



*Wireless Institute of Australia*

# Australian Amateur Radio Band Plan Update Consultation 2023/01

DECEMBER 2023



## Introduction

From time to time, it is necessary to review the content of the Amateur Radio service band plans to ensure they remain relevant for the types of activities being undertaken. Recently, several changes to amateur radio service privileges on 50MHz and 3.6 GHz, as well as problems arising with the repeater channel allocations on 438 MHz has promoted a review of those bands.

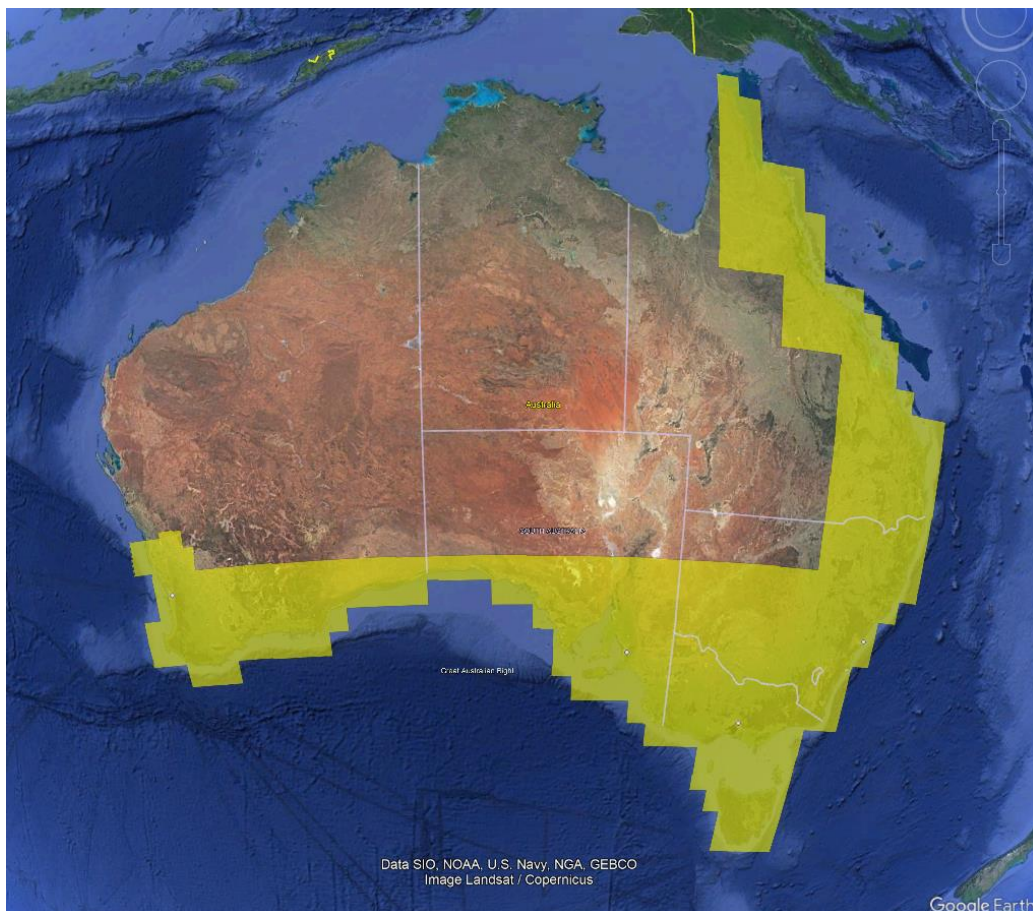
The proposals described in this consultation paper are now open for comment by all amateur radio operators within Australia. You are invited to provide your feedback to the WIA Technical Advisory Committee via email at [tac@wia.org.au](mailto:tac@wia.org.au). Your submissions must be received by January 31<sup>st</sup> 2024. The WIA TAC will then review the responses and make a final recommendation to the board for acceptance in February.

## The Issues

### Regulatory Changes and Band Planning – 50 MHz & 3.6 GHz

Earlier this year the ACMA made an amendment to the Australian Amateur Radio Licence Condition Determination (LCD) which affected the 50MHz and 3.6 GHz bands.

- On 50 MHz, amateur radio operators holding an AOCP(S) or equivalent grade licence have now been granted access to the entire 6m band (50-54 MHz),
- On 3.6 GHz, amateur radio access was revoked for the band segment 3400 – 3600 MHz over most of the populated regions of Australia as the band was turned over to commercial wireless broadband and 5G cellular network operators. This leaves only 3300 – 3400 MHz available for amateur radio use across most of the country. (The exclusion zone is captured in yellow below).



## Repeater Channel Management – 438 MHz band

The Australian amateur band plan for 70cm was last updated in 2017 following the withdrawal of the 420 – 430 MHz sub-band from amateur use by the ACMA. At the time, the TAC took the opportunity to finally address the interference conflict that also existed between the amateur radio repeater networks and the “Low Interference Potential Devices (LIPD)” band introduced some years earlier by ACMA on 433.05-434.79 MHz.

Since that time, many repeaters around Australia have now migrated to the new 7MHz channel plan, often as part of the migration from analogue to either mixed analogue/digital or digital only voice repeater systems. The development of new digital repeaters in parallel with the analogue network, however, revealed some problems with duplexing multiple co-site repeaters together in amongst the new repeater linking sub-bands. The lack of 7MHz offset repeater channels in the Block B repeater sub-band (which initially was only defined with 5 MHz offset channels between 439.800 – 440.000 MHz) was identified as one of the key issues that needed to be addressed.

## Proposed changes

### 6m (50 – 54 MHz) Band

#### *Proposed Narrow Band Mode Segment Changes*

Now that both AOCP(A) and AOCP(S) grade operators can access the whole band, the need to retain two narrow band mode segments has been made redundant. This has prompted TAC to propose the following changes to the 6m band relating to narrow band operation:

- Revoke the narrow-band segment from 52.0 – 52.5 MHz
- Add the international EME segment into the plan (50.190 - 50.200 MHz)
- Revoke the legacy domestic beacon segments between 50.280 – 50.320 MHz (legacy beacons can remain until they choose to amend their licence in any way, at which time they will be encouraged to move to the new beacon segment)
- Revise the digital DX modes segment from 50.320 – 50.400 MHz to 50.300 – 50.400 MHz, with annotations added for the primary and inter-continental FT8 channels

#### *Wideband Mode Opportunities*

Along with the changes for operating grades, the ACMA has also removed all emission bandwidth restrictions above 52 MHz. This provides a new opportunity for amateur television operators. The TAC has been approached by several amateurs who have expressed an interest in experimenting with Reduced Bandwidth ATV (RB-ATV) using DVB-S modulation and H.264 image coding. They wish to carry out ATV experiments in bandwidths as small as 500 kHz. As a result, the WIA TAC is proposing to define a new wideband experimental channel from 52.0 – 52.5 MHz to facilitate this very interesting opportunity, particularly for amateur television operators who have suffered multiple spectrum withdrawals by the regulator over the last two or more decades. The principal concern will be adjacent channel noise being generated into the FM repeater and simplex segment which commences at 52.525 MHz. Feedback is sought on standards that should be set and techniques that could be employed by the wideband operators to prevent impacts to the adjacent neighbouring FM activity.

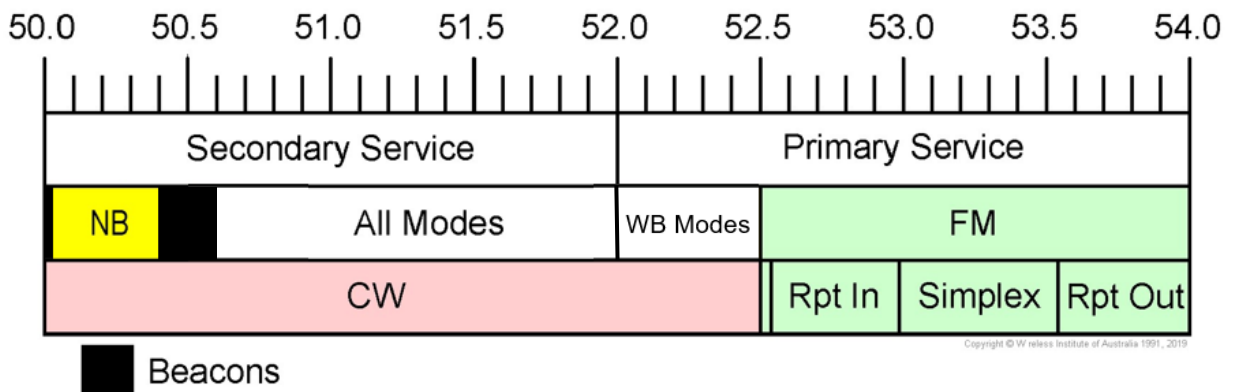
Further, the interest in RB-ATV has prompted the WIA to consider whether to approach ACMA to remove the bandwidth restrictions over even more of the 6m band. For example, should the WIA lobby to remove the emission restriction as low as 51.0 MHz or even 50.6 MHz? While it can not be incorporated into the band plan at this time, feedback is sought on whether the WIA should begin such discussions with ACMA to further expand the spectrum that amateurs can use for wideband modes on 6m, most likely through the FYSO process.

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6 Metre band – 50- 54 MHz – PROPOSED – AOCP(A) & AOCP(S) Licensees

*Band Allocation*

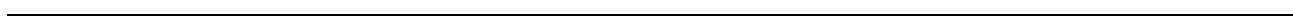
50 - 52 MHz	BROADCASTING Amateur	Primary Service Secondary Service
52 - 54 MHz	AMATEUR	Primary Service



50.000 - 50.600	NARROW BAND MODES	(Note 1)
50.000 - 50.100	CW only	
50.000 - 50.030	Reserved - International Synchronised Beacon Project	
50.030 - 50.080	International beacons	(Note 2)
50.080 - 50.100	International DX window	
50.100 - 50.150	CW / SSB: International DX only	
50.110	International DX calling frequency	
50.150 - 50.300	CW / SSB / DATA: DX or local	
50.190 - 50.200	International Digital EME (JT65 / Q65 modes)	
50.200	Australian SSB calling frequency	
50.220 - 50.240	Digital DX modes (Meteor scatter)	
50.240 - 50.280	Recommended for Chirp beacons with 2 - 20 kHz bandwidth	
50.300 - 50.400	Digital DX modes	
50.313	FT8	
50.323	FT8 intercontinental only	
50.400 - 50.600	Beacons	
50.600 – 52.000	ALL MODES (limited to 16kHz bandwidth)	
52.000 – 52.500	WIDE BAND MODES (up to 500 kHz bandwidth)	
52.525 - 53.975	SIMPLEX AND REPEATERS	(Notes 3,4)
52.525	International FM simplex calling frequency	
52.550 - 52.975	Repeater inputs	
53.000 - 53.525	Simplex	
53.050	Recommended APRS channel	
53.150	National WICEN frequency	
53.300	National ARDF frequency	
53.525	Simplex: voice	
53.550 - 53.975	Repeater outputs	

**Feedback Sought**

Do you support the proposed changes to the 6m band plan or do you have an alternate view that you can share with the committee?



## 9cm (3300 – 3600 MHz) Band

With the full withdrawal of the 3400 – 3600 MHz sub-band over most of populated Australia and limited opportunities for secondary amateur service sharing in the rest of the continent (following the recent commercial allocation of Apparatus AWL licences in the band), the WIA is again reviewing the 9cm band plan, especially since receiving feedback as to adjacent service compatibility issues being experienced by some operators.

The narrow band weak signal segment, currently located between 3398 – 3400 MHz, is very close to the NBN network LTE transmitters which start at 3400MHz and are between 20-140 MHz wide. The TAC has received feedback from some operators that they are having difficulties using this segment due mostly to receiver overload and sideband noise problems caused by the presence of those commercial LTE signals.

Given that the commercial operators above 3400 MHz are operating within their own licence conditions, the resolution of the problem is solely an amateur service responsibility in this case (as amateurs are only Secondary users of this band and operate under a no interference, no protection basis). The obvious solution might be to rearrange the band plan once more, to provide more of a guard band towards the commercial operators. However, the TAC understands some operators will face difficulties moving below 3398 MHz if they are using certain types of transverters etc.

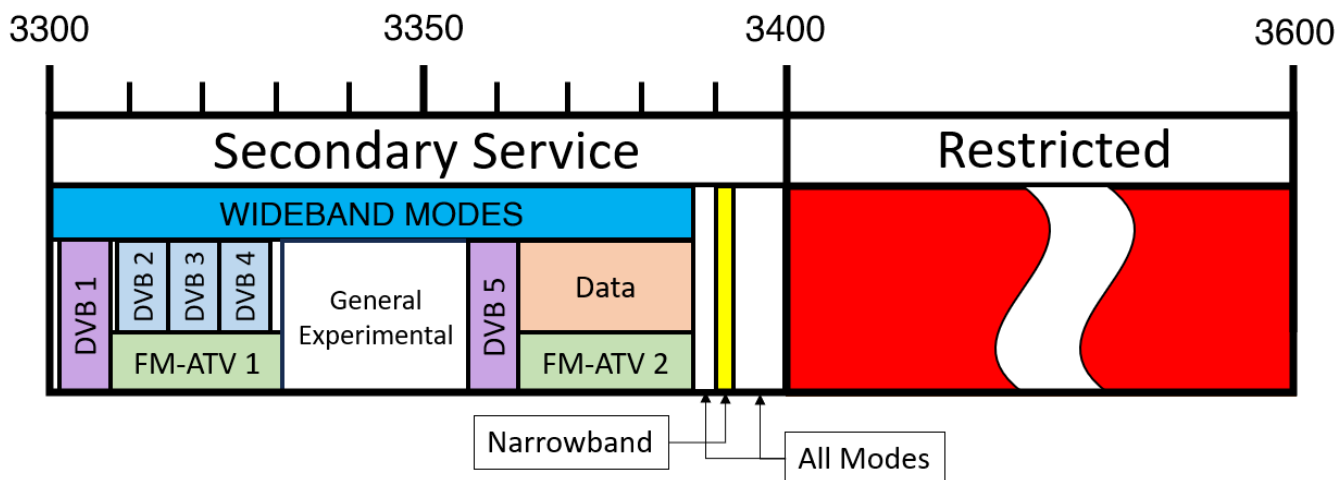
Options that could be considered may include:

1. Do nothing.
2. Relocate the narrow band segment to 3300 – 3302 MHz (providing a 98 MHz guard band)
3. Relocate the narrowband segment to 3390 – 3392 MHz (providing a 8MHz guard band)

Considering this issue is complex and the current impacts are not experienced equally by all amateur users of the band, the WIA is seeking general feedback on the extent of the interference problem (are your activities being interfered with) and which of the above options would you prefer be taken regarding the 9cm narrow band segment?

In addition, the WIA is considering updating the band plan to avoid operation for anything other than experimental transient activity in the 3332-3339MHz and 3345-3353 MHz sub-bands in recognition of article 5.149 of the ITU radio regulations regarding protection of radio astronomy services.

Finally, with the usefulness of 2.4 GHz diminishing for ATV due to competition from ISM licenced WiFi devices, the TAC has forecast that interest in the 3.3 GHz band is likely to grow. The TAC also notes that there is substantially more DVB-S based ATV activity today than when the original wideband channel allocation was designed. As a result, it is proposed to revise the various wideband channel allocations as follows.



NOTE: DVB1 and DVB5 are intended primarily for repeater usage – either inputs or outputs.

9cm band – 3300 - 3600 MHz – PROPOSED – AOC(A) Licensees

**Band Allocation**

3300 - 3600 MHz	RADIOLOCATION	Primary Service
3300 - 3600 MHz	AMATEUR	Secondary Service
3400 - 3410 MHz	AMATEUR SATELLITE	Permitted on non-interference basis
3400 - 3600 MHz	FIXED SATELLITE (Space to Earth)	Secondary Service
3400 - 3600 MHz	FIXED, MOBILE	Secondary Service

3300.000 - 3390.000 WIDEBAND MODES (Note 5)

3300.000 - 3301.000 General experimental use

3301.000 – 3308.000 Channel 1: DVB-S ATV 7MHz  
*(Primary Repeater input/output)*

3308.000 – 3332.000 Channel 2: Analogue FM ATV  
*(Centre 3320.0 MHz 24MHz Bandwidth)*

3309.000 – 3316.000 Channel 2: DVB-S ATV 7MHz

3316.000 – 3323.000 Channel 3: DVB-S ATV 7MHz

3323.000 – 3330.000 Channel 4: DVB-S ATV 7MHz

3332.000 - 3353.000 General experimental use  
*(Avoid if located within 250km of Radio Astronomy observatories)*

3354.000 - 3361.000 Channel 5: DVB-S ATV 7MHz  
*(Primary Repeater output/input)*

3362.000 - 3386.000 Channel 4: Wideband Data or FM ATV  
*(Centre 3374.0 MHz 24MHz Bandwidth)*

3386.000 - 3390.000 ALL MODES - EXPERIMENTAL

3390.000 - 3400.000 NARROW BAND MODES (Note 1)

*(For operation in any part of Australia)*

3390.100 - 3390.400 CW / SSB

3390.100 Calling frequency: national primary

3390.200 Calling frequency: national secondary

3390.220 - 3390.240 Digital DX modes

3390.400 - 3390.600 Beacons (Note 2)

3390.600 - 3399.900 ALL MODES - EXPERIMENTAL

3399.900 - 3400.000 EME only  
*(note international EME Centre of activity is on 3400.1 MHz)*

3400.000 - 3600.000 NO OPERATION IN ACMA RESTRICTED AREAS  
AMATEUR SATELLITE SERVICE  
*(Receive only inside amateur service restricted zone)*

3400.000 – 3410.000  
3410.000 – 3600.000 ALL MODES  
*(where amateur operation is permitted and will not cause interference to primary spectrum users)*

## Feedback Sought

So that we can make an informed decision, feedback from the Amateur radio operator community is sought specifically on the following:

- 1) Should the narrowband activity window on the 9cm band either:
  - a. Remain where it is on 3398-3400 MHz
  - b. Relocate to 3390-3392 MHz
  - c. Relocate to 3300 – 3302 MHz?
  
- 2) Would the proposed reallocation of the wideband part of the band better suit amateur service activity in this band? Do you have any suggested improvements, or would you prefer to see the wideband segment left unchanged?

## 70cm (430 – 450 MHz) Band

Given the lack of Repeater B-block 7MHz offset channels in the current band plan, the TAC is proposing the following changes to the 70cm band plan:

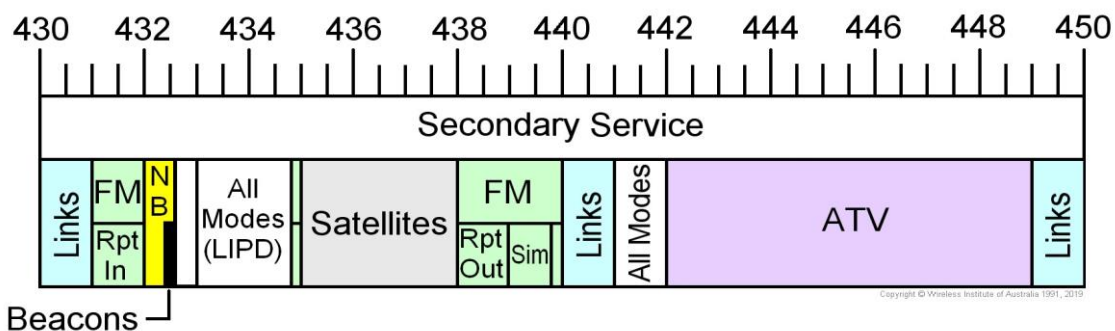
- a) simplify the existing plan by removing references to legacy 5MHz offset repeater channels that are no longer supported due to LIPD interference within the 438.075-439.775 MHz repeater sub-band, (but also noting that existing licenced systems can remain on their current frequencies should they wish to, until they decide to make an amendment to the licence – at which time they should move to the now standard 7MHz offset channels) and;
  
- b) re-open the 439.6125-439.7875 MHz channels for primary repeater use based on using a 7 MHz offset paired with the 432.6125-432.7875 MHz sub-band (currently used by legacy 5.4 MHz offset digital repeaters)
  
- c) add the flexibility to use a 7MHz offset on the 439.800-440.000 MHz repeaters (using the 432.800 – 433.000 MHz sub band for uplinks) in addition to the existing 5 MHz receive offsets, where that assists in developing link systems.

The impact of these changes is a reallocation of the 439.6125-439.7875 MHz segment from primary simplex back to primary repeater usage. There are no impacts to other remaining legacy repeater systems, other than if they wish to relocate or make a change to their licence in the future, they will be encouraged to relocate to one of the new band plan channels at that time (including switching to a 7 MHz offset as a preference).

70 cm band – All licence classes

## Band Allocation

430 - 450 MHz	FIXED, MOBILE	Primary Service
430 - 450 MHz	AMATEUR	Secondary Service
435 - 438 MHz	AMATEUR SATELLITE	Permitted on non-interference basis



430.025 -	430.975	REPEATER LINKS - Group A	(Note 7)
431.0250 -	431.9375	REPEATER INPUTS Group A (7 MHz offset) Paired with outputs 438.0250 - 438.9375	(Note 6,9)
431.950 -	432.600	NARROW BAND MODES	(Note 1)
431.950 -	432.000	EME guard band	
432.000 -	432.100	EME	
432.100 -	432.400	CW / SSB	
432.100		Calling frequency: national primary	
432.200		Calling frequency: national secondary	
432.220 -	432.240	Digital DX modes	
432.240 -	432.300	Guard band: New Zealand beacons	
432.300		SSB chat frequency	
432.320 -	432.340	Digital DX modes	
432.400 -	432.600	Beacons	(Note 2)
432.625 -	433.000	REPEATER INPUTS Group B (7 MHz offset)	(Note 6,9)
433.025 -	433.050	REPEATER INPUTS Group A (5 MHz offset)	(Note 6,9)
433.050 -	434.775	ALL MODES	(Notes 4, 5, 6)
433.050 -	434.790	LIPD Class Licence band	
434.000 -	434.775	Repeater links - Group D	(Note 7)
434.800 -	435.000	REPEATER INPUTS Group B (5 MHz offset) (12.5 or 25 kHz channel spacing)	(Notes 4, 7)
435.000 -	438.000	AMATEUR SATELLITES	(Note 3)
438.000 -	438.050	REPEATER OUTPUTS Group A (5 or 7 MHz offset) (12.5 or 25 kHz channels)	(Note 6)
438.0625 -	438.9375	REPEATER OUTPUTS Group A (7 MHz offset) (12.5 or 25 kHz channels)	(Note 6)
438.950 -	439.600	FM AND DIGITAL SIMPLEX (12.5 or 25 kHz channel spacing)	
438.950		WICEN	
439.000		National FM voice calling frequency	
439.100		APRS	
439.125		Internet gateways	
439.150		Internet gateways	
439.200		Digital voice calling frequency	
439.400		ARDF frequency	
439.6125 -	439.7875	REPEATER OUTPUTS – Group B 7 MHz offset	(Note 6)
439.8000 -	439.9875	REPEATER OUTPUTS – Group B (5 or 7 MHz offset)	(Note 6)
440.025 -	440.975	REPEATER LINKS - Group B	(Note 7)
441.000 -	441.975	ALL MODES	
442.000 -	449.000	ATV	(Note 8)
449.025 -	449.975	REPEATER LINKS - Group C	(Note 7)

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## **Feedback Sought**

Do you support the proposed changes to the 70cm band plan, or do you have an alternate view that you can share with the committee?

## ***Conclusion***

The WIA invites amateur radio operators across Australia to provide their feedback on these proposals no later than January 31<sup>st</sup> 2024. You can send your feedback as an email to [tac@wia.org.au](mailto:tac@wia.org.au)

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