



Submission in response to
ACMA Consultation Paper

**Apparatus licences in the
26 GHz and 28 GHz bands**

Public Version

September 2020

EXECUTIVE SUMMARY

1. Optus welcomes the opportunity to provide feedback to the Australian Communication and Media Authority's (ACMA) Consultation Paper: *Apparatus licences in the 26 GHz and 28 GHz bands*.
2. In particular, this consultation package enables the introduction of area-wide licences (AWLs) into the licensing framework to support:
 - (a) The introduction of millimetre wave (mmWave) band 5G wireless broadband (WBB) services in the range 24.7-29.5 GHz; and
 - (b) Ongoing access to the band by apparatus-licensed fixed satellite services (FSS) earth stations in the range 27-29.5 GHz.
3. Optus' views on each of the following aspects of the ACMA's framework for implementing AWLs in the 26 GHz and 28 GHz bands are summarised below.

Introduction of the AWL licence type

4. Optus reiterates that the introduction of AWL licence types should remain consistent with spectrum licences having priority as set out in the spectrum licensing hierarchy. This hierarchy of rights is especially important given the proposal to allow both spectrum and apparatus licences to co-exist in the same spectrum band.
5. In general, Optus supports the following terms for the introduction of AWL licence types:
 - (a) Limit licence term for AWL licence types to a maximum five-year duration. This should remain the case, even if proposed changes to the Act allow for longer licence terms.
 - (b) The two-round approach for the award of apparatus licences (starting with the spectrum in the non-spectrum licensed frequency ranges, then the spectrum-licensed frequency range). This is subject to both rounds being conducted after the conclusion of the 26 GHz spectrum auction in 2021.
 - (c) Following the completion of the initial application period for each round, spectrum in the specified frequency ranges will remain open for further authorisation on a first-in-time basis.
 - (d) Annual apparatus licence tax price terms to be based on the \$/MHz/Pop construct. Specifically, we also welcome the introduction of the accompanying price calculator to assist potential licensees with the calculation of licence fees.
6. Optus also submits that the AWL licences in the 26 GHz and 28 GHz bands should not be awarded prior to the completion of the 26 GHz spectrum auction. The award of apparatus licences in this spectrum band potentially risks influencing the outcome of the spectrum auction before it is conducted, irrespective of whether the apparatus licences are intended for the same primary use.
7. There is no justification to support the introduction of AWLs being awarded prior to the completion of the 26 GHz auction. Where spectrum arrangements and allocations within the same overall band or frequency ranges exists, such as the 26/28 GHz bands, there should be an overarching principle that any market-based allocation should take precedent over any administrative allocations expected to occur in the same band. It is

not appropriate that administrative allocations pre-empt any potential outcomes for the market-based allocation.

Technical framework for AWLs

8. The spectrum arrangements across the 26 GHz and 28 GHz bands are complex, with clear segments identified across the bands; each with different licensing conditions, and hence the different licensing arrangements.
9. Optus acknowledges that the overarching apparatus licence conditions for AWLs in the 26/28 GHz bands are set out in Schedule 1 of the *Radiocommunications Licence Conditions (Area-Wide Licence) Amendment Determination 2020 (No. 1)* (AWL LCD). Further detail on operation of the 26/28 GHz AWL is also set out in the *Licensing and coordination procedures for area-wide apparatus licensed services in the 26/28 GHz bands* (RALI [new]) and RALI MS 38 for coordination between AWL-authorised earth stations and existing point-to-point fixed links.
10. However, there is also uncertain demand for apparatus licences. Further, the licence conditions for the 26 GHz spectrum licences are not due to be finalised until late November 2020, while scientific licensing arrangements apply until late February 2021. Optus also notes that the consultation on class licensing arrangements in the lower part of the 26 GHz band has just commenced.
11. It would therefore be premature to expect interested parties to apply for, and be allocated, AWLs prior to the finalisation of all technical frameworks in the band; including the release of final licence conditions for spectrum licences and the applicable period of any scientific licensing arrangements that apply in the band.
12. We maintain that the licence hierarchy and property rights associated with each licence type – spectrum licences, followed by AWL or apparatus licences, then class licences – should be adhered to for interference resolution between licensees.

Allocation of AWLs

13. Given the uncertain demand for apparatus licences in the 26 GHz and 28 GHz band, the ACMA is proposing to issue AWLs in two allocation rounds, subject to negotiation and assessment of applications. Subsequent AWL allocations will revert to the first-in-time basis typically applied to administrative apparatus licence allocations.
 - (a) Round 1 – areas outside spectrum licensed frequency range – the allocation of apparatus licences in 24.7-25.1 GHz and the 27.5-29.5 GHz ranges, Australia-wide; and
 - (b) Round 2 – areas inside spectrum licensed frequency range – the allocation of apparatus licences in 25.1-27.5 GHz in areas outside spectrum licensed areas.
14. Optus broadly supports the two-round approach for the administrative allocation of apparatus licences but considers the application and allocation of AWLs in all areas should only take place after the completion of the spectrum auction in 2021.
15. Optus similarly considers that Round 1 could be further disaggregated into the separate frequency ranges, with the lower 24.7-25.1 GHz segment to be allocated as a separate round or deferred to Round 2 and offered after the spectrum auction has concluded. In

principle, we strongly support that any administrative allocations should only take place after the completion of the spectrum auction.

16. We also welcome the release of the ACMA's proposed set of decision-making principles to resolve competitive tension that may arise from overlapping applications in the initial AWL allocation rounds. We also note that the ACMA may choose to not issue apparatus licences where there is insufficient bandwidth available to accommodate all applicants.
17. Optus notes that the timelines are very short between the end of the consultation process and the proposed start of the Round 1 application process. This could impact on the quality of the applications made and, in turn, the likelihood of applicants succeeding in their bid for AWLs. Optus encourages the ACMA to provide sufficient time and information to allow considered applications for AWLs from prospective licensees.
18. Finally, Optus submits that the ACMA should take into account whether allocations promote competition and the development of a competitive market, especially given that Telstra has 75% plus revenue market share in the enterprise market. The ACMA should ensure that AWLs cannot be used by the dominant supplier of enterprise services to further entrench its legacy dominance into new and emerging technologies and use cases.

TECHNICAL CONSIDERATIONS ACROSS THE 26/28 GHz BANDS

19. The spectrum arrangements across the 26 GHz and 28 GHz bands is complex, with clear segments identified across the bands. These also delineate the different licensing conditions, and hence the different licensing arrangements, that apply to each segment.
20. Optus acknowledges that the overarching apparatus licence conditions for AWLs in the 26/28 GHz bands are set out in Schedule 1 of the *Radiocommunications Licence Conditions (Area-Wide Licence) Amendment Determination 2020 (No. 1)* (AWL LCD). Further detail on operation of the 26/28 GHz AWL is also set out in the *Licensing and coordination procedures for area-wide apparatus licensed services in the 26/28 GHz bands* (RALI [new]) and RALI MS 38 for coordination between AWL-authorised earth stations and existing point-to-point fixed links.
21. Concurrent to this process, the ACMA has also recently closed submissions on the technical instruments for the technical framework for the 26 GHz spectrum licences to be auctioned in 2021, however these are not due to be finalised until late November 2020. The ACMA has also just commenced consultation on the class licensing arrangements to be introduced at the lower part of the 26 GHz band.
22. It would therefore be premature to allocate AWLs prior to the finalisation of all technical frameworks. We maintain that the licence hierarchy and property rights associated with each licence type – spectrum licences, followed by AWL or apparatus licences, then class licences – should be adhered to for interference resolution between licensees.
23. Optus also directs the ACMA to the Australian Mobile Telecommunications Association (AMTA) submission to this consultation for further detailed technical comments and specific proposed changes to the draft AWL technical instruments.

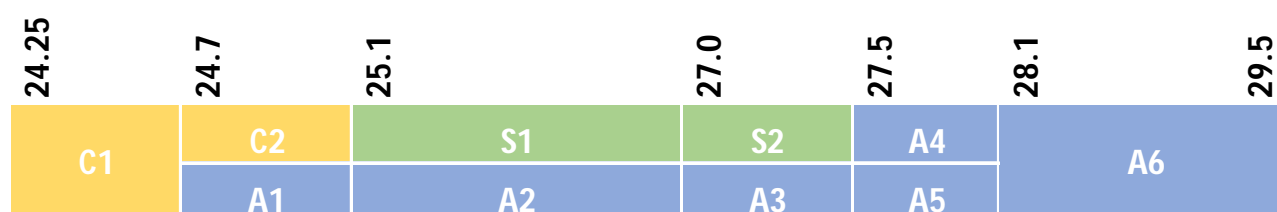
ALLOCATION OF AWLS IN THE 26/28 GHz BANDS

24. The spectrum arrangements across the 26 GHz and 28 GHz bands is complex, with clear segments identified across the bands and optimised for particular use cases. A total of 4800 MHz will be made available for apparatus licensing as 96 x 50 MHz channels (which can be aggregated) across the frequency range 24.7-29.5 GHz in aggregable geographic cells (based on HCIS 00 level cells).
25. On this basis, the ACMA is proposing to issue AWLS in two allocation rounds:
 - (a) Round 1 – A1, A4, A5 and A6 – the allocation of apparatus licences in 24.7-25.1 GHz and the 27.5-29.5 GHz ranges, Australia-wide; and
 - (b) Round 2 – A2 and A3 – the allocation of apparatus licences in 25.1-27.5 GHz in areas outside spectrum licensed areas.
26. In each round, the ACMA will have an application window, followed by an assessment of whether there are any applications competing for an overlapping area in the same frequency range. If there are no competing applicants, the ACMA will issue licences according to the RALI. Competing licences will move to a second stage in which the competing spectrum demand will be resolved (i.e. the ACMA will take into account the defined principles when considering licence applications).
27. However, we also seek additional details regarding the timing and processes to be employed as part of the assessment of applications and the means by which conflict is to be resolved. The current principles are insufficient to provide the relevant guidance to applicants on the considerations that will be undertaken in the event that contestability arises.
28. Once these initial rounds are completed, the issue of apparatus licences will revert to the first-in-time basis typically applied to administrative apparatus licence allocations.
29. In general, Optus broadly supports the two-round approach for the administrative allocation of apparatus licences but considers the allocation of AWLS should only take place after the completion of the spectrum auction in 2021. The award of apparatus licences in this spectrum band potentially risks influencing the outcome of the spectrum auction before it is conducted, irrespective of whether the apparatus licences are intended for the same primary use.
30. Optus also supports AWL licence types to be limited to a maximum five-year duration. This should remain the case, even if proposed changes to the Act allow for longer licence terms. Optus also acknowledges the ACMA's preliminary position on the renewal of AWLS with certainty on renewal to be communicated to licensees no less than three months before the expiry date of the licence.
31. The remainder of this section sets out Optus' comments on the allocation terms proposed by the ACMA for the issue of AWLS in the 26 GHz and 28 GHz bands.

The award of AWLs in the 26/28 GHz bands should take place after completion of the 26 GHz auction

32. Optus considers that the award of AWLs should take place after completion of the 26 GHz spectrum auction. As discussed in the previous section, there will be a mix of spectrum licensing types in the 26 GHz and 28 GHz bands and the various technical frameworks have yet to be finalised.
33. Figure 1 sets out the proposed licensing arrangements for different segments across the 26 GHz and 28 GHz bands. Notably, it highlights that there will be multiple frequency ranges in the 26 GHz band where different licence types will co-exist.

Figure 1 Overview of planning arrangements in the 26/28 GHz bands



C1/C2: Class licensing arrangements for wireless broadband services (subject of a separate consultation process)

S1/S2: Spectrum licensing (subject to auction)

A1: Apparatus licensing (Australia-wide) Restrictions on the number of base stations to manage interference by preventing wide and dense deployments.

A2: Apparatus licensing (outside specified areas).¹ Includes additional conditions to protect space research service earth receive stations.

A3: Apparatus Licensing (outside specified areas). Additional conditions to protect domestic FSS uplinks.

A4: (inside specified areas). Restricted to FWA/FSS on a primary access basis and ubiquitous FSS on a secondary access basis.² Additional conditions to protect domestic FSS uplinks.

A5: (outside specified areas). Restricted to fixed wireless on a secondary basis with regards to primary fixed satellite users (fixed gateway and ubiquitous earth stations). Additional conditions to protect domestic FSS uplinks.

A6: (Australia-wide). Restricted to fixed wireless on a secondary basis with regards to primary FSS users (fixed gateway and ubiquitous earth stations). Additional conditions to protect domestic FSS uplinks.

Source: ACMA

34. Figure 1 also highlights clear licence constraints will also be imposed in different segments of the band, including across each of the identified segments for apparatus licensing arrangements.
35. Optus is concerned that the proposed early issue of AWLs in areas adjacent to spectrum licences prior to the spectrum licence outcomes being resolved will be premature. This is pertinent for both interference management, and its influence on the potential outcome

¹ 'Specified areas' in A2, A3, A4 and A5 are large population centres as named in the [Radiocommunications \(Spectrum Re-allocation—26GHz Band\) Declaration 2019 \(the Re-allocation Declaration\)](#).

² For both A4 and A5 class licensed ubiquitous FSS earth stations are contingent on the appropriate space receive apparatus licence being in place. Expansion of regulatory arrangements supporting ubiquitous earth stations below 28.3 GHz requires amendment to the CSO class licence which will be subject to a separate consultation process. The extent of any expansion will be determined by the viability of different types of ubiquitous earth stations to coexist with primary uses.

of the auction irrespective of whether the apparatus licences are intended for the same primary use.

36. Optus is also concerned with the perception that implicit demand for AWLs in Round 1 may influence auction parameters, including reserve prices, for the 26 GHz auction. This issue is also heightened given the ACMA's acknowledgement that prices for AWLs may be adjusted in light of developments in domestic markets that have occurred or will occur over time, e.g. as a result of the auction.

Administrative allocations should not influence the outcomes of an auction

37. Optus submits there is no justification to support the introduction of AWLs being awarded prior to the completion of the 26 GHz auction.
38. Where spectrum arrangements and allocations are within the same overall band or frequency ranges exists, such as the 26/28 GHz bands, there should be an overarching principle that any market-based allocation takes precedent over administrative allocations. This principle should also extend to timing of allocations, particularly where a market-based allocation, such as the 26 GHz auction, has already been foreshadowed.
39. It is not appropriate that administrative allocations pre-empt any potential outcomes for the market-based allocation.
40. Optus is concerned that the award of apparatus licences, irrespective of any licence conditions imposed, represents a significant risk to the auction process.
41. While the ACMA may argue that it may be beneficial for prospective bidders to know their potential 'neighbours' prior to the auction, it is not clear that there is sufficient demand to warrant the expedited release of the AWL licensing arrangements or that the market will respond accordingly.
42. Rather, the proposed timing and process for administrative allocation will create market uncertainty for the auction process – at best it threatens to distract and distort the auction, and at worse to derail the efficient auction process. For example, if a potential bidder is able to acquire large allocations of AWLs prior to the auction, this could undermine the allocation limits that have been announced. This complication may also arise where an AWL application proceeds to a "stage 2b" scenario (i.e. insufficient spectrum for all applicants) and the ACMA may need to assess winners by "beauty contest" on such factors such as "spectrum denial". It is not clear that this assessment will be possible before the outcome of the spectrum auction has been finalised.
43. A key concern with AWLs being issued prior to the auction relates to the timing of the release of all technical frameworks – including the technical licence conditions for Spectrum, AWL and Class-licensed used – to apply across the 26/28 GHz bands and the setting of the relevant price terms for the AWLs. The ACMA has clearly acknowledged that across the apparatus licensing arrangements in the 26/28 GHz band, different segments will also be subject to different technical constraints.
44. It is not clear that setting a uniform price point, absent domestic benchmarks and consideration of the technical frameworks, will facilitate the efficient allocation and efficient use of the spectrum. While a uniform price point for AWLs may be one possible outcome, there is insufficient information at this stage to ensure transparency over the technical constraints for all licensing arrangements in the band and to warrant the current proposed price level.

45. Given the auction is scheduled to take place less than 3-4 months after the completion of the proposed Round 1, we consider it would be prudent to await the outcome of the auction to ensure transparency and provide a relevant domestic benchmark before the conduct of any allocation rounds for the award of AWLs.
46. At the minimum, Optus considers there should be full transparency over all technical constraints for all licensing arrangements in the band and the availability of a suitable domestic benchmark (given the time proximity of one being made available in the relevant band) to guide any decision on the price terms to be applied to the administrative-based allocation of AWLs in this band.

The two-stage application approach

47. In general, Optus broadly supports the two-round approach for the administrative allocation of apparatus licences. However, this support is conditional on the allocation of AWLs only taking place after the completion of the spectrum auction in 2021.
48. We similarly support the proposed two-stage approach that has been outlined for the initial allocation of AWLs in each round. That is, for each round:
 - (a) Application window is open to all prospective applicants. While the application form and its detailed requirements is yet to be released, we expect the period will be open for at least 4 weeks. We also welcome the acknowledgement that the timing of application receipt within the window will not be relevant for the consideration of applications. However, Optus notes that the timelines are very short between the end of the consultation process and the proposed start of the Round 1 application process. This could impact on the quality of the applications made and, in turn, the likelihood of applicants succeeding in their bid for AWLs. Optus encourages the ACMA to provide sufficient time and information to allow considered applications for AWLs from prospective licensees.
 - (b) Following close of application window, the ACMA will assess each application based on its merits and the available supply in terms of both geographic area and requested bandwidth. Where there is sufficient bandwidth available, we understand the ACMA will facilitate negotiations between applicants to reach a consensus outcome. However, where there is insufficient bandwidth available, we understand the ACMA will assess applications based on a set of decision-making principles.
 - (c) Optus notes that the proposed Round 1 for AWL applications is being unnecessarily expedited for no significant reason. Optus is also concerned that the potential for large number of AWL applications that are overlapping in frequency and location may undermine or delay the process outlined by the ACMA. For example, despite the ACMA's stated decision-making principles, it is not clear how an allocation outcome may be achieved by end-2020 where there exists contestable spectrum in some areas. As such, we seek additional details regarding the timing and processes to be employed as part of the assessment of applications and the means by which conflict is to be resolved.
 - (d) Finally, Optus also notes that the process for the administrative issue of licences (e.g. payment and licence commencement) have not been addressed. We seek further transparency on these parameters prior to the commencement of any AWL application round.

49. Apparatus licences will then be awarded following receipt of payment for the relevant AWL. However, the ACMA has also acknowledged that it “may adjust the amount of spectrum offered, or offer no spectrum to one or more applicants where there is competing demand.”³ Therefore, there remains the likelihood that an AWL may be issued for an amount or geographic areas that is less than for what was applied.

Minimum and maximum amount of spectrum that can be applied for

50. The minimum cell/channel combination offered in an AWL is a 50 MHz channel with a 500 x 500 metre cell (i.e. HCIS level 00 cell). The maximum amount that can be applied for will be constrained by the amount of spectrum available in the band.
51. For simplicity, AWL cells form smaller subsets of HCIS cells, using the following model:
- (a) One AWL cell is equivalent to one ‘HCIS 00’ level cell
 - (b) There are 12 HCIS 00 cells in one ‘HCIS 0’ level cell
 - (c) There are 25 HCIS 0 level cells in one ‘HCIS 1’ level cell
52. Because geographic areas must comprise of whole HCIS cells, the ACMA has acknowledged that the Australian Spectrum Map Grid (ASMG) is being updated to include the additional HCIS levels⁴ – HCIS 0 and HCIS 00 – required to implement AWLs in the 26 GHz and 28 GHz bands.
53. Importantly, the ACMA notes that interested applicants can combine any number of AWL cells to form a larger geographic area, but large contiguous areas may not be guaranteed. Within these cells, prospective licensees can deploy as many devices as they like, as long as the licence conditions are met including boundary conditions.

Administrative spectrum limits

54. While spectrum limits have been issued for the allocation of spectrum licences in the 26 GHz band, the Minister has not directed the ACMA to apply any spectrum limits for the allocation of apparatus licences in the 26 GHz and 28 GHz bands on the basis that the risk of monopolisation is low. In principle, the same allocation limits should apply to both spectrum and apparatus licences issued within the same frequency ranges.
55. Despite this, Optus welcomes the ACMA’s consideration of what steps it could take to mitigate the residual risk of monopolisation in the bands.
56. As such, the ACMA proposes to address any competitive tension by:
- (a) Using a set of decision-making principles to assess competing spectral demand;
 - (b) Issuing AWLs for no longer than five years; and

³ ACMA, 2020, Allocation of apparatus licences in the 26 GHz and 28 GHz bands, Attachment A: Draft applicant information pack, August, p.9

⁴ The ASMG is being updated to include additional HCIS levels – level 0 cells comprising an area of 1 x 1 minutes and level 00 cells comprising an area of 20 x 15 seconds (equating to approximately 500 x 500 metres).

- (c) Adding an advisory note to each AWL that the ACMA will consider the extent of use of the licence at renewal if there is evidence of alternative demand at that time.
57. It follows that by the end of the expiry of the first AWL licence term, there will be additional information available on the developments in domestic markets that have occurred or will occur over time.
58. Optus further considers that the ACMA should take into account a decision-making framework consistent with s.50 of the Competition and Consumer Act (CCA). Optus notes that any party acquiring an interest in an asset through an AWL will also be subject to the prohibition of acquisitions that would result in a substantial lessening of competition. The ACMA should, at the minimum, take into account the matters that must be taken into account under s.50 of the CCA. Optus also observes that notwithstanding any consideration/decision of the ACMA, the ACCC will have final say on whether the acquisition of AWLs results in a substantial lessening of competition and hence is prohibited.

Decision making principles to assess competing demand

59. The ACMA has proposed the following set of allocation principles to assess applications where there is competing spectral demand. These include:⁵
- (a) Use Case – the allocation (both in quantum and in geography) will be consistent with the proposed use cases of the applications received.
 - (b) Planned Use – the allocation will promote the efficient use of spectrum in a manner consistent with the technical arrangements supporting planned uses.
 - (c) Diversity of licensees – the allocation outcome will facilitate a diversity of licensees offering a variety of innovative technology use cases.
 - (d) Denial of Spectrum – the allocation will consider, for each applicant, the extent to which a denial of the spectrum in question would affect the ability of the applicant to deploy services.
60. While Optus acknowledges the ACMA's proposed set of decision-making principles to assess competing spectral demand, it still remains unclear on what basis the ACMA will assess applications and select winners by "beauty contest" on such factors such as "diversity" and "spectrum denial" when each applicant may represent a unique licensee or use proposition.
61. Optus observes that the criteria listed above makes no reference to competitive or competitive market structure. Optus submits that the ACMA should take into account whether allocation promote competition and the development of a competitive market, especially given that Telstra has 75% plus revenue market share in the enterprise market. The ACMA should ensure that AWLs cannot be used by the dominant supplier of enterprise services to further entrench its legacy dominance into new and emerging technologies and use cases.

⁵ ACMA, 2020, Allocation of apparatus licences in the 26 GHz and 28 GHz bands, Attachment A: Draft applicant information pack, August, pp.10-11

Licence duration and renewal

62. Optus supports the ACMA issuing apparatus licences for a maximum five-year term, even if a longer term becomes available.
63. Given the uncertain demand for apparatus licences, Optus also welcomes the proposed acknowledgement for consideration of licence renewal closer to the licence expiry date in the form of an advisory note to be inserted into each AWL issued.
64. In particular, we welcome the introduction of the advisory note to address concerns surrounding unmet demand and its intended effect as a renewal statement (as proposed under changes to the Act). This will outline that the ACMA, when deciding to renew a licence, will have particular regard to whether the spectrum has been used or if there is unmet demand in the 26/28 GHz bands. Where the latter circumstance is considered, the ACMA will communicate this to the licensee no less than three months before the expiry date of the licence.
65. However, Optus notes that where an AWL is issued within the same frequency range as spectrum licences and the ACMA has considered that unmet demand exists, then much earlier notification of this circumstance should be provided to the licensee to ensure there is no disruption to service continuity as a result.

Price terms for AWLs in the 26/28 GHz bands

66. The ACMA has proposed to set prices for AWL licences based on a fixed AWL tax of \$0.0003/MHz/Pop, where the minimum tax amount is currently set at \$41.49. The ACMA has considered this to be a conservative value, as selected from within the observed international benchmark range of \$0.0001 to \$0.0018.
67. In general, Optus supports the annual apparatus licence tax price terms to be based on the \$/MHz/Pop construct. We also welcome the introduction of the accompanying price calculator to assist potential licensees with the calculation of licence fees.
68. However, it is not clear that setting a uniform price point, absent domestic benchmarks and consideration of the technical frameworks, will facilitate the efficient allocation and efficient use of the spectrum. While a uniform price point for AWLs may be one possible outcome, there is insufficient information at this stage to ensure transparency over the technical constraints for all licensing arrangements in the band and to warrant the current proposed price level.
69. Given the auction is scheduled to take place less than 3-4 months after the completion of the proposed Round 1, we consider it would be prudent to await the outcome of the auction to ensure transparency and provide a relevant domestic benchmark before the conduct of any allocation rounds for the award of AWLs.
70. We therefore consider that the \$/MHz/Pop valuation (to apply in each round) should only be determined following the conclusion of the 26 GHz auction, as this will provide a relevant domestic benchmark to address the ACMA's concern about the limited information about the value of spectrum on offer for administrative allocation, particularly in the mmWave bands.