

The logo for Optus, consisting of the word "OPTUS" in a bold, teal, sans-serif font.

Submission in response to
ACCC Consultation Paper

**Allocation limits advice for
850 MHz expansion band
and 900 MHz band
spectrum allocation**

Public Version

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Section 1. EXECUTIVE SUMMARY

- 1.1 Optus welcomes the opportunity to comment on the allocation limits that will apply for the upcoming 850/900 MHz spectrum auction.
- 1.2 Low-band sub-1GHz spectrum has unique propagation characteristics which makes it well suited to support wide area mobile networks, especially in regional areas. Low-band spectrum is currently used for 4G services (across 700 MHz, 850 MHz and 900 MHz) as well as legacy 3G services (both 850 MHz and 900 MHz) and increasingly for 5G (across 700 MHz, 850 MHz and potentially 900 MHz). All these sub-1 GHz bands are fully substitutable with one another.
- 1.3 Historically, the introduction of new technology into the Australian mobile market disrupts incumbent operators and injects new competition. The deployment of competitive mobile 5G networks has the potential to drive the next wave of Australia's productivity growth. Analysis by PwC demonstrates that 5G services could drive an extra \$130 billion in economic activity over the decade to 2030. But these gains are far from certain and require strong competitive markets. Failure to deliver a competitive market could reduce these potential benefits by over 40%.
- 1.4 Low-band spectrum is the foundation upon which national mobile networks are built since it provides broad geographical coverage. Access to low-band spectrum is a critical driver of competition and investment in Australia, which in turn can deliver the best outcomes for Australian consumers and businesses. Reflecting this, when the 900 MHz spectrum was first allocated in Australia it was done to achieve a level-playing field with almost identical allocations across the mobile network operators.
- 1.5 The current holdings of low-band spectrum are not balanced and there is a risk that absent allocation limits, low-band spectrum could be concentrated in the hands of a single player. Such an outcome would not be good for competition or the interests of Australian consumers and businesses. To address this risk, we recommend that allocation limits are set to reduce the concentration of low-band spectrum and ensure that we have a level playing field. Adopting such an approach will promote competition, and with it the full consumer and economic benefits of competitive national mobile markets.
- 1.6 Optus recommends that the allocation limit should:
 - (a) Include all sub-1GHz spectrum licensed bands, including the 700 MHz, 850 MHz and the bands currently on offer in this 850/900 MHz allocation process when determining limits. Actual market deployments clearly show that all three low-bands are fully substitutable.
 - (b) Set a maximum limit of 70 MHz in all geographic areas for total low-band spectrum. An allocation limit of 70 MHz will allow all three mobile network operators to continue to compete, ensuring the market benefits from at least three competitive, national multi-band 5G networks. Importantly, a 70 MHz limit would ensure that a single operator cannot dominate the deployment and establishment of 5G services across the low-band spectrum ranges. This may mean that one operator is not eligible for participation in the upcoming auction.
- 1.7 In addition, Optus also supports the policy intention to set-aside for Optus and for TPG one 10 MHz lot in the 900 MHz band for continuity of 3G services. But there is no policy or competition rationale for spectrum to be set-aside for Telstra as it does not use its 900

MHz for any legacy network.¹ Exempting Telstra from acquiring 900 MHz will not impact it in any significant manner. Further, setting-aside spectrum for Telstra hinders competitive network investment and risks underutilisation of a valuable national asset.

¹ Telstra has minor investment of 27 4G sites using 900 MHz.

Section 2. 5G CAN DRIVE AUSTRALIAN ECONOMIC GROWTH

- 2.1 The mobile industry is transitioning to the fifth generation of mobile technology. More than a new mobile network, 5G can create the foundations for Australia's digital economy because it will enable people and assets to be coordinated through Internet of Things (IoT), Big Data and Machine Learning. These technologies will expand productive and creative capabilities, creating new jobs and growth in the real economy.
- 2.2 Technology transitions can bring significant long term competitive benefits to the economy. New technologies can challenge established incumbent positions, as occurred in Australia when 3G was deployed. The nature of 5G indicates that it will impact productivity and competitiveness in the economy more significantly than previous generations.
- 2.3 5G provides an opportunity to drive supply side reforms which lift the productive capacity of the economy with limited fiscal support from the government.
- 2.4 Access to high speed broadband – both fixed and mobile – supported the near-overnight transition from workplaces and schools to home-based working and learning, accelerating reliance on high-quality, uninterrupted connectivity. In April 2020, one month into Australia's initial lockdown, mobile data upload demand surged 28% from pre-COVID levels and fixed data demand increased by 42%, due mainly to video conferencing.²
- 2.5 With COVID-19 anticipated to shift working populations out of CBDs³ and embed new ways of working, widespread connectivity becomes imperative. Through the NBN, Australia has achieved much in fixed broadband, but its unique geography and the mobility of people and assets, requires complementary world-class mobile. Post COVID-19, farmers, manufacturers, regional communities and SMEs will need the benefits of digital solutions more than ever, and structural shifts in some industries (e.g. retail) will change the demand for mobile data. Many of these solutions will depend on mobility.

5G can bring \$130 billion of economic benefits

- 2.6 After more than a decade of limited labour and multifactor productivity growth and stagnant wages,⁴ 5G has the potential to provide the next productivity stimulus to Australia's economy.
- 2.7 Using PwC's geo-spatial modelling, Optus estimates that the widespread rollout and adoption of 5G in Australia could increase the economy's gross value add (GVA) by approximately \$36.7 billion,⁵ equivalent to 1.2% of economic value in 2030. The cumulative additional GVA across a decade would be \$130 billion, equivalent to 205,000 net new jobs created across a ten year period.

² Optus network traffic upload volumes

³ <https://www.abc.net.au/news/2020-05-10/post-covid-19-pandemic-simpler-life-migration/12229082>

⁴ <https://www.pc.gov.au/research/ongoing/productivity-insights/recent-productivity-trends/productivity-insights-2020-productivity-trends.pdf>

⁵ in real, 2019-2020 terms.

Regions stand to benefit more from 5G compared to metropolitan areas

- 2.8 The pandemic crisis is likely to continue the dispersal of economic activity to outer suburbs and regions for several years,⁶ with the pattern sustaining as work patterns change structurally. Due to these changes and industries growth (such as in agriculture and small business), Optus expects a 5G jobs dividend: 8,000 new jobs across regional Australia could be created in 2030. The associated GDP impact of 5G in regions would be \$11.3 billion in 2030, representing a higher rate of growth than that for metropolitan areas. Cumulatively, this would amount to \$38 billion and 45,000 new jobs over the decade.
- 2.9 According to the economic analysis, critical Australian industries stand to experience significant impacts from 5G including Mining, Logistics, Manufacturing, Utilities and Agriculture. For example, mines have invested in autonomous vehicles technology in Regional Queensland such as the Goonyella mine in Moranbah⁷ and Daunia mine in Coppabella.⁸ A \$100 million investment is earmarked for the Daunia mine to increase the technology-intensiveness of the site (e.g. through autonomous vehicles), and 5G will form a critical plank for this in future.
- 2.10 PwC has estimated that Regional Queensland would benefit from an additional \$3.6 billion in economic activity in 2030, which is equivalent to a 1.4% GVA increase.
- 2.11 For enterprises to benefit from 5G, sites which are far from population centres will need choice and coverage of 5G-supported services, such as farms and mines, just like their metro counterparts.

National competition is needed to realise these potential benefits

- 2.12 The PwC geo-spatial economic analysis predicts economic benefits from the *competitive* deployment of national 5G networks. 5G is expected to drive productivity and employment growth in both metropolitan and regional areas.
- 2.13 This analysis, however, assumes networks are deployed efficiently and in a competitive market. Competition drives innovation and investment in new technology – pushing new 5G networks out to the regions. Without competition, 5G deployment is likely to be delayed and uneven, with consumers facing a lack of choice and higher resultant prices. Together, these impacts will greatly reduce the potential benefits of 5G.
- 2.14 Historically, competition and investment from challenger networks drives the deployment of new technology. In the fixed line sector, challenger networks like Optus invested in ADSL2+ before Telstra and drove consumer take up of broadband.⁹ In response to these competitive investments, Telstra belatedly upgraded some exchanges to ADSL2+, *only where it faced competition*.¹⁰ Where there was no competition, Telstra delayed or did not upgrade its network. Ultimately, Telstra's unwillingness to invest in new broadband technology led to the Government forcing structural separation of Telstra through the roll-out of the NBN.

⁶ It is anticipated that COVID-19 will accelerate population shifts away from major cities already seen before the pandemic: <https://blog.id.com.au/2020/population/population-trends/migration-within-australia-strongest-out-of-sydney/>

⁷ <https://www.afr.com/companies/mining/bhp-opens-robot-wars-in-the-battleground-state-20191113-p53abt>

⁸ <https://www.minister.industry.gov.au/ministers/pitt/media-releases/resources-investment-continues-support-jobs-across-regional-queensland>

⁹ ACCC, 2007, Fixed Services Review; Second Position Paper, p.9

¹⁰ Ibid., p.11

- 2.15 Optus sees the same behaviour in the mobile network – with regional areas facing constant under investment in capacity until challenger investments are made. For example, Optus was named best mobile network in key regional cities following significant investment in its regional mobile network in 2017.¹¹ While Telstra responded, Optus maintains data leadership in regional cities.¹² This tit-for-tat investment benefits Australian consumers and drives the competitive dividend further into regional Australia.
- 2.16 Competition is required for Australians to experience the full benefits of 5G. But the mobile industry faces commercial headwinds and structural challenges that create the risk of the mobile market becoming more concentrated.
- 2.17 . This would result in a narrowing of choice for 5G and potentially a slower deployment of the network nationally. Based on experience with the deployment of 3G and 4G, diluted competition risks dilution of price competitiveness and stagnated network rollout.
- 2.18 Without 5G availability for regional industries and communities, and true enterprise choice in 5G both in all areas, the 5G jobs dividend is at risk. Optus has identified that having a monopolistic market for 5G could result in an economic value loss of \$14.9 billion in 2030, and a 5G network rollout delay of three years could cause an economic value loss of \$13.3 billion. These factors are interrelated, and the economic value at stake attributable to both factors is an estimated \$21.6 billion. The value loss from a monopolistic market is expected to grow over time. Across the decade to 2030, the value loss would amount to \$55 billion; representing 42% of the potential economic gains from 5G services.

¹¹ <https://www.optus.com.au/about/media-centre/media-releases/2017/12/optus-mobile-network-named-australias-best-in-test-p3>

¹² Optus had the top network score in voice and data for towns and roads in 2018. <https://www.connect-testlab.com/australia-2018-results>. And retained best data score in cities in the 2019 test https://www.umlaut.com/uploads/documents/20191204_AUS_umlaut_Report_Certificate.pdf

Section 3. A SUCCESSFUL MOBILE INDUSTRY REQUIRES A LEVEL PLAYING FIELD

- 3.1 As outlined above, the ability to deliver 4G and 5G services will greatly impact the Australian economy and consumer welfare over the period of the licence period. In this section, Optus explains how a level playing field across low-band spectrum will promote a successful and efficient mobile market. Specifically, this section discusses:
- (a) How spectrum is managed through the concepts of low, mid and high-band;
 - (b) Low-band spectrum’s significance to a national market; and
 - (c) A level low-band playing field’s vital role in fostering competition.

Spectrum is managed through low, mid and high band

- 3.2 Spectrum is no longer managed through a narrow lens of individual spectrum ranges. Historically, mobile technology was designed to work within specific spectrum ranges with little or no vendor support for other ranges. Such an approach has long been overtaken by spectrum-agnostic mobile technology and vendor support.
- 3.3 For instance, 3G technology was traditionally designed for use across 900 MHz and 2100 MHz spectrum. While Optus still uses 3G across these bands, Telstra utilises its old CDMA 850 MHz spectrum for 3G. LTE 4G technology is used across a wider set of spectrum ranges, with Optus utilising 4G across 700 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz, and 2600 MHz.
- 3.4 While 5G is in the early stages of roll-out, 5G has been designed to be used across all spectrum ranges. In the Australian market, 5G is currently used across 700 MHz, 850 MHz, 2300 MHz and 3500 MHz. Telstra currently uses its 850 MHz for 5G and has indicated it is also looking at using 700 MHz. Similarly, TPG is using its 700 MHz for 5G. Optus wishes to use 900 MHz to deploy 5G service, but is unable to do so due to lack of spectrum.

Figure 1 Technology deployed

	700 MHz	850 MHz	900 MHz	1800 MHz	2100 MHz	2300 MHz	2600 MHz	3500 MHz
Optus	4G	--	3G 4G	4G	3G 4G	4G 5G	4G	5G
Telstra	4G	3G 5G	4G	4G	4G	4G	4G	5G
TPG	4G 5G	3G 4G	3G	4G	4G	--	--	5G

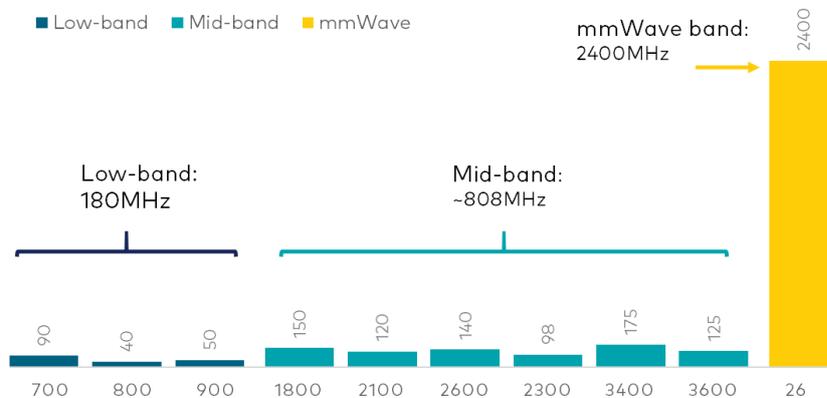
Source: RFNSA

- 3.5 Importantly for this analysis, LTE 4G and NR 5G has been, and can be, deployed across all the three low-band spectrum ranges of 700 MHz, 850 MHz and 900 MHz. 4G has been deployed across all the mid-band spectrum, with only the recently allocated 3500 MHz range being exclusively used for NR 5G services. 5G is supported across all the mid-band ranges, with only Australian licence conditions limiting the current deployment

of 5G. The ACMA is progressing its update of these legacy licences to allow 5G deployment.¹³

- 3.6 Technology is no longer a factor when deciding which spectrum range is to be deployed. Rather, it is the propagation characteristics that determine which spectrum band is required to be deployed at any one site. As a result, spectrum is now referred to as low-band, mid-band¹⁴ and high-band spectrum – each with their own set of propagation characteristics that make individual ranges within each band being substitutable.
- 3.7 Low frequency bands (sub-1GHz) offer long-distance wireless signal coverage, which support widespread coverage across metropolitan and regional areas. Mid-bands typically offer a good mix of coverage and capacity benefits, e.g. low-band augmented with mid-band 3.6 GHz provides higher bandwidths but is effective over a shorter distance. mmWave bands are typically needed to meet the ultra-high broadband speeds envisaged for 5G. However, the 26 GHz band will have the shortest effective range but the potential for the fastest speeds given the large bandwidth available in the band.
- 3.8 **[CiC]**
- 3.9 Despite the advantage that arises from signals at lower frequency propagating over longer distances, a clear limitation is the size of the available bandwidth in each spectrum band. This forms natural limits to the channel sizes that can be deployed, even with carrier aggregation.
- 3.10 This can be clearly demonstrated through the quantum of spectrum available in each of the spectrum licensed bands – low-band¹⁵, mid-band and future mmWave band. Figure 2 shows the total amount of mobile spectrum licensed bands in Australia.

Figure 2 Spectrum licensed bands in Australia



Source: Optus

- 3.11 Optus also notes that licence variations across the current spectrum licensed bands are required to ensure these can be harmonised and used for the deployment of 5G services. Spectrum licensees and the ACMA are currently working together to address these concerns by updating the technical licensing frameworks in existing spectrum licensed bands developed before the emergence of 5G technology. Formalisation of

¹³ Telstra refers to “three layers of spectrum”, low-band, mid-band and high-band. See Telstra 2020 Investor Day transcript, p.6

¹⁴ Mid-band can also be broken into two, with 1800 and 2100 MHz being grouped together and 2300, 2600, 3600 MHz grouped.

¹⁵ While the 900 MHz band is currently apparatus licensed, it has been included in this context given its significance to the low-band spectrum already deployed.

these discussions and processes is therefore required to ensure licensees can better utilise their existing spectrum assets in a 5G environment.

Identifying relevant downstream markets

3.12 Optus agrees with the ACCC that there are two key relevant downstream markets:

- (a) National mobile market; and
- (b) Fixed broadband market.

National mobile market

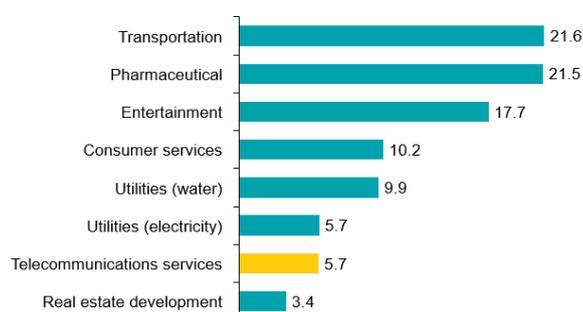
3.13 Optus agrees that the mobile services market is a national market for similar but differentiated services offered by MNOs and MVNOs. This will continue to be the case for 5G technologies.

3.14 At June 2020, there were 32.3 million SIOs in Australia, up from 30.2 million at June 2015.¹⁶ While there has been subscriber growth since 2015, the same cannot be said for mobile service revenue, which has fallen by 22% over the last five years.

3.15 The sustainability of the mobile industry remains challenging. A key barrier to future competitive investment is the low return on invested capital achieved by telecommunications service providers compared to other capital-intensive industries. Figure 3 shows that global telecommunications return on equity (ROE)¹⁷ is in low single digits, below historic norms and unlikely to be sustainable. Figure 4 indicates recent telecommunications industry return on invested capital (ROIC) performance in Australia and confirms that the global trend applies to the local market.¹⁸ The post-tax ROIC of the main telecommunications providers in Australia has halved since 2017. This reduction comes at the end of the 4G investment cycle and at a time when a significant uplift in investment is required for 5G.

3.16 This poses a threat to service providers accessing the capital required and puts more pressure on providers to invest where 5G “use cases” are likely to create impacts which generate higher network returns. It also increases market concentration risk as capital is likely to be rationed as network operators that can obtain a higher comparative ROIC are more likely able to obtain sufficient access to capital.

Figure 3 Global industry Returns on Equity



Source: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/roe.html

¹⁶ Based on reported mobile SIOs (excluding IoT) for the 3 MNOs, period ending 30 June.

¹⁷ In 2016, telecommunications services achieved the second lowest ROIC out of a list of 20 major industries, only above utilities.

¹⁸ Source: UBS, July 2020. The bar chart indicates post-tax ROIC to Australia’s 4 major RSPs, excluding payments from NBN.

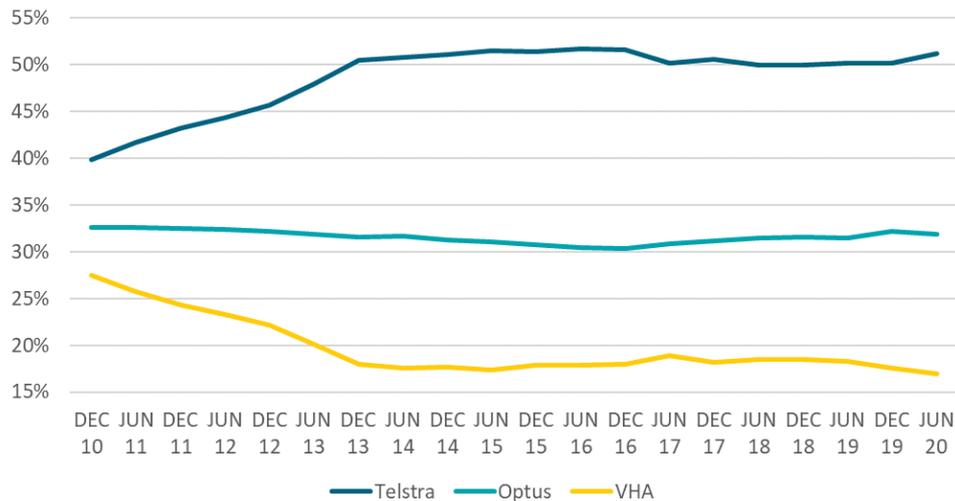
Figure 4 Australian industry return on invested capital



Source: UBS, July 2020.

- 3.17 The incumbent MNO's disproportionate spectrum holdings give it a material advantage, potentially further exacerbating the financial barrier to competitive investment. The incumbent operator Telstra has taken advantage of this situation to recover historic share losses and to drive future dominance by utilising its low-band spectrum to bring forward 5G investment. Telstra has publicly stated its intention to further differentiating itself from the market utilising its 700 MHz and 850 MHz holdings to "improve in-building coverage and accelerate 5G pop coverage".¹⁹
- 3.18 Reflecting these developments, the mobile market remains concentrated. Telstra retains a market share of 51.2%.²⁰ [CiC]
- 3.19 Over the last decade, Telstra has grown its dominance from 40% to 51.2% – an increase of 28% – largely by exploiting its low-band advantage.

Figure 5 Mobile market share 2010-2020



Source: Company reports. Excludes IoT.

- 3.20 Optus expects that services (both 4G and 5G) relevant to the national mobile market will continue to be delivered through low- and mid-band spectrum, largely due to the

¹⁹ Telstra Investor Day Transcript, p.6 and Presentation, p.6

²⁰ Excluding IoT.

propagation factors explained above. For example, the propagation of low-band spectrum makes it more attractive for services requiring mobility and coverage due to its ability to provide coverage over a wide area, particularly in regional areas.

- 3.21 It follows that continued access to low-band spectrum is required to ensure that mobile networks can continue to deliver regional connectivity.

Low-band is fundamental to national mobile networks

- 3.22 The above section shows the propagation characteristics of low-band spectrum. The Government has also acknowledged that low-band spectrum is important for 4G and 5G coverage and complements mid and high-band spectrum.²¹ Optus fully supports this view from Government and provides more information below.

- 3.23 Low-band spectrum is foundational national spectrum and has a large impact on the level of competition in the national market. This is because:

- (a) The propagation characteristics of low-band spectrum offer material network coverage advantages over alternative spectrum; and
- (b) Propagation factors plus the licensing regime for mid-band spectrum combine to ensure that mid-band cannot compensate for low-band spectrum.

Low-band spectrum offers greater network coverage

- 3.24 The three low-band ranges in Australia (700 MHz, 850 MHz, 900 MHz) have similar propagation characteristics that make them largely substitutable and able to support 3G, 4G and 5G services, with all three MNOs deploying these technologies across their low-band ranges. Optus requires additional low-band spectrum in the near term.

- 3.25 Importantly, the propagation factors that make low-band beneficial for regional coverage also results in low-band being superior for urban and suburban coverage (including for in-building coverage). Indeed, given the prevalence of buildings in urban areas, the propagation advantages of low-band spectrum are just as important, if not more, in urban areas. Optus notes that increasing site density using other spectrum bands would not provide adequate in building coverage in built up areas; requiring additional in-building solutions to ensure appropriate coverage.

- 3.26 Optus reiterates analysis from PA Consulting for the Dutch Regulator in 2010, which shows that:

The cell range for sub-1GHz spectrum is similar in urban, suburban and rural geotypes, and declines significantly for supra-1GHz spectrum. This has an impact on the coverage area of each cell. The difference in cell coverage areas between sub- and supra-1GHz spectrum is pronounced:

- *The coverage area of a cell in a rural area using supra-1GHz spectrum is between 50-60% less than the coverage area of a cell using sub-1GHz spectrum*
- *The coverage area of a cell in an urban or suburban area using supra-1GHz spectrum is between 83-96% less than the coverage area of a cell using sub-1GHz spectrum.*²²

²¹ Department of Infrastructure, Transport, Regional Development and Communications, Communications policy objectives for the allocation of the 850 and 900 MHz bands, May 2020

²² PA Consulting, Study on comparability of frequency bands in different business models, Conducted for Ministerie van Economische Zaken, 17 September 2010, p.22

- 3.27 This analysis is consistent with network analysis conducted by Optus above.
- 3.28 The propagation characteristics of low-band make it the key network layer for any national mobile network. A successful mobile network requires a solid layer of low-band coverage to ensure a stable and reliable customer experience.
- 3.29 **[CiC]**

Section 4. SETTING ALLOCATION LIMITS THAT PROMOTE THE LTIE

- 4.1 The preceding sections have demonstrated that:
- (a) The relevant markets are the mobile market, and to a lesser degree, the fixed broadband market;
 - (b) Telstra remains dominant in the mobile markets with 51.2% market subscriber share, **[CiC]**;
 - (c) Spectrum is viewed by all MNOs across three layers – low-band, mid-band and high-band – and within each spectrum range the specific bands are seen as substitutable with one another. This can be seen in the market with 3G, 4G and 5G being successfully used in all low-band ranges of 700 MHz, 850 MHz and 900 MHz;
 - (d) The potential \$130 billion of economic benefits from 5G depends on national competitive networks. Uneven low-band spectrum risks up to \$55 billion of these benefits;
 - (e) Competition in the mobile market depends on access to sufficient low-band spectrum. **[CiC]**
 - (f) Optus requires additional low-band spectrum to not only address the capacity of its existing 4G network, but to also support the transition from 3G to 4G and onto 5G. **[CiC]**
- 4.2 Optus supports the introduction of allocation limits to ensure competitive investment across all of Australia and the development of a competitive 5G market in Australia. As per previous spectrum auctions, the use of allocation limits would prevent the monopolisation of this important low-band spectrum while enabling the MNOs to compete on a level playing field.
- 4.3 Optus submits that an allocation limit that best promotes the LTIE balances the need for operators to acquire sufficient low-band spectrum to support a wide area deployment. Optus recommends that:
- (a) The ACCC should focus on spectrum licensed holdings across all sub-1 GHz bands (700 MHz, 850 MHz, and future 850/900 MHz licences);
 - (b) The long-term outcome should be a relative parity in low-band spectrum holdings for each operator to enable the efficient transition to national 5G deployments;
 - (c) The ACCC adopt a national sub-1 GHz allocation limit of **70 MHz across all geographic areas**; and
 - (d) To address any risk that spectrum may remain unused, the 850 MHz lots should be licensed consistent with the geographical areas of the existing 850 MHz licences; and
 - (e) Optus also supports the policy intention to set-aside at least one 10 MHz lot for Optus and for TPG in the 900 MHz for service continuity purposes. Telstra should not be granted any set-aside as it currently does not use its 900 MHz for any 3G network and does not face service continuity issues.

Allocation limits are required to ensure there is no spectrum imbalance

- 4.4 **[CiC]** Low-band spectrum is extremely rare in the Australian market, with the original award of 850 MHz spectrum licences in 1998 (licences awarded to both Telstra and Vodafone) and the digital dividend auction of 700 MHz spectrum in 2013 (licences awarded to Telstra and Optus). The unsold residual lots in 700 MHz were reallocated in 2017 and awarded to VHA and TPG (now TPG).
- 4.5 **[CiC]**.
- 4.6 There is no other low-band spectrum planned to be allocated in this market. Optus notes the recent Media Reform Green Paper, which could result in additional 600 MHz being made available – but such an outcome is highly uncertain and at best not for use until 2026.
- 4.7 Optus calls on the ACCC to focus on ensuring a level-playing field for the foundational national low-band spectrum. The evidence presented above has shown that competition in the market is dependent on having equitable access to this spectrum. **[CiC]**.

Figure 6 **[CiC]**

Source: Optus

- 4.8 Finally, Optus reiterates the position that to ensure spectrum ownership is not a bottleneck, the ACCC should focus on licences across all sub-1 GHz bands. The sub-1 GHz bands are largely interchangeable and provide similar commercial advantages across the whole mobile network. Optus observes that all three MNOs have already, or have announced plans to, deploy 5G across 700 MHz, 850 MHz and 900 MHz. It is the total ownership of licences across these bands that impacts competition. Focusing on just one single band, or one single auction risks missing the impact of potential competition issues associated with the ownership of sub-1 GHz spectrum licences.

Focus should be on ensuring a level playing field

- 4.9 Optus strongly advocates that the low-band spectrum divide be addressed. After the upcoming allocation, a total of 200 MHz will be allocated to the mobile industry, with a further 10 MHz reserved for Public Safety Mobile Broadband (PSMB).
- 4.10 To achieve a level playing field in low-band holdings, Optus submits that no single MNO should be allowed to exceed more than 70 MHz across any geographic area. Assuming that no spectrum is left unsold, this could likely lead to the spectrum outcome where two out of three MNOs will hold 33% of the available low-band spectrum (i.e. 70 MHz each), while the remaining MNO would hold 29% (or 60 MHz).

Figure 7 **[CiC]**

Source: Optus

Optimal allocation limit is a sub-1GHz cap of 70 MHz

- 4.11 The case for a sub-1 GHz 70 MHz allocation limit with specific set-aside in the 900 MHz band will ensure that at least two operators can acquire additional spectrum. This would enable all three MNOs to deploy efficient 5G services, while continuing to support 3G and 4G services.

- 4.12 Optus submits that a sub-1 GHz allocation limit of 70 MHz across all geographic areas best balances the need to ensure spectral efficiency and ultra-high throughput with the need to ensure competition can be delivered in important downstream markets. Specifically, a 70 MHz limit:
- (a) Allows deployment of 10 MHz low-band channels to ensure that Australian operators can deliver 5G services meeting the specifications required by the ITU;
 - (b) Takes into account existing holdings and ensure that Australian operators can continue to operate is consistent with the growing number of overseas markets, thereby enabling international consistency and scale;
 - (c) Will ensure that the full spectrum band is likely to be acquired by companies that are able to deploy 5G services, thereby ensuring that spectrum is not left idle; and that
 - (d) Any limit greater than 70 MHz poses a material risk that low-band spectrum will be dominated by one or two MNOs to the detriment of Australian consumers and businesses.
- 4.13 Optus also sees merit in adopting a geographical area design for the 850 MHz extension lots consistent with the existing 850 MHz licences. This would enable current 850 MHz licensees to address their current differential holdings between metro and regional areas. Further, it addresses any potential risk that a 70 MHz limit could result in unsold lots.
- 4.14 Optus considers there is sufficient spectrum available to support the three operators in low-band in all geographic areas, but more importantly it provides an opportunity for each of the three operators to compete on a level playing field. Failure to ensure a level playing field places at risk \$55 billion of future economic growth over the next decade.
- 4.15 Further, as observed above, the deployment of a new generation of mobile technology brings along the ability of challenger and new entrant networks to challenge incumbent providers. The history of the Australian mobile market shows the importance of each new mobile generation to competition and how equitable access to spectrum is key to ensure sustainable competition.

Telstra should not be granted any set-aside

- 4.16 Set-aside policy relates to the reservation of lots to specific participants prior to the allocation process. A set-aside can be based on either a fixed location or issued as a generic lot.
- 4.17 The Minister has been considering the use of set-asides in the 900 MHz band for the upcoming combined 850E/900 MHz auction. Notably, the lower lot in the 850E MHz band has already being set-aside for Public Safety Mobile Broadband (PSMB). This is also in line with the Department's Communications Policy objectives.
- 4.18 The Minister has sought the ACCC's advice on whether any spectrum should set-aside for Telstra to ensure 3G service continuity. The ACCC notes that:

The allocation of the 900 MHz band could potentially affect the ability of Optus and TPG to continue to operate services on their 3G networks, and therefore their ability to effectively compete in the mobile services market in the short term.

It does not appear that Telstra faces similar issues as it predominantly uses the 850 MHz band, rather than the 900 MHz band to deliver 3G services.²³

- 4.19 Optus supports 10 MHz being set-aside for Optus to promote service continuity, particularly in regional areas. **[CiC]**
- 4.20 Optus strongly objects to Telstra being granted any spectrum set-aside for the following reasons.
- (a) First, Telstra holds a dominant share of all low-band spectrum, with 54% of regional spectrum. Telstra has sufficient spectrum already to manage the migration off 3G and onto 4G and 5G. And in fact is already doing so; Telstra has already re-farmed part of its 3G 850 MHz spectrum for use for 5G.
 - (b) Second, Telstra has not deployed any meaningful mobile assets using 900 MHz. Telstra currently has only 27 4G sites registered in 900 MHz. Telstra has no 3G sites and as such, continual access to 900 MHz spectrum is not required to ensure Telstra's 3G network can continue. This can be compared to Optus and TPG whom have around 11,000 sites registered using 900 MHz spectrum. While there is a need to ensure services using these 11,000 sites can continue, no such justification exists for Telstra.
 - (c) Finally, any set-aside of spectrum to Telstra is likely to lead to an inefficient allocation of spectrum and undermine future competition. Allocation to Telstra would lock-in their historic dominance and likely limit the growth of competition. Further, Telstra would have little standalone value for a single block of 900 MHz spectrum. And its valuation of the single block would likely be less than the valuation of other MNOs who could combine it with more 900 MHz to form a larger contiguous block.

²³ ACCC, Allocation limits advice for 850 MHz expansion band and 900 MHz band spectrum allocation, Consultation Paper, November 2020, p.8