moreover, in line with standard Government policy, this is not an issue we get to “vote” on – the consultation is simply a process to enable Option C to go forward. This implies no criticism of ACMA – it is just the way that the Government goes about its business.

The ACMA proposal would have been cleared with the Department of Communications and the Minister prior to publication.

As we said in the interim submission – the pragmatic response is to negotiate with ACMA on a mutually acceptable outcome.

Class licencing will “diminish” AR and turn us into CB

Amateurs require technical qualifications. The CB service does not.

We remain a technical hobby, with access to vast amounts of frequencies (in relative terms) from LF to EHF, regardless of whether we operate under a class or apparatus licence.

Our UK and NZ colleagues effectively operate under a class licence; AR hasn't been “diminished” in those countries...

Class licensing will lead to type approved equipment and therefore the end of home brewing

For there to be a requirement for type approved equipment, there first needs to be an Australian Standard for ACMA to reference, as per the CB and marine class licences. Amateur Radio has not and does not use type approved equipment, therefore there are no standards available for ACMA to reference.

A standard would need to be written. By whom? Certainly not by any of the Standards Australia committees....they require resources (i.e. \$) to do this. None of the overseas standards bodies would do it for free, either.

Who would provide the funds? It is very unlikely that ACMA would fund a standard, given their stated aim of simplification and less regulation of the amateur sector.

Without a standard, there can be no type approved equipment, and therefore the current home brew arrangements will continue.

Moreover, what would ACMA have to gain from banning home brew...and...how would they enforce it?

Will we lose protection from interference under a Class Licence (Option C)?

Yes. This is why RASA is arguing for the retention of these protection rights should ACMA chose to implement Class Licencing (Option C). Refer our Interim Position paper here <https://vkradioamateurs.org/rasa-interim-position-on-acma-proposed-changes/>

Under a Class Licence will our bands become mayhem? Pirates and bad behaviour will become commonplace and no-one will police.

We note that ACMA intends to maintain their regulatory role under Option C, quote (p14):

If someone operates an amateur station without holding a recognised qualification or operates the amateur station in a way that is not consistent with the class licence conditions applicable to people holding that level of qualification, they will not be operating in accordance with the class licence and the ACMA may investigate and take appropriate compliance and enforcement action under the Act.

This is effectively a continuation of the current arrangements.

Will ACMA be able to take away our bands under a Class Licence?

ACMA can't "take away" our primary* allocations. To be realistic, secondary* allocations above 70cm are threatened *regardless* of our licence type; we are a mainly a secondary service in that part of the spectrum.

ACMA are NOT going to "give our secondary HF allocations away" to Defence, Google or Bill Gates...

Why would they? The amateur HF secondary allocations have been established for many years...and are well utilised.

HF allocations are coordinated internationally via the ITU. Given the complex process at the ITU, any international moves to threaten our secondary HF allocations would take years, which means that we will have plenty of time to oppose them – as per the recent French proposal for the bottom end of 2m.

In summary: operating under a class licence does not make our allocations any more vulnerable than the current arrangements.

* see <https://vkradioamateurs.org/amateur-radio-spectrum-management/>

Didn't we lose 60m due to poor representation? Will it become worse under a Class Licence..

We *never had* 60m, and we were never going to get it, frankly; the Australian position taken the the World Radio Conference was to oppose the 60m amateur band, principally because of objections from Defence. You can't lose something you never had.

Will our privileges and examinations change? I want 20m!

The ACMA propose changes to the LCD and licencing arrangements **only** – there are **no changes proposed** by ACMA for licence grades, examination arrangements or privileges per grade.

ACMA can arbitrarily impose conditions on us

A class licence does not confer upon ACMA the power to make arbitrary changes without consultation – class licences work exactly the same as apparatus licences in that regard.

Maritime and aeronautical (boat and aeroplane) class licences (class licences using qualified operators) have not had conditions arbitrarily imposed upon them. Any changes are only implemented after sector consultation and discussion. There is no reason to believe that an amateur radio class licence would work any differently.

Under a class licence ACMA can shut you down if you cause TVI!

No, they can't. If you are operating in accordance with the technical requirements of the LCD (power, spectral purity, etc.), you are within your rights to continue transmission. The proposed new LCD defines this at 10 (1) on p 7:

A person must not operate an amateur station if its operation causes harmful interference to radiocommunications.

Radiocommunications does not include Broadcasting (TV, radio).

If ACMA don't issue licences, there will be no amateur details in the ACMA database

We would expect that ACMA would require AMC to provide frequent database updates of callsigns issued.

If I have no licence, I can't apply for things like electronic on line logbooks, E-QSL and DMR ID numbers

As is standard Government practice, we would expect the callsign document to include words to the effect of "issued under the authority of the ACMA"

Why are the WIA and RASA not co-operating on important matters?

RASA has attempted to communicate with the WIA on numerous occasions but has received no response. We are always willing to cooperate with the WIA for the good of VK AR. Why is this not reciprocated? Ask the WIA....

Are the WIA and RASA are being paid to keep quiet so ACMA can take away our bands and privileges?

This is a ridiculous assertion! RASA has not been silenced or paid by anyone. We issue regular bulletins, and you can read our interim response to the ACMA proposals by visiting our web-site.

Is our radio spectrum at risk from US business purchasers?

No, not at all!

I heard that a Class licence will allow AMC to increase their exam fees.

The Deed (contract) between AMC and ACMA has nothing to do with the proposed Class licence...

Why has RASA included "power limits" in its outline statement?

ACMA undertook to include the question of power limits in this LCD review after the May 2019 RASA submission.

Advanced licencees have effectively received no extra privileges since the introduction of the "WARC bands" 30-odd years ago...

Anecdotal evidence is not the same as factual evidence (regarding QRO)

This is true but it is well recognised that some amateurs do break current regulations in many areas but that this has not been recognised by the ACMA as being factual. It is therefore valid for such a statement to be made in a submission so that the basis on which it is made is understood and not overstated in any way.

What about the Intruder Watch system?

It doesn't work now....it appears that ACMA do not conduct any monitoring of IW complaints....

See <https://vkradioamateurs.org/has-the-intruder-watch-system-reached-its-use-by-date/>

Changes in call sign structure will cause major difficulties for contesting administrators

Yes, it is true that alternative methods will be required by Australian contest organisers where in the past components of call signs have been used as part of the scoring process.

It needs to be noted that other countries have not had an area or region-based call sign system for some time and that international contest rules have been adjusted so that, if required, distances or location can be managed in a different manner. Changes will be required but are easily achievable.

Is the Australian Maritime College a profit driven organisation?

The AMC is part of a public University and administers callsign allocation and Amateur Radio exams on a cost recovery basis under a deed with the ACMA.

Last updated 8 March 2021

QRM Kill Kits

Ferrite kits to suppress unwanted noise in your shack. Click the image to head to our online shop.



Build a simple DF Loop to help you localise and pinpoint the source of the noise. Click on the image to head to our online shop.





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 - » Airport West: 5 Dromana Ave 03 9549 2121
- ### New South Wales
- » Auburn: 15 Short St 02 8748 5388

Queensland

- » Virginia: 1870 Sandgate Rd 07 3441 2810

South Australia

- » Prospect: 316 Man Nh Rd 08 8164 3466

Products also available through our regional reseller network & Leading Edge electronics stores.



QRM Guru

In this edition we have two stories from the field; real world example of how amateurs are going about identifying and resolving their QRM issues.

If the ACMA moves us to a Class Licence, resources like QRM Guru will become even more important.

This story from a VK4 amateur:

I have a Telstra NBN modem, used for a FTTN service. It is installed on a shelf in the garage

My 40m dipole runs across the garage – the end is about 7m away from the modem.

Whenever I transmitted, RF would cause the modem to lose synch, and it needed to be rebooted to get the service back....losing Netflix is not good for domestic harmony, let me tell you!

I installed 3 snap on ferrites on the input phone line – I managed to get three turns on two, and two turns on one. I also put two turns on a snap on ferrite on the DC input.

I also used ring ferrites for the two Cat 6 lines to/from the modem – three turns on each.

Probably overkill, but it works a treat – 100W of CW key down, and no problems.

Domestic harmony restored.

Thank-you QRM Guru! .

(Ed: visit this [page](#) to understand more about ferrites and noise suppression) and you can buy QRM Kill Kits with a selection of ferrites from our online store [here](#).



Figure 1 - the "before" view



Figure 2 - the "after" view with ferrites

QRM from USB plug pack

Quite often, some of your worst QRM will come from appliances in your own home. Follow the process described in QRM Guru and hopefully you'll find the troublesome culprit and be able to take action easily.

This simple case study was sent to us in the last few weeks....

I've been suffering terrible QRM on 10MHz at my QTH for some time – S7-8 noise across the band.

Upon investigation, I found the culprit was a Chinese USB plug in power supply.



The culprit; a garden variety wall-wart.

Modern power supplies such as the one shown can cause wide-band QRM. Check your wall-warts and replace as required.



Before – S7 noise



After – S1 noise



ACMA News

Call-sign processing times back on track

After meeting recently with the AMC to discuss the delays in call-sign processing, we're happy to report that processing times are back to normal.

While demand for new call-signs remains high, the AMC has confirmed that it has cleared the backlog of applications. We'll continue to work with the AMC to mitigate the risk of these delays in the future and will continue to use our amateur bulletin to update you on amateur-related matters.

We'd like to thank the amateur community for its patience during this time. We'd also like to thank the AMC for dealing with the huge number of requests for call-sign changes during the COVID disruption.

4 March 2021 – Courtesy ACMA

Cows and coax don't mix

By Ian Jackson, VK3BUF

Earlier this year the Reverse Beacon Network (RBN) node VK3RASA in West Gippsland went off-air for a few days. Attempts to reset the hardware remotely were not successful, so a physical inspection was in order.

The receiver shed is housed in a small, fenced compound in a cow paddock. A site visit revealed that the access gate was ajar, the grass was very short, and a section of the coax feedline was hanging down, clearly damaged by bovine gnawing. Nearby, a couple of smug-looking cows observed the proceedings.



Cows mostly ignore gates, but occasionally the smarter ones overcome the spring-loaded gate latch with their tongues and push the gate open.



The coax cable had to be repaired. In this instance, the repair pre-empted a planned addition of a lightning arrestor.

The steel post supporting the dipole antenna was already grounded via an earth stake. The damaged section of cable turned out to be an appropriate spot to fit a waterproof enclosure and the lightning arrestor.



Even though the box is watertight and gasketed, two small 1.5mm drainage holes were drilled in the base. Historically, few things fill up with water better than a watertight container. Some tiny drip holes are the lesser of two evils in this situation.

The output cable which connects to the RBN receiver was sheathed in a flexible stainless-steel conduit.

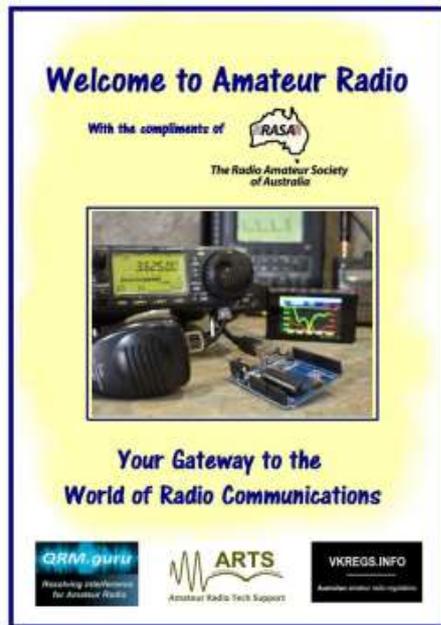
The RBN receiver is now fully restored and hopefully is resistant to aberrant bovine behaviour.

You can visit the RBN website and monitor HF activity from the rest of the world to West Gippsland, about 100km due East of Melbourne.

Follow the link:

<http://www.reversebeacon.net/dxsd1/dxsd1.php?f=0&c=VK3RASA&t=de>

Welcome Packs for Clubs



The Radio Amateur Society of Australia continues our commitment to support newcomers in 2021.

We have five core resources to support people who are new to our hobby:

- Amateur Radio Tech Support
- QRM Guru
- VK Regulations
- VK Radio Amateurs Web Site

And our newest resource, the **Welcome Pack**. Most newcomers will have just completed a weekend course and assessment and will be looking for relevant information to help them navigate and get started in the hobby.

Included in this **Welcome Pack** are some documents and information sheets to help newcomers get started:

- Welcome to Amateur Radio Guide book
- VK Regulations Handbook
- Getting started with Repeaters
- Australian Band Plan Quick Reference Guide
- Interference Handling Process
- Useful Web sites information sheet

RASA is here to help newcomers get started.

Amateur Radio Tech Support

www.amateurradiotechsupport.freshdesk.com

This web site provides articles to help you get started on your journey into the world of amateur radio. If you can't find an answer, simply create a support ticket and we'll see how we can assist.

QRM Guru

www.qrm.guru

QRM is the Q-code to describe man-made interference. Typically, such interference is referred to as Radio Frequency Interference (RFI) or Electro-magnetic Interference (EMI) and is the bane of many radio amateurs who live in built-up areas.

Typical sources of RFI/EMI include: domestic solar panels and inverters, switch-mode power supplies that nearly every modern household appliance use and noise radiated from main power lines. This resource will help you identify and address any interference issues you face as you get on-air.

VK Regulations

www.vkregs.info

An up-to-date plain language interpretation of the regulations that govern Amateur Radio.

Online News

www.vkradioamateurs.org

This is our main web site. You'll find a host of useful up-to-date information, including:

- VK Clubs list
- Amateur Radio News
- Information on regulatory matters
- Free e-Magazine QTC & Podcast

Clubs can order our Welcome Packs. Just have your club President or Secretary send us an email.

FT8 for the Technologically Terrified

By Andrew Smith VK6AS

The purpose of this article is to provide a basic guide to getting up and running with FT8. It is not going to go into the mechanisms of how the mode works or the details of how to match every possible rig with every available computer. The internet provides more than enough guidance for those seeking specific instruction.

Let's start with some comments about digital modes and FT8. Digital modes have been around for decades, but in recent years have become extremely popular. There are some who lament their popularity and suggest this as being the death knell of amateur radio.

Nothing could be further from the truth. For many, digital modes have kept the hobby alive. Traditional amateur radio has become unworkable in many situations; including, but not limited to: suburban QRM/RFI, limited opportunities for decent antennas and the low sunspot cycle.

It's worth reading this thought-provoking article:

<https://hackaday.com/2018/11/02/ft8-saving-ham-radio-or-killing-it/>

Here in VK, many amateurs have come back to the hobby as a direct result of FT8. It's a mode that lends itself well to high noise environments, sub-optimal antennas and poor propagation conditions. FT8 provides a segway back to other elements of the hobby, such as antenna experimentation, award hunting, contesting and portable operations.

Now, back to getting started....

FT8 works on all computer platforms but I will just discuss using a PC with Windows 10, using WSJT-X.

The old adage "a stitch in time save nine" applies to getting set-up properly for digital modes. First and foremost, READ the manual and detailed documentation that is available online from the WSJT-X website:

<https://physics.princeton.edu/pulsar/K1JT/wsitx.html>

<https://physics.princeton.edu/pulsar/K1JT/wsitx-doc/wsitx-main-2.2.2.html>

Having read, marked, learned and digested these documents, make sure that your set up complies with this list:

SSB transceiver and antenna

Computer running Windows 7 or later, Linux, or OS X 1.5 GHz or faster CPU and 200 MB of available memory; faster machines are better^{[1][2][3]}

Monitor with at least 1024 x 780 resolution

Computer-to-radio interface using a serial port or equivalent USB device for T/R switching, or CAT control, or VOX, as required for your radio-to-computer connections

Audio input and output devices supported by the operating system and configured for sample rate 48000 Hz, 16 bits Audio or equivalent USB connections between transceiver and computer

A means for synchronizing the computer clock to UTC within ± 1 second

Use your transceiver manual to connect your radio to the computer. Be sure to follow any advice about downloading specific drivers.

If you get stuck your favourite internet search engine is your friend, so search for "CAT set up" and "WSJT-X audio setup" for your specific transceiver.

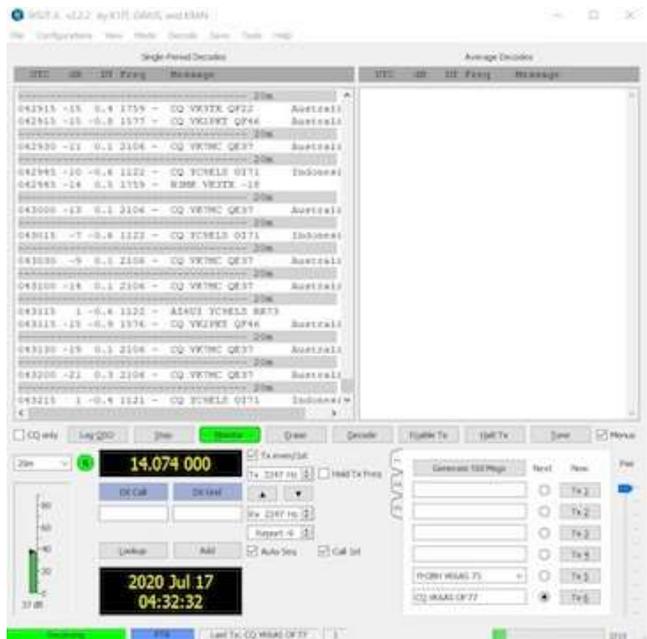
Make sure your computer clock is accurate. Most problems in the initial stages can be traced to timing issues or drivers. The development team has suggestions for

appropriate software (It's all in the manual!). I use a little program called BktTimeSync

<https://maniaradio.it/en/bkttimesync.html> (Fig 01 bkttimesync)



Follow the instructions to the letter and WSJT-X will be installed correctly! (Fig 02 WSJTX)



The next task is to configure the program: again it is all in the manual....

If you have a nonstandard callsign (and that includes the Australian four-letter Foundation Licence suffix) then read about the limitations that apply.

If you struggle with the radio settings refer to 28 | Page

internet references. There are set up menus for almost every rig; you just need to look for them. You may also wish to join a Facebook group. One example is the "WSJT-X Community".

Now, whichever groups you join, before firing off a question have a look at the "files" menu, and you may well find the answer to your query. There are some common error messages and resolutions, and these are often found in either the manual or in the files section of Facebook groups.

You can almost hear the groans when a screen capture of a common error message appears asking for help! The help has already been provided, so go on; have a search before asking the question.

The final area of the set up that can cause grief are the esoteric settings for the waterfall display. Experiment. You can't break anything. Once again, advice on these settings is freely available. (Fig 03 waterfall)



All your settings are saved and even preserved when you upgrade to a new version of WSJT-X, however a useful tip that was given to me is to collect screen captures of your configuration settings for backup purposes.

You will need to consider logging. WSJT-X has a basic logging system and a log file.

There is however an excellent add on that assists with logging and allows for communication with third party software and enhances your ability to spot and be spotted.

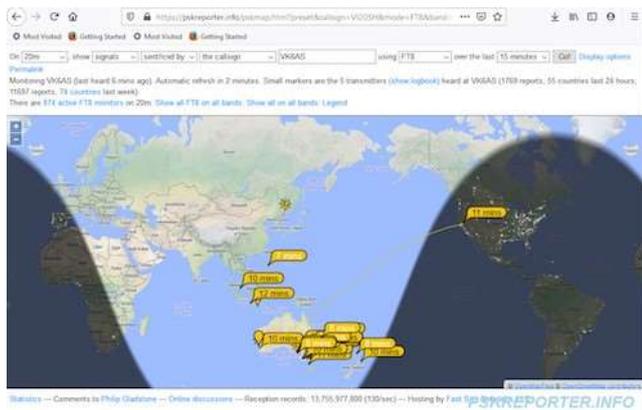
The application is called JTAAlert and is available from <https://hamapps.com/>



Installation is easy but windows may not like to install it on security grounds. You can safely over-ride the windows warnings. The JTAAlert settings enable you to log to many logging systems.

Personally, I use Ham Radio Deluxe (HRD) and have settings to export my data to Logbook of the World (LOTW) and eQSL.

There is one further program that is very valuable: "pskreporter" available from <https://pskreporter.info/> (Fig 05 pskreporter)



This gem allows you check propagation on a map so you can observe where you or others from a particular country have been seen and heard over time. The resource depends on active spotting from the amateur radio community, so join in this activity by engaging and become a spotter.

As you gain experience you can read about the Fox and Hound Mode that is used by some DX-expeditions and also the contesting side of FT8.

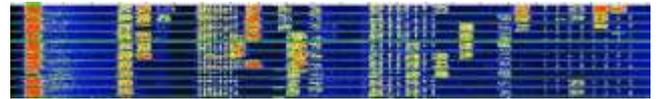
That's about it. You should be ready to go. FT8 is not the death knell for Amateur Radio, and it's not for everyone. If you want to rag chew then the message structure doesn't allow that. It is more like a contesting exchange.

This mode together with its predecessor JT65 allowed me to achieve DXCC. I couldn't do that with 'phone from my QTH because of such high levels of noise in my suburban environment.

Oh, and the last thing; these modes are designed to cope with weak signals and poor propagation conditions but are not low

power modes. However, as with all amateur radio on-air activity, the same rules apply, that is to use the minimum power to achieve the contact.

Unfortunately, you will see some stations operating high power with a poorly adjusted signal resulting in splatter! (Fig 06 splatter)

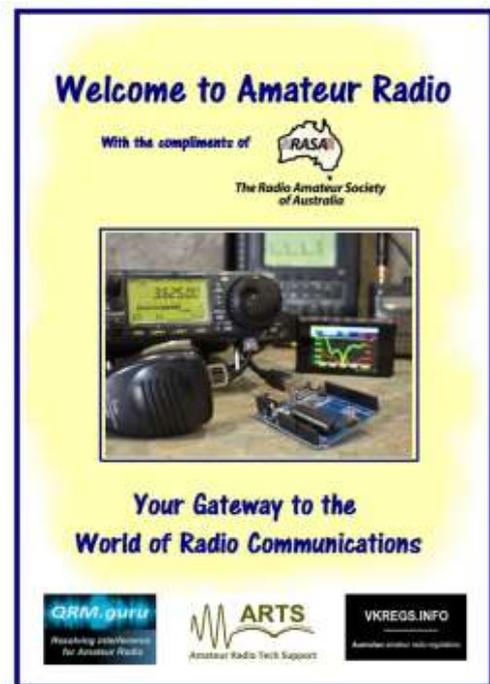


Make sure your settings are correct and ask other amateurs to confirm your signal is clean. As in every part of our hobby, courtesy and politeness is the way to go.

<https://www.flexradio.com/insider/articles/ft8-tipping-point-for-ham-radio/>

<https://g7vjr.org/wp-content/uploads/2019/03/clublog-modes-2017-2018.png>

<http://play.fallows.ca/wp/radio/ham-radio/ft8-takes-over-ham-radio-communications/>



If your club is running training classes please email us and we can provide these complimentary **Welcome Packs** for your students.

info@vkradioamateurs.org

How tough are ferrites?

By Ian Jackson VK3BUF

INTRODUCTION

Last year we published an article looking at the effectiveness of ferrites in suppressing unwanted RF noise. We also compared ferrites at each end of the pricing scale and examined ways to achieve the best results from these products. (You can view the article [Here](#))

The article attracted a lot of interest. Many amateurs are buying and fitting ferrites to suppress local noise.

We received some interesting questions from readers.

The first question was about thermal shock. If a balun or ferrite had too much power applied to it, would that heat shock also impair the ferrite core? Could a canny operator remove the melted remains and re-wind their balun with fresh wire, or was the core forever compromised?

The second question came from readers who had ordered their nice big ferrite rings through the post, only to find they arrived shattered into many pieces.

It would not be difficult to super-glue the shards back into an original shape, but would it still perform?

The third question related to the correct use of ferrite rings. Sometimes users can't get existing plugs and cables through the rings. Can the cable be simply looped and passed through ferrite rings?

These were very practical questions, so we decided to them to the test.

The first step was to select a pristine ferrite ring of a known material and benchmark its performance. We selected a thick ring,

35mm in diameter, composed of Type 43 material.

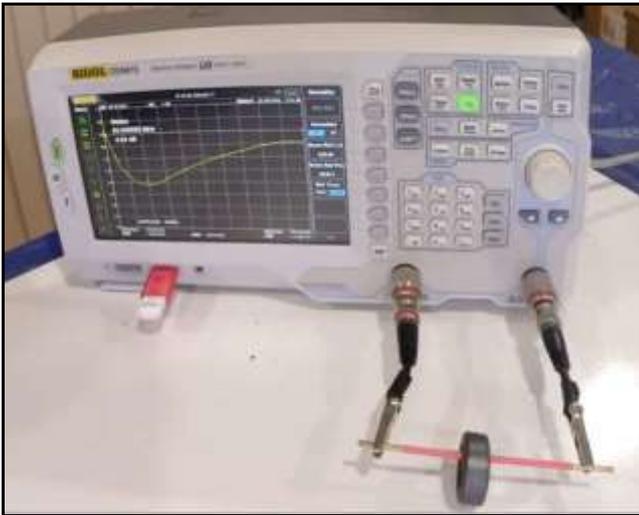


Sample 35mm ferrite

Next we set up the test apparatus comprising a spectrum analyser and tracking generator. The tracking generator creates a signal, sweeping from 1 to 250 MHz, 10 times a second. The spectrum analyser is coupled to the tracking generator and measures the received signal voltage over the 250MHz range.

After the signal is coupled to the receiver with a short brass rod, the display is 'normalised'. In this step, the received signal is 'normalised' to a flat line. This compensates for other losses, such as the rod resistance and any stray capacitance.

We now have a test environment where we can measure the absorption losses of our ferrite ring under varying conditions.



Spectrum analyser measurements

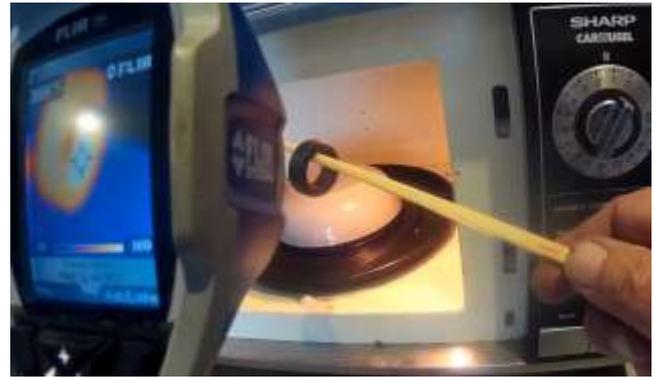
The characteristic curve of this baseline 35mm ferrite ring is saved for comparison.

These tests only looked at the effects of a single pass of a conductor through the core. This was intentional to exclude the variability of multiple windings through the ferrite ring. Of course, this meant the absorption in these experiments was not significant.

The baseline measurement peaked at around -2.5dB at 50.4 MHz.

TEST 1 – OVERHEATING

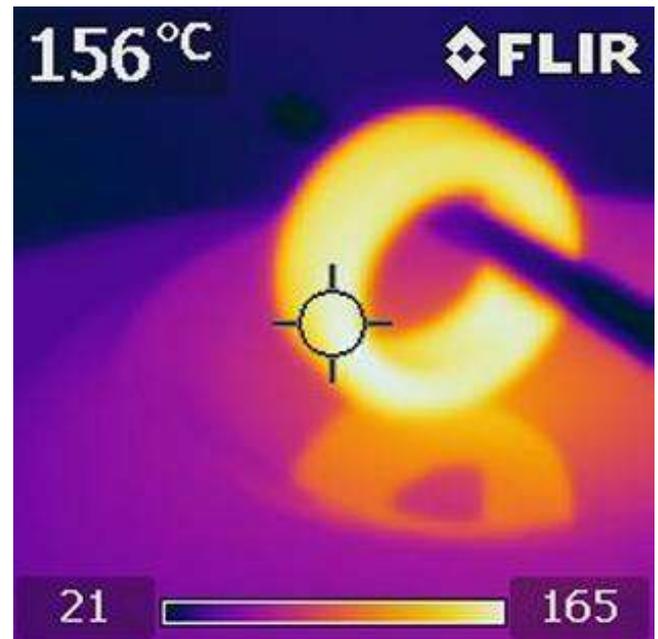
Having preserved the original profile, we subjected the ring to extreme heat. The simplest way to do this was to place it in a microwave oven. As the ferrite material absorbs RF and dissipates the energy as heat, an old 500W microwave oven provided a suitable source of RF energy.



Cooking the ferrite

We used a handheld infrared camera to observe the ferrite and after cooking it for several minutes, it appeared to plateau at around 170° C.

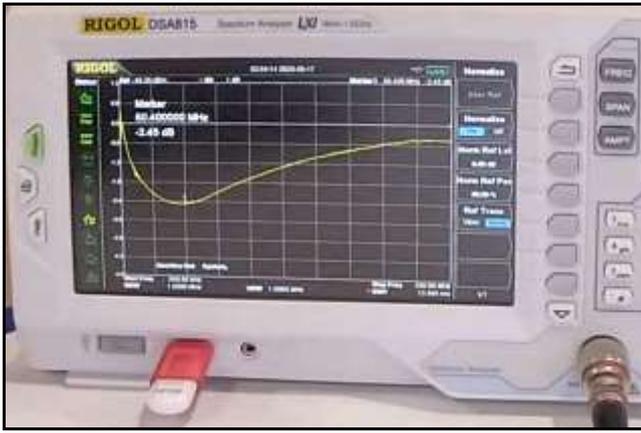
As most electrical insulation is only rated to 105°, this test was more than enough to simulate extreme abuse of a ferrite in-situ.



A hot ferrite

Once removed from the oven, the ferrite cooled down rapidly.

A subsequent test of the ferrite revealed that the ferrite endured high temperatures without affecting its integrity. The RF absorption profile was unchanged.



Spectrum analyser measurements – after heating

TEST 2 – PHYSICAL DAMAGE

To resolve the second question of whether physically damaged ferrites could be repaired was going to require some drastic action. The ring had to be broken into several pieces. This could happen to any ferrite product that was poorly packed or dropped in transit.

Similar damage could occur to a ferrite balun that had dropped from a tower after a storm. Ferrites are somewhat fragile, and many readers would have seen such destruction firsthand.

We recreated a typical scenario, leaving us with a shattered ferrite ring.



A shattered ferrite

A larger ferrite purchased from overseas could well be a \$60 investment arriving at your door in a similar condition.

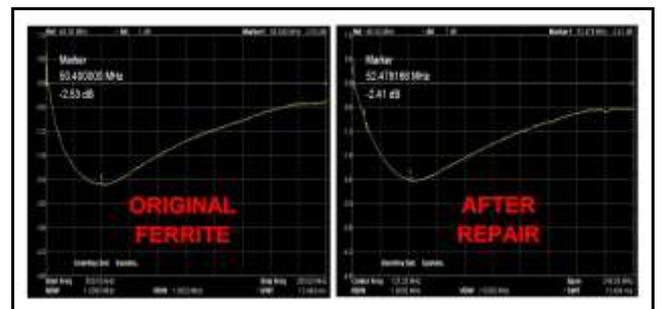
The breaks in our ferrite were clean and the super glue made for a solid repair. Would it still perform, or was its efficacy lost forever?



Repairing the ring

With the ring reassembled, it was time to take it back to the analyser. Certainly, there would be some RF absorption, but just how much?

There was a tiny 0.12 dB reduction in attenuation and a slight frequency shift of 2MHz at its peak. The measured changes were so slight as to be regarded as immaterial.



Absorption profiles before and after

If you can find your broken ferrites, it is certainly worthwhile gluing them back together.



It's worth repairing a broken ferrite ring

TEST 3 – THREADING LOOPED CABLES THROUGH A SOLID RING

Passing cables through a solid ring may not be possible if both ends have been terminated and/or the plugs are too large.

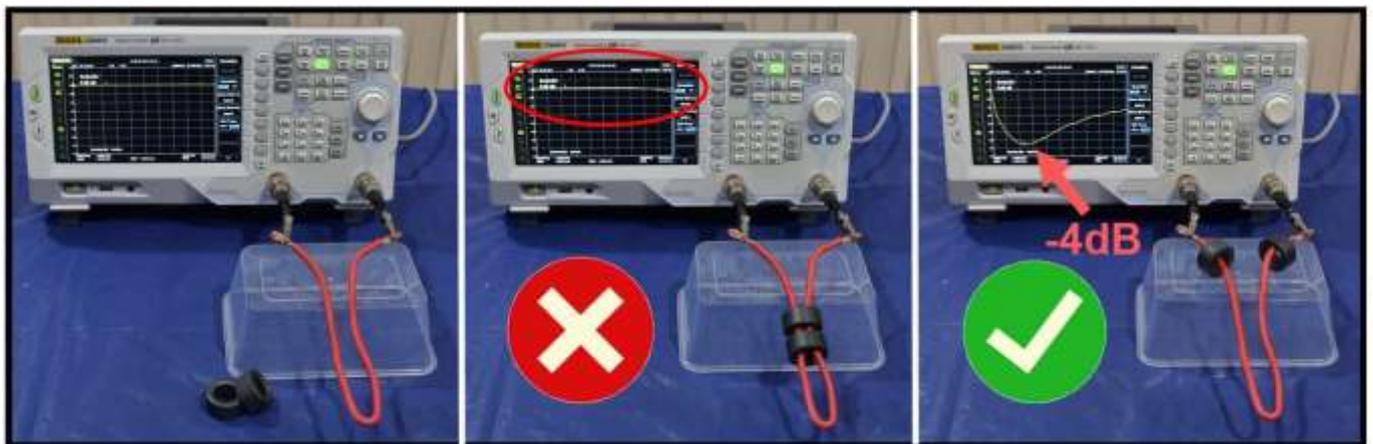
Would it be possible to loop the cable and pass the loop through the ferrite ring? If possible, this would be particularly attractive for appliance cables and (possibly) noisy solar panels.



Once again, we used the spectrum analyser and tracking generator to test this scenario.

Unfortunately, as illustrated in the results, the ferrites absorb very little RF energy when applied in this fashion.

Refer to the three images below. On the left a short section of power cable was measured and its losses between 1MHz and 150MHz were normalised to a straight line.



Comparing the 3 scenarios

The centre image shows that threading a loop in the cable through ferrite rings had virtually no effect. The attenuation line

(circled) was quite flat. In this scenario, the energy absorption of the ferrites are effectively cancelled out.

The third image shows the ferrite rings fitted correctly, with the cable passing *through* each of the rings. A clear attenuation curve of -4db is observed. Had the cable been passed through the ferrites two or more times, this curve would have been far deeper, but even this single pass showed a significant dip of absorption centred at around 25 MHz.

This simple study also highlights the usefulness of clamp-on ferrites. These clamps enable ferrites to be used without having to remove bulky plugs from cable ends. The convenience of easy application outweighs the cost/effort of having to cut and reattach plugs from each end of the cable.

CONCLUSIONS

In summary, ferrites are very useful for attenuation of unwanted noise. They recover from overheating and can be repaired if shattered. But they must be applied in the correct fashion or the effort is wasted.

To view videos of some of these experiments follow the link below to the QRM.guru website.



QRM Kill Kits

Ferrite kits to suppress unwanted noise in your shack. Click the image to head to our online shop.



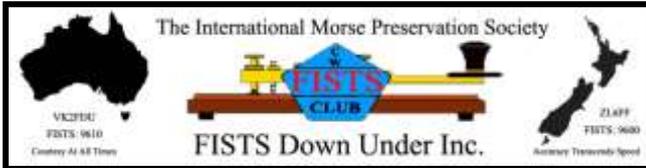
Build a simple DF Loop to help you localise and pinpoint the source of the noise. Click on the image to head to our online shop.



National Special Interest Groups

Links to VK national groups with a brief explanation of their activities. Click on the image to visit their web site.

Morse code – VK/ZL site all about the code



VK QRP Club – low power operation



Parks n Peaks – all about operating portable



VK Contest Club – VK Contesting



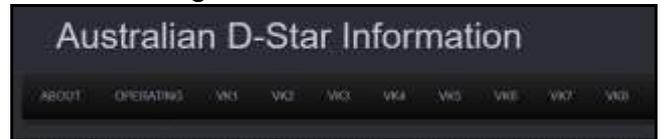
QRM Guru – resolving interference



VK DMR Network – Australia's largest digital radio network



D-Star – Digital Radio



RAOTC – for amateurs licenced 25 years or more



ALARA – Ladies Amateur Radio Association

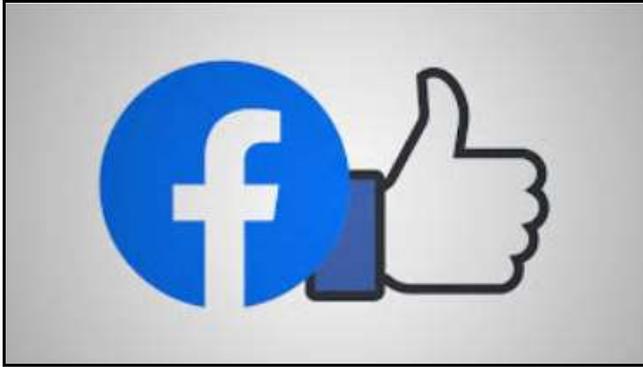


If you see we've overlooked something, please send us an email editor@qtcmag.com

Social Media Resources

VK Facebook Groups

Love it or hate it, here are some links to VK Facebook groups that may be of interest.



VK Home Brew

<https://www.facebook.com/groups/1689037384702683/>

FISTS – Morse code Preservation Society

<https://www.facebook.com/groups/1765058520392148/>

WWFF Australia – portable operating

<https://www.facebook.com/groups/1805720889702979/>

SOTA – portable operating – Summits on the Air

<https://www.facebook.com/SotaAustralia/>

VK DMR Network

<https://www.facebook.com/groups/743300879089972/>

VK QRP Club

<https://www.facebook.com/groups/VKQRPClub/>

80 metre FT8 DXing

<https://www.facebook.com/groups/1609856205711413/>

QRM Guru – dealing with QRM/RFI

<https://www.facebook.com/qrmguru/>

Radio Amateurs Old Timers Club

<https://www.facebook.com/groups/1545441272389468/>

Amateur Radio Sales Australia

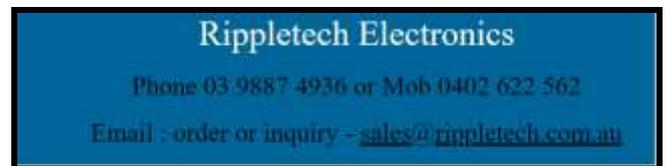
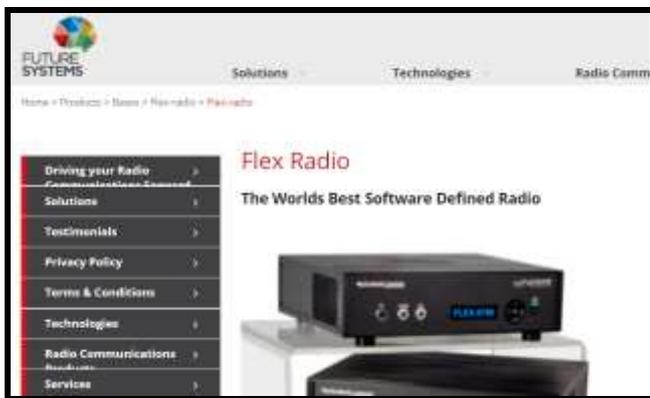
<https://www.facebook.com/groups/768281943267696/>

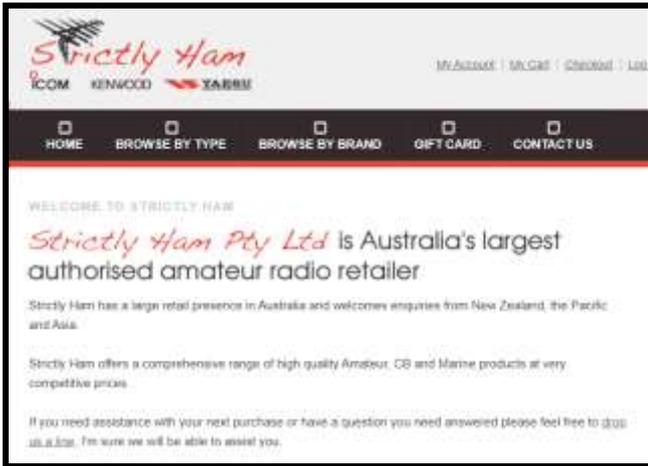
VK Contests

<https://www.facebook.com/groups/1239479436169142/>

If you see we've overlooked something, please send us an email editor@qtcmag.com

VK Suppliers of AR Products





Neither RASA nor QTC Mag endorse or have any affiliation with suppliers on this list.