



Submission in response to  
ACMA Draft Instruments

**Draft instruments for the  
3.4-3.7 GHz band auction**

Public Version

March 2023

# CONTENTS

<b>Section 1. Executive Summary</b>	<b>3</b>
<b>Section 2. Optus views on Issues for comment</b>	<b>6</b>
Draft Marketing Plan	7
Draft Allocation Determination	7
Draft technical instruments	9
<b>Section 3. Draft marketing plan</b>	<b>10</b>
Licence commencement and duration	10
Licence renewal statement	11
Lot configuration	12
Geographic area	12
Product naming	13
<b>Section 4. Draft allocation determination</b>	<b>14</b>
Auction procedures	14
Auction rules	19
Allocation limits	21
Lot ratings and starting prices	23
Application and registration process	24
Affiliated applicants	25
Payment terms	26
Changes to the Spectrum Licence Tax Determination	27
<b>Section 5. Draft technical framework</b>	<b>28</b>
Key Principles	28
Technical Instruments and Core Licence Conditions	28
Coexistence of radio altimeters with wireless broadband	28

## Section 1. EXECUTIVE SUMMARY

---

- 1.1 Optus welcomes the opportunity to provide a submission in response to the ACMA's consultation paper on the draft Instruments for the 3.4 GHz and 3.7 GHz band auction.
- 1.2 Optus acknowledges the difficult task the ACMA face in designing a framework for the auction of the 3.4 GHz and 3.7 GHz bands. These frequency bands are key mid-band spectrum that has been internationally harmonised for use by 4G and 5G wireless technologies.

### *Auction outcomes will be undermined unless there is defragmentation*

- 1.3 The preferred outcomes for this re-allocation remain the delivery of 100 MHz contiguous spectrum and lot alignment in regional and to the greatest extent practicable, in metro. Spectrum fragmentation in the band poses a significant impediment to realising this goal. The draft Instruments demonstrate that the ACMA has attempted to ameliorate these issues and Optus welcomes the proposal to move towards aligning geographic boundaries in the bands to the 3.6 GHz boundaries.
- 1.4 However, Optus considers that the ACMA is placing too much faith in the secondary market for spectrum trading to deliver defragmentation. The likelihood of spectrum trading in this band between Mobile Network Operators (MNOs) in the near future may be limited. The ACMA's intervention is required to deliver much needed defragmentation prior to the auction or alternatively as a condition subsequent to auction, via spectrum licence conditions.
- 1.5 Without a clear path towards defragmentation, the efficiency, and hence value, of the spectrum is significantly reduced and the likelihood of the auction realising the policy objectives set out in the Ministerial Policy Statement (MPS) is undermined.<sup>1</sup>

### *The draft allocation framework risks entrenching Telstra's dominance*

- 1.6 Optus consider that the draft Instruments do not support digital connectivity in regional Australia nor promote competition. Telstra currently holds a dominant share of the 3.4 GHz to 3.8 GHz spectrum in many areas of regional Australia. There is a possibility that this spectrum dominance would be entrenched if the proposed (MOCN) spectrum lease agreement between Telstra and TPG, which includes 3.6 GHz spectrum, is allowed.
- 1.7 Given there is only up to 100 MHz of spectrum on offer at 3.7 GHz, the proposed regional allocation limit of 140 MHz, and certainly 160 MHz or no limits, appears generous, and may provide Telstra with an opportunity to monopolise the spectrum available.
- 1.8 Optus is also surprised that the ACMA does not intend to have regard to third party authorisation arrangements in calculating the allocation limits, particularly given that the ACMA has recognised the substitutability of the spectrum and the need for a cross band allocation limit. Optus rejects the suggestion that the competitive harms that may arise from further spectrum consolidation in this band should be left to ex-post investigation by the ACCC.

---

<sup>1</sup> Radiocommunications (Ministerial Policy Statement – 3.4-4.0 GHz) Instrument 2022

- 1.9 In this context, Optus strongly oppose any limit that would allow Telstra the opportunity to accumulate more than 35% of the spectrum in a particular geographic area. We consider a 140 MHz allocation limit in metro areas and a 100 MHz allocation limit in regional areas will best promote competition and support digital connectivity and 5G investment in regional Australia.
- 1.10 Optus welcomes the ACMA's confirmation that it proposes to "prevent applicants who are affiliated from participating in the auction as separate bidders".<sup>2</sup> However, on a strict reading, it could appear that the ACMA would be unlikely to find Telstra and TPG as affiliates given that the third-party authorisation agreements between them are not for the use of a "part of the spectrum referred to in the re-allocation declaration".<sup>3</sup>
- 1.11 Such an interpretation is inappropriate in the circumstances and appears hard to reconcile with the ACMA's stated view that the spectrum in the bands is substitutable. Third-party authorisation arrangements for use of spectrum that is a substitute for spectrum referred to in the re-allocation declaration is a "relevant agreement" and therefore the parties to that agreement are affiliated for the purposes of the auction.
- 1.12 Optus consider that should Telstra and TPG be allowed to bid separately while the status quo persists, the current level of cooperation between them represents a real threat to the integrity of the auction process. Optus reiterates that, the ACMA should find TPG and Telstra affiliated for the purposes of the 3.4 GHz and 3.7 GHz auction.

*The publication of the final auction instruments should be delayed*

- 1.13 Optus continues to hold the view that the auction should not occur until all proceedings relating to the proposed (MOCN) spectrum lease agreement between Telstra and TPG are completed. Without this clarity, it remains difficult, if not impossible, to establish auction arrangements for this band that will deliver on the Governments communications policy objectives, particularly in relation to regional Australia.
- 1.14 Optus notes that the change in market structure (the merger of Vodafone and TPG in 2018) on the eve of the 3.6 GHz spectrum auction, after the allocation limits and reserve price had been set, resulted in the ACMA reserving the right to change the reserve price after the application process has completed for all subsequent spectrum auctions. This experience indicates that the safest and most prudent path forward is to resolve any market structure change before the auction commences.
- 1.15 Equally importantly from a spectrum management perspective is the need to provide a clear path to defragment the 3.4 GHz band. **[CiC Begins] [CiC Ends]**

*Further refinement of the draft Instruments is required before being finalised*

- 1.16 Optus recognises the effort that the ACMA has made to reduce some of the complexity in the allocation of these bands. In particular, the proposal for sequential auctions, with certain refinements, is welcomed, and the proposed geographic lot configurations is a thoughtful approach to mitigating the effect of non-aligned boundaries.
- 1.17 However, significant complexity remains, partly driven by the other allocation processes proposed for the band, but also as a result of the procedural arrangements in the draft Instruments. In particular, the application of the 30% insignificant holdings threshold,

---

<sup>2</sup> ACMA, Draft allocation and technical instruments for the 3.4/3.7 GHz bands auction, Consultation Paper, February 2023, p.8

<sup>3</sup> Section 15(c) of the draft Allocation Determination

would appear to complicate and potentially undermine the effectiveness of the allocation limits.

- 1.18 Further, while Optus understands that the ACMA is tasked with supporting a range of use cases in the allocation of this spectrum, in Optus' view the proposed co-existence arrangements and long reallocation period in the 3.4 GHz band will only serve to further undermine the utility of this spectrum for 5G services.
- 1.19 Optus supports co-existence arrangements in the 3400-4000 MHz that are proportionate to the interference risk noting of course that mitigation measures may need to reflect the unique characteristics of the specific circumstances under consideration.
- 1.20 There remains little to no real technical evidence of the interference risk posed to radio altimeters from 5G services in these bands. Accordingly, there is no substantiated need for spectrum licensees to implement any mitigation steps below 4000 MHz. Given the evidence of the relatively low financial costs to the aviation sector to update altimeters, Optus continues to query the approach proposed by the ACMA.
- 1.21 Section 22 provides a summary of our views on the draft Marketing Plan and draft Instruments. Detailed comments are provided in sections 3-5.

## Section 2. OPTUS VIEWS ON ISSUES FOR COMMENT

---

- 2.1 This section provides a summary of Optus' position on issues raised in the Consultation Paper. More detailed comments are provided through Sections 3-5.
- 2.2 In summary, Optus's main concerns with the draft Instruments are:
- i. There is insufficient certainty that defragmentation of the 3.4 GHz band can be delivered. While Optus welcomes the ACMA's decision to ensure consistent licence expiry dates and to align the geographic lots with existing 3.6 GHz boundaries, these are unlikely to overcome the negative incentives created by the current market context. Without assurances as to an ACMA led defragmentation of the band, the 3.4 GHz offerings may represent too great an investment risk for Optus.
  - ii. Leaving defragmentation to the market is misplaced and is unlikely to yield efficient utilisation of the 3.4 GHz spectrum in the near term. The Optus/NBN defragmentation in the 3.4 GHz band took over five years to complete. It was operationally implemented in November 2019 and discussions between the parties commenced in 2014. The implementation phase took well over two years to complete. This defragmentation exercise was successful largely due to the absence of boundary or overall spectrum holding variations, alongside a common goal and mutually beneficial outcomes for the parties involved.
  - iii. The approach to determining the allocation limits appears to lend too much weight to the need to limit the risk of unsold lots rather than the risk of monopolisation, particularly in regional areas. Optus recognises that reducing the number of unsold lots will help defragmentation, however for reasons set out above, market-led defragmentation appears highly unlikely. However, the risk of spectrum monopolisation is real. Telstra holds between 50 to 80 MHz of 3.6 GHz spectrum in regional areas. With only up to 100 MHz for auction in the 3.7 GHz band, there is a high likelihood that a 140 MHz allocation limit would provide Telstra the opportunity to monopolise this band.
  - iv. Affording Telstra such a spectrum advantage would only serve to entrench its dominance in regional areas, by enabling it to secure 100 MHz contiguous bandwidths and to reduce network deployment costs. While this may appear appealing as an immediate solution to regional connectivity challenges, the longer-term effects would be to undermine competition in the regions as Telstra would be able to lock out Optus, its sole remaining mobile competitor. There is also ample evidence that Telstra does not efficiently utilise its existing regional spectrum, particularly mid-band spectrum.<sup>4</sup> Enabling Telstra to secure even greater control over regional spectrum holdings would appear contrary to the legislative objectives of the Radiocommunications Act.<sup>5</sup>
  - v. The anti-competitive effect is even more profound when considered in the context of the proposed spectrum lease agreement (MOCN). If the

---

<sup>4</sup> ACCC Reasons for Determination, Application for merger authorisation (Telstra-TPG MOCN), 21 December 2022, p.151 to 153

<sup>5</sup> See in particular section 3(a) of the *Radiocommunications Act 1992*

agreement is allowed by the Competition Tribunal or on appeal, then Telstra will obtain an unassailable lead in access to spectrum in regional Australia. The ACMA must reconsider the timeframes for this proposed allocation process and postpone finalising the allocation instruments until clarity as to the status of the proposed spectrum lease arrangement is provided.

- vi. While 3.4/3.6 GHz spectrum holdings in metro are more balanced between the MNOs, with Optus having a slight advantage in Melbourne and Sydney, Telstra is also operating 100 MHz bandwidth channels in Adelaide, Brisbane and Canberra and 80 MHz bandwidth channels in Sydney and Melbourne and 60 MHz bandwidth channels in Perth as a result of third-party authorisations with TPG. Telstra and TPG have clear incentives to cooperate in their bidding for the spectrum that is the subject of the auction. Given the ACMA's view that this spectrum is substitutable for spectrum that is the subject of the auction, Optus considers that the ACMA should find Telstra and TPG affiliates for the purposes of the auction.

## Draft Marketing Plan

- 2.3 **Licence commencement and duration** – Optus supports the common alignment of licence expiry dates for 3.4 GHz spectrum on offer with existing 3.4 GHz spectrum licences, as well as the issue of 20-year spectrum licence terms for 3.7 GHz spectrum awarded at auction.
- 2.4 However, Optus strongly urges that licences in the 3.4 GHz areas be subject to defragmentation process as a condition of licence issue. Optus also considers a common licence commencement date for the 3.4 GHz and 3.7 GHz spectrum from mid-April 2024 should be introduced.
- 2.5 Optus considers the option to make either an upfront payment or instalment payments, with the upfront payment or the first instalment payment to be paid prior to licence commencement from mid-April 2024, should be reintroduced.
- 2.6 **Licence renewal statements** – Optus supports the inclusion of proposed licence renewal statement and timeframes set out with respect to future licence renewal. This should include certainty that these renewal considerations to commence 5 years prior to licence expiry and to be completed around two years prior to licence expiry, with the ACMA retaining the discretion to decide on licence duration at a period closer to renewal.
- 2.7 **Lot configuration** – Optus supports lot configuration based on 5 MHz lots. Optus supports the proposed geographic lot configurations. Given the complexity of the geographical boundaries across the existing 3400-3700 MHz band, we acknowledge that the ACMA have presented a well thought out structure which delivers the best outcome considering the existing limitations.
- 2.8 Finally, Optus strongly emphasises there is a continued need to address the complexity of historic allocations in the band. It follows that continued engagement in a holistic defragmentation process across the entirety of the 3.4/3.6/3.7 GHz bands should be a key consideration for any prospective spectrum licensee following the close of this auction process.

## Draft Allocation Determination

- 2.9 **Sequencing** – Optus supports the proposed sequencing of the auctions for the 3.7 GHz band auction to occur first, followed by the 3.4 GHz band auction. Each band auction,

including the 2 mocks applicable to each band auction, should be conducted in a similar manner (i.e. each mock should only take place before the start of the respective band auction) with bidders provided sufficient notice before the start of each auction (i.e. 10 working days).

- 2.10 Optus does not support the inclusion of clauses which allow the ACMA to vary key auction parameters, such as lot rating, starting prices, and application/registration deadlines, following the publication of the AIP.
- 2.11 **Commencement of auction** – Optus does not support the ACMA's proposal to include a power for the ACMA to vary the commencement date and time of the 3.7 GHz band auction with '2 working days' notice prior to the start of the date and time of the first and second round of the first auction that has been formally announced.
- 2.12 **Auction stages and rounds** – Optus supports the proposed auction format and stages. Notably, we welcome the inclusion of the pre-bidding round at the start of both the primary and secondary stages.
- 2.13 **Allocation of leftover lots** – Optus supports the ACMA's proposed Option D to allocate leftover lots through direct price allocation, however the relevant price should be set at a level that is no higher than administrative cost to the eligible recipient.
- 2.14 **Auction announcements** – Optus does not support the ACMA's proposal to publish the name of all registered bidders after the Eligibility Deadline, or after the auction completion. Public auction announcements should not deviate from the approach used in past auctions.
- 2.15 **Minimum spectrum requirement (MSR)** – Optus supports the ACMA proposal to facilitate the inclusion of a minimum spectrum requirement (MSR) for this auction, with the accepted view on the utility of 10 MHz of mid-band spectrum.
- 2.16 **Information policy** – Optus supports a full information policy be adopted for this auction given the need for all bidders to make fully informed price decisions. This means that exact excess demand would be provided in round output files.
- 2.17 **Pre-assignment of frequencies for unsold lots** – For the 3.7 GHz auction, the default position for the unsold lot assignment should be at the top of the band (i.e., aligned with 3750 MHz in rural areas and 3800 MHz in regional areas) where there has been no value expressed by any competing frequency lots for that position by other bidders.
- 2.18 **Allocation limits** – Optus supports a 140 MHz allocation limit in metro areas and a 100 MHz allocation limit in regional areas. This position reflects the ACCC's advice for 140 MHz allocation limits in both metro and regional, while also reflecting Optus ongoing concerns about the potential for Telstra to monopolise spectrum in regional areas. We strongly oppose any limit that would allow Telstra the opportunity to accumulate more than 35% of the spectrum in a particular geographic area.
- 2.19 **Insignificant holdings threshold** – Optus does not support the insignificant holdings threshold being set to 30%. This should be amended to 15% as applied in the same band during the 3.6 GHz auction in 2018.
- 2.20 **Affiliations** – Optus does not consider that the ACMA's proposed approach to affiliations reflects the current market circumstances. If a narrow view of affiliations is taken for the purposes of this auction, then this will only serve to undermine the integrity of the auction and the utility of any allocation limits imposed. This is because the current market context is characterised by high levels of cooperation between Telstra and TPG,



including in relation to 3.6 GHz spectrum that the ACMA deems is substitutable for spectrum that is being auctioned and is the subject of the re-allocation declaration.

- 2.21 Optus considers that if the proposed spectrum lease agreement (which allows for sharing of 3.6 GHz) remains afoot at the time of the auction, then the ACMA must find Telstra and TPG affiliated and therefore subject to the allocation limits as a joint bidder.
- 2.22 **Application and registration process** – In general, Optus supports the two-stage application and registration process. However, Optus does not support the discretion for the ACMA to vary the application or registration deadlines, starting prices and related requirements after the publication of the Applicant Information Package (AIP). Notably, there should be no variation after the application deadline, or ability to restart either stage in the application and registration processes.
- 2.23 Optus supports the ACMA's proposed auction format to use a 2-stage generic lots clock auction format, with an English open outcry (EOO) format for a secondary stage (if required). The format was previously referred to as the enhanced simultaneous multi-round ascending (ESMRA) auction format, albeit with some minor variations.
- 2.24 **Variation of prices** – Optus strongly opposes the proposal to introduce a discretionary power for the ACMA to change the starting prices before the auction. If the starting price changes, then the lot ratings may also change, and the relevant administrative deadlines also amended accordingly.
- 2.25 **Payment terms** – Optus submits that the option to elect instalment payments should be reinstated. Furthermore, that the instalment payments be structured for equal payments over the duration of the licence. Optus supports the proposed use of the bank guarantee in lieu of a deposit for the eligibility payment. This is in line with arrangements adopted in previous spectrum auctions conducted by the ACMA.
- 2.26 **Changes to the Radiocommunications (Spectrum Licence Tax) Determination 2021** – Optus acknowledges the proposed changes to base amount of the spectrum licence tax from \$166,032 to \$221,376 to reflect the change in the frequency range from 3400-3700 MHz to 3400-3800 MHz.

## Draft technical instruments

- 2.27 **Spectrum licence technical framework** – Optus broadly agrees with the proposed spectrum licence technical framework (SLTF) and supports the positions set out in the AMTA submission to this consultation.
- 2.28 **Co-existence of radio altimeters with wireless broadband** – Optus reiterates its views expressed through the Technical Liaison Group (TLG) relating to co-existence arrangement between WBB services and radio altimeters. We acknowledge that mitigation measures may need to reflect the unique characteristics of the specific circumstances under consideration. However, mitigations should be proportionate to the risk and at this time there remains little to no real technical evidence of the interference risk posed to radio altimeters from 5G services in these bands.
- 2.29 Accordingly, Optus remains of the view that there is no substantiated need for spectrum licensees to implement any mitigation steps below 4000 MHz. Given the evidence of the relatively low financial costs to the aviation sector to update altimeters, Optus continues to query the proportionality of the “precautionary approach”. Nevertheless, Optus appreciates that the ACMA has been confronted with the need to prioritise air safety concerns and as such may find it difficult to take an alternative approach. Optus responds to each of the specific questions in the consultation paper below.

## Section 3. DRAFT MARKETING PLAN

---

- 3.1 The draft Marketing Plan sets out the spectrum product on offer, including the procedures required for the award of the spectrum and the licence conditions that may apply to the spectrum licences to be issued.
- 3.2 This section provides Optus' detailed comments on the Draft Marketing Plan.

### **Licence commencement and duration**

- 3.3 Optus supports the proposed licence durations, with common licence expiry dates. However, we consider that, in line with auction procedures, a common licence commencement date of mid-April 2024 should be considered.

#### Licence duration

- 3.4 Optus broadly supports the proposed licence duration for the 3.4 and 3.7 GHz licences on offer. However, Optus strongly urges that licences in the 3.4 GHz areas be subject to defragmentation process as a condition of issue. The marketing plan proposal includes:
- (a) For the 3.4 GHz licences: approximately 7-year spectrum licences, with common expiry date of 13 December 2030 with already allocated spectrum licences in the 3.4 GHz band; and
  - (b) For the 3.7 GHz licences: 20-year spectrum licence. All licences are expected to be issued with a common expiry date.
- 3.5 There remain longstanding fragmentation issues in the 3.4 GHz band following different historic allocations (whether through process, frequency lot and geographic lot configurations) of spectrum between 3400-3700 MHz. This has led to a jigsaw puzzle of sorts for access and utilisation of the 3.4 and 3.6 GHz spectrum across the industry.
- 3.6 Engaging in a holistic defragmentation process across the entirety of the 3.4/3.6/3.7 GHz bands should be a key consideration for any prospective spectrum licensee following the close of this auction process.

#### Licence commencement

- 3.7 Optus supports the principle that spectrum licences only commence following payment of the spectrum access charges, however considers that a delay in the proposed licence commencement be considered.
- a) For the 3.4 GHz licences, Optus considers that the requirement to engage in a holistic defragmentation process in the band should be advised to all prospective licensees before the issue of any licences.
  - b) For 3.7 GHz licences, Optus considers an 8-week period following auction announcement insufficient and, given the indicative timetable, this should be extended to accommodate for any Christmas/New Year period that the invoicing and approvals may overlap with. Ideally this period should only commence following the completion of any affiliations assessment and the issue of the final invoice following completion of the auction process.

- 3.8 Optus supports a common commencement and expiry date for 3.7 GHz band. We consider that setting a licence commencement from mid-April 2024 would sufficiently cover for any potential auction delays.
- 3.9 For example, this may include a clash with the Christmas/New Year period, as well as allow for any delays to the auction commencement due to issues identified with the auction system during the mock auctions, extended recess during the first auction and the second auction, any extended bidding.
- 3.10 At the very minimum, Optus considers that a 12-week period following auction announcement for licence commencement should be retained. This is in line with the approach adopted during the 26 GHz auction.<sup>6</sup> Ideally, this should apply to both the 3.4 and 3.7 GHz spectrum licences awarded at auction.
- 3.11 Optus further notes that payment terms for the spectrum licences should include the option to make either an upfront payment or instalment payments, with the upfront payment or the first instalment payment to be paid prior to licence commencement from mid-April 2024.

### **Licence renewal statement**

- 3.12 Optus supports the proposed licence renewal statement for the spectrum licences to be issued in the 3.4 and 3.7 GHz sections of the band. In particular, we welcome the clarity of having each of the specific periods defined upfront as this provides prospective licensees with the certainty required for network investment decisions and to prepare for any subsequent renewal processes.
- 3.13 However, we note the disparate timeframes being considered for the 3.4 GHz licences, suggesting that renewal discussions may not be considered until two years prior to licence expiry. This is counter to industry expectations for the remainder of the existing 3.4 and 3.6 GHz licences, where we expect such renewal discussions to commence five years prior to licence expiry, which would be in 2025 at the latest.
- 3.14 Optus therefore considers the licence renewal statement for the 3.4 GHz spectrum on offer should be amended to reflect the expectation for licence renewal discussions for the remainder of the 3.4 GHz band. For the same reason in support of a common licence expiry date, the same expectation for licence renewal discussions should be applied.

### **3.4 GHz spectrum licences**

- 3.15 The ACMA is proposing the following timeframes for the 3.4 GHz licences on offer:
- i. Renewal application period – commencing 2 years before licence expiry, i.e. 13 December 2028
  - ii. Renewal decision making period – 6 months from the end of the renewal application period.
- 3.16 Additionally, the ACMA also proposes to include a public interest statement in these licences.

---

<sup>6</sup> Refer to clause 16 in *Radiocommunications Spectrum Marketing Plan (26 GHz Band) 2020*.

- 3.17 While Optus supports the inclusion of the licence renewal statement, in this case also including the requirement for a public interest test to be applied, we consider that the renewal application period should ideally align with the existing spectrum licences already awarded in the 3.4 GHz band.
- 3.18 This would allow all relevant stakeholders, including the spectrum manager and existing spectrum licensees, to consider the entirety of the 3.4 GHz band and any defragmentation process which may not have been commenced/completed as part of a holistic band review during the renewal discussions process for the entirety of the 3400-3700 MHz spectrum licensed frequency range.

### 3.7 GHz spectrum licences

- 3.19 The ACMA is proposing the following timeframes for the 3.7 GHz licences on offer:
- i. Renewal application period – commencing 5 years before licence expiry
  - ii. Renewal decision making period – 2 years from the end of the renewal application period.
- 3.20 Optus also notes the absence of a public interest statement but appreciates this means that a longer renewal term (i.e. more than 10 years) on expiry is not excluded upfront.
- 3.21 Notwithstanding the proposed difference in licence expiry date with existing spectrum licences in the 3600-3700 MHz frequency range, Optus also considers that the 3.7 GHz spectrum licensees should not be excluded from any associated defragmentation discussions in the adjacent 3.6 GHz licence areas.

### **Lot configuration**

- 3.22 The 3.4/3.7 GHz band auction will make spectrum available in the parts of the 3.4 GHz band and 3700-3800 MHz frequency ranges. Within this context, there are two important aspects for lot configuration: frequency bandwidth and geographic regions.

### Frequency Lot size

- 3.23 Optus supports the ACMA frequency lot configuration as described in Figure 4 Illustration of frequency lot configuration for the 3.4/3.7 GHz bands.
- 3.24 Optus also supports the ACMA proposal that the leftover lots in the proposed MRC2 area be allocated as 2.5 MHz lots at either side of the available spectrum range.
- 3.25 As the lot sizes and lot frequencies have greater alignment with the existing holdings, this will help facilitate any potential future de-fragmentation of the band.

### **Geographic area**

- 3.26 Optus acknowledges the complexity of the geographical boundaries across the existing 3400-3700 MHz band. The ACMA have presented a well thought out structure which delivers the best outcome considering the existing limitations, to which Optus supports.
- 3.27 Optus agrees with the overall structure and rationale behind the geographic areas proposed by the ACMA. Optus notes that the 3.6 GHz boundaries have been used as the template for the rest of the band configuration. Optus is strongly in favour of this approach as it delivers greater alignment across holdings. This in turn will facilitate better band utility by supporting potential future band defragmentation.

- 3.28 Specifically, Optus supports overall disaggregation of the lots in both the 3.4 GHz and 3.7 GHz bands according to the 3.6 GHz boundaries. This results in the configuration of:
- i. Metro into independent products which align with the 3.6 GHz boundary;
  - ii. All products in the 3700-3750 MHz aligned with the 3.6 GHz boundary;
  - iii. Products in the 3750-3800 MHz to align with the metro 3.6 GHz boundary;
  - iv. Products in the 3.4 GHz areas whilst are not aligned with the 3.6 GHz, will not create any additional complication to an already complex area.
- 3.29 Optus also welcomes the ACMA decision to determine allocation timing for the “urban excise spectrum” until after convening a Technical Liaison Group (TLG).
- 3.30 While the ACMA’s approach is very welcome, Optus continues to consider that an ACMA led defragmentation remains a pre-requisite to realise efficient outcomes for 3.4 GHz spectrum. In particular, the ACMA’s support will be needed to defragment NBN spectrum to the bottom of the band. The overall outcome should be to deliver, to the greatest extent practicable, 100 MHz of contiguous spectrum to MNOs and NBN Co across 3400-3800 MHz.

### **Product naming**

- 3.31 Optus supports the ACMA’s proposed naming convention as set out in Schedule 2 and Schedule 3 of the draft Marketing Plan.
- 3.32 Notably, we welcome the inclusion of column 5 in Schedule 3 that also identifies the existing adjacent licensee for each leftover lot available.

## Section 4. DRAFT ALLOCATION DETERMINATION

---

- 4.1 The draft Allocation Determination sets out auction rules for the spectrum product on offer, including the type of auction, how the auction will be advertised and the payment arrangements for licences.
- 4.2 This section provides Optus' comments on the Draft Allocation Determination.

### Auction procedures

- 4.3 Optus broadly supports the ACMA's proposed auction format to use a 2-stage generic lots clock auction format, with an English open outcry (EOO) format for a secondary stage (if required). The format was previously referred to as the enhanced simultaneous multi-round ascending (ESMRA) auction format, albeit with some minor variations.
- 4.4 A key rationale for using price-based allocation is to ensure that spectrum will be allocated to their highest value use.
- 4.5 Optus strongly supports the continued inclusion of the pre-bidding phase during the Primary Stage, which allows bidders to confirm and commit to their starting demand for the auction. The eligibility secured at registration is not tied to the bidder's first round bid, as these are two very distinct auction mechanics that serve very different purposes – to secure interest in bidding *and* to actively commit to a bid (which may or may not be equal to the interest expressed at registration) – and therefore should be clearly decoupled.
- 4.6 Namely, we consider that all bidders should be given the same opportunity to submit their final start demand during the pre-bidding phase before the commencement of the first round of the auction to reflect any final approved bidding strategy it has adopted.

### Sequencing

- 4.7 The ACMA proposes to conduct the 3.7 GHz band auction, followed by the 3.4 GHz auction with 'at least 5 working days' notice between the end of the 3.7 GHz auction and the start of the 3.4 GHz auction. Inclusive within this period is the requirement for the ACMA to provide an updated recalculation of unused allocation limits for each bidder with 'at least 3 working days' notice before the start of the pre-bidding round.
- 4.8 While Optus supports the proposal to conduct each auction sequentially, we consider each band auction, including the 2 mocks applicable to each band auction, should be conducted in a similar manner (i.e. each mock should only take place before the start of the respective band auction) with bidder's provided sufficient notice before the start of each auction (i.e. 10 working days).
- 4.9 Ideally the mock auction should reflect the bidder specific auction parameters expected to apply to the corresponding band auction. The utility of the mock auction will be promoted where bidder specific information most closely reflects that of the live auction scenario. Similarly, Optus considers that holding the 3.4 GHz mocks prior to the 3.7 GHz auction risks the unnecessary participation of bidders who may choose not to participate in the 3.4 GHz auction following their participation in the 3.7 GHz band auction.
- 4.10 In this context, Optus is concerned the ACMA proposal for a recess period that must comprise a period of 'at least 5 working days', creates bidder uncertainty in terms of both planning and resource management of auction procedural activities. In Optus' view 5 working days is not sufficient notice to ensure that auction participants have enough

certainty to plan and prepare for the second auction. This is particularly concerning given the ACMA's proposal to only provide 'at least 3 working days' notice of the calculation of unused allocation limit and eligibility points for each lot available in the second auction.

*Each band auction, including 2 mocks per bidder, should be conducted sequentially*

- 4.11 Optus supports the proposal to conduct the 3.4 GHz and 3.7 GHz band auctions in a sequential manner. However, we strongly recommend that an extended period between the end of first auction and the start of the second auction should be of sufficient length to enable proper planning and preparation comparable to the arrangements afforded to participants in the first auction.
- 4.12 We consider each band auction to be a separate auction, with different lots and geographic areas, which will result in slight variations in the auction system outputs (e.g. output files, naming conventions used in the output files, etc). There is also the potential for different participants in the first and/or second auctions.
- 4.13 Ideally, each band auction, including the relevant mock auctions for that auction, should be conducted sequentially (i.e. the relevant mock auction conducted prior to the respective band auction). Furthermore, we take the view that each auction should be supported by access to 2 mocks for each bidder in line with past auctions.
- 4.14 An extended period between the auctions should be designed to enable sufficient time for determining any new affiliations and recalculating eligibility points and allocation limits. Necessary bidder-specific updates should be made to the electronic auction system with changes implemented prior to any mock auction for 3.4 GHz.<sup>7</sup> The period should also allow for the completion of the mock auction itself and then a 10-working day notice period prior to the commencement of the second auction. These details should be included in the AIP.
- 4.15 Following the close of a single combined application and registration process for the 3.4/3.7 GHz band auctions, Optus recommends that the following auction sequencing be adopted:
  - i. Prior to the start of the first auction, we anticipate the auction manager would conduct the following auction procedural activities:
    - (i) Confirmation of registration details (including provision of access to Auction System and relevant User Guides);
    - (ii) Mock Auction for first auction (including 2 mocks to be held per bidder);
    - (iii) The date/time of the first auction should be announced after the Mock auction for the first auction has been completed. In line with past auctions, a minimum of 10 working days' notice should be provided, to ensure that any technical issues are resolved prior to the auction being set.

---

<sup>7</sup> In accordance with previous spectrum auctions, the electronic auction system has been populated with the appropriate allocation limits prior to the conduct of the mock auction. Optus supports this approach for the 3.4 GHz auction following the completion of the 3.7 GHz auction.

- ii. First Auction – inclusive of all three stages (Primary including Pre-bidding, Secondary and Assignment)
  - iii. Extended period between end of first auction and start of second auction to enable sufficient timeframe for the recalculation of allocation limits, including necessary bidder specific updates to the electronic auction system and conduct of the mock auction. These matters should be set out in the AIP. During this time, the auction manager would also conduct:
    - (i) Any required affiliations following close of first auction;
    - (ii) Update bidders on recalculated allocation limits and eligibility points for start of second auction. This must be provided at least 3 working days prior to the start of the second mock auction;
    - (iii) Mock Auction for second auction (including 2 mocks to be held per bidder);
    - (iv) Formal notification for the start of the second auction. In line with process for first auction, a minimum 10 working days' notice should be provided following completion of the 2 mock auctions for the second auction.
  - iv. Second Auction – inclusive of all three stages (Primary including Pre-bidding, Secondary and Assignment)
  - v. Completion of auction procedures, including any required affiliations following close of the second auction.
  - vi. Auction announcement of results of first and second auction.
- 4.16 Optus also supports the following sequencing of post auction procedures:
- i. The ACMA to seek each winning bidder to elect to pay upfront or by instalments (estimated to be February 2024 because of Christmas/New Year period and corporate governance requirements)
  - ii. Invoice for first licence instalment payment estimated for March 2024 (20 working days prior to when payment is due)
  - iii. Payment (upfront of first instalment) no earlier than early-April 2024
  - iv. Licence commencement to start no earlier than mid-April 2024
- 4.17 Optus is proposing that the spectrum licences commence mid-April 2024. This is to allow ample time for all the above stages of the two auctions to have occurred, accounting for the resolution of any technical issues, if necessary, sufficient notification of auction start dates plus a potential recess of 3 weeks over the Christmas and New Year break, before or after auction processes are conducted.
- 4.18 Optus considers that this should not require any drafting changes to the draft Allocation Instrument, however clarification should be made in the AIP to ensure that the period between the end of the first auction and start of the second auction is able to accommodate the mocks and notification of the commencement for the second band auction. It is anticipated that the proposed period for mocks (e.g. 2 weeks, which includes the 2 mocks per bidder) for the first auction will similarly be adopted for the second auction during this period, and that once the mocks have been successfully



completed and all technical changes have occurred, the commencement time and date for the second auction is announced.

#### Commencement of auction

- 4.19 Optus does not support the ACMA's proposal to include a power for the ACMA to vary the commencement date and time of the 3.7 GHz band auction once it has been announced. Notably, we do not agree that a delay in the commencement of the specified auction scheduling can be introduced, particularly with only 'two working days' notice', once the formal 'at least 10 working days' notice' for the commencement date and time has been announced.
- 4.20 To allow this discretion undermines the auction process – where the announcement of the first and second round of the primary stage (and more recently the start of the pre-bidding phase) must be made with 'at least 10 working days' notice' – that have long been understood.
- 4.21 Where there is a concern about the operation of the auction system, technical or otherwise, then it would be prudent for the ACMA to only announce the commencement of the specified auction following the completion of all mocks relevant to that auction.
- 4.22 Optus reiterate that it does not support the ACMA's proposed power to delay the commencement of the auction with only two days' notice. Proposing a change in auction commencement date and time with such short notice risks undermining bidder preparatory activities, including planning and other resource requirements. This significantly impacts on bidder confidence in the auction and should be avoided.
- 4.23 Furthermore, internal governance processes of auction participants may not be so flexible as to accommodate for last minute changes to auction scheduling.

#### Auction stages and rounds

- 4.24 Optus broadly supports the 3-stage auction format proposed for both the 3.4 GHz and 3.7 GHz band auctions. Notably, that these include:
- i. Primary stage, including a pre-bidding round. This will be a generic lot auction with price ascending each round until demand in each product area is *less than or equal to* supply. Given a MSR will be included, this may lead to a residual lot (or lots) being available at the conclusion of the primary stage.
  - ii. Secondary stage, as required. This will essentially be a simple clock auction with price ascending for each residual lot until there are no longer any valid bids. The inclusion of a pre-bidding round in this stage will indirectly reduce the need for potential bidders to be required to nominate start demands in the eligibility nomination form, similar to the primary stage. It will therefore give bidders the opportunity to lock in their binding bid based on their eligible start demands prior to the start of the first round in the secondary stage.
  - iii. Assignment stage, for the assignment of lots won during the primary and/or secondary stages. Notably, this also includes the allocation of unsold lots that will also be identified as a contiguous allocation for the purposes of the assignment stage.
- 4.25 In particular, we welcome the continued inclusion of the pre-bidding round at the start of the primary stage (and secondary stage, where required).

### Allocation of leftover lots

- 4.26 In general, Optus supports the ACMA proposal to allocate leftover lots to the adjacent holder of spectrum in line with Option D, however we note the leftover lot will likely still be of low value even to the adjacent existing licensee.
- 4.27 Under the proposed Option D, the set price direct allocation should be set at a level that is no higher than administrative cost to the eligible recipient.
- 4.28 It is also envisaged that the existing adjacent spectrum licensee specified in Schedule 3, can also indicate their interest through the AIP process in the form of a separate form to elect take up of the leftover lot.

### Auction announcements

- 4.29 Optus does not support the ACMA proposal to publish the name of all registered bidders after the Eligibility Deadline, or after the auction completion. This information should continue to remain privy to registered bidders and subject to confidentiality rules. The auction procedures, through the affiliation rules, already notify all applicants with the information on all other applicants. Registered bidders have never been informed if the other applicants become registered bidders.
- 4.30 As noted in the Consultation Paper,
- Under previous auction rules, the ACMA has not publicly announced the identity of all registered bidders. A bidder could publicly announce that they were a bidder in the auction, but could not announce the identity of other bidders in the auction.<sup>8</sup>*
- 4.31 Optus notes that to date, the ACMA has not even informed registered bidders who the other bidders are. Previously, applicants have been informed of other applicants via the Associations form and have signed a Statutory Declaration that the applicant is not affiliated to any other applicant. However no further information is then provided as to the status of the applicants and whether they have all registered.
- 4.32 Optus considers that this should continue to be the case. That is, no public disclosure of participation in the auction either before or after the auction without the registered bidder's consent.
- 4.33 At the conclusion of the auction, the ACMA already publishes in its formal release the successful bidders in the auction process, including the number of lots won and total price paid. It should remain the case that unsuccessful bidders maintain the discretion to disclose their participation in the 3.4 GHz and/or 3.7 GHz band auctions.
- 4.34 Optus also recommends that the ACMA inform all applicants that for any applicant or registered bidder, to disclose the participation in the 3.4 GHz and/or 3.7 GHz band auctions (or any auction) of other bidders without the other bidder's permission is not recommended.
- 4.35 Therefore, there should be no change to the drafting set out in the draft Allocation Determination on this matter.

---

<sup>8</sup> ACMA, Draft allocation and technical instruments for the 3.4/3.7 GHz bands auction, Consultation Paper, February 2023, pp.45-46

- 4.36 Optus would support all registered bidders being informed after the Eligibility Deadline, who the registered bidders are (i.e. have all applicants registered). This would be providing new information to registered bidders and would support the auction process.

### **Auction rules**

- 4.37 Other important elements applicable in this proposed auction format, include:

- i. Information policy;
- ii. Minimum spectrum requirement;
- iii. Activity rule and eligibility requirement;
- iv. Assignment stage pricing rule; and
- v. Calculation of the insignificant holdings threshold.

- 4.38 Optus comments on these auction elements below.

#### Information policy

- 4.39 Optus supports a full information policy be adopted for this auction given the need for all bidders to make fully informed price decisions. This means that exact excess demand would be provided in round output files.
- 4.40 At the end of each clock round in the Primary Stage, bidders are typically provided information about the demand observed during the round. This facilitates price and allocation discovery, allowing auctions to operate in an open and transparent fashion.

#### Minimum spectrum requirement

- 4.41 Optus supports the ACMA proposal to facilitate the inclusion of a minimum spectrum requirement (MSR) for this auction, with the accepted view on the utility of 10 MHz of mid-band spectrum.
- 4.42 As such, Optus supports ACMA's proposed *Option 3: MSR of 2 lots*<sup>9</sup> to be adopted. An MSR of 2 lots was successfully applied in the 3.6 GHz auction completed in 2018. Optus agrees with the ACMA that increasing the MSR to 4 lot increases the likelihood of unsold lots.

#### Activity rule

- 4.43 Optus supports the ACMA proposal to use a global activity rule for this auction, noting that the level of the activity rule will be consulted on with registered bidders after the close of applications.
- 4.44 Optus considers one of the main purposes of the activity rule is to ensure auction progress, as it provides one of the key triggers for an Eligibility-reducing round.
- 4.45 Given the auction structure and the role of the bid processing algorithm, Optus therefore welcomes that reduced risk that an eligibility-reducing round may occur due to partial

---

<sup>9</sup> ACMA, Draft allocation and technical instruments for the 3.4/3.7 GHz bands auction, Consultation Paper, February 2023, p.47

fulfilment of bids since eligibility will be based on the higher of the bids placed or the bids processed. This approach was adopted in the 3.6 GHz and 26 GHz auctions and should be applied for this auction.

- 4.46 Optus supports a 90% activity rule for the 3.7 GHz as per the initial activity rate in the 3.6 GHz auction in 2018. However due to the fragmentation of the 3.4 GHz auction, Optus supports a 100% activity rule.

#### Assignment stage pricing rule

- 4.47 Optus supports the ACMA proposal to use the nearest Vickrey core pricing algorithm for determining the winning prices in the assignment stage.
- 4.48 The ACMA also notes that:
- i. Any unsold lots will be treated as a single contiguous lot and will not pre-assigned to any part of the band; and that
  - ii. Prior to the start of the Assignment stage, that winning bidders will be provided with their feasible frequency options for each product at least 24 hours before commencement of the Assignment stage.
- 4.49 Optus welcomes this clarification and considers that the 'at least 24 hours' requirement should also include at least one full working day for winning bidders to consider their assignment round strategies.
- 4.50 For the 3.7 GHz auction, Optus also notes that while we agree there should be no pre-assignment of frequencies for unsold lots, we consider that in the event there are no stated preferences for frequency assignment in areas where there are unsold lots then the default position for the unsold lot assignment should be at the top of the band (i.e. aligned with 3750 MHz in rural areas and 3800 MHz in regional areas).
- 4.51 While the likelihood of this event is low, Optus considers that a positive outcome could be delivered by a minor amendment to the "tie breaking" rules in clause 141(3). This amendment would ideally allow for unsold lots to default to top of band where there has been no expression of value for that position by other bidders.
- 4.52 In addition, Optus supports resumption of the auction after recess days at the beginning of an auction day (i.e. to commence at 9am) and not part way through the day. This is to avoid any confusion regarding when bidding activity is to recommence and ensures that any internal governance processes can be implemented accordingly.

#### Insignificant holdings threshold

- 4.53 Optus disagrees with the insignificant holdings threshold being set to 30%. Optus believes that 15% should be adopted for the following reasons:
- i. Precedent for 15% has already been made in the same band for the 3.6 GHz auction in 2018.
  - ii. Setting the limit to 30% will further entrench misaligned holdings across the band. This may undermine any future defragmentation activities and objective to harmonise the band in the long term.
- 4.54 As an example, consider Telstra's holdings in Rural VIC Upper. Telstra have 82.5 MHz across 26.4% population and 50 MHz across 100% population.

- i. If the insignificant holding threshold is 30%, then Telstra has 50 MHz and can gain a maximum 90 MHz to meet a 140 MHz allocation limit. This would then deliver 172 MHz to 26.4% of the population. As a by-product of this Telstra would then be ineligible to bid on the 3.4 GHz lots in the second round of the auction.
  - ii. If the insignificant holding threshold is 15%, then Telstra has 82.5 MHz and can gain a maximum 55 MHz to meet a 140 MHz (137.5 MHz) allocation limit. There would be a deficit of 30 MHz across the 73.6% of the population. However, Telstra would still be eligible to bid on Regional VIC Middle and Rural VIC Lower/Middle where there is 40/65 MHz available in each. Encouraging existing 3.4 GHz spectrum owners to increase their holdings in the misaligned areas would have the benefit of creating greater geographical alignment between the 3.4 GHz and 3.6/3.7 GHz and provide more incentive to defragment the band.
- 4.55 There remain longstanding fragmentation issues in the 3.4 GHz band following different historic allocations (whether through process, frequency lot and geographic lot configurations) of spectrum between 3400-3700 MHz. This has led to a jigsaw puzzle of sorts for access and utilisation of the 3.4 and 3.6 GHz spectrum across the industry.
- 4.56 The ACMA should, through this allocation, seek to remove as many impediments as possible to defragmentation of this band. Any instruments or auction parameters that have the effect of reducing the possibility of defragmentation should be avoided.

### **Allocation limits**

- 4.57 The ACMA seeks views on the following three options for allocation limits:
- i. Option 1: 140 MHz limit in both metropolitan and regional areas in the cross-band frequency range of 3.4-3.8 GHz
  - ii. Option 2: 140 MHz limit in metropolitan areas and 160 MHz in regional areas in the cross-band frequency range of 3.4-3.8 GHz
  - iii. Option 3: No limits
- 4.58 The ACMA also seeks comment on a number of specific matters relating to the allocation limit options.

### **Proposed options for allocation limits**

- 4.59 Optus does not consider that the ACMA's approach to allocation limits is likely to deliver on the policy objectives set out in the MPS. In particular, the proposed allocation limits appear to place too great an emphasis on the need to avoid unsold lots. This emphasis comes at the expense of competition and regional connectivity goals.
- 4.60 In Optus view, all of the proposed options for allocation limits will enable Telstra to entrench its dominance in regional spectrum holdings relative to other MNOs (notwithstanding NBN Co's existing holdings). This will limit Optus' capacity to invest and compete in regional deployment, thereby undermining the regional connectivity and competition objectives.
- 4.61 Optus consider that allocation limits must be informed by the need to (i) promote competition in downstream markets for the long-term interests of end-users and encourage investment in infrastructure including regional Australia; (ii) support the

deployment of new and innovative technology, including 5G. Based on these factors, the ACCC recommended 140 MHz allocations limits in both metro and regional areas.

- 4.62 Optus supports 140 MHz allocation limit in metro areas and a 100 MHz allocation limit in regional areas. We have adjusted our initial position of 100 MHz in metro and regional based on the ACCC's advice on for 140 MHz allocation limits in both metro and regional, while continuing to remain concerned about the potential for Telstra to monopolise spectrum in regional areas.
- 4.63 Telstra's market power, particularly in regional areas, is built in part on its significant spectrum holdings. For example, Telstra has between 50 to 80 MHz of its own regional spectrum in the 3.6 GHz.
- 4.64 Spectrum in the 3.4 GHz to 3.8 GHz range is substitutable. It is crucial that allocation limits are applied to the acquisition of 3.4-4.0 GHz spectrum particularly given Telstra's significant regional spectrum holdings relative to other MNOs as well as the existing and potential third-party authorisations for 3.6 GHz spectrum between TPG and Telstra.
- 4.65 For these reasons, we support a 100 MHz allocation limit in regional areas, and oppose any limit that would allow Telstra the opportunity to accumulate more than 35% of the spectrum available to MNOs through this auction for any particular geographic area.
- 4.66 If Optus were obliged to choose one of the options presented in the ACMA's consultation paper, then our preference would be for Option 1 (140 MHz limit in both metropolitan and regional areas in the cross-band frequency range of the 3.4 – 3.8 GHz) which reflects the ACCC's advice of 1st August 2022. However, Optus still considers that this option risks harm to mobile competition in regional areas by providing Telstra with the opportunity to acquire the vast majority of the 3.7 GHz spectrum on offer.
- 4.67 In response to the specific issues for comment in the consultation paper, Optus notes:
- i. Telstra has a strong incentive to monopolise 3.4/3.7 GHz spectrum. The higher the allocation limit, the greater the opportunity for Telstra to do so
  - ii. Optus does not support "no allocation limits", otherwise the likely result is that the Telstra will acquire most of the spectrum
  - iii. Optus considers that the ACMA's proposed approach of not taking account of third-party authorisations for the purposes of determining a bidders existing holding will undermine the utility of the allocation limits. In the event that the proposed MOCN network sharing deal proceeds, Telstra will be in a position to access TPG's spectrum.
  - iv. Optus does not support the proposal to treat Hobart as metro and suggest that it be considered as a regional area as it was for the purposes of the 3.6 GHz auction.
- 4.68 Optus initially proposed a 100 MHz allocation limit in our May 2022 submission to the ACCC's consultation paper and we reiterate support for this position particularly in regional areas. The ACMA should preference allocation limits that balance the need to maximise the number of lots sold with the need to constrain the potential for Telstra to monopolise regional spectrum. To this end, Optus supports a cross band allocation limit of 140 MHz for metro lots and 100 MHz for regional lots for the purposes of the 3.4 GHz and 3.7 GHz auctions.

### Exclusion from allocation limits

- 4.69 Optus generally support the ACMA's proposal to exclude the "Regional WA Central Middle product" from the allocation limits.

### **Lot ratings and starting prices**

- 4.70 The auction rules propose the introduction of a discretionary power for the ACMA to change the starting prices before the auction. If the starting price changes, then the lot ratings may also change, and the relevant administrative deadlines amended accordingly.
- 4.71 Optus strongly opposes this discretionary power and considers that the clauses set out under Part 4 – Division 5 of the Draft Allocation Instrument be removed. In line with previous auctions, these auction parameters should not be changed after the release of the AIP and the discretion for the ACMA to change any these parameters should also be removed.
- 4.72 Lot ratings provide an indication of the relative value of a spectrum lot, which is then used to determine the bidder's eligibility and ability to continue participating as the auction progresses. In contrast, the starting price sets out the initial lot price at the start of the auction, and from which any bid increments would be applied.
- 4.73 For the purposes of this auction, Optus considers there is a case to support different lot ratings and/or starting prices for each available product on offer.
- 4.74 These are important auction parameters and should not be changed after the AIP has been published, but more significantly should not be changed after the application deadline has closed.
- 4.75 In addition, to do so would also change the bank guarantee amount and require a duplication of corporate governance process. Applicants and bidders need certainty in the process and this additional flexibility that the ACMA is proposing has not been justified.

### Starting prices

- 4.76 Optus submits that consideration of starting prices should take into account the complexity of the band and the need to encourage the completion of a defragmentation process across the entirety of the 3.4-3.8 GHz band to achieve maximum band utility and value. As a starting point, Optus considers a requirement to engage in the defragmentation process should be a condition of issue.
- 4.77 **[CiC Begins]**
- 4.78 **[CiC Ends]**
- 4.79 Optus proposes that the starting prices are set sufficiently low to ensure all spectrum is sold. The higher the starting price, the higher the likelihood that there will be unsold lots and Optus recommends that the ACMA considers this when setting the starting prices for both bands. The starting prices (and lot ratings) for the 3.4 and 3.7 GHz should reflect the difference in licence length and utility.
- 4.80 There should be minimal risk in setting the starting price as this is a well understood band that has been auctioned twice (as recently as 2018) and renewed in 2015, meaning there should be a good understanding of the likely demand and value of the spectrum. The need to reserve the right to change the starting price after the application

process has concluded appears unnecessary and adds greater uncertainty into the process. Optus supports a low starting price and an allowance for subsequent bidding to determine the market value rather than setting an inflated price that may result in unsold spectrum.

### Lot ratings

- 4.81 Optus supports different lot ratings to be applied for each of the different spectrum products on offer. Specifically, we recognise there are some differences in utility of the different lots that may warrant a different lot rating to be established – such as between the 3.4 GHz and 3.7 GHz lots. Optus supports the ACMA engaging in additional consultation on these values once the difference between lot categories are finalised.

### **Application and registration process**

- 4.82 In general, Optus supports the proposed processes and procedures on how the auction will be advertised. As noted elsewhere in this response, we do not support the proposed rules set out under clause 24 and Part 4 – Division 5 of the Draft Allocation Instrument which deal with changes to prices or lot ratings after the release of the AIP.
- 4.83 Optus welcomes the opportunity to upload the auction forms (e.g. application, deed of confidentiality) to a portal, as opposed to sending by email, as this will be much more efficient and secure. In light of the welcome proposal to use a portal, Optus seeks clarification on whether:
- i. the ACMA will confirm receipt of the documents and
  - ii. access to the portal will continue to be available to applicants and registered bidders for the duration of the auction process (e.g. to enable access to and provide updates to Affiliation forms)
  - iii. there will continue to be a hard copy forms booklet to be completed
- 4.84 Optus supports the proposed use of the bank guarantee in lieu of a deposit for the eligibility payment.
- 4.85 Optus further reiterates there should be no discretion for the ACMA to vary the starting prices for any of the lots on offer in the auction once set in the AIP. The impact of a variation on bidders capacity to plan and manage internal governance processes would be significant and undermine the auction.

### The application and registration deadlines should not be subject to change

- 4.86 Optus notes that the general procedures before the auction, including the two-stage application and eligibility requirement processes, are generally well understood and have been adopted in the past. The key deadlines and related requirements for the application and registration are provided to all prospective applicants with the understanding that the decisions and rules for participation are final.
- 4.87 Notably, we acknowledge the Application Deadline sets out the *last day* that a potential applicant can enter the allocation process. This includes the payment of a non-refundable application fee proposed to be set at \$10,000. Only applicants who complete this stage will be able to proceed to the registration stage. Confidentiality provisions for all applicants also formally commence at this point.



- 4.88 However, we are concerned with the ACMA discretion in clause 24 to vary starting prices, lot ratings and deadlines. As such, the rules propose to allow that 'Not less than 5 working days before the eligibility deadline' the ACMA may vary the starting price and lot rating for the lots of each product in the auction.
- 4.89 Optus submits that this introduces uncertainty into the process by both extending the eligibility deadline to accommodate any varied starting price and re-opening the application process to other prospective applicants who have already chosen to foreclose their opportunity to participate by not applying by the Application Deadline in the first place. Specifically, the extension of these 'administrative' deadlines will create additional internal governance issues. For example,
- i. Internal Executive and Board approvals to participate need to be planned well in advance. This will have flow-through implications for securing any bank guarantees associated with the Eligibility Payment.
  - ii. Executive and Board approvals should only need to be sought once for the decision to participate in the auction, and not revisited after it has been approved (i.e., should an auction parameter change).
  - iii. A change in starting price, irrespective of the size of the change, will require a new executive proposal to be submitted, and the internal governance process would effectively need to be restarted.
- 4.90 We do not consider the additional complexity caused by a change to the starting price will be commensurate with the potential to attract additional potential bidders or to increase the appetite for applicants to seek to acquire any additional lots. The simplest way to ensure that the spectrum is attractive to bidders at the start of the process is to ensure that the starting prices are sufficiently low to encourage participation.
- 4.91 If, during the auction, it becomes clear that the bidding is extended because the prices have been set too low, the bidders are able to request an increase in the bid increments or the auction manager can propose this to the bidders. Once agreed to, this can quickly increase the prices.
- 4.92 Optus therefore submits that the ACMA reconsider the need for this discretion to be introduced into the Allocation Instruments.

#### Securing initial eligibility

- 4.93 Optus supports the initial eligibility amount to be set at 10% of the sum of the aggregate start demand (expressed in lots) multiplied by the starting price for the lots of that product, as specified by the applicant in its completed eligibility nomination form.
- 4.94 Furthermore, as noted above, the ACMA should not have the discretion to vary the starting round prices and lot ratings after the AIP is released. A change in starting price will have implications for prospective applicants who chose to secure their initial eligibility by providing a deed of financial security. This should not be allowed.

#### **Affiliated applicants**

- 4.95 The ACMA seeks views on its proposal to:
- i. prevent applicants who are affiliated from participating in the auction as separate bidders

- ii. deem agreements between parties about use or acquisition of the spectrum available for bidding at auction to cause the parties to the agreement to be affiliated. (However, leftover lot spectrum would be excluded from the definition of a 'relevant agreement').
- 4.96 It is Optus' view that the integrity of the auction process is highly dependent on the status of the proposed Telstra-TPG spectrum lease (MOCN) agreement at the time of the auction. If the status of the Telstra-TPG agreement remains undetermined at the time of the auction, then Optus considers that the ACMA must find Telstra and TPG to be affiliated and therefore joint bidders for the purposes of the auction.
- 4.97 Optus reiterates its request that the ACMA postpone the auction until further clarity is provided to the market. We note that the change in market structure (the merger of Vodafone and TPG in 2018) on the eve of the 3.6 GHz spectrum auction, after the allocation limits and reserve price had been set, resulted in the ACMA reserving the right to change the reserve price after the application process has completed for all subsequent spectrum auctions. Optus submit that this experience indicates that the safest and most prudent path forward is to resolve any market structure change or bidding vehicle classification before the auction commences otherwise any allocation limits can be circumvented after the spectrum auction.
- 4.98 Optus understands that the existing and potential third-party authorisations for Telstra to access TPG's 3.6 GHz spectrum do not specifically relate to spectrum that is the subject of this auction. Nevertheless, Optus submit that the recognition of the substitutability of spectrum within the 3.4 GHz and 3.7 GHz bands militates in favour of finding these third-party authorisation arrangements to be "relevant agreements" for the purposes of determining affiliation.
- 4.99 Optus supports the longstanding convention and spectrum auction rule that affiliated parties are treated as one bidder and the allocation limits are applied to the joint existing holdings of the affiliated parties.

## Payment terms

- 4.100 Optus submits that the option to elect instalment payments should be reinstated as per the 26 GHz auction in 2021.
- 4.101 Optus supports the option to make either an upfront payment or instalment payments, with the first instalment payment made at the conclusion of the 3.4/3.7 GHz band auction, with licence commencement to occur from mid-April 2024. Further comments on post-auction processes for payment and licence commencement are also discussed above under auction sequencing.
- 4.102 In particular, Optus proposes that the instalment payments be structured for equal payments over the licence length, for example, for 3.4 GHz it would be 7 instalment payments and for the 3.7 GHz spectrum with a licence length of 20 years would be 20 instalment payments supported by a bank guarantee as per 26 GHz auction.
- 4.103 **[CiC Begins] [CIC Ends]** In contrast, the rationale given for not offering this instalment option for the 850/900MHz auction was that the upfront payment was delayed from the auction in 2021 to payment in mid-2024.
- 4.104 As payment is required for the 3.4 and 3.7 GHz licences shortly after the auction has concluded, Optus would propose that it is appropriate and consistent for an instalment option be offered, supported by a bank guarantee.

- 4.105 Optus supports that the ACMA refunds of the eligibility payment payable to any unsuccessful bidder no later than 6 months after notice is given that their confidentiality obligations have ended.
- 4.106 Optus agrees that any refund of the eligibility payment payable to any unsuccessful bidder by the ACMA be provided within 6 months of the auction results being confirmed. For all other refund of eligibility payments, e.g., where a bidder has secured initial eligibility using bank guarantees, we consider it is appropriate that this remains in place until the final payment has been made.

### **Changes to the Spectrum Licence Tax Determination**

- 4.107 The ACMA proposed to make amendments to the Radiocommunications (Spectrum Licence Tax) Determination 2021 to reflect the allocation of the new spectrum licences to be awarded in the 3700-3800 MHz frequency range.
- 4.108 As such, the proposed amendment seeks to change the base amounts set out in the SLT Determination from \$166,032 for spectrum licensed in the 3400-3700 MHz frequency range to \$221,376 for spectrum licensed in the 3400-3800 MHz frequency range. This change should not affect the current SLT applicable to existing spectrum licensees in the band.
- 4.109 Optus acknowledges that the proposed changes effectively retain the same base amount on a per MHz basis (i.e., \$553.44/MHz) therefore offers no further comment.

## Section 5. DRAFT TECHNICAL FRAMEWORK

---

- 5.1 The draft technical framework sets out the technical framework and licence conditions under which the 3.4 and 3.7 GHz spectrum licences will be offered.

### Key Principles

- 5.2 Optus observes that the key objective of the latest round of technical discussions are intended to provide certainty to likely applicants for participation in the upcoming 3.4/3.7 GHz band auctions. Significant progress has been made in achieving this. However, some issues are yet to be fully resolved.

### Technical Instruments and Core Licence Conditions

- 5.3 Optus broadly agrees with the spectrum licence technical framework (SLTF) and supports the positions set out in the AMTA submission to this consultation.

### Coexistence of radio altimeters with wireless broadband

- 5.4 Optus reiterates its views expressed through the Technical Liaison Group (TLG) relating to co-existence arrangement between WBB services and radio altimeters. We acknowledge that mitigation measures may need to reflect the unique characteristics of the specific circumstances under consideration. However, mitigations should be proportionate to the risk and at this time there remains little to no real technical evidence of the interference risk posed to radio altimeters from 5G services in these bands.
- 5.5 Accordingly, Optus remains of the view that there is no substantiated need for spectrum licensees to implement any mitigation steps below 4000 MHz. Given the evidence of the relatively low financial costs to the aviation sector to update altimeters, Optus continues to query the proportionality of the “precautionary approach”. Nevertheless, Optus appreciates that the ACMA has been confronted with the need to prioritise air safety concerns and as such may find it difficult to take an alternative approach.
- 5.6 Optus supports the ACMA proposal to use 3800 MHz as the mitigation boundary. The extensive WBB deployments up to 3800 MHz in many countries without specific mitigations confirm that a 400 MHz gap is more than sufficient to protect radio altimeters from WBB emissions. Moreover, imposing different conditions on the 3700 – 3800 MHz spectrum licences from those below 3700 MHz will hinder the defragmentation of the band, along with any possible future secondary market trading.
- 5.7 Optus supports the ACMA proposal that the interim mitigations will be removed in their entirety within the proposed time. Optus believes the proposed interim mitigation end date provides more than enough time for the aviation industry in Australia to improve the radio altimeters compatibility, given the recent development in other countries (e.g., IATA<sup>10</sup> claimed the US aviation industry has managed to retrofit 6000 aircraft since the start of the project).

---

<sup>10</sup> <https://airlines.iata.org/analysis/mixed-signals-lead-to-5g-confusion>

## Answers to the Questions in Appendix A

### Question 1

- 5.8 Optus does not support the inclusion of general guidance to WBB licensees to consider radio altimeter issues in their deployments. Once the vulnerable radio altimeters are retrofitted/replaced and the relevant standards are updated, the radio altimeters will be protected from WBB deployments.
- 5.9 The introduction of this requirement below 3700 MHz dilutes spectrum licensee rights during the term of the spectrum licence. Also, as mentioned before, there has been no report of interference despite the extensive deployments in the 3.4-3.7 GHz bands.
- 5.10 The airports, heliports and aircraft operators might be able to use the facilities provided by RFNSA database to register locations of airports and heliports to receive notifications regarding the forthcoming WBB deployments.

### Question 2

- 5.11 Optus highlights the following findings from the studies carried out as part of the Canadian consultation:
- In the over-the-air (OTA) study:
    - No observable anomalies were reported by flight crews during the *qualitative* assessment.
    - In the *quantitative* assessment, none of the two category-1 radio altimeters tested was found to be susceptible to interference from 5G.
  - As per the computational analysis:
    - Limiting the vertical scanning below the horizon had little impact when the combined digital and mechanical tilts were already kept below the horizon.
    - Up-tilting the 5G base station antennas had minimal impact on co-existence with radio altimeters in dense urban areas where building shadowing and clutter loss are a factor.
  - laboratory study demonstrated that adding band-pass filtering at the input of the radio altimeter receiver could mitigate 5G fundamental interference.

### Question 3

- 5.12 While the performance of many existing 5G base stations could, in practice, be better than the 3GPP specifications as per the NTIA ITS report, the emission requirements should not be set more stringent than the 3GPP specifications. 5G base station technologies are evolving fast and upcoming base stations might have different RF emission characteristics – within the 3GPP limits – such as:
- The number of transceivers inside the AAS is increasing.
  - Meeting excessively tight emission limits is very challenging in multi-band base stations due to limited physical space in the antenna systems.
  - Some of the base stations use hand-tuned cavity filters, which results in more variations in the emission levels among the base stations.
- 5.13 Optus believes the imposition of tighter and Australian-specific licence conditions will hinder licensees' ability to deploy 5G networks in a cost-effective and timely manner, and ultimately undermine the potential benefits of fully realised 5G networks for Australia. This is largely due to the delays and costs that would be created by a unique,

non-3GPP compliant framework – bespoke equipment and radios typically take longer to get to market, are more expensive, are often larger and heavier and cause tower loading issues.

- 5.14 One conclusion of interest drawn in the NTIA ITS report was that airborne 5G emission patterns showed measurably, significantly less power compared to 5G base station main antenna beams directed toward UEs at ground level – Please see Optus’ response to Question 7.

#### *Question 4*

- 5.15 While most of the current Australia deployments operate below 62 dBm/MHz EIRP, higher EIRP will be required in future to improve customer experience and network performance. Further developments in AAS technologies provides more efficient beamforming and multi-antenna techniques, which result in higher antenna gain.
- 5.16 It should be noted that increasing the main lobe antenna gain in AAS leads to less interference in the environment in practice; higher gain maximises the signal towards the desired users and minimises the leakage power in other directions. Hence:
- Optus strongly opposes any permanent in-band power restrictions on top of the spectrum licence conditions limit (i.e., 48 dBm/5 MHz).
  - Optus believes the power limits should be defined as TRP instead of EIRP.

#### *Question 5*

- 5.17 Please refer to Optus’ response to question 3.

#### *Question 6*

- 5.18 Please refer to Optus’ response to question 3 and 4.

#### *Question 7*

- 5.19 Optus believes the assumed WBB antenna grating lobe gain level of 18 dBi is too high. It should be noted that this high-gain grating lobe is only created in some AAS deployment scenarios due to the beamforming processes; the non-AAS deployment would not have such high gain side-lobe towards the aircraft. As shown in the ACMA’s “Updated Wireless broadband and radio altimeter study”, the AAS systems are generally less likely to cause interference to radio altimeters compared to non-AAS systems.
- 5.20 Nevertheless, a grating lobe with 18 dBi of gain in AAS systems is very unlikely to occur in practice, as:
- A high-gain grating lobe towards the sky is only formed when the base station pushes the main beam sharply towards the ground (typically when scanning with an angle of 20 degrees or more towards the ground). These extreme beam steering angles are not typically seen in practice as:
    - Most of the close-in UEs have very small pathloss and thereby are served by the low-gain beams and side-lobes.
    - Where a high level of down-tilt is required (e.g., in hotspots and dense areas), mechanical down-tilt is used. Moreover, many of the antennas designed for hotspot areas have a fixed electrical down-tilt.

- ii. In the ACMA's methodology for developing the emission limits for the proposed interim mitigations, the base station antenna was assumed to be directly underneath the aircraft ("*A worst-case base station location concerning path loss*"). However, the high-gain grating lobe does not point directly upward, i.e., with 90 degrees angle. In fact, in most cases, the grating lobe angle is less than 30 degrees above horizon. Hence, the assumed antenna gain towards the aircraft (at 90 degrees above horizon) should be reduced – the typical values are less than 8 dBi. Alternatively, the worst-case base station location should be adjusted based on the distance at which the grating lobe hits the aircraft. Adjusting the base station location would result in a more than 6 dB increase in the calculated path loss for the worst-case scenario.
  - iii. AAS base stations generally generate multiple simultaneous beams, pointing in different directions and serving different UEs. Therefore, the base station transmit power is divided between the simultaneous beams. In other words, the RF power present in any given beam is less than the full EIRP of the base station in most cases. This could be interpreted as having a lower antenna gain (for all the main and grating lobes) in practice.
  - iv. In calculating the base station unwanted emission limits, the AAS antenna elements are assumed to be still correlated at the radio altimeter frequencies. This assumption is too conservative as the radio altimeters frequencies fall outside the operating band on the WBB base stations. The de-correlation of the AAS antenna elements occurs naturally outside the operating band of an AAS due to the group delays in the AAS band-edge filter, which in turn results in the significant reduction of the antenna gain.
- 5.21 Hence, the assumed grating lobe antenna gain is not expected to be more than 12 dBi, noting even this level of gain occurs very infrequently and only in the worst-case scenarios. This conclusion is in line with the findings from the NTIA ITS report regarding the 5G base station pattern measurements, which indicate the maximum radiation pattern power at zenith (overhead) angles above 5G MIMO arrays is often around 20 dB lower than the main beam EIRP.

### Question 8

- 5.22 While it could be technically possible to restrict the AAS scanning angles by restricting the codebooks used for beamforming, this would result in a significant reduction in the AAS beamforming capabilities and performance. The number and types of supported codebooks change with the 3GPP Releases (e.g., Release 15, 16, and 17 support 4, 6, and 7 types of codebooks, respectively) and UEs have different capabilities in terms of supported codebooks. Hence, limiting the codebooks pushes the UEs to non-optimal beams and limits the 5G network performances.
- 5.23 As discussed in Optus' response to question 2, the Canadian consultation indicated that limiting the vertical scanning below the horizon had minimal impact on co-existence with radio altimeters. Based on the Canadian consultation findings, an alternative solution to keep the 5G emissions minimum towards the aircraft could be to set a limit on the combined electrical and mechanical tilts, rather than limiting the scanning pattern of the AAS.