



AUSTRALIA

Submission by Free TV Australia

**Future use of the upper 6
GHz Band (6425–7125 MHz):**

- **ACMA Options Paper, June 2024**

July 2024

Submission from Free TV Australia

- Free TV Australia welcomes the opportunity to provide comments in response to the June 2024 Australian Communications and Media Authority (**ACMA**) paper on future use of the upper 6 GHz band.
- Free TV's interest in the upper 6 GHz band relates to future arrangements for Television Outside Broadcasting (**TOB**) in the overlapping 7.2 GHz TOB band.
- Free TV Australia is the peak industry body for Australia's commercial free-to-air (**FTA**) television broadcasters. It proudly represents all of Australia's commercial free-to-air television broadcasters in metropolitan, regional and remote licence areas.



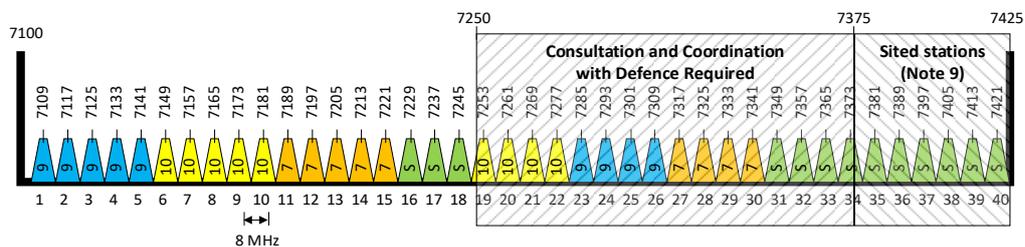
Overview of Free TV response

- The ACMA's upper 6 GHz review paper recognises the potential adverse effect of Options 3 and 4 on TOB. It identifies the sub-option of excising 25 GHz from any eventual Wide Area – Wireless Broadband (**WA WBB**) allocation, although this isn't explored in any detail and isn't included in the four options the paper puts forward.
- In the absence of an 'excision' option for the 25 MHz overlap, Free TV's first preference would be for the ACMA's Option 2, namely, Radio Local Area Network (**RLAN**) use of the upper 6 GHz band on terms that protect incumbent services.
- In the event either of the WA WBB options is preferred, it would be regrettable to see reallocation of TOB spectrum so soon after completion of ACMA's changes to the 7.2 GHz TOB band plan. However, the fact commercial TV operators have not yet acted to replace existing 7.2 GHz equipment may create opportunities to address TOB future requirements in other ways.
- If spectrum is to be excised from the 7.2 GHz TOB plan, the ACMA's 3.6 GHz reallocation process, in 2018/19, offers a model for giving incumbent apparatus licensees a lengthy period of tenure certainty, while encouraging direct negotiation between an incoming WA WBB spectrum licence purchaser and incumbent apparatus licensees.
- Free TV supports greater use of this approach, which promotes spectrum refarming on just and reasonable terms when apparatus-licensed services would otherwise be adversely affected by changes in the highest-value use of a band.
- Free TV also notes the current uncertainty about access to the 2.5 GHz 'mid-band gap' after 2029. The future of 2.5 GHz will potentially be a material consideration when TV broadcasters consider their future requirements for 7.2 GHz spectrum.
- If sufficient long-term security can be obtained over the 2 GHz, 2.2 GHz and 2.5 GHz bands that support the bulk of current TOB operations, longer-term retention of 7.2 GHz TOB spectrum may be unnecessary.

Background: the ongoing need for dedicated TOB spectrum

- TOB spectrum brings Australians live footage of major breaking news, wherever it happens, and guarantees the quality coverage we expect of major outdoor spectacles such as the AFL and NRL finals, the Australian Open in Melbourne and the recent FIFA Women's World Cup.
- It supports outside production by setting up temporary, two-way radiocommunications links, which might be short or stretch over many kilometres, or involve more than one 'hop,' between the outdoor event being televised and either a fixed site or another nomadic device.
- There is an ongoing need to keep meeting those viewer expectations. While the 'use cases' for TOB are evolving rapidly, the need for access to dedicated TOB bands will remain.
- Looking ahead, the global production industry is experimenting with 5G technology for some outside production roles, just as 4G-enabled devices now play a significant role in electronic newsgathering.
- However, 5G should not be seen as a mature substitute for TOB. Nor, more importantly, is it synonymous with public 5G networks. Outside TV production requires very high, reliable uplink speeds and contention is a fatal objection to using commercial 5G services in crowded venues where scheduled outside TV production often take place.
- 'Network slicing' to address this challenge remains a theoretical possibility rather than a practical solution. Even if this were to change in future, price (in particular, the high guaranteed uplink speeds TOB requires) may also prove to be an obstacle.
- According to a recent report from industry think-tank Digital Production Partnership (DPP), 'the capability and the business case may not align for slicing public networks'ⁱ.
- Consistent with the above, overseas trials of outside production using 5G to date have focused on private 5G networks using separate, dedicated spectrum.
- So the inconvenient truth, at a time when multiple new use cases are pushing for dedicated spectrum, is that regardless of the technology chosen going forward, the need for dedicated spectrum for TOB will not go away.
- The better news is that in the medium to long-term, the TV industry is unlikely to continue to require *all* its current TOB spectrum, which at present includes 2 GHz, 2.2 GHz, 2.5 GHz, 7.2 GHz and 13 GHz spectrum.
- Any consolidation (and surrender of some spectrum) will, however, require investment in next-generation TOB equipment. Important considerations for industry will be meeting the costs of replacing current equipment and the prospects for security of tenure into the long-term for the bands that equipment relies on. It will be pointless investing in new equipment, if there is a realistic prospect the spectrum it uses will be re-farmed in the medium-term.

Effect of the four planning options on TOB



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

- Separate segments of the 7.2 GHz TOB band are licensed to the Nine, Ten and Seven TV networks, as shown in the above table of RF channel arrangements from RALI FX-3.
- The ACMA’s Option 2 (enabling RLAN access to some or all of the upper 6 GHz band) could be quickly enabled and we note the ACMA’s view as to its potential compatibility with ongoing TOB use of 7100-7125 MHz, provided RLANs are subject to similar restrictions to those applied in the lower 6 GHz band.
- Options 3 and 4 would require the eventual clearance of TOB from 7100-7125 MHz, although not for several years. Geographical separation of TOB and WA WBB is unlikely to be an option, as TOB usage (like WA WBB and RLANs) is most intensive in major cities. Depending on the width of the guard band required between TOB and AW WBB services, we are assuming three or potentially four of the digital channels currently licensed to the Nine network would need to be surrendered.
- As in practice the three TV networks pool and coordinate their use of 7.2 GHz spectrum, such that TOB transmissions typically occur outside, as well as inside, the segments licensed to each network, the excision of the lower 25 MHz would also somewhat reduce the value of 7.2 GHz spectrum to all networks.

Current TOB usage of 7.2 GHz spectrum

- As recently as 2022, the ACMA amended RALI-FX-3 to update the channel plan for TOB in 7.2 GHz, reducing the amount of spectrum licensed to each network from 90 to 72 MHz. The amendments replaced the previous analog base interleaved channel arrangements with a new channel raster to support 8 MHz slots used by modern digital services.
- The new band plan assumed that TOB operators would acquire new equipment that utilizes the narrower channels. While the three TOB Network licensees subsequently amended their licences to conform to the revised band plan, investment in new 7.2 GHz equipment is unlikely while uncertainty persists about the medium-term future of TOB in the band.
- As previously noted, the three TV networks pool and coordinate their use of 7.2 GHz spectrum, such that TOB transmissions typically occur outside, as well as inside, the segments licensed to each network. For the time being, this practice has enabled continuing use of older equipment that uses bandwidths beyond each 8 MHz slot.

Assisting incumbents if apparatus-licensed spectrum is re-allocated

- The 7.2 GHz TOB band plan was revised only recently, to help accommodate TOB users displaced from parts of the 2 GHz band. However, either of the ACMA's Options 3 and 4 would require the clearance of part of the 7.2 GHz TOB band in the relatively near-term.
- In its recent paper *Our approach to radiocommunications licensing and allocation* (June 2024), the ACMA says of apparatus licensing:

Apparatus licences are generally suitable for situations where moderate to high predictability is required by the licensee to support long-term investments, but the licensee also requires greater flexibility with the licence duration (compared to spectrum licences).
- Unlike spectrum licences, where there is an entitlement to compensation in the event of resumption before licence expiry, apparatus-licensed spectrum may be cleared with limited notice, and the apparatus licences then cancelled without compensation, using the reallocation procedures in the *Radiocommunications Act 1992*.
- Recent legal amendments have extended the potential duration of apparatus licences to up to 20 years, the same as spectrum licences. However, the existence of the reallocation power means longer-duration apparatus licences confer little additional protection from the risk of reallocation if the highest value use of the band changes.
- While the ACMA itself is not funded to compensate apparatus licensees for the cost and disruption of clearance from a band, the reallocation of the 3.6 GHz band in 2018/19 shows how the reallocation powers can be used to encourage incoming spectrum licensees seeking access to an encumbered band, to assist the existing occupants with the cost of clearance.
- The reallocation of spectrum licences in the 3.6 GHz band in regional areas saw the ACMA combine an early reallocation deadline (of 1 year) with a substantially later reallocation period (of 7 years)ⁱⁱ. This gave incumbents a long period of secure tenure within which to make alternative spectrum arrangements. However, by allocating the spectrum licences six years before the reallocation period expired, the ACMA gave incoming spectrum licensees the option to negotiate earlier exit of incumbents on commercial terms.
- The 'mechanism' ACMA developed in its 3.6 GHz auction offers a potential alternative to simply excising 25 MHz from the (new) 7.2 GHz TOB allocation. It could give TOB users a lengthy period of security of tenure but also enable WA WBB service providers to negotiate earlier clearance on a commercial basis.

Taking proper account of the long-term need for TOB spectrum

- At present, the TV industry faces question-marks about its medium-term security in both the 7.2 GHz and the 2.5 GHz 'mid-band gap' spectrum.
- On the other hand, the ACMA's 2024 draft Five-year Spectrum Outlook does not indicate any emerging planning pressures on the 2 GHz and 2.2 GHz TOB allocations used by TV networks, other than a WRC-27 agenda item of relevance to MSS use of 2 GHz TOB spectrum.
- While noting the significant global and domestic interest from MSS in 2 GHz and 2.2 GHz spectrum, Free TV believes these use cases can continue to co-exist with TOB, for example, through geographic sharing and the use of individual coordination agreements.

- As the TOB equipment currently in use in all bands is over ten years old, to help inform decisions about its eventual replacement the TV industry will be seeking a better sense of which bands are most likely to support longer-term TOB access.
- Its initial preference is for continued use of 2 GHz rather than 7 GHz or 13 GHz spectrum.
- This is the context in which the TV industry will consider any future changes to 7.2 GHz RF channel arrangements. If sufficient long-term security can be obtained over the 2, 2.2 and 2.5 GHz bands that support the bulk of current TOB operations, longer-term retention of 7.2 GHz TOB spectrum may be unnecessary.

ⁱ 'Demand vs Supply: What's the score? An industry assessment from the NAB Show 2023,' DPP Limited, 2023, page 32.

ⁱⁱ Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Regional Australia) Declaration 2018, available [here](#).