

OPTUS

Submission in response to
ACMA's draft Five-year
spectrum outlook 2023-28
and 2023-24 work program

Public Version

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EXECUTIVE SUMMARY

1. Optus welcomes the opportunity to provide feedback on the Australian Communications and Media Authority (ACMA) *draft Five-year spectrum outlook 2023-28 and 2023-24 work program* (the draft FYSO).
2. The FYSO is a long-standing document that sets out the ACMA's work programme and highlights key activities to be undertaken during the next 12 months, as well as major spectrum forward allocation activities expected in the short term. The FYSO is also important as a document outlining how the ACMA's future work programme puts the promotion of the long-term public interest derived from the use of spectrum as the key aim of spectrum management.¹
3. Access to spectrum is becoming increasingly dynamic and contested. Assessing the long-term public interest in managing spectrum can be challenging. The reforms to the Radiocommunications Act have provided the ACMA with greater flexibility to respond to competing spectrum demands. Optus generally supports the ACMA's approach to spectrum management and appreciates the transparency afforded by the FYSO.
4. The ACMA's spectrum priorities and work program need to reflect the broader policy and legislative context and this draft FYSO provides welcome insight into how the ACMA intends to utilise its new powers in a new policy context. Optus also understands the FYSO as providing further detail on how the ACMA will deliver on the Government's Statement of Expectations for the ACMA and the ACMA's Statement of Intent in relation to spectrum matters.

Delivering new policy priorities requires focus on key fundamentals

5. Optus supports several of the proposals set out in the draft FYSO. In particular, the ACMA's proposed approach to expiring spectrum licences appears to indicate that the ACMA will be taking a thorough and holistic approach to developing the process steps and the assessment framework and criteria for this crucial project. Continuity of service, market competition, regional connectivity and digital inclusion are all policy objectives that will be affected by the ACMA's preferred approach to future use of this spectrum. Optus calls upon the ACMA to prioritise its work on expiring spectrum licences by establishing a dedicated new workstream within the ACMA to manage implementation.
6. It is well recognised that 5G, as the latest generation in mobile technology with faster speeds, low latency and improved capacity offers significant potential to transform the economy. Optus generally commends the ACMA's efforts to harmonise bands and deliver technical updates to enable 5G. However, Optus reiterates that all MNOs require sufficiently large contiguous blocks of spectrum to ensure effective competition and efficient supply of mobile services. Optus also cautions against any view that future demand, including for 6G, can automatically be met by existing spectrum holdings.
7. As Australia's only dual mobile and satellite network operator, Optus is well placed to understand the importance of well-designed co-existence arrangements to deliver Australia's communications needs. Optus is the only network provider in Australia to own and operate its own fleet of satellites, providing a number of critical and sovereign satellite services to millions of Australians, including support for free-to-air television and radio services (VAST), satellite broadcast capabilities for Foxtel, voice and data services,

¹ Radiocommunications Legislation Amendment (Reform and Modernisation) Bill 2020, Explanatory Memorandum p.20

and emergency connectivity. Optus welcomes the ACMA's recognition of satellite services as an important complement to terrestrial mobile networks.² In Optus view, mobile services will continue to do the heavy lifting in delivering Australia's communications needs, however, satellite communications will play an increasingly important role, particularly in "plugging gaps" in terrestrial connectivity.

8. Accommodating the increased demand for access to spectrum inevitably leads to greater complexity in managing interference risk. In this context, Optus submits that technical frameworks for co-existence should, to the greatest extent practicable, respect existing spectrum licence rights while enabling proven and tested use cases that may be better placed to meet demand and/or public policy objectives. The increased demand for spectrum access should not come at the expense of existing licensed services and long-term investment certainty. Coordination and cooperation between licensees will be most effective when undertaken in the context of workable co-existence frameworks.
9. Optus welcomes the ACMA's recent publication of guidance material relating to its approach to spectrum planning and licensing and allocation following the reforms to the Act. Optus considers that, particularly in the lead up to the expiry of existing spectrum licences, further transparency is required on how the ACMA intends to approach co-existence requests that may directly impact the use and ultimately the value of spectrum licences. Optus looks forward to further engagement with the ACMA on this and other matters to ensure that spectrum arrangements will support the timely realisation of Australia's communications policy and regulatory objectives.

Annual work program 2023-24

10. Optus commends the ACMA for the work program it has undertaken to implement the changes flowing from the Modernisation Act. Optus appreciates that the ACMA has to balance the interests of a very broad range of stakeholders in undertaking its spectrum management functions and responsibilities.
11. Optus sets out its response to the draft FYSO in further detail below. Optus also refers the ACMA to the Australian Mobile Telecommunication Associations (AMTA) submission. Optus generally supports the position set out in the AMTA submission, other than in relation to the issues set out in response to specific questions below.
12. Optus submits that spectrum management over the period of this FYSO must focus on the following key issues:
 - (a) Prioritising the design of the ACMA's approach to the upcoming expiry of spectrum licences – Optus calls on the ACMA to establish a new internal work stream dedicated to delivering this crucial project.

In the interests of informed contributions to the ACMA's initial consultation on expiring spectrum licences scheduled for Q2 2023, Optus calls on the ACMA to ensure that the deadline for submissions is after the Competition Tribunal issues its decision on the proposed Telstra/TPG spectrum lease agreement.
 - (b) Continue work on and prioritise changes to current licensing arrangements in existing spectrum licensed bands (including 700 MHz and 2.5 GHz) to support the transition to 5G.

² Draft FYSO, p.15

- (c) Carefully implement the proposed re-allocation of the 3.4-4.0 GHz band in a manner that will ensure the spectrum allocation process will promote competition in downstream services, particularly in regional Australia.
- (d) Progress the ACMA's options paper on 1800 MHz band in Q3 2023.
- (e) Satellite planning – design spectrum arrangements that promote the proliferation of satellite services in Australia, while ensuring that solutions offered are fit for purpose, avoid unacceptable interference and support domestic satellite operators.
- (f) Supporting the identification of additional mid-band spectrum for IMT to meet future spectrum demand for mobile services. In the short term, prosecute the case for the 7025-7125 MHz band to be identified for IMT and commence work on the upper 6 GHz band following WRC-23. In the longer-term support IMT for segments of 7-24 GHz through to WRC-27 and then domestically.
- (g) Carefully balance the demands for spectrum from satellite and mobile services to facilitate timely and effective delivery of solutions to Government policy priorities to “Close the Gap” and address regional connectivity needs.
- (h) The deployment of advanced 5G networks in both metro and regional areas, in an environment of increasing network costs, declining revenue and uncertain incremental revenue opportunities.
- (i) The importance of ensuring MNOs have sufficient certainty about accessing their licensed spectrum to make use of existing networks and undertake the further investment required for the deployment of mobile services.
- (j) Further industry engagement and guidance materials on the criteria that inform the ACMA's spectrum management decision-making including greater clarity and certainty relating to considerations relevant to co-existence decisions and notions of “optimal use” following the passage of the Modernisation Act.

CONSIDERATIONS FOR SPECTRUM OUTLOOK 2023-28

13. The *Radiocommunications Act 1992* (the Act) requires that the ACMA's regulatory decision-making powers are guided by the need to promote the long-term public interest derived from the use of spectrum. This is to be achieved by ensuring spectrum is managed in a manner that facilitates (i) the efficient planning, allocation and use of the spectrum, (ii) the use of spectrum for commercial or specified public interest purposes and (iii) supports the communications policy objectives of the Australian Government.³
14. Optus generally endorses the ACMA's approach to spectrum management as set out under Part 1 of the draft FYSO. In particular, Optus welcomes the detail provided on the ACMA's intended approach to Government policy proposals on "regional connectivity and satellite communications" and "closing the gap" as well as the recognition of 5G/6G and satellite as key market and technology drivers of change in spectrum demand.
15. The following discussion builds on these topics and identifies key issues that Optus considers that the ACMA should prioritise in its spectrum management functions over the five-year term of FYSO 2023-28.

Broader policy considerations and managing spectrum in the public interest

16. Telecommunications infrastructure is now part of the fabric of our society and economy. The infrastructure and services provide the backbone of our connected, ever-more digital world. Spectrum is of course a key input for any radiocommunications network regardless of technology.
17. The economic significance of spectrum as an essential input to market entry, competition, as well as the importance of radiocommunications as an enabler of broader economic growth necessitates a high degree of economic as well as technical rigour in spectrum management decision-making. In assessing the public interest, Optus submit that the ACMA should prioritise outcomes that maximise the benefit to the Australian economy and ultimately Australian businesses and consumers. To this end, the ACMA should have express regard to economic considerations such as the promotion of market competition, economic efficiency, investment and productivity.
18. The draft FYSO elaborates on matters to which the ACMA has regard when considering the impact that a regulatory proposal has on the public interest. Optus notes the ACMA's confirmation of the wide range of matters that it considers, including "the broader economic, social and competition impacts of a proposal".⁴ Optus welcomes this transparency but considers that certain decision-making criteria such as in relation to optimal or "highest value" use and efficiency considerations remain unclear and warrant further elaboration, particularly in the lead up to the expiry of spectrum licences.
19. Mobile communications are essential for most Australian businesses and consumers. Notwithstanding the increasing importance of alternative technologies, particularly satellite services, to meeting Australia's communications needs, mobile networks are and will remain central to realising economic growth and delivering quality high bandwidth communications services for all Australians.

³ Section 3, Radiocommunications Act

⁴ Draft FYSO, p.6

20. In 2021, Australia's GDP amounted to AUD 1,980 billion and mobile services revenue was estimated at AUD 13.4 billion, equivalent to 0.68% of GDP.⁵ Applying a 1.4% GDP increase (predicted by PwC), the 5G related GDP uplift in Australia may be worth AUD 27.7 billion by 2030.⁶
21. Australia is a leader in 5G (deploying over 7000 operational 5G base stations by early 2022).⁷ The extent and speed of the 5G rollout has had financial impacts for mobile network operators (MNOs), with returns on invested capital halving from 10% in 2017 to under 5% last year.
22. Spectrum management decisions impact the economics of mobile networks – and flow through to the affordability of essential mobile communications services for consumers and the broader economy. Delivering the mobile networks that will support Australia's future economic growth will require sufficient certainty about access to spectrum of sufficient quantity and quality at a reasonable price.
23. Spectrum management should seek to enable MNOs to continue to provide better coverage and more resilient services in periods of high demand, as well as in response to challenges to infrastructure. This includes recognising the market dynamics, economics and long-term sustainability of the telecommunications industry.

Expiring spectrum licences – promoting investment through transparency

24. Following the Modernisation Act, the ACMA is the primary decision-maker for expiring spectrum licences. This necessitates a comprehensive and holistic approach to the design of the processes and the evaluative criteria relating to expiring spectrum licences.
25. While existing spectrum licences are due to expire during the period 2028-2032 – network deployment and investment plans have long lead times. It is important to get the regulatory settings right with sufficient clarity ideally provided before and certainly no later than two years prior to expiry. Undertaking broad consultation at the initial stage of this project will be crucial to its success and should help in the design of a more fit for purpose framework that might otherwise have been developed via piece meal consultation on individual bands.
26. Optus reiterates its view that the ACMA should consider the work program relating to spectrum licence expiry to be of the very highest priority, with its own independent workstream and dedicated resources. In light of the proposed broad scope of the ACMA's upcoming consultation, Optus also takes the opportunity to highlight certain initial considerations that will be relevant to formulating the regulatory settings for expiring spectrum licences:
 - (a) All existing spectrum holdings should be offered for renewal to the respective spectrum licensee – mobile services are and are highly likely to continue to be the highest value or "optimal" use of the spectrum, both from a technical and economic perspective
 - (b) The ACMA's decision-making for renewals must reflect Government policy priorities as well as Australian market conditions with a view to promoting sustainable competition and consumer policy objectives over the long term

⁵ Key economic indicators, Australian Bureau of Statistics

⁶ The global economic impact of 5G, PwC, 2022

⁷ ACCC Mobile Infrastructure Report 2022, p.11

- (c) Spectrum should be renewed rather than re-auctioned – re-auctioning the spectrum creates considerable investment uncertainty and has the potential to cause public harm including undermining continuity of service and competition.
 - (d) Renewal pricing and allocation methods should be designed to enable the economic benefits of 5G and 6G to the Australian economy by ensuring fair, reasonable and suitably certain long-term access to the required spectrum.
 - (e) High renewal prices undermine sustainable competition and investment in 5G and 6G – any short-term benefit of higher renewal fees to public finances should not override broader long term economic benefits that will flow from lower renewal prices.
 - (f) Efficient use of existing network infrastructure should be a relevant consideration in the ACMA’s decision-making relating to expiring spectrum licences and future intended use.
 - (g) Spectrum licence expiry for spectrum should be aligned to the greatest extent practicable, to promote efficient use of spectrum. Optus considers that this may also support holistic engagement on the expiry of spectrum licences, defragmentation, band consolidation and secondary market trading.
27. Optus welcomes the ACMA’s proposal to issue an initial consultation paper in Q2 2023 seeking feedback on a broad range of issues relating to expiring spectrum licences. The implementation of this project will determine Australia’s communications landscape and the success of Australia’s Digital Economy in the long term. Optus looks forward to engaging closely with the ACMA in its design and implementation.

Delivering competitive 5G services

28. The ever-increasing demand for spectrum from high bandwidth services is set to continue with the take-up of 5G. The realisation of the Government’s communications policy objectives requires that the mobile industry is provided with access to the spectrum needed to deliver competitive 5G services for metro and regional Australia. The regulatory settings governing the management of spectrum must be sufficiently clear and certain to encourage investment. Optus retains the strong view that the ACMA’s focus during this FYSO period should be to ensure that existing spectrum assets support the roll-out of competitive 5G networks, particularly in regional areas.
29. Competition remains crucial to delivering new and innovative services to market. The ACMA’s successful allocation of 850/900 MHz spectrum was a significant step towards rebalancing low-band spectrum holdings. However, it remains the case that not all mobile network operators (MNOs) have equal access to spectrum, particularly in regional areas. While this will not in and of itself ensure market competition in regional Australia, the quantum of spectrum held remains a crucial factor to enabling efficient utilisation and ultimately determines the level of investment required to compete.
30. Ideally, in key mid-band spectrum such as that being allocated via the upcoming 3.4 GHz and 3.7 GHz auction, 100 MHz of contiguous bandwidth should be available to all competing MNOs. Telstra currently holds a dominant share of the 3.4 GHz to 3.8 GHz spectrum in many areas of regional Australia. Optus urges the ACMA to carefully

consider the allocation limits and affiliation arrangements applicable to bidding for all lots in the upcoming 3.4/3.7 GHz auction.⁸

31. The realisation of the Government's communications policy objectives requires that the mobile industry is provided with access to the spectrum needed to deliver competitive 5G services for metro and regional Australia. The regulatory settings governing the management of spectrum must be sufficiently clear and certain to encourage investment. The ACMA should, consistent with the objectives of the Act, retain its focus on facilitating changes to current licensing arrangements in existing spectrum licensed bands to best support the transition to a competitive 5G market.
32. The quality of 5G, and ultimately 6G, services will also depend on the quality of the spectrum available to MNOs. The significant investments required of mobile network deployments demand sufficient certainty as to a spectrum licensee's right to utilise its spectrum. Clear evidence of unmet demand should be provided before the ACMA considers requests to access or interfere with licensed spectrum.
33. Optus considers that mid-band spectrum is the next immediate priority for allocation to ensure sufficient spectrum is available in a timely manner for the continued enhancement of Australia's 5G mobile networks. Optus notes that the ACMA has recently stated that "Australia has just under 6 GHz of spectrum available for wireless broadband (WBB) services today" and that "spectrum availability and access is not a current barrier to terrestrial mobile network expansion".⁹ Optus accepts that current spectrum holdings may be sufficient to meet anticipated demand in the short-term. However, it is widely accepted that demand for data is set to dramatically increase with the proliferation of 5G beyond the consumer market to M2M and other industrial and commercial use cases in the future.
34. A recent report from Coleago on behalf of AMTA demonstrated a need for further mid-band spectrum, particularly to address capacity requirements in metro areas. The report concludes that delivering city-wide 5G user experience in an economically and technically feasible manner in the 2025-2030 timeframe will require an additional 427 to 657 MHz of mid-band spectrum for MNOs.¹⁰ Therefore, Optus strongly encourages the ACMA to continue to plan for allocation of mid-band spectrum to mobile services during the term of this FYSO.
35. Furthermore, given industry forecasts of 3GPP 6G specifications in the late 2020's and initial deployments shortly after, Optus encourages the ACMA to closely monitor developments and consider outlining initial plans for 6G in next year's FYSO.

Band harmonisation processes should be supported to promote objectives of the Act

36. Over recent years, the ACMA has undertaken processes to update spectrum band and licence conditions to enable deployment of 5G technologies. Optus supports the ACMA's ongoing work in this area and welcomes the statement in the draft FYSO that "reviewing

⁸ Optus submission to ACMA consultation on Draft instruments for the 3.4-3.7 GHz band auction, March 2023

⁹ Multi-carrier regional mobile infrastructure – ACMA Submission to House of Representatives Standing Committee on Communications and the Arts November 2022; p.4

¹⁰ E.g in Sydney there is a need for 1,230 to 1,440 MHz of mid-band spectrum compared to 703 MHz currently licensed to MNOs. For Melbourne an additional 487 to 727 MHz is needed and for Brisbane it is an additional 279 to 469 MHz. See Coleago, Demand for mid-band spectrum in Australia, available here: <https://amta.org.au/wp-content/uploads/2021/12/Coleago-Report-Demand-for-mid-bands-spectrum-in-Australia.pdf>

the arrangements in bands that are already licensed for WBB is important to ensure existing allocations are efficient and can cater for new technology”.¹¹

37. Optus notes that the ACMA should consider further optimising the structure of industry cooperation when addressing licensing issues. Over time, as IMT technologies have developed and consumer appetite for data services increased, demand has grown for access to large contiguous spectrum portions. Differences in spectrum allocations and mix of licensing types, including across the different regions, as well as differences in geographic definitions have also added band complexities for licensees to address.
38. For example, Optus has noted its concerns about the level of fragmentation in the 3.4 GHz band. It has also been a mix of licensing types that has impeded commercial negotiations to implement defragmentation and efficient use of the band. This example highlights that the review of existing and licensed band arrangements is still required to address the historic band complexities.
39. Optus acknowledges the ACMA’s acceptance of previously provided TLG feedback from Optus and other members of AMTA. At the same time, we reiterate that such industry wide discussions cannot always be delivered via the market, which generally involve bilateral engagement, rather than the multilateral discussions that entire band defragmentation discussions require if they are to achieve long-term efficient outcomes for all relevant band licensees. In such circumstances, such as in relation to fragmentation of the 3.4 GHz band, the ACMA should intervene to support the realisation of its spectrum management objectives.
40. The technical processes of the TLG, while often not getting the attention of other processes, are extremely important in setting the conditions under which licences are allocated. As such, one of the purposes of the TLG is to make public consultation more efficient by enabling informal technical discussions and potential agreement to inform the contents of the ACMA’s public consultation on these technical matters. Optus looks forward to working with the ACMA to ensure TLG outcomes receive the right level of technical contribution from all participants and promote the objectives of the Act.
41. Licence harmonisation and band reallocation and defragmentation are also key steps in enabling allocated spectrum to be used for new technologies. Consistent, manageable and rational licence conditions, structures and supporting instruments are critical to the success of such an activity. This is particularly the case for the deployment of 5G technology, which can be used over multiple spectrum bands. Optus continues to encourage the ACMA to consider the exercise of its powers to intervene or facilitate defragmentation of bands where the market is unable or unwilling to do so.

Regional connectivity and satellite communications

42. As a leading satellite service provider in Australia, Optus welcomes the ACMA’s recognition of the significant technological innovation taking place in the sector and in particular the entry of non-geostationary satellite orbit (NGSO) systems. Optus understands the increasing role that satellite can and likely will play in addressing Australia’s regional and remote connectivity needs and in helping to “Close the Gap”.
43. Optus notes the significant satellite planning activities that the ACMA has undertaken and plans to undertake for 2023-24. Optus’s future launch of the multi-band (Ka/Ku/QV bands) Optus-11 GSO satellite will deliver a new reliable high-capacity broadcast/broadband service that will cater to a wide range of market demand nationally.

¹¹ Draft FYSO, p.17

Optus supports and participates in the numerous Government satellite related initiatives such as the Department's LEO Sat Working Group, targeted at addressing certain longstanding communications policy issues, including the efficient delivery of the Universal Service Obligation (USO).

44. Given the potential of LEO Sat solutions and their relatively recent entry into the Australian market, Optus understands the ACMA's cautious approach to regulatory intervention in relation to licensing. However, Optus continues to encourage the ACMA to investigate the impact of major NGSO/LEO operators on Ku/Ka-band operations in Australia. Given the level of activity and the likelihood of increasing potential for interference in the band, Optus urges the ACMA to continue to consult Australian satellite operators on licence applications from prospective NGSO/LEO operators.
45. While a light touch regulatory model will encourage market entry from operators of large constellations, it is important that existing Australian filed satellite systems have sufficient recourse to the ACMA to resolve interference issues where coordination is unsuccessful. To this end, Optus encourages the ACMA to ensure any regulatory gap that may hinder the transparent and accountable supply of satellite services within the Australian market can be readily overcome.
46. The deployment of new technologies, such as 'direct to mobile handset', present the Government with a real opportunity to reform outdated regulatory arrangements relating to the USO and redirect this funding to support new technology solutions for regional and remote Australia. However, Optus urges the ACMA and the Government to carefully consider the actual capabilities of LEO Sat offerings and their consistency with broader policy objectives in prioritising LEO Sat over other satellite and/or terrestrial solutions.

Co-existence, coordination and cooperation

47. Australia's unique landscape and population distribution mean that its communications and digital economy goals will not be realised by a single technology alone. Indeed, the draft FYSO recognises that the ubiquity of satellite coverage means that satellite services can compete directly with and certainly fill in the coverage gaps in areas that are hard to serve by competitive terrestrial networks.
48. Access to spectrum is becoming increasingly contested and Optus appreciates that the ACMA is tasked with making difficult decisions to balance competing demands for finite spectrum. Increased spectrum use means heightened risks of interference which imposes costs and resourcing constraints on operators to manage. Increased interference also undermines investment certainty and ultimately the value of any spectrum licence under which a service may be supplied.
49. Optus understands that no licensee is entitled to operate in a completely interference-free environment. Carefully designed technical frameworks along with traditional and modern interference resolution techniques (AFC) are all necessary to support co-existence, minimise interference potential and ensure efficient spectrum utilisation.
50. However, while operators can often be relied on to cooperate to resolve interference, disputes can arise, particularly between operators in different sectors. Co-existence is only as effective as the availability of recourse to the regulator in the event of an unresolved dispute. Optus notes that the public benefits of co-existence arrangements must be carefully and transparently weighed against the potential negative impact on investment in well-established and proven business cases.

51. As Australia's only dual mobile and satellite network operator, Optus is well placed to understand the importance of well-designed co-existence arrangements to deliver Australia's communications needs. In light of the inevitability of increasing complexity in interference management, Optus looks forward to closer engagement with the ACMA on establishing workable technical frameworks to ensure maximum spectrum utility while respecting existing licence rights.

Spectrum licensing

52. The deployment of 5G networks will involve substantial investment in new infrastructure and spectrum across the nation. In the context of high-cost investments and low and uncertain incremental revenue, the ACMA must ensure that spectrum licensees are afforded sufficient protections to support continued investment in network deployment and upgrades to deliver the high quality, high-capacity services the market demands.
53. It is well established that spectrum licences are afforded a high degree of exclusivity and certainty under the *Radiocommunications Act 1992* ("the Act"). This has made the licence type suited to supporting long term investments in mobile network deployment to date.¹² This has meant that spectrum licences are valued at a premium, as reflected in the price paid by successful bidders for spectrum at auction.
54. Optus recognises that recent amendments to the Act were made in part to provide the ACMA with greater flexibility in managing increasing and often competing demands for spectrum. However, as recommended by the Spectrum Review, it remains crucial to ensure that "the rights of existing licence holders are not diminished in the transition to the new framework".¹³
55. The proposed introduction of new apparatus and class licensed services within or adjacent to spectrum licensed bands increases the risk of interference—or spectrum denial—to existing spectrum licensed services. This imposes administrative and operational costs on spectrum licensees that were not anticipated at the time the spectrum was purchased. The effect is to dilute or erode the scope of rights that the spectrum licensee had reasonably anticipated could be exercised for the term of the licence. This in turn undermines the certainty required for long term network investment.
56. Optus reiterates its view that AWLs should be subject to the same restrictions and requirements for the purposes of interference management, registration and other related obligations imposed on spectrum licensees. The concept of 'co-primary' status should not apply insofar that use of an AWL impedes on the operational capability and licence conditions, including s145 requirements, set out for spectrum licences issued and operating within the same spectrum frequency ranges.
57. Optus recognises that, in specified circumstances, the ACMA may authorise class and apparatus licensed services to co-exist with spectrum licensed services. However, changes to technical frameworks to accommodate new licensees after the issuance of a spectrum licence also introduces retrospective commercial and operational risk to the provision of services to end users. The ACMA must consider the effect on

¹² ACMA notes "*Spectrum licences have broadly been used to authorise the use of high value spectrum over large geographic areas to support services such as wireless broadband. This stems from the Act providing spectrum licensees with a high degree of exclusivity and certainty, making the licence type suited to supporting scenarios where licensees have long-term investment requirements*"; see *Our approach to radiocommunications licensing and allocation Implementing the Radiocommunications Legislation Amendment (Reform and Modernisation) Act 2020*; March 2021, p.6.

¹³ The *Explanatory Memorandum to the Modernisation Act*, p.7

radiocommunications of the proposed operation of the devices that would be authorised under the licence in deciding whether to grant a licence.¹⁴ Optus encourages the ACMA to ensure it consults with potentially affected spectrum licensees in relation to all proposals for spectrum access within or adjacent to spectrum licensed bands.

Class licensing and spectrum commons

58. Class licences authorise users of designated segments of spectrum to operate on a shared basis. For example, the low interference potential devices (LIPD) class licence authorises the widest range of class-licensed devices, including wi-fi and Bluetooth services. Given the shared nature of these spectrum arrangements, the protection of individual devices from interference in these bands cannot be guaranteed.
59. A class licence such as the LIPD, can be “an effective and efficient means of spectrum management for services where a limited set of common frequencies is employed, and where equipment is operated under a common set of conditions”.¹⁵ It has been this flexibility, and the absence of licensing fees, which have enabled innovation both in technology use and deployment approaches in some class-licensed bands.
60. However, class licencing creates challenges for interference monitoring, management and enforcement – adding exemption overlays will similarly compound this issue, particularly where it applies over a prolonged period or for undefined parameters. This highlights the lack of transparency and clarity regarding the approach to the assessment of exemption applications that seems to have taken place in recent times.
61. Consistent with our view on the need to have suitable administrative arrangements in place to support interference management, Optus supports the use of licensing that requires registration of devices on the RRL as a condition of use. This promotes a degree of transparency that supports more cost-effective interference management.

Spectrum sharing

62. Optus acknowledges the ACMA’s openness to supporting industry-led trials of DSA or other non-traditional spectrum sharing methods, with a role for ACMA in facilitating discussions between affected/interested operators as the need arises. Spectrum flexibility needs to be approached with caution, while still adhering to a framework that respects the rights afforded to existing or future spectrum licences.
63. Secondary market trading, spectrum leasing and geographical licence separation currently provide traditional sharing opportunities to meet existing needs, while allowing the incumbent licensees to control and determine additional uses within their spectrum licence areas. Other technical measures, such as, geographical separation distances between systems, physical shielding, filtering, interference coordination and power limits where necessary may also be considered in some cases.
64. For spectrum sharing to succeed, interference needs to be managed in a way that the utility and value of the available spectrum is not compromised. Optus therefore encourages the ACMA and the Government to consider arrangements that may be suitable to address regional spectrum imbalances.

¹⁴ Subsection 100(4) of the Act

¹⁵ ACMA, Variation to the Low Interference Device Class Licence, Consultation Paper, October 2022, p.5

PROPOSED 2023-24 SPECTRUM WORK PLAN AND FYSO

65. The ACMA has proposed a robust work plan of activities for the next 12 months that acknowledges major activities being undertaken in both the band planning and optimisation of existing frameworks workstreams. Optus supports the ACMA maintaining a balance between planning (“new allocations”) and optimisation (“band harmonisation”) activities, noting that planning of new bands is more resource intensive for all parties.

Establishing a third workstream for “expiring spectrum licences”

66. Optus welcomes the ACMA’s commencement of a work program relating to the expiry of spectrum licences in the 700 MHz, 850 MHz, 1800 MHz, 2 GHz, 2.3 GHz, 2.5 GHz, 2.5 GHz mid-band gap, and 3.4 GHz bands, many of which are used to support and deliver WBB services. The ACMA’s decision to undertake a broad initial consultation in Q2 2023 on key aspects of the regulatory processes and criteria that will govern the ACMA’s approach to “expiring spectrum licences” is an important first step in a project that Optus considers will have profound implications for the success and structure of the sector and Australian communications policy objectives in the long term.
67. In light of the importance of the “expiring spectrum licences” work program, Optus reiterates its request for the ACMA to establish a third work stream dedicated solely to this project. The workstream should be sufficiently resourced with staff of an appropriate economic, technical and legal/regulatory skill set to ensure timely and efficient development of a fit-for-purpose framework well before the first renewal application period commences.
68. In terms of overarching objectives, Optus submits that the success of the project will be measured on the degree to which it delivers on key communications and economic priorities including continuity of service for end-users, market competition, regional connectivity and digital inclusion. Optus submits that these goals will be maximised where mobile network operators are provided with a high degree of certainty that existing spectrum holdings will be renewed.
69. Optus considers that, in the context of these and other broader economic objectives, the most efficient and effective allocation of the expiring spectrum will continue to be mobile communications. To promote investment certainty and the sustainability of a sector crucial to Australia’s economic success, spectrum licensed spectrum should be renewed rather than reauctioned. As a general principle, Optus urges the ACMA to eschew the short term benefit of higher renewal fees to public finances in favour of supporting the broader long term economic benefits that will flow from lower renewal prices.
70. Renewal fees should be set at a level that allows operators to make a fair return on their investment. This will maximise the public interest from use of the spectrum in terms of network performance and usage. It will also enable the mobile sector to support and realise the local, state and national government objectives for digital transformation.
71. Optus notes that the outcome of the Competition Tribunal’s review of the ACCC’s decision to reject the proposed spectrum lease agreement between Telstra and TPG will be relevant to all MNOs’ submissions to the proposed Q2 2023 consultation. To ensure meaningful contributions can be made, Optus urges the ACMA to make the deadline for submissions sufficiently after the Competition Tribunal issues its decision, which is due on 21 June 2023. Feedback collected via this consultation can then be refined across the ACMA’s proposed four stage process to decisions on expiring spectrum licences.

Prioritising harmonisation, new allocations of mid-band and workable co-existence

72. In addition to the establishment of a dedicated workstream on expiring spectrum licences, Optus also considers the following band activities warrant further attention during 2023-24 (in descending order of priority):
- (a) Progress work on the harmonisation and technical optimisation of spectrum licensed bands for 5G – in particular finalise the review of the spectrum licence technical frameworks in the 700 MHz and 2.5 GHz bands with a view allowing deployment of 5G.
 - (b) Progress implementation of the auction of the 3.4-4.0 GHz bands with a view to ensuring that the band is defragmented and ultimately competition in downstream mobile markets is promoted, particularly in regional areas. Optus reiterates its request that the ACMA only issue the final versions of the allocation instruments for this allocation after the conclusion of all legal proceedings relating to the Telstra/TPG spectrum lease agreement.
 - (c) Progress the ACMA's options paper on 1800 MHz band in Q3 2023. Optus also welcome the review RALIs MS33 and MS34 with a view to support 5G AAS. However, Optus consider that ACMA should consider going beyond these policy-level changes and reallocating this spectrum space for spectrum licensing, particularly in regional areas in the lower 2 x 40 MHz of the 2 GHz band where MNOs have already deployed extensive networks that are currently authorised by PTS apparatus licences.
 - (d) Prioritise forward planning work on identifying new mid-band spectrum for WBB. To this end, Optus support the identification of 7025-7125 MHz band for IMT on a primary basis in ITU Region 3. Optus encourage the ACMA to undertake careful consideration of whether to allocate the remainder of the upper 6 GHz (6425-7025 MHz) domestically in the context of relevant international developments and domestic demand following WRC-23. Optus welcome the ACMA's proposed consultation scheduled for Q2 2024.
 - (e) Ongoing monitoring of the implementation of the revised banned equipment and exemptions framework, with a view to ensuring limited impact on spectrum licensed services and appropriate oversight of compliance with new arrangements for notification of exempt activities to enable spectrum licensees to manage interference and other compliance risks.
 - (f) Satellite planning – satellite will support the Government's regional connectivity objectives through effective licensing and co-existence frameworks. Allocating spectrum to satellite services based on established business case and clear unmet demand. The cultivation of productive and effective engagement on coordination and interference management between satellite and mobile spectrum users will be best facilitated by the ACMA through technical liaison groups (TLG) or other industry forums. As a dual mobile and satellite network operator, Optus is well placed to contribute to such engagements.

Optus supports the identification, through ITU-R processes, of key segments of the 7 to 24 GHz for satellite services that alleviate increasing congestion in existing spectrum bands and support the expansion of Australian based satellite operators. However, Optus notes that the 7 to 24 GHz will continue to attract interest, including from IMT. Optus therefore strongly cautions against

identifying the entire 17 GHz for satellite services and notes recent remarks from the FCC Chairwoman that the FCC “have already identified the 7-16 GHz band as prime mid-band airwaves for the 6G era”.¹⁶ Accordingly, Optus supports retaining the 13 GHz band at the monitoring stage at this time.

- (g) Progress spectrum related work, including technical research on restack channel planning and licensing, as a result of the Government’s media policy reform green paper process, particularly in relation to freeing up use of the 600 MHz band which Optus encourages the ACMA to progress to the initial investigation stage. Optus notes the reference to international developments in the FYSO and would welcome further updates from the ACMA in due course.

73. Optus’ views on the ACMA’s plans for monitoring, initial investigation, preliminary replanning or re-farming of spectrum bands are summarised below.

Monitoring

74. Optus generally supports monitoring the bands identified by the ACMA other than the 600 MHz band which Optus considers should be progressed to initial investigation.

600 MHz band

75. The release of additional low-band spectrum should be a priority for the medium term, therefore we continue to express interest in the 600 MHz as a future spectrum option to be progressed with initial support for the 600 MHz band to be managed under MBB (i.e. proposed IMT arrangements) rather than broadcast arrangements.

76. The 600 MHz band has long been touted to form part of the second Digital Dividend. Given the experience and long lead times associated with the release of the original Digital Dividend, we consider that the 600 MHz band should be progressed to the initial investigation stage.

Mid-band spectrum

77. Optus reiterates that mid-band spectrum demand will be a key determinant of 5G and 6G network performance and cautions against any notion that MNOs have sufficient mid-band spectrum to meet future demand. Optus notes that the 3.3 GHz, 4.5 GHz and 4.8 GHz bands have been included in the FYSO for many years, and we welcome continued monitoring of these bands for international developments.

Other bands

78. Optus note that the 40 GHz band (37-43.5 GHz) has been identified globally for IMT at WRC-19 but that it is competing with demand for Fixed Satellite Services (FSS). Optus also note the statement in the draft FYSO that following various international regulatory developments “it is likely that a viable equipment eco-system could develop for fixed and mobile broadband systems around the world”.¹⁷

¹⁶ Chairwoman Jessica Rosenworcel to the National Science Foundation “6G: Open and Resilient by Design” Alexandria, Virginia April 21, 2023 available <https://docs.fcc.gov/public/attachments/DOC-392792A1.pdf>

¹⁷ Draft FYSO, p.34

79. That said, Optus reiterates its view expressed in response to last year's FYSO that the whole band must be considered with a view to ensuring co-existence with satellite services, which also have a strong interest in the spectrum.
80. These bands are vital for the future development of FSS services that require wide bandwidth (10 GHz) for up to 50 Gbps data throughput. The high gain, narrow beamwidth directional nature of Q/V band antenna beams, together with high elevation angles for transmitting to satellites, results in small coordination zones that facilitate sharing with FS.
81. Optus notes that a large number of satellite network filings have been submitted to the ITU containing these Q/V bands. Optus considers that these Q/V bands are important for the future development of satellite services needed to provide high-capacity services to isolated regions of Australia.
82. Optus note international developments in the use of 40 GHz, 46 GHz and 47 GHz for FSS. We also welcome retaining the 40 MHz, 46 GHz and 47 GHz bands in this monitoring stage. Again, noting there is no immediate need for the expedited progression of these new mmWave spectrum bands (i.e. 40 GHz and 47 GHz).
83. Optus would not support the allocation of these bands in advance of the global ecosystem to deploy new spectrum bands not yet harmonised or supported. Optus also notes that any proposed allocation in the 40 GHz band for satellite services should emphasise the coordination and coexistence requirements between land mobile IMT services and satellite services.
84. Optus encourage the ACMA to ensure that the benefits of lower administrative burden to support the satellite market are carefully weighed against the need to limit congestion and unnecessary costs to manage interference. Optus supports measures that promote transparency of spectrum use and enable cooperation and timely and effective coordination between satellite operators and with non-satellite operators.

Future bands

85. Optus notes the bands being studied under WRC-23 agenda item 1.2 considers identification of the frequency bands 3600–3800 MHz, 6425–7025 MHz, 7025–7125 MHz and 10.0–10.5 GHz for IMT, including possible additional allocations in the RRs to the mobile service on a primary basis.
86. Optus notes that the 7025-7125 MHz range may be identified for IMT in Region 3 and looks forward to the proposed Q2 2024 consultation on the upper portion of the 6 GHz band (6425-7125 MHz) following WRC-23 outcomes. Optus looks forward to working with the ACMA in its preparation for WRC-23 and has no further comment on the remaining bands being studied at this time.

Initial investigation

2300 – 2302 MHz

87. Consideration of 2300–2302 MHz as a band priority should be maintained to support the inclusion of the bottom 2 MHz of the 2300 MHz band to mobile so that a contiguous 100 MHz can be deployed to increase the overall 5G efficiency and utility of the 2.3 GHz band. While we acknowledge that the current 98 MHz of spectrum available in the 2.3 GHz band is not optimised for this use, we welcome the ACMA's position that an update will be provided in the next FYSO.

6 GHz

88. The ACMA recently made the 5925-6425 MHz (lower 6 GHz band) available for use by RLANs. The ACMA notes that it will continue to review class-licensing arrangements, including whether existing conditions, such as power levels, should be reviewed.
89. Optus notes that, while the availability of 3 additional 160 MHz channels is welcome, the current limitation of 250mW EIRP only allows the delivery of 1 Gbps services. Accordingly, Optus recommends that the lower 6GHz transmit EIRP be increased to the current 5GHz upper band limit of +30dBm with a +2dB allowance for FSPL to a new maximum limit of +32dBm or rounded to 1600mW.
90. The ACMA has indicated that the upper 6 GHz band remains under initial investigation as the ACMA continues to monitor developments in the ITU and internationally. Optus welcomes this approach and reiterates that, there should be further consideration, at least in part, for IMT allocation in the upper 700 MHz of the band, pending the outcomes from WRC-23.
91. In this context, Optus notes that the lower 6GHz is now utilised by RLAN and does not consider there is sufficient evidence to support extending this to the upper 6 GHz. Optus does not support the introduction of RLAN class-licensing arrangements in the upper 6 GHz band on the basis that determining the source and effectively managing any resultant interference will constitute a disproportionate cost burden to existing licensees that may be affected by the proliferation of such devices. Optus notes that allocation to mobile services will likely improve the potential for coordination through the transparency provided by registration of devices on the RRL.

Preliminary planning

92. Optus acknowledges the addition of the 1.5 GHz, the extended L band (1518–1525 MHz and 1668–1675 MHz) and 1.9 GHz bands being advanced in the planning process.

1.5 GHz (1427–1518 MHz) and Extended MSS L-band (1518–1525 MHz and 1668–1675 MHz)

93. Optus acknowledges the progression of these bands to the preliminary planning stage.
94. The ACMA has identified a need to progress consideration of the MSS L-band separately to the 1.5 GHz band, with an Options Paper planned in Q2 2023 (and well in advance of the 1.5 GHz band Options Paper planned in Q2 2024).
95. As coexistence with potential broadband use below 1518 MHz is likely to be a substantial consideration for the extended MSS L-band, it remains the case that the outcomes for both the 1.5 GHz and MSS L-band will be highly linked to the coexistence arrangements considered for the top part of the 1.5 GHz (1492-1518 MHz).
96. Optus reiterates its view that co-existence, coordination and cooperation between mobile and satellite licensees across the two bands will be crucial to the efficient allocation of spectrum in both bands. These three guiding principles should be at the forefront of the ACMA's decision making in relation to these bands.

1.9 GHz (1880–1920 MHz)

97. Optus provided a submission to the recent consultation paper, supporting Option 4. Optus looks forward to the ACMA's Outcomes Paper in Q4 2023.

Implementation

98. Optus acknowledges the bands currently listed at the implementation stage; but notes that focus should remain on the bands already listed in the forward allocation work plan.

850 MHz expansion band (814-824 MHz and 859-869 MHz)

99. Optus acknowledges ACMA's ongoing work to clear or relocate incumbent services in the band prior to the commencement of spectrum licences in those frequencies on 1 July 2024.

1800 MHz (1710–1785 MHz and 1805–1880 MHz) and 2 GHz (1920–1980 MHz and 2110–2170 MHz) outside of spectrum-licensed areas

100. Optus notes the ACMA's proposal to issue an options paper in Q3 2023 regarding future use of these bands following which it intends to implement appropriate changes to the RALIs (MS 33 and MS 34).
101. Optus welcomes the review of RALIs MS33 and MS34 with a view to support 5G AAS. However, Optus consider that ACMA should consider going beyond these policy-level changes and reallocating this spectrum space for spectrum licensing, particularly in regional areas in the lower 2 x 40 MHz of the 2 GHz band where MNOs have already deployed extensive networks that are currently authorised by PTS apparatus licences.
102. Optus look forward to the ACMA's Options paper in Q3 2023.

2 GHz MSS (1980–2010 MHz and 2170–2200 MHz)

103. Optus notes the inclusion of 2 GHz band in the forward allocation plan, with consultation on the technical framework to commence in Q2 2024 and a proposed allocation timeframe of 2024-25.

3.4 – 4.0 GHz

104. Ideally, in key mid-band spectrum such as that being allocated via the upcoming 3.4 GHz and 3.7 GHz auction, 100 MHz of contiguous bandwidth should be available to all competing MNOs. Optus reiterates its concerns about the level of fragmentation in this band and notes that market mechanisms alone are unlikely to ensure that the spectrum will be defragmented in the near future.
105. Optus continues to work with the ACMA and industry on optimising this band for use for 5G in preparation for the proposed Q4 2023 reallocation of parts of the band. Optus notes that the 3.4–4 GHz frequency range will be allocated in 4 distinct processes, outlined in detail in the forward allocation workplan:
- (a) 3400–4000 MHz AWLs in remote areas
 - (b) 3.4/3.7 GHz bands spectrum licence auction in metropolitan and regional areas
 - (c) 3.8 GHz band AWLs in metropolitan and regional areas
 - (d) restricted cell allocation.

106. Optus encourages the ACMA to proceed with the auction of the 3.4-4.0 GHz bands with a view to ensuring that the band is defragmented and ultimately competition in downstream mobile markets is promoted, particularly in regional areas. To this end, Optus urges the ACMA to carefully consider the allocation limits and affiliation arrangements applicable to bidding for all lots in the upcoming 3.4/3.7 GHz auction.
107. Optus reiterates its request that the ACMA only issue the final versions of the allocation instruments for this allocation after the conclusion of all legal proceedings relating to the Telstra/TPG spectrum lease agreement.

Optimising established planning frameworks – coexist, coordinate, cooperate

108. In summary, Optus considers that the ACMA should be prioritising the use of existing spectrum for 5G and supporting any enabling licensing variations. The prioritisation of satellite planning activities also continues to be a welcome addition.
109. Recognising the ever-increasing demand on spectrum resources, Optus supports the development of technical arrangements that limit interference potential to the greatest extent practicable and are conducive to workable co-existence, coordination and cooperation.
110. The ACMA should facilitate and drive outcomes that best facilitate the efficient use of spectrum across multiple industry groups. Consistent, manageable and rational licence conditions, structures and supporting instruments are critical to the success of such an activity. This requires careful consideration of often competing uses and issues, with a view to best balance the needs of the various stakeholders.
111. Optus notes that the transition to greater complexity in interference management should be conducted in a manner that respects existing licence rights. Greater interference potential necessitates operators dedicating greater resources to interference management, diluting spectrum exclusivity and the certainty required for long term network investment and planning.
112. Optus considers that transparency in regulatory decision making along with the effective utilisation of accountability measures such as the RRL as well as new and established methods of interference management, will be key to ensuring successful co-existence in any new interference environment.

Review of spectrum licence technical frameworks for 5G readiness

113. Optus strongly supports progression of these activities to ensure existing allocations are efficient and can cater for new technology developments such as 5G.
114. In order to provide a spectrum landscape that supports the efficient and effective deployment of 5G for current bands, Optus wishes to see the reviews and variations to the licence technical frameworks completed as soon as practicable.
115. TLG participants should be required to participate in good faith, with any issues raised to be ideally supported by quantitative evidence and that any requests for information be met in a timely fashion.

Satellite planning activities

116. Optus notes that the ACMA has a significant number of satellite planning activities for 2023-24. This reflects the increasingly significant role that satellite services are and will continue to play in meeting Australia's communications needs.
117. Optus welcomes the ACMA's work to update arrangements to support satellite services in the Ku- and Ka-bands, including the introduction of lower pricing in higher frequency bands. Optus's future launch of the multi-band (Ka/Ku/QV bands) Optus-11 GSO satellite will deliver a new reliable high-capacity broadcast/broadband service that will cater to a wide range of market demand nationally.
118. Optus notes the establishment of the Government's LEO Sat Working Group, of which it is an active participant. Optus encourages the ACMA and the Government more broadly to maintain and expand the momentum started by the establishment of the LEO Sat Working Group to investigate where and how satellite services can best meet the communications needs of Australians.
119. While new technologies such as "direct to mobile handset" provide a significant opportunity for the Government to address regional connectivity needs, Optus encourages the Government to carefully consider whether NGSO can yet deliver all communications needs expected by Australian consumers.
120. Optus supports the ACMA's work to optimise arrangements for satellite services, while continuing to respect and afford sufficient priority to the long-term benefits of high capacity, high performance terrestrial mobile networks.
121. Recognising the many difficulties of both balancing the terrestrial and satellite interests, while continuing to offer a spectrum product that is fit-for-purpose, Optus supports the ongoing role of the ACMA in facilitating discussions across multiple industry groups, and between affected/interested operators as the need arises.
122. The following sets out Optus' comments on several satellite issues set out in the FYSO and in general supports the continued progress on activities that have commenced.

Providing ongoing operational support for Australian-filed satellite networks

123. Optus supports the position that the ACMA will continue providing ongoing operational support for Australian-filed satellite networks, as well as look into updating procedures for related submissions to the ITU. This will be required as future satellites may operate in frequency bands not currently provided on existing spacecraft.

Engaging existing licence holders on NGSO activities

124. Optus generally supports the ACMA's existing regulatory arrangements on spectrum issues related to the emergence of medium/large NGSO constellations considering the impact on Australian filed satellite systems.
125. That said, Optus continues to encourage the ACMA to investigate the impact of major NGSO/LEO operators on Ku/Ka-band operations in Australia. Given the level of activity and the likelihood of increasing potential for interference in the band, Optus suggests that the ACMA consult Australian satellite operators on licence applications from prospective NGSO/LEO operators.

Improvements to licensing procedures for space-based communications

126. Optus notes the ACMA's response to the feedback to last year's FYSO on this issue. Specifically, the ACMA has stated that its licensing role will be limited to "ensuring that international processes are followed; considering the impact on Australian filed satellite systems and ensuring consistency with the Australian spectrum management regulatory environment".¹⁸ Ultimately ACMA states that the coordination matters between foreign filed satellite networks are the responsibility of the filing administration and operators.
127. Optus understands that the ACMA wishes to maintain a light touch regulatory approach to licensing to support entry and take up of satellite services in Australia. While this approach is understandable, Optus notes that the rapid entry and take up of NGSO services means that there is increasing potential for interference within satellite spectrum bands in Australia. Optus welcomes the ACMA's confirmation that it will continue to monitor the impact of foreign filed systems on Australian filed satellite systems and urges the ACMA to ensure the licencing of foreign filed satellite networks does not undermine the use of Australian filed satellite networks.
128. Longer term, Optus encourage the ACMA to ensure that the benefits of lower administrative burden are weighed against the need for transparency and accountability in spectrum use that is afforded by licensing. Optus considers that ultimately such arrangements can be light touch and may aid with cooperation and timely and effective coordination among satellite operators as well as with non-satellite communications services providers.

Updating procedures for filing of satellite submissions

129. Optus supports the view of 'targeted updates' to the procedures for updating submissions of Australian satellite networks to the ITU to provide a more flexible, contemporary approach that supports growth in the Australian space industry.

¹⁸ Draft FYSO, p.21

THE FORWARD ALLOCATION WORK PLAN

130. Optus reiterates our previous submissions that the ACMA should adopt a considered approach to allocating new spectrum bands. As a general consideration, the timing of allocations will have important implications for potential spectrum users, including business and network resourcing activities, as well as spectrum valuation activities.
131. The key challenge for future spectrum allocations is the need for alignment of domestic regulatory agenda, implementation of WRC-19 and any upcoming WRC-23 outcomes, and global ecosystem roadmaps with investment decision making processes.
132. Renewal activities must commence around five years prior to licence expiry, with any renewal terms to be finalised no later than two years prior to licence expiry to ensure investment certainty for network operators. These points are discussed further below.

2 GHz (mobile satellite services)

133. Optus notes the inclusion of 2 GHz band in the forward allocation plan, with consultation on the technical framework to commence in Q2 2024 and a proposed allocation timeframe of 2024-25.

General forward allocation comments and Optus priorities

134. Optus also wishes to reiterate that the readiness of existing bands to accommodate the latest and future technologies is as important as new allocations to accommodate the relentless and rapid growth in demand experienced by licensees.
135. Optus presents a general view of priorities for each band or band type for the forward allocation, noting that it is expected that new allocations, existing band modifications and renewals can be undertaken in parallel. These views are outlined in the table below.

Priority	Expiring spectrum licences	Harmonisation	New allocations
1	Holistic assessment of all expiring spectrum licences Q2 2023	700 MHz	Mid band (6 GHz)
2	Developing a fit for purpose regulatory framework that maximises public interest through competition and consumer benefits	2.5 GHz	Low band (e.g. 600 MHz)
3	850 MHz and 1800 MHz licence renewal		mmWave (e.g. 40 GHz and 46/47GHz)
4	2.5 GHz and 700 MHz		
5	2300 MHz and 3.4-3.6 GHz		
6	2100 MHz		

OTHER ISSUES: PRICING AND COMPLIANCE PRIORITIES

Implementation of the Spectrum Pricing Review

136. There is no one-size-fits-all approach that suits all spectrum bands today or would fit the uses for different spectrum bands that change over time; therefore it is important that transparency over the arrangements to be applied in each pricing decision should be encouraged. This will also have important implications, with particular regard to continuity of service, price, and investment incentives for existing licensees.
137. Optus supports the ongoing implementation of the recommendations of the Spectrum Pricing Review, including the implementation of the first annual update of taxes based on the new population-based methodology in 2023.
138. Optus similarly appreciates that the ACMA's consideration of the expansion of pricing mechanisms, such as pricing for varying levels of interference, remains at its early stages. However, we emphasise that it is important that any future proposals in this regard reflect careful consideration of the impact that the proliferation of devices may have on existing spectrum-licensed services. This includes consideration of the potential impact of the additional cost on licensees to manage interference.
139. In addition to encouraging 'efficient' spectrum use, any price signalling through apparatus licensing which offers users the ability to opt for lower levels of protection at a reduced price can also increase the complexity of interference management more generally. This issue also does not necessarily address allocation concerns around potential colocation and or synchronisation issues, whether transmit or receive, within the same spectrum range which can lead to inefficient spectrum use.
140. Optus therefore considers caution should be exhibited when considering specific applications, frequencies and licence sub-types for alternative pricing arrangements. Importantly, the need to address short-term demand should be appropriately balanced to ensure that longer-term interference issues do not arise and thereby erode the efficient operation of spectrum deployments already authorised under existing licences.
141. Setting efficient price signals to encourage efficient spectrum deployments should similarly consider both the adjacent and co-located spectrum users. This should also be balanced against the ACMA's role in maintaining oversight and enforcing interference management breaches when they occur.

Compliance priorities

142. Optus supports the ongoing compliance focus for 5G EME compliance and interference activities to continue in 2023-2024. With the recent award of spectrum in the millimetre wave spectrum bands, and the rollout of 5G networks, there will be continued need for public awareness on the safety of 5G technology.
143. Optus also note the increased potential for interference to existing spectrum licensed services and urges the ACMA to ensure that interference management arrangements, including resourcing, remain fit for the purpose of ensuring cost-effective compliance with spectrum licence technical frameworks. Optus particularly notes the potential interference that may arise from the revised banned equipment and exemptions framework and encourages the ACMA to proactively monitor compliance of exempt parties with new notification and record keeping requirements.