

WIA Submission – Part 4: Advanced Licence Conditions

SUMMARY

- Continuing access to current amateur allocations
- Priority for access to the 5.3 MHz band allocated at WRC-15
- Provide access to some new frequency bands
- Extend the limits of current amateur allocations at 1.8 MHz and 3.5 MHz
- Relax permitted transmission bandwidths
- Increase maximum permitted power to 1500 watts pX, with conditions

4.1 Advanced Licence Condition – Frequency Bands as in LCD 2015

Part 3

13 Permitted frequency bands

The licensee must only operate an amateur advanced station on a frequency that:

- is within in a frequency band mentioned in column 1 of an item in the table in Part 1 of Schedule 2;
- if a transmission made using the station would occur in an area specified in column 1 of an item in the table in Part 2 of Schedule 2 – is not within the frequency range specified in column 2 of the item.

Schedule 2 Permitted frequencies and emission modes (amateur advanced station) (sections 13 and 14)

Part 1 Permitted frequencies and emission modes

<i>Item</i>	<i>Column 1</i> Frequency band	<i>Column 2</i> Permitted emission modes
<i>1A</i>	135.7 kHz–137.8 kHz [see note 5] 472 kHz–479 kHz [see note 6]	Any emission mode with a necessary bandwidth no greater than 2.1 kHz
<i>1</i>	1.800 MHz–1.875 MHz 3.500 MHz–3.700 MHz 3.776 MHz–3.800 MHz 7.000 MHz–7.300 MHz 10.100 MHz–10.150 MHz 14.000 MHz–14.350 MHz 18.068 MHz–18.168 MHz 21.000 MHz–21.450 MHz 24.890 MHz–24.990 MHz	Any emission mode with a necessary bandwidth no greater than 8 kHz

	2	28.000 MHz–29.700 MHz	Any emission mode with a necessary bandwidth no greater than 16 kHz
	3	50.000 MHz–54.000 MHz 144.000 MHz–148.000 MHz	Any emission mode with a necessary bandwidth no greater than 100 kHz
	4	430.000 MHz–450.000 MHz 1 240.000 MHz–1 300.000 MHz 2 300.000 MHz–2 302.000 MHz 2 400.000 MHz–2 450.000 MHz 3.300 GHz–3.425 GHz [see note 2] 3.425 GHz–3.4425 GHz [see note 3] 3.4425 GHz–3.475 GHz [see note 4] 3.475 GHz–3.4925 GHz [see note 3] 3.4925 GHz–3.5425 GHz [see note 2] 3.5425 GHz–3.575 GHz [see note 4] 3.575 GHz–3.600 GHz 5.650 GHz–5.850 GHz 10.000 GHz–10.500 GHz 24.000 GHz–24.250 GHz 47.000 GHz–47.200 GHz 76.000 GHz–81.000 GHz 122.250 GHz–123.000 GHz 134.000 GHz–141.000 GHz 241.000 GHz–250.000 GHz	Any emission mode
[plus Part 2 Excluded frequency ranges]			

4.1.1 Frequency bands – continuing access, extending two bands and proposed new bands

As already foreshadowed in the covering letter, these matters are to be addressed during the ACMA's consultation when reviewing and updating the *Australian Radiofrequency Spectrum Plan*.

Radio amateurs are very privileged to have access to many frequency allocations across the UHF and microwave spectrum, some of which are currently the subject of review, and which the WIA accepts are likely to be partly reassigned to new telecommunications and entertainment services, in particular at 3.6 GHz.

The WIA's view is that having a greater number of narrow frequency assignments to the amateur service would be of value, especially if they were harmonised as much as possible to amateur assignments in other countries. This would allow greater opportunities for experimentation and intercommunication by radio amateurs using the full range of available technologies, extant and emerging. It would also enable radio amateurs to experience a greater range of radio propagation characteristics across the spectrum.

An issue that has arisen following the WIA's licence conditions consultation, likely brought to the fore because of it, concerns extending the 3.5 MHz band to 'fill-in' between 3700 kHz and 3776 kHz. This would provide a contiguous amateur service allocation of 3500-3800 kHz, thus matching, in whole or in part, the amateur allocations in many other countries across the world. This proposal is also in keeping with the proposed extension of the 3.5 MHz band above 3800 kHz, for the same reason.

4.1.2 WIA survey - Improved frequency band access

Having frequency band allocations across the radiofrequency spectrum affords amateur operators maximum opportunities to explore, experiment, and learn about technologies and techniques in radiocommunications – the principles central to the ITU definition of the Amateur Service.

The WIA advocates earliest-possible release of the **new band at 5351.5-5366.5 kHz**, allocated by the ITU at the World Radio Conference 2015 and incorporated in the Australian Radiofrequency Spectrum Plan (ARSP) that commenced on 1 January 2017. This allocation has been keenly awaited by Australian radio amateurs and the WIA believes that it would be advantageous to enable access, **in part or in whole**, ahead of completing the new Licence Conditions Determination. The WIA notes that trial operations on the band have commenced in New Zealand, following arrangements made between the New Zealand Amateur Radio Transmitters (NZART), Radio Spectrum Management (RSM) and the NZ Defence Force. To mitigate possible interference issues to Primary users that may arise, even with the low station power levels involved, the WIA is willing to involve all stakeholders in developing awareness and implementation strategies to enable access.

In addition, in responding to the ACMA's update of the ARSP, the WIA proposed:

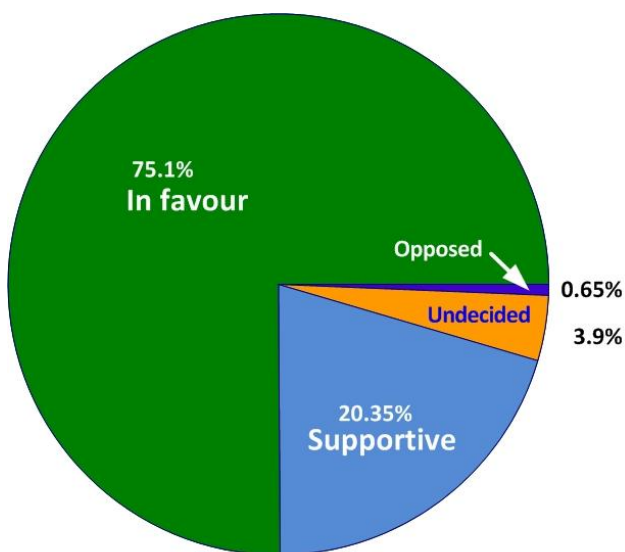
- primary status for Amateurs on 50-52 MHz
- a proposed secondary allocation at 70.0-70.5 MHz
- a proposed secondary allocation within the 918-926 MHz ISM band
- extension of the 1800-1875 kHz band up to 2000 kHz
- extension of the 3776-3800 kHz DX Window above 3800 kHz.

Respondents were asked their opinion concerning:

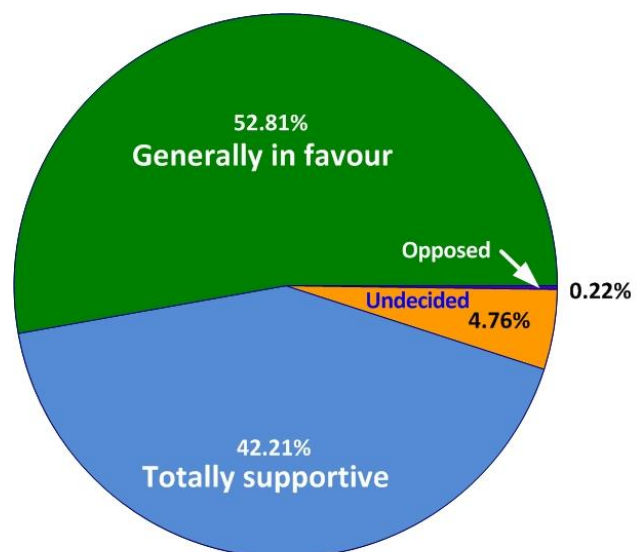
1/ Access to new bands

2/ Advocacy for continued access to existing primary and secondary bands

N = 462	In favour	Supportive	Opposed	Undecided	Totally Supportive	Generally in favour	Opposed	Undecided
No.	347	94	3	18	195	244	1	22
%	75.1	20.3	0.7	3.9	42.2	52.8	0.2	4.8



Phase 2: Advanced – access to new bands



Phase 2: Advanced – advocate retaining bands

There was overwhelming support both for retaining existing bands, and increasing the number of bands for Advanced licensees, an unsurprising result. Those few Opposed also opposed other proposed changes to licence conditions. The small percentage of respondents indicating Undecided, were also generally undecided about or opposed proposed changes to other licence conditions across all three licence grades; some expressed concern about the implications of change.

WIA Recommendations: (a) That priority be given to enabling Advanced licensees to use the 5351.5-5366.5 kHz band , already listed in the Australian Radiofrequency Spectrum Plan that commenced on 1 January 2017. (b) Establishing that the following amateur allocations, with the exception of 50-52 MHz, be available to Advanced licensees only.	
1875 – 2000 kHz	To harmonise the Australian amateur allocation with that of many other countries across ITU Regions 1, 2 and 3. See section 4.1.3 and Table 4.1.3a.
3700 – 3776 kHz	To harmonise the Australian amateur allocation with those in many other countries across ITU Regions 1, 2 and 3. See section 4.1.3 and Table 4.1.3b.
3800 – 4000 kHz	
50 – 52 MHz	Primary status for amateurs (Advanced and Standard) on 50-52 MHz. See section 4.1.4.
70 – 70.5 MHz	Early release of an allocation in this band, as per the WIA submissions to the ACMA of 11 July 2014 and to RALI LM2 of 30 July 2016. See Table 4.1.5.
918 – 926 MHz	To enable the amateur service to experiment and intercommunicate with equipment based on devices widely available for the 900 MHz LIPD Class Licence segment. See section 4.1.6.

4.1.3 Harmonisation of the 160 metre and 80 metre amateur bands

The WIA is of the view that the proposed changes to the Australian allocations of these two bands need to be considered in the context of global allocations and, in particular, the amateur allocations of neighbouring countries in the Asia-Pacific region. Indonesia, Malaysia, the Philippines, Thailand and New Zealand all have contiguous amateur allocations for the 160 m and 80 m bands that are much broader than the Australian amateur allocations, as is readily seen in **Tables 4.1.3a** and **4.1.3b**, respectively.

In terms of propagation, these two bands become important over solar minimum years, when maximum usable frequencies of ionospheric propagation fall into the lower HF spectrum and the effects of D-region absorption decreases. The 160 m and 80 m amateur bands are used both for local and international communications, as propagation conditions allow.

The propagation characteristics of the 160 m band enable reliable short-range (local) communications during daytime hours and medium and long-range communications during night-time hours. Amateurs use the 80 m band extensively for reliable contacts over distances of up to 500+ km during the day, and for distances up to 10,000 km and more at night, as ionospheric conditions and the RF noise environment allow. In many countries, the 80 m band is heavily populated by networks of amateur stations providing

Table 4.1.3a 160 metre amateur band allocations across the world

Country	Start Year	End Year
Argentina	1800	2000
Australia	1800	1875
Brazil	1800	1850
Canada	1800	2000
Europe (CEPT)	1810	1850
India	1820	1860
Indonesia	1800	2000
Israel	1810	2000
Japan	1810	1825
South Korea	1800	1825
Malaysia	1800	2000
Mexico	1800	2000
New Zealand	1800	1950
Peru	1800	2000
Philippines	1800	2000
Portugal	1810	1850
Russia	1810	2000
Thailand	1800	2000
South Africa	1810	1850
United States	1800	2000

Table 4.1.3b**80 metre amateur band allocations across the world**

Argentina	3500-----4000
Australia	3500-----3700 3776-3800
Brazil	3500-----3800
Canada	3500-----4000
Europe (CEPT)	3500-----3800
India	3500-----3700 3890-3900
Indonesia	3500-----3900
Israel	3500-----3800
Japan	3500-3575 3599-3612 3680-3687 3702-3716 3745-3770 3791-3805
South Korea	3500-3550 3790-3800
Malaysia	3500-----3900
Mexico	3500-----4000
New Zealand	3500-----3900
Peru	3500-----4000
Philippines	3500-----3900
Portugal	3500-----3800
Russia	3500-----3800
Thailand	3500-----3900
South Africa	3500-----3800
United States	3500-----4000

In relation to the 80 m band, the IARU has determined that the amateur service requires a common, worldwide exclusive allocation of at least 300 kHz, and retention of the present additional shared allocations in Regions 2 and 3. The Australian allocation falls short of the IARU's identified requirements, as demonstrated in **Table 4.1.3b**.

Contest and DXpedition activity is more prevalent on the 80 m band than experienced on 160 m. In particular, crowding in the 3776-3800 kHz DX window is frequently reported. It is observed that many overseas amateurs expect to contact Australian stations outside the confines of 3776-3800 kHz.

The WIA is aware of the complexities facing expansion of the 80 m band as proposed. Extending the band from 3700 kHz to the lower edge of the 'DX window' at 3776 kHz presents difficulties because of the number of extant assignments there, particularly to government and community services. There is a similar issue with the proposed extension between 3800 kHz and 4000 kHz. The WIA believes that, as existing incumbents migrate to other communications facilities over time, then amateur use of available small spectrum segments could be allocated incrementally, perhaps on a secondary basis to start with. This could be achieved through embargoes on new assignments and re-farming existing assignments, where possible. Prior examples exist with the so-called WARC-79 bands at 10, 18 and 24 MHz and allocation of the 3776-3800 kHz DX Window.

4.1.4 Primary Status for 50-52 MHz

The last Channel 0 station (45-52 MHz) closed on 27 November 2013. On 13 December 2013, the ACMA advised the WIA (file reference ACMA2012/1199) that 'amateur operations in the 50-52 MHz band will no longer need to be curtailed in order to avoid interference to channel 0 stations.'

Since that time, the WIA is aware of only one other application proposed for the band. The proposal was by the Australian National University for an experimental broadband system known as BushLAN in the 45-54 MHz frequency band. A sharing study by the WIA demonstrated that the proposed system was incompatible with amateur use of the 50-54 MHz band. The WIA suggested that the recently vacated 56-70 MHz frequency band would be more appropriate for the ANU's proposed application.

The WIA notes that Broadcasting remains the Primary service in the 50-52 MHz band and that Defence no longer has an interest in the 50-54 MHz allocation.

However, the WIA has become aware recently that there may be future interest from free-to-air broadcasters in the 45-52 MHz band for deploying new digital technology transmissions. In the meantime, industry sources postulate that audience and industry interest in free-to-air television is eroding under competition from internet streaming, dominated by the US entertainment behemoths Amazon and Netflix. While internet entertainment streaming is generally delivered by broadband to the home at present, industry sources report that 5G telecommunication services are set to compete heavily when they become established over the next few years.

It is the WIA's view that orphaned free-to-air TV broadcast spectrum cannot provide a competitive consumer platform, even if newly developed broadcast technologies mature sufficiently while the NBN and 5G rollouts continue apace. Hence, 50-52 MHz may be strongly considered for allocation to the Amateur Service on a Primary basis. However, the WIA recognises that the Radio Regulations footnote 5.168 will have to be altered if radio amateurs are to get Primary status for the amateur service in 50-52 MHz and that change is being resisted by other stakeholders.

The WIA notes that WRC-19 agenda item 1.1 (WRC Res 658) concerns allocation of the 50-54 MHz frequency band to the Amateur Service in ITU Region 1. This is of particular interest to the Australian radio amateur community, given the prior experience with global propagation opportunities, and that such an allocation in Region 1 would afford greater opportunities to experience and explore intercontinental propagation on this band.

4.1.5 Proposed allocation within 70.0 – 70.5 MHz

The WIA first signalled to the ACMA the amateur radio community's interest in obtaining an allocation at 70 MHz in July 2014, in an invited submission to Ms Ann Chadwick, Policy Analyst, Industry Partnerships Section, concerning the then-foreshadowed remake of the Radiocommunications Licence Conditions (Amateur Licence) Determination No. 1 of 1997. The proposal was reiterated in the WIA's submission of April 2016 on 'Future Amateur Licence Conditions', addressed to Mr David Brumfield, Executive Manager, ACMA Communications Infrastructure Division, Spectrum Management Policy. The proposition was also advocated in submissions to the ACMA in July 2016 (re: *Proposed updates to RALI LM 2 and MS 42 IFC: 17/2016*) and January 2018 (re: *Five-year spectrum outlook 2017–21: the ACMA's spectrum management work program*).

To reiterate (from the prior submissions): the WIA is seeking access to a band within 70.0-70.5 MHz under Article No. 4.4 of the ITU Radio Regulations, initially. The WIA understands that No. 4.4 provides that operations do not cause harmful interference to the Primary radio services, and that the possibility of harmful interference from such services is accepted. In summary, the WIA seeks an Amateur Service allocation as a secondary service within 70.0-70.5 MHz (perhaps a segment within that 0.5 MHz) that is preferably congruent with, or overlapping, allocations in other countries, particularly in Region 1 (see **Table 4.1.5a**).

Table 4.1.5a International 70 MHz amateur allocations as at 13 July 2017

Country	Licence	Power – watts	Notes
Andorra		10	
Bahrain	General	500	
Belgium	CEPT	50	
Bulgaria	CEPT	50	
Croatia		10	
Czech Republic			
Denmark	CEPT	25	
Eire	General	50 pX	Mobile operation limited to 25 W pX
Estonia	CEPT	1000	Class A licence 1000 W; Class B (& CEPT) 100 W; Class D 10 W
Faeroe Islands	General	100	
Finland	CEPT	25, 30, 100	Power restricted near borders; only 25 W permitted 70.25 – 70.3 MHz
France			Allocation under consideration
Germany	Class A	25	
Greece	CEPT	100 pX	Maximum bandwidth 3 kHz
Greenland	CEPT	1000	
Hong Kong			Beacon on 71.575 MHz
Hungary		10 (erp)	
Iceland			
Italy			
Kazakhstan	Individual	100	
Latvia	CEPT	100	Antenna directions restricted
Lithuania	CEPT	22 (eirp)	Max. bandwidth 3 kHz for SSB, 500 Hz for CW; some geographic restrictions
Luxembourg		10 (erp)	
Macedonia	Individual	10	Allocation under consideration
Malta	CEPT		
Monaco	CEPT	25	
Montenegro	CEPT	100, 25	A and N licence grades
Namibia		400	
Netherlands	CEPT	50 pX	All licence classes
Norway	CEPT	100	Including arctic islands; some geographic restrictions
Poland	CEPT	20 (eirp)	
Portugal	CEPT	100 (eirp)	Incl. Azores & Madeira. Class 1 licence only
Romania	Individual	20	
San Marino			
Slovakia	Individual	10 (erp)	
Slovenia		100	
Somalia		3000	
South Africa		400 pX	
Spain	CEPT	10	
Sweden	CEPT		
United Kingdom	CEPT	160	70.0-70.5 MHz. Channel Islands, Northern Island and Wales to 71.5 MHz
United Arab Emirates	General	100	
USA	Special		Beacon on 70.005 MHz WG2XPN

11 countries have allocated 70-70.5 MHz; 6 countries have allocated 70-70.3 MHz; 5 countries have allocations starting within 69.90-70.00 MHz; Others have allocated segments <500 kHz, or several small segments. Source: www.70mhz.org/index.php

The WIA notes that 69.9 MHz – 70.5 MHz (known as the 4 m band) is listed as a secondary amateur allocation in the ‘European Table of Frequency Allocations and Applications’ (page 65), a CEPT publication (ITU Region 1), published in October 2017 (www.ero-docdb.dk/docs/doc98/official/pdf/ERCRep025.pdf).

As the 4 m band has been allocated to the Amateur Service across CEPT countries for two decades or more, the International Amateur Radio Union (IARU) has developed a bandplan – **Table 4.1.5b**.

Table 4.1.5b IARU Region 1 Bandplan for 70 MHz (4 m)

MHz	70.000 to 70.090	70.100	70.250	70.294	70.500
Tx Bandwidth	1 kHz	1 kHz	2.7 kHz	12 kHz	12 kHz
Mode	Telegraphy, digital	Beacons	Telegraphy, SSB, digital	AM, FM	FM: 12 kHz channels
Usage	Coordinated beacons	Temporary and Personal beacons	70.185 Cross-band calling 70.200 CW / SSB calling 70.250 MS calling	70.260 AM/FM calling 70.270 digital activity ctr	70.3125 digital 70.3250 digital 70.450 FM calling 70.4875 digital

As the band sits between 50 MHz and 144 MHz, it provides propagation characteristics redolent of each, yet unique to itself (based on reports over many years in amateur and technical journals, and on websites).

Technologically and topologically, equipment embodies techniques similar to each of the amateur bands above and below, representing somewhat of a ‘transition’ between the two.

4.1.6 Amateur Allocation at 918 – 926 MHz

This band enables the amateur service to experiment and intercommunicate with equipment based on solid-state devices widely available, and with more emerging, for the 900 MHz LIPD Class Licence segment, and operating within the LIPD power limitations.

The WIA sees potential for the proposed allocation to serve as a focus for STEM educational activities.

Experimentation with new radio technologies, such as LoRa (long range, wide area) and other mesh network technologies would be greatly aided if radio amateurs were encouraged to experiment with the range of new low-cost technologies available for Class-Licensed LIPD bands.

The WIA is of the view that radio amateurs may currently communicate on Class-Licensed LIPD bands under the ‘all transmitters’ category, subject to the ‘all transmitters’ technical conditions.

However, the WIA wishes to explore the additional possibility of:

- the Amateur Service being specifically authorised to use any frequency designated as ‘all transmitters’ in the LIPD Class Licence or any equivalent future spectrum authorisation. This would avoid potential confusion and conflict when amateurs use their call signs on LIPD bands.
- inter-communications between the Amateur Service and LIPD devices on LIPD Class-licensed frequencies.

4.2 Advanced Licence Condition – Permitted Bandwidth as in LCD 2015

Part 3

14 Emissions from an amateur advanced station

The licensee must not operate an amateur advanced station on a frequency in a frequency band mentioned in column 1 of an item in the table in Part 1 of Schedule 2 unless:

- (a) the station is operated using an emission mode mentioned in column 2 of the item; and
- (b) the transmission remains entirely within that frequency band.

Schedule 2 Permitted frequencies and emission modes (amateur advanced station) (sections 13 and 14)

Part 1 Permitted frequencies and emission modes

<i>Item</i>	<i>Column 1</i> Frequency band	<i>Column 2</i> Permitted emission modes
1A	135.7 kHz–137.8 kHz [see note 5] 472 kHz–479 kHz [see note 6]	Any emission mode with a necessary bandwidth no greater than 2.1 kHz
1	1.800 MHz–1.875 MHz 3.500 MHz–3.700 MHz 3.776 MHz–3.800 MHz 7.000 MHz–7.300 MHz 10.100 MHz–10.150 MHz 14.000 MHz–14.350 MHz 18.068 MHz–18.168 MHz 21.000 MHz–21.450 MHz 24.890 MHz–24.990 MHz	Any emission mode with a necessary bandwidth no greater than 8 kHz
2	28.000 MHz–29.700 MHz	Any emission mode with a necessary bandwidth no greater than 16 kHz
3	50.000 MHz–54.000 MHz 144.000 MHz–148.000 MHz	Any emission mode with a necessary bandwidth no greater than 100 kHz

(Higher frequency bands removed for the purpose of this item)

4.2.1 Relaxation of permitted bandwidths

The WIA seeks relaxation of permitted bandwidths for Advanced licensees on all the amateur bands from 1.8 MHz to 430 MHz, with the aim of enabling the exploration and use of emerging and newly developed technologies, because:

- future developments in technologies and applications are undefined
- the parallel development of software defined radio and sophisticated signal processing software over the past decade has enjoyed significant uptake across the amateur radio community globally.

While these developments have been built on exploiting extant narrowband transmission modes within permitted bandwidths, foreseeable development in the mid-term will likely involve low spectral density transmissions of wider bandwidth, or dynamically variable bandwidths, able to co-exist with other transmissions in overlapping spectrum spaces while providing robust information exchange.

NB: The current permitted emission mode bandwidth of 2.1 kHz for 135.7 kHz–137.8 kHz would be retained as the band is only 2.1 kHz wide. The WIA recommends an emission bandwidth of 3 kHz on the 472 kHz–479 kHz band to allow the use of standard SSB telephony or other transmission modes that require a bandwidth of 3 kHz.

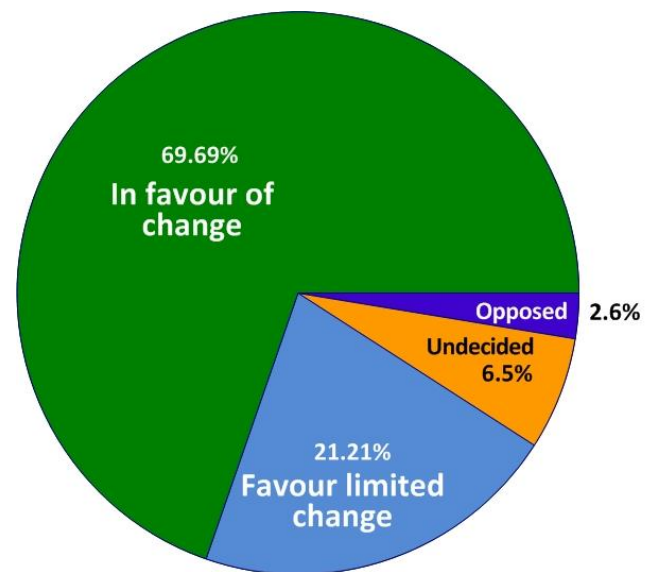
4.2.2 WIA survey - Relaxation of permitted bandwidths

Respondents were offered four response categories:

Relaxation of permitted bandwidths

N = 462	In Favour of Change	Favour Limited Change	Opposed	Undecided
No.	322	98	12	30
%	69.7	21.2	2.6	6.5

More than 90% of respondents favoured relaxation of permitted bandwidths, only 21.2% being in favour of Limited Change in permitted bandwidths for Advanced Licensees. Of those who favoured limited change, many also sought limited change across other conditions and licence grades. Those respondents who selected Undecided were often also undecided about relaxing bandwidths for the other licence grades. Among those Opposed to relaxing permitted bandwidths, many were often also opposed to change with the other licence grades.



Phase 2: Advanced – relax bandwidths

WIA Recommendation:

That **Schedule 1 Emission Modes** be reduced to a practicable minimum to avoid prescribing emission modes in every detail.

That the permitted bandwidth restriction be relaxed to enable Advanced licensees to use wide bandwidth, low-spectral density transmissions on all amateur bands from 1.8 MHz to 30 MHz, and wide bandwidth transmissions on the 50-52 MHz and 144-148 MHz bands not limited by spectral density.

That the WIA and the ACMA develop an appropriate limit for maximum permitted spectral power density.

4.3 Advanced Licence Condition – Transmitter output power as in LCD 2015

Part 3

16 Transmitter output power

- (1) Without limitation to sections 15 and 15C, the licensee must not operate an amateur advanced station, using a transmitter output power of more than 400 watts pX, if the emission mode of the station includes:
 - (a) C3F; or
 - (b) J3E; or
 - (c) R3E.
- (2) Without limitation to sections 15 and 15C, the licensee must not operate an amateur advanced station, with an emission mode not mentioned in subsection (1), using a transmitter output power of more than 120 watts pY.

4.3.1 Increase in maximum permitted power

It is unfortunate that the regimen for regulating electromagnetic emissions (EME) in Australia has conflated the compliance accountability with regulatory responsibility for the radiocommunications sector. In this, Australia is unique in the world.

Since the end of the High Power Trial in 2013, the WIA has conducted an education campaign to raise awareness in the Australian radio amateur community of licensees' responsibility in EME compliance. Material has been published in the WIA's journal *Amateur Radio* magazine and on the WIA's website, and presentations have been delivered to affiliated radio clubs to encourage and educate their members.

It is fair to say that awareness of EME compliance is now much greater as a result of these initiatives. In addition, awareness of EME compliance is now incorporated in the AOCP examination syllabuses.

However, compliance with the Apparatus LCD (remade in 2015) is 'invisible' within the Amateur LCD (also remade in 2015), and is only brought to amateurs' attention on their licence documents. The WIA wishes to see EME compliance clearly highlighted in future Amateur Licence conditions.

Further, the WIA is mindful that, as the Apparatus LCD 2015 is in force, the nexus between EME compliance and radiocommunications regulation remains and the ACMA is accountable for ensuring compliance. Given this, the WIA is committed to working with the ACMA to develop a protocol to enable those Advanced licensees who wish to experiment with transmitter powers above 400 W pX and up to 1500 W pX to provide suitable documentary evidence demonstrating that they have addressed compliance with the Apparatus LCD 2015.

To reduce the regulatory workload on the ACMA, it is proposed that the WIA conduct an application and validation process on behalf of the ACMA and then make a recommendation to the ACMA. The approval for high power would then become part of the Advanced licensee's licence conditions.

As noted with other licence grades, the maximum permitted powers around the world vary widely, as Table 4.3.1 demonstrates. The 34 countries in the table would represent the majority of the world's amateurs licensed at the top grade. Almost 30% of those countries permit a maximum power of 1500 W pX, or more. Some 41% permit 1000 W pX. The median maximum permitted power in this list is 1250 W pX.

Table 4.3.1. Maximum permitted power by country, ranked by power

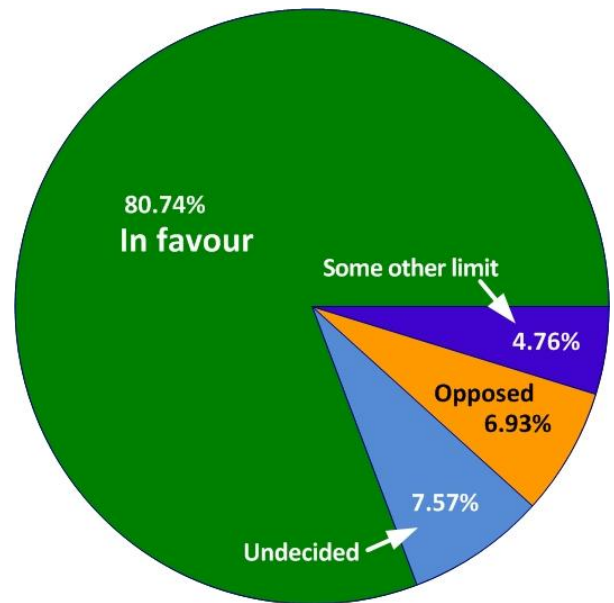
Country	Max. permitted power (W)	pX / pY	Notes
Somalia	3000	pX, pY	
Canada	2250	pX	CITEL
Chile	2000	pX	CITEL
	1200		Mobile station, Superior grade; Fixed station, Superior grade
Argentina	1500	pY	CITEL
Chinese Taipei	1500	pX, pY	
Hungary	1500	pX, pY	For CW, AM, FM, SSB, digital CEPT
Israel	1500	pX, pY	
Portugal	1500	pX	CEPT
South Sudan	1500	pX, pY	
USA	1500	pX	CITEL
Mexico	1250	pX, pY	CITEL
Austria	1000	(pX, pY)	CEPT
Belgium	1000	pX	CEPT
Brazil	1000	pX	
Denmark	1000	pY	CEPT
Indonesia	1000	pX	
Japan	1000	pX, pY	
Malaysia	1000	pX	New limit proposed
New Zealand	1000	pY	Seeking 1500 W
Norway	1000	pY	CEPT
Peru	1000	pY	CITEL
Spain	1000	pX, pY	CEPT
Sweden	1000	pX	CEPT (From PTSFS 2014:5)
Switzerland	1000	pY	CEPT
Thailand	1000	pX	
Germany	750	pX	CEPT
France	500	pX	CEPT
Greece	500	pX, pY	CEPT
Italy	500	pX	CEPT
Ireland	400	pX, pY	
India	400	pX, pY	DC input to final stage
Malaysia	400	pX	Past limit; new conditions to come
South Africa	400	pX	
UK	400	pX	CEPT

4.3.2 WIA survey - Increased power

It is understood that the current maximum permitted power of 400 W pX / 120 W pY is generally accepted by many operators. However, several operators seek the opportunity to explore and experiment with the use of higher powers, for a variety of applications, which is likely to continue in the future.

The WIA advocates raising the maximum permitted power to 1500 W pX, provided that operators submit documentary evidence demonstrating that they have addressed compliance with the Apparatus LCD 2015.

Respondents were offered four response categories:



Phase 2: Advanced – increased power

Increased power

N = 462	In favour of change	Opposed	Undecided	Some other limit
No.	373	32	35	22
%	80.7	6.9	7.6	4.8

Unsurprisingly, over 85% of respondents were in favour of an increase in permitted maximum power for Advanced Licensees under the conditions proposed. Some 4.8% of respondents were in favour of an alternative power limit, particularly specifying 1500 watts. Of those Opposed, many were also opposed to increased power for the other licence grades.

WIA Recommendation:

That the WIA work with the ACMA to develop a protocol to enable those Advanced licensees who wish to experiment with transmitter powers above 400 W pX and up to 1500 W pX to provide suitable documentary evidence demonstrating that they have addressed compliance with the Apparatus LCD 2015.

That the WIA conducts an application and validation process on behalf of the ACMA from which to make a recommendation to the ACMA of a licensee's suitability for a high-power authorisation.

That the WIA and the ACMA develop an appropriate limit for maximum permitted spectral power density for wideband transmissions.