



Parts 1 & 2

Wireless Institute of Australia response to the

Australian Communications and Media Authority (ACMA) Consultation 31/2022:

“Proposed amateur class licence and considerations for higher power operation”

© 2022 Wireless Institute of Australia
Released under creativecommons.org/licenses/by-nc-sa/4.0/



Contents

1.0 Executive Summary	4
PART 1	6
2.0 Class Licence Conversion Proposal	7
2.1 Progress Since the Last Consultation	7
2.1.1 LF and MF technical conditions - Schedule 1 Table C Items 1 and 2	7
2.1.2 Access to the 50-52 MHz band by AOCP(S) licensees	7
2.1.3 Removal of radiocommunications relaying restrictions	7
2.2 Application of Radiocommunications Standards to Amateur Equipment	8
3.0 Class Licence - Outstanding Areas of Concern	9
3.1 Loss of Amateur Records from the ACMA RRL Database	9
3.1.1 Loss of the public register - impact assessment	10
3.1.2 A public database of all allocated Amateur Service call signs is required	11
3.1.3 Permit publication of allocated call sign listings	13
4.0 Class Licence Migration - Required Documentation	14
4.1 Issue Suitable Documents on Transfer to Class Licensing	14
4.2 Australian Amateur Licensees Holding Grandfathered Qualifications	15
4.3 Australian Amateur Licensees Based on Overseas Qualifications	16
4.4 Organisations and Clubs Holding Amateur Radio Call Signs	17
5.0 Class Licence Content	19
5.1 EME Regulatory Arrangements	19
5.1.1 Schedule 1 Section 2 - conditions	19
5.1.2 Schedule 1 Section 3 - low risk stations	20
5.1.3 Schedule 1 - writing style	23
5.2 Ensure Call Sign Assignment is Mandatory	24
5.3 Arrangements for Organisations Holding Amateur Licences	24
5.4 Unattended Transmitter Control	25
5.5 Restrictions on Connection to a Public Telecommunications Network	26
5.6 'On Air' Usage of Call Signs	27
5.6.1 Addressing the problem of a series of transmissions	27
5.6.2 Call sign usage in an emergency or emergency training exercises	28
5.7 Restrictions on Certain Frequency Bands - Correction to Section 17	29
5.8 Definitions - Part 1 Section 5 (1)	29
5.8.1 Definition of 'mean power pY'	29
5.8.2 Definition of 'recognised overseas qualification'	30

6.0 Call Sign Administration & Operational Policy	31
6.1 Renewal Management of Call Signs	31
6.2 Number of Call Signs Able to be Held	32
6.3 Call Sign Transfer Policy	33
6.4 Call Sign Template Policy Management	34
6.5 Use and Allocation of AX/VI/VK Prefix Special Event Call Signs	34
6.6 Amateur Operating Procedures	35
7.0 Reciprocal Licencing Arrangements for Amateurs Visiting or Migrating to Australia	36
7.1 Short Term Visitor Arrangements	36
7.2 Long Term Recognition of Overseas Amateur Qualifications	36
8.0 Response to ACMA Questions - Class Licencing	38
8.1 Question 1 - AOCP(S) access to 50-52 MHz	38
8.2 Question 2 - Call sign transfer	38
8.3 Question 3 - Call sign renewal	38
8.4 Question 4 - Quantity of call signs held	39
8.5 Question 5 - Call sign arrangements - other concerns	39
8.6 Question 6 - Alternatives to the RRL	40
8.7 Question 7 - CEPT Licensing	40
PART 2	41
9.0 Higher Power Operation - Introduction	42
9.1 Historical approach	42
9.2 Amateur Service operators are universally technically qualified	42
9.3 Need to recognise the unique nature of the Amateur Service.	43
9.4 WIA Objectives for Higher Power access	43
10.0 Amateur Service Interest in Accessing Higher Power	43
10.1 Why is the majority of interest in higher power on HF?	46
10.2 Considering reciprocity and power limits in other countries	48
10.3 VHF & UHF use of higher power	49
11.0 Management of Higher Power in the Amateur Service	50
11.1 Electromagnetic emissions (EME) management	50
11.1.1 EME management safety and compliance training	51
11.1.2 EME safety assurance Processes & Documentation	52
11.1.3 Example: Low Risk transmitters support using higher power in some cases	53
11.1.4 Location and environment as factors?	53
11.1.5 Should there be other limitations?	54
11.2 Managing Electromagnetic Interference (EMI)	55
11.2.1 Amateurs Effective at Managing EMI today	55

11.3 Management of Radio Frequency Interference (RFI)	56
11.3.1 Spurious Emissions & Harmonics	56
11.3.2 Receiver Blocking	56
11.3.3 Interference between Amateur stations	57
11.3.4 Potential disruption to Primary Services	57
11.4 WIA Position on Managing Higher Power	57
12.0 ACMA Scientific Licence Approach	59
12.1 Conflict with the definition of the amateur service	60
12.2 Scientific licence cost burden	60
12.3 WIA Position on the use of Scientific Licencing	61
13.0 WIA Proposal for Higher Power Privileges	63
13.1 Education & Training based approach	63
13.2 Conduct a trial in stages	63
13.3 What power level is appropriate?	64
13.4 Should all amateurs have access?	64
13.5 Overall Higher Power Licensing Framework	65
13.6 WIA Recommendation on Higher Power	66
14.0 ACMA questions about higher power	67
14.1 Question 8 - Higher power via Scientific licensing	67
14.2 Question 9 - Higher power use cases	67
14.3 Question 10 - Higher power - medium term view	67
14.4 Question 11 - 1 kW power limit	68
14.5 Question 12 - frequency bands to exclude from higher power	68
14.6 Question 13 & 14 - Higher power user case details	68
14.7 Question 15 - Higher power limitations	69
15.0 Conclusion	70
A.1 Appendix I - Summary of WIA Recommendations	71
A.2 Appendix II - Example of NZ Amateur Qualification	84
A.3 Appendix III - Types of Amateur Radio Activity	85
A.4 Appendix IV - Value Of The Amateur Service	88
A.4.1 Inter-communication	88
A.4.2 Self Training	88
A.4.3 Disaster Relief Communications	89
A.5 Appendix V - Glossary of Terms	90

1.0 Executive Summary

The WIA values an ongoing and productive relationship with the ACMA and welcomes the opportunity to provide feedback on the ACMA proposals to revise the regulatory arrangements that support the amateur radio service in Australia.

The WIA now provides qualified support for the move to a class licence and has provided some suggestions on how to address our residual concerns around the following matters:

- the loss of a public register of call signs and the publication of call signs
- transition to a class licence and associated documentation
- range of Class Licence drafting issues that have been identified.

The WIA has supported and made a range of suggestions on how to further improve call sign administration & policy along with short term and long term reciprocal arrangements for visiting amateurs.

The WIA is very pleased to support the updates to the LF/MF technical condition update, revised access conditions for 50-52 MHz, removal of the radiocommunications relaying restrictions.

In relation to higher power operation the WIA welcomes the ACMA's reconsideration of this area and puts forward a range of principles and suggestions for moving this issue forward using the ARPANSA and AS/NZS 2772.2 standards as the basis for scientific assessment of safety risks.

The WIA has put forward a cautious phased approach over 1-3 years to introduce high power privileges. The WIA advocates for a program based on education with new syllabus requirements, information campaigns and an accompanying toolset to enable and support those in the amateur service to upskill. This will hopefully provide the ACMA with confidence that those amateurs operating higher power are doing so with the knowledge, skill and experience to operate safely in relation to the public and themselves.

We acknowledge that there is still a substantial difference of opinion as to how to achieve a workable outcome, however the WIA is keen to work with the ACMA in a collaborative and open way to reach an acceptable outcome.

Again, we thank the ACMA for the opportunity to comment on its proposals affecting the amateur community.

PART 1

CLASS LICENCE INTRODUCTION

2.0 Class Licence Conversion Proposal

The WIA welcomes the opportunity to provide feedback on the ACMA proposals to revise the regulatory arrangements that support the amateur radio service in Australia. We are very pleased to see ACMA take on board many of the items the WIA provided feedback on in the previous 2021/01 ACMA consultation on this issue, and have welcomed the opportunities provided by ACMA for dialogue over the past 18 months in developing solutions to many of the problems identified by our members.

2.1 Progress Since the Last Consultation

Since the first consultation undertaken by the ACMA on this matter, it is clear to the WIA that substantial progress has been made in addressing many of the concerns that were raised. Notably, the WIA acknowledges that the ACMA has:

- provided reassurance that the move will not change the current status quo for the Amateur Service in regards to current interference management policies afforded under the existing apparatus licence
- addressed how Electromagnetic Emissions (EME) are to be managed by restoring the existing mechanisms that currently apply under apparatus licensing
- addressed how CEPT licensing and (mostly) addressed the support requirements for reciprocal licensing, with some matters still to be finalised which the WIA has covered in this round
- clarified its views on arrangements for call sign management.

Given the substantial changes that have now been incorporated into the proposal, the WIA finds it is now on balance able to offer qualified support for the change.

2.1.1 LF and MF technical conditions - Schedule 1 Table C Items 1 and 2

In the 31_2022 consultation the ACMA considered the WIA's feedback on the technical limits applied to the LF and MF amateur bands, and proposed changes in alignment with the WIA's proposals.

The WIA welcomes this.

2.1.2 Access to the 50-52 MHz band by AOCP(S) licensees

The WIA welcomes the ACMA's proposal to add the 50-52 MHz band as a secondary service to the list of bands accessible by AOCP(S) qualified radio amateurs, as advocated through various submissions over many years. In particular, the WIA welcomes the ACMA proposal to make early changes to the existing amateur LCD and Overseas Class Licence LCD before conversion of the amateur service to the new amateur service class licence. This will remove unnecessary discrimination between the two licence classes in this band.

2.1.3 Removal of radiocommunications relaying restrictions

In the class licence, the WIA notes that the ACMA has not replicated Section 7 (6) (a), (b) and (c) of the Amateur Apparatus Licence LCD that dealt with the rules around relaying another amateur station signal and the need to obtain their consent to do so.

The WIA sees this as a valid simplification of the regulations and supports this change.

The WIA also notes that sections 8A (1) - (4) have also not been replicated, which dealt with relaying of AOCP(S) and AOCP(F) qualified operator transmissions onto frequency bands not authorised for direct use by the originating licensee via third party repeater or other non-assigned amateur station transmitters controlled by AOCP(A) qualified persons.

The WIA is supportive of this change. The need to limit where the intelligence of a signal is relayed, such that it could only ever be heard on spectrum that the originating licensee was authorised to access directly, has been an impediment to many linked repeater networks for many years.

The requirement did not particularly make sense either, given that the originating station was actually operating their own transmitter within their own licence conditions as far as the technical parameters of their licence allowed. All of the subsequent licensed transmitters along the path were also being individually operated by qualified persons who held the correct qualification grade that supported operation of those third party transmitters. So, since each transmitter was individually controlled by someone qualified to do so, the fact they were relaying audio originating from a (potentially) unknown source transmission was irrelevant.

The WIA does note that there has previously been arguments to the extent that “it is an extension of operating privilege” beyond what was intended for the AOCP(F) or AOCP(S) licence grade. In response to such assertions, the WIA would say that the privilege extension is minor, as the lower grade licence holder can do no more than cause the distant transmitter to activate and deactivate. No other technical control is provided and no input is possible to vary the technical conditions the distant transmitter is operating under. On that basis, there really isn't any major extension of privileges that need to be restricted.

In summary, the WIA supports the ACMA decision not to include sections 8A (1) - (4) of the amateur apparatus licence into the new draft class licence.

2.2 Application of Radiocommunications Standards to Amateur Equipment

The WIA remains concerned that the possession and operation of transmitters by amateur radio operators, given the experimental nature of the amateur service, is not adequately covered.

The WIA believes that an AOCP-qualified operator' rights to possess all manner of transmitting equipment for the purpose of modification and subsequent re-use in the amateur service is not well protected by the current arrangements. This is despite the fundamental self training and experimentation in the art of radio communications being objectives of the Amateur Service. Modifications and conversions of redundant commercial equipment to amateur band operation is a cost effective way to obtain and repurpose what are often hard to get components.

As currently both the new draft class licence, and current apparatus licence arrangements are silent on the matter, (leaving it managed through other existing non amateur service specific legislation), the WIA seeks further engagement with ACMA on this matter at a later date.

3.0 Class Licence - Outstanding Areas of Concern

3.1 Loss of Amateur Records from the ACMA RRL Database

The WIA has considered carefully the proposals for call sign management for the amateur service. While many of the arrangements are workable, the ACMA approach towards de-registration of unassigned amateur radio stations in the ACMA Register of Radiocommunications Licences (RRL) is still a point of significant concern. This is one of the key issues preventing full endorsement of the ACMA proposal by the WIA and its members.

The WIA believes that this would be a significant loss of utility to the amateur service. In assessing the impact of the proposed changes, the key elements of ACMA's proposed approach being considered by WIA are:

That only the following data be made available publicly:

- a. *A list of call signs available for allocation*
- b. *A list of banned/restricted call signs*

and that the following data be stored solely with the "call sign management entity":

- c. *A list of call signs that are quarantined for up to 2 years from re-issue due to the death of the most recent call sign holder*

And that the ACMA is proposing to discontinue any public listing of assigned call signs, or any information about those call signs.

On reviewing the ACMA position, the WIA has formed the view that the maintenance of a public register of allocated call signs is mandatory, at the very least, to support self regulation in the Amateur Service.

Requirement:

To maintain self regulation within the amateur service and support external law enforcement activities:

Recommendation 1:

That the ACMA shall require a database to be published comprising:

- a. *allocated amateur station call signs*
- b. *the level of qualification associated with that call sign, and*
- c. *the last renewal date for the call sign.*

3.1.1 Loss of the public register - impact assessment

In assessing the impact of the ACMA decision and in developing the WIA recommendation, we have considered the following scenarios:

Issue Considered	How does the issue arise?	Remedy
<p>Removal of a key mechanism that supports amateur service self regulation.</p>	<p>We recognise the ACMA compliance group does not have sufficient resources for continuous monitoring of the amateur radio spectrum looking for breaches of the regulations.</p> <p>However, the amateur service does conduct continuous self regulation through being able to identify unlicensed transmissions or transmissions that breach AOCB regulations within amateur spectrum and take actions to locate and either advise or report offenders to the ACMA for action. These transmissions may either not carry identification, or may be falsely identified.</p> <p>Access to the RRL information today supports this self regulation through provision of station details, including call sign and location that enable identification of legitimate transmissions.</p>	<p>At a minimum, the WIA strongly argues that a public database, maintained by the call sign entity, must be mandated by the ACMA.</p> <p>That database should publicly list the call sign, and the level of qualification associated with that call sign, at an absolute minimum.</p> <p>Some level of geographic indication as to the location of the main station associated with the call sign would also be helpful. However, the WIA acknowledges the privacy concerns that have been raised, and concedes that this last element may no longer be appropriate.</p>
<p>On-air and off-air harassment - the need to be able to identify if the harassment is coming from a licensed amateur radio operator or by someone stealing their identity.</p>	<p>Case #1: More seriously, issues can arise where amateur radio is used to harass or victimise other amateur operators on-air. The ability to at least identify whether a call sign is legitimately allocated or not is a vitally important first step.</p> <p>Case #2: Issues arise from time to time where individuals will operate on the air under "fake" unallocated call signs. This practice could be done to gain standing in one of the amateur awards programs.</p>	<p>The first step in managing any such issue is to identify if the offending stations have any degree of legitimacy. A public listing of call signs is necessary for this purpose.</p>

Issue Considered	How does the issue arise?	Remedy
<p>Inability for other authorities, such as town planning authorities, customs officials etc, to independently verify whether an individual is a genuine (licensed) amateur radio operator.</p>	<p>State planning acts grant planning exemptions for amateur radio operators to erect radio antenna masts and towers.</p> <p>Those authorities are currently able to independently verify entitlement through reference to the RRL.</p> <p>That ability to directly and independently verify will be removed. New arrangements will be required to demonstrate that someone has the right to access the amateur class licence and hence is entitled to subsequent related rights/privileges, such as the right to access town planning exemptions for radio towers.</p>	<p>Access to an online database of ACMA recognised allocated call signs, together with documentation provided by certified radio amateurs, would provide a 2-factor way of confirming entitlement to access other privileges associated with being a radio amateur, but which the ACMA has no direct regulatory interest in.</p> <p>As a minimum requirement, maintenance of a published list of legitimate call signs would maintain a 2-factor confirmation ability for any other authority that grants privileges or rights based on a person's status as a licensed radio amateur.</p>

By way of example, the following is the clause from the South Australian town planning regulations:

South Australia Planning, Development and Infrastructure (General) Regulations 2017

Schedule 4 – Exclusions from definition of development – general

13—Aerials, towers etc

(1) Other than in respect of a local heritage place or in any other zone, subzone or overlay identified under the Planning and Design Code for the purposes of this subclause, the construction, alteration or extension of prescribed infrastructure (including any incidental excavation or filling) if—

(a) the total height of the prescribed infrastructure, when constructed, altered or extended, will not exceed (taking into account attachments (if any))—

(i) in the case of prescribed infrastructure not attached to a building—

(A) in Metropolitan Adelaide—7.5 m or, in the case of prescribed infrastructure to be used solely by a person who ***holds an amateur licence under the Radiocommunications Act 1992 of the Commonwealth, 10 m***; or

(B) in any other case—10 m;

3.1.2 A public database of all allocated Amateur Service call signs is required

The WIA maintains its original position that it would prefer the amateur service to remain documented within some form of the ACMA RRL database (although the WIA is supportive of mechanisms to address the privacy concerns).

As the WIA understands it, the ACMA's position is that part of the reason for class licensing was to remove the need for administrative renewal each year and the corresponding maintenance of the RRL. Class licensing supported that objective, and the ACMA has, in discussions with the WIA, made it clear that it doesn't have the same obligations to record class licensed transmitters in the RRL as it does for apparatus licences. However whilst it might be convenient to quote what is the norm for operation under a class licence, the amateur service is not typical of class licensed services. Current class licensed services work because the equipment used for those services is regulated at a supply level by ACMA. The amateur service relies on the operator's technical competence which is evidenced by the call sign they hold.

Non-compliance can only be verified by having access to such evidence.

To support a public register, the WIA would like to offer two options for the ACMA's consideration:

- **Option 1:** The ACMA establishes records for all amateur stations in the RRL. The WIA notes that the Radiocommunications Act gives the ACMA discretion for the recording of class licence transmitters in the RRL. (Refer to Part 3.5 Section 149 of the Radiocommunications Act 1992). Maintenance costs could be minimised by setting very long renewal durations for station registrations (e.g. 5-10 years), and minimisation of the amount of information stored.
- **Option 2:** The ACMA requires the call sign entity to publish a list of available call signs, and to also publish the list of allocated call signs and their associated licence grade.

If Option 1 were considered, direct ACMA management of the RRL records could potentially be devolved to third parties not dissimilar to existing Accredited Persons (AP) arrangements for apparatus licensing. This could enable an external body to take over management of call signs and certification records, while maintaining a central government owned repository of those records. The WIA argues that central ownership of the database is an important aspect of this option as it removes any risk associated with changing call sign entity providers in the future.

In the case of Option 2, the WIA considers this as an alternative that could work without being a burden on the call sign entity, as that body must already maintain records of available call signs of which allocated call signs are just a sub-set. Given that the call sign entity would have already established the infrastructure necessary to publish a list of available call signs, including the associated qualification and renewal date would be a minor extension. This would support many of the existing self regulation activities that currently occur within the amateur service, and which would be prevented in any arrangement without public access to allocated call signs and associated qualifications.

A major concern the WIA has with Option 2 is the maintenance and continuity of the database which would be necessary for the smooth transition to an alternative contracted provider. At an administrative contractual level, the WIA would want to see ACMA define the minimum standards for maintaining this data to ensure its integrity is maintained. For this reason the WIA recommends Option 1.

3.1.3 Permit publication of allocated call sign listings

Given the very limited nature of the information proposed to be published by the ACMA, the amateur service will need to establish its own (albeit voluntary) public databases and listings of licensed radio amateurs in order to support existing amateur radio activities. Such activities include:

- Publicising the postal contact details for stations to support “QSL card” exchange, which is used to acknowledge communications between two stations. This is required to verify amateur communications for national and international awards programs.
- Providing central repositories or “call books” or “call sign databases” where amateurs can deposit additional information about their stations (e.g. qrz.com) for people to interact with online while communicating over the air.

The WIA notes the ACMA seeks information about alternative systems the amateur service is using for publishing contact details for stations, where individuals wish to do so. In support of such 3rd party initiatives, the WIA recommends the publication of the allocated call sign database which is republishable under a suitable creative-commons licence, thus removing the stalemate that has stalled development of third party sources of amateur station information for some time.

Requirement:

The database of allocated amateur radio call signs be able to be re-published in other forms:

Recommendation 2:

2. That the ACMA shall ensure that the allocated call sign database be published under a Creative Commons - By Attribution licence (<https://creativecommons.org/licenses/by/4.0/>)



4.0 Class Licence Migration - Required Documentation

There are a number of outstanding issues that, as far as the WIA can determine, have not been addressed by the ACMA regarding how the actual migration from an apparatus licence to a class licence will be managed. Most of these are resolvable by the ACMA committing to provide supporting documentation to the affected apparatus licence holders.

4.1 Issue Suitable Documents on Transfer to Class Licensing

The WIA has noted that the documentation required to access the rights conveyed under the new draft class licence has not been clearly discussed by the ACMA in its 31_2022 consultation paper. It appears the ACMA intends to take a passive approach to this, relying on existing documentation being sufficient for existing apparatus licence holders. The WIA argues that this approach is inadequate as existing licensees may first need to obtain a replacement copy of their certificate of proficiency from the AMC at their own cost. The WIA strongly argues that this is not an acceptable nor equitable position for the amateur service.

In order to ensure the operational utility of the amateur service is preserved in accordance with the policy stated in the ACMA consultation paper 31_2022, the WIA believes the ACMA should, on initial transfer from apparatus to class licensing, provide a free of charge replacement document to all existing Amateur Service apparatus licence holders. That document should state their level of qualification, their assigned call sign and their authorisation to access the new class licence, including the relevant wording in support of CEPT licensing.

The WIA notes that this was the process used in New Zealand when their Radio Spectrum Management agency migrated the NZ Amateur Service to a General User Radio Licence (GURL) instrument.

Further, the provision of such suitable documentation would resolve many of the subsequent documentation concerns, including:

1. Supporting Australian amateurs wishing to apply for overseas licences either under CEPT or other reciprocal or non reciprocal amateur licence arrangements.
2. Providing evidence of entitlement to access town planning exemptions.
3. Providing evidence of entitlement to possess radio communications equipment when crossing international borders to international customs services.
4. Providing evidence of entitlement to a call sign and linking that to a qualification.

Point 4 is particularly relevant as there are numerous services accessed by radio amateurs that require evidence of being a licenced/qualified operator. While these are not “regulatory” requirements, they are integral aspects of amateur service participation and are actively enforced. Examples include:

- Certifying the operator is licenced to access to various internet to radio gateway systems including “Echolink” and “Internet Radio Linking Project” (IRLP) systems, and DMR Digital Radio ID allocation systems, etc.
- Certifying the operator holds a call sign for the purpose of registering with amateur radio awards programs such as the American Radio Relay League (ARRL)’s Log Book of the World, and eQSL.cc’s contact confirmation services etc.

Currently, access to these services requires on-line submission of an amateur apparatus licence document. Removal of that documentation for existing Amateur Service operators, without automatic replacement, will adversely affect an operator’s ability to participate in these aspects of the Amateur Service.

Requirement:

In order to support the principle of preserving operational utility of the current arrangements, documentation showing evidence of being a licenced/qualified operator should also be provided to existing unassigned amateur apparatus licence holders.

Recommendation 3:

That ACMA, as part of the transition arrangements to class licencing, undertakes to provide a one-time free of charge replacement copy of the Australian Amateur Operator's Certificate of Proficiency for all existing licensees including;

1. a statement of certification to hold a relevant AOCF (including mapping grandfathered, qualifications to current AOCF arrangements), and;
2. a declaration of the call sign(s) held by the individual, and;
3. a declaration of their rights to access the amateur class licence provisions as a result of holding the qualification and call sign, and;
4. the relevant statements necessary to support CEPT reciprocal licensing, and;
5. all other class licence requirements.

By way of example, the WIA has attached a copy of the New Zealand equivalent of an AOCF qualification certificate which is a good example of the information the WIA understands needs to be included. The WIA has provided an example of an NZ certificate in Appendix A.2.

4.2 Australian Amateur Licensees Holding Grandfathered Qualifications

The ACMA consultation paper makes specific reference to granting holders of AOCF(A), AOCF(S) and AOCF(F) certificates rights to operate under the new proposed class licence.

The WIA is concerned that, unlike in the first ACMA consultation paper 01_2021, no reference is now being made to grandfathered operator certificates in either the ACMA consultation paper or in the draft class licence. Only the explicitly listed current qualifications appear to be permitted access to the amateur radio class licence.

As such, the WIA is concerned that the following operator certificate holders are not given clear rights to continue accessing the new class licence, specifically:

- NLAOCP - Novice Limited Amateur Operator's Certificate of Proficiency.
- LAOCP - Limited Amateur Operator's Certificate of Proficiency
- NAOCP - Novice Amateur Operator's Certificate of Proficiency
- NAOCP+LAOCP - Combined Novice & Limited Amateur Operator's Certificate of Proficiency

In order to remove any doubt about their legitimate right to access and use the new draft class licence, the WIA believes that it would be appropriate to reference all previous AOCP licence classes within the new class licence.

Requirement:

To ensure no confusion arises regarding grandfathered qualification holders being authorised to access the new class licence.

Recommendation 4:

The WIA recommends that a clause be added to the draft class licence similar to:

9 Recognising qualifications

(1A) The ACMA declares that holders of the following qualifications be considered equivalent to one or more of the following:

- a recognised qualification (Limited Amateur Operator's Certificate of Proficiency) is equivalent to an AOCP(Advanced) type
- a recognised qualification (Combined Novice & Limited Amateur Operator's Certificate of Proficiency) is equivalent to an AOCP(Advanced) type
- a recognised qualification (Novice Amateur Operator's Certificate of Proficiency) is equivalent to a AOCP(Standard) type
- a recognised qualification (Novice Limited Amateur Operator's Certificate of Proficiency) is equivalent to a AOCP(Standard) type.

4.3 Australian Amateur Licensees Based on Overseas Qualifications

The ACMA has noted in consultation 31_2022 (footnote 7 page 15) that *"Amateur licences issued prior to this date were not subject to limits on licence term or renewal. We honoured these amateur apparatus licences by grandfathering the arrangement under our policy."*

The WIA, however, is concerned that no actual arrangements have been identified to explain how existing amateur non-assigned apparatus licence holders will be transferred to the class licence, given they will not, at the time of transfer, hold an Australian AOCP certificate against which a call sign could be registered.

Requirement:

That Australian non-assigned Amateur Service apparatus licence holders, licenced before the change in ACMA policy on 19th September 2020, be provided with suitable written certification of their rights to hold an Australian amateur call sign.

Recommendation 5:

That in the situation outlined above, the ACMA shall provide written evidence of:

- *the acceptance of the relevant reciprocal amateur qualification by the ACMA, and;*
- *confirmation that an individual is authorised to access the new class licence, and;*
- *authorisation to continue using a call sign previously granted on their original apparatus licence.*

The details of these circumstances shall be (if not already) communicated to the amateur examination and call sign entity/provider for recording in any call sign allocation system.

4.4 Organisations and Clubs Holding Amateur Radio Call Signs

One area that is impacted by the move to a class licence is the allocation of call signs via a licence that does not have a qualification attached. This has created significant concern among amateur radio clubs who hold amateur radio call signs for club events. The WIA acknowledges that the ACMA has attempted to provide a solution for the issue of call signs to clubs, but some key details remain unresolved.

The WIA is concerned that the proposed arrangements do not address the following key requirements:

- Having the licence awarded to a club as the legal entity rather than an individual (this may be ACMA's intent, however the mechanism to be used is not clear in the ACMA consultation paper).
- Identifying what type of organisational structure is required in order to apply for a club call sign.
- Providing some form of suitable documentation for the club indicating the call sign is held by the club body, given the club itself does not hold an AOCP qualification.

The WIA believes it is important to clarify the definition of a body that is able to hold an amateur radio club call sign on behalf of its members. For example, a scenario could arise where unqualified persons form or become office bearers of an amateur radio club for the purpose of obtaining access to a call sign for their own purposes. The WIA recommends club call signs only be allocated to incorporated amateur radio clubs or other registered bodies with legitimate need.

As such, the WIA strongly feels that organisations that apply for and hold amateur radio call signs must abide by the following:

Requirement:

Ensure suitable frameworks are put in place to manage call signs and their use when they are allocated to entities who are not natural persons.

Recommendation 6:

To be issued with a club call sign by the call sign entity, the following conditions must be satisfied:

- The organisation must be either an incorporated body or registered company.
- The charter of the organisation must include an intent to engage in matters relating to the amateur radio service.
- The call sign issuing entity shall maintain a record of the name and contact details of the responsible officer in the club/organisation who has the care and control of the use of the call sign, who themselves must hold a valid AOCPP qualification.
- That there be a suitable certificate provided that links the call sign to the class licence via qualified operators who must be members of the organisation and who can only use operator privileges commensurate with their own personal AOCPP certification unless being supervised by another AOCPP holder of higher privileges.

5.0 Class Licence Content

The WIA thanks the ACMA for the changes that it has incorporated into the draft class licence since the initial consultation proposal in April 2021. In considering this latest revision, the WIA has identified a number of areas, however, that need further improvement to ensure that there is no loss of existing utility of the Amateur Service arrangements in Australia.

5.1 EME Regulatory Arrangements

The WIA is pleased that the ACMA has noted the concerns raised in the original 2021/1 consultation about solely referring to the ARPANSA standard as the means of achieving EME compliance within the amateur service. In particular, the WIA believes the restoration of the tiered system previously outlined in the “Apparatus Licence LCD” is a positive step.

However, the WIA recommends ACMA consider the following further improvements and clarifications.

5.1.1 Schedule 1 Section 2 - conditions

The WIA believes there is an inconsistency between the ACMA requirements in Schedule 1 Section 2 (2) of the draft amateur radio class licence and the ARPANSA Standard RPS-S1 that will lead to confusion within the amateur service.

The ACMA requirements do not align with the content of RPS-S1.

To remove the risk of confusion by amateur radio operators undertaking the required EME self-assessments, the WIA proposes the ACMA replace Schedule 1 Section 2(2) with a reference to ARPANSA RPS-S1 Section 2, stating that for amateur service operations the general public limits are to be applied.

The current ARPANSA standard indicates the measurements to be considered (E-field, H-field, or Incident power density) per frequency range in Tables 4 - 8 for each relevant circumstance, and hence duplication by ACMA in the licence appears unnecessary.

Requirement:

The WIA asks the ACMA to update references to measurement methodologies in alignment with ARPANSA standard RPS-S1.

Recommendation 7:

Replace schedule 1 section 2 part (2) and (3) of the draft class licence with:

- *a direct reference to ARPANSA RPS-S1 Section 2 Tables 4 to 8, and;*
- *include a statement that “the relevant required measurements for a given frequency band shall be as per the general public exposure limits defined in Tables 4 to 8” of ARPANSA RPS-S1 (or later version of this standard as published from time to time).*

5.1.2 Schedule 1 Section 3 - low risk stations

The WIA is pleased to see this section now included in the amateur class licence. This goes a long way to restoring existing utility for the amateur service as compared to the previous proposal by ACMA. In doing so, however, the WIA requests the ACMA consider an extension of the criteria for low risk stations to cover certain Amateur Service activities that really are low risk and easily managed, but for which the current rules would require a much higher, and in this case unnecessary level of compliance.

Today, the understood intent of this section is to enable an EME self assessment to be undertaken by the amateur operator unless directed to undertake a full assessment by ACMA. Currently, this applies in the following circumstances:

Extract from Schedule 1 Part 3 of the draft class licence:

Either:

A. The station operates such that:

- a. the average total power supplied by the station to all antennas is not more than 100 watts*
- b. the antennas are installed so that they are inaccessible to a member of the general public.*

Or:

B. The station is configured such that:

- a. the base of the antenna is at least 10 metres above ground level*
- b. the average total EIRP of all antennas fed by the station is not more than 3200 watts EIRP in any direction.*

Or:

C. The station is a mobile station:

- a. where the average total power supplied by the station to all antennas is not more than 100 watts.*

The WIA believes that the current “Low Risk Stations” definition is excluding some types of operation which, noting the limits defined for other existing activities, should also be considered “low risk” activities.

The following table sets out many typical amateur activities (columns 1 & 2), and the WIA’s understanding of whether they are covered by the current low risk stations definition (column 3), or not.

The table also contains an assessment of how that activity could in practice be considered low risk, but for which the current regulations deem otherwise (columns 4 & 5):

Activity	Station Details	Complies with "Low Risk" Today	How could this activity be considered "Low Risk"?	Should be included in the "low risk" category
HF station operating at home	14-30 MHz directional antenna atop a 10 m structure with antenna gain less than 9 dBi operating at 400 W PEP <35 dBW EIRP average power	Yes	Antenna >10 m high and below 35 dBW (3200 W) average EIRP limit	Yes
HF station operating at home - backyard private property, controlled access environment - no public access	1-30 MHz vertical antenna at ground/roof level	Yes	<100 W in an enclosed private back yard with no public access (requires locked gates)	Yes
HF portable station operating in public spaces - operator in visual sight of the antenna and its surrounding environment whenever transmitter is activated (e.g., operating in a recreation / nature park)	Inverted V or vertical antenna installed below 10 m. Station operating <=100 W	No	The additional consideration that the antenna environment is under visual observation by an "aware user" (as defined in ARPANSA RPS S-1 (Rev. 1)) means the transmissions (which are intermittent anyway) can be stopped when a member of the general public approaches the station	Yes
Mobile Station	A mobile station operating using less than 100 W	Yes	Existing Mobile limits	Yes
VHF/UHF home station - low gain (<6 dBi) Vertical polarised Omni <100 W	Antenna mounted more than 4 metres above any human accessible area	Yes	<100 W in an enclosed private back yard with no public access (requires locked gates)	Yes

Activity	Station Details	Complies with "Low Risk" Today	How could this activity be considered "Low Risk"?	Should be included in the "low risk" category
VHF/UHF Satellite communications in a public portable environment	Low power (<5 W) from hand held equipment using hand held 4-8el. yagi antennas <1 0 dBi gain (typical amateur portable station satellite tracking and communications)	No	Consider that such operation is conducted by an RF "aware user" who can cease transmission if an unqualified person approaches	Yes
VHF/UHF Home Satellite station	High gain (<15 dBi) directional antennas with EIRP <100 W (satellite transponder overload limit) communicating with space objects but antennas are only 5-7 m above ground (typical amateur fixed station satellite tracking and communications)	Yes	Inside a private yard and EIRP below 100 W	Yes
UHF/SHF Satellite Communications	60-90 cm dish and 10 W PEP on 2.4 GHz near ground mounted (e.g., Geostationary future satellite comms -2 W average over 6 minutes, 26 dBi gain, equiv 800 W EIRP)	Yes	Inside a private yard or a fenced exclusion zone of a suitable x metres diameter - "aware user" can establish such a control and make the situation inherently safe	Yes
Stationary portable VHF/UHF station - e.g., used in a field day or emergency communications or communications training exercise	<50 W and omni-directional antennas <6 dBi gain mounted 3-4 metres above ground.	Yes	Antenna is not accessible to the general public	Yes

The WIA believes that recognition of the actual level of risk of amateur activities, (taking into account the revisions contained in ARPANSA standard RPS-S1 and the fact that amateur operators are technically trained), could be achieved with the additional clause below.

Requirement:

The WIA seeks recognition by ACMA of additional low risk transmitter scenarios, and the addition of suitable criteria to enable them to be included under Schedule 1 Section 3

Recommendation 8: that schedule 1 part 3 “Presumptions about compliance with the condition in subclause 2(1) – low risk stations” be amended to include an additional criteria defining low risk stations as follows:

“Or:

- D. The station is configured and operated such that;*
- a. If the antennas and the immediate environment are visible at all times while the operator is activating the transmitter and;*
 - b. the transmitter power output is no greater than 100 W then;*
 - c. the operator, as an “aware user”, shall cease transmissions should any member of the general public approach the station antenna within a distance of 5 m.*

5.1.3 Schedule 1 - writing style

In keeping with the broader Australian community, the Australian amateur population is culturally and linguistically diverse. The WIA wishes to point out that the proposed draft LCD instrument, while necessarily written from a legal perspective, contains wording that is delivered with a level of complexity that many in the target audience will likely find confusing. This is clearly opposed to the objective the ACMA is seeking, namely compliance by the amateur service with current EME safety regulations.

The WIA believes that this will have an adverse effect on compliance.

Requirement:

That the ACMA be encouraged to present all licence documentation in a simple to read plain english manner to aid understanding of the requirements by the general amateur radio population.

Recommendation 9:

Noting that while the ACMA needs to use correct legal language in the instrument, the WIA is concerned that this writing style may be difficult for some amateurs to follow.

To avoid mis-understandings, a preferred solution would be the inclusion of a “Regulatory Explanatory Statement” as an Appendix. Such a statement could be framed in a way that enhances understanding by the target “technical” rather than “legal” audience.

The inclusion of such a statement could prevent significant levels of unintended non-compliance, particularly among communities where English is a second language.

5.2 Ensure Call Sign Assignment is Mandatory

The WIA requests that the ACMA address the following specific issues in the draft Class Licence, Part 1, Section 7, before proceeding. Part 1 Section 7 (1) states:

7 Call signs

- (1) The Call Sign Entity *may* assign a call sign to a person.

Note: See subsection 133(3) of the Act.

The WIA is concerned that this may be mis-interpreted as meaning you can operate without a call sign (on the basis that it isn't mandatory for the call sign entity to assign a call sign), while in Section 3 the ACMA has made it clear that a call sign is required to be used. This messaging could appear to be in conflict with Part 1 Section 7(1) due to the way the document is structured and the language used.

Requirement:

The WIA seeks to ensure that the new class licence makes it clear that a call sign allocation against a valid AOCP qualification is a mandatory requirement prior to operating an amateur radio station.

Recommendation 10: reword Part 1 Section 7(1) as follows:

7 Call signs

- (1) The Call Sign Entity *shall* assign a call sign to a person who holds the relevant qualification

Note: See subsection 133(3) of the Act.

5.3 Arrangements for Organisations Holding Amateur Licences

The WIA notes in section 5 of the ACMA consultation paper 2022/31 that *“The proposed class licence will authorise the operation of a station owned and operated by or on behalf of a club, provided that the operator of the station is a qualified operator or is supervised by a qualified operator, and the operation of the station complies with conditions set out in the class licence”*. However, nowhere in Part 1 Section 7 of the draft class licence is there any mention of anyone other than “a person” being issued a call sign by the call sign entity.

Following on from the WIA response in section 4.4 above, the WIA wishes to see the following recommendation considered for inclusion in the amateur class licence:

Requirement:

To provide support within the class licence for incorporated amateur radio clubs and other registered bodies with legitimate need, and which have members who themselves hold the relevant AOCPP qualifications, to acquire a call sign for use by members who hold AOCPP qualifications or others under their direct supervision.

Recommendation 11: provide an additional clause in Part 1 Section 7 similar to:

7 Call signs

- (1A) The Call Sign Entity *shall* assign a call sign if requested to an incorporated amateur radio club or other registered body where it has provided evidence that it has the objective of participating in the amateur radio service as part of its charter.

5.4 Unattended Transmitter Control

The WIA notes that the ACMA has, in the class licence, not replicated Section 9 (2) (b) of the amateur apparatus licence which states “*a transmission from the station can be terminated promptly if the transmission causes interference to another service*”. The WIA is concerned that the omission of this statement removes the impetus for installation of remote control systems that can promptly shut-down a remote station causing interference, without waiting for a site visit to be arranged and carried out. The view of the WIA is that:

Requirement:

Management of unattended transmitters should be retained to maintain the existing utility of the amateur service spectrum.

Recommendation 12:

That the following clause should be reintroduced into the draft class licence as:

13 Operation of station – purposes and transmissions

- (4) (c) a transmission from the station can be terminated promptly if the transmission causes interference to another service.

5.5 Restrictions on Connection to a Public Telecommunications Network

The WIA has noted that the ACMA has, in the class licence, not replicated Section 11A of the amateur apparatus licence concerning interconnection of a telecommunications carriage service to amateur transmitters. The WIA is concerned that the omission of this statement opens the door to unlicensed persons gaining control and operating amateur transmitters for purposes that may lie outside of the objectives of the amateur service.

It is the view of the WIA that this is an unwanted development. It could open the door to difficulties internationally where such interconnection clauses also apply, to the extent that international amateur relay networks that utilise telecommunications carriage services as point to point tunnel links may refuse to continue allowing Australian operators to connect via their networks. The firm view of the WIA is that:

Requirement:

Interconnection of Amateur service transmitters to public telecommunications networks must not result in unlicensed persons being able to initiate transmissions on amateur radio spectrum.

Recommendation 13:

The WIA recommends that the following clause must be reintroduced into the draft class licence.

18 Restrictions on connection to a public telecommunications network

(1) This section applies to:

- (a) an amateur licence (amateur foundation station);
- (b) an amateur licence (amateur standard station);
- (c) an amateur licence (amateur advanced station); and

(2) The licensee must not, directly or indirectly, connect the station to a public telecommunications network, unless the licensee has implemented reasonable measures to ensure that only appropriately licensed persons access the station to transmit a signal to another amateur station.

(3) In this section:

appropriately licensed person means a person holding a licence that authorises that person to operate a station using the frequency and emission mode of the station being accessed.

Note A licensee who operates a station connected to the public telecommunications network is not required to authorise other persons to operate the station for the purpose of accessing the station.

5.6 'On Air' Usage of Call Signs

The ACMA has stated that it believes management of call signs is something that belongs in an operator's manual rather than in the class licence. The WIA, however, has observed some inconsistency in implementing this approach.

5.6.1 Addressing the problem of a series of transmissions

First of all, the WIA notes the following has been included in the draft class licence:

Observation: regarding usage of call signs on air

12 Using call signs

(1) Subject to this section, a person must, when operating an amateur station, transmit the person's call sign at each of the following times:

- (a) the beginning of each transmission;
- (b) the end of each transmission;
- (c) if a transmission lasts more than 10 minutes – at least once every 10 minutes during the transmission.

The WIA supports this clause's inclusion into the draft class licence because currently it appears to be the only mechanism that ensures a qualified operator needs to seek a call sign assignment prior to commencing operation. The WIA considers this a mandatory requirement.

A difficulty, however, is created when there is a series of transmissions. As presented, amateurs would need to provide their identification each and every time they started a transmission. This is the opposite of the standard practices enabled by Part 2 Section 8 (2) of the current "Radiocommunications Licence Conditions (Amateur Licence) Determination 2015".

Requirement:

Revise Part 3 Section 12 to restore the previous call sign usage pattern rules which better reflect actual on air practice and restore alignment with the current amateur apparatus license

Recommendation 14: To resolve the issue, the WIA proposes that Part 3 Section 12 be reworded as:

12 Using call signs

- 1) Subject to this section, a person must, when operating an amateur station, transmit the person's call sign at each of the following times:
- a) the beginning of a transmission; or series of transmissions;
 - b) the end of a transmission; or series of transmissions;
 - c) if a single; or a series of shorter individual transmissions; lasts more than 10 minutes – at least once every 10 minutes during the transmission events.

by voice (using the English language), by visual image or by an internationally recognised code.

It is worth noting that, in the WIA recommendation, we have also restored the sentence that specifies how a call sign is to be transmitted. The proposed removal by the ACMA of the phrase "by voice (using the English language), by visual image or by an internationally recognised code" opens the door to transmitting call signs in an obscured way, so a station

cannot be identified or even determined to be a legitimate user of the frequency band. This is something that is of high concern to the amateur service and is not supported by the WIA.

5.6.2 Call sign usage in an emergency or emergency training exercises

Given that the ACMA has deemed it necessary to include clause 12 (1) in the draft class licence, the WIA argues that it is unclear how continued support for the current “Radiocommunications Licence Conditions (Amateur Licence) Determination 2015” Part 8 (2A) section could be moved into the ACMA proposed amateur operators manual.

The amateur service long argued for the original inclusion of this privilege to support our emergency services role in the Australian community. The WIA reiterated that point in its previous submission where it argued that, apart from ensuring clarity that the existing condition could continue to be used, that it was also a valuable acknowledgement of the role amateur radio can play in handling emergency service traffic.

Note: WICEN Victoria was activated under the State Disaster Plan to provide safety communications support to the State Emergency Service in Mildura/Wentworth flood boat crews. Use of the current abbreviated call sign arrangements assisted significantly through supporting the use of rescue boat call signs on the amateur bands as station identification to remove inter-service confusion.

Requirement

The WIA strongly advocates the emergency activation or training proword call sign rules be restored to the class licence

Recommendation 15:

Restore the following clause from the amateur apparatus licence to the amateur class licence:

12 Using call signs

(1A) If:

- (a) there are two or more qualified operators participating in emergency services operations or training exercises for emergency services, and;
- (b) two or more of those qualified operators are operating stations (*the group of stations*) for the purposes of those operations or exercises;

for transmissions relating to those operations or exercises the licensee must ensure that arrangements are in place for at least one station in the group of stations to transmit the call signs of all of the stations in the group of stations:

- (c) at the beginning of a transmission, or series of transmissions;
- (d) at the end of a transmission or series of transmissions;
- (e) if a transmission or series of transmissions lasts for more than 30 minutes — at least once during each period of 30 minutes, or part thereof, of the transmission or series of transmissions;
by voice (using the English language), by visual image or by an internationally recognised code.

5.7 Restrictions on Certain Frequency Bands - Correction to Section 17

Section 17 contains an error in the frequency allocation. The section refers to 3.4-3.7 GHz when the amateur band in question only spans 3.4-3.6 GHz. To avoid any confusion, this should be corrected.

Recommendation 16:

We recommend the ACMA correct Part 3 Section 17 (1) of the draft class licence as follows

(1) A person must not operate an amateur station on a frequency within the 3.4 GHz **to 3.6 GHz** frequency band if the operation would cause a transmission to occur in the area described by the HCIS identifiers in the table in Schedule 3.

5.8 Definitions - Part 1 Section 5 (1)

5.8.1 Definition of 'mean power pY'

All technical definitions of terms such as power need to have a clear basis, where possible drawn directly from internationally recognised sources such as the ITU radio regulations. In particular, the WIA observes that there has been a change in the definition of power in the draft class licence which has led to ambiguity. To rectify this, the WIA urges the ACMA to adopt the definitions of power defined in ITU-RR Article 1.156 and 1.158 which states:

ITU-RR Article 1.156 and 1.158

1.156 power: Whenever the power of a radio transmitter, etc. is referred to it shall be expressed in one of the following forms, according to the class of emission, using the arbitrary symbols indicated:

- *peak envelope power (PX or pX);*
- *mean power (PY or pY);*
- *carrier power (PZ or pZ).*

For different classes of emission, the relationships between peak envelope power, mean power and carrier power, under the conditions of normal operation and of no modulation, are contained in ITU-R Recommendations which may be used as a guide.

For use in formula, the symbol p denotes power expressed in watts and the symbol P denotes power expressed in decibels relative to a reference level.

1.158 mean power (of a radio transmitter): The average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

Doing so would maintain consistency with the source of the pX definition which has also been drawn from ITU-RR 1.157.

The Requirement:

The WIA seeks clarity on how mean power is defined in the draft class licence. The definition in the draft Class Licence needs to be corrected.

Recommendation 17: reword the power definitions as:

5 Interpretation

- (1) *p_Y* means the average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

5.8.2 Definition of 'recognised overseas qualification'

The WIA believes that the proposed definition of 'recognised overseas qualification' will lead to uncertainty and confusion. The definition as presented, while referencing overseas qualifications, only names current Australian qualifications and fails to indicate that prior agreed equivalents are also acceptable.

Requirement:

The WIA seeks clarity on the definition of 'recognised overseas qualification':

Recommendation 18:

The WIA recommends to the ACMA that section 5(1) of the draft class licence be reworded similar to:

5 Interpretation

- (1) *recognised overseas qualification* means any of the following that has been issued or awarded by a body, association or person outside Australia:
 - (a) an equivalent recognised qualification (Advanced Type);
 - (b) an equivalent recognised qualification (Foundation Type);
 - (c) an equivalent recognised qualification (Standard Type).

as per the reciprocal agreements table as published from time to time on the ACMA website.

6.0 Call Sign Administration & Operational Policy

There are many aspects of the ACMA's proposed call sign management arrangements that the WIA supports, including:

- The rights for amateur radio operators to not have their full name and address exposed on a public database against their wishes.
- The concept of managing the definition of call sign templates, special event rules, allocation restrictions, and reservations outside of the class licence, via a published ACMA call sign assignment policy document.
- The call sign for life arrangements where a call sign allocation is not tied to qualification level.

The WIA also acknowledges that, where amateur licensees do want to have their contact details published, there are alternative commercial listing services available to them (e.g. qrz.com hosted in the USA). However, there are some critical elements of the proposed call sign administration arrangements where the WIA has a fundamental objection, and other areas it believes can be improved. The WIA asks that the ACMA reconsider its position on the following key aspects.

6.1 Renewal Management of Call Signs

The WIA strongly recommends the ACMA proposal for call signs be revalidated periodically.

Currently, with only 676 call signs available in the 5 character call sign series, pool exhaustion is an issue in NSW, VIC and QLD. The following is a breakdown of the current call sign utilisation:

State	VK\$yy Format	VK\$yyy Format
ACT	185	228
NSW	668	3154
VIC	672	3126
QLD	665	2000
SA	436	812
WA	496	809
TAS	249	335
NT	74	70
External	39	6

The mechanism for, and cost of, call sign renewal is of concern.

Requirement:

That the ACMA establish a call sign renewal capability that is low or zero cost to access, which minimises data storage and places the responsibility for renewal on the call sign holder, rather than the call sign entity.

Recommendation 19:

The WIA recommends that a renewal system needs to have the following fundamental characteristics:

- Be self service - online based.
- Be very low cost or preferably zero cost to the end user.
- Be centrally managed, ideally independent of the contracted service provider, (this is so continuity can be maintained through transitions between call sign entity and assessment providers).
- Use a data acquisition model where revalidation is an obligation on the call sign holder.
- Renewal can occur at any time but no less frequently than every 10 years (similar to passports).
- If a call sign is not renewed after 10 years, a grace period of a further 2 years be allowed, where the call sign is placed in a dormant state before it is released back into the pool for reallocation.

Using this model, the need to establish databases of contact details could be eliminated, as the obligation to maintain a call sign would then be with the call sign holder. The only necessary identity check may be to request the AOCIP certificate number (which is not publically available) to ensure that the owner of the call sign is in fact the person making the renewal. Given the community's now heightened concern about privacy (following recent high profile data security breaches), public expectation is that data should only be stored which is necessary to perform a legitimate organisational function, and for a necessary time. This model fits well with community expectations in this regard.

Fundamentally, any revalidation process needs to only require the least amount of client interaction, information gathering, and difficulty. Any initiative which increases costs for the amateur service, either directly or indirectly, would not be supported by the WIA.

6.2 Number of Call Signs Able to be Held

The WIA is concerned that, as a consequence of Class Licensing (where the call sign is no longer attached to an apparatus licence), the call sign will become a commodity in itself with tangible value, much like car number plates. It is therefore important to consider what potential new community behaviours this will create.

The ACMA has asked for feedback on the number of call signs able to be held by an individual under the draft class licence. The ACMA is currently proposing that no limit be placed on the number of call signs held by a licensee.

The WIA opposes that position for the following reasons:

1. An amateur radio call sign is a valuable part of an amateur operator's identity. Most operators need only give their call sign to achieve instant recognition around the world. Given this inherent value, call signs can be highly prized and are potentially tradable.
2. The WIA, therefore, has concerns that, with the removal of the economic barrier to holding a call sign, that some members of the amateur service will endeavour to acquire many more call signs than perhaps they need, with the objective of marketing them for profit.

Requirement:

In order to prevent call sign hoarding and the creation of an artificial marketplace (particularly for 2x2 call signs in NSW, VIC and QLD) the WIA proposes that limits be placed on the number of call signs held by a licensee.

Recommendation 20:

1. That individual licensees only be permitted to hold a maximum of 2 permanent and 2 temporary call signs, and;
2. organisations / groups be allowed to hold no more than 10 non-assigned call signs except under special circumstances (e.g. the Scout and Guide organisations and emergency service organisations such as WICEN), and;
3. call signs held before the transition from apparatus to class licensing be grandfathered and transferred to the new arrangements regardless of any new limits applied.

This recommendation is similar to arrangements in New Zealand. The limits proposed are:

- Up to 2 primary call signs are allowed:
 - To facilitate operators who want to have different call signs for a main and a remote station.
 - To allow operators who have an old call sign from the original licence grade based allocation system, to be able to maintain that old call sign alongside a new call sign.
- Up to 2 temporary call signs are allowed:
 - One typical temporary call sign is a “contest 2x1 call sign” where renewal is required yearly.
 - The other temporary call sign might be used to operate a special event (e.g. VI) prefix call sign (which is only authorised for the duration of the special event).
 - Temporary assignment of call signs would also be the norm for VK9 and VK0 call areas unless proof of residency of those territories is supplied.

Flexibility should, however, be supported in the case of special event call signs where multiple allocations may be desirable (e.g., one per state) in the case of certain special events.

6.3 Call Sign Transfer Policy

The ACMA has recognized that, currently, a call sign is able to be transferred between individuals by virtue of the transfer of the associated apparatus licence. To maintain that transfer capability, the WIA understands that ACMA are proposing to define a process where the person with the assigned call sign surrenders that call sign to the call sign entity and nominates a new person to whom it may be issued. That new person will have one month in which to apply and pay for the call sign to be assigned to them.

The WIA supports this approach, but only on the condition that a limit is placed on the number of call signs an individual licensee can hold.

This is to prevent the establishment of grey markets where call signs are sold to the highest bidder, particularly in highly sought after 5 character VK\$xx call sign ranges. It is important for the ACMA to understand that call signs ultimately form

part of a radio amateur operator's identity, and as such have similar values to, for example, personalised vehicle number plates.

Requirement:

Call sign transfer capabilities be preserved in the transition from apparatus to class licensing, but only if limits are placed on the number of call signs able to be held. This is to prevent grey markets forming for call signs leading to profiteering.

Recommendation 21:

The WIA recommends that the call sign transfer as proposed by the ACMA be amended in alignment with the WIA suggestions above.

6.4 Call Sign Template Policy Management

The WIA supports the ACMA's proposed maintenance of a call sign template policy document.

The WIA in particular wants to see ownership of the document to remain with the ACMA.

Requirement:

Maintenance of amateur call sign template policy documentation should be an ACMA responsibility, but with input from the amateur radio community.

Recommendation 22:

The WIA recommends that the call sign management policy be maintained by the ACMA, using processes similar to the ACMA's Technical Liaison Group (TLG) arrangements. When changes are proposed to be made, amateur service wide input can then be gathered and changes agreed by consensus.

6.5 Use and Allocation of AX/VI/VK Prefix Special Event Call Signs

Generally, the circumstances for allocating special event prefixes are best described in the call sign template policy document maintained by the ACMA. The WIA is supportive of this detail no longer being included in the class licence.

The WIA notes, however, that the specific conditions that allow the AX prefix to be substituted for the VK prefix by Australian amateur radio operators on specific days have remained in the class licence. Given this intent, the WIA proposes one additional clause be added to address unforeseen use of the AX prefix, such as occurred recently on the death of the monarch:

Requirement:

Give the ACMA greater flexibility to authorise the use of the AX prefix in events of extraordinary national or cultural significance.

Recommendation 23:

That the following clause be added to the draft class licence:

12 Using call signs

(4) (d) The ACMA may, in addition to these dates, declare additional dates when there is an event of national or international significance.

6.6 Amateur Operating Procedures

As part of introducing the amateur class licence, the ACMA is proposing to cease documenting procedures for communications on air, instead leaving it to the amateur service to self manage the development and socialisation of such procedures.

While broadly supportive of the intent, the WIA has a concern where specific operating procedures are required to be tested as part of the practical test component of the AOCPP. Those requirements would be expected to be included within the AOCPP syllabus.

The WIA does not wish to see a situation where the ownership or copyright of an AOCPP syllabus passes to organisations that chose to 'publish an operating manual'. The potential must be avoided for different views on how to operate leading to confusion about the procedures being examined for an AOCPP qualification.

The WIA also does not wish to see a situation where there are various organisations or entities promoting a variety of operating procedures, especially where operating procedures are specified within the AOCPP syllabus. The WIA firmly believes that the responsibility for the maintenance and ownership of the AOCPP syllabus must remain with the ACMA.

Requirement:

To prevent confusion as to what the correct examinable operating procedures are.

Recommendation 24:

The ACMA maintains stewardship of the operating standards procedures listed in the AOCPP syllabus in support of the practical examination.

Further, the ACMA undertakes to release the operating standards under a "Creative Commons - by attribution, no derivatives licence" (creativecommons.org/licenses/by-nd/4.0/), such that they may be republished by outside organisations but not modified in any way.

7.0 Reciprocal Licencing Arrangements for Amateurs Visiting or Migrating to Australia

7.1 Short Term Visitor Arrangements

The proposed arrangements, where the current Overseas Amateur Radio Class Licence is to be combined with the new proposed Amateur Radio Class Licence, are supported by the WIA. The WIA believes the new arrangements will reduce ACMA administrative overheads and clarify the situation for visiting amateurs.

In addition, the WIA supports the extension of the short term licence period from 90 to 365 days.

7.2 Long Term Recognition of Overseas Amateur Qualifications

The WIA is concerned by the changes made to the overseas qualification recognition policy on the 19th of September 2020. In particular, the WIA believes the changes to enable permanent transfer of licences undermines the original intent of amateur radio reciprocal licensing arrangements.

The WIA argues that the purpose of reciprocal licensing was not just to facilitate operation in Australia by persons who obtained their qualifications overseas, but also to enable their qualification to be transferred and be recognised without further examination, at least in regards to the technical component. This is much like the situation with, for example, a car drivers licence which can typically be transferred without having to repeat a driving test.

The WIA believes the changes steer the reciprocal licensing process for amateur radio in Australia away from the original 'recognised prior learning model', which had the intent of simply recognising equivalent overseas qualifications, to a model where qualified people have to 're-establish' their technical qualifications. This model, currently conducted via the AMC through a very unorthodox oral examination approach, and at considerable expense to the applicant, is without precedent elsewhere in the world. It has failed to recognise the international bi-lateral agreements as listed on the ACMA website.

It is also acknowledged that there are concerns within the Australian amateur community regarding Australian residents using the reciprocal licensing framework to seek and obtain overseas qualifications, and then to use those qualifications to obtain an Australian amateur radio licence. The WIA understands that this was the principal driver behind the change in approach to reciprocal licensing, but it has resulted in an inequitable situation for genuine international migrants.

The WIA wishes to propose an alternative solution for consideration by the ACMA. This should ultimately be incorporated into suitable Amateur Service operating policy documents issued by the ACMA.

Requirement

The WIA, as the International Amateur Radio Union representative in Australia, seeks restoration of the original intent of reciprocal licensing: that technical qualifications received in another country that have already been recognised by the ACMA are deemed equivalent to the relevant AOCP certification in Australia.

Recommendation 25:

a.) Remove the “recognised prior learning” technical oral examination requirements to access an equivalent Australian AOCP(A), AOCP(S) or AOCP(F) qualification for overseas amateurs who obtained their qualifications by sitting examinations in a country recognised on the reciprocal arrangements table on the ACMA website.

b.) Formally declare that when applying for a long term (>365 day) reciprocal licence that the only additional examination requirement required to obtain an Australian qualification is to sit and pass an Australian amateur radio regulations exam.

Notwithstanding these recommendations, the WIA does support the grandfathering of amateur licences issued prior to 19th September 2020 obtained through reciprocal licensing which were not subject to limits on licence term or renewal. As discussed earlier in this paper, the WIA is seeking further information from the ACMA on how it intends to provide suitable recognised documentation in this circumstance following the withdrawal of the existing apparatus licence document.

8.0 Response to ACMA Questions - Class Licencing

8.1 Question 1 - AOCPS access to 50-52 MHz

Do you see any reason for not extending secondary user access to the 50–52 MHz band for Standard amateurs? If yes, what is your reason? (See section 3.)

The WIA fully supports AOCPS (and grandfathered NAOCP, LAOCP+NAOCP and NLAOCP) licence class qualification holders being granted access to the 50-52 MHz band, in alignment with the current technical conditions that apply to these licence grades. The partial band restriction no longer makes sense now that channel 0 analogue TV has ceased operation.

8.2 Question 2 - Call sign transfer

What are your views on the proposed policy on call sign transfer? (See section 4.)

The WIA supports the ability for qualified operators to still be able to transfer call signs from one operator to another, but only if there is also a limit placed on the number of call signs held to prevent call sign hoarding and unintended call sign marketplaces emerging.

8.3 Question 3 - Call sign renewal

Will the proposed 'regular check' – to confirm whether a person is still using their call sign – be a sufficient method of ensuring there are enough call signs (in combination with other factors, for example, the high number of available call signs, deceased amateurs, most amateurs only wishing to hold one call sign)? (See section 4.)

The WIA supports the 'regular check' concept proposed by the ACMA on the condition that it has the following characteristics:

- be self service - online based
- very low or preferably zero cost to the end user
- centrally managed, and ideally independent of the contracted service provider (this is so continuity can be maintained through transitions between call sign entity and assessment providers)
- use a data acquisition model where revalidation is an obligation on the call sign holder
- renewal can occur at any time, but at least once every 10 years (similar to passports)
- If a call sign is not renewed after 10 years, a grace period of a further 2 years is allowed where the call sign is placed in a dormant state before it is released back into the pool for reallocation.

8.4 Question 4 - Quantity of call signs held

What are the benefits or disadvantages of our proposal not to limit the number of call signs that may be assigned to a person? (See section 4.)

Call sign 'quantity' today is directly influenced by the monetary cost of holding one - i.e. the existing amateur apparatus licence fee that needs to be paid for each call sign, which is currently attached to an apparatus station licence. This cost is one of the major limiting factors that prevents individuals holding many call signs.

With the removal of a yearly fee to hold a call sign, and no other limits in place, the WIA is concerned some operators will take the opportunity to "hoard" call signs (particularly from the VK&yy i.e. two-letter, call sign series), potentially with a view to trying to sell transfer rights. This would not be an acceptable outcome to the amateur community

Therefore, the WIA requests the ACMA limit the number of call signs held by individuals to a maximum of 2 permanent and 2 'temporary' non-assigned call signs, and for clubs and other organisations a maximum of 10 non-assigned call signs and 2 'temporary' non-assigned call signs. Special interest groups such as Scouts and Guides, who have a series of call signs set aside in the call sign policy document, as well as groups supporting emergency service communications (such as WICEN) should be exempt from the call sign limit for organisations.

Existing multiple call sign allocations should be grandfathered. It is also noted that repeater and beacon system call signs are excluded from these calculations.

8.5 Question 5 - Call sign arrangements - other concerns

Do you have any concerns with the other proposed call sign management arrangements? If so, what are they? (See section 4.)

The remaining concerns for call sign management are:

- the lack of a public register of
 - assigned amateur call signs,
 - the related licence class and
 - the call sign renewal due date
- the way call signs will be assigned to amateur radio clubs and groups.
- The lack of clarity on the processes the ACMA will use to seek amateur service engagement on policy and operator manual documents. The WIA suggests arrangements similar to the ACMA Technical Liaison Group approaches, used for commercial and government spectrum users, may be an appropriate way forward on this matter.

Of particular note is the feedback the WIA has received from its members regarding maintenance of the significance of state based call sign prefix allocation (which the WIA understands is still respected at least when a new licensee first applies for a call sign). The level of desire to see state based prefixes maintained for amateur call signs was surprising. Therefore, the WIA feels this matter needs to be reconsidered by the ACMA.

A number of other matters regarding call signs have also been raised elsewhere in this submission.

8.6 Question 6 - Alternatives to the RRL

In the absence of amateur and station information being contained in the Register of Radiocommunications Licences, are there any amateur-operated registers or other existing voluntary registers that you would use? (See section 5.)

As far as the provision of equivalent information to the RRL, the WIA is aware of qrz.com, a site hosted in the USA, that amateurs frequently use to access this type of information. Information in qrz.com for Australia is inserted on a voluntary basis by amateurs who are interested in making contact online. (It is worth noting that the FCC has an arrangement where US amateurs are directly inserted into qrz.com).

Our members also provided the following references:

- Hamcall.net
- VKLookup.info
- HRDLog
- WIA Callbook (which had to be suspended following an impasse with ACMA over data publication rights)
- LogBook of the World (ARRL).

Surprisingly, when asked this question, 102 out of 220 respondents (46%) responded that they use the ACMA Register of Radiocommunications Licences. This provides some guidance on the impact the withdrawal of the amateur service records will have on Australian amateur operators.

Finally, the WIA is interested in resurrecting the Australian Amateur Service call book as a voluntary opt-in service. In support of this, it would be appreciated if the ACMA could work with the WIA to resolve the difficulties that have prevented access to data for publication.

8.7 Question 7 - CEPT Licensing

Do you anticipate any difficulties operating your station in Conference of Postal and Telecommunications Administrations signatory countries? (See section 5.)

On the basis that the ACMA establishes documentation as discussed in Section 4 of this WIA response, the WIA believes that there should be no impact given the recent communications between the ACMA and CEPT.

PART 2

HIGHER POWER PRIVILEGES FOR AOCP(A) CERTIFIED OPERATORS

9.0 Higher Power Operation - Introduction

The WIA welcome's the willingness of the ACMA to further examine the conditions under which Australian amateur radio operators might be permitted to operate using higher transmitter powers. This is seen as a significant development for the amateur service in this country and is something the WIA encourages both the ACMA and radio amateurs around Australia to tackle thoughtfully.

9.1 Historical approach

Up until now, the only permitted access for higher power permits has been to conduct experimental communications involving reflecting signals off of celestial bodies (including the moon, meteors and even some of the other planets and objects in the solar system). By their very nature these experiments are niche in nature, being conducted by a small number of dedicated experimenters.

These permits have been granted on a case by case basis when the interested individuals make specific applications to the ACMA. At this time, the ACMA has only permitted these permits to be used at specified locations after giving due consideration to EME, EMI, and radiocommunications interference risks. It is worth noting that, as these permits have all been for use on one or more of the 50, 144, 432 or 1296 MHz bands, the consideration of risk would have been focused on those occurring in VHF and UHF spectrum.

Continuity for those who have already obtained permits or for those who may wish to do so under the old arrangements in the interim period, is important. The WIA asks the ACMA to confirm that those existing arrangements be grandfathered until new arrangements can be developed.

Requirement:

That continuity be provided for those amateur operators interested in conducting experiments involving reflecting signals off of celestial bodies.

Recommendation 26:

That ACMA grandfather existing permits and continue to accept new applications under the existing arrangements until such time as new suitable arrangements are put in place to support higher power operation.

9.2 Amateur Service operators are universally technically qualified

The WIA finds that, from time to time, some of the proposals by the ACMA to manage the amateur service have been drawn directly from current commercial practices that do not always align with the fundamental nature of the amateur service. The commercial domain operates with the explicit assumption that the operators of fixed, mobile, satellite, broadcast and other transmitting stations may not be trained, and therefore the regulations need to ensure safety overtly. However, the WIA contends that some of these approaches fail to recognise that the amateur service is universally technically qualified, where all operators have to demonstrate technical, regulatory and practical competence. The WIA believes that this perspective drives ACMA approaches to equipment standards, ownership, and electromagnetic emission (EME) management that are not optimal for the amateur service.

At the same time, the WIA also acknowledges that the amateur service itself has some way to go in improving the understanding and education on certain aspects of the radiocommunications regulatory landscape, EME in particular. The WIA feels a collaborative education based approach would be important and that is presented in this response.

9.3 Need to recognise the unique nature of the Amateur Service.

The WIA is concerned that some of the new or modified requirements, and some of the ways areas are proposed to be managed, do not recognise the variable and experimental nature of the amateur service. The amateur service's core values are its flexibility, breadth, and experimental nature. Amateur stations are frequently changed, relocated and reconfigured, and can be operated across a very diverse range of frequency bands, emission types, powers, and operating techniques, locations and purposes. It is the ultimate citizen science learning and training environment and offers considerable value to the Australian community.

Any regulatory approaches intended to manage amateur radio activities need to be based on a clear understanding that the amateur service is not a set of fixed 'install once and just talk' stations. The WIA encourages the ACMA, in considering changes to the amateur service regulatory framework, to always test their proposals against this fundamental principle and to critically consider if alternative approaches might better support rather than diminish this unique aspect of the amateur service.

9.4 WIA Objectives for Higher Power access

It is important to the amateur service that, working together with the ACMA, we achieve these new privileges while at the same time ensuring they are used safely and responsibly, with due regard to the compliance with the ARPANSA standards.

The WIA objectives are:

WIA Objectives:

- 1. Australian radio amateurs gain well managed and safe access to higher power as part of the standard conditions of the amateur class licence, as is the case in New Zealand and many other countries around the world.*
- 2. The WIA would welcome a phased approach being taken to develop the new arrangements, and is realistic that this may take 1-3 years to implement.*
- 3. It is important that in approaching this matter, that due consideration be given to providing the necessary training and support to Australian radio amateurs, thus ensuring that the ACMA can develop confidence that the required standards are being observed.*

10.0 Amateur Service Interest in Accessing Higher Power

Given the current very niche usage of higher power in Australia by radio amateurs, it is difficult to predict what the real interest is. To more clearly establish the demand, the WIA asked the following question of its members:

Question to WIA Members:

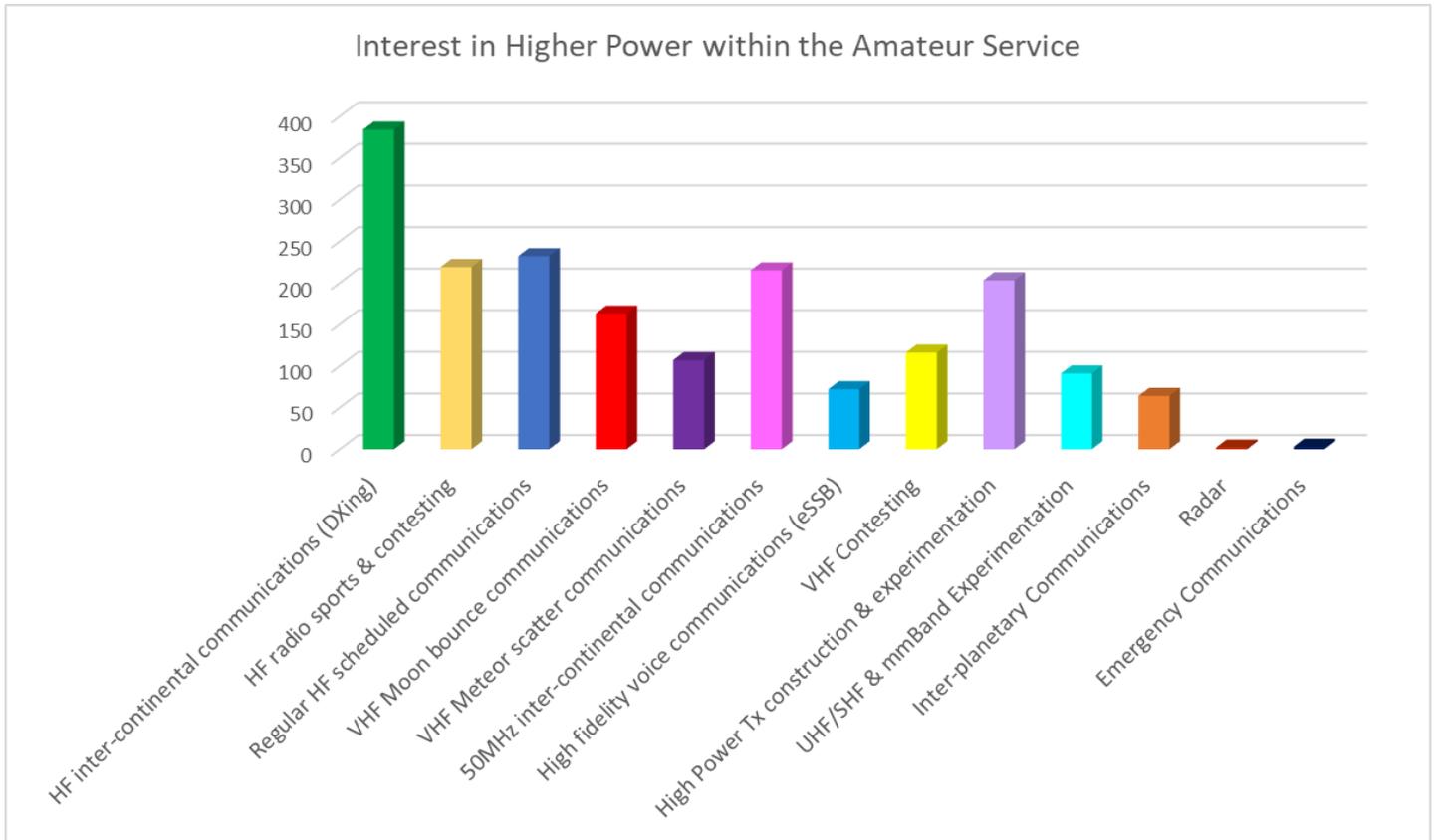
“ What activities within the amateur radio service would you like to participate and learn about that you believe would be enhanced or enabled by an increase in the maximum permitted transmitter power”

The response received from a pool of 615 members and non-members of the WIA indicated that 70% of those surveyed were interested in accessing higher power at some point in support of their experiments and amateur communications interests.

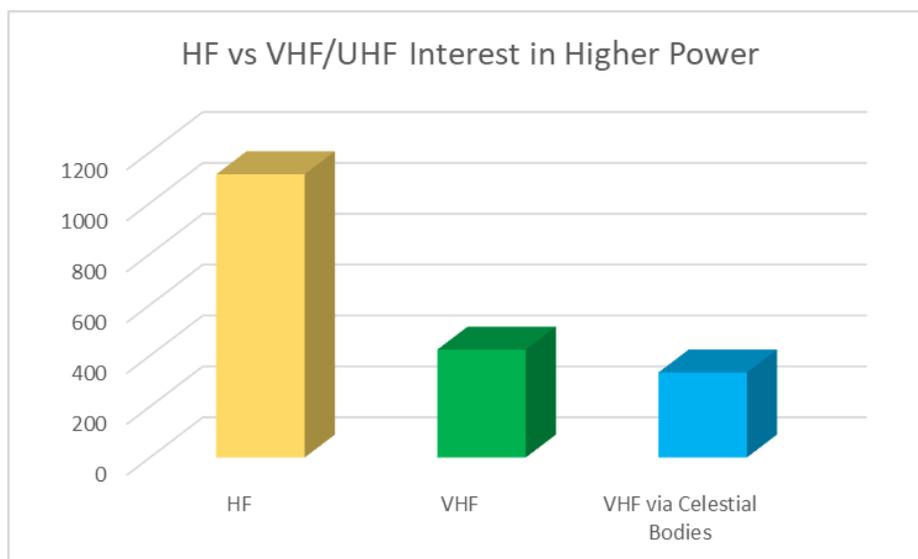
It is worth noting that the majority of interest is focused on the HF spectrum. Above 30 MHz, the majority of the interest is specifically on the VHF bands, with interest above 400 MHz focused on much more specialised uses. Overall, activities that respondents to the survey said they valued include:

Activity	<30MHz	>30MHz	Totals
Not interested in higher power			185
HF inter-continental communications (DXing)	384		384
HF radio sports & contesting	219		219
Regular HF scheduled communications	232		232
VHF Moon bounce communications		163	163
VHF Meteor scatter communications		107	107
50 MHz inter-continental communications		215	215
High fidelity voice communications (eSSB)	72		72
VHF Contesting		116	116
High Power transmitter construction / experimentation	203		203
UHF/SHF & mmBand Experimentation		91	91
Interplanetary Communications (future)		64	64
Radar		2	2
Emergency Communications (HF)	3		3
Activity Interest - HF vs VHF/UHF	1113	758	

(Refer to Appendix III for an explanation of each of these activities)



The majority of interests are predominantly below 30MHz



10.1 Why is the majority of interest in higher power on HF?

The WIA believes the particular interest for higher power on HF is a result of one of the principal aims of the amateur service: intercommunication. Intercommunication fundamentally means being able to deliver a signal to a distant receiver, but that ability is affected by:

- Antenna design
- Radio propagation loss
- Receiver sensitivity
- Receiver location and the local radio frequency noise floor

The last point is not controllable by the transmitting station and is becoming more problematic.

With the ever growing amount of digital electronics found in today's society there has been an ever increasing level of radio frequency noise pollution emitted. In many places around the globe, the typical RF noise floor has increased by at least 10 dB over the last 2 decades. The problem is often worse in developing countries due to low cost equipment being sold which typically lacks EMI suppression. Even in Australia, with relatively high compliance to EMC standards requirements, the amount of radio frequency pollution continues to increase year on year.

Common sources of interference to amateur HF receivers include poor quality solar power systems, incorrectly installed LED lighting, poor EMI suppression on motors and machinery (such as pool & spa pumps and on hot water systems), digital switching based electronic power supplies, and domestic electronics (such as battery chargers, TV sets, computer monitors and power supplies and VDSL services). Electric vehicle charging systems, both wired and wireless, are expected to be a significant additional source of radio noise pollution within the community.

Given this increasing RF pollution problem, there are few mechanisms left available to radio amateurs to help them maintain or improve the reliability of HF amateur radio communications, given that greater receiver sensitivity and bigger antennas cannot combat local EMI. Given the laws of physics as applied to radio propagation, the uncontrollable nature of the ionosphere, and the practical restrictions in antenna size, the only technique left that can compensate for increased local EMI levels at the receiver is to increase the transmitted power.

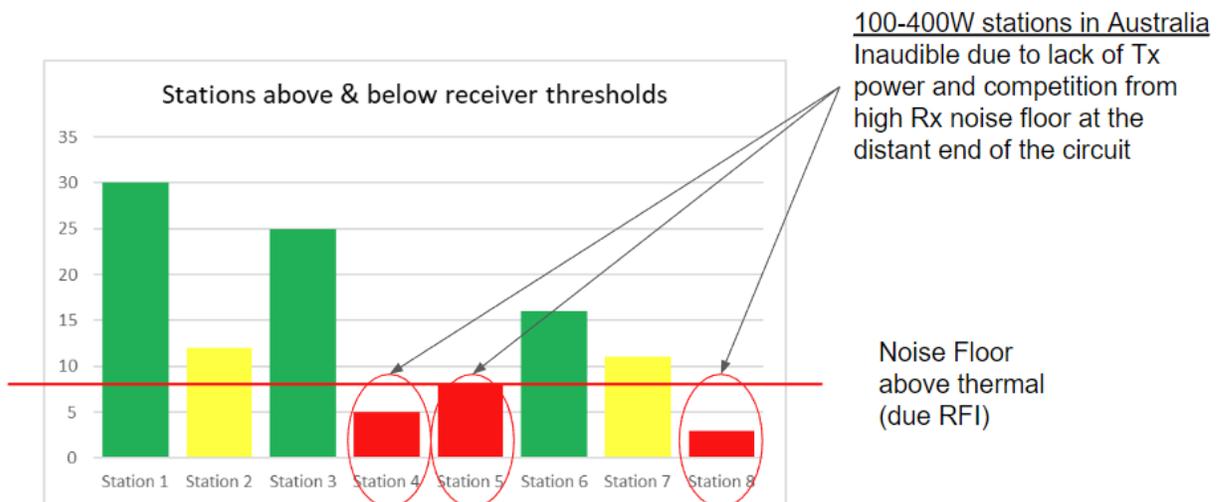
When we then look specifically at the Australian circumstances we find, more and more, that an Australian amateur radio operator's ability to communicate with distant radio amateurs is degrading due to the existing transmitter power limits of 400 W pX or 120 W pY and the lack of technical reciprocity.

In short, we can often hear distant stations, but they cannot hear us.

The following diagrams attempt to convey illustratively the problem faced by Australian radio amateurs, and the benefits to amateurs of increasing transmitter power.

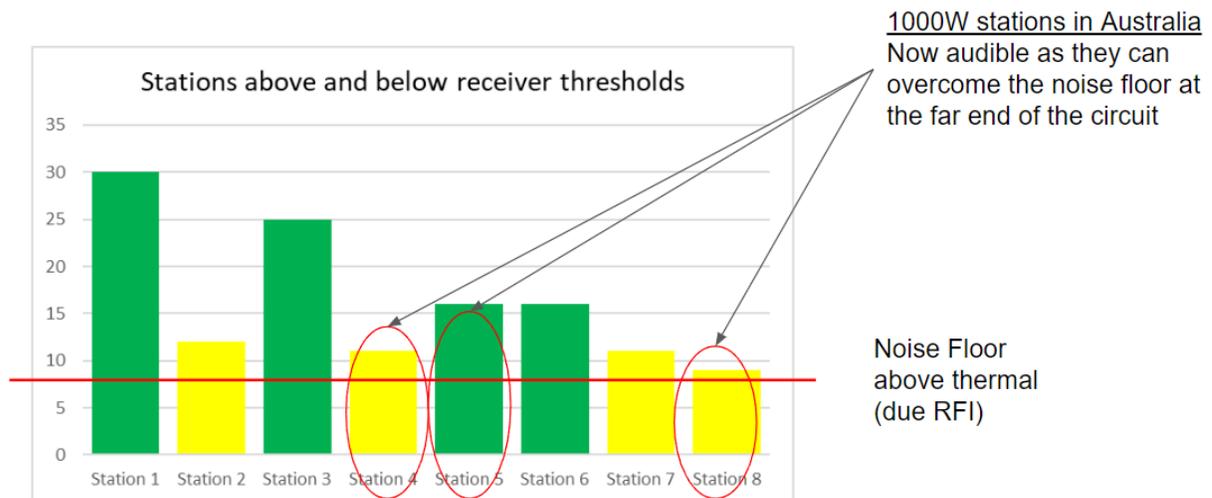
At 400 W pX, Australian amateurs often fall just below the threshold for being detected in distant continents due to a combination of distance (additional path loss) and the elevated noise floor at the receiving end.

Example of received signals in Europe - 400W



If the transmitter power is increased by say 6 dB (up to 1.5 kW pX), Australian signals would have a greater probability of being received.

Example of received signals in Europe - 1000W



Another factor that drives Australian radio amateurs to seek access to higher transmitter power is simply the tyranny of distance. Compared to Europe and the Americas, Australia is a LONG way away!

Consider typical northern hemisphere communications:

- Communications within Europe typically occur over 2000 - 4000 km paths.

- Between Europe and North America most paths are 3000 - 6000 km

Compare this with Australia:

- Most international communications using HF radio by radio amateurs involves minimum radio path distances of 7,000 - 15,000 km.
- When “Long Path” communications are required, this extends up to 27,000 km (e.g. when communicating with South America over the north pole).

These path length inequities alone are sufficient to place Australian radio amateurs at a very significant disadvantage.

10.2 Considering reciprocity and power limits in other countries

In considering basic reciprocity, particularly on the HF bands, the WIA has reviewed many of the transmitter power limits applied to amateur radio operators around the world. The following table provides a sample for consideration:

Nation	Power Limit
Canada	2.25 kW (pX)
Baltic States	2 kW (pX)
Brazil	2 kW (pX)
USA	1.5 kW (pX)
Belgium	1.0 kW (pX)
Spain	1.0 kW (pX)
New Zealand	1.0 kW (pX)
Norway	1.0 kW (pX)
South Africa	1.0 kW (pX)
Fiji	1.0 kW (pX)
Germany	800 W (pX)
United Kingdom	400 W (pX)
Australia	400 W (pX)

This demonstrates that Australian amateurs are typically disadvantaged by 3-8 dB compared to equivalently qualified amateur operators in other nations.

10.3 VHF & UHF use of higher power

When the WIA asked for member feedback about higher power privileges, the other major area of interest (as expected) was in the VHF and UHF bands - but predominantly in the VHF spectrum. What was interesting, however, was that it was much more experimental in nature. The requirement to use higher power to communicate on VHF and UHF spectrum is varied and focused more on specific experiments and activities that, due to their complexity, are not widely practised.

Examples of higher power use cases on VHF/UHF and above include:

- High power (a minimum of 1 kW carrier power pZ) is needed for 50 MHz moonbounce operation
- Higher average power (up to 500 W pZ) is needed for 144 MHz Moon bounce and meteor scatter experiments with up to 16-18 dBi antenna gain
- Higher power is advantageous for 50 MHz inter-continental ionospheric and TEP propagation experiments (using 1 kW pX)
- VHF radio-sport contests (where up to 1 kW pX is considered desirable at least on 50 MHz).

Two of these activities, involving communications by reflecting signals off of 'celestial bodies', are of course already able to radio amateurs by accessing the existing high power permit arrangements.

Future use of high power may include supporting inter-planetary communications on amateur bands.

11.0 Management of Higher Power in the Amateur Service

The WIA understands the concerns expressed by the ACMA need to be addressed before any increase to amateur transmitter power limits can be considered. These are specifically:

From the ACMA proposal:

- > interference risk to other radiocommunications services (including co or adjacent channel assignments)
- > the proposed location of the station and, in particular, proximity between the station and residential premises
- > the qualifications held by the applicant/person to whom the licence would be issued (that is, Advanced qualifications only)
- > the likelihood of the applicant/station complying with applicable EME compliance methodology and record-keeping requirements
- > any other matters we consider relevant (for example, antenna height/direction, public accessibility of station).

Further, it is clear that the ACMA needs to have confidence that amateur radio operators will comply with the ARPANSA standard and the necessary record keeping. While easier to manage for new people taking up qualifications in the future, the pathway for improving education and compliance for existing AOCP(A) licence holders also needs to be considered. The WIA will separately address this issue below.

Broadly, the ACMA concerns can be summarised into the following key themes:

- Electromagnetic Emission (EME) management and the safety of the general public as well as the operator
- Electromagnetic Interference (EMI) from the amateur transmitter into surrounding equipment
- Radio Frequency Interference (RFI) into adjacent radio communications services.

11.1 Electromagnetic emissions (EME) management

First and foremost, the WIA fully supports the use of the ARPANSA RPS-S1 standard to define the EME emission safety limits that apply to the amateur service.

Noting the concerns raised by the ACMA on the likelihood of an amateur station complying with the ARPANSA standards and processes, the WIA contends that the foundation for access to higher power should be built based on the following principles:

- Training materials and systems need to be developed to support existing amateurs' self-education on how to achieve EME compliance.
- Methods for practical safety assurance and documentation that are specifically geared towards the amateur radio service need to be developed based on the processes outlined in AS/NZS 2772.2.
- ACMA endorsement for these practices would need to be obtained.

11.1.1 EME management safety and compliance training

By formally addressing EME education up front, the WIA believes the situation that arose in 2012/13, where EME was only raised as a compliance concern late in the trial (following a demonstrated lack of understanding by some trial participants), can be addressed. This could also help alleviate the ACMA's concerns about amateur operators properly carrying out their compliance obligations.

How that could be addressed was one of the subjects raised in the WIA survey of members. Four options were presented for members to consider.

- **Option 1:** *Require an additional certificate of proficiency be obtained to operate higher power.*
 - The creation of an AOCP(E) certification which specifically targets training in the management and use of higher power, covering EME, EMI and RFI aspects in particular geared specifically towards implementation within the amateur service - which is an additional endorsement added to an AOCP(A) certificate of proficiency
 - Registration of individual station locations with the ACMA would not be required with this approach
 - The expectation is that having passed the certification, the liability the ACMA has is reduced.
- **Option 2:** *Develop suitable self training materials and compliance processes*
 - Creation of voluntary education and process support systems geared towards supporting amateur service higher power privileges while achieving compliance with the ARPANSA standard and the AS/NZ 2772.2 process standard that are accessed
 - Require the amateur operator to be responsible for direct management and resolution of any EMI complaints resulting from their use of higher power
 - This may require some compliance oversight by the ACMA (potentially including registration of specific station configurations with the ACMA and pre-supply of compliance documentation) and potential restriction on the types of activities undertaken
- **Option 3:** *Direct regulatory supervision*
 - amateurs are required to specifically register to access higher power privileges, and in doing so will be required to furnish substantial amounts of station configuration data
 - Amateurs would be required to obtain 3rd party generated compliance documentation for their stations
 - The ACMA would then assess compliance, using the 3rd party generated certification plus a number of other internal considerations that cover EMI and interference into other radiocommunications services
- **Option 4:** *Other options*
 - In this case, members were invited to submit alternative approaches. One notable comment made by numerous survey participants was that recognition of professional qualifications held by radio amateurs in the field of EME management and compliance should be taken into account.

The result of the survey was quite interesting, with a majority of amateurs willing to consider some level of additional formal certification in order to access higher power privileges.

Education Option	% Support
Certificate of Proficiency Approach	55%
Self Assessment & Management with restrictions	34%
Direct Regulatory Supervision	3%
None of the above	7%

Considering the member feedback, the WIA feels that the concept of establishing an additional AOCPP certification focused specifically on EME compliance and interference management in support of higher power privileges, is something that we wish to hold further discussions with ACMA about as one of the next steps in this process.

11.1.2 EME safety assurance Processes & Documentation

The WIA understands (from contacts it has made with the EME management industry) that arrangements and systems should be able to be developed using methods defined in AS/NZS 2772.2 that are geared specifically towards the amateur radio service operating environment. Indeed, it should be possible to define practical solutions to the problems facing the amateur service, without the need for overbearing regulatory intervention. Simple, practical approaches, with suitable uncertainty budgets built in, will also assist the amateur service with broader general compliance in this area.

We believe that, if this work is undertaken correctly, the need for independent assessments of amateur stations should be avoidable. Instead, the WIA advocates for techniques such as:

- calculation based site assessments conducted within a suitable compliance assessment and management framework;
- Self measurement based approaches using relatively low cost equipment (e.g. using a RadMan meter) and easy to access training (required in more complex cases) and;
- Establishment of suitable documentation standards and storage systems targeting radio amateurs;

should be sufficient to allow reliable demonstratable compliance to the ARPANSA EME standards.

The WIA is of the view that the rigour brought by delivering a structured assessment environment should provide the confidence that the ACMA is looking for while minimising operational burdens on the amateur service. The point that needs to be clearly understood on all sides is that compliance need not be difficult to assess and in many cases achieve.

To progress this further, the WIA will seek further discussion with the ACMA to clarify the details of its concerns, so that a solid foundation can be laid upon which a final solution could be developed.

11.1.3 Example: Low Risk transmitters support using higher power in some cases

While the WIA recognises that some in the community have considerable concerns about EME, the WIA feels it is important that any solution be based on standards and scientific fact. The WIA believes we need to be cautious about over stating risk.

On the HF bands in particular, it is worth noting that it is quite possible to operate at higher power levels under the existing 'low risk transmitters' regulations already proposed in the new draft amateur class licence. This could easily form a first stepping stone to achieving a broader relaxation of the power limits while maintaining public safety.

To illustrate the point, the WIA considered the following scenario:

Example

Aa 1 kW HF station complying with the 'Low Risk Transmitters' regulations currently in force in the general apparatus LCD. (which are also proposed to be included in the new draft amateur class licence).

An amateur station wishes to use 1 kW pX for a SSB transmission on the 14 MHz amateur band. To do so, the station consideration can be summarised as:

- *A frequency and power level of 14 MHz at 1.0 kW pX;*
- *A modulation factor of 50%;*
- *A Tx/Rx duty cycle of 50%;*
- *An antenna gain of 6.5 dBi; (a typical 3 element Yagi antenna)*
- *With the antenna mounted more than 10 m above the ground, and;*
- *no buildings within 10-15 m of the tower higher than a single story.*

That station would have an average EIRP of 30.4 dBW or ~1120 Watts. Therefore, it currently easily fits under the definition of a low risk station in the proposed schedule 1 of the draft class licence, which sets a limit in this scenario of 3200 W EIRP..

11.1.4 Location and environment as factors?

The WIA also firmly believes that, over and above the licence grade distinction, that there will be practical limitations on the use of higher power by geographic locality. Amateur operators do need to accept that not all locations are suitable for operating at higher transmitter powers due to the proximity of their stations to the general public and neighbouring properties and dwellings.

- It will be challenging if not impossible, for example, to operate with higher power from many urban environments due to the lack of separation between antennas and neighbours, where both EME and EMI problems can arise.
- It will be important that amateur operators understand the spatial impact of their activities in 3 dimensions

At the same time, however, the WIA has received feedback from its members that setting arbitrary limitations, not based on the science set forth in the standard and not giving due consideration to actual station configurations, is not the preferred approach either.

The WIA position on managing EME by location is, therefore, that any location should be considered suitable (from an EME perspective), provided compliance with the ARPANSA EME standard RPS-S1 and the AS / NZS 2772.2 standards for how to show compliance are followed. Of course, where compliance can not be achieved, then the station must not operate in a way that exceeds the limitations prescribed by the standards.

If location is going to be considered at all, it may be that a simplified compliance process may become possible in large rural settings where additional simple to calculate safety margins could be added to negate the need to conduct a detailed study. This is something we wish to explore with ACMA as we progress towards a workable higher power EME management framework.

11.1.5 Should there be other limitations?

The ACMA has asked whether other limitations should be considered when granting access to higher power. Specifically:

Should potential higher power authorisations be limited by:

- > location?
- > position?
- > event?
- > something else?

As stated above, the WIA believes that limitations on location and position should not be arbitrarily limited, and instead a standards and science based approach be taken. This is the only really fair way to manage this issue in the view of the WIA.

When it comes to the question of the type of event that higher power could be used at, the WIA is concerned that the ACMA has failed to understand the value of each and every opportunity an amateur has to use a transmitter at higher power.

It doesn't matter that perhaps the amateur operator is engaged in radio sport activities and wishes to use higher power, because the operation of that station in a radio sport environment is:

- A. A legitimate use of amateur radio, and;
- B. The act of building and operating that station is always enhancing the operator's education and self training in the art of using higher power.

No one activity diminishes the value of higher power over another. The improvement of knowledge and understanding is a continuous process. Any artificial limitations only serve to weaken the opportunities for gaining that knowledge, which is ultimately an act contrary to the fundamental definition of amateur radio.

Therefore, the WIA does not believe the ACMA should be dictating what type of communications event (or activity) high power is permitted to be used.

11.2 Managing Electromagnetic Interference (EMI)

The ACMA has raised electromagnetic interference (EMI) as a concern, where an amateur radio transmitter may interfere with the correct operation of 3rd party electronic equipment.

EMI issues are generally well understood by amateur radio operators, and a variety of techniques are used to mitigate EMI issues if and when they arise. Although the introduction of digital television and improved electronic design techniques have generally reduced the susceptibility of modern electronic equipment to EMI issues, EMI remains an important issue for radio amateurs to know how to identify and mitigate when issues occur.

The solutions to interference issues are usually amicably managed between the radio amateur and the affected party, and can involve fitting additional chokes or ferrites to audio equipment, high pass or band pass filters to broadcast receivers, or bandpass/low pass filters to the output of amateur transmitters.

Considering that the majority of EMI issues are successfully dealt with directly by radio amateurs within their own community with the current permitted power output of 400 W pX, the proposed 4-6 dB increase in power is not expected to result in a significant increase in EMI events.

11.2.1 Amateurs Effective at Managing EMI today

As a demonstration of the level of self management of these issues today, the WIA also sought evidence from those who responded to our survey as to what sort of EMI complaints were being received and how they were being managed.

Of those who responded, only 10% (out of 615 replies) indicated they had ever been faced with an EMI type complaint. Of those, only 11 were ever referred to the ACMA over a period spanning many decades.

The types of complaints received typically included:

- TV interference - which in almost all cases was tracked to faulty TV antenna installations and predominantly were reported in the analogue TV era.
- HiFi and PC speaker equipment - of which all were resolved with the addition of ferrites by the radio amateur to the affected equipment

With over 80% of issues being resolved by the radio amateur without engaging the ACMA, it is clear that there is already a good understanding by radio amateurs of how to manage EMI issues.

Of those that did get referred to the ACMA, most of the survey responses indicated that the fault was with the TV receiver equipment or antenna systems. In some cases, the fault was not even the result of the radio amateur transmitting, despite the amateur station being suspected as the cause.

The WIA conclusion is that the risk of increased EMI impacts, while potentially real, are not likely to be material to the ACMA given the level of self management already undertaken today within the amateur radio service.

11.3 Management of Radio Frequency Interference (RFI)

The ACMA consultation paper expresses concern about the risks of interference from higher power amateur transmitters to other radio communications services. RFI impacts to other radio communications services can be due to harmonic and spurious emissions falling outside of amateur bands, or due to receiver blocking due to overload.

11.3.1 Spurious Emissions & Harmonics

Modern amateur transmitters have very low levels of spurious and harmonic emissions and, unless faulty, are not likely to exceed the current limit with only a modest 4-6 dB increase in power output.

Amateur operators engaged in the design and construction of their own transmitters in particular are also very conscious about the quality of the signals their designs produce, and typically take the time and effort to validate that they are complying with the relevant spurious emissions clauses in the current amateur apparatus (LCD) regulations.

The WIA in our survey asked questions about occurrences of interference being reported into other radiocommunications services as a result of their transmissions.

Out of 615 replies, only 2 (0.3%) reported such a scenario occurring over the lifetime of their amateur radio licences. Of those, only one was found to be their fault (DTV sideband emissions on 446.5 MHz spilling outside the amateur band).

11.3.2 Receiver Blocking

Receiver blocking is the third most common mechanism that can cause interference to other services. Blocking may occur when a transmitter is operating in close physical proximity to a receiver operating on a nearby frequency (where the receiver filters are less effective).

The WIA engineering assessment of the risk of receiver blocking into other licenced radio communications services, first of all on the HF bands, is negligible. Only one example of this scenario was reported in the survey we conducted, and that situation was between a CBRS 27 MHz station and an Amateur 28 MHz station operating in very close proximity (<20 m apart).

On the VHF/UHF bands, however, it is potentially more of a concern due to the high EIRPs possible from non-assigned amateur stations, particularly when operating at higher powers due to the use of highly directional antennas. However, no evidence of this sort of receiver blocking interference has so far been reported to WIA.

When you then consider where amateur non-assigned stations are typically located compared to other typical radiocommunications service receivers, you find that rarely are they co-located. Therefore, the opportunity for receiver blocking to manifest itself is almost never present.

Given the lack of any other evidence, the WIA would like to understand what other specific examples the ACMA has on file where such blocking problems have arisen, in order to improve our assessment of the risk this issue presents.

11.3.3 Interference between Amateur stations

The ACMA has raised a concern that increasing the transmitter power for AOC(A) licensees may disadvantage other users, and other groups of users, within the amateur bands.

The WIA believes that this concern is unfounded, due to the very nature of the amateur radio service and the techniques used by stations to communicate.

First of all, due to natural propagation effects on HF, there are circumstances where stations can inadvertently cause interference to other stations using the same frequency. However, as a non-assigned service (setting aside fixed repeaters and beacons), every station is frequency agile and is free to move frequency at any time within the amateur spectrum allocations.

When stations become aware of interference or cross-interference, they can simply change frequency. In this way, conflict is naturally avoided. It is part of the core understanding of every radio amateur that this is normal behaviour. A 4-6 dB additional transmitter power will not fundamentally change that response.

Additionally, some operating modes invented by radio amateurs (such as FT8) are designed to tolerate decoding two 50 Hz wide MFSK signals overlapped by as much as 49 Hz. The powerful decoding algorithms used on these modes are able to resolve both signals regardless of the amount of overlap, and even with a substantial difference in relative power (10-15 dB difference is common).

When the WIA raised this matter in its recent survey, 87% of responses were in agreement with the WIA position. Only 2 responses were received citing concerns about inequity between AOC(F) operators and others. The WIA view, however, is that this should be taken as an incentive for those licence grade operators to upgrade rather than as a reason to hold back the development of privileges at the other end of the scale.

So, in summary, the concern raised by the ACMA about increasing the power disparity between AOC(F) and AOC(A) licensees is not considered to have a material impact on the enjoyment by all operators of the amateur radio spectrum.

11.3.4 Potential disruption to Primary Services

The only frequency band that the WIA would support limiting access to higher power at this time is the "30m band" or 10.1-10.15 MHz. The WIA is aware of active use of this spectrum by the primary fixed service, and given that the band is very narrow (only 50 kHz bandwidth) can see that introducing conditions that would further compromise spectrum sharing in such a narrow space would not be welcome by the primary licence holders.

11.4 WIA Position on Managing Higher Power

In considering its analysis of the ACMA's concerns regarding higher power privileges for Australian amateur service operators, the WIA believes that there are practical solutions available that will address these concerns while not placing an undue regulatory burden on either amateur operators or the ACMA. The WIA encourages the ACMA to work with the amateur community in developing those approaches as a jointly owned solution is likely to gain far greater compliance and acceptance.

Requirement:

The WIA strongly advocates that any proposed solution that enables the amateur service to access higher power privileges in Australia should provide a pragmatic and practical solution that has broad applicability while maintaining an absolute focus on ensuring public safety and adherence to the necessary standards.

Recommendation 27:

In defining a solution that enables Australian radio amateurs to access higher power privileges, the following principles should be considered:

1. Any limitations that are a result of EME emissions should be tied directly to science based outcomes based on the ARPANSA standards. Arbitrary additional restrictions should be avoided.
2. EME management processes that recognise the dynamic nature of the amateur service should be developed that enhance the ability for amateurs to comply, through providing opportunities to train and learn and if deemed necessary that then lead to certification for access to those higher privileges.
3. That support will need to be provided by both the ACMA and amateur service representative bodies to develop training materials and processes that provide the basis for a sustainable long term implementation
4. Some areas, such as EMI, already see a high degree of self management by radio amateurs, to a level that means most issues are never reported to the ACMA. This needs to be recognised by the ACMA and the perceived risks need to be adjusted to match existing practice. Further, it is worth noting that the chance of increased EMI is not seen as an issue in any other jurisdiction where radio amateurs already have access to higher power.
5. In practical terms, any concerns regarding increased risks to other radiocommunications spectrum users need to be tempered with the understanding of the typical lack of geographic proximity between those services and amateur radio stations. Further, given the proposed power increase is potentially no more than 6 dB, and the lack of reported issues from current operations over many years, that based on the evidence WIA has been able to gather, no actual risk has been found to exist in this area.
6. Power disparity between licence grades is not seen as an issue within the amateur service

12.0 ACMA Scientific Licence Approach

The ACMA has proposed to authorise higher power privileges on a station by station, location by location, and case by case basis, using the scientific apparatus licence framework. This would enable the ACMA direct oversight of the way it is being used, and to facilitate recording of who is authorised to use higher power privileges in the ACMA Register of Radiocommunications Licences (RRL).

From the ACMA proposal:

These changes will allow Advanced amateurs to apply for assigned scientific licences for certain experimentation uses, including reflecting signals from a celestial body, as well as inter-continental ionospheric and trans-equatorial propagation experiments.

These activities involve research, investigation, testing, and trialling of equipment, which are activities compatible with the uses of a scientific station in section 7 of the [Radiocommunications Licence Conditions \(Scientific Licence\) Determination 2015](#) (the Scientific LCD) and the definition of a scientific assigned station and a scientific licence in the [Radiocommunications \(Interpretation\) Determination 2015](#).

The WIA interprets this approach as being a response to the ACMA concerns around the ability, and indeed willingness, of some radio amateurs to actually comply with the EME regulations. However, the WIA is concerned that the level of supervision being proposed will lead to significant regulatory overheads, and significant costs. The sustainability of this approach will need to be carefully assessed.

The following conditions are applied to the Radiocommunications Licence Conditions (Scientific Licence) Determination 2015:

Radiocommunications Licence Conditions (Scientific Licence) Determination 2015

7 Use of stations under other licences

A scientific station may be operated by the licensee if the station is operated primarily to perform any of the following activities:

- (a) research into radiocommunications;
- (b) investigation of radiocommunications;
- (c) instruction in radiocommunications;
- (d) demonstration of equipment;
- (e) testing of equipment;
- (f) trials of new radiocommunications technology;
- (g) radio propagation path testing.

Note The issue of a scientific licence does not mean that an assigned frequency or any other frequency will be available to the licensee beyond the expiry date of the licence or under any other licence type for any purpose.

12.1 Conflict with the definition of the amateur service

What the WIA fundamentally observes however is that these conditions do not align with the purpose of the amateur service as defined by the International Telecommunications Union (the ITU), which are:

1.56 of the Radio Regulations (RR) defines the amateur service as:

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

The key point is that Scientific licences do not support **inter-communication, which is a basic purpose of the amateur service and is one of the prime drivers for higher power operation.**

While activities like propagation based experiments could indeed be considered under the scientific licensing framework, fundamentally that is only true if one of the core reasons for the amateur service’s existence is denied, that of being allowed to communicate with fellow amateurs. The WIA can not therefore see how the scientific licence framework can legitimately be extended to cover all likely future uses of higher power privileges by the amateur service. Short term use of the framework to conduct a trial aside, the longer term viability of this approach appears unworkable given the definitions within the scientific licence LCD framework.

For this reason the WIA does not support the use of the scientific licence framework as a suitable vehicle to manage higher power privileges in the amateur service. The time and effort to be invested in first establishing amateur use of Scientific Licences would be better directed towards outcomes that ultimately lead towards the desired final outcome.

12.2 Scientific licence cost burden

The WIA is concerned that the costs of the scientific licence approach, noting also the comments about ACMA’s intent for amateurs to seek independent EME assessment of their stations, place a considerable barrier before the amateur radio service in attempting to access these privileges.

As the WIA understands the proposal, the following would be the likely costs:

Item	Description	Cost
Application Fee	Scientific Assigned application fee (sourced from the consultation paper) ¹	\$606
The Schedule 1 Part 4 EME assessment	Third party EME compliance assessment	~\$5000
TOTAL		~ \$5600

¹ <https://www.acma.gov.au/apparatus-licence-fee-calculator>

Given that the “self training” aspect of amateur radio implies experimentation and regular station reconfiguration, the costs of independent RF assessments for each station variation would be prohibitive, and probably deny radio amateurs access to one of the fundamental aspects of the amateur radio service. Advice has also been received by the WIA that the need for third party independent assessment could potentially be considered over-reach, given that with proper training and understanding of the AS / NZS 2772.2 standard, amateur radio operators should be quite capable of managing their EME environment. The WIA therefore wishes to gain a better understanding of ACMA’s approach and concerns so that we can reconcile its position against our own understanding of the issues.

12.3 WIA Position on the use of Scientific Licencing

On reviewing the ACMA approach, the WIA finds that it is unable to support the direction proposed. While it may be possible in the very short term to successfully licence an amateur station under the Scientific Licence LCD, thus enabling (perceived) rapid access to higher power experiments, it has done so at a price that is likely cost prohibitive (once considered against the associated supporting documentation costs). Further, the mechanism ultimately does not encompass the same rights that amateurs get when licenced in a way that properly reflects the Amateur Service ITU-RR 1.56 definition.

More importantly, the WIA believes the proposed ACMA approach does not resolve the underlying problems that are blocking a more sustainable long term solution to this issue. Specifically:

- the need to improve training and education
- the need to build/restore confidence within the ACMA that the amateur service can safely and effectively manage their stations in alignment with the ARPANSA EME standard.

The WIA believes the ACMA has approached this matter from the perspective of “how to deliver access in a way that gives the ACMA sufficient confidence it will be safe” as opposed to “working to first improve ACMA confidence in amateur service EME management training & compliance, before following that process with longer term, but ultimately more sustainable practices and processes supporting access to higher power privileges”.

The WIA would strongly recommend the ACMA take a step back and consider how this second approach could be implemented. The amateur service has waited a long time for these privileges in Australia, and if it takes a further time to get the settings right to support meaningful access then that is a preferred approach from the WIA’s perspective.

Requirement:

The WIA does not endorse Scientific licensing as a suitable mechanism to introduce higher power privileges into the amateur service.

Recommendation 28:

1. *That the ACMA consider an approach to introducing higher power privileges into the amateur service that first and foremost addresses the ACMA’s confidence that the Amateur Service can meet its compliance obligations, before then allowing access on a more general and long term sustainable basis.*
2. *That the WIA does not support the proposed Scientific Licensing framework as a viable roadmap to deliver higher power privileges for the Australian amateur radio service.*

Finally, noting that the ACMA was intending to base further decisions on higher power arrangements on the rate of take up by the amateur service of the Scientific Licensing approach, the WIA is concerned that the cost barriers presented and the restrictions applied will significantly suppress demand and lead to false conclusions of perceived demand.

13.0 WIA Proposal for Higher Power Privileges

The Amateur Service in Australia has long requested access to higher transmitter power limits in order to address the inequalities found on inter-continental communications paths as well as to allow easier access to a range of other experiments and activities. As presented in section 9.0 of this response, there is a clear demand from radio amateurs around the nation for access to these capabilities.

The WIA is also keen not to see history repeat itself, and believes that any new attempt to introduce higher power privileges must learn from past mistakes. New proposals must address the following key themes such that acceptable long term arrangements can finally be established that give the ACMA the confidence it needs and radio amateurs the access to the privileges that they desire.

13.1 Education & Training based approach

The WIA believes and accepts that the best way forward is to firstly build ACMA confidence in the amateur service's ability to manage higher power privileges in ways that ensure public safety and adherence to appropriate standards. Access has to be built on trust, which must be earned.

This will need to be built upon:

- new educational materials, and potentially additional certifications for those operators who wish to access these privileges.
- Development of systems and processes that can provide a guided assessment and compliance assurance environment to the amateur service

These two aspects need to be jointly developed by the ACMA and the amateur service, so that the ACMA can be satisfied the outcome meets their needs while delivering a very practical and pragmatic approach for the amateur radio operators.

13.2 Conduct a trial in stages

Along with the training elements, the WIA sees considerable value in conducting staged trials, where people can opt in to participate, and can then provide feedback as part of the process to help shape the necessary compliance assessments, assurance and documentation, and most importantly the training required.

Staging the trial can also provide the ACMA with comfort as additional complexity and risk can be introduced in a more controlled manner over time. For example:

1. Early stages could be based on operating at higher power, but within the low risk transmitters section of the proposed Schedule 1 Section 3 exemption conditions.
2. The next step could be to address situations where fail safe compliant station designs could be permitted to operate at higher power (e.g. amateurs on large rural properties where there is sufficient clearance provided that the public safety limits could never be breached)
3. Use the initial release in steps 1 and 2 to test and develop compliance assessment and recording systems - and verify the results with simple low cost but traceable measurement techniques
4. Expand the trial to start including situations where the transmitters are no longer classified as low risk, testing compliance along the way and including learnings into training and potential certification systems

5. Once all of the support systems are developed, (including any future syllabus/certification mechanisms), then move to a broader trial where amateurs can apply on a basis not unlike the final arrangements to access higher power.
6. Operate under a trial mode for a period, allowing amateurs to register and join the trial, under the expectation that they could be audited at any time
7. Build into the program a need to conduct spot audits of stations.
 - a. In cases where non-conformance is detected, rather than using that as an excuse to end the trial, it should be used as input to further develop and reinforce the training and compliance processes that are in fact under trial.
 - b. Ensure that audit results (anonymised if necessary) be published such that they can be used as training tools.
 - c. Audits could be carried out either by the ACMA or by recognised bodies (potentially drawn from professionally qualified individuals from within the amateur service).

This is but one example of how a trial could be conducted. The WIA would welcome an opportunity to discuss this further with the ACMA.

13.3 What power level is appropriate?

The WIA believes that the initial limit should be set to 1.0 kW pX for all modes. This matches what our New Zealand counterparts have access to as well as balancing against the majority of other nations around the world.

The description of power needs to be carefully considered to ensure it is understood in the context of all types of emission modes. ITU-R SM.326.7 provides a good reference for how to translate pX to all other emission modes.

In addition, it would be worth considering adding a statement, similar to what the FCC has in the USA, that “amateur stations are obliged to only use the amount of power necessary to achieve communication”.

13.4 Should all amateurs have access?

From the outset, given the technical challenges involved, the WIA is absolutely not supportive of these very high transmitter powers being permitted for use by AOCP(F) licence holders. The amount of training and proficiency provided to AOCP(F) holders is not sufficient to operate higher power transmitters safely.

Considering the AOCP(S) licence grade, the problem becomes one of maintaining a suitably sized stepping stone between licence grades. The additional education burden that it would place on AOCP(S) may also push this mid-range stepping stone out of reach of many, which is not the intent of this licence grade.

As a result, the WIA recommends that only AOCP(A) licensees be considered for higher power privilege extension at this time.

13.5 Overall Higher Power Licensing Framework

To assist the ACMA in thinking about practical options for conducting a higher power trial, the WIA would commend the following for consideration:

Aspect	Description
Licensing instrument	<p>Noting the general move towards class licensing and the removal of unassigned radio amateurs from the ACMA RRL database, the WIA proposes that should the ACMA decide that registration is still required to operate higher power, the existing Amateur (Apparatus) LCD instrument could have a new category added for “Amateur Unassigned - special use” licences.</p> <p>Such licences would be issued under general LCD conditions that define the requirements particularly for operating using the higher power privileges, but come with the advantage that the operators of these stations have their contact details registered with ACMA.</p> <p>This could also be used as a placeholder also for the small number of existing amateurs that hold current permits for “communication via celestial bodies” on VHF.</p>
Proposed Spectrum	If the trial is conducted in stages, it would be worth considering the opening phases be limited only to the 1.8 MHz and HF amateur bands (excluding 10.1-10.15 MHz as discussed above).
Permitted Power	The initial limit should be set to 1.0 kW pX for all modes. The description of power needs to be carefully considered to ensure it is understood in the context of all types of emission modes. ITU-R SM.326.7 provides a good reference for how to translate pX to all other emission modes.
Trial location Management	Trial location limitations may be appropriate in early stages to increase comfort that compliance is being achieved, plus limit the risks should mistakes be made whilst the final processes and documentation is still under development. Limitations should consider favouring rural localities with suitable separation from neighbours in the first instance, with progression later in the trials to more suburban areas (but only where ARPANSA compliance can actually be achieved).
EME Management	<p>The initial trial should focus on training and utilising self assessment techniques as defined in the ACMA's existing frameworks, such as the described low risk case to enable initial access to the higher power limits while ensuring EME safety.</p> <p>The trial should also have a training focus looking to establish and improve EME assessment and record keeping compliance. Given that the initial trial would typically be operating under what the ACMA has defined as “low risk” in existing instruments, the risk profile that the operators, the general public and the ACMA are exposed to is low.</p> <p>The WIA would like to see all participants achieve a compliant set of EME station documentation at the end of 3 months. Documentation for the low risk case will need to be better defined, but should be based on AS/NZS 2772.2</p> <p>External certification of individual stations should not be required in most cases provided support systems and tools are available and independently verified.</p>

Aspect	Description
EMI Management	<p>Operators should be required to take responsibility for resolving any EMI complaints received as a result of their use of higher transmit power.</p> <p>Further, they should be required to report any instances where they are approached regarding any EMI / BCI / TVI situations that occur when they are utilising the higher power transmitter limits, and outline what steps they took to resolve the issues reported. This information should be shared with the amateur community as part of improving education on these issues.</p> <p>Should the issue not be resolved to both parties' satisfaction within 30 days, the affected amateur radio operator should cease higher power transmissions until a solution is found.</p>
Radiocommunications Interference	<p>The WIA does not see this as an engineering risk when only considering the MF/HF spectrum between 1.8 and 30 MHz. On extension of the trial to VHF and above, arrangements should be made with trialists to attempt to quantify potential risks and then assess whether there is a material problem being created or not.</p>

13.6 WIA Recommendation on Higher Power

Requirement:

Support Australian radio amateurs gaining well managed and safe access to higher power as part of the standard conditions of the amateur class licence.

Recommendation 29:

The WIA:

- *proposes that this be approached by firstly building ACMA confidence in the amateur service's ability to properly manage its public safety obligations relating to EME through development of suitable training, documentation and assurance capabilities.*
- *would support the creation of an AOC type additional certification to address the training aspects of managing higher power stations.*
- *Supports a staged/phased trial based introduction*
- *Supports a proposed power level of 1 kW pX for all modes*
- *Does not support any restrictions being applied that are not a direct science based outcome of applying the relevant ARPANSA RPS-S1 standard.*

14.0 ACMA questions about higher power

14.1 Question 8 - Higher power via Scientific licensing

What are your views on the proposal to allow Advanced amateurs to apply for assigned scientific licences for certain experimentation uses, such as reflecting signals from a celestial body as well as inter-continental ionospheric and trans-equatorial propagation experiments? (See section 6.)

As discussed in detail in section 6 of this submission, the WIA does not support the use of the scientific licensing approach for the provision of higher power permits to operators within the amateur radio service. Both its regulatory structure, the lack of an “inter-communication” clause in the scientific licence (LCD) and the administrative costs involved with a scientific licence approach combine to make this a highly unattractive way forward for administering access to higher power permits for the amateur service. It seems far more appropriate, efficient and considerate cost wise to retain the amateur radio apparatus licence option in conjunction with a modified LCD, specifically for the purpose of authorising participating amateurs, for the duration of higher power trials.

Notwithstanding this, the WIA is still determined to find a way forward to permit amateur radio operators in Australia access to higher transmitter power privileges, and to that end has proposed an alternative framework for the ACMA's consideration.

14.2 Question 9 - Higher power use cases

Noting the proposal mentioned in 8, are there other amateur experimentation uses that require higher power that you think should also be considered under assigned scientific licensing arrangements? (See section 6.)

There are many use cases where the amateur service wishes to obtain access to higher power privileges, but none of these fit under scientific licensing.

14.3 Question 10 - Higher power - medium term view

What are your views on the medium-term proposal to allow Advanced amateurs to apply for authorisation for other higher power use-cases under certain conditions? Please provide brief information to help us understand your view. (See section 6.)

The WIA views on the need for higher power, the risks and mitigations available for those risks relating to higher power privilege use and a way forward for how administration of higher power are set forth in section 11 and 13 of our response above.

14.4 Question 11 - 1 kW power limit

Is a 1 kW power limit appropriate? Why or why not? If not, what alternative do you propose and why? (See section 6.)

The WIA supports an increase in transmitter power to 1 kW pX but asks that this be applied across all emission modes (suitably translated to other measurement references via the definitions in ITU-R SM326.7).

14.5 Question 12 - frequency bands to exclude from higher power

Are there particular bands that you consider should or should not be able to be accessed for Advanced amateur higher power operations? Which band(s) and why? (See section 6.)

The WIA strongly feels that the 30m amateur band (10.1 to 10.15 MHz) should be excluded from any higher power privileges given how narrow the band is, the fact that amateurs are secondary users of the band, and there are active fixed station users of that spectrum in Australia.

The 476 kHz and 137 kHz bands should also be excluded (given they already have other power limits applied)

14.6 Question 13 & 14 - Higher power user case details

What use-cases would require stations to operate at power limits for Advanced amateurs higher than the 400W currently permitted? (See section 6.)

For each use-case mentioned in 13, please briefly answer:

- a. Why is a higher power limit needed?
- b. What are the specific limitations of the current power limit?
- c. What power level is required?
- d. What is the technical description of this power level requirements (for example, transmitter output power, emission mode)?
- e. What amateur service frequency bands would be used?
- f. How often will a higher power level be required?
- g. What is the location of the station?

The WIA has provided some example use case data in this submission in section 10.

However, the WIA believes that the requested level of detail is unnecessary given the alternative approaches proposed by WIA to the matter of granting higher power privileges. Should the ACMA still wish for more information on these matters, the WIA would be happy to discuss further.

14.7 Question 15 - Higher power limitations

Should potential higher power authorisations be limited by location, position, event or something else? (See section 6.) Please provide details to support your answer.

The WIA believes that higher power authorisation ultimately should be limited by what is required to ensure public safety and the maintenance of the quiet enjoyment of the radio spectrum by other spectrum users. This means that the only limitations that should be required are those to ensure EME meets the ARPANSA standard, EMI is properly managed and some reasonable provision for the avoidance of (highly unlikely) interference to other radiocommunications services be considered. All other explicit factors that have been considered by the ACMA in this question should not be included, as they apply additional unnecessary regulatory burden on both the amateur service and the regulator without adding any additional protection to the core concerns listed above..

The practical outcome of the WIA position is that, yes, radio amateurs are unlikely to be able to operate at higher power levels in some locations, however that outcome should be driven by science based assessment, not unnecessarily conservative and restrictive regulation.

15.0 Conclusion

The WIA values an ongoing and productive relationship with the ACMA and welcomes the opportunity once more to provide feedback on the ACMA proposals to revise the regulatory arrangements that support the amateur radio service in Australia.

We are very pleased to see ACMA take on board many of the items the WIA provided feedback on in the previous 2021/01 ACMA consultation, and this will certainly enable the smooth transition to a Class Licence and the ongoing evolution of the amateur service in Australia. The WIA now provides support for the move to a class licence subject to consideration of our suggestions on how to address residual concerns on the following matters:

- the loss of a public register of call signs and the publication of call signs
- transition to a class licence and associated documentation
- range of Class Licence drafting issues that have been identified.

The WIA has supported and made a range of suggestions on how to further improve call sign administration & policy along with short term and long term reciprocal arrangements for visiting amateurs.

The WIA welcomes the updates to the LF/MF technical condition update, revised access conditions for 50-52 MHz, removal of the radiocommunications relaying restrictions.

In relation to higher power operation the WIA welcomes the ACMA's reconsideration of this area and puts forward a range of principles and suggestions for moving this issue forward using the ARPANSA and AS/NZS 2772.2 standards as the basis for scientific assessment of safety risks.

The WIA has put forward a cautious phased approach over 1-3 years to introduce high power privileges. The WIA is proposing a program based on education with new syllabus requirements, information campaigns and an accompanying toolset to enable and support those in the amateur service to upskill. This will hopefully provide confidence to the ACMA that those amateurs operating higher power are doing so with the knowledge, skill and experience to operate safely in relation to the public and themselves.

We acknowledge that there are still differing views on how to achieve a workable outcome, however the WIA is keen to work with the ACMA in a collaborative and open way to reach a mutually acceptable outcome.

Again, we thank the ACMA for the opportunity to comment on this set of proposals affecting the future licensing of the amateur community.

A.1 Appendix I - Summary of WIA Recommendations

Requirement:

To maintain self regulation within the amateur service and support external law enforcement activities:

Recommendation 1:

That the ACMA shall require a database to be published comprising:

- a. allocated amateur station call signs*
- b. the level of qualification associated with that call sign, and*
- c. the last renewal date for the call sign.*

Requirement:

The database of allocated amateur radio call signs be able to be re-published in other forms:

Recommendation 2:

- 3. That the ACMA shall ensure that the allocated call sign database be published under a Creative Commons - By Attribution licence (<https://creativecommons.org/licenses/by/4.0/>)*



Requirement:

In order to support the principle of preserving operational utility of the current arrangements, documentation showing evidence of being a licenced/qualified operator should also be provided to existing unassigned amateur apparatus licence holders.

Recommendation 3:

That ACMA, as part of the transition arrangements to class licencing, undertakes to provide a one-time free of charge replacement copy of the Australian Amateur Operator's Certificate of Proficiency for all existing licensees including;

6. a statement of certification to hold a relevant AOCF (including mapping grandfathered, qualifications to current AOCF arrangements), and;
7. a declaration of the call sign(s) held by the individual, and;
8. a declaration of their rights to access the amateur class licence provisions as a result of holding the qualification and call sign, and;
9. the relevant statements necessary to support CEPT reciprocal licensing, and;
10. all other class licence requirements.

Requirement:

To ensure no confusion arises regarding grandfathered qualification holders being authorised to access the new class licence.

Recommendation 4:

The WIA recommends that a clause be added to the draft class licence similar to:

9 Recognising qualifications

- (1A) The ACMA declares that holders of the following qualifications be considered equivalent to one or more of the following:
- a recognised qualification (Limited Amateur Operator's Certificate of Proficiency) is equivalent to an AOCF(Advanced) type
 - a recognised qualification (Combined Novice & Limited Amateur Operator's Certificate of Proficiency) is equivalent to an AOCF(Advanced) type
 - a recognised qualification (Novice Amateur Operator's Certificate of Proficiency) is equivalent to a AOCF(Standard) type
 - a recognised qualification (Novice Limited Amateur Operator's Certificate of Proficiency) is equivalent to a AOCF(Standard) type.

Requirement:

That Australian non-assigned Amateur Service apparatus licence holders, licenced before the change in ACMA policy on 19th September 2020, be provided with suitable written certification of their rights to hold an Australian amateur call sign.

Recommendation 5:

That in the situation outlined above, the ACMA shall provide written evidence of:

- *the acceptance of the relevant reciprocal amateur qualification by the ACMA, and;*
- *confirmation that an individual is authorised to access the new class licence, and;*
- *authorisation to continue using a call sign previously granted on their original apparatus licence.*

The details of these circumstances shall be (if not already) communicated to the amateur examination and call sign entity/provider for recording in any call sign allocation system.

Requirement:

Ensure suitable frameworks are put in place to manage call signs and their use when they are allocated to entities who are not natural persons.

Recommendation 6:

To be issued with a club call sign by the call sign entity, the following conditions must be satisfied:

- The organisation must be either an incorporated body or registered company.
- The charter of the organisation must include an intent to engage in matters relating to the amateur radio service.
- The call sign issuing entity shall maintain a record of the name and contact details of the responsible officer in the club/organisation who has the care and control of the use of the call sign, who themselves must hold a valid AOCPP qualification.
- That there be a suitable certificate provided that links the call sign to the class licence via qualified operators who must be members of the organisation and who can only use operator privileges commensurate with their own personal AOCPP certification unless being supervised by another AOCPP holder of higher privileges.

Requirement:

The WIA asks the ACMA to update references to measurement methodologies in alignment with ARPANSA standard RPS-S1.

Recommendation 7:

Replace schedule 1 section 2 part (2) and (3) of the draft class licence with:

- *a direct reference to ARPANSA RPS-S1 Section 2 Tables 4 to 8, and;*
- *include a statement that “the relevant required measurements for a given frequency band shall be as per the general public exposure limits defined in Tables 4 to 8” of ARPANSA RPS-S1 (or later version of this standard as published from time to time).*

Requirement:

The WIA seeks recognition by ACMA of additional low risk transmitter scenarios, and the addition of suitable criteria to enable them to be included under Schedule 1 Section 3

Recommendation 8: that schedule 1 part 3 “Presumptions about compliance with the condition in subclause 2(1) – low risk stations” be amended to include an additional criteria defining low risk stations as follows:

“Or:

- E. The station is configured and operated such that;*
- a. If the antennas and the immediate environment are visible at all times while the operator is activating the transmitter and;*
 - b. the transmitter power output is no greater than 100 W then;*
 - c. the operator, as an “aware user”, shall cease transmissions should any member of the general public approach the station antenna within a distance of 5 m.*

Requirement:

That the ACMA be encouraged to present all licence documentation in a simple to read plain english manner to aid understanding of the requirements by the general amateur radio population.

Recommendation 9:

Noting that while the ACMA needs to use correct legal language in the instrument, the WIA is concerned that this writing style may be difficult for some amateurs to follow.

To avoid mis-understandings, a preferred solution would be the inclusion of a “Regulatory Explanatory Statement” as an Appendix. Such a statement could be framed in a way that enhances understanding by the target “technical” rather than “legal” audience.

The inclusion of such a statement could prevent significant levels of unintended non-compliance, particularly among communities where English is a second language.

Requirement:

The WIA seeks to ensure that the new class licence makes it clear that a call sign allocation against a valid AOCPP qualification is a mandatory requirement prior to operating an amateur radio station.

Recommendation 10: reword Part 1 Section 7(1) as follows:

7 Call signs

- (1) The Call Sign Entity ***shall*** assign a call sign to a person who holds the relevant qualification

Note: See subsection 133(3) of the Act.

Requirement:

To provide support within the class licence for incorporated amateur radio clubs and other registered bodies with legitimate need, where amateur radio is a part of their charter, to acquire a call sign for use by members who hold AOCPP qualifications or others under their direct supervision.

Recommendation 11: provide an additional clause in Part 1 Section 7 similar to:

7 Call signs

- (1A) The Call Sign Entity ***shall*** assign a call sign if requested to an incorporated amateur radio club or other registered body where it has provided evidence that it has the objective of participating in the amateur radio service as part of its charter.

Requirement:

Management of unattended transmitters should be retained to maintain the existing utility of the amateur service spectrum.

Recommendation 12:

That the following clause should be reintroduced into the draft class licence as:

13 Operation of station – purposes and transmissions

- (4) (c) a transmission from the station can be terminated promptly if the transmission causes interference to another service.

Requirement:

Interconnection of Amateur service transmitters to public telecommunications networks must not result in unlicensed persons being able to initiate transmissions on amateur radio spectrum.

Recommendation 13:

The WIA recommends that the following clause must be reintroduced into the draft class licence.

18 Restrictions on connection to a public telecommunications network

- (2) This section applies to:
- (a) an amateur licence (amateur foundation station);
 - (b) an amateur licence (amateur standard station);
 - (c) an amateur licence (amateur advanced station); and
- (2) The licensee must not, directly or indirectly, connect the station to a public telecommunications network, unless the licensee has implemented reasonable measures to ensure that only appropriately licensed persons access the station to transmit a signal to another amateur station.
- (3) In this section:
- appropriately licensed person* means a person holding a licence that authorises that person to operate a station using the frequency and emission mode of the station being accessed.

Note A licensee who operates a station connected to the public telecommunications network is not required to authorise other persons to operate the station for the purpose of accessing the station.

Requirement:

Revise Part 3 Section 12 to restore the previous call sign usage pattern rules which better reflect actual on air practice and restore alignment with the current amateur apparatus license

Recommendation 14: To resolve the issue, the WIA proposes that Part 3 Section 12 be reworded as:

12 Using call signs

- 2) Subject to this section, a person must, when operating an amateur station, transmit the person's call sign at each of the following times:
- a) the beginning of a transmission; or series of transmissions;
 - b) the end of a transmission; or series of transmissions;
 - c) if a single; or a series of shorter individual transmissions; lasts more than 10 minutes – at least once every 10 minutes during the transmission events.

by voice (using the English language), by visual image or by an internationally recognised code.

Requirement

The WIA strongly advocates the emergency activation or training proword call sign rules be restored to the class licence

Recommendation 15:

Restore the following clause from the amateur apparatus licence to the amateur class licence:

12 Using call signs

(1A) If:

- (a) there are two or more qualified operators participating in emergency services operations or training exercises for emergency services, and;
- (b) two or more of those qualified operators are operating stations (*the group of stations*) for the purposes of those operations or exercises;

for transmissions relating to those operations or exercises the licensee must ensure that arrangements are in place for at least one station in the group of stations to transmit the call signs of all of the stations in the group of stations:

- (c) at the beginning of a transmission, or series of transmissions;
- (d) at the end of a transmission or series of transmissions;
- (e) if a transmission or series of transmissions lasts for more than 30 minutes — at least once during each period of 30 minutes, or part thereof, of the transmission or series of transmissions;

by voice (using the English language), by visual image or by an internationally recognised code.

Recommendation 16:

We recommend the ACMA correct Part 3 Section 17 (1) of the draft class licence as follows

- (1) A person must not operate an amateur station on a frequency within the 3.4 GHz **to 3.6 GHz** frequency band if the operation would cause a transmission to occur in the area described by the HCIS identifiers in the table in Schedule 3.

The Requirement:

The WIA seeks clarity on how mean power is defined in the draft class licence. The definition in the draft Class Licence needs to be corrected.

Recommendation 17: reword the power definitions as:

5 Interpretation

- (1) *pY* means the average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

Requirement:

The WIA seeks clarity on the definition of 'recognised overseas qualification':

Recommendation 18:

The WIA recommends to the ACMA that section 5(1) of the draft class licence be reworded similar to:

5 Interpretation

- (2) *recognised overseas qualification* means any of the following that has been issued or awarded by a body, association or person outside Australia:
 - (a) an equivalent recognised qualification (Advanced Type);
 - (b) an equivalent recognised qualification (Foundation Type);
 - (c) an equivalent recognised qualification (Standard Type).

as per the reciprocal agreements table as published from time to time on the ACMA website.

Requirement:

That the ACMA establish a call sign renewal capability that is low or zero cost to access, which minimises data storage and places the responsibility for renewal on the call sign holder, rather than the call sign entity.

Recommendation 19:

The WIA recommends that a renewal system needs to have the following fundamental characteristics:

- Be self service - online based.
- Be very low cost or preferably zero cost to the end user.
- Be centrally managed, ideally independent of the contracted service provider, (this is so continuity can be maintained through transitions between call sign entity and assessment providers).
- Use a data acquisition model where revalidation is an obligation on the call sign holder.
- Renewal can occur at any time but no less frequently than every 10 years (similar to passports).
- If a call sign is not renewed after 10 years, a grace period of a further 2 years be allowed, where the call sign is placed in a dormant state before it is released back into the pool for reallocation.

Requirement:

In order to prevent call sign hoarding and the creation of an artificial marketplace (particularly for 2x2 call signs in NSW, VIC and QLD) the WIA proposes that limits be placed on the number of call signs held by a licensee.

Recommendation 20:

4. That individual licensees only be permitted to hold a maximum of 23 permanent and 2 temporary call signs, and;
5. organisations / groups be allowed to hold no more than 10 non-assigned call signs except under special circumstances (e.g. the Scout and Guide organisations and emergency service organisations such as WICEN), and;
6. call signs held before the transition from apparatus to class licensing be grandfathered and transferred to the new arrangements regardless of any new limits applied.

Requirement:

Call sign transfer capabilities be preserved in the transition from apparatus to class licensing, but only if limits are placed on the number of call signs able to be held. This is to prevent grey markets forming for call signs leading to profiteering.

Recommendation 21:

The WIA recommends that the call sign transfer as proposed by the ACMA be amended in alignment with the WIA suggestions above.

Requirement:

Maintenance of amateur call sign template policy documentation should be an ACMA responsibility, but with input from the amateur radio community.

Recommendation 22:

The WIA recommends that the call sign management policy be maintained by the ACMA, using processes similar to the ACMA's Technical Liaison Group (TLG) arrangements. When changes are proposed to be made, amateur service wide input can then be gathered and changes agreed by consensus.

Requirement:

Give the ACMA greater flexibility to authorise the use of the AX prefix in events of extraordinary national or cultural significance.

Recommendation 23:

That the following clause be added to the draft class licence:

12 Using call signs

(4) (d) The ACMA may, in addition to these dates, declare additional dates when there is an event of national or international significance.

Requirement:

To prevent confusion as to what the correct examinable operating procedures are.

Recommendation 24:

The ACMA maintains stewardship of the operating standards procedures listed in the AOCP syllabus in support of the practical examination.

Further, the ACMA undertakes to release the operating standards under a Creative Commons - by attribution licence, such that they may be republished by outside organisations but not modified in any way..

Requirement

The WIA, as the International Amateur Radio Union representative in Australia, seeks restoration of the original intent of reciprocal licensing: that technical qualifications received in another country that have already been recognised by the ACMA are deemed equivalent to the relevant AOCP certification in Australia.

Recommendation 25:

a.) Remove the "recognised prior learning" technical oral examination requirements to access an equivalent Australian AOCP(A), AOCP(S) or AOCP(F) qualification for overseas amateurs who obtained their qualifications by sitting examinations in a country recognised on the reciprocal arrangements table on the ACMA website.

b.) Formally declare that when applying for a long term (>365 day) reciprocal licence that the only additional examination requirement required to obtain an Australian qualification is to sit and pass an Australian amateur radio regulations exam.

Requirement:

That continuity be provided for those amateur operators interested in conducting experiments involving reflecting signals off of celestial bodies.

Recommendation 26:

That ACMA grandfather existing permits and continue to accept new applications under the existing arrangements until such time as new suitable arrangements are put in place to support higher power operation.

Requirement:

The WIA strongly advocates that any proposed solution that enables the amateur service to access higher power privileges in Australia should provide a pragmatic and practical solution that has broad applicability while maintaining an absolute focus on ensuring public safety and adherence to the necessary standards.

Recommendation 27:

In defining a solution that enables Australian radio amateurs to access higher power privileges, the following principles should be considered:

7. Any limitations that are a result of EME emissions should be tied directly to science based outcomes based on the ARPANSA standards. Arbitrary additional restrictions should be avoided.
8. EME management processes that recognise the dynamic nature of the amateur service should be developed that enhance the ability for amateurs to comply, through providing opportunities to train and learn and if deemed necessary that then lead to certification for access to those higher privileges.
9. That support will need to be provided by both the ACMA and amateur service representative bodies to develop training materials and processes that provide the basis for a sustainable long term implementation
10. Some areas, such as EMI, already see a high degree of self management by radio amateurs, to a level that means most issues are never reported to the ACMA. This needs to be recognised by the ACMA and the perceived risks need to be adjusted to match existing practice. Further, it is worth noting that the chance of increased EMI is not seen as an issue in any other jurisdiction where radio amateurs already have access to higher power.
11. In practical terms, any concerns regarding increased risks to other radiocommunications spectrum users need to be tempered with the understanding of the typical lack of geographic proximity between those services and amateur radio stations. Further, given the proposed power increase is potentially no more than 6 dB, and the lack of reported issues from current operations over many years, that based on the evidence WIA has been able to gather, no actual risk has been found to exist in this area.
12. Power disparity between licence grades is not seen as an issue within the amateur service

Requirement:

The WIA does not endorse Scientific licensing as a suitable mechanism to introduce higher power privileges into the amateur service.

Recommendation 28:

3. *That the ACMA consider an approach to introducing higher power privileges into the amateur service that first and foremost addresses the ACMA's confidence that the Amateur Service can meet its compliance obligations, before then allowing access on a more general and long term sustainable basis.*
4. *That the WIA does not support the proposed Scientific Licensing framework as a viable roadmap to deliver higher power privileges for the Australian amateur radio service.*

Requirement:

Support Australian radio amateurs gaining well managed and safe access to higher power as part of the standard conditions of the amateur class licence.

Recommendation 29:

The WIA:

- *proposes that this be approached by firstly building ACMA confidence in the amateur service's ability to properly manage its public safety obligations relating to EME through development of suitable training, documentation and assurance capabilities.*
- *would support the creation of an AOCPP type additional certification to address the training aspects of managing higher power stations.*
- *Supports a staged/phased trial based introduction*
- *Supports a proposed power level of 1 kW pX for all modes*
- *Does not support any restrictions being applied that are not a direct science based outcome of applying the relevant ARPANSA RPS-S1 standard.*

A.2 Appendix II - Example of NZ Amateur Qualification



NEW ZEALAND

Radio Operator's Certificate of Competency

(Issued under the authority of section 134 (1)(e) of the Radiocommunications Act 1989 and regulation 24 of the Radiocommunications Regulations 2001 and remains valid unless revoked by the Chief Executive under section 26 of the Radiocommunications Regulations 2001)

This is to certify that

meets the competency requirements for the

General Amateur Operator's Certificate

issued under the authority given by the Ministry of Business, Innovation & Employment.

Certificate Number:
Client Number:

Description of Holder:

Height:

Complexion:

Colour of Eyes:

Colour of Hair:

Date of Birth:

Place of Birth:

Country of Birth: **NEW ZEALAND**

Address:

New Zealand



Allocated Callsigns (issued pursuant to the provisions of Schedule 1(8) of the regulations)

Primary Personal Callsign:

Secondary Personal Callsign:

The competency requirements to which this certificate relates accord with the International Telecommunications Union Recommendation ITU-R M.1544, and are further prescribed in Schedule 4 to the Radiocommunications Regulations 2001.

The passed examination corresponds to the examination described in CEPT Recommendation T/R 61-02 (HAREC).

L'épreuve en question correspond à l'examen décrit dans la Recommandation CEPT T/R 61-02 (HAREC).

Die abgelegte Prüfung entspricht der in der CEPT-Empfehlung T/R 61-02 (HAREC) beschriebenen Prüfung.

The above named person meets the requirements to operate an Amateur radio station in accordance with the provisions of the Radiocommunications Regulations (General User Radio Licence for Amateur Radio Operators) Notice 2013, or a notice in replacement thereof, granted by the Ministry of Business, Innovation & Employment under Regulation 9 of the Radiocommunications Regulations 2001.

CEPT Amateur radio licence equivalent in accordance with Recommendation T/R 61-01.

CEPT amateur équivalent licence radio conforme à la Recommandation T/R 61-01.

A.3 Appendix III - Types of Amateur Radio Activity

In support of the higher power activity descriptions - translate for the ACMA what happens in each case

- ***HF inter-continental communications (DXing)***

The art of establishing two way communications with stations in other parts of the world, often which are only present for short periods of time in rare and unusual locations (which generates a lot of competition between stations to achieve communication with that distant station).

These communications could be carried out using a variety of different modulation techniques including SSB, CW (morse code) and a variety of data modes

- ***HF radio sports & contesting***

A competition to make contact with as many amateur stations as possible within a specified time limit. These can use a variety of different modulation modes and different specific scoring based objectives.

These sort of competitions drive amateurs to develop their stations to be as effective as possible and drives innovative station design and construction

- ***Regular HF scheduled communications***

Reliable regular communications between two stations. The HF spectrum does not provide a continuous stable communications channel. Stations using HF need to be able to adapt to changes in the behaviour of the ionosphere.

A common use of scheduled communications is for safety monitoring of people travelling in remote areas or sometimes by amateurs who are maritime mobile (e.g. yachting).

- ***VHF Moon bounce communications***

As the name suggests, it is a method of communicating by sending a signal to the moon and then receiving the reflected echoes back on earth. By its very nature, high power is required to generate strong enough reflections that enable the signals to be received back on earth (a minimum of 1 kW pX on 50 MHz and typically 500 W pX on 144 MHz).

- ***VHF Meteor scatter communications***

Meteor scatter communications use special modulation methods to facilitate communications over channels that are very fleeting in nature. Meteor scatter is possible when meteors enter the earth's atmosphere and cause ionised trails which are capable of reflecting radio signals. High power is required to take advantage of this type of radio path

- ***50 MHz inter-continental communications***

Long distance inter-continental communications on the 50 MHz band are possible but relatively rare, however contacts between Australia and South America, North America, Asia and Europe are all possible typically around the northern and southern hemisphere summer solstice. Due to the distances and nature of the ionospheric structures used to achieve these communications are quite unstable and result in quite weak signals being received. High power is a significant advantage in being able to achieve inter-continental communications on these frequencies.

- ***High fidelity voice communications (eSSB)***

One area of experimentation in the amateur service involves the transmission of hi-fidelity speech over HF using SSB modulation. Experimentation in this area often requires very high signal to noise ratios and wider bandwidth transmissions, and teaches audio processing techniques as well as supports experimentation with modulation techniques.

- ***VHF Contesting***

A competition to make contact with as many amateur stations as possible within a specified time limit. These can use a variety of different modulation modes and different specific scoring based objectives.

These sort of competitions drive amateurs to develop their stations to be as effective as possible and drives innovative station design and construction

- ***High Power transmitter construction / experimentation***

Amateur radio is not just about communicating. There are many operators who enjoy the process of building a station, learning about antennas, and experimenting with transmitters. The specific area aspects of dealing with higher power and the issues that it brings - and the freedom to learn and experiment within the amateur service, bring together the perfect self training ground where skills can be developed that can be applied to other industries (such as MF and VHF broadcasting). With the demise of TVOCP and BOCP certifications, by default the only remaining certification that supports hands-on education in higher power transmitter management and operating techniques is the amateur service.

- ***UHF/SHF & mmBand Experimentation***

All manner of experiments exploring microwave propagation and communications fall into this category. While most are low power, the potential in the future for amateurs to seek new horizons is always there.

- ***Interplanetary Communications (future)***

This might seem far fetched, but it has already been done with radio amateurs in Europe bouncing radio signals off of the planet Venus. makezine.com/article/science/amateur-eve-radio-bounce/ - and who knows what the future may hold with manned missions to Mars?

- ***Radar***

This is exactly what it says - a very small number of amateurs have told us they are interested in experimenting with radar systems. These might be FMCW or Pulse types.

- ***Emergency Communications (HF)***

The need to be able to communicate in times of disaster and emergency is obvious. When we look particularly to our Pacific neighbours, the ability to re-establish communications to an area through amateur radio and the skilled operators that drive the amateur service is a bedrock capability for every nation. Amateurs have been involved in Australia in the past (e.g. Cyclone Tracy) and will no doubt be there in the future.

A.4 Appendix IV - Value Of The Amateur Service

One of the goals of a simplification agenda should be to enhance the value of the amateur service to Australians; understanding and recognising that potential is key. Approaching the reform with a view to delivering increased value to the Australian people, through value creation as well as cost reduction, is fundamental to meeting the expectations of the amateur service.

Areas where the amateur services brings value to the community with no cost to the Government and community include:

A.4.1 Inter-communication

- **Inter-communication** - facilitating the exchange of ideas, wellbeing, connectedness and understanding across Australia's multicultural community.

In particular, using the idea of self reliant communication, the amateur service supports the health and wellbeing of the Australian community through events such as:

- [Scout & Guide Radio Jamboree](#) ² held globally each year.
- [Community sporting events](#) ³ such as equine endurance, canoe marathons, car rallies, cross country cycling events and more.
- [Radio Sport](#) activities enable physical fitness and activity through (for example) the ARDF international competitions which combine orienteering with radio direction finding, as well as the Summits on the Air program (mixing mountaineering with amateur radio).

The value of these community based, community delivered communications capabilities via radio are hard to calculate in dollar terms, but are nonetheless invaluable to the function of such events. Indeed, during this COVID19 pandemic, more and more people have turned to, or returned to, amateur radio as a way of keeping in touch with community, friends and family across town or across the world.

A.4.2 Self Training

- **Self training** - promotion of Scientific, Technology, Engineering, Arts and Mathematics (STEAM) accessibility throughout Australian society, not just through formal education channels. This delivers value through:
 - [School science programs](#) ⁴ through, for example, communicating with the International Space Station ([ARISS](#)) ⁵ or flying and tracking high altitude balloons (e.g. [Project Horus](#) ⁶).
 - [Engineering professional development](#) through self training on advanced communications techniques particularly on the VHF/UHF/Microwave bands.
 - [Citizen science programs](#) such as wildlife tracking, [space weather monitoring](#) ⁷, [radio propagation studies](#) ⁸ and many more

² <https://www.jotajoti.info/>

³ <https://www.areg.org.au/archives/category/activities/rpm200>

⁴ <https://www.sarcnet.org/>

⁵ <https://www.ariss.org/>

⁶ <https://www.areg.org.au/archives/category/activities/project-horus>

⁷ <https://www.solarham.net/>

⁸ <http://wsprnet.org/drupal/wsprnet/map>

- Advanced Communications Techniques Developments are being undertaken by individuals and groups across the country are facilitating new advanced communications techniques including developing new modes and methods of communication via radio (for example the development of HF digital voice communications using the Codec2 based [FreeDV](https://freedv.org/)⁹ modulation or advanced weak signal communications using modes ([using the WSJT-X software suite](https://physics.princeton.edu/pulsar/k1jt/wsjsx.html))¹⁰ such as FT8, JT65, WSPR, MSK144 and many more.
- Building Practical skills within graduate professionals and helping bridge the gaps that have appeared in formal radiocommunications educational pathways (e.g. the loss of the BOCP and TVOCP certifications) through self training able to be undertaken within the amateur service.
- Recommendation [ITU-R M.1043-2](http://www.itu.int/rec/R-REC-M.1043/en)¹¹ addresses the use of the amateur and amateur-satellite services in developing countries. It recommends that administrations encourage and facilitate the amateur and amateur-satellite services in order to develop radio operator skills, train engineers and technicians to design, construct and maintain radio equipment and systems, assist in forming groups capable of providing local support, exchange technical and operational information, experiment with new technology, and establish stations in rural and remote areas, among several other objectives.

A.4.3 Disaster Relief Communications

- **Disaster Relief Communications** - where in Australia organised self-training obtained within the amateur service facilitated by groups such as the [Wireless Institute Civil Emergency Network \(WICEN\)](https://wicen.org.au/)¹² has enabled operators from the amateur service to act for the direct benefit of the community. For example:
 - Relief Operators in disasters - WICEN operators played roles as relief operators in disaster communications centres during the Summer 2019/20 bushfires.
 - Secondary backup communications - WICEN trained amateur radio operators also provided communications networks to the community on the NSW south coast 2019/2020 when the public and government communications networks failed.
 - Primary disaster communications channels - amateur radio was one of the first means of communications re-established in Darwin in 1975 after Cyclone Tracey - being used to carry news and information for the ABC and 2GB out of Darwin.
 - International Disaster communications¹³ - the amateur service is recognised as a vital source of skilled operators able to enter disaster areas and set up communications networks with limited support. It was the amateur service that stepped in during several of the Caribbean hurricanes in the last couple of years. This capability of the amateur service is in fact recognised and encouraged in the ITU Radio Regulations through ITU-RR 25.9A.
 - Recommendation [ITU-R M.1042-3](http://www.itu.int/rec/R-REC-M.1042/en)¹⁴ addresses disaster communications in the amateur and amateur-satellite services. It is recommended that administrations encourage the development of amateur service and amateur-satellite service networks capable of providing radiocommunications in the event of natural disasters, that such networks be robust, flexible and independent of other telecommunications services and capable of operating from emergency power, and that amateur organisations be encouraged to promote the design of robust systems capable of providing radiocommunications during disasters and relief operations.

⁹ <https://freedv.org/>

¹⁰ <https://physics.princeton.edu/pulsar/k1jt/wsjsx.html>

¹¹ <http://www.itu.int/rec/R-REC-M.1043/en>

¹² <https://wicen.org.au/>

¹³ <https://www.iaru.org/on-the-air/emergency-communications/>

¹⁴ <http://www.itu.int/rec/R-REC-M.1042/en>

A.5 Appendix V - Glossary of Terms

Term	Definition
ACMA	Australian Communications and Media Authority
Amateur LCD	Radiocommunications Licence Conditions (Amateur Licence) Determination 2015
Amateur Satellite	Refer to Satellites in the ITU Radio Regulations Article 25 Amateur Satellite Service
Amateur Service	As defined in the ITU Radio Regulations Article 25
ARISS	Amateur radio on the International Space Station - program where Astronauts on the ISS make contact and answer questions from students in schools around the world
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ARPANSA RPS-S1 (Rev 1)	Australian Radiation Protection and Nuclear Safety Agency - Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz
ARRL	American Radio Relay League - amateur radio operators peak representative body in the United States of America
Apparatus LCD	Radiocommunications Licence Conditions (Apparatus Licence) Determination
AOCP	Amateur Operator's Certificate of Proficiency (Advanced, Standard and Foundation)
Article 25	ITU Radio Regulations Article 25: (refers to Recommendation ITU-R M.1544)
AS/NZS 2772.2 (2016)	Australia New Zealand Standard for Radiofrequency fields Principles and methods of measurement and computation - 3 kHz to 300 GHz
BCI	Broadcast Interference
Call sign	a sequence of letters and numbers that identifies the station operated specifically by a qualified person
CBRS	Citizen Band Radio Service
CEPT	European Conference of Postal and Telecommunications Administrations
CEPT Recommendation	T/R61-01 (Australia is a Non-Member country to these arrangements)
dB	Decibel - logarithmic scale applied to the measurement of RF power levels - 3dB = two times, 6dB = four times and 10dB = ten times.
dBi	Decibels relative to isotropic radiator
DMR	Digital Mobile Radio
DTV	Digital TeleVision

DX	An abbreviation for “Distance” - the art of attempting to contact stations at a great distance is known as “DXing”
Echolink	System of internet linking used by amateur radio operators
EIRP	Effective Isotropically Radiated Power
EMC	Electromagnetic Compatibility
EME	Electromagnetic Emissions
EMI	Electromagnetic Interference
eQSL.cc	Popular QSL card exchange website
FCC	US - Federal Communications Commission
FreeDV	Free Digital Voice - low bandwidth communications mode and application that converts the voice to digital signals that are transmitted over radio frequencies
GHz	Frequency measurement - Gigahertz (a thousand million hertz)
GURL	New Zealand - General User Radio Licence
HCIS	Hazardous Chemical Identification System
HiFi	High Fidelity - amplification systems for music and voice amplification
HF	High Frequency (spectrum) bands
IRLP	Internet Repeater Linking Project - system of linking radio repeaters via an Internet backbone
IARU	International Amateur Radio Union - recognised by the ITU as the Amateur Service global peak body
ITU	International Telecommunications Union
ITU-R M-1042-3	ITU recommendation on disaster communications in the amateur and amateur-satellite services
ITU-R M-1043-2	ITU recommendation on use of the amateur and amateur-satellite services in developing countries
ITU-R SM.326.7	ITU recommendation and measurement of the power of amplitude-modulated radio transmitters
kHz	Frequency measurement - kilohertz (a thousand hertz)
kW	Thousands of Watts
LAOCP	Limited Amateur Operator’s Certificate of Proficiency

LED	Light Emitting Diode
LF/MF	Low Frequency / Medium Frequency
NLAOCP	Novice Limited Amateur Operator's Certificate of Proficiency
MHz	Frequency measurement - Megahertz (a million hertz)
NAOCP	Novice Amateur Operator's Certificate of Proficiency
PEP	Peak Envelope Power
PX or pX	Peak envelope power
PY or pY	Mean power
PZ or pZ	Carrier power
QSL	Q-Code for acknowledgement of receipt of radio message - also refers to postcards that are exchanged to confirm a contact between amateur radio operators
QRZ.com	QRZ is the Q-code for who is calling and the name of a popular international website that enables amateur radio operators to place their contact details on the website for other amateur radio operators to contact them
RadMan meter	Radiation measurement meter
RF	Radio Frequency
RFI	Radio Frequency Interference
RRL	ACMA Register of Radiocommunications Licences
TV	Television
TVI	Television Interference
VDSL	Very high-speed Digital Subscriber Line
WIA	Wireless Institute of Australia - Peak national amateur radio body in Australia, 110 years old and IARU Australian representative in region 3.
WICEN	Wireless Institute Civil Emergency Network - amateur radio operators specially equipped for portable and emergency operation
WSJT-X	Narrow band weak signal digital amateur radio application and modes created by Nobel prize winning physicist and amateur radio operator Joe Taylor K1JT
2x1 call signs	Contesting call signs using one letter suffix eg. VK7T
2x2 call signs	call signs combination using 2 letter suffix eg. VK7TW