



Submission in response to  
ACMA Consultation Paper

**Proposed spectrum re-  
allocation declaration for  
the 3.4 GHz and 3.7 GHz  
bands**

PUBLIC VERSION

May 2022

## 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: *Proposed spectrum re-allocation declaration for the 3.4 GHz and 3.7 GHz bands* (the Consultation Paper).
2. We encourage and support the ACMA's efforts to progressively release and re-arrange spectrum in various segments in the band and attempts to maximise the utility and value of that spectrum. While there are many challenges to overcome in realising the maximum efficiency in this highly complex band, the overall approach and outcomes sought by the ACMA are viewed positively by Optus.
3. 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>1</sup>
4. The 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".<sup>2</sup> 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>3</sup>
5. While the quantum of mid-band spectrum is important, the quality of the spectrum on offer, both from a technical and economic perspective, is crucial. Optus agrees with the ACMA that work leading up to this consultation has "provided an opportunity for holistic assessment of arrangements across the broader 3400-4200 MHz band" and hopes that this momentum may be maintained through any re-allocation process.<sup>4</sup>
6. The ACMA's proposed changes to the overall band plan are well intended and generally reflect prior industry engagement on the applicable technical parameters for the band. However, while it is clear that the ACMA is seeking to reduce complexity in the band, Optus considers that further measures may be required to ensure that the ACMA can achieve its objectives and the band is configured for its most efficient use and delivers superior experience for Australian consumers.
7. Optus believes that defragmentation is critical to the utility of the 3400 – 4000 MHz band and welcomes the ACMA's statements that defragmentation is a key objective of any reallocation process. Defragmentation is essential for MNOs to meet demand and deliver high speed services to customers. MNOs need to have contiguous spectrum

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<sup>1</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>2</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."

<sup>3</sup> Ibid, p.1

<sup>4</sup> Consultation Paper, p.12

holdings across the frequency bands and contiguous frequencies across geographical areas to deliver both high 5G speeds and 5G coverage.

8. A key factor in enabling defragmentation between licensees is the alignment of geographical areas in the 3400 to 3800 MHz band in the long term. To this end, Optus submits that the existing boundaries for each of the three tranches of spectrum between 3.4GHz and 3.8GHz need to be rationalized and harmonised before any effective defragmentation in the frequency domain can be completed. Optus has set out further explanation of its position in this regard in a CIC version of this submission.
9. Optus considers that the entire 3400-3800 MHz band in both metro and regional areas should be spectrum licenced. Optus also considers that geographic boundaries for all spectrum licences should align with those in the 3.6GHz band.
10. Optus submits that the ACMA consider whether new powers afforded to it under the *Radiocommunications Act 1992* may be used to provide industry with the necessary assurance to invest and ultimately deliver on the potential offered by 3400 to 4000 MHz spectrum. Amongst other options, this may include consideration of ACMA's power under to vary existing licences geographic areas (core condition) by agreement, to resume existing licences where the licensee does not engage in geographic alignment/defragmentation or the inclusion of a statement to the effect that licence renewal is conditional on alignment of geographic boundaries.<sup>5</sup> Alternatively, the ACMA could initiate defragmentation as part of its annual work program or consider delaying the assignment stage of the auction until the prospective licensee defragments – in other words, payment and licence issue would only occur after defragmentation.
11. A 200 MHz Guard band between 4000 and 4200MHz will provide sufficient protection for radio altimeters. No further mitigation requirements should be placed on licensees operating below 4000MHz for the protection of radio altimeters.
12. 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 below 4.0GHz 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 operating below 4000MHz.
13. Optus' key feedback to the Consultation Paper is:
  - (a) The ACMA should allocate the full 3400-3800 MHz band to spectrum licences in metro and regional areas. Optus agrees with AMTA that the spectrum licence technical framework from the 3400 – 3700MHz band should be amended and extended to include the 3700 – 3800MHz range.
  - (b) Optus prefers the adoption of a modified version of Option 3, with spectrum licences for the whole 3400 – 3800MHz band, rather than AWLs in the 3750 – 3800MHz range in regional areas.
  - (c) Optus does not support the adoption of either Option 1 or Option 2 as they maintain too many spectrum and geographic boundaries, meaning that neither is as effective as a varied Option 3 in delivering an efficient use of the spectrum available in the band.

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<sup>5</sup> Section 89 and 77C of the Act respectively

- (d) Optus acknowledges that there is also a “no change” option that allows the ACMA and other potential licensees to wait for technology and interference management techniques to advance to a point where the aims of the ACMA are more easily achievable. If the level of complexity in rearranging the band becomes insurmountable, there are parts of the band where Optus would not oppose this outcome, but also understands that the ACMA is seeking to ensure that this spectrum is made available to meet demand now and in the near future.
- (e) While market led defragmentation has been previously achieved in the band, the complexity of the current 3.4GHz band configuration means that the ACMA will need to lead further defragmentation with a focus on
  - (i) NBN defragmentation to the bottom of the band
  - (ii) alignment of spectrum holdings to 5 MHz channels and
  - (iii) alignment of spectrum areas to 3.6 GHz boundaries – Optus considers that this would allow for common 3.6GHz boundaries created for the vacant 3.4 GHz spectrum and will support a second defragmentation post auction (with the right conditions inserted into licences or other incentives).
- (f) We do not support a 5-year re-allocation period and urge the ACMA to shorten the re-allocation period to 2 years and consider incentives to encourage earlier relocation of incumbents. A 2-year reallocation period is adequate for incumbents to clear the band. Optus points to the example of 3.6GHz spectrum licensees in regional areas being denied timely access to spectrum for the deployment of 5G services.
- (g) Optus urges caution when considering the use of AWLs. The use of this licence type, despite being deployed in the recent round of mmWave licences, is unproven and somewhat experimental. The management of interference across licence boundaries and the subsequent impact on spectrum utility needs to be very carefully considered before the wide adoption of AWLs in the 3400 – 4000MHz band.
- (h) These concerns are shared with other AMTA members and are reflected in AMTA’s response to this consultation.
- (i) Greater clarity in relation to renewal conditions is required for all spectrum licences, existing and future, in the band.

## KEY PRINCIPLES ADOPTED

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14. The ACMA’s Consultation Paper reflects the new re-allocation processes introduced through the *Radiocommunications Legislation Amendment (Reform and Modernisation) Act 2020* (the Modernisation Act). While the Minister remains able to direct the ACMA on aspects of the allocation process, the ACMA will lead the re-allocation process, having regard to advice from the ACCC on allocation limits, and largely determine the final terms of the Re-allocation Declaration. It is important that the ACMA takes this opportunity to set a sound precedent and finalise terms of reallocation that promote the

long-term public interest derived from the use of the 3.4 GHz and 3.7 GHz spectrum and otherwise fulfill the objectives of the *Radiocommunications Act 1992* (the Act).<sup>6</sup>

15. Optus has formulated its approach in responding to this consultation paper by way of describing the over-arching principles and arguments for the structure of the band, the competitive landscape and technical issues to overcome with both the ACMA and the ACCC as its intended audience.
16. The Ministerial Policy Statement (MPS) to which the ACMA is to have regard in its decision making for the re-allocation of the 3.4 GHz and 3.7 GHz bands includes the policy objective of “supporting the deployment of new and innovative technology, including 5G” and notes that “the largest number of 5G networks worldwide are being deployed in this range, supported by many devices being introduced into the global market”.<sup>7</sup>
17. In the latest draft Five Year Spectrum Outlook (FYSO) the ACMA states that “there are a range of competing forecasts from different industry groups on the forecast data demand growth, but a common thread is that forecast growth will drive demand for future communications networks, requiring ever greater network speeds and reduced latency.”<sup>8</sup> The ACMA also recognises that “reviewing arrangements in bands that are already licensed for WBB is important to ensure existing allocations are efficient and can cater for new technology developments such as 5G. Our work program includes projects that consider optimising existing planning frameworks”.<sup>9</sup>
18. The ACMA also notes that “in identifying the most appropriate licensing arrangements for particular spectrum uses, we seek to balance providing predictability to users regarding their proposed or ongoing use of the spectrum with flexibility to change how spectrum is used over time. We therefore consider that it is important that the choice of licensing arrangements is considered in the context of the contemporary technology uses and spectrum band characteristics”<sup>10</sup>
19. Mid-band spectrum is scarce, and hence valuable, even with tight technical constraints limiting deployment. Due to its scarcity, it is vital the technical configuration is optimised to serve the greatest population with the greatest potential benefit, rather than optimised to serve bespoke, localised solutions.
20. Optus submits that for the re-allocation of 3.4 to 4.0GHz to be consistent with the communications policy objectives identified in the MPS and the ACMA’s desired planning outcomes,<sup>11</sup> a key principle guiding the design of the allocation instruments must be that sufficient unencumbered mid-band spectrum is available for use now, or in the very near future – not in 5 or 6 years’ time or beyond. In Optus view this means that the 3.4GHz band must be defragmented as a matter of priority and the proposed re-allocation period shortened to promote the investment certainty offered by spectrum licences.

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<sup>6</sup> The Modernisation Act changes provide that the object of the Act is to “promote the long-term public interest derived from the use of the spectrum by providing for the management of the spectrum in a manner that facilitates efficient planning, allocation and use of the spectrum...supports the communications policy objectives of the Commonwealth Government”

<sup>7</sup> *Radiocommunications (Ministerial Policy Statement – 3.4-4.0 GHz) instrument 2022*

<sup>8</sup> FYSO 2022-27, p.10

<sup>9</sup> Ibid, p.10

<sup>10</sup> The ACMA’s March 2021 paper “Our approach to radiocommunications licensing and allocation”; page 5

<sup>11</sup> Ibid, p.14 states that these planning outcomes are to (i) introduce wide area (WA) WBB and local area (LA) WBB uses, with framework suitable for both, (ii) support a range of continuing use cases in the band (iii) ensure coexistence with adjacent band service

## Spectrum licence boundaries in the 3.4GHz – 4.0GHz band

21. Optus consider that the unification and rationalization of all spectrum licence boundaries in the 3.4GHz – 4.0GHz band is the only way to effectively realise full de-fragmentation and maximum spectrum efficiency in the band.
22. Executing this or, at the very least, a plan to achieve this should be agreed between the ACMA and current licensees before any re-allocation declaration is finalised.
23. If this is not achieved, there is a significant risk that one or more licensees will be left with “stranded” spectrum in one or more parts of the band and/or in one or more spectrum licence areas or a subset thereof.
24. It is Optus’ view that the boundaries in the 3575MHz – 3700MHz spectrum (3.6 GHz allocated in 2018) licences are the most appropriate to use as the baseline for other spectrum licences in the 3.4GHz – 4.0GHz range. Optus considers that alignment with 3.6GHz has the greatest potential to facilitate trading across the band by removing geographic scope as a key point of difference between spectrum lots. Optus also submits that boundary alignment would help simplify the calculation and implementation of any allocation limits for the bands.
25. However, while Optus considers that market-based spectrum trading is the preferred approach to achieve defragmentation, the complexity of the band and the urgency of re-allocation will require an ACMA-led initiative on the re-definition of the boundaries for the entirety of this band. Optus reiterates its view that this be considered a condition precedent to the commencement of any formal reallocation process.
26. Over and above general cooperation among licensees to defragment the band, the new regulatory powers afforded to the ACMA through the Modernisation Act may offer potential mechanisms for mandatory defragmentation. For example, the ACMA could consider powers to vary geographic areas under existing licences by way of agreement with licensees. Failing that, the ACMA could resume licences from licensees that do not engage productively on defragmentation.<sup>12</sup>
27. Other mechanisms may include inserting conditions or specifying circumstances for renewal of spectrum licence issued to the effect that the licensee engage and/or complete defragmentation (to the greatest extent practicable) before 13 December 2030 (should a shorter licence term be adopted).<sup>13</sup> Alternatively, the ACMA could initiate defragmentation as part of its annual work program or consider delaying the assignment stage of the auction until the prospective licensee defragments – in other words, payment and licence issue would only occur after defragmentation.

## 3.4GHz – 4.0GHz band configuration

28. Optus considers that the success of any outcome of the reallocation declaration and its implementation can be tested against a simple band construct, to be applied across all spectrum licence areas, as described in Figure 1.



Figure 1 3400 – 4000 High Level Band Configuration

<sup>12</sup> sections 72 and 89 respectively

<sup>13</sup> section 77C

29. Separate parts of the band should be effectively partitioned according to their use, with current 4G at the bottom band operating with a suitable guard band between it and 5G services. Currently the three MNOs and NBN are operating on the same frame structure which is based on 4G standards. The same frame structure allows operators to successfully manage interference without the need for large guard bands. As the operator's networks are now inexorably linked, it will not be possible for 5G frame structures to be deployed if one or more 5G operators is forced to synchronise with a 4G frame structure.
30. Above the 4G guard band should be the spectrum licenced 5G band of operation, extending in a contiguous block, in all geographies, to the lower limit of the AWL band which will operate with a restricted use band.
31. The ACMA's Option 3 generally meets this target band plan, with the notable exception of the upper 50MHz between 3750MHz and 3800MHz in some regions.
32. Optus prefers the adoption of Option 3 with the following variations
  - (a) Include the 3750MHz – 3800MHz regional areas in the spectrum licenced part of the band
  - (b) Relocate PMPs operating in the 3475 MHz to 3542.5 MHz frequency range above 3800MHz
  - (c) Consider offering appropriate incentives to PMP operators to move above 3800MHz
  - (d) Reduce the reallocation period for the 3400 to 3575 MHz part of the band from 5 to 2 years. This is to avoid the same situation as Optus and other licensees are enduring due to WISP and P2P occupancy caused by the excessive 7-year reallocation period in the 3.6GHz band
    - (i) An extended reallocation period reduces the utility and value of spectrum-to-spectrum licensees
    - (ii) A proportion of the proceeds from the proposed price-based allocation can be set aside by Government to facilitate the rapid clearance of the 3475 MHz to 3542.5 MHz part of the band
33. Neither Option 1 or Option 2 passes the test of matching the overall band plan shown in Figure [1] above and these options are not supported by Optus
34. If the ACMA is unable to adopt all the suggested variations to Option 3 band configurations that are proposed here, Optus suggests that compromise could be reached on the following items, ranked in order of preference:
  - (a) Financial incentives to PMP licensees in the 3475 MHz to 3542.5 MHz frequency range
  - (b) 3750MHz – 3800MHz allocated to AWLs
35. It is understood that the PMP users in the 3475 to 3542.5 MHz part of the band have recently had to retune, but Optus firmly believes that the priority for maximising the utility of the band should be a contiguous block of spectrum for a specific technology to enable freedom of operation to all users and a reduction in wasted spectrum for guard bands and physical licence boundaries.

36. As noted by the ACMA, there is also suitable equipment available and likely to be increasingly available for these operators to supply services above 3800 MHz.<sup>14</sup>
37. The ACMA's ultimate objective should be the efficient allocation of spectrum, avoiding the generation of dead zones at spectrum licence boundaries. The optimal way to achieve this is a contiguous, co-channel allocation per licensee where holding permit.
38. Optus strongly supports an ACMA led de-fragmentation of the 3.4GHz band to align the highly complex 3.4GHz holdings to the 3.6GHz boundaries, thus supporting a second defragment after the outcome of the auction is known. This defragmentation should address:
  - (a) NBN defragment to the bottom of the band.
  - (b) Alignment of spectrum holdings to 5MHz channels
  - (c) Alignment of spectrum areas to the 3.6GHz boundaries
39. Optus agrees with the ACMA's preferred spectrum licensing arrangements for the urban excise areas because of the scarcity of spectrum in this band and the likelihood of longer duration licensing, bringing certainty to investment and enabling the spectrum to achieve highest value use, through a future restack or otherwise.
40. However, given the potential to compound inconsistencies in geographic areas, we urge the ACMA to reconsider the need to allocate the urban excise spectrum at this time, except for the Canberra urban excision areas. Optus suggest that the urban excise allocation be postponed until after AWL allocations to reduce complexity and afford greater opportunity to clear up the band in both metro and regional areas.

## RESPONSES TO ACMA QUESTIONS

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### The ACMA's preferred planning approach: urban excise spectrum

#### Urban excise spectrum

Do you have comments on our preferred approach to:

- Issue spectrum licences in the 3400–3475 MHz frequency range in urban excise areas in accordance with Option A?
- Allocate spectrum in the 3800-4000 MHz band for LA WBB use using the segmentation approach?

41. Optus supports Option A for use of the urban excise area. Implementing spectrum licence arrangements for the 3400-3475MHz and using the 3800-4000MHz frequency range for AWLs aligns with the overall band plan. Optus agrees with the general intent behind ACMA's statement that "if there is a need for a future restack to consolidate spectrum holdings, a single licence type across the 3400–3800 MHz frequency range in metropolitan areas would better facilitate this."<sup>15</sup>
42. The issues of coordination and protection to the existing NBN network are complex. Optus would support a delay in the urban excise allocation until after the AWLs have been granted. Further, Optus considers that the geographic boundaries for the urban

<sup>14</sup> Consultation Paper, p.14

<sup>15</sup> Consultation Paper, p.2



excise raise the potential to further complicate the defragmentation of the band in the long term and therefore encourages the ACMA to reconsider the need to re-allocate this spectrum unless metro/urban fringe geographic boundaries can be sufficiently aligned.

43. The Canberra Urban Excise area closely aligns with the 3.6GHz Canberra spectrum licence boundary. Optus supports the inclusion of Canberra's Urban Excision area in the reallocation.

#### 3400 – 3575MHz and 3700 – 3800MHz

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

44. Optus supports spectrum licencing arrangements for metro and regional areas across the 3400 – 3800MHz band and AWL arrangements for 3800 – 4000MHz.
45. Optus prefers the adoption of Option 3, with a modification to include the 3750MHz – 3800MHz regional areas in the spectrum licenced part of the band.
46. Optus considers that aspects of the proposal serve to undermine the benefits of spectrum licensing – in particular, the proposed 5-year re-allocation period coupled with a 7-year licence period are not conducive to long term investment.
47. The limitations on varying existing spectrum licences present a significant obstacle to defragmenting the band as core conditions such as frequency and geographic areas can only be modified with the agreement of the licensee, which may not always be forthcoming.
48. Optus agrees with the concerns with the current band arrangements identified by the ACMA and raised by stakeholders through previous consultation processes. In particular, Optus reiterates its preference to “further defragment and consolidate spectrum-licensed holdings in the 3400-3700 MHz frequency range and reduce the impact of orphaned spectrum” and “to reduce the amount of spectrum encompassed in restricted use bands at apparatus and spectrum licence frequency boundaries”.<sup>16</sup>
49. Optus considers the ability to defragment the band with the aim to reduce and align the geographical boundaries as well as to deliver contiguous spectrum holdings is the priority consideration for the structure of the 3400 – 3800MHz Band. By adopting such a framework, benefits include:
- (a) Increase the band utility and deliver the maximum capability to Australian consumers
  - (b) Reduce the ability of competitors to obstruct network advances
  - (c) Have the ability to move smaller operators to the edge of the band and enable them to launch services whilst reducing their requirements to coordinate with the larger MNOs
50. Optus agrees that Option 3 represents the best of the presented options to facilitate a complete defragmentation of the band. However, we are not confident that this will be achieved without significant assistance from the ACMA as secondary market mechanisms are unlikely to reach the desired outcome. While Optus understands the ACMA desire to leave defragmentation to industry “as it is dependent on who obtains new spectrum licences at auction and any subsequent agreement between licensees to

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<sup>16</sup> Consultation Paper, p.17

trade or vary licences”, Optus encourages the ACMA to consider how it may assist defragmentation of 3400 to 3575 MHz in a timely and effective manner prior to auction and certainly before any further allocation or renewal of spectrum licences in 2030.<sup>17</sup>

51. Optus does not consider that a 5-year re-allocation period is warranted for the relocation of 31 PMP licences in the 3475 to 3542.5 MHz band. Such a timeframe is contrary to the efficient utilisation of the band between now and 2030 and, particularly without clarity as to the renewal arrangements for issued spectrum, may serve to undermine the investment case in this part of the band. We believe that a 2-year reallocation period is sufficient.

## **The ACMA’s proposal**

### Licence type

If the ACMA makes a re-allocation declaration, do you have comments on our proposal to issue spectrum licences in the 3.4 GHz (including in regional areas and in urban excise areas) and 3.7 GHz bands?

52. Optus supports spectrum licencing arrangements for metro and regional areas across the 3400 – 3800MHz band and AWL arrangements for 3800 – 4000MHz.
53. Optus agrees that “spectrum licences are also more conducive to spectrum trading than apparatus licences, due to their ability to be sub-divided for trading and technological flexibility” and that this feature supports the realisation of the MPS policy objectives including the deployment of 5G technologies.<sup>18</sup>
54. As noted above, Optus supports the postponement of the issuance of spectrum licences in the urban excise area, with the exception of Canberra, to help reduce complexity and ultimately to support alignment of geographic areas with existing 3.6 GHz boundaries, which Optus considers is crucial to the success of any spectrum trading market in the band.

### Parts of the spectrum

If the ACMA makes a re-allocation declaration, do you have comments on our proposal to declare for re-allocation the parts of the spectrum in accordance with our proposed planning option (Option 3, ‘Planning options’, above)?

We welcome stakeholder views on the parts of the spectrum proposed for re allocation, particularly the inclusion of the frequency ranges 3475-3492.5 MHz, 3492.5-3510 MHz and 3510-3542.5 MHz in specified geographic areas as described under Option 3 in ‘Planning options’

55. Optus supports the reallocation of all segments of the 3400- 3800MHz for spectrum licencing. However, Optus wishes to reiterate that the importance of aligning geographical boundaries is essential to maximise the utility of the band in the long term.
56. Accordingly, Optus could support a staggered allocation of spectrum, or the imposition of administrative or licence-based incentives and/or conditions, where geographic alignment cannot be facilitated through industry engagement or spectrum trading.

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<sup>17</sup> Consultation Paper, p.21

<sup>18</sup> Consultation Paper, p.25

### Re-allocation period and deadline

If the ACMA makes a re-allocation declaration, do you have comments on our proposal for a re-allocation period of 5 years from the commencement of the re-allocation declaration, and a re-allocation deadline of 12 months before the end of the re-allocation period?

Please provide evidence in support of your comments.

57. The ACMA states that “In addition to the policy objectives contained within the MPS, we consider the following factors when setting a proposed re-allocation period and deadline:
- > how long it may reasonably take for incumbent licensees to relocate from the band
  - > the likely use or uses of the spectrum
  - > when the potential purchasers of the spectrum licences will be in a position to utilise the spectrum.”<sup>19</sup>
58. Optus considers that the ACMA’s proposed re-allocation period of 5 years from the commencement of the re-allocation declaration appears unjustifiably long and affords a disproportionate length of time for the relocation of incumbent licensees in 3475 to 3542.5 MHz part of the band. We support a re-allocation period of 2 years.
59. The ACMA has stated that it seeks a longer reallocation period as incumbent (31) PMP licensees were recently required to retune into the 3.4 GHz band. Optus notes that, should a shorter licence term of 7 years be preferred so as to align with the expiry of existing licences on 13 December 2030, then new spectrum licensees would have a maximum of approximately 3.5 years of unencumbered use if the ACMA adopts a 5-year reallocation period (assuming the re-allocation declaration commences in mid-2022).<sup>20</sup>
60. Optus considers that the inefficiencies that would likely result from a 5-year re-allocation period outweigh the interests of incumbent licensees. As has been noted the likely use of the spectrum is for 5G coverage and capacity, which is a key pillar of the MPS and the Government’s broader communications policy objectives. MNOs must access and utilise this spectrum to meet increasing demand for spectrum now and in the near future. These factors must be prioritised over the interests of affording a relatively small number of incumbent licensees such a long relocation window.
61. Optus notes that the ACMA has referred to the approach taken in the re-allocation of spectrum in the 3.6 GHz band as supportive of a 2 to 7 years reallocation period.<sup>21</sup> Optus does not support this approach as a good example of efficient re-allocation and rather considers that the 3.6 GHz band provides evidence of the potential unintended negative consequences of a long reallocation period. While this spectrum was allocated in 2018, Optus still does not have access to this spectrum and will not have access in certain regional areas until 2025 as incumbents remain in the band. This in turn has delayed Optus investment in 5G services in certain affected regional areas.
62. [CiC]
63. [CiC]

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<sup>19</sup> Consultation Paper, p.39

<sup>20</sup> Consultation paper, p.44

<sup>21</sup> Consultation Paper, p.41 to 44; ACMA states that for 3.6 GHz ACMA defined re-allocation periods between 2 and 7 years for different areas – 2 years for metropolitan areas with incumbent PTP licences, 5 years for metropolitan areas with incumbent FSS licences and 7 years in regional areas with incumbent PMP and PTP licences.

64. Accordingly, Optus supports the implementation of policies to support the early transition and/or clearance of incumbent services during the re-allocation period.<sup>22</sup> While we note that the ACMA proposes to reserve 3750 to 4000 MHz in specified areas for affected PMP services to relocate to and will also preserve certain parts of the spectrum for FFS services, Optus encourages the ACMA to consider further measures to expedite the clearance of the band and ensure that it can quickly move towards its highest value use.
65. Having regard to the factors outlined by the ACMA and set out above, Optus strongly supports a 2-year re-allocation period as it strikes the right balance between “predictability to users regarding their proposed or ongoing use of the spectrum with flexibility to change how spectrum is used over time”.<sup>23</sup> Optus also supports aligning the re-allocation period across the band, including for the urban excise spectrum, if the ACMA decides to proceed with allocating it. Optus welcomes further engagement with the ACMA on this matter, including through the consultation process on any draft re-allocation instruments to be issued following this consultation.

### Licence term and commencement

We seek stakeholder views on the appropriate spectrum licence duration.

Our preliminary view is that licences should commence shortly after an auction.

66. Optus notes that its comments on the ACMA’s proposed licence term and commencement should be considered in combination with its comments above on the proposed approach to the re-allocation period as these issues are intertwined.
67. As a guiding principle, licence duration should also be considered alongside the overall aim of harmonising the band and the mechanisms available to the ACMA to maximise the utility of the available spectrum by facilitating de-fragmentation of geographical and spectrum boundaries.
68. Optus understands the rationale for short duration licence terms for the 3.4 GHz and 3.7 GHz spectrum licences is to align expiry with existing spectrum licences in the band on 13 December 2030. Optus agrees that the aligning expiry dates with existing licences in the 3400–3700 MHz frequency range may assist with market-led defragmentation “as there would be no need to determine the difference in value between spectrum traded with different expiry dates.”<sup>24</sup>
69. Optus supports a licence term of 20 years for spectrum licences where geographical boundaries are aligned with existing 3.6GHz boundaries and spectrum lot sizes of 5MHz are implemented. This provides the necessary certainty required for investment.
70. In areas where both of these conditions cannot be met, Optus supports a licence that expires on 13 December 2030, in alignment with existing spectrum licences in the 3400 – 3700MHz band. This is to facilitate the necessary geographical and frequency reconfiguration necessary to defragment the band.
71. Such a shorter licence period necessarily creates a level of uncertainty around ongoing use that may serve to undermine investment. This is particularly the case given the apparent preference for a longer re-allocation period.
72. Current and potential licensees will require clarity and certainty on the renewal conditions for licences expiring in 2030 as such short licence terms do not provide

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<sup>22</sup> Consultation Paper, p.41

<sup>23</sup> The ACMA’s March 2021 paper “Our approach to radiocommunications licensing and allocation”; page 5

<sup>24</sup> Consultation Paper, p.44

investment and continuity of service certainty. Optus suggests that this information is made available as part of the auction instruments for the reallocation of the band for any spectrum licences on offer that will expire in 2030.

73. Optus understands that, following the Modernisation Act, the ACMA must include a renewal statement in any future spectrum licence. However, it remains unclear what detail the ACMA might include in such a statement, and notes that it would be unsatisfactory if the ACMA simply included a statement to the effect that re-allocation remains at the discretion of the ACMA.<sup>25</sup> In the likely event of a public interest test assessment, Optus submits that the ACMA must have regard to the MPS and the public benefit to be derived from 5G deployment.<sup>26</sup>
74. Optus supports spectrum licence payment shortly before spectrum licence commencement and both events should occur when access to spectrum is fully available. If access to the spectrum licence is at risk or delayed, then the spectrum licence payment and commencement should be delayed until the end of the reallocation period when access is guaranteed. If necessary, early access provisions can be included in the auction instruments and licensees can apply for early access.

### Lot configuration (frequency)

If the 3.4 GHz band in regional areas is re-allocated, our preliminary view is to divide the spectrum into 10 MHz lots, with one or more leftover lots of 2.5 MHz, 5 MHz or 7.5 MHz, depending on the region. Alternatively, we may consider 5 MHz lots with 7.5 MHz leftover lots.

If the 3.4 GHz band in urban excise areas is re-allocated, our preliminary view is to divide the spectrum into 10 MHz lots, with a leftover lot of 15 MHz at 3460–3475 MHz.

If the 3.7 GHz band is re-allocated, our preliminary view is to divide the spectrum into 10 MHz lots.

We invite comments from stakeholders on bandwidth configuration options.

75. Optus supports lot sizes of 5MHz for all categories of spectrum being offered as part of this reallocation to maximise the amount of spectrum and minimise the amount of unsold or unusable spectrum.
76. As stated in the draft FYSO 22-27, “The most spectrally efficient profile bandwidths for internationally standardised WBB equipment are in multiples of 5 MHz.” Optus supports ACMA’s statement. This also aligns with the lot configuration of the 3.6GHz auction.
77. Optus considers lots of 2.5GHz as only suitable for one existing operator in a region. These small lots should not be part of this auction and need to be included as part of any 3.4GHz defragmentation plan.

### Lot configuration (geography)

We welcome submissions from stakeholders on the most appropriate geographic area configuration for the spectrum

78. The ACMA has noted that the multiple planning and allocation process for spectrum in the 3400–3700 MHz frequency range since 2000 has created inconsistent geographic areas across the frequency ranges of spectrum on offer. Optus supports the ACMA’s stated aim “to have spectrum licence arrangements in the 3400–3700 MHz frequency

<sup>25</sup> i.e as required under subsections 65A(1) and (2) of the Act

<sup>26</sup> Ibid, page 23 and referring to section 77C of the Act

range cover the same total geographical area currently covered by spectrum licensing in the 3575–3700 MHz (3.6 GHz) band”.<sup>27</sup> However, without alignment on geographic boundaries in individual lots, Optus submits that the ACMA’s defragmentation objectives and ultimately the efficient use of the bands will be undermined.

79. Optus reiterates that the ability to defragment the entire band is key to maximising the utility of the band and to deliver greater capability to customers. The complexity of the process and the inconsistency of the geographic areas across the 3.4 GHz band mean that market-based defragmentation may not be realistic and the ACMA should therefore commit to ensuring that defragmentation can be delivered in a timely manner, preferably before any price-based allocation.
80. [CiC]
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#### Allocation methodology

Do you have comments on the proposal to use the 2-stage generic lots clock auction format for this allocation?

96. Optus supports the proposal by the ACMA to use the 2- stage generic lot auction format for the allocation for the 3.4 and 3.7GHz spectrum. Optus supports the ACMA using an Enhanced Simultaneous Multi Round Auction (‘ESMRA’) as per the 3.6GHz auction held in 2018. Optus understands that the two-stage auction consists of the allocation stage

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<sup>27</sup> Consultation Paper, p.28

(which is conducted in the primary and secondary stages) and the assignment stage, described as follows

(a) Stage 1: Allocation Stage

- (i) Primary Stage – a series of clock rounds, with all products open and on offer in all rounds. Bidders bid on lots in each region. The primary stage ends when the aggregate demand is less than or equal to supply in all regions. Bidder eligibility to participate in the Primary Stage is well established, as this is simply a reflection of what each bidder has been registered for during the application process. Each lot available for bidding in the first clock round will continue to be open for bidding in all subsequent clock rounds until the final clock round ends.
- (ii) Secondary Stage – If any lots remain unallocated after the primary stage due to the minimum spectrum requirement (MSR) usage, then they are sold via a simple clock auction format in each region. Lots unallocated in the primary stage due to insufficient demand are not offered for sale in this stage. Bidder eligibility to participate in the secondary stage only requires that any potential bidder in this stage must have met the minimum spectrum requirement test in the relevant region during the primary stage, and that any bids placed does not exceed any allocation limits

(b) Stage 2: Assignment Stage

- (i) Assignment Stage – a bidder who holds spectrum lots after the Allocation Stage may submit bids to establish the order of their assignment relative to other bidders. Regions with identical outcomes from primary and secondary stage may be combined.

97. The ESMRA 2 stage generic lots auction has the following benefits;

- (a) The allocation stage allows bidding on generic lots which simplifies bidding using generic, substitutable lots, enables intra-round bids to break ties and reduce auction length and enables bidders to set a minimum spectrum requirement (MSR) to reduce exposure risk.
- (b) The secondary stage enables any unallocated lots to be sold after primary stage.
- (c) The assignment stage allocates spectrum contiguously, which enables bidders with preferences for particular lots to bid for them in the assignment stage rather than switching between lots, reduces the risk of non-contiguous spectrum.

Minimum spectrum requirement

Do you have comments on our preliminary view to offer bidders at auction an MSR of 2 lots, particularly if the 2-stage clock auction with generic lots is used?

98. Optus supports the ACMA proposal of a minimum spectrum requirement (“MSR”) of two lots and this is consistent with the approach successfully used in the 3600MHz auction in 2018. This enables bidders to reduce the risk of winning unusable and undeployable amounts of spectrum, i.e. the MSR minimises the risk of bidders winning only one 5 MHz lot in areas where the MSR has been triggered.