



**Wireless Institute of Australia
response to the
Australian Communications & Media Authority
Consultation**

**“Five-year spectrum outlook 2023–28
and 2023–24 work program”**

March 2023

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Executive Summary

The WIA wishes to thank the ACMA for the opportunity to provide feedback on the ACMA's works program for 2023-2024 as part of the Five Year Spectrum Outlook (FYSO) process.

Firstly, the WIA is very pleased to see ACMA progressing with the revision of the current Radiocommunications Licence Conditions (Amateur Licence) Determination 2015 and Radiocommunications (Overseas Amateurs Visiting Australia) Class Licence 2015 to give standard-level amateurs and overseas equivalents access to the 50–52 MHz band.

In addition, the WIA welcomes continued engagement on the other specific amateur licensing initiatives proposed in the FYSO, namely:

- continued work on the non-assigned amateur service licensing review
- review of arrangements for amateur service stations operating at increased transmitter power levels
- Increasing transparency of repeater and beacon station frequency coordination guidelines and enabling the ability for Accredited Persons (APs) to directly assign amateur repeater and beacon frequencies where they meet the guidelines set forth by the WIA.

With the changes that these initiatives will bring, the WIA believes it will also be important to find a new way for the amateur service to collaborate with the ACMA on relevant revisions to the amateur syllabus. As raised by the WIA in its response to the 2022 FYSO consultation, in order to ensure that the amateur service examination syllabus remains fit for purpose, the WIA requests that the ACMA include an item in the work program to re-examine the process for amateur service examination syllabus development.

From the ACMA consultation paper, it is also clear that we are entering a time of unprecedented demand for spectrum by commercial interests, particularly from the mobile broadband and space communities. Spectrum demand in the bands between 1 - 30 GHz has never been higher. This particularly concerns the amateur service and is an area in which the WIA will continue to engage with ACMA where it affects the amateur service.

Finally, security of spectrum access and spectrum alignment with ITU decisions are high priorities for the WIA. Following the reallocation of the 7100 - 7200 kHz band from the broadcasting service to the amateur service at WRC-2003, the WIA seeks support from the ACMA for a change of status in that band from secondary to PRIMARY in the Australian Radio Spectrum Plan. The WIA requests that this matter also be included in the work program.

1.0 Introduction

The Wireless Institute of Australia (WIA) thanks the ACMA for the opportunity to provide feedback on the public consultation titled “Five-year spectrum outlook 2023–28 and 2023–24 work program Draft for consultation, March 2023”.

Development of a vibrant and relevant amateur service in Australia is complementary to supporting the national STEM agenda^{1 2}. The amateur radio service directly contributes to the development of Australia’s capability in science, engineering and technology through facilitating experimentation and self-learning by Australians who are interested in radio communications. We are keen to see the ACMA maintain an active work program to support the amateur radio service so these national interest outcomes can continue to be delivered. (For more detail refer to Appendix 1.)

2.0 Operational Matters

2.1 Migration of the Amateur Radio Service to a Class licence

The WIA is committed to continue working with the ACMA on the development of a mutually acceptable Class Licence model for the amateur service. The WIA is pleased to see that ACMA has given considerable attention to the amateur service feedback to the latest consultation paper on this issue. The WIA is supportive of the ACMA taking additional time, as required, to ensure the final outcome meets both the objectives of the ACMA and the operational requirements of the amateur service.

The WIA wishes to reiterate that it supports the proposed migration to a class licence, subject to the matters raised in the WIA response to the latest consultation.

2.2 Higher Power for the Amateur Radio Advanced Grade Licensees

The WIA appreciates the willingness of the ACMA to develop a pathway to enable amateur radio advanced class operators to gain access to higher transmitter power limits. The WIA research indicates that there is substantial interest in these changes, particularly for HF operations. The WIA considers this matter to be a high priority activity for the ACMA’s amateur service work program.

However, we continue to be very concerned about the “Scientific Licensing” approach proposed by the ACMA. This approach aims to regulate amateurs who wish to use higher power through a separate licensing system which would place multiple restrictions on their operations. Our understanding of those restrictions is that the ACMA seeks to limit the use of higher power to narrowly defined communications experiments only, otherwise

¹ <https://www.dese.gov.au/australian-curriculum/support-science-technology-engineering-and-mathematics-stem>

² https://www.chiefscientist.gov.au/sites/default/files/STEM_AustraliasFuture_Sept2014_Web.pdf

preventing its use in general amateur radio communications activities. We believe that such restrictions are not in alignment with the purpose of the amateur radio service as defined by the ITU, and most amateur radio operators would not be interested in this approach to enabling the use of higher power .

Further, the WIA considers that the cost burden on the amateur service of ACMA's proposal is exorbitant³, given that amateur service operators are certified under the AOCP to operate stations they construct, and should already have knowledge of how to manage EME effectively. It appears the ACMA approach is based, on the premise that operators are in fact not suitably trained and therefore the path of explicit station certification was chosen. We do not support this pathway and instead strongly recommend that the operator certification standards issue be addressed to not only ensure compliance with the ARPANSA standards, but also ensure a suitable understanding of other important aspects of operating higher power transmitters (e.g. EMI management) are included. We believe this approach would enable a more complete and holistic outcome within the general amateur service licence framework, along with less burden for both the ACMA and amateurs.

The WIA, therefore respectfully requests that the ACMA reevaluate their approach to this issue. We would welcome the opportunity to further engage with the ACMA on our recommended approach and encourage the ACMA to commit the resources necessary to explore this.

2.3 Amateur (Assigned) Beacons and Repeaters

The WIA has been actively working with the ACMA over the past 12 months developing documentation describing the mechanisms and processes used by the WIA to select assigned beacon and repeater frequencies from an in-band perspective within the amateur service. The aim of this work has been to:

- (a) Provide transparency to both ACMA and repeater/beacon licence applicants about how the WIA selects frequencies for amateur assigned services within Australia.
- (b) Enable the potential for "standard assignments" on existing beacon and repeater channel plans to be outsourced directly to Accredited Persons frequency assignment services, without needing to include the WIA in the process.

However, the WIA still has concerns about the operational effect of what the ACMA is proposing. In particular we wish to ensure that the changes proposed by ACMA do not lead to a situation where costs to amateur radio operators and clubs are increased.

In order to progress this work item, the WIA is requesting additional discussion prior to the ACMA opening public consultation. We believe this is necessary to ensure that existing procedures are properly considered and that the move to outsource assignment functions to APs does not inadvertently remove the ability of the amateur service to define amateur spectrum band plans and in-band frequency allocations, which have been self managed for many decades.

³ The WIA internal research and assessment is that a radio amateur could expect an independently certified station EME assessment to cost in the order of \$5,000 in addition to the \$603 scientific licence application fee.

2.4 Amateur Radio License Syllabus & Examination Development

Noting the changes to the amateur service that are likely to result from both the class licence and higher power work items, the WIA requests the ACMA to add an item to the works program which will address how the amateur operator certificate of proficiency syllabus can continue to be developed in conjunction with representatives from the amateur radio service. The syllabus is already falling behind the technical capabilities permitted in some of the licence grades and is in urgent need of revision. For this reason, the WIA asks the ACMA to consider with some urgency the following:

- Define and implement a new model for managing the Amateur Operator Certificate of Proficiency syllabus that retains amateur service engagement in the process, considering that those changes will be required as part of the licensing reforms.
- Review the effectiveness of the amateur service examination system in light of the recent slower growth of newly licenced operators in Australia, following changes in the provision of assessments.

The WIA would welcome an opportunity to discuss these matters further with the ACMA.

3.0 Spectrum Access

3.1 50 - 52 MHz Band for Standard Grade Amateur Radio Licensees

The WIA welcomes the work proposed in this year's FYSO to facilitate access to the 50 - 52 MHz amateur band by standard grade licence holders. This is a most welcome development for the Australian amateur radio community.

3.2 2300 - 2302 MHz Band

The WIA and the wider amateur community has a keen interest in continued access to this spectrum segment. The WIA will submit a more detailed response when the ACMA conducts its consultative arrangements.

3.3 Amateur Service Status in the 7100 - 7200 kHz Band

As raised in previous FYSO consultations, the WIA continues to seek an upgrade from Secondary to Primary status for the amateur service in Australia in the 7100 - 7200 kHz amateur band. We believe it is appropriate that the Australian regulations be updated to bring Australia to parity with other nations around the world on this matter. This would also align us with the agreed outcomes from ITU WRC-2003, as published in the ITU Radio Regulations (which indicate this is a primary spectrum band for the amateur radio service). We request that the ACMA include consideration of this matter in the work program.

3.4 Dynamic Spectrum Sharing

The WIA is closely monitoring ACMA's comments around Spectrum Sharing. The WIA is not supportive of any automated spectrum sharing mechanism that enables what may become an uncontrolled increase in interference within the amateur radio primary spectrum bands. We are asking the ACMA to ensure that automated dynamic spectrum sharing systems are excluded from operating in these segments (as defined in the Australian Radio Spectrum Plan).

With regards to our secondary service spectrum bands, while we have always welcomed the opportunity to use these bands on a shared basis with primary users (such as radiolocation, defence etc), such sharing only works when the interference is deterministic and published. This approach allows amateur service stations to adjust their operations to use certain segments of a band where interference is less likely - which is especially important for experiments using very weak signals. Moves to introduce dynamic automatic frequency sharing systems into these bands would be problematic for the amateur service. We have concerns that such systems would be unable to detect or would disregard our very weak signal communications, particularly to and from orbiting amateur satellites operating within the amateur satellite service.

We therefore ask the ACMA, when considering any new non-traditional automatic dynamic spectrum sharing mechanisms and systems, to ensure that the amateur radio spectrum remains out of scope for these developments.

4.0 Conclusion

The WIA values an ongoing and productive relationship with the ACMA and appreciates the opportunity to provide input to the work program planning processes of the ACMA, understanding that there are limited available resources and many competing priorities within the field of radiocommunications regulation.

Principle areas of regulatory focus for amateur licensees will always revolve around protecting spectrum access rights, maintaining or obtaining spectrum access parity with the amateur service globally (part of the IARU harmonisation agenda), and making opportunities for the ongoing exploration of communications techniques within the amateur service. Streamlining operational regulatory processes related to qualification management, licensing, and enforcement, is also of major importance to amateur licensees where changes can bring about a positive outcome for the amateur service. Ultimately, the WIA is looking to work with the ACMA to increase the value of the amateur service to the Australian people, through enhancing its capability as well as cost reduction.

The objectives outlined in this response all target these key areas. The WIA asks that they be considered by ACMA as important items for inclusion in their works program for the next year and beyond..

A.1 Appendix I - Introducing The Amateur Service

Amateur radio is a science-based technical activity enjoyed by over three million people worldwide. It is a recognised radiocommunications service by the International Telecommunication Union (ITU) and is listed in the ITU Radio Regulations as the 'amateur service' and the 'amateur-satellite service'.

The International Amateur Radio Union (IARU) is the global sector representative body for the amateur service. It is recognised by the United Nations as a Non-Governmental Organisation (NGO) by virtue of its consultative status with other United Nations bodies, i.e. International Telecommunication Union (ITU). The ITU recognises the IARU as an international organisation (CV/Art.19, No. 231). IARU has worked with the ITU for nearly a century and is a Sector Member of the Radiocommunication Sector (ITU-R), playing a full part in the work of ITU-R as it affects amateur radio spectrum, and also of the Development Sector (ITU-D), relating to developing countries and emergency communication.

The Wireless Institute of Australia (WIA) is one of the founding member societies of the IARU Region 3 branch. WIA representatives are frequent members of Australian delegations to ITU-R Working Party meetings and World Radiocommunication Conferences. The WIA is also the sole representative member of the International Amateur Radio Union (IARU) in Australia.

- The amateur service is a radiocommunication service:
 - for the purpose of self-training,
 - Intercommunication and technical investigations carried out by duly authorised amateurs,
 - persons interested in radio technique solely with a personal aim and without pecuniary interest.
- And the amateur-satellite service is:
 - A radiocommunication service using space stations and earth satellites for the same purposes as those of the amateur service.

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

A.1.1 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](https://www.jotajoti.info/) ⁴ held globally each year.
- [Community sporting events](https://www.areg.org.au/archives/category/activities/rpm200) ⁵ such as canoe marathons, car rallies, cross country cycling, equine endurance, fun run 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).

⁴ <https://www.jotajoti.info/>

⁵ <https://www.areg.org.au/archives/category/activities/rpm200>

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.1.2 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](#)⁶ through, for example, communicating with the International Space Station ([ARISS](#))⁷ or flying and tracking high altitude balloons (e.g. [Project Horus](#)⁸).
 - [Engineering professional development](#) through self training on advanced communications techniques particularly on the VHF/UHF/Microwave bands.
 - [Citizen science programs](#) such as wildlife tracking, [National Science Week - Festival of Bright Ideas](#)⁹, [space weather monitoring](#)¹⁰, [radio propagation studies](#)¹¹ and many more
 - [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](#)¹² modulation or advanced weak signal communications using modes ([using the WSJT-X software suite](#))¹³ 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 (eg 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](#)¹⁴ 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.1.3 Disaster Relief Communications

⁶ <https://www.sarcnet.org/>

⁷ <https://www.ariss.org/>

⁸ <https://www.areg.org.au/archives/category/activities/project-horus>

⁹ <https://festivalofbrightideas.com.au/>

¹⁰ <https://www.solarham.net/>

¹¹ <http://wspnnet.org/drupal/wspnnet/map>

¹² <https://freedv.org/>

¹³ <https://physics.princeton.edu/pulsar/k1jt/wsjsx.html>

¹⁴ <http://www.itu.int/rec/R-REC-M.1043/en>

- **Disaster Relief Communications** - where in Australia organised self-training obtained within the amateur service facilitated by groups such as the [Wireless Civil Emergency Network \(WICEN\)](#) ¹⁵ 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 last year 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 1974 after Cyclone Tracy - being used to carry news and information for the ABC and 2GB out of Darwin.
 - [International Disaster communications](#) ¹⁶ - 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](#) ¹⁷ 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.

¹⁵ <https://wicen.org.au/>

¹⁶ <https://www.iaru.org/on-the-air/emergency-communications/>

¹⁷ <http://www.itu.int/rec/R-REC-M.1042/en>