



Submission in response to
ACMA Consultation Paper

**Review of the 1.5 GHz
band – Extended mobile
satellite services (MSS) L-
band options paper**

September 2023

EXECUTIVE SUMMARY

1. Optus welcomes the opportunity to provide feedback to the Australian Communication and Media Authority's (ACMA) *Review of the 1.5 GHz band – Extended mobile satellite service (MSS) L-band options paper – August 2023* (Options Paper).
2. The 1.5 GHz band comprises the 1427–1518 MHz, 1518-1525 MHz and 1668–1675 MHz frequency ranges and is currently utilised by a variety of services. Following consultation in May 2022, the ACMA has decided to progress the 1.5 GHz band to the preliminary re-planning stage of its spectrum planning process.
3. The ACMA Options Paper seeks feedback on three options to guide its approach to re-planning of the 1518-1525 MHz and 1668–1675 MHz bands for use by mobile satellite services (together the extended MSS L-band). It proposes to review terrestrial services in the broader 1427-1535 MHz frequency range during the 2024-25 financial year.
4. Mid-band spectrum is crucial to the deployment of 5G and ultimately to Australia's digital economy and broader economic goals. Mid-band spectrum of sufficient quantity and quality must be made available to avoid the potentially prohibitive costs of cell densification that would otherwise be required to deploy 5G services across Australia. The level of competing demand for 1.5 GHz means that co-existence considerations will be important to maximising the efficient use of the spectrum.
5. Optus supports the ACMA's preferred Option 2 under which the ACMA proposes to implement arrangements to allow MSS operation in the extended MSS L-band on a "no interference no protection basis" to incumbent in-band and adjacent band licences and services. Optus supports the ACMA's proposal to facilitate this by ongoing use of the apparatus licensing regime and the proposed expansion of the *Radiocommunications (Communication with Space Object) Class Licence 2015* (CSO Class Licence).
6. Optus agrees that Option 2 will best support the deployment of MSS and deliver on the ACMA's stated spectrum planning objectives for the 1.5 GHz band. Optus reiterates its view that co-existence, coordination and cooperation between services across the 1427-1518 MHz and the 1518-1525 MHz bands will be crucial to the efficient allocation of spectrum in both bands. In this context, Optus generally supports the ACMA's proposal to separate its review of the arrangements for the band into 2 stages and to consider international developments as part of its replanning of this low mid-band spectrum.
7. Optus encourages the ACMA to carefully consider how it may optimise arrangements for the 1427-1518 MHz band for WBB services, including by aligning with 3GPP in order to leverage international device ecosystems. Ultimately, the nature and scope of co-existence measures between WBB and MSS in 1.5 GHz band should be informed by international studies and Optus welcomes the ACMA's indication that it will consider outcomes of the upcoming ITU-R Study Group 5 meeting.
8. Optus refers the ACMA to the Australian Mobile Telecommunications Association (AMTA) submission in response to the ACMA's Options Paper. Optus generally supports the position set out in the AMTA submission, other than to the extent that they may differ to the comments set out in response to specific questions below.
9. Optus looks forward to further engagement with the ACMA on its planning of the 1.5 GHz band with a view to promoting the long-term public interest derived from the use of this spectrum.

RESPONSES TO ACMA ISSUES FOR COMMENT

Desirable planning outcomes

Issue for comment 1 – Comment is sought on the proposed desirable planning outcomes for the review of the extended MSS L-band.

10. In our response to the ACMA's May 2022 consultation paper, Optus noted that "Given its propagation characteristics, the 1.5 GHz band may also serve to address the spectrum demands of 5G, particularly in regional Australia. Accordingly, Optus supports the development of this band for IMT services in the medium term. Optus suggests that any developments in this and adjacent bands pay particular attention to coexistence and interworking, whereby any interference mitigation is not placed solely on one of the adjacent bands or on one use case."¹
11. Given the level of competing demand for this spectrum, Optus supports the ACMA's proposed "desirable planning outcomes for the review of the extended MSS L-band" and agrees that they reflect the broader legislative and policy objectives that the ACMA is tasked with implementing. In particular, Optus welcomes outcome 3, which provides that the ACMA may introduce mechanisms that promote co-existence between MSS and any new use cases that may be introduced in the 1427-1535 MHz band.

Replanning options

Issue for comment 2 – Comment is sought on the options identified. Do you have any alternative options to propose?

12. Optus considers that Option 2 will best promote the long-term public interest derived from use of the 1.5 GHz band spectrum. Optus supports the ACMA's preliminary approach to incumbent services in the band. We also acknowledge the need to maintain, at least in the short term, Telstra's approximately 870 PTP licences in the band largely used to deliver DRCS/HCRC services for the purposes of the USO.
13. Optus recognises the need for the ACMA to delay its review of the arrangements for terrestrial services in the 1427-1535 MHz band, given the presence of incumbent services and the need to monitor international developments. We also understand the ACMA's preference to undertake a "holistic" review of these arrangements reflect its planning processes.
14. That said, as noted in the Options Paper, there is increasing demand for spectrum to support WBB services and the 1427-1518 MHz band has been identified for IMT at WRC-15. Further, low mid-band spectrum may help support the cost-effective delivery of mobile services, particularly in regional Australia. We also note that international developments, such as the allocation of 1427-1518 MHz to WBB in Japan and in Europe, mean that there is an established international equipment ecosystem for IMT in this band.
15. Optus supports the ACMA's overall timeframes for undertaking its second stage review of the 1.5 GHz, including by providing detail on the timing of the next stage of the consultation process as part of the development of FYSO 2024-29. However, sufficient predictability around access to spectrum is crucial to long term investment. Early confirmation of the ACMA's views on the latest ITU co-existence studies may help promote transparency on the ACMA's plans for this spectrum.

¹ Optus June 2022 submission, p.4

Co-existence, coordination and cooperation

16. In terms of the next stage of the 1.5 GHz band review, Optus notes the ACMA's statements that it will consider the impact of future arrangements in the 1427-1535 MHz band on MSS in the 1518-1525 MHz band and adjacent bands and that this could include the application of guard bands and additional restrictions on services deployments around ports and airports.²
17. While not objecting to such proposals outright at this stage of the planning process, Optus considers that it will be important to provide clear explanation as to how such measures are in the long-term public interest. We would also welcome further clarification on how such measures would be consistent with the "no interference no protection" status that will be afforded to MSS under the CSO Class Licence.
18. The design of co-existence frameworks should be clear and transparent, with a view to maximising the efficient use of the spectrum by providing sufficient predictability of spectrum access. This in turn will help promote network investment for the long-term benefit of end-users and Australia's digital economy.
19. To this end, Optus welcome the proposal to consider the outcomes of international co-existence studies through ITU.³ In this context, Optus would support early consideration of the need to impose compatibility requirements on MSS operators that reflect the outcomes of these studies in order to avoid costs and delays to all stakeholders that may arise from imposing such measures at a later date.
20. In undertaking the planning for the broader band, and consistent with the ACMA's proposal to review arrangements in 1427-1535 MHz, Optus reiterates the following points raised in its response to the ACMA's May 2022 Discussion Paper:
 - (a) any planning outcomes for the band should be compatible with 3GPP compliant equipment to make efficient use of the international technology ecosystem.
 - (b) Optus would prefer very large, spectrum licenced areas operating on TDD in order to maximise the efficiency of this band while ensuring that interference can be effectively managed between licensees
 - (c) FDD in the band would be a less difficult proposition to manage if smaller licence areas are considered, notwithstanding the inherent inefficiencies that FDD may bring.

Assessment of options

Issue for comment 3 – Comment is sought on the ACMA's assessment of options

21. Optus agrees with the ACMA's assessment of the options against the desirable planning outcomes and supports the ACMA pursuing Option 2 to enable MSS in the extended MSS L-band (1518-1525 MHz downlink and 1668-1675 MHz uplink).

² Ibid, p.16

³ The ACMA notes a number of examples of measures that could be considered and notes that the ITU-R has been studying options for coexistence between WBB and MSS in the 1.5 GHz band including draft new Report ITU-R M.[REP.MSS & IMT L BAND COMPATIBILITY] (Doc. 4/77) and draft new Recommendation ITU-R M.[REC.MSS & IMT L-band COMPATIBILITY] (Doc. 4/78) that will be considered by ITU-R Study Group 5 at its 25–26 September 2023 meeting for formal action on adoption and approval.

22. Optus support is based on the understanding that the MSS stations in the 1518-1525 MHz band will not be afforded protection from incumbent in-band and adjacent band services and the ACMA will implement measures to help ensure that the upcoming review of the arrangements for terrestrial (non-satellite related) services in the broader 1427-1535 MHz band is not unduly constrained.

Preliminary preferred option

Issue for comment 4 – Comment is sought on the ACMA’s preliminary preferred approach, including the proposed draft amendments to the Radiocommunications (Communication with Space Object) Class Licence 2015 and associated licence application and allocation process.

23. Optus supports the ACMA’s preliminary preferred approach to implement Option 2 as best aligning with the ACMA’s desirable planning outcomes. Optus agrees that this option also allows arrangements for MSS to be implemented in a shorter timeframe than Option 3 while also preserving the opportunity to carefully review and replan the future use of the 1427-1535 MHz band.
24. While Optus notes that there is already momentum internationally supporting the domestic allocation of the 1427-1518 MHz band to WBB services, Optus understands the need for the ACMA to undertake a “holistic assessment” of the arrangements for terrestrial services in the broader 1427-1535 MHz band and the issues that the ACMA has identified will be considered as part of this assessment.⁴
25. Optus agrees with the ACMA’s proposal to introduce, from a specified date, a requirement on MSS stations to implement better performing receivers, including more stringent blocking levels in order that the proposed early introduction of MSS will not unduly limit or constrain future replanning in the broader 1.5 GHz band.
26. In this context, Optus support the ACMA’s proposal to attach an advisory note to any space-receive licences issued and include a note in the relevant business operating procedures, flagging the review of the 1427-1535 MHz band and the intention to define a date for the implementation of better performing MSS receivers, including more stringent blocking levels. Optus also support the continued enforcement of Embargo 70.⁵
27. Optus also provides in principle support for the ACMA’s statement that the review of arrangements for terrestrial services in the 1427-1535 MHz band will consider the need for any additional measures to facilitate co-existence. However, we reiterate that technical arrangements should support 3GPP-compliant equipment and leverage international device ecosystems. Longer term, measures to limit interference at the upper edge of 1427-1518 MHz should be designed to maximise the efficient use of the spectrum for WBB (i.e support 5 MHz channels).

⁴ Options Paper, p.16 and 17

⁵⁵ Options Paper, p.28