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Dear stakeholder

Allocation limits advice for the 3.6 GHz auction

On 8 March 2018, the Minister for Communications and the Arts wrote to the Australian Competition and Consumer Commission (ACCC) requesting advice on whether allocation limits should be imposed in the 3.6 GHz auction. The Minister has requested the ACCC's advice by 30 April 2018. The Minister's letter to the ACCC can be found on our website.

Under the *Radcommunications Act 1992*, the Minister may direct the ACMA to develop procedures to impose allocation limits (also known as competition limits) on the sale of spectrum licences. Limits may be imposed on the amount of spectrum that participants can purchase and apply to specified bands of spectrum. In making such a direction the Minister may seek the ACCC's advice on the allocation limits that should apply and has done so in this case.

As part of the preparation of our advice, we are interested in your views on a range of matters in relation to the 3.6 GHz auction, including likely intended uses of spectrum in the 3.6 GHz band and the need for, and impact of, imposing allocation limits in the 3.6 GHz auction.

Likely intended uses of the 3.6 GHz band

The ACCC understands the 3.6 GHz band will be utilised for wide-area broadband deployments, notably mobile broadband and fixed wireless. In particular, this band is likely to be used for early 5G deployment as the broader 3.3–3.8 GHz frequency range has been identified internationally as a pioneer band for 5G services.

We anticipate a high level of demand for the available 3.6 GHz spectrum, as indicated by submissions to the ACMA's *Future use of the 3.6 GHz band—Options paper*. The ACCC also understands that mobile network operators (MNOs) have indicated that they will require 100 MHz of contiguous spectrum in the 3.3–3.8 GHz frequency range to deliver 5G services, meaning some bidders may seek to acquire up to 100 MHz of 3.6 GHz spectrum in the auction.

The ACCC welcomes your views on the likely intended uses of the 3.6 GHz spectrum and the effect possible allocations would have on an operator's ability to provide a service.

1. What are the likely intended uses of 3.6 GHz spectrum?
2. What is the minimum allocation of 3.6 GHz spectrum for the likely intended uses? What is the optimal allocation of 3.6 GHz spectrum for the likely intended uses?
3. Taking into account equipment availability, when would you be able to provide services using 3.6 GHz spectrum, if you acquired it? Please specify the services.
4. Do you consider substitutes exist for the 3.6 GHz spectrum, in light of the likely intended uses of the 3.6 GHz spectrum? To what extent are these fully-effective substitutes?
5. Is mmWave spectrum a complement or substitute (or neither) for 3.6 GHz spectrum?

Relevant downstream markets

In providing its advice, the ACCC considers the impact allocation limits may have on competition in downstream markets. The ACCC is of the preliminary view that the relevant markets are likely to be both the national mobile services market and regional and metropolitan fixed broadband markets. This is because the 3.6 GHz band can be used for both mobile broadband and fixed wireless services.

The ACCC considers the mobile services market a national market. This is because a MNO's coverage in regional Australia influences demand for its services in metropolitan areas, and competition in metropolitan areas affects the prices of services available to consumers in regional areas due to nationally consistent service offerings.

Fixed wireless services are primarily used to provide broadband to consumers and businesses at a fixed location via a wireless access network. Fixed wireless services compete with other broadband access technologies used to provide similar services, such as cooper/DSL, fibre, HFC and satellite. There may also be geographic variations in the availability and type of service. Mobile services are increasingly competing with fixed broadband services, as a consumer may use a mobile broadband service at a fixed location. This is likely to increase with the advent of 5G services. However, a fixed service cannot substitute mobile services due to the mobility component.

Another potentially relevant market is the market for the provision of Internet of Things connectivity. The Internet of Things (IoT) encompasses a diverse range of emerging technologies with the common attribute of communication between devices or 'things'.

In preparation of our advice, the ACCC will consider the competitive dynamics in these markets and the impact allocation limits may have in those markets.

6. What do you think are the relevant downstream markets for the purposes of the ACCC's analysis? Please provide evidence and reasons for your view.

State of competition in the relevant markets

To assess the state of competition, the ACCC generally considers a range of factors including market concentration, demand and supply substitutes, price competition and the range and quality of services on offer.

Consistent with the views expressed in the final report for the domestic mobile roaming declaration inquiry,¹ the ACCC considers the market for retail mobile services is a national market for similar but differentiated services, with the MNOs competing over a number of factors, including the extent of network coverage, the quality and depth of coverage, retail

¹ ACCC, *Domestic mobile roaming declaration inquiry – Final report*, October 2017.

support, price and service inclusions. There are currently three MNOs with TPG soon to enter as a fourth. All three current MNOs also provide wholesale services to a variety of Mobile Virtual Network Operators (MVNOs).

The fixed broadband market is currently undergoing structural change with the rollout of the NBN. There are currently four dominant providers – Telstra, Optus, TPG, and Vocus – which operate extensive transmission networks and provide competitive retail services in both the fixed voice and broadband markets. They are also horizontally integrated in the mobile markets both as MNOs such as Telstra and Optus and MVNOs. In addition, VHA has entered the fixed broadband market via NBN.

NBN Co uses fixed wireless to service customers in outer urban, regional and rural areas. Fixed wireless services are also supplied by non-NBN network operators who are typically vertically integrated and operate in specific geographic areas.

Convergence between the fixed line and mobile services appears to be increasing as network improvements and technology advancements mean mobile networks are capable of delivering downstream voice and broadband services at a comparable cost and service quality to fixed line networks, in terms of speed and reliability in areas where they have coverage. This is likely to continue further with the advent of 5G.

As a result, there is now a greater opportunity for competition at the network level, as the dominant fixed line network, NBN, could face competition not only from other fixed line networks such as non-NBN fibre networks, but also from wireless networks (mobile networks and fixed wireless networks) if data allowances significantly increase.

With regard to the market for IoT connectivity, the nature of these services makes it difficult to assess competition in the supply of these services. At the connectivity layer, due to the availability of alternative wireless technologies and standards (as distinct from traditional mobile networks), barriers to entry have been lowered, which has enabled the entry of new specialist wireless connectivity providers. These new entrants, such as NNN Co and Thinxtra are deploying low-power wide-area (LPWA) networks almost as extensive as the existing mobile networks. These new entrants are able to deploy geographically extensive networks which support connectivity to large numbers of low-cost, low power sensors.

Telstra, Optus and VHA have all either deployed or commenced the rollout of LPWA networks.

However, different applications may require different connectivity solutions. For example, LPWA networks may be suitable for deploying large numbers of low-powered sensors but may not be suitable for applications such as connected cars. This means that while there are various wireless technologies that can be utilised to provide connectivity for IoT services, some may be preferred or more suitable for certain type of applications compared to the others.

7. Do you intend to use the 3.6 GHz spectrum in metropolitan or regional areas, or both? How would the acquisition of 3.6 GHz spectrum impact your forward looking investments in mobile or other infrastructure?
8. Would you be constrained from competing effectively in the relevant markets if you did not acquire spectrum in the 3.6 GHz band? Please provide evidence and reasons for your view.

Current spectrum holdings

As noted previously, the broader 3.3–3.8 GHz frequency range has been identified a pioneer band for 5G services. This includes the 3.4 GHz spectrum band² which is currently licensed by Optus, NBN and Telstra.

One option to allow optimal allocation of 3.6 GHz spectrum is take into consideration holdings in the 3.4 GHz band in the determination of any potential allocation limits. Another option is to take into account more broadly, spectrum holdings in other bands that are used to provide mobile service in determining the appropriate allocation limits. The ACCC welcomes your views on whether existing spectrum holdings should be considered in an assessment of allocation limits in the 3.6 GHz auction.

9. Should existing spectrum holdings be considered in any assessment of allocation limits? Please provide evidence and reasons for your view.
10. If so, should all spectrum holdings be considered? Or only certain frequency bands?
11. If the ACCC were to consider existing spectrum holdings in its assessment of possible allocation limits, what factors do you think would need to be considered?

The need for allocation limits

Allocation limits have regularly been imposed on spectrum auctions in the past. The principal reason for allocation limits is to prevent monopolisation of the spectrum by any one operator.

The ACCC's current approach to allocation limits is to prevent monopolisation of the band being auctioned by any one operator. This generally results in allocation limits that theoretically enable all operators to acquire spectrum within the single band (in-band limits).

However, as operators require large contiguous blocks of 3300 – 3800 MHz spectrum for early 5G service deployment, in-band limits have the potential to result in inefficient outcomes by preventing optimal allocation. Therefore, a new approach may be needed.

For example, the ACCC may recommend allocation limits that take into account existing holdings in specific bands and restrict a carrier from holding, in aggregate, a specific amount of spectrum within these bands. The ACCC considers that existing or growing asymmetry in spectrum holdings between competing carriers could be a key reason for adopting this type of approach.

The ACCC may also recommend to the Minister that no allocation limits apply, instead relying on application of Section 50 of the *Competition and Consumer Act 2010* which prohibits acquisitions that have the effect, or be likely to have the effect, of substantially lessening competition in any market.

The ACCC welcomes your views on what allocation limits, if any, should be imposed on the 3.6 GHz auction.

² The 3.4 GHz band means the following frequency bands:

- (a) 3425 MHz to 3442.5 MHz;
- (b) 3442.5 MHz to 3475 MHz;
- (c) 3475 MHz to 3492.5 MHz; and
- (d) 3542.5 MHz to 3575 MHz.

12. Do you think allocation limits are necessary for the auction of 3.6 GHz spectrum?
13. If so, what do you think appropriate allocation limits would be? How would the application of these allocation limits affect competition in the relevant markets?
14. Should these allocation limits apply to all bidders?

Other factors for consideration

This letter is not intended to be an exhaustive list of issues and the ACCC welcomes views on any other factors that you think is relevant in our assessment on possible allocation limits.

15. Are there any other factors you think the ACCC should consider in its assessment of possible allocation limits?

Next steps

We would appreciate your comments by 5:00pm on 3 April 2018. Responses should be emailed to tara.morice@accc.gov.au and copied to brendan.staun@accc.gov.au.

Yours sincerely

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