



AUSTRALIAN COMPETITION
& CONSUMER COMMISSION

Allocation limits advice for the 3.4–4.0 GHz Remote spectrum allocation

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List of abbreviations and acronyms

3GPP	3rd Generation Partnership Project, a standards body
5G	Fifth generation, a mobile technology
ACCC	Australian Competition and Consumer Commission
ACMA	Australian Communications and Media Authority
ARCIA	Australian Radio Communications Industry Association
AWL	Area-wide apparatus licence
CCA	<i>Competition and Consumer Act 2010</i>
FDD	Frequency-division duplexing, a multiplexing technology
FSS	Fixed satellite service
GHz	Gigahertz
HCIS	Hierarchical cell identification scheme, a geographical naming system administered by the ACMA
LA WBB	Local-area wireless broadband
LTE	Long-term evolution (also known as 4G, fourth generation), a mobile technology
LTIE	Long-term interests of end users
MHz	Megahertz
MNO	Mobile network operator
MPS	Ministerial Policy Statement
PTP	Point-to-point
Radcomms Act	<i>Radiocommunications Act 1992</i>
SLC	Substantial lessening of competition
SSWG	Communications Alliance Satellite Services Working Group
TDD	Time-division duplexing, a multiplexing technology
TPG	TPG Telecom
UIOLI	'Use-it-or-lose-it'
WA WBB	Wide-area wireless broadband
WISP	Wireless internet service provider

1. Introduction

1.1. Request for advice and ACCC consultation

The Australian Communications and Media Authority (ACMA) is planning to make new assignments for 600 MHz of spectrum in the 3.4–4.0 GHz band in remote areas of Australia. The ACMA plans to allocate this spectrum in the first half of 2022. New assignments in this spectrum band will be made available as area-wide apparatus licences (AWLs).

On 6 August 2021, the ACMA wrote to the ACCC seeking advice on whether allocation limits under section 102G of the *Radiocommunications Act 1992* (Radcomms Act) should be imposed on the administrative issue of apparatus licences in the 3.4–4.0 GHz band in remote Australia, and if so, what these limits should be.¹

In particular, the ACMA asked for the ACCC's advice on whether allocation limits might be appropriate to mitigate risks to competition at a local level posed in two scenarios:

- if a party were to seek to acquire the entire 600 MHz, or a significant proportion of the available spectrum in a given area or location to withhold from competitors, and for the purposes of obtaining greater revenues in the downstream market; and
- localised areas where competing demand for the spectrum may exceed the available supply, for example, at mine sites, transport corridors and hubs, and potentially some towns.

On 27 August 2021, the ACCC released a consultation paper seeking stakeholders' views on a range of matters relevant to the allocation (Consultation Paper).² Submissions closed on 24 September 2021.

The ACCC received nine submissions. Public submissions are available on the ACCC's website.

Upon the ACCC's request, the ACMA has extended the due date for the ACCC's advice to 12 November 2021.

1.2. Rationale for intervention

Radiofrequency spectrum is a scarce and finite resource that is an essential input into wireless services markets. It is the means by which all wireless communications devices operate and is essential for the provision of services such as mobile telephony, wireless broadband and satellite communications.

Where demand for spectrum is likely to be greater than available supply, the traditional approach is to allow the market to determine the best allocation through price-based allocation methods, such as auctions.

Historically, the ACCC has provided advice on the use of allocation limits within auction settings. Allowing the market to determine the price of spectrum through an auction process can promote allocative efficiency. However, allocating spectrum in an auction to the highest bidder can potentially weaken competition in downstream markets. This is because companies with a strong existing market position will value spectrum, and decide the amount they will bid, based on both the spectrum's technical and commercial value. That is, its value in providing cost-effective services to customers, and the value to be gained by keeping it

¹ ACMA, *Request for advice on allocation limits: 3.4–4.0 GHz in remote areas*, 6 August 2021. (Request for advice)

² ACCC, *Allocation limits advice for 3.4–4.0 GHz allocation in remote areas: Consultation paper*, August 2021. (Consultation Paper)

from competitors. This can detrimentally affect competition and the quality and price of services for mobile services customers.

In this allocation, the ACMA intends to issue licences administratively in the 3.4-4.0 GHz band in remote areas, that is, without the use of a price-based mechanism such as an auction. Price based allocations are generally used by the ACMA where there is a clear expectation of excess demand, and where the value of the spectrum is such that the administrative cost of holding an auction may be justified. We understand that administrative allocations may be used in instances where there is unlikely to be extensive excess demand. Whether allocation limits are required to promote competition in this case depends on clearly establishing the likely demand for the spectrum in various geographic areas. In addition, the process for administrative allocation could also have implications on whether allocation limits are the appropriate mechanism to address any competition issues.

1.3. ACCC advice

Based on the information available, the ACCC has found that there are concerns about the risk of spectrum monopolisation and the impact this may have on the ability of various spectrum users to deploy services in downstream markets. However, the evidence suggests that there is uncertain demand for the spectrum, and the geographical boundaries of the relevant markets are unclear. Competing demand is also likely to come from users that do not compete in the same market. For these reasons, the ACCC does not consider it has a sufficient basis to recommend allocation limits that would promote competition in the relevant markets.

In saying that, the ACCC considers the risk of spectrum monopolisation in this allocation merits further consideration by the ACMA in developing its allocation process in issuing apparatus licences in the 3.4–4.0 GHz band in remote areas. The ACCC discusses this in detail in Chapter 5.

2. ACCC approach to advice

In assessing whether allocation limits are required for the administrative issue of apparatus licences in the 3.4–4.0 GHz band in remote areas, the ACCC has had regard to whether allocation limits are required to promote competition in a relevant market.

2.1. Response to the ACCC's proposed approach in the consultation paper

In the Consultation Paper, the ACCC proposed to have regard to the following factors:

- promotion of competition in a relevant market; and
- encouraging the efficient use of, and investment in, infrastructure.³

In its submission to the consultation paper, Telstra argued that in the absence of a Ministerial Policy Statement (MPS) as to how the object of the *Radiocommunications Act 1992* (Radcomms Act) should be interpreted, the ACCC should confine its advice to pure competition consideration which could prevent the efficient use of the spectrum. Telstra considers that the ACCC should consider whether it is necessary to impose an *ex ante* allocation limit under section 102G of the Radcomms Act to prevent the effect, or likely effect of a substantial lessening of competition (SLC) in a relevant downstream market and, if so, the least restrictive limit needed to prevent that harm.⁴

The ACCC notes that the SLC test, as set out in section 50 of the *Competition and Consumer Act 2010* (CCA), aims to prevent outcomes that result in a reduction in competition in a market. While it may deal with the entrenchment or extension of an already existing position of substantial market power, it is difficult to apply the SLC test to significantly improve market competition.

Allocation limits are an *ex ante* regulatory measure intended to promote competitive outcomes in a market in which spectrum is an essential input. They are important tools to facilitate the development of competitive process in downstream markets and to create an environment where competition can be significantly improved compared to the status quo. For this reason, the ACCC does not consider an SLC test as set out in section 50 of the CCA is appropriate when considering whether allocation limits are required for a particular allocation.

The ACCC considers that a test that examines whether allocation limits are required to promote competition is preferable. Such an approach is consistent with the ACCC's powers and functions under Part XIC of the CCA and with previous assessments in price-based spectrum allocations. Further, we note that section 50 of the CCA applies to the acquisition of spectrum assets, including the issue of a spectrum licence, even if allocation limits are in place.⁵

On the other hand, the ACCC agrees that there is merit in limiting its consideration to competition matters in the absence of any ministerial policies as set out in an MPS. The ACCC has undertaken the assessment based on the criterion of whether allocation limits are required to promote competition in a relevant market. The ACCC considers that this criterion is consistent with the object of promoting the long-term public interest derived from the use of the spectrum, specifically by providing for the management of the spectrum in a manner

³ ACCC, Consultation Paper, p. 5.

⁴ Telstra, *Response to ACCC consultation: allocation limits advice for 3.4–4.0 GHz band allocation in remote areas*, 29 September 2021, pp. 5–6. (Telstra submission)

⁵ See section 71A of the Radcomms Act.

that facilitates the efficient use of the spectrum.⁶ It is also consistent with the legislative intent of factoring in the impact of competition in downstream markets in determining how spectrum management could facilitate the efficient use of spectrum resources.⁷

⁶ Subsection 3(a) of the *Radiocommunications Act 1992*.

⁷ Explanatory Memorandum for Radiocommunications Legislation Amendment (Reform and Modernisation) Bill 2020, p. 20.

3. Overview of allocation

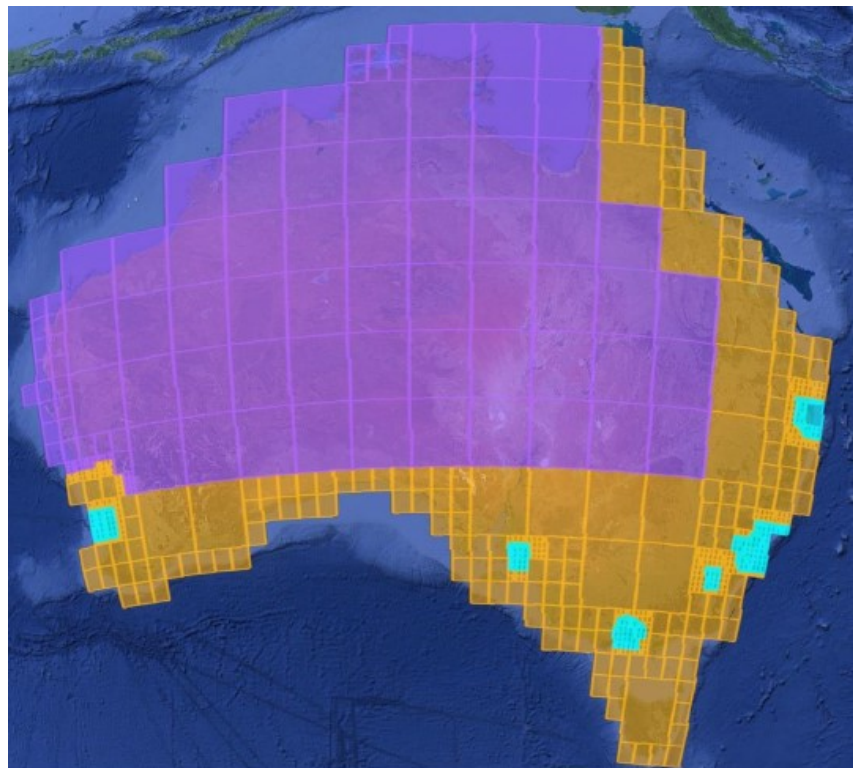
The ACMA is planning to issue area-wide apparatus licences (AWLs) in the 3.4–4.0 GHz band in remote areas. This process will see wireless broadband introduced into the band for the first time in remote areas, alongside existing incumbent uses.

This allocation in the remote area is aligned with existing spectrum-licensed mid-band allocations in the 3.4 and 3.6 GHz bands in metro and regional areas, currently used by mobile network operators (MNOs) for the provision of 5G wireless broadband services.

From 2022, this remote spectrum will be made available for a range of uses, including the provision of wide area wireless broadband (WA WBB), local area wireless broadband (LA WBB) and private network deployments. The band will also continue to be available for incumbent uses, such as point to point (PTP) fixed service links, and fixed satellite service (FSS) earth receive stations.

During the allocation process, there will be up to 600 MHz of spectrum available to be licensed across the remote area. In certain areas there may be less usable spectrum due to existing licences or coordination requirements.

Figure 1 Indicative map of geographic areas for 3.4–4.0 GHz band (remote areas are purple, regional areas are orange, metropolitan areas are blue)



Source: ACMA

In addition to continuing demand from incumbent services, including growing demand from operators of PTP and FSS equipment, the ACCC considers that there may be significant demand for this remote spectrum from applicants wishing to deploy wireless broadband services in the band for the first time.

Spectrum in the band is highly desirable for operators of 5G wireless broadband networks, due to the amount of spectrum, the propagation characteristics of the spectrum, and the

wide availability of internationally harmonised equipment. We discuss the substitutability of this spectrum in Chapter 4.

The ACMA is yet to formally determine a range of allocation settings pertinent to a competition assessment of the impact of the allocation on downstream markets. Decisions yet to be taken include licence duration and conditions of renewal, as well as the exact mechanism for the administrative assignment of licences. We discuss these issues in Chapter 5.

4. Competition assessment

Our competition assessment involves the following steps:

- identifying the relevant downstream markets having regard to the intended use of and demand for the spectrum,
- assessing the state of competition in the relevant downstream markets, and
- analysing any relevant existing holdings that should be considered and how the allocation would likely impact the ability of the operators to compete in the relevant market.

Our competition assessment focuses on the impact that the allocation could have on competition in relevant downstream markets. Spectrum is an intermediate input into the provision of services in the downstream markets. As such, its value comes from its use in the provision of services to consumers and businesses.

The ACCC generally asks whether an operator would be constrained from competing in the relevant downstream markets if it failed to acquire spectrum at an allocation.

4.1. Identifying the relevant downstream markets

Spectrum in the 3.4-4.0 GHz band can be used for the provision of wide area wireless broadband services, such as that typically provided by the MNOs, as well as a wide range of other uses, including local area wireless broadband, and satellite uses.

In the Consultation Paper, the ACCC identified the following relevant markets based on the likely use cases for the spectrum:

- the national mobiles market,
- the fixed broadband market, and
- the private wireless enterprise market.⁸

Submissions tend to provide general, rather than specific information on the likely demand for the spectrum. Submissions generally supported the relevant markets identified in our Consultation Paper. Other than new demand from operators for the purpose of providing services in these downstream markets, submissions also indicate ongoing demand from incumbent users in the band, such as fixed satellite service (FSS) operators and users of the spectrum for fixed point to point links.

These are discussed below.

Demand is uncertain, but likely to vary across the remote area, and over time

Submissions provided little evidence on the likely total demand for the spectrum across the remote area, but those that did submit tended to agree that demand for the spectrum was unlikely to be uniform across the remote area.

Optus submitted that demand was likely to be low overall, with pockets of high demand centred in major population centres and areas of significant economic value.⁹ Likewise, TPG noted that demand was likely to vary across the area with population density.

⁸ ACCC, Consultation paper, p. 9.

On the uncertainty of demand, ARCIA submitted that demand for the spectrum from its members is primarily driven by the emergence of a business case for wireless communications. A business case is contingent upon spectrum being available, which means that demand for an amount of spectrum is likely to be a secondary issue, in contrast to other parties that may acquire the spectrum up front.¹⁰

At some other allocations, such as auctions, demand for the spectrum is expressed simultaneously, at a point in time. This makes sense for allocations where the use case is well known and unlikely to change over the term of the licence. At this allocation however, submissions such as from ARCIA, and those representing the satellite industry, including the Comms Alliance Satellite Services Working Group (SSWG) and Inmarsat, noted the importance of continuing demand for access to the spectrum.¹¹ That is, demand expressed between now and the expiry of the licences, rather than simultaneously at the point of allocation.

It is unclear where in the remote area demand is likely to exceed supply

Given the lack of detailed information available on demand, and particularly the geographic areas in which parties are likely to demand spectrum, there is no clear evidence to support a finding as to whether, and if so, where in the remote area, demand is likely to outstrip supply.

However, we consider it reasonable to assume that areas of excess demand are most likely to arise in two scenarios:

- in areas of relatively high population density, where the deployment of consumer wireless services is commercial, and
- in areas of concentrated economic activity, where the value from the services provided over the spectrum comes from enabling greater economic productivity. This, however, will be in relatively concentrated areas.

TPG submitted that it would be reasonable to assume that demand will outstrip supply in places such as Darwin and Broome.¹² However, it is unclear if this demand will be driven entirely by the national MNOs, who do tend to compete in the same downstream markets, or a mix of the MNOs, and other users of the spectrum operating across a range of downstream markets.

Similarly, in areas of concentrated economic activity, there may be pockets where demand for the spectrum exceeds supply. However, as noted by both Telstra and the SSWG, the location of these areas, typically tied to resource extraction, are by their nature, very difficult to predict ahead of time.¹³

Demand uncertainty makes it difficult to meaningfully define the relevant markets, particularly on geographic dimensions. This is discussed further below.

⁹ Optus, *Submission in response to ACCC Consultation Paper: Spectrum Allocation Limits – 3400-4000 MHz Band in remote areas*, September 2021, p. 8. (Optus submission)

¹⁰ Australian Radio Communications Industry Association, *Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas*, 23 September 2021, p. 5. (ARCIA submission)

¹¹ Communications Alliance Satellite Services Working Group, *Submission to the Australian Competition and Consumer Commission's Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas: Consultation Paper*, 28 September 2021, p. 4 (SSWG submission); Inmarsat, *Response to the ACCC consultation: Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas*, 24 September 2021, pp. 2–3 (Inmarsat submission)

¹² TPG Telecom, *Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas*, p. 2. (TPG submission)

¹³ Telstra submission, p. 16; SSWG submission, p. 5.

There are multiple relevant downstream markets which could be impacted by the allocation

Submissions indicated a range of relevant downstream markets which could be affected by the allocation of spectrum in the 3.4–4.0 GHz band in remote areas.

Telstra agreed with the ACCC that the main relevant markets are the national mobiles market, the fixed broadband market, and the private wireless enterprise market.¹⁴ TPG submitted that [c-i-c]

[c-i-c]¹⁵

Pivotal submitted that the availability of this spectrum will enable the entry of regionally-focused mobile operators, as well as wireless internet service providers (WISPs), and providers of private wireless enterprise connectivity.¹⁶ All of these applications are wide area or local area wireless broadband applications.

The SSWG and Inmarsat both highlighted ongoing demand for the spectrum from incumbent users, particularly satellite uses that support a range of applications, including but not limited to satellite backhaul, IoT services, and commercial air and maritime safety systems.¹⁷

ARCIA by contrast noted that the relevant markets ‘are still being defined’¹⁸, but noted the use of the spectrum in private LTE/5G deployments to support enterprise uses.

The ACCC considers that in addition to those outlined in the Consultation Paper, additional relevant markets for the spectrum could include the range of markets that are served by satellite services that currently rely on the spectrum for fixed earth receive stations. The SSWG, with Inmarsat’s support, submitted that demand for spectrum in order to compete in these markets is ‘continuing and growing’.^{19 20}

The ACCC did not receive any submissions regarding the use of the spectrum for existing point-to-point links, outside of passing references to incumbent uses.

The geographic dimensions of the relevant markets are unclear

The ACMA has indicated that it will issue licences for this spectrum as area-wide apparatus licences (AWLs). AWLs grant the licensee the right to operate multiple devices at a given frequency within a defined area, specified at time of application. As such, applicants are able to define the exact geographic boundaries of the licence they are applying for and create bespoke geographic areas of operation.

In contrast to the allocation of national or large sub-national lots with clearly defined boundaries, AWLs may be as large as the entire remote area being reallocated, or as small as a single HCIS cell. This makes AWLs generally unsuitable for auction under existing formats typically used for the allocation of spectrum licences.

¹⁴ Telstra submission, p. 15.

¹⁵ TPG submission (confidential), p. 2.

¹⁶ Pivotal, Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas: Response to ACCC Consultation Paper, 24 September, p. 3. (Pivotal submission)

¹⁷ Inmarsat submission, p. 3; SSWG submission, pp. 4, 6.

¹⁸ ARCIA submission, p. 5.

¹⁹ SSWG submission, p. 1.

²⁰ Inmarsat submission, p. 4.

Both Optus and Telstra submitted that it was important that MNOs be able to access spectrum across the entire remote area²¹, [c-i-c]

[c-i-c]²²

Pivotel submitted that business viability of acquiring the spectrum would be determined by 'areas with reasonable sized population or enterprises with a strong business case'.²³ ARCIA's submission, which focused on the deployment of private LTE/5G enterprise networks, noted that demand for the spectrum was driven by the viability of the business cases, and that the 'potential geographic dimensions of demanded spectrum are 'impossible to forecast'.²⁴

Telstra agreed that the locations of mining and offshore oil and gas discoveries, which are likely to be a key driver of demand for the spectrum, were by their very nature unpredictable.²⁵

The ACCC considers there is uncertainty around the degree of geographic overlap between demand for the spectrum for the purposes of providing services in different downstream markets.

For example, the SSWG submitted in favour of licensing new C-band satellite services in suburban areas²⁶, and ARCIA noted the emergence of markets for private LTE/5G services in regional areas and 'the general populated areas of Australia'.²⁷

Similarly, Telstra and Optus have both indicated that this spectrum may be used for the provision of enterprise services in areas of high-value economic activity, such as mining or transport, via wide-area public networks.²⁸ These two examples highlight that there is unlikely to be a clear distinction between spectrum being demanded for the provision of wide area wireless broadband, and spectrum being demanded for private deployments. It also demonstrates that it is not possible to determine with any degree of accuracy, where in the remote area a particular downstream market is more or less relevant, or to partition the remote area into separate downstream markets.

4.2. State of competition in relevant downstream markets

The ACCC has considered whether the potential outcomes of a spectrum allocation will promote competition in the relevant downstream markets for the benefit of end users.

As part of this, we considered the current state of competition in the downstream markets and how an allocation might affect the ability of operators to compete effectively in those markets. This analysis assists the ACCC in determining whether allocation limits are required to promote competition in a relevant market.

²¹ Telstra submission, p. 3; Optus submission, p. 9.

²² TPG submission (confidential), p. 1.

²³ Pivotel submission, p. 3.

²⁴ ARCIA submission, p. 5.

²⁵ Telstra submission, p. 16.

²⁶ SSWG submission, p. 8.

²⁷ ARCIA submission, p. 5.

²⁸ Telstra submission, p.11; Optus submission, p. 8.

It is unclear whether the parties likely to demand spectrum, regardless of location, compete in the same downstream markets

It is possible that some use cases, for example the provision of communications at a mine site, can be addressed using a range of technologies and deployment models. Submissions were mixed on whether potential licensees for the spectrum operate in the same downstream markets.

There was some broad agreement that wide area WBB deployments are not fully substitutable with local area WBB deployments. Pivotal noted that this is due to the specialised requirements of certain applications,²⁹ and ARCIA noted that wide area services, such as those deployed by the MNOs, are optimised for consumer use, and do not meet the reliability and latency requirements of enterprise deployment.³⁰

Telstra noted in its submission that 5G network slicing may enable the MNOs to provide enterprise-grade services such as those catered for by private networks over their public networks. In subsequent discussions however, it noted that this is more likely a future development, and that some use cases will continue to require private, bespoke deployments.

Submissions from the Satellite industry noted the large difference between the services provided by C-band satellite deployments and those likely to be deployed by wireless broadband operators. This was a focus of these submissions, noting not only the differences in the downstream markets, but according to the SSWG, the incompatibility of the two, based on interference concerns.³¹ Optus too expressed a view that some form of intra-band segregation was desirable, although in its case between 3GPP-compliant MNO networks and other more 'proprietary' applications.³²

It is unclear from the information we have been provided whether spectrum in this allocation is likely to be demanded by participants in the same downstream markets.

The allocation would enhance the ability of operators to deploy services in various markets, but there is insufficient basis to recommend a specific limit for the purpose of promoting competition

To consider whether a particular allocation might promote competition in the relevant downstream markets, the ACCC examines various likely outcomes from an allocation and assesses whether or not, such an outcome might affect the ability of operators to compete effectively in those markets.

Submissions generally indicate that access to the spectrum would enable various operators to deploy services in the identified downstream markets. The ACCC considers it would be reasonable to conclude that the allocation of the spectrum could enhance the ability of each operator to compete in their respective downstream market.

The ACCC notes that 600 MHz is a large amount of mid-band spectrum to be allocated across the remote area. It is possible that given this large amount of spectrum, many applicants will be able to be comfortably accommodated within the band.

If demand exceeds supply, it is likely there is competing demand from operators providing services in different downstream markets. In such a case, it is not possible for the ACCC to

²⁹ Pivotal submission, p.6.

³⁰ ARCIA submission, pp 3, 7.

³¹ SSWG submission, p. 5.

³² Optus submission, p. 3.

determine what allocation outcome would promote competition where the possible outcomes occur in different downstream markets. For instance, ensuring operators that compete in one market are given the opportunity to acquire sufficient spectrum could result in operators in another market not being able to acquire sufficient spectrum.

Given the uncertainty in demand and in the geographic boundaries of the relevant markets, and the fact that competing demand may come from users that do not compete in the same market, the ACCC does not consider it has a sufficient basis to recommend an allocation limit that would promote competition in the relevant markets. In saying that, the ACCC acknowledges there are concerns regarding spectrum monopolisation in this allocation. The monopolisation of spectrum, which results in less spectrum being available for other users can pose a risk to competition in markets that rely on this spectrum. This broad concern remains relevant to the ACMA's consideration of whether measures should be imposed to limit the amount of spectrum any party could acquire in developing its allocation process. The ACCC discusses this in more detail in Chapter 5.

Submissions were mixed on the general substitutability of other spectrum bands

The ACCC considers that substitutable spectrum is relevant in assessing how the allocation may impact an operator's ability to compete in a relevant market, and in the case where allocation limits are warranted, whether existing holdings should be taken into account.

Optus and Telstra both argued in submissions that their existing spectrum holdings in the remote area complement 3.4-4.0 GHz spectrum rather than substitutes, due to national mobile networks requiring a mix of spectrum bands.³³ Telstra further argued that the MNOs face specific frequency requirements not in place for other kinds of operators, such as WISPs.³⁴

Inmarsat and the SSWG on the other hand both argued that mobile operators have a range of substitutable bands to choose from, including the 700 MHz, 850 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2600 MHz bands.³⁵ These are bands that are currently licensed in part or full to the national MNOs for the provision of mobile services.

ARCIA submitted that no spectrum was available at this time that was a substitute for the 3.4-4.0 GHz band in remote areas, due to the alternatives being spectrum licensed in large, wide-area allocations. In particular, ARCIA's submission noted the unsuitability of millimetre-wave spectrum both on grounds of cost of equipment and propagation characteristics.³⁶

Submissions were similarly mixed on the substitutability of spectrum in the 1800 MHz band with the 3.4-4.0 GHz band. Telstra noted that while 1800 MHz spectrum may be substitutable in some cases, its future availability is not relevant to this allocation due to the relatively small amount available. Telstra argued that technical substitutability is not the only relevant consideration, and that smaller, more fragmented holdings, or the availability of smaller overall amounts must be considered.³⁷

Both the SSWG and Inmarsat submissions implied that the 1800 MHz spectrum in remote areas could be considered substitutable for the purposes of deploying wide area wireless broadband.³⁸

³³ Telstra submission, p. 17; Optus submission, p. 4.

³⁴ Telstra submission, p. 18.

³⁵ SSWG submission, p. 7; Inmarsat submission, p. 5.

³⁶ ARCIA submission, p. 8.

³⁷ Telstra submission, p. 18.

³⁸ SSWG submission, p. 7; Inmarsat submission, p. 5.

Pivotel submitted that 1800 MHz spectrum not be considered substitutable for the purposes of this allocation, as that band is an FDD band, and 3.4-4.0 GHz is a TDD band.³⁹ Pivotel further noted that 1800 MHz and 2100 MHz spectrum is limited to 2x10 MHz per operator in both bands, and is often not available in areas of interest.⁴⁰

DB Telecommunications also highlighted the comparatively limited amount of spectrum available in the 1800 MHz and 2 GHz bands, as well as the potential unavailability of licences due to incumbent operators.⁴¹

Given the ACCC has concluded that it does not have a sufficient basis to recommend an allocation limit for the purpose of promoting competition, the ACCC does not consider it is necessary to make a finding on what spectrum could be considered substitutable with the 3.4 – 4.0 GHz band or the relevance of the ACMA's ongoing review of the 1800 MHz band in remote areas. However, the ACCC acknowledges that this is an issue that will likely need to be considered in future allocations of spectrum in the broader 3.4–4.2 GHz band.

³⁹ Pivotel submission, p. 7.

⁴⁰ Pivotel submission, p. 6.

⁴¹ DB Telecommunications, *Comments on ACCC Consultation – Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas*, 24 September, p. 2. (DB Telecommunications submission)

5. The need for allocation limits?

As noted above, the ACMA has asked the ACCC's advice on whether allocation limits should be imposed on the administrative issue of apparatus licences in the 3.4–4.0 GHz band in remote Australia.

In particular, the ACMA queried whether allocation limits might be appropriate to mitigate any risks to competition at a local level arising in two scenarios:

- if a party were to seek to acquire the entire 600 MHz (or a significant proportion thereof) of available spectrum in a given area or location to withhold from competitors, and for the purposes of obtaining greater revenues in the downstream market, and
- in localised areas where competing demand for the spectrum may exceed the available supply, for example, at mine sites, transport corridors and hubs, and potentially some towns.

There is broad support for measures which prevent the 'spectrum monopolisation' or spectrum hoarding

Submissions generally express the views that an outcome where a single party acquires all or a significant proportion of the available spectrum would be undesirable but are not explicit on the actual competition risk that might arise in any downstream market.

TPG submitted that if the licenses were to be allocated on a 20-year-term on a first come first serve basis, then allocation limits ought to apply as a default because a single operator could attempt to monopolise the spectrum. TPG suggested that in areas where population density is relatively high, an allocation limit of 40 per cent of all available substitutable spectrum would be reasonable, but this could be further refined subject to information the ACCC and/or the ACMA has about expected level of demand. TPG considers a relaxed allocation limit could be used in areas where the population density is low.⁴²

Similarly, Optus submitted that applicants should not be permitted to acquire all spectrum in an area, 'or a significant proportion thereof', particularly where that party does not have any intention of actively deploying services using the spectrum it acquires. However, Optus submitted that where spectrum is assigned through price-based allocations, the case for setting allocation limits will always be stronger. In contrast, Optus considers administrative allocations may be designed to achieve similar outcomes without the need to specify uniform allocation limits that risk leaving spectrum fallow in areas of very low demand. Optus submitted that given the lack of further details on the geographic boundaries, technical framework and licensing arrangements for the spectrum on offer in remote areas, the imposition of allocation limits may not be required. Instead, Optus considers that the ACMA has flexibility to address any spectrum hoarding concerns in the remote areas through the design of their licensing arrangements.⁴³

Telstra submitted that the available evidence suggests the risk to competition in a relevant downstream market in the absence of an allocation limit is low in this case, on the basis that:

- the large amount of spectrum available and the choice to use an administrative allocation method, rather than price-based allocation, suggests that prima facie, there is no significant anticipated excess demand;

⁴² TPG submission, pp. 1–2.

⁴³ Optus submission, pp. 7–9.

- there is a strong degree of heterogeneity in the potential downstream markets for the use of this spectrum which suggests there is little realistic incentive for a party to acquire more spectrum than they would need in order to prevent their competitors from acquiring sufficient spectrum to compete in a downstream market;
- in the ACMA's administrative allocation process for AWLs for the 26 GHz and 28 GHz bands, there was no evidence of either spectrum hoarding nor ambit spectrum claims in the absence of an allocation limit.

As such, Telstra does not consider that the ACCC should recommend the imposition of allocation limits. Telstra considers that the ACMA should use its more flexible powers under section 100 of the Radcomms Act to manage localised competing demand having regard to all relevant matters. Telstra proposed a modified version of the administrative assessment allocation process used by the ACMA for the 26 GHz and 28 GHz band AWLs. Telstra also considers the ACMA could set a five-year licence term and include a 'use it or lose it' (UIOLI) licence renewal statement under section 103A of the Radcomms Act to ensure that any spectrum allocated is used efficiently.⁴⁴

Pivotel submitted there is a risk that an entity may seek to acquire the majority or entire amount of spectrum available without allocation limits. Pivotel noted instances where parties acquired spectrum in some regional and remote areas without any real intention to build infrastructure. Pivotel also considers it would be inappropriate for one or more parties to acquire the vast majority of spectrum purely for sub-letting purposes as this would create a monopoly and or high level of ownership concentration. For these areas, Pivotel advocated for the following allocation limits:

- a limit of 160 MHz for point-to-point services;
- a limit of 200 MHz for point-to-multi-point, LA WBB and WA WBB services; and
- a combined limit of 50 per cent of the total spectrum available for an area per operator of all services.⁴⁵

DB Telecommunications submitted that where access to the spectrum is relatively cheap, users are able to add spectrum to add capacity as a cheaper alternative to moving to more spectrally efficient technologies. DB Telecommunications raised the apparatus licenses spectrum in the 3.6 GHz BWA band as an example. DB Telecommunications noted that after the ACMA abolished an initial limit imposed on this band, two licensees were able to get the majority of the spectrum in an area in Tasmania, with the consequence that no other potential wireless broadband operators were able to access spectrum in that area in subsequent years. DB Telecommunications considers that possible limits between 50 and 100 MHz might be appropriate in the current case, noting different areas may need different limits depending on the number of potential users.⁴⁶

Similarly, ARCIA also noted the effect of relatively cheap spectrum, submitting that major players that deploy wireless broadband services could easily afford to pay a licence fee for the whole amount of spectrum and not have any financial incentive to utilise it. ARCIA argued that other industries, namely the smaller users for LA WBB, who need to be in direct competition with the public carriers also need the spectrum and suggest that 20 per cent of the spectrum be guaranteed for allocation to these smaller players via apparatus licensing.

⁴⁴ Telstra submission, pp. 9–13.

⁴⁵ Pivotel submission, p. 7.

⁴⁶ DB Telecommunications, *Comments on ACCC Consultation – Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas*, 24 September 2021, pp. 3–4.

ARCIA also suggests that a 50 per cent limit could be imposed on the remainder of the spectrum.⁴⁷

Inmarsat and the SSWG expressed concern that allowing wireless broadband into the band in remote areas will deny access to sufficient spectrum for satellite operators. Inmarsat supports an allocation limit on the use of the spectrum for wireless broadband to allow the use of spectrum for fixed satellite services to continue in remote areas.⁴⁸ SSWG considered AWLs should not be issued for wireless broadband deployment in remote areas.⁴⁹

The Department of Defence submitted that [c-i-c] [REDACTED]
[REDACTED]
[REDACTED]⁵⁰ [c-i-c]

There is insufficient basis for the ACCC to recommend an allocation limit for the purpose of promoting competition in the downstream markets

Having regard to the information available, the ACCC does not consider there is a sufficient basis to recommend an allocation limit for the purpose of promoting competition in the relevant downstream markets.

As discussed in Chapter 4, there is uncertainty in demand and in the geographic boundaries of the relevant markets. Further, competing demand is also likely to come from users that do not compete in the same market. In such a case, it is not possible for the ACCC to determine what allocation outcome would promote competition where the possible outcomes occur in different downstream markets.

It is unclear whether, and if so, where the localised areas are that competing demand for the spectrum might exceed supply. It is also likely that in some areas, demand will arise over time rather than at the initial stage of allocation, particularly for private network use cases. While these areas are likely to be areas of economic activity (potential mine sites, etc), it is impossible to predict the specific geographic areas where actual demand will arise over time. Uncertainty regarding demand makes it difficult to predict how the allocation will affect competition in any specific market and heightens the risk that an *ex ante* limit may result in regulatory error, i.e. there is a risk that as actual demand transpires, the limit could prove to be either overly restrictive or loose in some areas.

In the absence of a limit or other means of restricting the amount of spectrum any single party could acquire, there is a possibility that a party could seek to acquire the entire 600 MHz or a significant proportion of the available spectrum in a given area. This poses a risk of spectrum monopolisation which could be detrimental to competition in those markets or regions. While there is insufficient basis to recommend an allocation limit that would promote competition in the relevant markets, the ACCC recognises that the risk of monopolisation might raise competition concerns. These concerns could be addressed by the ACMA in developing its allocation process for the 3.4–4.0 GHz remote allocation. This is discussed further below.

It may still be appropriate for the ACMA to consider measures to prevent a single party from acquiring all or a significant proportion of the spectrum

As noted above, the ACCC acknowledges concerns raised in the submissions regarding the risk of monopolisation of the spectrum in a given area. Submissions suggest there are

⁴⁷ ARCIA submission, p. 9.

⁴⁸ Inmarsat submission, pp. 5–6.

⁴⁹ SSWG submission, p. 8.

⁵⁰ Department of Defence, *Allocation limits advice for 3.4–4.0 GHz band allocation in remote areas (Confidential)*, p. 2.

specific concerns that would need to be considered by the ACMA in deciding whether measures that have the effect of preventing a party or a class of users from acquiring an amount of spectrum would be appropriate. These include that:

- larger operators, such as the MNOs, may have the financial capability to acquire a significant amount of spectrum (given the low cost of spectrum in remote areas) such that insufficient spectrum is left for smaller operators, private network operators or satellite operators in an area.
- parties may seek to acquire a significant amount of spectrum for speculative purposes rather than for the purpose of deploying infrastructure.
- if all the spectrum is allocated at one time, it could potentially preclude access from some private network operators whose demand may arise over time.

These concerns suggest that the allocation process may need to address the following issues:

- how to accommodate competing demand from a range of users and use cases
- how to deal with spectrum wholesalers or speculators
- how to address temporal demand.

Submissions raised a number of options that may be used to address these issues, such as an application window.

As noted in Chapter 4, Telstra advocated for the use of a modified version of the administrative process undertaken by the ACMA for the allocation of 26 and 28 GHz AWLs.⁵¹ Similarly, Optus submitted that the ACMA had sufficient flexibility to implement an allocation window at this allocation, as it did for the 26 and 28 GHz allocation.⁵² Optus noted that such an approach would allow the ACMA to prioritise certain applications.⁵³

Some submissions support the imposition of some kind of ‘use it or lose it’ (UIOLI) obligation on licensees.

Telstra suggested that the ACMA include a condition in licence renewal statements under section 103A of the Radcomms Act, which makes renewal of the licence conditional on the licensee demonstrating to the ACMA that the spectrum is being put to non-trivial productive use.⁵⁴ Telstra also suggested that this should be combined with a licence term of 5 years. Optus supported the ACMA maintaining the flexibility to cancel licences that are not being used,⁵⁵ and submissions from Pivotel⁵⁶ and DB Telecommunications⁵⁷ also expressed concern about underutilisation of the spectrum, with the latter supporting monitoring of usage and UIOLI conditions on licences.

Finally, some submitters, in particular ARCIA⁵⁸, advocated for the ACMA to consider demand for the spectrum that may arise over time, rather than just that which is expressed during the initial allocation period or window. It considers that demand for spectrum is most likely to arise over time at specific locations for the purpose of private network deployments.

⁵¹ Telstra submission, p. 12.

⁵² Optus submission, p. 7.

⁵³ Optus submission, p. 9.

⁵⁴ Telstra submission, p. 10.

⁵⁵ Optus submission, p. 9.

⁵⁶ Pivotel submission, p. 7.

⁵⁷ DB Telecommunications submission, p. 4.

⁵⁸ ARCIA submission, p. 5.

ARCIA suggested that some part of the spectrum (i.e. 20 per cent) be held to accommodate private network deployment at any given location.

The ACCC considers it would be open for the ACMA to assess the appropriateness of these options as well as other measures in developing its allocation process, to address the potential risk of spectrum monopolisation.