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Wireless Institute of Australia
ABN 56 004 920 745
National Society of Radio Amateurs established 1910.
Unit 20, 11 – 13 Havelock Road, Bayswater,
Victoria 3153, Australia
Phone (03) 9729 0400
http://www.wia.org.au/
nationaloffice@wia.org.au

The Manager
Spectrum Licensing Policy Section
Australian Communications and Media Authority
PO Box 78
BELCONNEN ACT 2616

www.acma.gov.au/theACMA/Consultations/Consultations

Proposed changes to amateur licence conditions – Consultation paper

The Wireless Institute of Australia (WIA) welcomes the opportunity to respond to the ACMA's Consultation paper.

The WIA is the National Society of Radio Amateurs originally established in 1910 and is recognised by the International Amateur Radio Union[1], an international confederation of national amateur radio organisations, as the sole Australian Amateur Radio peak body. The WIA has well over 3000 members plus over 100 affiliated Radio and Electronics clubs throughout Australia. In consolidating this response, input was sourced from the several member surveys that were conducted in response to the 2018 FYSO (Five Year Spectrum Outlook) plus direct input taken from members and affiliated clubs prior to and during the 6 week consultation period.

This submission has been compiled with the input and support of the following WIA affiliated major representative organisations: Amateur Radio NSW (ARNSW), Amateur Radio Victoria (ARVIC), and the Australian Ladies Amateur Radio Association[2] (ALARA).

The WIA believes that, generally, the changes proposed would facilitate greater participation from newcomers to amateur radio and provides existing licensees with greater opportunity to experiment, research and experience radio communications technologies and techniques. The Amateur Radio service has contributed greatly to the evolution and innovation of radio communication technologies, a recent example being the use of the radio amateur developed HeyPhone[3] in the Thai cave rescue.

[1] The IARU is recognised by the International Telecommunication Union (ITU) as the representative of the interests of its member societies and radio amateurs throughout the world. The IARU is a Sector Member of the ITU Radio communication (ITU-R) and Development (ITU-D) Sectors and participates in the Study Groups of both Sectors. The ITU is a specialist agency of the United Nations (UN).

[2] Australian Ladies Amateur Radio Association (ALARA) represents women in amateur radio in Australia. Its mission is to encourage women's interest and active participation in amateur radio. ALARA's membership is about one third Foundation licencees.

[3] UK radio amateur John Hey, G3TDZ (SK), was the original designer of special low-frequency radio equipment — the **HeyPhone** — used in the recent cave rescue in Thailand. The British Cave Rescue Council (**BCRC**) was asked for its help and equipped the rescuers with HeyPhones. The radio transmits on USB at 87 kHz, which can penetrate deep into the ground, typically via electrodes driven into the ground.

Omnibus Amendment Instrument 2019 (No.1)

At the outset, the WIA understands and accepts the amendments to the amateur licence conditions set out in this omnibus instrument.

The WIA notes the ACMA's summation of ". . requests from the amateur community" detailed over pages 9 through 11, and that agreed changes are accommodated in the Omnibus Amendment Instrument. Further, the WIA understands that the changes brought in by the Omnibus Instrument are for the interim, while future amateur licensing proposals are considered in foreshadowed consultation in Q3 2019-20.

The wide-ranging changes to conditions for Foundation station licensees are welcomed, particularly access to modern digital modes and internet-connected repeaters, as are the relaxation of the permitted bandwidths for licensees of all Amateur stations.

Technical LCD Changes

Whilst the offer of 400W pX (aka PEP) for all Foundation and Standard users is generous, it is not widely viewed as appropriate for Foundation licencees. There is, however, widespread consensus to increase Foundation power limits to 50W – 100W Px due to the entry-level technical standards of the Foundation licence. Please refer to power discussion in Appendix 1.

Learning to assemble radio communication equipment enhances the understanding of technology and aids self-training. Having comparable arrangements to similar jurisdictions, such as UK and USA, is appropriate and beneficial to the Radio Amateur service cohort. The WIA notes that there is concern from its membership that construction of transmitting equipment by Foundation licence holders should be:

i) Constrained to commercially available low power (QRP) transmitting construction kits, of which there are many choices;
ii) Irrespective of any LCD changes that allow higher Foundation power limits for commercial transceivers, transmit power capability be limited to 10W Px for constructed equipment.

The WIA believes the above are pragmatic constraints matching the skill level intrinsic to the Foundation licence. *The WIA notes that the current 7-character Foundation call sign structure is incompatible with a number of digital modes that utilise a 6-character (or less) call sign – this matter and proposed solution is discussed in Appendix 1.*

In the meantime, there appear to be some apparent errors or omissions to be addressed.

472-479 kHz band. While accepting the Omnibus Amendment Instrument, the WIA requests that the maximum permitted bandwidth in the 472-479 kHz band (Advanced licensees) could be increased from 2.1 kHz to 2.7 kHz. When initially implemented, it was assumed that the modes used would primarily by CW, MCW and digital. In practice, over recent years, the use of single sideband (SSB) has been achieved. Permitting this mode with a necessary bandwidth of 2.7 kHz in the revised LCD would reflect a proportion of current usage.

Standard licensees. Should be allowed 16 kHz permitted bandwidth in the 28-29.7 MHz band.

The WIA acknowledges the "Proposed changes to instruments" set out on page 15.

- Allow the use of digital transmission modes and remove the restriction on emission modes for Amateur Foundation stations
- Relax the permitted bandwidths for licensees of all Amateur stations
- Remove *most* restrictions specific to the operation of Amateur Foundation stations by licensees.

Consultation paper

Responses to the various issues raised in the Consultation paper are set out in the attached Appendix 1.

Appendix 1: Proposed changes to amateur licence conditions

Reallocation of the 3.6 GHz band

The summary of the consultation history and subsequent reallocation declarations of the 3575-3600 MHz (3.6 GHz) band is noted. The WIA made submissions to the ACMA consultation papers in 2017.

While the Australian Radiofrequency Spectrum Plan lists the Amateur Service as a secondary allocation over 3300-3600 MHz, the widespread loss of access to 3575-3600 MHz is felt as a reduction in opportunity for licensed amateurs to engage in technical experimentation, as has been noted in previous submissions to the ACMA by the WIA.

It is noted that this reduction in access comes on top of earlier geographic restriction (from 2015) of access to the band 3400-3575 MHz. The WIA notes that other amateur secondary bands above 1 GHz are also under risk of continuing reduction in access. These GHz bands, including 3.x GHz band remain important experimentation and research bands for the Amateur Radio service here and globally.

This reduction of access to sectors of the 3300-3600 MHz band is disappointing to the WIA and the Australian radio amateur community. However, the WIA acknowledges that the developing telecommunications facilities of UMTS/5G requires contiguous spectrum in the 3.6 GHz band for the benefit of the broader community.

The cumulative loss for the Radio Amateur Service for 3.6GHz band is now 66%[4].

WIA submission on “Future approach to the 3.6 GHz band” IFC: 9/2017
WIA submission on "Transitioning the 3.5 GHz band for future opportunities" 2014

[4] Note: The cumulative loss for the 70cm band is now 33%

Access to the 5.3 MHz Band

The amateur community remains keenly interested in gaining access to the 5351.5-5366.5 KHz spectrum segment for Advanced licensees at the earliest opportunity.

It is noted that amateurs in the immediately neighbouring countries of New Zealand and Indonesia now have access to this spectrum segment. The WIA understands that this band has many emergency services allocations and has proposed a very modest allocation of 3 channels.

WIA / WICEN[5] and ARNSW already have multiple commercial 5.3 MHz band channels already allocated. The reason WIA and ARNSW continue to pay for a commercial HF licences is that the 5MHz allocations fill a demonstrable need in the *communication* aspect of the Amateur Service – the 5MHz band often provides effective communication when the 3.5Mhz and 7MHZ bands are unusable. Thus, access to part of 5MHz for broader use by the Amateur service, has the demonstrable potential to facilitate communications and propagation research aspects of the service.

The WIA looks forward to progressing the issue of access to this band following the foreshadowed discussion paper in Q3 of 2019-20 (page 13 of the Consultation paper).

In the meantime, the WIA has had exploratory discussions with Defence, which is not generally opposed to amateur use of the band.

The WIA proposes, for the interim:

1) that the ACMA allocate a minimum of three (3) conventional channels of 2.7 kHz permitted bandwidth, upper sideband
2) for use by Advanced licensees only using a maximum power of 15 watts EIRP, as per the ITU allocation;
3) should amateur operation be restricted to avoid or mitigate interference to primary users, that operations be limited to the daylight hours 7am (0700 hrs) to 7pm (1900 hrs) local time, OR the night time hours between 7pm (1900 hrs) to 7am (0700 hrs); and
4) that Advanced licensees be permitted to use narrowband digital modes in the “white space” interleaved between channels across the band.

As various government service allocations have been made in the 5.3 MHz band since the ITU Amateur allocation was announced, should interference issues arise, amateurs using the band would be required toprovide a telephone contact number for liaison purposes during operation on this band, an approach successfully utilised by OFCOM in the UK, to be recorded in the SPECTRA Register.

[5] Wireless Institute Civil Emergency Network

Alternative approaches to qualification

Due to extensive feedback from members, it can be safely stated that the Australian radio amateur community is predominantly opposed to the proposition that all amateur radio competencies should come under the Australian Qualifications Framework (AQF).

The WIA and their affiliated representative organisations supporting this submission are concerned to ensure that any changes to requirements for qualification consider the accessibility of training to everyone. It is important to keep the costs of any training and assessment to a minimum, while, of course, maintaining standards – especially at entry level. Recent changes to the examinations provider have seen examinations costs for youth more than double due to the elimination of concessional youth pricing – this has become a major entry barrier.

Amateur radio is a recreational experimental technical pursuit and competency to be licensed is not, and should not, become part of the hierarchy of trade or professional qualifications.

Having the qualification assessment for amateur radio competencies provided by educational institutions (i.e. a Registered Training Organisation – RTO) is anathema to the history and philosophy of amateur radio. The associated costs with this model make it prohibitive for prospective licensees.

While the WIA appreciates the ACMA's view, involving RTOs could never be the only option for amateur licence qualification. There's an assumption implicit in the proposal that RTOs across Australia would have an interest in offering and delivering amateur radio qualification. This assumption is untested. In addition, the ability of RTOs to deliver in remote and regional areas, or to service special needs candidates, at reasonable cost is likewise untested and considered to be unlikely.

There are some 150 amateur radio clubs across Australia. Most provide education courses to help prospective amateurs secure a certificate of proficiency, generally including examination assessment. Indeed, some clubs are constituted wholly for this purpose. This is not provided on the basis of fee-for-service, as occurs with RTOs in this role. The education and qualification of new amateurs – by existing licensees for prospective amateurs – is seen as fundamental to the radio amateur community.

Further, to follow the course suggested by the ACMA is viewed as denying the amateur radio clubs and like groups from passing-on acquired skills and knowledge to new entrants. The ACMA has provided no evidence to support the proposal that qualification of amateur radio competencies should come under the AQF and be delivered by RTOs. Indeed, the use of RTOs may well impede entry to the Radio Amateur service.

AOCP RTO AQF Training

The Amateur Standard licence has been established as an AQF module (UEENEEB101A) for some time – since 2006. 20 RTOs are registered to deliver this module and its superceded predecessors. Research has been undertaken by one of our members, Cameron McKay, who wrote to all 20 RTOs to ascertain the market situation. Of the 50% who responded, only one organisation based in Canberra had delivered this course for a total of 21 successful candidates in 2014 only and none of those 21 are known to have converted there qualification to an AOCP – plus this RTO is no longer offering the course. All other respondents indicated that they had never delivered the course nor do they have any future plans to do so. In the period 2006 to 2016 WIA Examination Services processed over 1000 qualifying Standard Licence assessments leveraging its 100 plus affiliated Radio and Electronics clubs and 300 plus volunteer assessors versus 21 gaining the AQF unit of competency (UoC).

This research also considered parallels to Marine Radio AQF UoC, where 27 RTOs are registered to provide AQF MARC043, MARC044, MARO003 and the respective superceded predecessors. 30% of the RTOs responded, of the 9 respondents 3 indicated that they did not offer the UoCs, providing only invigilation for AMC, another 3 indicated that whilst registered they do not offer the courses. The course

costs ranged from one volunteer based RTO offering them free to members ranging up to $2715 at a TAFE. In the period 2009 -2017 a total of 217 MROCPs were gained via AQF UoCs versus 48,544 successful examination via the AMC examination and invigilation process – i.e 0.48% via AQF UoCs.

Based on this evidence, there is little to support that a unilateral move to an RTO model would result in a substantive take-up of the AQF UoCs by aspirant Radio Amateurs. The volumes are too low to be economic for commercial providers and the costs, other than for volunteer based RTOs, and are likely to be too high for a non-vocational qualification.

Models in other non-vocational pursuits for self-regulation

The WIA appreciates the ACMA's regulatory role in providing protection of the individual, protecting the public from risk, and protecting other spectrum users from interference.

However, there are extant examples concerning qualification for recreational pursuits where the activity is necessarily regulated – in recreational flying, gliding and skydiving, for example, but the licence assessment and regulation is devolved to peak bodies. These peak bodies are responsible for aspect of governing their cohorts (including compliance, licensing and enforcement). They do this using an approved operation manual /code of conduct. They organise assessment on a national basis through affiliated organisations. CASA is the regulator, responsible for managing:

- protection of the individual involved in the recreational activity – flying, gliding and skydiving
- protection of the public from risk
- protection from hindrance to professional aviation.

The parallel with the ACMA's role in amateur radio regulation of operation and spectrum is obvious.

Recreational pilots licence assessments are organised by Recreational Aviation Australia (www.raa.asn.au). Skydiving licensing is organised by the Australian Parachute Federation (www.apf.com.au).

Arguably, these two pursuits inherently carry more public risk than amateur radio. Clearly, the formal agreements with CASA are not onerous or unduly expensive, as evidenced by the vigorous activity of these two recreations and availability of participation nationwide.

The ACMA could consider a similar self-regulation model for radio amateur qualification. This would be supportive of the Department of Communications (DoCA) stated objective of increased "self-regulation" as outlined in Recommendation 6 of the review of the ACMA and the associated exposure draft of the bill (2017). The WIA looks forward to the foreshadowed consultation in Q2 2019-20.

Assessment of requests from the amateur community

As noted earlier, the WIA welcomes the amendments to the amateur licence conditions set out in this omnibus instrument. The issue of a review of call sign arrangements is addressed later.

Relaxation of permitted bandwidths in certain circumstances

The WIA notes the ACMA's prescription to allow all licensees to use wider bandwidth transmission in the frequency bands where the Amateur services have primary status, provided maximum spectral density limits are complied with, and that in those bands where amateurs are the secondary service, existing transmission bandwidths should remain.

In addition, the WIA welcomes the ACMA's proposal to remove bandwidth restrictions on amateur frequency segments above 52 MHz[6], while current access to frequency bands will remain.

It is noted that, in the Omnibus Instrument, the maximum power spectral density limit is specified as 1 watt per 100 kHz. The WIA seeks an explanation on how this limit came to be specified.

Addition of other bands in the Amateur LCD

In relation to 70-70.5 MHz and 918-926 MHz, the WIA notes the ACMA's suggestion that all amateurs are already able to access these bands as they are allocations for Low Interference Potential Devices (LIPD) under a Class Licence, provided that the relevant maximum EIRP limitations are complied with.

In relation to access to other new frequency bands, or extensions, detailed in previous WIA submissions, the WIA notes that the ACMA's reasons the requested changes could not be feasible are set out in the 2018-22 FYSO. However, the WIA intends to monitor interest within the amateur community in the proposals identified and proposed in previous submissions.

Increased power limit for Foundation and Standard licensees

In view of the ACMA's proposal to consider collapsing the current 3-tier licence hierarchy to a single licence in future, with all licensees allowed access to all amateur frequency band allocations, and with 400 W pX maximum permitted power, this is considered below under "Future licensing".

There is **no consensus support** for a single licence**.**

Access to more amateur bands for Standard and Foundation licensees

As above.

Increased power limit for Advanced licensees

This matter has been a consistently prominent issue since the amateur regulatory changes in 2004, particularly highlighted by the "high power trial" over 2012-13. Hence, the WIA's proposal to allow Advanced licensees to use 1500 watts peak envelope power (pX) by application, with the WIA to provide a service to assist applicants when submitting to the ACMA.

It was not the WIA's intention to provide ". . *outsourced approval* . ." for applicants seeking to use powers above the 400 watts pX in the LCD. Rather, the WIA intended to assist applicants; it was not suggested that a WIA recommendation with an application be mandatory nor be provided as a devolved service.

[6] Observation: There is increasing international 6M Amateur TV activity using H.264/H.265 encoding to 100KHz – 200KHz bandwidth.

The WIA believes that such an intermediary facilitator would reduce the regulatory burden of assessing non-conforming applications.

The current arrangement for Advanced licensees seeking to experiment with higher power than the 400 watts pX in the LCD is not widely known, anecdotally. While, principally, the protocol enables Advanced licensees to make an application to the ACMA for the purpose of "communication via reflection from celestial bodies". Whilst this is not strictly limited to Earth-Moon-Earth (EME) communications as it would include, for instance, meteor scatter propagation, the WIA seeks to broaden the definition and intends to re-visit this issue during the next consultation.

The WIA notes the ACMA's advice that compliance with the Apparatus Licence LCD is specified on every apparatus licence (which includes amateur licences) when issued.

The WIA proposes that defining the power limit for Advanced licences (only) as 400 W Py may be an option if within current ACMA 400W EME (Electromagnetic Energy) safety limits. This option of moving to the Py limits has precedent in NZ, as well as other jurisdictions. The Radio Amateur cohort would view this change very favourably.

Future licensing – structural hierarchy

The WIA notes the ACMA's proposition to collapse the current 3-tier licence hierarchy to a single licence in future, with all licensees allowed access to all amateur frequency band allocations, and with 400 W pX (aka PEP) maximum permitted power.

A single tier structure is not general practice in similar countries, such as UK and USA with 3 tier approaches - albeit with the notable exception of NZ. The transitional arrangements that would be required to move to a single tier are non-trivial and likely to be highly contentious.

The WIA has ascertained from its constituents that an **entry-level amateur licence must remain**, with the purpose of encouraging and accommodating newcomers as well the social benefits. This is a view widely held throughout the amateur community. For example, ALARA has 30% of its members that are Foundation licence holders. Hence, this necessitates maintaining a **minimum** 2-tier licensing structure in future.

It is important to us that there is a basic entry-level licence grade that requires minimal study. There should then be sufficient incentive to study further and then gain additional privileges based on what has been learned. Those presently with an advanced licence have put significant effort into achieving that qualification and the additional associated permissions.

Pertinent to this, the WIA has determined that there is wide support for permitting Foundation licensees to use somewhat higher power levels but **not** to the 400 W pX existing limits, especially with higher EMI noise levels now generally experienced due to the prevalence of high power inverters (solar and heat pump), switching power supplies, LED lighting and other digitally based power equipment. This wide support ranges from at least 50 W pX minimum but with no general objection to 100W pX. There was no consensus support or viable justification from our members to maintain the current Foundation 10W pX power level.

It is therefore recommended that Foundation licencees be permitted an increase to a 100 watt pX (and concomitantly, 30 watts pY). The 100W Px limit would allow full use of the majority (90% plus) of commercial transceivers and potentially reduce the ACMA regulatory burden regarding complaints on operators utilising power levels outside their licence conditions. It is also recommended that Standard licence holders be granted an increase to 200W pX only to maintain a differentiation. The WIA would find an increase to 50W Px an acceptable compromise if required to align with other submissions. These increased power limits would only apply to commercial transmitting equipment - the WIA and its

constituents strongly recommend that Foundation licencees construct transmitting equipment be constrained to use only commercial QRP kits and that a 10W pX limit apply to these constructed kits. This is in line with the entry-level technical skill level of the Foundation licence.

Access to all primary service amateur bands and the use of digital modes, as per LCD proposal, by foundation licencees is strongly supported..

Simplification of the graded qualification process, and their respective syllabi is, however, a valid goal.

The WIA proposes a modification to the examination approach for Standard and Advanced. Currently the Standard and Advance examinations are separate and distinct– each has their own syllabus, question bank and examination paper. If however, this is split into a Standard syllabus and an Advanced extension syllabus or “add on”. This has numerous advantages, such as avoidance of overlap of the respective syllabi and exam question banks plus simplification of training course development and delivery. Candidates for the Advanced qualification without the Standard licence qualification pre-requisite would be able to either sit the two examinations separately or together as desired – the latter being more cost effective, assuming a single exam charge. This approach would be expected to achieve similar efficiency and cost savings gains as elimination of the Standard licence class and exam.

Standard licence holders represent about 10% of AOCP holders, it was originally introduced as a replacement for the earlier Novice licence. There is evidence that many clubs in Australia teach only Foundation and Advanced courses, with the Standard a fall back option. This practice is prevalent in the UK with their 3-tier system, with clubs teaching Foundation and Advanced but not the Intermediate.

The WIA would support a move from the current 3-tier system to 2-tiers if, and only if, it can be demonstrated that this simplification is a “net social benefit” to the Radio Amateur community. Should that occur, existing Standard licences should be “grandfathered” for a minimum period of 3 – 5 years and at the end of this period upgraded to Advanced or its future equivalent.

Review of call signs

With such a change for digital modes for Foundation licences, the allocation of call signs should change, too. As noted previously, some digital modes preclude use of 7 character call signs. Additionally the WIA suggests that licence grade demarcation be removed from future call sign allocation. As the SPECTRA register is readily available online, there is no longer any administrative reason for a call sign to indicate licence grade as anyone can readily interrogate the register.

The WIA envisages that all call sign suffix blocks in the tables could be available for allocation for all licence classes (excepting: repeaters and beacons, and scouts, and perhaps the Qxx range). There would be potential to allow any call sign configuration across all existing call sign tables.

Two-letter suffix callsigns would still be balloted due to supply constraints, where necessary, as happens at present.

The state/territory identifier number should be retained.

The WIA urges that the changes proposed above for call signs that no longer reflect licence grades and are 6-characters long should be considered in the short-term rather than the longer term, especially in regard to digital mode impact for Foundation licensees.

Callsign renewals. Licences could be optionally issued for 3 or 5 years at a reduced total cost; renewed at the anniversary (reducing both cost to customers and the ACMA administrative burden). It is noted that a multi-year renewal can already be made available by request, but there is no cost incentive to do so.

Transition arrangements

If the Standard licence was to be removed as an offering, transitional arrangements would need to be carefully considered. It could be grandfathered, with exams ceasing with minimum 12 months' notice due to existing "in-flight" study and exam planning.

Examination syllabus

The WIA welcomes the establishment of a Syllabus Review Panel[7].

The WIA recommends that the target should be a globally harmonised General / Advanced qualification (HAREC). This should also assist in maintaining CEPT equivalence for EU reciprocal licences.

The Foundation licence syllabus, to match the new capabilities, would appropriately require digital and antenna scope upgrades – this should be via additional questions not at the expense of existing content. Similar upgrades are part of the September 2019 UK Foundation syllabus revision.

The review should avoid causing unnecessary scope creep, given that the level of knowledge required is to, primarily:

1) protect the individual
2) protect the public, and
3) prevent interference to other spectrum users.

The WIA suggests that there are advantages in using other similar jurisdictions' syllabi (e.g. UK new syllabi which becomes effective September 2019) - which are public domain - as **input** to the syllabus review and development process. This approach should maximise the potential for Australian Amateurs to continue to enjoy reciprocal arrangements overseas via CEPT and HAREC endorsements and minimise development overheads. This is not to be viewed as unilateral adoption of the overseas syllabi or a loss of sovereignty, rather a sensible path to the best pragmatic outcome.

On behalf of the WIA, ALARA, ARNSW and ARVIC.

G Kelly

Greg Kelly

WIA President

[7] Caveat: The WIA has previously expressed concerns to the ACMA that a maritime research and training organisation would appear not to be appropriately domain qualified for input to syllabus development for the Australian Amateur Radio Service.