



Submission in response to  
ACMA Consultation Paper

**Apparatus licences in  
the 3.4–4.0 GHz band in  
remote Australia**

**Licensing, allocation  
process, technical  
framework and pricing  
arrangements –  
consultation paper**

PUBLIC VERSION

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## EXECUTIVE SUMMARY

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1. Optus welcomes the opportunity to provide feedback to the Australian Communication and Media Authority's (ACMA) Consultation Paper: *Apparatus licences in the 3.4-4.0 GHz band in remote Australia – Licensing, allocation process, technical framework and pricing arrangements – March 2022* (the Consultation Paper).
2. Optus understands that the ACMA intends to authorise access to the 3.4–4.0 GHz band in remote areas by means of area-wide apparatus licences (AWLs) and that the AWLs are to be allocated using a 2-stage administrative allocation commencing in June 2022, prior to any potential auction of 3.4–4.0 GHz spectrum in other geographic areas.
3. The proposed allocation forms part of the ACMA's broader planning and allocation activity for spectrum in the 3.4–4.0 GHz band, including proposals for:
  - (a) 600 MHz of spectrum available between 3.4–4.0 GHz in remote areas for apparatus licensing
  - (b) 200 MHz of spectrum available in the 3.8–4.0 GHz band in regional and metropolitan areas for apparatus licensing
  - (c) 100 MHz of spectrum available in the 3.7–3.8 GHz frequency range in regional and metropolitan areas for spectrum licensing (see Optus view on this below)
4. Optus refers the ACMA to the Australian Mobile Telecommunication Associations (AMTA) submission. Optus generally supports the position set out in the AMTA submission, other than in relation to the issues set out in response to specific questions below. Where Optus has not directly responded to a question, Optus supports the AMTA submission.
5. By way of general comment, Optus acknowledges that the 3.4-4.0 GHz band is currently used by a mix of services and applications and the ACMA has stated that it is seeking to balance the needs of both wireless broadband and incumbent services in finalising the terms of the proposed allocation. That said, Optus notes that the ACMA is embarking on a considerable program of work designed to enable LA WBB, largely by way of AWLs, in the 3.4 to 4.0 GHz bands.<sup>1</sup>
6. Optus supports the ACMA progressively making different segments of the band available for new services but does not support the coexistence of wide-area WBB (WA WBB) and local area WBB (LA WBB) in the same geographical areas. WA WBB should be granted exclusive access in metro areas with carefully managed apparatus licenced access for LA WBB services in the uppermost 200MHz of the 3700-4000 GHz band outside metro areas.
7. While Optus appreciates that there is considerable interest in the band due to its potential use in providing wireless broadband services leveraging a mix of 4G, 5G and other proprietary technologies – it remains crucial that any allocation takes into account the interactions and interference that may be caused by a large mix of different users and use cases co-existing within similar and adjacent frequencies. Accordingly, Optus wishes to note its concern with the precedent set by this process whereby the terms of the technical framework have not been finalised through the Technical Liaison Group (TLG) prior to public consultation.

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<sup>1</sup> Consultation Paper, p.3

## KEY PRINCIPLES ADOPTED

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8. As we have noted in response to previous ACMA consultation processes, Optus urges caution where considering the use of AWLs as the use of the licence type remains somewhat experimental. We reiterate that the licence hierarchy and property rights associated with each licence type – spectrum licences, followed by AWL or apparatus licences, then class licences – must be adhered to in relation to any interference resolution between licensees.
9. Most importantly, technical and administrative arrangements must be designed on the basis that spectrum licences have priority over AWLs in the hierarchy of spectrum rights. This is especially important in relation to proposal to allow both spectrum and apparatus licences to co-exist in the same spectrum band.
10. Accordingly, the management of interference across licence boundaries and the subsequent impact on spectrum utility needs to be very carefully considered before adopting AWLs in the 3400 – 4000MHz band. This includes in remote areas where the potential for adjacent channel band interference must be based around the principle that an AWL is required to synchronise with any affected spectrum licence.
11. In other words, the responsibility for synchronisation lies with the AWL rather than the spectrum licence holder. If synchronisation fails, then the AWL operates on a no interference, no protection basis with respect to any interference from spectrum licensed services.
12. Optus therefore welcomes the more stringent device boundary criterion (DBC) in the draft RALI MS 47 (to address co-channel cross-border interference), and restricted use bands (to address adjacent-channel interference) and the synchronisation and interference arrangements set out in draft *Radiocommunications Licence Condition (Area-Wide Licence) Amendment Determination 2022 (No. 1)*.
13. That said, Optus notes the ACMA is embarking on a significant program of planning for the development of LA WBB including:
  - (a) Australia-wide, in the 3.8–4.0 GHz frequency range, introducing arrangements to support LA WBB services on a shared basis with existing FSS and PTP services.
  - (b) In remote areas in the 3.7–3.8 GHz range, introducing apparatus licensing arrangements to support LA WBB services on a shared basis with existing FSS and PTP services.
  - (c) In remote areas in the 3.4–3.7 GHz range, introducing apparatus licensing arrangements to support LA WBB services.
  - (d) In regional areas in the 3.4–3.575 GHz range, introducing apparatus licensing arrangements to support LA WBB services
14. While this consultation focuses on 3.4 to 4.0 GHz in remote areas only, Optus refers to its submission in response to the ACMA consultation paper “Proposed spectrum re-allocation declaration for the 3.4 GHz and 3.7 GHz bands: Consultation Paper, March 2022” which is relevant to the extent that it relates to the ACMA’s broader planning and allocation activity for the 3.4 to 4.0 GHz band. In summary, Optus reiterate its view that:
  - (a) the entire 3400-3800 MHz band in both metro and regional areas should be spectrum licenced;

- (b) defragmentation is critical to the utility of the 3400 – 4000 MHz band and the ACMA may need to intervene to facilitate defragmentation to ensure that the band can move towards its highest value use;
  - (c) The geographic boundaries for 3.6 GHz should apply across the band;
  - (d) The administrative arrangements relating to the proposed 3.4-4.0 GHz re-allocation band must seek to maximise the public benefit of the band in the long term – this means ensuring that the spectrum can move to the highest value use in the near term.
15. In formulating the arrangements for these allocations, Optus urges the ACMA to seek to minimise boundaries (frequency and geographical) between spectrum licences and AWLs, by limiting the allocation to AWLs to either abutting 3400 MHz (requiring a swap with NBN Co in certain regional areas) or above 3800 MHz – please also see the AMTA submission and the Optus submission to the broader reallocation consultation paper for further information on Optus position concerning geographic boundaries.
  16. Optus understands that the ACMA must have regard to the policy objectives set out in the *Radiocommunications (Ministerial Policy Statement – 3.4-4.0 GHz) Instrument 2022* (MPS) when undertaking spectrum management functions in relation to the 3.4-4.0 GHz band. These objectives include (i) supporting the deployment of new and innovative technology, including 5G; (ii) supporting a range of use cases and (iii) supporting digital connectivity and investment in Australia and (iv) promoting competitive markets.
  17. Optus submits that, in seeking to balance these potentially competing interests in undertaking its spectrum management functions, it must give due weight to the fact that 3.4-4.0 GHz C-band a pioneer band for 5G and therefore should be optimised for 5G services. Mid-band spectrum is crucial to 5G deployment and ultimately to Australia reaching its Digital Economy Strategy 2030 and broader economic goals. MNOs require access to sufficient mid-band spectrum now to address growing demand for spectrum from 5G use cases and Optus urges the ACMA to undertake spectrum management in this band in a manner that supports the long-term public benefits that will be derived by ensuring sufficient access to higher capacity spectrum for 5G services.

## RESPONSES TO ACMA QUESTIONS

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### Technical framework

Do you have any comments, and supporting additional information, on the proposed technical framework, including the revised AWL LCD, draft RALI MS 47, and updated RALI FX3 and FX19?

Do you have any comments on the other issues referred to in the technical framework that have not been resolved in the TLG, such as WBB coexistence with radio altimeters?

18. Optus strongly agrees with the ACMA's proposed "Approach A" which is to not introduce any additional mitigation measures beyond the 200 MHz guard band that exists between 4000 – 4200MHz. The 200MHz guard band between the operating frequencies of radio altimeters and the upper part of the 3800 – 4000MHz band will provide sufficient protection to radio altimeters, negating the requirement for the imposition of additional constraints or mitigations on AWL licensees.
19. Optus notes that, despite numerous requests made to the aviation industry, the only technical evidence produced in support of claims for the requirement to impose any

interference mitigation techniques on AWLs in the 3.8 – 4.0GHz band is a reference to highly contentious RTCA studies. This is despite a long engagement with all interested parties via an ACMA-convened technical liaison group (TLG), where no technical parameters or operating characteristics of deployed radio altimeters were made available, nor was any further evidence presented by aviation industry representatives in support of their claims on potential interference into radio altimeters from 5G networks in the 3800 – 4000MHz band.

## Allocation process

Do you have comments on our preferred planning option (Option 3), which updates the previous preliminary planning decisions (Option 1)?

Do you have any comments on our proposal to use a multi-stage administrative allocation for apparatus licences in the 3.4–4.0 GHz band in remote Australia? Please provide any additional information in support of your views.

Do you have any views on the appropriateness of an allocation quantum policy? If an allocation quantum policy is adopted, do you have any views on whether that quantum should be 100 MHz or 150 MHz or some other quantum per single HCIS level 0 cell?

20. Optus supports a 2-stage administrative allocation for apparatus licences in the 3.4 – 4.0GHz band in remote Australia. This is consistent with the allocation regime for mmWave spectrum in 2021 and functioned well in that instance.
21. Optus supports an initial quantum of 100MHz per applicant for the first round of applications for AWLs in any given area. If a potential licensee wishes to acquire more than 100MHz in an area, the ACMA should be engaged and the request assessed, by the ACMA, against the demand, use cases and value derived from the allocation of >100MHz to a single licensee.

## Tenure and renewal

Do you have any comments on our licence tenure and renewal policy for AWLs in the 3.4–4.0 GHz band in remote areas?

22. Optus suggests that a similar regime be implemented as for the previous mmWave AWL allocation.
23. Investment certainty is likely to be important for applicants in the band and the ACMA should operate with the discretion to allocate licences for up to 5 years.

## Pricing

We are proposing \$/MHz/pop tax arrangements for AWLs in this band, similar to AWLs in the 26/28 GHz band, and similar to other area-based licences such as PMTS B apparatus licences, because we believe it to be a simple pricing arrangement well-suited to area-based licences no matter the size of the licence or where it is located. Do you have any other pricing alternatives, or suggestions that may improve upon our proposal?

24. Investment Optus supports the proposed pricing and tax arrangements for AWLs in the 3.4 – 4.0GHz band.