



Submission in response to  
ACMA Consultation Paper

**Area-wide apparatus  
licences in the 3.8 GHz  
band in metropolitan and  
regional Australia**

Public Version

June 2023

## EXECUTIVE SUMMARY

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1. Optus welcomes the opportunity to provide a submission in response to the ACMA's Consultation Paper *Area-wide apparatus licences in the 3.8 GHz band in metropolitan and regional Australia – June 2023*.
2. The ACMA is seeking feedback on two options for allocation of AWLs in the 3.8 GHz band in metro and regional Australia as well as proposed licensing, allocation process, technical framework and pricing arrangements. The proposed allocation is currently scheduled for Q1 2024. The allocation is part of a larger planning and allocation activity for the 3.4-4.0 GHz band over the course of the next year.<sup>1</sup>
3. As reflected in previous submissions on the ACMA's consultations on the 3.4 GHz to 4.0 GHz band, Optus considers that the band suffers from a high degree of fragmentation that, if left unaddressed, undermines the long-term utility and value of this important mid-band spectrum. This has been compounded by the ACMA's recent decision concerning co-existence with radio altimeters.
4. However, while we continue to urge caution about the impact of AWLs on the deployment and operation of mobile and WA WBB services under Australia wide spectrum licences, we understand the need to test demand for new LA WBB services, with a view to realising certain of the Government's communications policy objectives for the 3.4 to 4.0 GHz band, particularly in regional areas.<sup>2</sup>
5. In this context, Optus welcome the ACMA's general approach to designing the coordination and cooperation framework required for optimal co-existence of the very wide variety of services that will be deployed in this band, as reflected in the draft revision to the *Radiocommunications Assignment and Licensing Instructions (RALI) MS47* (RALI MS 47).
6. Optus sets out its feedback to the issues relevant to Optus below and would welcome the opportunity to discuss our feedback with the ACMA. Optus understands that the consultation process is also for the purposes of the ACCC formulating its advice on allocation limits and consents to this submission being shared with the ACCC.
7. Optus also refers the ACMA to the Australian Mobile Telecommunications Associations (AMTA) submission. Optus generally supports the position set out in the AMTA submission, other than in relation to the issues set out below. Where Optus has not directly responded to a question, Optus supports the AMTA submission.

### **Cautious support for the ACMA's approach to allocating AWLs in 3.8 GHz**

8. Overall, Optus considers that the ACMA's approach to the allocation of AWLs in 3.8 GHz reflects a measured and considered response to the need to deliver its policy objectives for this spectrum band, in particular to facilitate a wide variety of use cases.

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<sup>1</sup> (i) Administrative allocation of AWLs in the 3.4-4.0 GHz band during Q2/Q3 2023; (ii) Price based allocation of spectrum licences in the 3.4/3.7 GHz bands in metropolitan and regional areas during Q4 2023; (iii) AWLs in the 3.8 GHz band in metropolitan and regional areas during Q1 2024 (iv) Highly localised apparatus licences in the 3.95-4.0 GHz frequency range in regional and metropolitan areas with a TLG to convene in Q3 2023

<sup>2</sup> As reflected in the Radiocommunications (Ministerial Policy Statement – 3.4-4.0 GHz) Instrument 2022.

9. Optus supports the ACMA's proposal to align the expiry of AWLs with those of the 3.4 GHz spectrum licences on 13 December 2030. Optus considers that this will provide an opportunity for more holistic assessment of the need to harmonise the use of the band and to facilitate defragmentation.
10. Optus also provide qualified support for the ACMA's proposal to not include a renewal statement for these AWLs. This is based on our understanding that any decision to renew will be contingent on future planning and licensing decisions regarding spectrum licences in the 3.4-4.0 GHz band.
11. That said, Optus notes that the ACMA has stated elsewhere that in issuing medium term apparatus licences "we require a moderate degree of confidence that the selected arrangements will continue to maximise the overall public benefit through the licence's term".<sup>3</sup> It remains unclear whether allocation to new LA WBB, PTP and FSS will serve to maximise the utility of the 3.8 GHz band spectrum over the long term. This is implicitly recognised by the ACMA where it concedes that "the extent of demand for AWLs in the 3.8 GHz band remains uncertain currently, reflecting the early development of business cases for service deployment".<sup>4</sup>
12. Optus supports the ACMA's approach to pricing and considers it will help promote the efficient allocation of the spectrum.

**Option 2 will provide the best opportunity to realise all policy objectives**

13. Optus considers that Option 2 "general allocation window" is most likely to deliver on the ACMA's "guiding objectives" for this allocation.<sup>5</sup>
14. While the 2 staged approach under Option 1 explicitly affords priority to a range of use cases and users above MNOs and NBN, Optus consider that the same outcome can be achieved by all applications being made at the same time and ACMA implementing allocation principles aligned with this priority.
15. The likelihood of additional band fragmentation, misaligned geographical boundaries and increased coordination will be greater if the ACMA have no information on potential AWL applications from MNOs and NBN at the same time as from other potential spectrum users. Without the opportunity to fully consider all applications at the same time, there is a risk that AWL allocation decisions will result in poorer spectrum efficiency and an increased risk of unallocated spectrum across a wider range of geographic areas.
16. Optus submits that the ACMA can achieve its objectives to support new LA WBB, PTP and FSS use cases by a rigorous and transparent application of cross-band allocation limits, the allocation quantum policy (AQP) and its proposed allocation principles for assessing AWL applications.
17. In this context, Optus supports the ACMA's proposed allocation principles for Option 2 including the additional principle "where there are competing applications between LA WBB, PTP and FSS use cases and WA WBB use cases (that is, NBN Co and/or MNOs), the ACMA will prioritise LA WBB, PTP and FSS use cases" as necessary to support the ACMA's decision-making to deliver its objectives for this allocation.

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<sup>3</sup> ACMA document; Out approach to allocation and licensing, p.10

<sup>4</sup> Consultation Paper, p.15

<sup>5</sup> Namely, (i) Supporting a range of use cases and users, (ii) Supporting digital connectivity and investment in regional Australia, (iii) Supporting deployment of new and innovative technology, (iv) Promoting competitive markets and (v) Supporting the efficient allocation and use of spectrum

18. Optus also notes that Option 2 avoids the administrative over-reach of restricting market activity contemplated by the draft *Radiocommunications (Limitation of Authorisation of Third-Party Users and Transfer of Area-Wide Licences) Determination 2023*.

**Revised allocation limits with an effective AQP will promote competition**

19. The ACMA's stated rationale for the nil MHz to apply to MNOs and NBN Co for the 6-month allocation window under Option 1 is that there is a limited quantum of available spectrum (150 MHz in metro and 200 MHz in regional) and therefore the available spectrum is not likely to be sufficient in all areas to support the expected demand for LA WBB, PTP and FSS services as well as WA WBB services.
20. However, this view appears inconsistent with the ACMA's own statement noted above that the extent of demand is currently uncertain. As noted, Optus considers that Option 2 offers a more balanced approach to delivering the ACMA's guiding principles for this allocation and will better promote the efficient allocation of spectrum.
21. Further, Optus notes that this allocation will follow the upcoming 3.4 GHz and 3.7 GHz spectrum, which are substitutes for 3.8 GHz band. It is therefore appropriate that the allocation limits for the AWL allocation reflect existing spectrum holdings across the 3.4 GHz to 4.0 GHz range, including spectrum acquired through the 3.4 GHz and 3.7 GHz auctions.
22. The ACMA's cross-band allocation limits of 140 MHz for metro and 160 MHz for regional areas for the purposes of the 3.4 GHz and 3.7 GHz auctions was based on the analysis of the substitutability of the 400 MHz of spectrum between 3.4 GHz and 3.8 GHz.
23. Optus maintains that Telstra's spectrum dominance in regional Australia warrants a lower allocation limit of 100 MHz, Optus notes that a 100 MHz limit would still afford operators the opportunity of 3GPP consistent 100 MHz contiguous bandwidths to deliver 5G.
24. In light of this, Optus submit that a revised cross-band allocation limit of 140 MHz in all areas should be applied to the allocation of metro and regional area AWLs in the 3.8 GHz band. Optus submits that such an allocation limit will better promote competition and the efficient allocation of the spectrum.

## OPTUS RESPONSE TO QUESTIONS FROM THE ACMA

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25. AWLs are intended to provide a high degree of flexibility in the design of networks, operating as “building blocks” for licensees to ultimately aggregate into a single licence. To this end, AWLs enable a modular construction of network design, with AWL holders theoretically able to respond more directly to demand at a more localised level than may be intended by spectrum licences, which tend to be offered over wider geographic areas/lots.
26. Optus considers that there is likely to be interest in the band due to its potential use in providing wireless broadband services leveraging a mix of 4G, 5G and other proprietary technologies. Optus understands that the ACMA’s overarching objective for this AWL allocation is to prioritise access to the band for smaller operators, particularly providers of local-area wireless broadband services (LA WBB).<sup>6</sup>
27. Affording AWLs the same priority as spectrum licensees inevitably introduces greater complexity in interference management, which adds to costs and may act as a disincentive to investment. Co-existence arrangements should be designed and enforced with a view to maximise spectrum utilisation and public benefit.

### Technical framework

Q1. Comment is sought on all aspects of the technical framework that are relevant to this allocation process. Comments are also sought on the additional proposed changes to the RAG Tx.

28. Optus supports the preliminary view expressed by the ACMA in its 2021 Outcomes Paper that “technical parameters for LA WBB use should align with those under the future spectrum licensing framework in the band as much as is practicable”.<sup>7</sup>
29. As noted in our submission to the previous consultation on the 3.4 GHz and 3.7 GHz consultation process, “Optus broadly agrees with the spectrum licence technical framework (SLTF) and supports the positions set out in the AMTA submission to this consultation.”<sup>8</sup>
30. Optus refers the ACMA to AMTA’s submission for more detailed commentary on the technical framework relating to this allocation.

### Radiocommunications Assignment and Licensing Instructions (RALI) MS47 (RALI MS 47).

31. Optus has previously raised concerns about the potential consequences for interference management that will arise from a proliferation of AWLs. These concerns are based on Optus understanding of the risks to existing spectrum licensed services that arise from AWL allocation and licensing arrangements. .<sup>9</sup>
32. Given the untested nature of AWLs in important mid-band spectrum such as 3.8 GHz – it remains crucial that any allocation takes into account the interactions and

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<sup>6</sup> Nerida O’Loughlin to Gina Cass-Gottlieb, Consultation on allocation limits: 3.8-3.95 GHz apparatus licences, states that “the ACMA considers that the primary objective of allocation limits for the 3.8- 3.95 GHz band would be to support a range of users and use cases in particular localised contexts”; p.2

<sup>7</sup> Consultation Paper, p.7

<sup>8</sup> Optus response to the 3.4 GHz and 3.7 GHz allocation instruments

<sup>9</sup> For example, there would appear to be an increased risk of potential interference to existing services arise from the increase in boundaries and the relatively lax requirements on AWL licence holders to ensure sufficient spectrum space is available *after* they are issued a licence

interference that may be caused by a large mix of different users and use cases co-existing within similar and adjacent frequencies. Notwithstanding the high degree of complexity in RALI MS 47, Optus supports:

- (a) the ACMA's efforts to establish a framework for coexistence and coordination between the wide variety of use cases in this band.
- (b) the ACMA's stated policy to only issue AWLs authorising operation in the 3400-4000 MHz band in geographic areas that are located outside those embargoed frequencies and areas defined in *RALI MS03* and spectrum licensed spectrum spaces defined in *RALI SM26*.<sup>10</sup>
- (c) new apparatus licences for earth receive stations generally only to be issued where there is limited impact on the ability to register future devices under any existing AWLs or spectrum licences in the 3400 – 4000 MHz range.<sup>11</sup>
- (d) the proposal for 15 MHz "restricted use bands" to limit the issuance of AWLs for the operation of transmitters in the 15 MHz of spectrum directly adjacent to a spectrum licence. However, Optus considers further clarity is required around what may constitute "satisfactory coordination measures". Optus also provides specific comments in relation to an AMTA proposal designed to promote efficient use of restricted use bands.
- (e) that the responsibility for synchronisation must lie with the AWL holder – if synchronisation fails, then the AWL operates on a no interference, no protection basis with respect to any interference from spectrum licensed services.

*Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz band) 2015*

- 33. Optus notes that the ACMA is contemplating changes to the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz band) 2015* (RAG Tx) to apply to coordination of spectrum licensed transmitters with earth stations licensed under AWL rx's.
- 34. The ACMA states that if the proposal proceeds, changes to the RAG Tx will be made prior to the 3.4 GHz and 3.7 GHz auction in Q4 2023. Optus notes that the applicant information package (AIP) for the 3.4 GHz and 3.7 GHz auction has been published with applications due by 31 July, which is before the submission deadline for this consultation. Amending the RAG Tx in the manner proposed does not reflect the usual planning process and does not accurately account for internal corporate governance processes and arrangements for approval to bid.

*Restricted use bands*

- 35. Optus provides qualified support for the ACMA's proposal for 15 MHz "restricted use bands" across any spectrum licence and AWL frequency boundary.<sup>12</sup>

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<sup>10</sup> RALI MS47, p.8 and also the ACMA's statement that "apparatus licences for new PTP services will generally be restricted to the 3.8-4.2 GHz range, based on flexible use of the remaining channels...and to areas outside of specified metropolitan areas described in RALI MS 47" on p.8 Consultation Paper

<sup>11</sup> RALI, 4.7.1

<sup>12</sup> Defined further in section 3.2.1 and Appendix A of the draft RALI

36. From Optus perspective, the restricted use bands, in combination with the more stringent DBC, are necessary to limit interference to spectrum licensed services, and enable co-existence with AWL services without the need for synchronisation.
37. However, restricted use bands also result in underutilisation of valuable mid-band spectrum with synchronised AWL and SL networks adding to fragmentation and a lack of contiguity in the 3.4 GHz to 3.8 GHz bands.
38. Given this, Optus will support arrangements that promote the efficient utilisation of this spectrum to the extent that they do not undermine the purpose of having a restricted use band and the more stringent DBC.
39. Optus notes that there may be a number of administrative and/or coordination related measures that may enable the more efficient utilisation of restricted use bands. Optus considers that primacy should always be afforded to the conclusion of an agreement between the parties.
40. Where another approach may be warranted, for example for the sake of supporting new AWL use cases at the SL boundary, these must be developed and implemented in a manner that does not disproportionately raise the interference risk profile, impose an undue administrative burden on spectrum licensees or have broader unintended consequences for the supply of mobile and WA WBB services.<sup>13</sup>
41. Optus notes that the ACMA proposes to allow for AWLs to be issued in a restricted use band when an AWL applicant can demonstrate “satisfactory coordination measures” with the adjacent 3.4 GHz and/or 3.7 GHz spectrum licensee. Optus considers further clarification is required on what is meant by “satisfactory coordination measures” – these measures should not dilute the effectiveness of the stringent DBC and the restricted use bands.
42. Optus notes that the AMTA submission includes text referring to additional flexibility in the manner in which an AWL holder may coordinate at the SL boundary when synchronised.<sup>14</sup>
43. Optus supports the general intention of this proposal to provide clarification and/or a reduce the administrative burden by setting a process that enables AWLs to deploy closer to the boundary, while respecting the need for SLs to be protected, thereby supporting greater spectrum utilisation.
44. Optus urge the ACMA to discuss this issue further with spectrum licensees, through AMTA or otherwise.

#### Other technical matters

45. AWL coexistence with radio altimeters: Optus has made its concerns about the ACMA’s approach to co-existence with radio altimeters well known. Optus does not agree with the decision to extend mitigations to 3700 MHz until 31 March 2026. While we understand that the ACMA was likely under some pressure to make its

<sup>13</sup> E.g resorting to synchronisation as the solution to coordination may have a cascading effect across all networks.

<sup>14</sup> Note with reference to the proposed criteria under section 4.2.2 of RALI MS 47 – namely that the device boundary is to be calculated in accordance with Schedule 2 of the ULOI, and the requirement that (i) the maximum value of ‘m’ is 2000 (max radial length = 200 km, 100 m increments), (ii) Level of protection (LOP) is to be set to -115 dBm/MHz; (iii) Nominal receiver antenna gain (G<sub>r</sub>) is set to 24 dBi; and (iv) The height of the nominal receiver is set to 30 m above ground level.

decision, we consider that the decision lacked sufficient transparency and is not based on real-world evidence of interference risk to radio altimeters.

46. The ACMA's decision to impose ongoing mitigations on emission limits for WBB services above 3.7 GHz creates an intrinsically different spectrum product from spectrum that is the subject of the upcoming 3.4 GHz and 3.7 GHz spectrum auction. The spectrum above 3.7 GHz will not be as readily tradeable, entrenching further fragmentation of C-band.
47. Preservation of spectrum options for 31 affected PMP licensees: Optus supports the ACMA's proposal as a welcome initiative to expedite the clearance of the 3475-3520 MHz band before the end of the re-allocation period (i.e 15 July 2027).

## Tenure and renewal

Q2. Comments are sought on any aspect of the consultation package including tenure (licence duration) and renewal arrangements.

48. The ACMA states that the arrangements for tenure and renewal for AWLs are largely consistent with the approach proposed for the 3.4-4.0 GHz remote allocation.
49. Optus generally supports the ACMA's approach to tenure and renewal, making the following observations.

### Licence duration

50. Optus welcomes the proposal to limit the duration of AWLs to 13 December 2030, aligning with expiry of spectrum licences in the 3.4 GHz band.
51. Optus understands that the duration of an AWL awarded under this allocation may be shorter than the medium term allowable by a 13 December 2030 expiry date. However, the availability of a medium term will help encourage investment.
52. That said, Optus is concerned by the ACMA's statement that "the demand for AWLs in the 3.8 GHz band remains uncertainty currently, reflecting the early development of business cases for deployment".<sup>15</sup> The use of AWLs is in its infancy, and while new use cases are inherently risky, a potentially low level of demand coupled with the proposed medium term licence duration, presents the risk of an inefficient allocation.
53. Optus also notes that the ACMA's statement seems to contradict statements elsewhere that "a high number of users and mixed-use-cases is anticipated in the band",<sup>16</sup> and that the ACMA requires a "moderate degree of confidence that the selected arrangements will continue to maximise the overall public benefit throughout the licence's term".<sup>17</sup>
54. Given the untested nature of AWLs, Optus urges the ACMA to carefully assess each AWL application to determine whether the requested licence term may have an unduly adverse impact on band planning or gives rise to a risk of spectrum hoarding.<sup>18</sup>

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<sup>15</sup> Consultation Paper, p.15

<sup>16</sup> Consultation Paper, p.15

<sup>17</sup> ACMA guidance document "Our approach to licensing and allocation", p.10

<sup>18</sup> Ibid

### Licence renewal

55. Optus provides qualified support to the ACMA's proposal not to include a renewal statement in these AWLs. Optus support is based on the understanding that the ACMA's decision to not include a renewal statement is intended to ensure that any decision to renew AWLs in this band will be contingent on planning and licensing decisions regarding spectrum licences in the 3.4 GHz-4.0 GHz band.
56. Optus supports the ACMA's proposal to not include a renewal statement in 3.8 GHz AWLs on the understanding that this will promote consistency with the renewal arrangements for 3.4 GHz spectrum licences.
57. Optus also understands that if no renewal statement is included in an apparatus licence, renewal is at the ACMA's discretion.<sup>19</sup> Further, a decision to renew an apparatus licence for a period of 10 years or longer must be subject to a public interest test.
58. Optus welcomes the ACMA's statement that it will "monitor allocation and use of the band overtime". Optus also welcomes the ACMA's proposed advisory note and considers that it provides some assurance that the ACMA will have regard to the degree to which spectrum was utilised (as well as the extent of unmet demand) at the end of the AWL term.

### **Allocation process**

Q3. Comments are sought on the general suitability of the proposed allocation options and associated allocation limits and whether they are fit-for-purpose in supporting the ACMA's allocation principles and identified objectives for this allocation.

59. The Consultation Paper outlines two allocation options:
  - (i) Option 1 (LA WBB priority period) – a two stage administrative allocation window process with a 6-month initial period and additional allocation limits to prioritise LA WBB access.
  - (ii) Option 2 (General allocation window approach) – to issue AWLs via administrative criteria, similar to the approach taken for 26/28 GHz AWL allocation.

### **Option 2 can deliver on policy objectives with less administrative complexity**

60. If the allocation to AWLs is to proceed, then Optus supports the proposal for the ACMA to allocate AWLs via the "general allocation window approach" (**Option 2**). Optus sets out its reason for this position below.
61. Optus understand the intention of the two-stage approach under Option 1 is mainly to support a range of new use cases with a priority application period via a restricted "initial application window" for LA WBB, PTP and FSS applicants.
62. However, the likelihood of additional band fragmentation, misaligned geographical boundaries and increased coordination will be greater if the ACMA have no information on potential AWL applications from MNOs and NBN at the same time as from other potential spectrum users. Without details of all applications at the same time, allocation decisions can result in poorer spectrum efficiency and an increased risk of unallocated spectrum across a wider range of geographic areas.

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<sup>19</sup> ACMA document, Our approach to licensing and allocation, p.19

63. The imposition of a Nil MHz limit for MNOs and NBN Co for the initial window (under Option 1) appears to be a disproportionately protective approach to the allocation. The desired outcomes can be achieved by extending the existing cross-band allocation limits applying to the 3.4 GHz and 3.7 GHz spectrum auction and/or applying a quantum policy. This will mitigate the risk of WA WBB users crowding LA WBB in high demand areas.
64. Optus considers that Option 2, with the application of appropriate time limited allocation limits, quantum policy and the allocation principles offers a better balance between delivering the policy objective of providing priority to LA WBB, PTP and FSS uses cases, promoting competition and ensuring the efficient allocation of the available spectrum.
65. Optus supports option 2 on the basis that it provides all stakeholders with an interest in acquiring this spectrum with an equal opportunity to apply. The 6-month initial application window unnecessarily delays the allocation process and risks that remaining lots are unsuited to MNOs and NBN Co. Furthermore, the removal of the 6-month priority period will potentially add further duration to the AWLs, thereby increasing their value. To ensure that LA WBB, PTP and FSS applicants have sufficient time to apply, the ACMA may consider extending the 4-week allocation window to 8 weeks.
66. In the event that the ACMA prefers Option 1, then Optus supports the use of “allocation window approach” for the purposes of any second stage allocation process following the initial 6-month Nil MHz initial allocation window.

*Allocation window approach with allocation limits and an allocation quantum policy*

67. Optus supports an allocation window approach rather than a “first-in-time” allocation approach. Optus agrees with the ACMA’s that the effective use of allocation limits and/or an allocation quantum policy can help promote competition in downstream markets.
68. Optus agrees with applying an in-band (3.75GHz/3.8 GHz to 3.95 GHz) allocation quantum policy of 60 MHz for AWLs in both metro and regional areas in this allocation process. C-band uses TDD an allocation that allows up-link and down-link in 10 MHz increments is more suitable to WA WBB. A 60 MHz AQP may also help avoid monopolisation of spectrum in regional areas.
69. Optus also support the ACMA retaining discretion to allocate more than 60 MHz in any given geographic location where there is not excess demand and the application satisfies the allocation principles.
70. Optus submits that the ACMA may have regard to the policy objective of promoting 5G in exercising its discretion in such circumstances. To this end, Optus also suggests that the ACMA consider how it may move AWL holders that also have spectrum in 3.7 GHz to the bottom of the 3.8 GHz.

*Allocation principles in the general allocation window*

71. Optus supports the use of “allocation principles” that the ACMA should have regard to in considering the merits of an application where there is competing demand and insufficient spectrum available.
72. In particular, Optus supports the ACMA’s proposed allocation principles for Option 2, noting the additional principle “where there are competing applications between LA WBB, PTP and FSS use cases and WA WBB use cases (that is, NBN Co and/or

MNOs), the ACMA will prioritise LA WBB, PTP and FSS use cases” as necessary to support the ACMA’s decision-making to deliver its objectives for this allocation.

73. Optus note that the ACMA has also confirmed that “each application would need to be considered on its own merits with respect to any other relevant matters that apply to a decision whether to issue a licence”.<sup>20</sup> In this context, Optus notes that “desirable planning outcomes” arguably invite consideration of the financial viability of an AWL applicant and the level of investment committed to support the use case.
74. In awarding an AWL, the ACMA should also be satisfied that the use of the spectrum under the AWL will continue to maximise the overall public benefit derived from the spectrum.

#### Allocation limits

75. Optus understands that the principal objective of this allocation process is to support LA WBB providers. Optus main concern with the 2-stage allocation window approach and the application of a Nil MHz allocation limit for MNOs and NBN Co at stage 1 is that it may result in an inefficient allocation of spectrum.
76. This is because by providing priority for LA WBB operators at stage 1, there is a risk that the remaining spectrum at stage 2 will be of limited appeal to WA WBB operators, potentially resulting in spectrum being left un-allocated.
77. The ACMA’s consultation paper on the draft allocation and technical instruments for the 3.4/3.7 GHz bands auction set out 3 options for allocation limits in the 3.4 GHz to 3.8 GHz band rather than up to 3.95 GHz as set out in this Consultation Paper.
78. In response to the earlier consultation, Optus indicated a preference for a 100 MHz allocation limit in regional areas and a 140 MHz limit in metro. The ACMA has since decided on allocation limits of 140 MHz in metro and 160 MHz in regional areas for the purposes of the 3.4 GHz and 3.7 GHz auction.
79. Optus supports the application of a cross-band allocation limit. However, we remain concerned about the potential for Telstra to extend its spectrum dominance in mid-band through these allocation processes. Therefore, Optus support a cross band limit of 140 MHz in all areas (metro and regional) for the purposes of the allocation of AWLs in 3.8 GHz.
80. In other words, where a WA WBB operator may have already acquired 140 MHz in metro either through existing holdings and/or as a result of the 3.4 GHz and 3.7 GHz spectrum auctions, they should be prevented from acquiring any of the 150 MHz (3800 MHz to 3950 MHz) on offer in metro. Similarly, where an operator has 140 MHz in a regional area within which an AWL may be acquired, that operator should not be able to acquire any of the 200 MHz (3750 MHz to 39650 MHz) on offer.
81. Optus therefore supports Option 2 and the application of the cross-band limit for 12 months.

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<sup>20</sup> Consultation Paper, p.25 states “For decisions about licence issue, we would have regard to the object of the Act, the MPS and any relevant government policies, as well as the desirable planning outcomes we have identified for the band. In all decisions whether to issue an apparatus licence, we must consider the matters in subsections 100(4) and (6) of the Act. Other parts of section 100 may also be relevant to any decision.”

Licence transfer, third-party authorisation limit and associates policy

82. For completeness, and noting our support for Option 2, Optus make the following comments on the ACMA's proposal to support the implementation of Option 1 via the draft *Radiocommunications (Area-Wide Licence Allocation Limits) Determination 2023* and draft *Radiocommunications (Limitation of Authorisation of Third-Party Users and Transfer of Area-Wide Licences) Determination 2023*.
83. Optus understands the intention behind restricting licence transfers and third-party authorisations during the Nil MHz period contemplated under Option 1. However, it is unclear how such a measure, which prevents the operation of the market, is consistent with the need to provide priority to LA WBB, PTP and FFS applicants. Optus notes that interventions that freeze market mechanisms, even if only for a short period, should be avoided.
84. Optus submit that monitoring compliance with these arrangements for the 6-month initial allocation window under Option 1 would add an administrative and regulatory burden to all stakeholders for, in Optus view, little benefit to the integrity of the allocation process. Similarly, and as recognised by the ACMA, the application of the associate's policy across the initial allocation period would appear to involve a disproportionate degree of administrative burden to the benefits identified.
85. Optus considers that Option 2 offers a much less complex arrangement with little to no identifiable detriment, as long as the allocation limits, AQP and allocation principles are applied rigorously.

# OPTUS RESPONSE TO QUESTIONS FROM THE ACCC

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## Use cases

### Q1 What are the likely intended uses of 3.8-3.95 GHz band spectrum?

86. Spectrum in the band is technically suited to supporting a wide range of use cases using 4G and 5G wireless technologies. These use cases include wide area wireless broadband (WA WBB) and mobile services, local area wireless broadband (LA WBB) and private wireless enterprise deployments. C-band spectrum is also used to provide satellite services.
87. As a result, there may be a mix of use cases in metro and regional areas including Fixed Satellite Services (FSS), wireless internet service providers (WISPs) amateur services and other point to point (P2P) or point to multi-point (PMP) operators, as well as WA and LA WBB services.
88. The 3.4-4.0 GHz (C-band) is a pioneer band for 5G and therefore should be optimised for 5G services. Development of 5G technical standards are focussed on the 3.4-3.7 GHz frequency range and on time division duplex (TDD) technical specifications. Mid-band spectrum is crucial to 5G deployment and ultimately to Australia delivering its digital economy and broader economic goals.
89. In Optus view the concurrent processes for price-based allocation of spectrum licences in the 3.4 GHz and 3.7 GHz bands is unlikely to result in the desired outcome of 100 MHz of contiguous spectrum for MNOs and NBN Co.
90. Therefore, the allocation process for AWLs in 3.8 GHz band should be designed with a view to supporting 5G to the greatest extent practicable noting the need to prioritise LA WBB applications.

### Q2. In which geographic areas is the spectrum intended to be used?

91. The ACMA has stated that the 3750 MHz to 3950 MHz spectrum will be made available for AWLs in regional areas of Australia while 3800 MHz to 3950 MHz will be made available in metro areas.
92. The ACMA is prioritising the availability of spectrum for LA WBB in regional areas via this allocation process.
93. Optus reiterates its view expressed in response to previous consultations on the ACMA's approach to allocation of this band, that defragmentation of the band, and geographic alignment of boundaries is needed to support the longer-term public interest to be derived from use of this spectrum.

### Q3. How much spectrum is needed to support the intended use case?

94. Mid-band spectrum is crucial to 5G deployment and ultimately to Australia reaching its Digital Economy Strategy 2030 and broader economic goals. A recent report commissioned by the Australian Mobile Telecommunications Association (AMTA) identifies "upper mid band spectrum" such as 3.3GHz to 4.2 GHz as a "key 5G capacity resource" offering a good combination of propagation and capacity with

3GPP standards currently supporting “100 MHz wide channels and a maximum bandwidth of 400 MHz in carrier aggregation mode.”<sup>21</sup>

95. Optus notes that WA WBB 5G services will only be optimised over larger contiguous spectrum holdings of at least 100 MHz. The need for access to 100 MHz contiguous channels for 5G deployments is further supported by current technology standards – notably, 4G and 5G deployments rely on the technical frameworks set out in the 3GPP standards.
96. Defragmentation is essential for MNOs to meet demand and deliver high speed services to customers. Optus notes that the introduction of AWLs in metro areas will increase the already highly fragmented state of C-band spectrum.

## Downstream markets

Q1. What is the good or service that the 3.8-3.95 GHz spectrum can support the production of?

97. Mid-band 5G spectrum, such as the 3.4 to 4.0 GHz band, typically offers a good mix of coverage and capacity benefits, providing higher bandwidths over shorter distances than low band. The spectrum on offer could potentially be used by MNOs to increase their network capacity for 4G and 5G services in metropolitan and regional areas, thus enabling them to improve the quality of their services.

Q2. Where is the good or service intended to be supplied to?

98. WA WBB and mobile services are supplied across Australia, largely via nation-wide spectrum licences.
99. The AMTA commissioned report highlights that Australia faces unique challenges around 5G deployment and found that, “to deliver the city-wide 5G user experience in [Sydney in] an economically and technically feasible manner in the 2025-2030 timeframe, an additional 527 to 757 MHz of mid-band spectrum is required. For Melbourne an additional 587 to 827 MHz is needed and for Brisbane it is an additional 387 to 577 MHz”. The report adds that if additional mid-band spectrum is not made available, this would require extreme cell site densification which is “unlikely to be feasible from an economic perspective and may not be feasible from a technical perspective due to the interference problem from the resulting extremely small inter-site distances.”<sup>22</sup>

Q3. Are there substitutes available to the good or service?

100. There are no substitutes to WA WBB services. National mobile networks are unrivalled in the benefits they deliver to the Australian public. Telecommunications are an essential feature of all of our daily lives – the pandemic and recent natural disasters have revealed the need for high quality networks and services
101. Between 2012 and 2022 – mobile data traffic has grown around 36 times mostly driven by consumer demand for over-the-top (OTT) entertainment and media services. The demand for data will only continue with Australia in the top three

<sup>21</sup> IMT spectrum demand; Estimating the mid-band spectrum needs in the 2025-2030 time frame in Australia; Coleago Consulting, 15 November 2021, p.3

<sup>22</sup> Ibid, p.1 Coleago states that “these estimates for mid-band spectrum requirements have been made using the same methodology as for the Global Report

fastest growing mobile data usage markets in the world, registering a 40% increase per SIM between 2021 and 2022 to 17.6 GB/month.<sup>23</sup>

Q4. How could the spectrum allocation impact the state of competition and/or incentives to invest in downstream markets?

102. The ACMA's proposed allocation approach under Option 1 risks fragmentation of spectrum and makes it highly likely that it will not be useable for any wider area deployments in the future. The resultant patchwork of connectivity undermines the utility of this spectrum and therefore the incentives to invest beyond the local area in which the spectrum can be utilised.

## Alternative spectrum

Q1. Do you consider that substitutable spectrum exists for the 3.8-3.95 GHz bands that can similarly enable the production of the goods or services in downstream markets? If so, what spectrum bands do you consider to be substitutable?

103. In determining substitutability for the 3.4-4.0 GHz band, Optus notes that there have been no recent technological shifts since the 3.6 GHz allocation. Optus refers the ACCC to the *Explanatory Statement for the Radiocommunications (Spectrum Licence Limits— 3.6 GHz Band) Direction 2018*, issued following the ACCC's advice to the Minister on allocation limits for the 3.6 GHz auction, where it states that

“at present, spectrum holdings in the 1800 MHz, 2 GHz, 2.3 GHz, and 2.5 GHz bands are not a close substitute for the 3.6 GHz band for several reasons. Development of 5G technical standards are focussed on the 3.4-3.7 GHz frequency range and on time division duplex (TDD) technical specifications. Current spectrum holdings in the 1800 MHz, 2 GHz, 2.3 GHz and 2.5 GHz bands are in a frequency division duplex (FDD) configuration, which is not compatible with a TDD configuration. The ACMA would need to re-plan FDD-configured bands to a TDD configuration to meet 5G standards, or alternatively wait until such a time that 5G standards have evolved to include FDD configurations before these bands can be repurposed for 5G. Further, spectrum holdings below 2.5 GHz are thought to be less feasible for certain technical benefits that 5G is expected to enable (for example multiple input multiple output, or MIMO, applications).”<sup>24</sup>

## OPTUS RESPONSE TO PRICING PROPOSALS

Q1. Do you have any comments on the suite of pricing arrangements proposed?

104. Optus supports the ACMA's proposed pricing and tax arrangements for AWLs in this allocation. This approach is intended to align with the arrangements for AWLs more generally across the entirety of the 3.4-4.0 GHz band, and therefore considers that it will promote the efficient allocation of this spectrum.

<sup>23</sup> Tefficient report July 2023

<sup>24</sup> Explanatory Statement for the Radiocommunications (Spectrum Licence Limits—3.6 GHz Band) Direction 2018, p.16