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

Consultation paper

November 2020

Contents

1. Introduction

On 27 October 2020, the Hon Paul Fletcher MP, Minister for Communications, Cyber Safety and the Arts (the Minister), on advice from the Australian Communications and Media Authority (ACMA), made a reallocation declaration for spectrum in the 850 MHz expansion band and the 900 MHz band (850/900 MHz allocation). The allocation is scheduled to take place in late 2021.

The ACMA plans to allocate 2 x 10 MHz in the 850 MHz expansion band and 2 x 25 MHz in the 900 MHz band across Australia via spectrum licences.

Under the *Radiocommunications Act 1992*, the Minister may direct the ACMA to develop procedures to impose allocation limits (also known as competition limits) on the allocation of spectrum.

Limits may be imposed on the amount of spectrum that a person or a group of specified persons can use as a result of allocation of spectrum licences and apply to specified bands of spectrum. In making such a direction, the Minister may seek the Australian Competition and Consumer Commission's (ACCC) advice on the allocation limits that should apply.

On 27 October 2020, the Minister wrote to the ACCC requesting advice on whether allocation limits should be imposed in the 850/900 MHz spectrum auction, and if so, what those allocation limits should be.

The Minister has asked that the ACCC, in preparing its advice, take into account the communications policy objectives for this allocation, which were released in May 2020.[1] One of the communications policy objectives is supporting continuity of services. This recognises that there are existing users in the 900 MHz band and there is a need to ensure that the allocation minimises potential impact to consumers as a result of the changes to spectrum holdings. The Minister noted in his letter that he is particularly conscious of this policy objective and understands there may be options to use allocation limits to promote this objective. The Minister has expressed the view that there are grounds to guarantee 2 x 5 MHz of spectrum for Optus and TPG Telecom (TPG) in the 900 MHz band and that he is inclined to do this by directing the ACMA to impose allocation limits that will achieve this outcome.[2] The Minister is interested in the ACCC's advice on whether there would be grounds to also guarantee Telstra 2 x 5 MHz of spectrum.

In addition, the Minister is interested in the ACCC's views on the merits of applying limits that take account of carriers' holdings in all sub-1 GHz spectrum bands, i.e. 700 MHz, 850 MHz and 900 MHz bands, which can be considered broadly substitutable.

The Minister has asked that the ACCC provide its advice by 19 February 2021.

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1 See the Department of Infrastructure, Transport, Regional Development and Communications website at: https://www.communications.gov.au/documents/communications-policy-objectives-allocation-850-and-900-mhz-bands.

2 Currently, Optus and TPG rely on the 900 MHz band to provide 3G services.

2. Consultation process

This consultation paper seeks information to assist the ACCC in preparing its advice to the Minister about appropriate allocation limits to apply to the 850/900 MHz allocation.

A number of issues for comments are included throughout the paper and a consolidated list is provided in **Appendix A.**

The ACCC will accept submissions from interested parties until **5pm, Friday 18 December 2020**. Submissions received after this time may not be given due consideration.

Submissions should be sent to:

- Tara Morice, Director, Infrastructure Regulation Division, ACCC (tara.morice@accc.gov.au), and
- Chris Xie, Assistant Director, Infrastructure Regulation Division, ACCC (chris.xie@accc.gov.au).

The ACCC will consider all submissions as public submissions and will post them on the ACCC's website. If you wish to submit commercial-in-confidence material, please submit both a public and a confidential version of your submission. The confidential version should clearly identify commercial-in-confidence material and the public version should clearly identify where commercial-in-confidence material has been removed.

The ACCC has published a guideline setting out the process parties should follow when submitting confidential information to the ACCC. The ACCC Information Policy June 2014 sets out the general policy of the ACCC on the collection, use and disclosure of information. A copy of the guideline and policy are available on the ACCC website.

3. The ACCC's approach to this advice

The ACCC intends to conduct its assessment of whether allocation limits are required, and if so what those allocation limits should be, for the 850/900 MHz allocation based on the following criteria:

- Promotion of competition in downstream markets for the long-term interests of end-users and to encourage investment in infrastructure and innovation, including in regional Australia.
- Supporting deployment of 4G and 5G technologies
- Supporting continuity of services.

These criteria draw on the Communications Policy Objectives[3] for the allocation of the 850 MHz expansion band and the 900 MHz band, which the Minister requested the ACCC have regard to in providing its advice.

The ACCC also notes that the Minister has indicated that he is inclined to guarantee 2 x 5 MHz of spectrum in the 900 MHz band for each of Optus and TPG in order to support continuity of services. This is because Optus and TPG still rely on the 900 MHz band to provide 3G services. The clearance and reallocation of the band could potentially impact Optus' and TPG's ability to continue to operate their 3G networks, causing service continuity issues for consumers who use their 3G services. The Minister has asked for the ACCC's advice on whether there are grounds to also guarantee 2 x 5 MHz of spectrum for Telstra. The ACCC will assess this question having regard to the criteria noted above.

A key question that the ACCC asks in assessing the impact of the allocation on competition in the relevant markets is whether the failure to acquire spectrum in the allocation would constrain an operator's ability to compete effectively in the relevant markets. For this reason, it is important to understand the services that are likely to be deployed using the spectrum available in this allocation, and to identify the downstream markets that rely on the spectrum to be allocated. Importantly, the ACCC will examine the state of competition within those markets and assess how the allocation of this spectrum is likely to promote competition.

The ACCC is seeking views from stakeholders on these matters, and other factors that might be relevant to the consideration of allocation limits.

[3] See the Department of Infrastructure, Transport, Regional Development and Communications website at: https://www.communications.gov.au/documents/communications-policy-objectives-allocation-850-and-900-mhz-bands.

4. Potential use of, and demand for, 850 and 900 MHz bands

Both the 850 MHz expansion band and the 900 MHz band are sub-1 GHz or low-band spectrum. Low-band spectrum is particularly suited to providing the coverage layer of a wireless network, enabling a network to provide superior in-building coverage and coverage over a wide geographic area.

There are in total 2 x 25 MHz of spectrum in the 900 MHz band and 2 x 10 MHz in the 850 MHz expansion band available for allocation. The spectrum in the 900 MHz band is currently held by the three mobile network operators (MNOs) via apparatus licences. It was originally allocated and configured for the provision of 2G mobile services. Since the shutdown of their 2G networks, Optus and TPG have been using this spectrum for the provision of services on the 3G networks.[4] As part of the band-clearing and reallocation process, this band is to be reconfigured for more efficient deployment for 4G and potentially 5G services.

The figure below shows the current and planned configuration of the overall 850 MHz band and the 900 MHz band.

Figure 1 Current and planned configuration of 850 MHz and 900 MHz bands

Note 1: The current spectrum licensed holdings shown in the 850 MHz band relate to regional area holdings. Both Telstra and TPG have 2 x 10 MHz in metropolitan areas (Sydney, Melbourne, Brisbane, Perth and Adelaide).
Note 2: As illustrated, the Government has indicated it will reserve spectrum for a future public safety mobile broadband (PSMB) capability in the lowest 2 x 5 MHz of the 850 MHz expansion band.

The ACCC considers that the most likely use for both the 850 MHz expansion band and the 900 MHz band is to support the provision of mobile services and that demand for this spectrum is likely to come from the MNOs.

The 850 MHz and 900 MHz bands are suitable for the deployment of any generation of mobile technology, including 4G and 5G. The acquisition of this spectrum will provide the MNOs with more low-band options, which would enable them to roll out their 5G networks over time. In the short term, the ACCC understands that Optus and TPG would likely want to

[4] As the 900 MHz band is not currently configured optimally for 3G services, we understand that some of the MNOs are using a small part of this spectrum to provide Narrowband Internet of Things (NB-IoT) services in addition to 3G services.

continue to use the 900 MHz, if acquired, to provide 3G services, before they are ready to shut down their 3G networks.

The spectrum within these bands may also be used for other wireless services, such as wireless connectivity used to support Internet of Things (IoT) deployment, fixed wireless services, and enterprise or private networks. We are interested in whether there is demand for this spectrum to be used for wireless services, other than or in addition to mobile services.

Questions

1. What are the likely intended uses for spectrum in the 850 MHz expansion band and the 900 MHz band?
2. If you intend to use the spectrum for mobile services:

   (a). Do you intend to acquire spectrum in the 850 MHz expansion band or the 900 MHz band or both?

   (b). How much spectrum do you want to acquire?

   (c). How are you planning to use any spectrum you acquire? Is there likely to be any difference in how you will use the spectrum in metropolitan areas and regional and remote areas? Please also comment on the extent to which the acquisition would support deployment of 4G and 5G services.

5. Relevant downstream markets

In providing its advice, the ACCC considers the extent to which the allocation may impact competition and investment in the downstream markets. The ACCC's preliminary view is that the retail mobile services market is likely to be a relevant downstream market.

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

The ACCC recognises that the extent of infrastructure competition in the national mobile services market differs across metropolitan, regional and remote areas of Australia. The state of competition in the national mobile services market is discussed in the next chapter.

Questions

3. What are the relevant downstream markets for the purpose of assessing the impact of the 850/900 MHz allocation on competition?

4. Are there likely to be future relevant markets that have not been identified?

6. State of competition in 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. This chapter discusses the state of competition in the national mobile services market.

The ACCC considers that the national mobile services market is a market for similar but differentiated services, with service providers competing over a number of price and non-price related factors. The market is dominated by the three national MNOs, Telstra, Singtel Optus (Optus) and TPG Telecom (TPG), which collectively account for 87 per cent of the mobile services market as at June 2019.[5] As such, the market is highly concentrated. After the merger between Vodafone Hutchison Australia and TPG, a potential new MNO entry is unlikely in the foreseeable future given the high barriers to entry, of which access to a sufficiently broad range of spectrum is particularly significant.

The rest of the market (13 per cent as at June 2019) is served by a large number of mobile virtual network operators (MVNOs).[6] As MVNOs rely on the MNOs' mobile infrastructure to provide services, their ability to differentiate on network-related features is limited. Instead, they compete on lower prices, and simpler and more flexible plan features to attract specific segments of the market.

An MNO may also sell retail services through a subsidiary MVNO to target a different market segment and maintain their own brand as a more premium option. For example, Telstra operates Belong, Optus will operate Amaysim after a recent acquisition and will soon launch a new brand Gomo, and TPG operates Lebara and has recently announced a new brand, Felix.

Unlike MVNOs, the MNOs compete heavily on non-price related factors, such as geographic coverage and network quality. This dimension of competition involves building new infrastructure over time to expand the reach of the networks and upgrades to new technologies that improve network capacity and performance.

Currently, the MNOs provide services predominantly on 3G and 4G networks but have started rolling out 5G networks. The 3G networks have the largest geographic reach, followed by 4G networks while the 5G network footprints are still very limited by comparison. Optus and TPG are currently using the 900 MHz band to provide 3G services. While traffic on 3G networks has declined over the years, the ACCC understand that 3G services remain important, particularly for regional consumers. This is due to the geographic reach of 3G networks, and the fact that voice traffic is still carried over 3G networks if handsets are not compatible with voice-over-LTE (VoLTE) (that is 4G and 5G networks). While Telstra has announced that it plans to shut down its 3G network by June 2024, Optus and TPG have not announced their intentions regarding the shutdown of their 3G networks.

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.

The MNOs are competing to roll out their 5G networks, with Telstra and Optus already offering 5G mobile and home broadband services. Currently, the MNOs use spectrum in the

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5 ACCC, *Communications Market Report 2018–19*, December 2019, p. 30.

6 Ibid.

3.4–3.6 GHz band for 5G services. Over time, the MNOs will need to start using low-band spectrum for broader 5G network roll outs and will not be able to rely on mid-band spectrum alone. This means that the 850/900 MHz allocation will be important in ensuring that the MNOs have sufficient low-band spectrum that will provide a suitable path to future 5G network rollouts. As low-band spectrum is scarce and there is currently no foreseeable allocation of another low band, this allocation will potentially have a significant impact on the MNOs' ability to compete in mobile markets in the medium to long run.

While the MNOs compete on network quality and geographic coverage, the extent of infrastructure competition differs between metropolitan areas and regional areas. This is because the commercial incentives to invest in infrastructure decline in the more regional and remote areas of Australia where the economic returns from investments decrease. The ACCC understands however, that there are operators, such as Pivotel, that focus on providing mobile solutions using both terrestrial and satellite technologies in regional and remote areas which are otherwise not adequately served by the national MNOs' networks. The ACCC is interested in views on how the allocation of the 850/900 MHz spectrum may impact investments in regional and remote Australia.

Questions

5. Do you have any comment on the state of competition in the national mobile services market or other relevant markets that you consider should be taken into account? What do you think are the key competition issues arising from the 850/900 MHz allocation in these markets?

6. How would the allocation of the 850/900 MHz band impact investment in regional and remote Australia?

7. Current spectrum holdings

In assessing whether allocation limits are necessary to ensure that the allocation promotes competition in relevant markets and encourages efficient investment, the ACCC will have regard to the current spectrum holdings of potential bidders.

The ACCC has in the past considered it appropriate to take into account existing holdings in bands that are substitutable to the band(s) subject to the allocation. For instance, in 2018, the ACCC recommended allocation limits for the 3.6 GHz allocation that took into account potential bidders' existing holdings in the 3.4 – 3.5 GHz bands.[7]

The ACCC notes that the Minister has specifically sought the ACCC's views on the merits of applying allocation limits that take into account existing holdings in all sub-1 GHz bands, on the basis that these bands are broadly substitutable with each other. The ACCC's preliminary view is that existing MNO holdings in the 700 MHz and 850 MHz bands are relevant in assessing appropriate allocation limits to apply to the allocation. This is based on the understanding that sub-1 GHz bands have similar propagation characteristics and are therefore broadly substitutable with each other. However, the ACCC is interested in views on whether there are other non-technical factors affecting substitutability.

The table below shows the current holdings in the 700 MHz and 850 MHz bands. The 700 MHz band was allocated as nationwide licences whereas the 850 MHz was allocated as metropolitan and regional licences. The apparatus licence holdings in the 900 MHz band are not shown as the band will be cleared for allocation.

Table 1 Existing holdings in the 700 MHz and 850 MHz bands

Sub-1 GHz bands		**Telstra**	**Optus**	**TPG**	**Total available spectrum**
700 MHz (MHz)		40	20	30	90
850 MHz (MHz)	Metro	20	0	20	40
	Regional	30	0	10	40
Total (MHz)	Metro	**60**	**20**	**50**	**130**
	Regional	**70**	**20**	**40**	**130**
Percentage holdings	**Metro**	**46%**	**15%**	**38%**	**100%**[8]
	Regional	**54%**	**15%**	**31%**	**100%**

As shown by the table above, there is significant asymmetry of holdings in the sub-1 GHz bands. Telstra has the highest amount of low-band spectrum, holding 46 per cent of all available spectrum in metropolitan areas and 54 per cent in regional areas. TPG also holds a substantial amount of low-band spectrum. By contrast, Optus holds significantly less low-band spectrum (only 15 per cent of total low-band spectrum available) than Telstra and TPG. Optus only holds 700 MHz band spectrum and no 850 MHz band spectrum.

Both Telstra and Optus are using their 700 MHz spectrum for 4G services. Telstra is using the 850 MHz band for 3G services and has the ability to 'refarm' this spectrum for 5G use after it shuts down its 3G network in 2024. TPG has been using the 850 MHz for 4G services. Following the merger, TPG is now able to use its 700 MHz holdings for either 4G or 5G services. As indicated earlier, both Optus and TPG rely on their apparatus licence

[7] A public version of the ACCC's advice on allocation limits for the 3.6 GHz band is available on the ACCC website at: https://www.accc.gov.au/regulated-infrastructure/communications/mobile-services/spectrum-competition-limits/request-for-advice-36-ghz-spectrum.

[8] The figures do not add up to 100% due to rounding.

holdings in 900 MHz to deliver 3G services. To the ACCC's knowledge, Telstra has been using its 900 MHz holdings in limited geographic areas since the 2G shutdown. This would suggest that Telstra is unlikely to need the 900 MHz band to support the continued provision of any existing service.

Questions

7. Should existing spectrum holdings in sub-1 GHz bands (i.e. 700 MHz and 850 MHz bands) be considered in any assessment of allocation limits? Please provide evidence and reasons for your view.

8. Should existing spectrum holdings in bands other than the sub-1 GHz bands be considered in any assessment of allocation limits? Please provide evidence and reasons for your view.

9. 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?

10. Are there grounds to guarantee Telstra 2 x 5 MHz of spectrum in this allocation? Please provide evidence and reasons for your view.

8. The need for allocation limits?

While price-based allocation mechanisms, such as auctions, are widely used to allocate spectrum when demand exceeds supply, unconstrained auctions do not always lead to an efficient allocation and use of spectrum resources. This is because in an unconstrained auction, the bidders may have incentives to acquire more spectrum than they need, since the value they place on the spectrum includes both the value of using the spectrum as well as the value for keeping their competitors from acquiring the relevant spectrum. This could lead to anti-competitive outcomes in downstream markets which rely on the spectrum as essential inputs, and undermine the public benefit that could be derived from the use of the spectrum.

Allocation limits are important tools to ensure that spectrum allocations promote competition in downstream markets that rely on spectrum as an essential input, thereby maximising the public benefit derived from the use of spectrum as a scare resource. Allocation limits have been regularly imposed in the past to address competition concerns that may arise from spectrum allocations.

In the past, the ACCC has recommended the imposition of allocation limits that apply within a particular band and allocation limits that apply across a number of bands that are considered substitutes of each other. The former is appropriate in circumstances where no substitutable band exists and the key competition concern is to prevent the monopolisation of spectrum within a particular band. The ACCC recommended this approach in advice to the Minister on the 26 GHz allocation planned for early 2021.[9]

The cross-band limit is appropriate in circumstances where some potential bidders already have substantial holdings in substitutable band(s). In these cases, an in-band limit may not be sufficient to deal with potential asymmetry of spectrum holdings in a particular range of bands and a cross-band limit is more appropriate. The ACCC recommended a cross-band limit in its advice to the Minister for the 3.6 GHz allocation in 2018.[10]

Another option, which the ACCC has not recommended in the past, is to adopt an overall spectrum cap on all bands that are used to provide a specific service, in this case, mobile services.

In relation to the 850/900 MHz allocation, the Minister has specifically asked the ACCC's views on the merits of imposing allocation limits that take into account all sub-1 GHz bands. Given the substitutability between the sub-1 GHz bands, this would suggest that a cross-band limit that applies to overall holdings in the 700 MHz band, 850 MHz band, as well as any spectrum acquired in the upcoming 850/900 MHz allocation would be a reasonable option.

The ACCC understands there may be complications in imposing a cross-band limit to all sub-1 GHz holdings. This is because the MNOs have different holdings in metropolitan and regional areas due to the sub-national licences in the 850 MHz band. The ACMA has not made a final decision on the geographic configurations for the 850 MHz expansion band and the 900 MHz band. These factors are important to the operation of a cross-band limit and would need to be considered in assessing the feasibility of a cross-band limit in this allocation.

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9 A copy of the ACCC's advice on allocation limits for the 26 GHz band allocation is available on the ACCC website at: https://www.accc.gov.au/regulated-infrastructure/communications/mobile-services/spectrum-competition-limits/request-for-advice-26-ghz-spectrum.

10 A public version of the ACCC's advice on allocation limits for the 3.6 GHz band allocation is available on the ACCC website at: https://www.accc.gov.au/regulated-infrastructure/communications/mobile-services/spectrum-competition-limits/request-for-advice-36-ghz-spectrum.

The ACCC may also recommend to the Minister that no allocation limits should apply, and instead rely on section 50 of the *Competition and Consumer Act 2010*, which prohibits acquisitions that may have the effect of substantially lessening competition in a market.

Questions

11. Do you think that allocation limits are necessary for the 850/900 MHz allocation? Relevantly, would allocation limits promote competition and encourage investment in regional and remote areas of Australia?

12. If so, what do you think the appropriate allocation limits should be? Do you think different allocation limits should apply to metropolitan and regional areas? How would the application of these allocation limits affect the downstream relevant market?

13. Are there other factors that you consider the ACCC should consider in assessing the possible allocation limits to apply?

Appendix A Consolidated list of questions

1. What are the likely intended use for spectrum in the 850 MHz expansion band and the 900 MHz band?
2. If you intend to use the spectrum for mobile services:

   (a). Do you intend to acquire spectrum in the 850 MHz expansion band or the 900 MHz band or both?

   (b). How much spectrum do you want to acquire?

   (c). How are you planning to use any spectrum you acquire? Is there likely to be any difference in how you will use the spectrum in metropolitan areas and regional and remote areas? Please also comment on the extent to which the acquisition would support deployment in 4G and 5G services.
3. What are the relevant downstream markets for the purpose of assessing the impact of the 850/900 MHz allocation on competition?
4. Are there likely to be future relevant markets that have not been identified?
5. Do you have any comment on the state of competition in the national mobile services market or other relevant markets that you consider should be taken into account? What do you think are the key competition issues arising from the 850/900 MHz allocation in these markets?
6. How would the allocation of the 850/900 MHz band impact investment in regional and remote Australia?
7. Should existing spectrum holdings in sub-1 GHz bands (i.e. 700 MHz and 850 MHz bands) be considered in any assessment of allocation limits? Please provide evidence and reasons for your view.
8. Should existing spectrum holdings in bands other than the sub-1 GHz bands be considered in any assessment of allocation limits? Please provide evidence and reasons for your view.
9. 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?
10. Are there grounds to guarantee Telstra 2 x 5 MHz of spectrum in this allocation? Please provide evidence and reasons for your view.
11. Do you think that allocation limits are necessary for the 850/900 MHz allocation? Relevantly, would allocation limits be promote competition and encourage investments in regional and remote areas of Australia?
12. If so, what do you think the appropriate allocation limits should be? Do you think different allocation limits should apply to metropolitan and regional areas? How would the application of these allocation limits affect the downstream relevant market?
13. Are there other factors that you consider the ACCC should consider in assessing the possible allocation limits to apply?