

17/04/2025



AMTA Submission

Australian Communications & Media Authority

# Draft Five-year spectrum outlook 2025-30—consultation



## About AMTA

The Australian Mobile Telecommunications Association (AMTA) is the peak industry body representing Australia's mobile telecommunications industry. Its mission is to promote an environmentally, socially and economically responsible, successful and sustainable mobile telecommunications industry in Australia, with members including the mobile network operators and service providers, handset manufacturers, network equipment suppliers, retail outlets and other suppliers to the industry. For more details about AMTA, see <http://www.amta.org.au>.



## Executive Summary

AMTA welcomes the opportunity to provide its views on the ACMA's spectrum planning and management activities over the next five years, including the 12-month work plan for financial year 2025-26. We commend the ACMA for its efforts in producing the comprehensive five-year spectrum outlook (FYSO) document, and on the large body of work that the ACMA has taken on which—either directly or indirectly—supports the mobile industry regarding access to adequate radiofrequency spectrum.

AMTA members view the ACMA's highest priority work item to be the Expiring Spectrum Licences (ESL) process and the ongoing optimisation of spectrum licence technical frameworks (SLTFs). The latter body of work is with a view to harmonising licence conditions to support 5G and its adaptive antenna systems (AAS), wider channel widths and carrier aggregation, and a move from emission limits specified in terms of equivalent isotropic radiated power (EIRP) to unwanted emission limits specified in terms of total radiated power (TRP), along with alignment of technical specifications with the Third Generation Partnership Project (3GPP).

AMTA's submission to the draft FYSO outlines our key priorities and summarises the key drivers for the requested items. The appendices go into more detail on technical and business aspects and the desired outcomes.

### Expiring spectrum licences

AMTA is requesting the ACMA to be vigilant with respect to program slippages as the first renewal notices are due to be issued in June 2026. AMTA is also requesting details on the program associated with the outcome of stage 2, secondary licences. The decision framework and changes in the *Radiocommunications Act 1992* need to be in place in early 2026 if they are to apply to the licences due to expire in June 2028.

### Additional spectrum

The GSMA estimates that around 2 GHz of spectrum per country is needed by 2030, which means that Australia will need another 1 GHz by the end of the decade. Candidate bands include Upper 6 GHz, our primary mid-band target; 600 MHz, a potential release of which could be facilitated by optimising Broadcast TV; 4.0-4.2 GHz, being examined by the FCC; and 7/8 GHz, being considered as part of the preparatory work for WRC-27.

**Upper 6 GHz:** AMTA has concerns with the ACMA's decisions related to this band, which mean that both lower and upper frequency boundaries of the portion allocated for wireless broadband (WBB) do not align to standards, and are globally unique. There is therefore the potential to seriously impact the Australian market's ability to leverage global economies of scale in the supply of devices and infrastructure. AMTA requests the ACMA to pause on the inclusion of provisions for

radio local area networks (RLAN, including Wi-Fi) in 6425-6585 MHz until (a) coexistence studies between RLAN and IMT are completed, and (b) other larger economies have made their determinations on this band.

**600 MHz:** AMTA is proposing to work with the ACMA, Government and the Broadcast Industry to optimise TV Broadcast services, with the aim of releasing 600 MHz spectrum for IMT to provide further capacity relief to rural and regional mobile services.

**7/8 GHz:** This band is being studied under WRC-27 agenda item 1.7 for identification as a possible IMT band. The bottom of this band (i.e., 7125 MHz) aligns to the top of the Upper 6 GHz band, making it an ideal candidate band for the introduction of 6G technology. However, the band has significant incumbency issues such as Television Outside Broadcasting (TOB) services in the 7.2 GHz band, and Defence operations above 7250 MHz.

**Mid-band spectrum designated for Defence:** AMTA encourages leaving the 3.3-3.4 and 4.4-5.0 GHz bands as potential fallback options in the spectrum pipeline, along with 14.8-15.35 GHz (also currently being studied under WRC-27 Agenda item 1.7). The US National Spectrum Strategy is considering shared access to these bands via a common spectrum management platform.

**4.0-4.2 GHz:** The FCC released a Notice of Enquiry in February on repurposing the Upper C-Band (3.98-4.2 GHz). This band currently is used to protect aviation industry Radio Altimeters (RAs). AMTA understands that a new international standard is being developed for RAs which will make them more resilient to out-of-band interference, which could potentially allow this valuable (and largely unencumbered) band to be allocated for WBB.

**mmWave spectrum ~40 GHz:** AMTA does not consider this to be a short-term priority, but should be considered in future work programs.

## Optimisation of existing spectrum bands

AMTA has outlined a program of work needed to increase the efficiency and utility of spectrum across a number of bands, including:

- **700 MHz:** A relatively low number of 800 MHz apparatus-licensed services can impact on thousands of 700 MHz spectrum licence device registrations needs; this impact needs to be addressed.
- **3.4-4.0 GHz:** AMTA has requested a number of changes to the band designed to make this band more effective and efficient. Further, AMTA would like to see longer-term optimisation of this patch-work band as existing allocations are inefficient and defragmentation will be difficult.
- **1800 MHz and 2 GHz outside spectrum licensed areas:** In response to the ACMA's consultation on this matter, AMTA requested that MNO networks licences are consolidated into the 1800 MHz band, and non-MNO networks licences into the 2 GHz

band, in remote areas. AMTA would like to see the ACMA progress work on optimising these bands to provide more efficient and effective use of the bands.

- **2.5 GHz band:** This band needs optimising before the licence renewal period commences in October 2027. With that in mind, a TLG needs to be carried out in a timely manner.

# Introduction

## Expiring spectrum licences—AMTA’s top spectrum priority

AMTA supports the ACMA’s ongoing efforts in the highest priority work underway, Expiring Spectrum Licences (ESL).

That said, we note the overall program timeframes are slipping<sup>1</sup>, and we encourage the ACMA to keep up the momentum and progress. The first renewal notices are due in June 2026, and there needs to be sufficient transparency and visibility of the valuation work before those renewal invoices are issued.

Furthermore, we seek guidance from the ACMA on the proposed timing and mechanisms for consideration and consultation on the mooted secondary licensing framework. There is a significant body of work to be done, including changes to the *Radiocommunications Act 1992* (“the Act”). While secondary licensing is mentioned as an outcome of the ESL Stage 2 Consultation related to alternate spectrum licence conditions, there is no associated program of work to implement secondary licences or a framework to assess applications for secondary licences. As above, AMTA notes that renewal notices on the first spectrum licences to expire will be made available in June 2026. If a secondary licensing framework is to apply to that spectrum, it is reasonable to expect that the changes to the Act and the decision framework to assess the merits of secondary licence applications will need to be complete by Q1 2026.

## High-level AMTA position supporting advocacy for additional mid-band spectrum

In this section, we present our position for the ACMA to maintain a “spectrum pipeline”, with spectrum options for satisfying future demand for mobile data delivered by wide-area wireless broadband (WBB) networks, particularly noting the expected arrival of 6G after 2030. It is important to start to think about whether 6G will be introduced via a few “pioneer bands”, re-farming of existing spectrum holdings, or a combination of both.

In previous FYSO submissions, AMTA has sought to highlight the importance of mobile broadband services, and the public benefit derived from use of spectrum by these services. These benefits are well-documented, including in those previous AMTA responses, and now, in our AMTA Spectrum Policy Position Paper<sup>2</sup>, along with regularly updated resources like the Ericsson Mobility Report<sup>3</sup>.

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<sup>1</sup> In last year’s FYSO, the Stage 2 outcomes were scheduled for Q4 2024, but were only released at the start of Q2 2025.

<sup>2</sup> AMTA, June 2024 (Edition 2), *Spectrum Policy Paper – How mobile spectrum is essential to Australia’s prosperity*, available here: <https://amta.org.au/wp-content/uploads/2021/12/AMTA-Spectrum-Policy-Paper-2024-clean-21-June-2024.pdf>

<sup>3</sup> Ericsson, Mobility Reports, available here: <https://www.ericsson.com/en/reports-and-papers/mobility-report>

The realisation of these benefits is contingent upon sufficient spectrum being made available to meet increasing demand and the deployment of next generation technology. To recap on the spectrum demand forecasts detailed in our previous FYSO responses, and which inform AMTA's position on mid-band spectrum:

- According to the Coleago study<sup>4</sup> referred to in AMTA's FYSO submission last year, an additional 427 to 657 MHz of mid-band spectrum is required in Sydney (above and beyond the total of 803 MHz currently licensed to operators in metro areas), while an additional 487 to 727 MHz is needed in Melbourne.
- GSMA estimates that an average of 2 GHz per country is required by 2030, meaning that Australia still requires more than 1 GHz of additional mid-band spectrum based on this estimate.

However, the future pipeline of available spectrum appears limited to 600 MHz (low-band), 4.0-4.2 GHz and 7/8 GHz (mid-band) and mmwave around 40 GHz (high-band). Future allocations in both the 600 MHz and 7/8 GHz are a long way off and will face significant challenges associated with re-planning, band clearance and/or practical mitigation measures to facilitate sharing between 6G and incumbent services. Considerations on 4.0-4.2 GHz are in their infancy.

As such, the Upper 6 GHz band remains vital as it represents a key future opportunity for IMT users to secure spectrum with the necessary volume and characteristics to meet the demands of mobile broadband networks.

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<sup>4</sup> Coleago, Nov 2021, *Demand for mid-band spectrum in Australia*, available here: <https://amta.org.au/wp-content/uploads/2021/12/Coleago-Report-Demand-for-mid-bands-spectrum-in-Australia.pdf>

# AMTA views on the FYSO and the 2025-26 work program

## Industry priorities—new spectrum

### **#1 Upper 6 GHz**

AMTA notes that the ACMA ultimately adopted a number of the views expressed in AMTA's 2024-2029 FYSO response, such as (a) advancing domestic planning in the Upper 6 GHz band ("U6", 6425-7125 MHz) and (b) making the decision to allocate licensed mobile broadband to at least part of the band. However, the ACMA's decision to adopt band edges other than those of 3GPP band n104, and to proceed with the introduction of Wi-Fi in the 2025 re-making of the LIPD Class Licence, is cause for concern.

Firstly, the ACMA has chosen to implement Australian-specific frequency boundaries requiring bespoke solutions for the Australian market. This is likely to adversely impact both Wi-Fi and IMT services on both sides of 6585 MHz, rendering the band inefficient. Secondly, allocating spectrum to Wi-Fi ahead of completing coexistence studies will lead to sub-optimal outcomes which fail to maximise the public benefit derived from this valuable spectrum.

Noting both points above, AMTA requests that the ACMA pause the allocation of the 6425-6585 MHz to WiFi so that coexistence studies can be completed, and to wait and see if other larger economies align to the ACMA's proposed band planning. AMTA reiterates that a market the size of Australia cannot afford to implement unique solutions.

The upper boundary of the WBB allocation being set at 7100 MHz by the ACMA is also a source of concern for our industry. However, we are confident that the upper boundary can be shifted up to 7125 MHz to align with 3GPP band n104, and we have presented our proposed solution for this in Appendix B. As such, we ask that the ACMA include further consideration of the upper boundary of the WBB allocation within the scope of any future TLG on U6.

### **#2 600 MHz band**

The ACMA notes<sup>5</sup> the government is proposing to explore future options of television broadcasting, which may include considering future spectrum needs. This band will be required by the IMT industry, to meet capacity demand and for 6G deployment at the end of this decade. We highlight the increasing pressure on low-band spectrum, particularly in regional Australia, with

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<sup>5</sup> Draft FYSO, p.31.

MNOs juggling the needs of 4G, 5G, 6G and possible future LEO D2D solutions to meet a possible Universal Outdoor Mobile Obligation (UOMO).

The ACMA should be mindful of the long lead time to implement a wholesale re-engineering of the terrestrial broadcast network and should therefore increase focus and momentum with a view to developing policy for the future use of this band. We are encouraged by recent broadcast technology developments, already deployed in other countries, which will facilitate the freeing up of 600 MHz spectrum.

While this is a policy consideration and beyond the remit of the FYSO, AMTA notes the role the ACMA will have in advising the Government on these matters in its future work program. We therefore take this opportunity to highlight our willingness to join with the ACMA, policy makers and the broadcast sector to develop a future strategy for the 600 MHz band.

While the future allocation of the 600 MHz band to IMT will be important to meet growing demand, we consider that this does not necessarily conflict with the Government's broadcasting policy objectives over the medium-to-longer term. This is conditional on a clear policy direction and certainty on the timeframes and expectations on each sector.

We also recognise the significant lead times in some options for the future of the broadcasting sector, given the horizontal nature of the TV receiver market. It is therefore imperative that there be no further delay in taking forward the necessary work to develop a reform roadmap. We stand ready to work constructively with all parties on the future of the 600 MHz band.

Lastly, for it to be clear why the 600 MHz is in the work program in the first place, we believe that explicit references to IMT—such as those that featured in the FYSO 2024-29<sup>6</sup>—need to be re-introduced.

### **#3 7/8 GHz band**

The frequency band 7125-8400 MHz will be studied under WRC-27 Agenda item 1.7 for a possible IMT identification in the band. Due to this proximity to the Upper 6 GHz band (i.e. allowing large contiguous spectrum band), and due to being at lower frequency than the 15 GHz band also being studied under WRC-27 AI 1.7, this is the highest priority under this Agenda item. The lower part of the band 7125-7250 MHz could potentially allow a 100+ MHz expansion upwards of the Upper 6 GHz band, providing an important future potential “release valve”, pending resolution of compatibility with TOB services in the 7.2 GHz band. However, compatibility with the X-band military satellite communications (“MilSatCom”) bands—7250-7750 MHz and 7900-8400 MHz—

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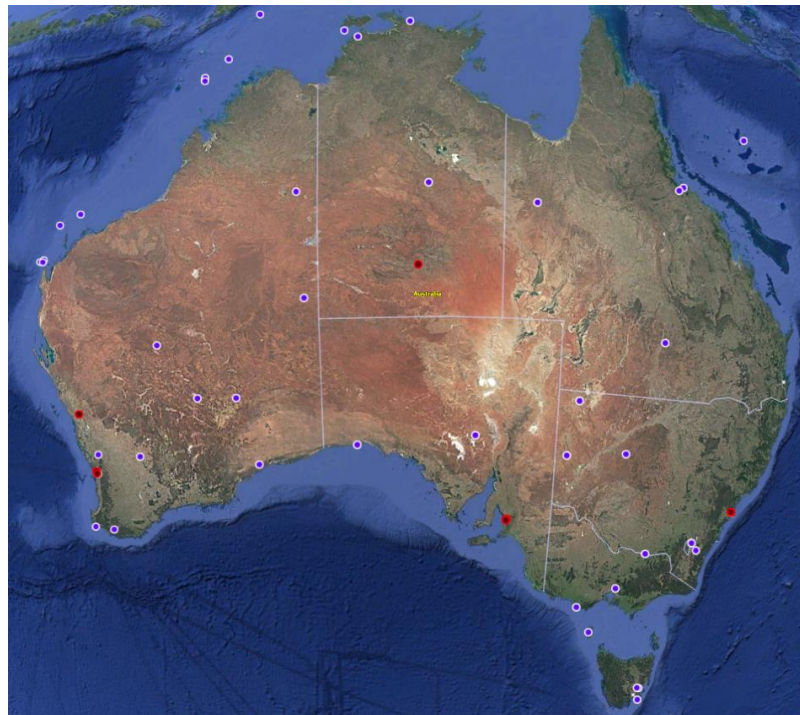
<sup>6</sup> Including an explicit reference to “*further restack to yield a contiguous block of spectrum in the 600 MHz range*”, as well as on developments in North American countries, on the inclusion of a modified APT 600 MHz band plan, and on the outcomes of WRC-23 Agenda item 1.5.

will need further consideration and discussion as part of the Australian preparatory process for WRC-27.

#### #4 4.0-4.2 GHz

On February 28, 2025, the FCC released a Notice of Inquiry (“NOI”)<sup>7</sup> seeking comment on the potential repurposing of the Upper C-Band (3.98 GHz to 4.2 GHz) for more intensive use, with the stated goals of *“meeting projected spectrum demand, spur economic growth, and advance American security interests”*. In the associated statement by FCC Chairman Brendan Carr, he also refers to a *“steady pipeline of spectrum to meet consumer demand”*. The FCC seeks industry comment on whether new services in 4.0-4.2 GHz actually presents risk to *“today’s [i.e. post-upgrade] more resilient radio altimeter operations”*, also what the impact would be on the Fixed-Satellite Service (FSS) space-to-Earth or downlink reception by earth stations in the US.

If adjacent-band compatibility with future, resilient Radio Altimeters can be resolved, and if the handful of gateway earth station facilities in State capital cities can be relocated to rural/remote areas, then this could create a genuine opportunity for additional WBB spectrum in 4.0-4.2 GHz in metro areas. Unfortunately, it would require a complex and potentially lengthy de-fragmentation process to shift the 3.8 GHz AWL and the “Highly Localised” (HL) WBB services higher up the band to allow wide-area WBB networks to take advantage of this additional spectrum provision<sup>8</sup>.



**Figure 1:** ACMA Site records with Earth Receive licences in the 4.0-4.2 GHz band. The only locations with more than two Earth Receive licences at the same premises are shown in red. In metro areas, these are

<sup>7</sup> FCC, Feb 2025, Notice of Inquiry, available here: <https://docs.fcc.gov/public/attachments/FCC-25-13A1.pdf>

<sup>8</sup> Pivotal has different views on this issue.

limited to major facilities at Gnangara/Landsdale, Lockridge and Bayswater in WA, Regency Park and Mawson Lakes in SA, and Oxford Falls and Belrose in NSW.

### ***#5 Additional mid-band spectrum currently designated for Defence use***

As introduced earlier, access to additional mid-band spectrum is very important for the mobile industry. The Upper 6 GHz band will hopefully go a long way to addressing future spectrum demand in high-population areas, but there is uncertainty in the estimates of spectrum demand for mid-band IMT and how much of the Upper 6 GHz band will be usable in practice. Due to this uncertainty, it is crucial to maintain 3.3-3.4 and 4.4-5.0 GHz (“3.3 GHz” and “4 GHz” as denoted by the ACMA, respectively) in the work program as potential IMT mid-band options<sup>9</sup>. Beyond these options, it may be necessary to venture higher in frequency, so the preparation of harmonised spectrum options in the “cm-wave” region of 14.8-15.35 GHz via WRC-27 Agenda item 1.7 will be an important part of the 5G and beyond spectrum toolkit—although it should be emphasised that this cm- and mm-wave spectrum is not a suitable substitute for good mid-band spectrum.

What these fall-back bands have in common is that in Australia, the bands (or at least some services within the band) are designated for defence purposes. As mentioned in footnote 24 of the Draft FYSO, the US has outlined in its National Spectrum Strategy<sup>10</sup> that it will pursue expanded opportunities for shared access to government-held spectrum through the exploration of a common spectrum management platform.

### ***#6 mmWave spectrum ~40 GHz***

AMTA considers that further investigation of additional mmWave spectrum, such as the 40 GHz band, is not a short-term priority for industry, and agree that no further work needs to be carried out in the 2025-26 work program. We note that there is significant interest from the satellite industry in the spectrum between 40 and 50 GHz. If ACMA is planning to progress these bands, they should be considered in the context of coexistence between Fixed Satellite Services (FSS) and IMT services, because the mobile industry remains interested in these bands for supporting long-term future growth. In this regard, we again refer to AMTA’s Spectrum Policy Position Paper, which identifies a potential future requirement for, *“In aggregate, 8 GHz of spectrum ... across low, mid and high-band frequencies by the end of the decade”*, much of which is expected to come from mmWave bands.

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<sup>9</sup> AMTA’s comments in this regard align with GSMA views in *New Spectrum for 5G: Adding Up the Mid-Band Maths*, see: <https://www.gsma.com/spectrum/new-spectrum-for-5g-adding-up-the-mid-band-maths/>

<sup>10</sup> The White House, November 2023, *The National Spectrum Strategy*, specifically with respect to 3.1-3.45 GHz: *“the Department of Defense (DoD) has studied the possibility of sharing this 350 megahertz of spectrum with the private sector. DoD’s studies helped to determine whether this band should be reallocated for shared Federal and non-Federal use and licensed through auction. DoD determined that sharing is feasible if certain advanced interference-mitigation features and a coordination framework to facilitate spectrum sharing are put in place”*; and more generally: *“NTIA, working with Federal agencies, will continue to pursue development of an enduring, scalable mechanism to manage shared spectrum access, including through the development of a common spectrum management platform”*.

## Optimisation of existing spectrum holdings

### #1 700 MHz band

We recently submitted to the ACMA's Dec 2024 consultation on the Review of the *700 MHz spectrum licence technical framework* (SLTF), which publicly consulted on the output of the 700 MHz Technical Liaison Group (TLG) which closed at the end of February this year. We anticipate that the outcomes of this review will be released shortly, and we expect that most of these will achieve the modernisation of the 700 MHz band Spectrum Licence (SL) conditions to support modern 4G and 5G networks and user equipment (including potential future support for AAS). However, there are issues that have a direct impact on 700 MHz SL that were not directly the subject of the consultation, and so we are reiterating them in this FYSO response. Namely, we are still dissatisfied with the level of impact that (a relatively low number of) 800 MHz apparatus-licensed services can have on potentially thousands of 700 MHz SL device registrations, and we request that the ACMA implement the requested measures to ensure that 700 MHz network deployment is no longer hindered. The specific "out-of-scope" requests are briefly listed below:

- A. Introduce better filtering requirements on fixed PTP link receivers in RALI FX 22 (to avoid receiver blocking);
- B. Cancel PMP arrangements in 805.5-806 MHz; and
- C. Adequately address fixed PTP links still under pre-transition arrangements.

Our response paper dated 28 Feb 2025 can be referred to for further detail, and we anticipate it will be published on the ACMA's website<sup>11</sup> shortly.

### #2 Immediate changes to the 3.4-4.0 GHz band

We note that the ACMA has completed the first three of four allocations in this frequency range — i.e. 3.4-4.0 GHz Remote AWLs, 3.4/3.7 GHz spectrum licence auctions, 3.8 GHz metro and regional AWLs. Only the introduction of arrangements for highly localised (HL WBB) services remains, and the ACMA has reiterated its commitment to open the band for over-the-counter apparatus licence applications this quarter (Q2 2025).

Noting that (a) there is considerable unmet demand with 3.8 GHz AWLs in metro areas, and (b) that the introduction of HL WBB would further complicate any future defragmentation process, we ask that the ACMA **consider delaying these new HL WBB arrangements** until a more holistic consideration of the overall 3.4-4.2 GHz band can be undertaken, in light of the potential for future use of 4.0-4.2 GHz (as introduced above)<sup>12</sup>.

As already requested in last year's FYSO response, there are some initial changes that can be made in 2025 to remove discrepancies in the SL product among different parts of the 3.4-3.8 GHz

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<sup>11</sup> ACMA, 2025, *Review of the 700 MHz spectrum licence technical framework*, available here:

<https://www.acma.gov.au/consultations/2024-12/review-700-mhz-spectrum-licence-technical-framework>

<sup>12</sup> Pivotal has different views on this issue.

range, which will in turn facilitate (and are crucial for) the defragmentation discussed in more detail further below. These are as follows:

- A. For the 3.4 GHz SL unwanted emission limits, the frequency edge above which spurious emission limits apply (i.e. the “spurious domain edge”) needs to move from 3840 MHz to 4040 MHz<sup>13</sup>.
- B. Also, for the 3.4 GHz SL unwanted emission limits, the SLs need to define some allowance to be able to exceed these, for example, by agreement. If the same-area, adjacent-frequency AWL licensee agrees, then there should be no reason for the spectrum licensee to have to comply with the unwanted emission limit within the licensed frequency range of the licensee(s) with which the agreement was made<sup>14</sup>.
- C. HL WBB apparatus licences—both those within the “Urban Excise” areas in 3400-3475 MHz and those in 3950-4000 MHz—are due to expire no later than 13 December 2030, and include a renewal statement—made under section 103A of the Act—that renewal will not be offered beyond this date<sup>15</sup>.
- D. With respect to Radio Altimeters (RAs):
  - a. We implore the ACMA to continue to engage with CASA, to ensure that the aviation industry takes the necessary actions to upgrade its RA equipment, such that the interim measures can be lifted within the timeframe.
  - b. The EIRP limit of 72 dBm/5MHz currently imposed on SLs in the range 3700-3800 MHz must be removed<sup>16</sup>.

See Appendix C for further detail.

- E. Introduce Power Class 1 / Power Class 1.5 higher-powered devices into the band by lifting the registration exemption threshold<sup>17</sup>.

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<sup>13</sup> AMTA first wrote to the Executive Manager of the ACMA’s Spectrum Planning & Engineering Branch (SPEB) on this matter on 22 December 2023.

<sup>14</sup> Note: the ACMA’s document *Know your obligations—Spectrum licensees* (available here: <https://www.acma.gov.au/sites/default/files/2019-08/Know-your-obligations-Spectrum-Licensing.pdf>) already states that outside-the-band emission limits “*may be varied through negotiated agreement with affected adjacent licensees*”. However, section 4.1.6 of this document clarifies that “*Agreements cannot be used to authorise the operation of devices: ... with emission limits outside a designated spectrum-licensed band greater than the limit specified in the spectrum licence*”.

<sup>15</sup> AMTA has submitted this view to the ACMA in its response to the TLG Paper V1 on the *Arrangements for highly localised WBB in the 3400-3475 MHz and 3950-4000 MHz bands*, dated 16 February 2024.

<sup>16</sup> AMTA wrote to the Executive Manager of the ACMA’s SPEB on this matter on 23 October 2023.

<sup>17</sup> AMTA members anticipate a requirement to enable higher-powered user equipment (HPUE) in the 3.6 GHz band for fixed wireless access. We note the registration exemption threshold for user equipment is 28 dBm TRP, and we observe that 3GPP Power Class 1.5 (PC-1.5) is 29 dBm TRP and 3GPP Power Class 1 (PC-1) is 31 dBm TRP.

Both changes A and B above are required to support *inter alia*, the use of shared network infrastructure (such as Open RAN/Neutral hosts), and to support scenarios in which a SL licensee holds an immediately adjacent-frequency AWL in the same area.

Changes C and D above are required to ensure that the value of the spectrum product in one part of the band is more or less the same as that in other parts of the spectrum, thereby facilitating and encouraging spectrum trading with a view to achieving defragmentation. Undue restrictions in a particular part of the band undermine this.

### ***#3 1800 MHz & 2 GHz outside spectrum-licensed space***

In response to the ACMA's consultation on this matter<sup>18</sup>, AMTA and its members<sup>19</sup> strongly supported a more holistic review of arrangements across both bands, whereby MNO networks are consolidated in the 1800 MHz band, and non-MNO networks are consolidated in the 2 GHz band, in remote areas only<sup>20</sup>. We acknowledge that this is a highly complex and time-consuming body of work and strongly encourage the ACMA to maintain open dialogue with respondents on the ACMA's preliminary thinking on the matters raised in submission.

### ***#4 2.5 GHz band***

As the last band in line to have its SLTF 'modernised' to support 5G networks, it's important to carry out the TLG in a timely manner to wrap up this broader optimisation project which has been ongoing for the last five years. The entire review of the SLTF must be completed before the licence renewal period commences in October 2027, so we agree with the ACMA's planned Q2 2025 start date for the review (presumably with the establishment of a TLG). Technology has already surpassed existing licence requirements for this, band so this update needs to be made a priority.

### ***#5 Longer-term changes to the 3.4-4.0 GHz***

As explained in last year's FYSO response, it is crucial that spectrum licences for 5G MNO wide-area networks are fit-for-purpose. The existing allocations are inefficient, and any defragmentation activities will require ACMA support. Changes that need to be made to support defragmentation include alignment of geographical areas across the band, alignment of spectrum holdings to 10 MHz channels and common licence conditions. These activities would be complex and AMTA strongly encourages the ACMA to consider including these items as part of the renewal of 3.4 GHz ESL, expiring 13 December 2030.

Recent developments in the US regarding potential use of spectrum within 4.0-4.2 GHz (discussed above) will likely complicate this exercise further, especially noting the recent introduction of

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<sup>18</sup> ACMA, June 2024, *1800 MHz and 2 GHz bands outside of spectrum licensed areas – review of arrangements*, available here: <https://www.acma.gov.au/consultations/2024-06/1800-mhz-and-2-ghz-bands-outside-spectrum-licensed-areas-review-arrangements>

<sup>19</sup> Pivotal had some different views on these bands.

<sup>20</sup> i.e. this consolidation would not apply to Regional Areas in the 2 GHz band.

apparatus-licensed services in 3.75/3.8-4.0 GHz—there may be too many different systems and services, held by too many different licensees, to be able to restack these services upwards.

## Appendix A—Lower frequency boundary of the Upper 6 GHz band

AMTA again highlights its strong concerns with the approach to Upper 6 GHz (U6) allocation proposed by the ACMA that would split U6 into three segments with an unconfirmed allocation of 6585 MHz to 7100 MHz to IMT (or parts thereof, noting that the ACMA's outcomes suggest that all guard bands would be incorporated into the 6585-7100 MHz range).

The future utilisation of the 6 GHz band by the mooted RLAN services will be driven by global equipment development trends. The ACMA has given too little weight to these global considerations and have prematurely moved to allocate additional spectrum to services such as Wi-Fi despite most spectrum recently allocated to these services remaining largely underutilised.

The recently released consultation<sup>21</sup> on the remaking of the *Radiocommunications (Low Interference Potential Devices) Class Licence 2015*<sup>22</sup> ("the LIPD Class Licence") proposes that the current provisions for Radio Local Area Network (RLAN) radiocommunications transmitters in 5925-6425 MHz, be extended by an additional 160 MHz up to 6585 MHz. This proposal to authorise RLAN transmitters into the lower 160 MHz of U6 would irreversibly entrench this poor planning decision.

Effectively, the ACMA is taking a premature and unnecessary one-way bet on the future use of the band that risks forcing a near unique spectrum allocation on the Australian ecosystem.

The entire package of work, including IMT, RLAN, TOB, incumbent PTP and FSS use, geographic areas and frequencies needs to be considered, prioritised and sequenced appropriately. Australia's market size also means it is imperative the ACMA take note of and follow other jurisdictions to ensure we leverage global device economies of scale. The most relevant jurisdiction to the Australian case is the European Conference of Postal and Telecommunications Administrations (CEPT), as they have previously allocated the 'lower' 6 GHz to RLAN and are now conducting co-existence studies which will inform efficient use of the 'upper' 6 GHz band. We note that:

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<sup>21</sup> ACMA, March 2025, *Remaking the low interference potential devices class licence*, available here: [https://www.acma.gov.au/consultations/2025-03/remaking-low-interference-potential-devices-class-licence?utm\\_medium=email&utm\\_campaign=ACMA%20consults%20on%20changes%20for%20low%20interference%20potential%20devices&utm\\_content=ACMA%20consults%20on%20changes%20for%20low%20interference%20potential%20devices+CID\\_6c2a7bff5e54f9a503d9f70b620c6911&utm\\_source=SendEmailCampaigns&utm\\_term=ACMA%20webs](https://www.acma.gov.au/consultations/2025-03/remaking-low-interference-potential-devices-class-licence?utm_medium=email&utm_campaign=ACMA%20consults%20on%20changes%20for%20low%20interference%20potential%20devices&utm_content=ACMA%20consults%20on%20changes%20for%20low%20interference%20potential%20devices+CID_6c2a7bff5e54f9a503d9f70b620c6911&utm_source=SendEmailCampaigns&utm_term=ACMA%20webs)ite

<sup>22</sup> ACMA, May 2023, *Radiocommunications (Low Interference Potential Devices) Class Licence 2015*, available here: <https://www.legislation.gov.au/F2015L01438/latest/text>

- CEPT understand that, to achieve an efficient allocation outcome, both RLAN and IMT must be studied together. RLAN and IMT impact one another, and it is not possible to study or allocate them in isolation;
- CEPT is studying RLAN and IMT use of the upper 6 GHz band scheduled for completion in 2027, and that no allocation decision for either RLAN or IMT will be made ahead of completing the studies; and
- Studies are deliberate, detailed and comprehensive.

Accordingly, AMTA again submits that no licences should be issued in U6, nor should the LIPD class licence be amended until at least mid-2026, and possibly later to align with CEPT. It is crucial that the ACMA maintain its current LIPD policies until after international developments—particularly in Europe—provide greater clarity on U6 spectrum usage, which will permit more informed allocation decisions aimed at maximising the utility of this strategic resource.

It remains our view that the ACMA has decided to allocate the 160 MHz for Wi Fi due to the (in our view, erroneous) claims around the urgency for Wi Fi to use wider channels (i.e. 160 MHz and 320 MHz). Our sense is that the decision favours utility in the immediate term and placating the Wi Fi proponents, rather than the actual solution which will maximise the public benefit derived from the use of the spectrum in the long-term.

Adjacent-band compatibility between WiFi devices and IMT networks has not been adequately studied, nor has the ACMA consulted on:

- a) what unwanted emission levels need to be imposed on WiFi devices to avoid causing interference to same-area, adjacent-band IMT networks; and
- b) what receiver performance requirements need to be imposed on WiFi devices to avoid those devices suffering interference from same-area, adjacent-band IMT networks without causing undue constraints to the same.

Point (b) above is particularly important considering that the LIPD Class Licence—amended as proposed by the ACMA—would authorise WiFi-7 devices capable of receiving across the entire U6 up to 7125 MHz, which would leave them susceptible to blocking from IMT networks above 6585 MHz—the device’s receiver front-end would be designed to actually *pass* in-band signals in 6585-7125 MHz. We have received feedback from certain WiFi device manufacturers who confirmed that they would not be manufacturing Australian-specific devices with radio front-ends rejecting frequencies above 6585 MHz (at least not without being compelled to do so by the rules in the LIPD).

These adjacent-band coexistence issues need to be carefully considered within a Technical Liaison Group (TLG) for the U6 band, and there is insufficient time to do so within the timeframe within which the ACMA needs to re-make the LIPD Class Licence. As such, we would request that the

ACMA *at the very least* **pause** the introduction of provisions for RLAN in 6425-6585 MHz until the issue of adjacent-band compatibility can be properly considered within a TLG for U6 (mid-2026 at the earliest). To be clear, the LIPD Class Licence can be re-made in 2025 with 6425-6585 MHz omitted, and could be amended in 2026 if necessary following completion of the technical work discussed here.

## Appendix B—Upper frequency boundary of the Upper 6 GHz band

We note that the ACMA has decided to avoid any disruption of the “7.2 GHz band” (i.e. 7100-7425 MHz) as defined in RALI FX 3 and which is designated for use by Television Outside Broadcasting (TOB) services. We can understand that the ACMA is hesitant to touch the 7.2 GHz band arrangements after having only recently reviewed them in 2022, especially considering that this review was carried out with a view to provide TOB operators with a suitable spectrum alternative to the 2 GHz spectrum which will (shortly) no longer be available for TOB<sup>23</sup>.

However, the ACMA should not shy away from further re-allocating spectrum in 7100-7125 MHz for WBB if the latter constitutes the highest-value use of the spectrum.

We do acknowledge that the 7.2 GHz band is intensely used during the following major events held annually: the Australian Open Tennis, the Formula 1 Grand Prix in Melbourne, the MotoGP at Phillip Island, and the SailGP in Sydney Harbour. Each of these events lasts for a maximum of 2-3 days, with licence tenures up to just 5-6 days to include short-term operation for set-up and testing purposes.

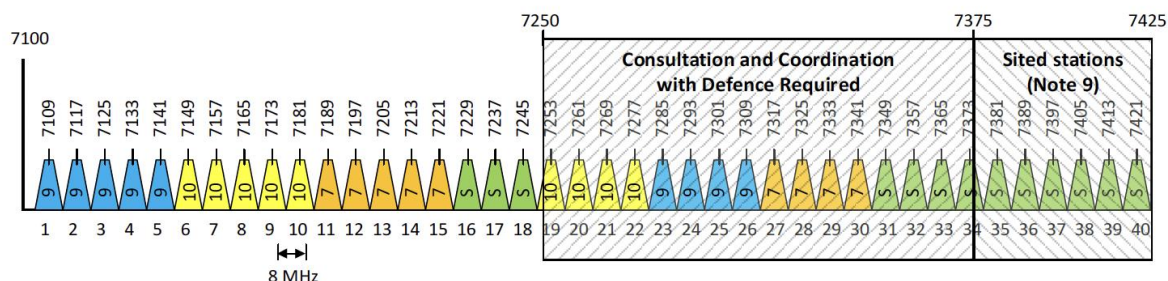
For the remainder of the year and the remainder of the country, this spectrum is unused, except by the Free-to-Air (FTA) broadcasters which hold Australia-wide TOB Network licences, whose licensed frequency ranges align with the channel allotments in RALI FX 3. 7.2 GHz band arrangements are shown in Figure 2 below.

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<sup>23</sup> As part of the allocation process for 2 GHz mobile-satellite service (MSS) in 1980-2010 MHz and 2170-2200 MHz, TOB operators will lose access to six (6) 8-MHz channels in metro (and designated) areas from March 2026.

## THE 7.2 GHz BAND (7100 - 7425 MHz)

### RF CHANNEL ARRANGEMENTS



7	Seven Network (7)
9	Nine Network (9)
10	Network Ten (10)
S	Shared General (S)

**Figure 2:** 7.2 GHz band plan. Source: ACMA's RALI FX 3.

Operation outside of the FTA broadcaster-held TOB Network licences is extremely low. There are currently just 14 TOB licences: the majority of which are either Australia-wide or State-wide and held by either the Australian Football League (AFL), Thoroughbred Racing Productions (VIC) Pty Ltd, or other production companies. See Figure 3 below. Looking back through Maprad.io RRL Archive data (covering the period between 2017 to the present day) reveals only an additional 12 licences. It is noted that non-FTA TOB operators have access to 13 x 8-MHz channels which are designated as "Shared General" channels. Currently, the average nationwide reuse of these 13 channels is just over 1 licence for the entire country, which represents an extremely low utilisation of these "Shared General" throughout the course of the year and outside of the major events identified above.

MAPRAD.IO Coverage Prediction More								
	LOCATION	SITE ID	STATUS	LICENSEE	CLIENT ID	LICENCE NO	FREQUENCY	BANDWIDTH
<input type="checkbox"/>	Victoria	-	Granted	AUSTRALIAN FOOTBALL LEAGUE	1139436	12686382/1	Rx 7.175 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Granted	Thoroughbred Racing Productions (VIC) Pty Ltd	1147113	10604080/1	Rx 7.175 GHz	30 MHz
<input type="checkbox"/>	Victoria	-	Granted	Clockwork Video Productions Pty Ltd	20052637	11763567/1	Rx 7.22 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Granted	Thoroughbred Racing Productions (VIC) Pty Ltd	1147113	10091038/1	Rx 7.22 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Not Granted	Thoroughbred Racing Productions (VIC) Pty Ltd	1147113	12809741/1	Rx 7.237 GHz	8 MHz
<input type="checkbox"/>	Australia-wide	-	Granted	KOJO PRODUCTIONS PTY. LTD.	20041521	10863325/2	Rx 7.237 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Not Granted	Thoroughbred Racing Productions (VIC) Pty Ltd	1147113	12809739/1	Rx 7.245 GHz	8 MHz
<input type="checkbox"/>	Western Australia	-	Granted	SHOWSCREENS PTY LTD THE TRUSTEE FOR SH...	20052564	12712579/1	Rx 7.245 GHz	8 MHz
<input type="checkbox"/>	Australia-wide	-	Granted	KOJO PRODUCTIONS PTY. LTD.	20041521	10863424/2	Rx 7.375 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Granted	AUSTRALIAN FOOTBALL LEAGUE	1139436	12686468/1	Rx 7.385 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Granted	TOTAL EVENTS CO. PTY LTD	20056391	12167308/1	Rx 7.389 GHz	8 MHz
<input type="checkbox"/>	Victoria	-	Granted	TOTAL EVENTS CO. PTY LTD	20056391	12167308/1	Rx 7.405 GHz	8 MHz

**Figure 3:** All current TOB licences in the 7.2 GHz band. Source: Maprad.io.

As such, we believe that the upper frequency limit for the allocation to WBB should be increased from 7100 MHz up to 7125 MHz—and therefore be aligned with 3GPP Band n104—by making the following modification to the 7.2 GHz band plan:

- i. the three (3) “Shared General” channels currently spanning 7225-7249 MHz are moved down by 120 MHz to 7105-7129 MHz, and
- ii. the fifteen (15) channels allocated to Nine Network, Network Ten and Channel Seven are shifted up to 24 MHz.

In this way, there would be (at least) a 4 MHz guard band between U6 WBB networks and FTA broadcasters’ TOB operations, while the overlap between the lower 3 “Shared General” channels and WBB arrangements would still result in ten (10) more 8-MHz channels for non-FTA broadcasters.

The mobile industry is willing to work together with the ACMA and TOB operators to ensure that peak-demand scenarios for TOB services at very short-term, major events of international importance are accommodated.

## Appendix C—Radio Altimeters

As part of its re-planning exercises in the 3.4-4.0 GHz band, the ACMA determined that the issue regarding Radio Altimeters (RAs) with inadequate filtering below 4.2 GHz would require interim mitigation measures to be imposed on WBB base station (BS) transmitters above 3700 MHz, with a view to ensuring that they would not cause interference to RAs as they approach certain “identified runways” in Australia. These interim mitigations are detailed in Section 4.9 of RALI MS 47<sup>24</sup> and are in the form of:

- an outright restriction in BS registrations within exclusion zones around runways;
- for transmitters within restricted zones—extending for several kilometres from the approach end of a runway—compliance with a PFD limit at certain altitude(s) above the ground; and
- antenna pointing restrictions such that the net fixed tilt (combination of fixed mechanical tilt and fixed electrical tilt) must not be oriented above the horizon.

RALI MS 47 states<sup>25</sup> that these interim mitigations “*only apply for the registration of devices under an AWL tx before 1 April 2026*”, just under a year away.

We appreciate that the Civil Aviation Safety Authority (CASA) is communicating the temporary nature of the restrictions on its web resources<sup>26</sup>, and clearly states: “*You must upgrade radalts that do not meet specified requirements by March 31, 2026*”. This same web page continues to clarify that “*All radalts on affected aircraft must meet the interference tolerance requirements specified for a ‘radio altimeter tolerant airplane’*”, as outlined in the FAA Airworthiness Directive (AD) 2023-10-02<sup>27</sup>. However, what is concerning to AMTA is that CASA has issued an exemption to this same requirement in Instrument Number CASA ES81/23<sup>28</sup>. While it is understandable that such an exemption is required in the interim period—noting that the deadlines for airplanes to become ‘radio altimeter tolerant’ came much earlier in the USA than in Australia—it is concerning

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<sup>24</sup> ACMA, June 2024, RALI MS 47: *Licensing and coordination procedures for area-wide licences (AWL) in the 3400–4000 MHz band*, available here: <https://www.acma.gov.au/publications/2023-06/instruction/rali-ms47-licensing-and-coordination-procedures-area-wide-licences-awl-3400-4000-mhz-band>

<sup>25</sup> While RALI MS 47 is an ACMA policy document, the requirements of RALI MS 47 are required to be adhered to in accordance with the legislative instruments applicable to spectrum licensed transmitters (the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 3.4 GHz Band) 2015*, available here: <https://www.legislation.gov.au/F2015L00728/latest/text>) and to AWL transmitters (the *Radiocommunications Licence Conditions (Area-Wide Licence) Determination 2020*, available here: <https://www.legislation.gov.au/F2020L00070/latest/text>).

<sup>26</sup> CASA, October 2024, *5G and aviation safety*, available here: <https://www.casa.gov.au/operations-safety-and-travel/safety-advice/5g-and-aviation-safety>

<sup>27</sup> Federal Aviation Administration (FAA), May 2023, *Airworthiness Directive (AD) 2023-10-02*, available here: <https://drs.faa.gov/browse/excelExternalWindow/FR-ADFRAWD-2023-11371-0000000000.0001?modalOpened=true>

<sup>28</sup> CASA, August 2023, *CASA EX81/23 — Exclusion from the Operation of Airworthiness Directives AD 2023-10-02 and AD 2023-11-07 Instrument 2023*, available here: <https://www.legislation.gov.au/F2023L01054/latest/text>

that the exemption does not mention the 31 March 2026 deadline stated in RALI MS 47 and on CASA's website.

We implore the ACMA to continue to engage with CASA, to ensure that the aviation industry takes the necessary actions to upgrade its RA equipment, such that the interim measures can be lifted within the timeframe.

Also related to RAs, there is a standing request for the ACMA to review the EIRP limit of 72 dBm/5MHz currently imposed on spectrum licensed base station transmitters in the range 3700-3800 MHz. This is reiterated in the section on optimisation of the 3.4-4.0 GHz band earlier.

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