

# **3.6 GHz band auction, November 2018**

## Auction guide

AUGUST 2018

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# Important notice and disclaimer

The *Applicant information package* (AIP) has been prepared by the ACMA in connection with the allocation of spectrum in the 3.6 GHz band by auction. The auction is referred to as the 3.6 GHz band auction. The AIP comprises this auction guide, legislative instruments, accompanying explanatory statements and other material provided as attachments to the auction guide, as well as the auction forms booklet. Material that must be included in the AIP is set out in section 27 of the Radiocommunications (Spectrum Licence Allocation – 3.6 GHz Band) Determination 2018 (the Allocation Determination).

The ACMA must perform its spectrum allocation and management functions in accordance with relevant legislation, in particular, the *Radiocommunications Act 1992* (the Act). An auction process will be conducted in accordance with the rules and procedures made by the ACMA, pursuant to powers under sections 39A, 60 and 294 of the Act. Any subsequent issue of spectrum licences will be made under section 62 of the Act.

The rules and procedures made by the ACMA for the auction process are set out in the:

- [Radiocommunications \(Spectrum Licence Allocation—3.6 GHz Band\) Determination 2018](#)
- [Radiocommunications Spectrum Marketing Plan \(3.6 GHz Band\) 2018.](#)

These are collectively known as the allocation instruments. Links to each instrument are included as attachments to this auction guide. Interested persons should note that the allocation instruments have legal effect and are registered as legislative instruments on the Federal Register of Legislation. In the event of any difference between the provisions of the allocation instruments and any other written or oral information made available, the allocation instruments prevail.

The material contained in the AIP, including the auction guide, is for information only and should not be used as a substitute for independent advice on participating in the auction and the rights or regulatory responsibilities that attach to any spectrum licences that may be obtained. The AIP does not, and does not purport to, contain all the information that may be required to evaluate any allocation process or spectrum licence, or rights and obligations under the associated legislative instruments or applicable regulatory framework.

Nothing in this auction guide should be taken to bind the ACMA to any course of action in the allocation of spectrum licences in the 3.6 GHz band auction. The ACMA may vary or revoke a legislative instrument at any time, as permitted by law.

The AIP and its contents do not constitute or form part of any offer, contract, agreement or other legal obligation. The AIP is not intended to form any part of the basis of any investment decision or other evaluation by any person and should not be considered as a recommendation by the ACMA to participate in the auction. It is the responsibility of each person referencing the AIP to make their own independent investigation, review and assessment of:

- the proposed allocation of spectrum licences and the auction process
- the rights and responsibilities under spectrum licences issued as a result of the auction or other allocation process
- the potential cost and value of a licence

- whether to participate in the auction or other allocation process.

Under clause 19 of the deed of acknowledgment form executed by applicants, the liability of the ACMA, the auction manager, the Commonwealth, and their officers, employees, agents, contractors, subcontractors, associates and delegates in connection with the allocation process is excluded. Completion of the deed of acknowledgement is a requirement for anyone wishing to participate in the allocation process. Please refer to sections 3.2.1 and 3.2.5 of this auction guide for further information about application and registration requirements.

The information contained in the AIP is presented in good faith and is believed to be accurate at the time of publication. However, all such information is subject to amendment. It is the responsibility of any interested person, at its own cost, to verify to its own satisfaction the accuracy, currency, reliability and completeness of any of the information contained in or any matter referred to in the AIP and obtain independent advice from appropriate experts. The ACMA has not authorised any person to make any statements or representations on its behalf that are not expressly contained in or contemplated by the AIP.

Interested persons should not rely solely on any statement, opinion or information set out in the AIP, including any statements about the policies that may be followed by other authorities, nor about the effect of any legislation, but should take steps they consider necessary to inform themselves on those matters independently of the ACMA. The comments made in the AIP about the ACMA's functions and powers reflect the present policies of the ACMA, which may be subject to change.

Prospective applicants should, on their own responsibility, take whatever steps they consider necessary to obtain access to appropriate technical or other specialist advice independently of the ACMA concerning their application, the regulation and operation of radiocommunications devices and services, or any other matters relevant to the proposed spectrum licence allocation process. Applicants are also advised to seek advice independently of the ACMA on the treatment of spectrum licences and other investments under Australian taxation laws, and on the operation of foreign investment laws and policies on a proposed investment in communications in Australia.

Prospective applicants are urged to familiarise themselves with all the provisions of the Act, not just those pertaining to spectrum licensing, and should be aware that activities associated with radiocommunications may also be regulated by the *Competition and Consumer Act 2010* (the Competition and Consumer Act), the *Broadcasting Services Act 1992* (the Broadcasting Services Act) and the *Telecommunications Act 1997* (the Telecommunications Act). Depending on the activity undertaken when using spectrum under a licence, other Commonwealth, state and territory laws may apply.

The ACMA is a statutory authority established under the *Australian Communications and Media Authority Act 2005* (the ACMA Act) to administer the Act, among other things. The ACMA is also required by subsection 14(4) of the ACMA Act to perform its functions in a manner consistent with any directions given to the ACMA by the minister administering that Act. The policies of the government may change from time to time.

In exercising its powers and functions, including those conferred on the ACMA by the Act, the Broadcasting Services Act, the Telecommunications Act and the *Telecommunications (Consumer Protection and Service Standards) Act 1999*, the ACMA may also consider its own policies, which may change from time to time.

The accountable authority of the ACMA is also required under the *Public Governance, Performance and Accountability Act 2013* to govern the ACMA in a way that promotes



the efficient, effective, economical and ethical use of public resources, and must act in accordance with any rules and guidelines made under that Act.

Australia is a signatory to the International Telecommunication Union Constitution and Convention, and to other international instruments relating to communications. The administration of communications by the ACMA is undertaken having regard to these instruments.

### ***The ACMA may change its process***

The ACMA may in certain circumstances, under the Act and the allocation instruments, vary the processes that apply to the allocation process, including the processes that apply to the auction, or terminate the allocation process. The ACMA reserves the right, in its sole and absolute discretion, but without being under any obligation to do so, to add to, vary, amend, update or supplement the information, terms and procedures set out in the AIP and correct any inaccuracies.

### ***Other ACMA rights***

Subject to the Act and the Allocation Determination, the ACMA reserves the right, in its sole and absolute discretion, at any stage of the auction process to do all or any of the following:

- require additional information from any applicant or bidder
- change the structure and timing or any other element of the auction process as permitted from time to time.

The ACMA makes no representation as to the utility or otherwise of the spectrum.

The ACMA reserves the right to allocate further spectrum (that is, spectrum other than that on offer in the auction process) by issuing spectrum licences in the future.

### ***Applicants and bidders to meet own costs***

Each applicant's and bidder's participation in any stage of the allocation process shall be at their sole risk, cost and expense.

### ***Applications may be used, disclosed and retained by the Commonwealth***

All application documents submitted in connection with the auction process may be used and disclosed by the ACMA for the purposes of the Allocation Determination and in relation to spectrum licences issued, and may be retained by the ACMA for as long as necessary for the performance of the ACMA's functions and exercise of its powers under the Allocation Determination or the Act.

### ***Release of information and documents by the ACMA***

Information and documents obtained by the ACMA in the performance of its functions under the Allocation Determination may be released under the *Freedom of Information Act 1982* (unless an exemption applies) or disclosed to other parties under Part 7A of the ACMA Act. The ACMA may also release information and documents for other reasons including for the purpose of parliamentary processes or where otherwise required or authorised by law (for example, under a court subpoena). While the ACMA seeks to consult submitters of confidential information before that information is provided to another party, the ACMA cannot guarantee that confidential information will not be released through these or other legal means.

### ***Collusive bidding***

Applicants and their officers, employees, agents and advisers must not engage in any collusive bidding, anti-competitive conduct or any other similar conduct with any other registered applicants or any other person in breach of applicable laws (including but not limited to the Competition and Consumer Act) when preparing or lodging

applications or bidding instructions for a spectrum licence under the allocation process. Applicants must comply with the requirements of the Allocation Determination concerning affiliates.

***Confidential information***

Applicants and their officers, employees, agents and advisers must not take steps to obtain, or use, confidential information of the ACMA relating to its spectrum allocation functions or the auction process, other than in accordance with the confidentiality requirements of the Allocation Determination and the deed of confidentiality form executed by applicants, related persons and contractors.

***Return of information to the ACMA***

Applicants must, under the deed of acknowledgment form executed by applicants, at their sole expense, upon request by the ACMA in its absolute discretion, return to the ACMA any items or written information provided to the applicant (and copies of the information) at any stage.

***Application of laws***

The laws of the Australian Capital Territory and the Commonwealth of Australia apply to the allocation process pursuant to the deed of acknowledgment form executed by applicants.

# At a glance—Auction Q&A

Table 1: Auction questions and more information

	Question	Answer	More information
1.	<b>What spectrum is available?</b>	<p>Within the 3.6 GHz band, 125 MHz of spectrum will be offered across 14 regions for allocation via auction in 2018 through the 3.6 GHz band auction. The spectrum is configured as follows in all regions except Perth:</p> <ul style="list-style-type: none"> <li>• <b>25 x 5 MHz lots (3575–3700 MHz).</b></li> </ul> <p>In Perth, the spectrum is configured into two categories, due to utilisation of the lower 16 lots (80 MHz) by an existing 3.6 GHz band licensee during the five-year reallocation period, that is, until 30 March 2023:</p> <ol style="list-style-type: none"> <li>1) <b>16 x 5 MHz lots (3575–3655 MHz)</b></li> <li>2) <b>9 x 5 MHz lots (3655–3700 MHz).</b></li> </ol> <p>Spectrum is available in the following regions:</p> <ul style="list-style-type: none"> <li>• Adelaide</li> <li>• Brisbane</li> <li>• Canberra</li> <li>• Melbourne</li> <li>• Sydney</li> <li>• Perth</li> <li>• North Queensland</li> <li>• Central Queensland</li> <li>• Regional Northern NSW/Southern QLD</li> <li>• Regional Southern/Western NSW</li> <li>• Regional Victoria</li> <li>• Tasmania</li> <li>• Regional South Australia</li> <li>• Regional Western Australia.</li> </ul> <p>The details of the frequencies, locations and bandwidths of each lot is available at Table 3.</p>	2.1, 2.2
2.	<b>How will the spectrum be licensed?</b>	<p>Spectrum lots won at auction will be authorised for use by winning bidders as spectrum licences issued under section 62 of the Act.</p> <p>Spectrum licences authorise a licensee to operate radiocommunications devices for a fixed period, within a particular frequency range, within a particular geographic area. Spectrum licensing offers a technology-flexible, market-oriented approach to managing the radiofrequency spectrum. Spectrum licensees must comply with a series of licence conditions and the technical framework developed for each of the spectrum-licensed bands by the ACMA in consultation with industry.</p>	1.3.3, 2.3, 5

	Question	Answer	More information
3.	<b>When will spectrum licences commence and expire?</b>	Spectrum licences for the 3.6 GHz band in all regions will commence on <b>30 March 2020</b> , at the end of the two-year reallocation period for metropolitan areas. The expiry date will be <b>13 December 2030</b> , to align with the expiry date for current spectrum licences in the adjacent 3.4 GHz band. The licence duration will therefore be approximately <b>10 years, 8 months</b> .	2.3.2
4.	<b>I don't wish to use all the spectrum I purchase through the allocation process—what options are available?</b>	Spectrum licensees can trade part, or all of the spectrum space covered by their licence, once issued, in accordance with relevant legislation. They can also authorise third parties to use the licensed spectrum. Further information about <a href="#">trading</a> and <a href="#">third-party</a> use is available on the ACMA website.	2.3.1, 5.1, 5.8.2
5.	<b>How will the auction work?</b>	The auction will be conducted online using the Enhanced Simultaneous Multi-Round Ascending (ESMRA) format. Lots are offered across all products in three sequential stages: <ol style="list-style-type: none"> <li>1) <b>primary stage</b>—a clock auction offering frequency-generic lots in each region to determine the quantity of spectrum won by each bidder</li> <li>2) <b>secondary stage</b>—if required, for the sale of any single lot in a region which was unallocated in the primary stage</li> <li>3) <b>assignment stage</b>—for assignment of specific frequencies to lots allocated in the primary and secondary stages.</li> </ol>	3, 4.4.2
6.	<b>I want to participate in the auction—what do I need to do?</b>	Chapter 4 of this auction guide provides a step-by-step guide to participating in the auction.  It guides prospective bidders through auction-related activities, from the opening of applications to the issuing of licences—including an explanation of the forms, payments and deadlines associated with the bidder registration process. It also provides references to more detailed information and instructions, as appropriate.	3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.7, 4
7.	<b>I want to participate in the auction—what amounts will I need to pay?</b>	To apply to be registered as a bidder in the auction, you will need to pay a non-refundable application fee of \$10,000. To complete the bidder registration process, applicants will need to pay an eligibility payment, or give a deed of financial security, or a combination of both (a deed of financial security is an alternative to an eligibility payment).  No GST is payable on the application fee or the eligibility payment.	3.1.1, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.12, 3.2.13, 3.2.15

	Question	Answer	More information
8.	<b>What spectrum allocation limits apply to the auction?</b>	<p>The allocation limits, set by the minister in July 2018, restrict the amount of spectrum a single bidder may acquire in the 3.6 GHz band auction. The limits take into account the licences held by bidders across the 3400–3700 MHz band (relevant band). Bidders may not, as a result of the 3.6 GHz band auction, acquire spectrum licences in the 3.6 GHz band that would mean their holdings across the relevant band exceed:</p> <ul style="list-style-type: none"> <li>• <b>60 MHz for metropolitan areas</b></li> <li>• <b>80 MHz for regional areas.</b></li> </ul>	3.2.1, 3.2.6, 3.2.7, 4.2.1, 4.2.2, 4.5.1
9.	<b>How will the Spectrum Review and the implementation of the new spectrum management framework in Australia affect spectrum licences during the transition to the new arrangements and beyond?</b>	<p>Consultation has occurred on a draft Radiocommunications Bill. Given the timeframes associated with the 3.6 GHz band allocation, the ACMA is developing new arrangements in this band based on the existing regulatory regime. Any new arrangements for the 3.6 GHz band may need to be accommodated under any new legislative framework, once it commences.</p> <p>The relatively long reallocation periods in Perth and regional Australia mean that arrangements applying to incumbent apparatus licensees in the 3.6 GHz band are more likely to be affected by the new legislative framework than arrangements applying to incumbent apparatus licensees in the 3.6 GHz band in metropolitan areas. In any transition process, the ACMA expects that the intent of the reallocation period—that is, that the ACMA may continue to authorise incumbent licensees to operate until the end of the period, should they choose to do so—will be preserved. However, the new legislative framework may change some details of the way that the operation of transmitters is authorised—for example, the licence that provides this authorisation may change over the course of the relevant reallocation period.</p> <p>Regardless of the design of any licence issued under the new Radiocommunications Bill 2018 (the Bill), the ACMA expects that the licence will continue to authorise the services that are currently provided under the existing licence until the date the relevant reallocation period ends, but not beyond.</p>	2.3.4

# Key dates

**Table 2: Important events and dates**

Event	Date
The ACMA advertises the auction, publishes the Applicant Information Package and applications open.	6 August 2018
<b>Application deadline</b> By this date and time, any person wishing to be an applicant will need to: <ul style="list-style-type: none"> <li>• give a completed application form</li> <li>• give a completed deed of acknowledgement form</li> <li>• give a completed deed of confidentiality form</li> <li>• pay the application fee to the ACMA on behalf of the Commonwealth.</li> </ul>	5.00 pm, 31 August 2018
The ACMA gives each applicant details about the identity of all other applicants, their associates, and existing relevant band licensees, and asks each applicant to make a statutory declaration about whether they are affiliated with another applicant or relevant band licensee.	After the application deadline
<b>Eligibility deadline</b> By this date, applicants will need to: <ul style="list-style-type: none"> <li>• give a completed eligibility nomination form</li> <li>• pay an eligibility payment, or give a deed of financial security, to the ACMA on behalf of the Commonwealth, or a combination of both.</li> </ul>	5.00 pm, 27 September 2018
The ACMA tells registered bidders that they have been registered and may participate in the auction and gives them information to enable their participation (e.g. information about how to access and use the online auction system).	After the eligibility deadline
Mock auction(s) held, to familiarise registered bidders with the auction system.	October/November 2018
The ACMA notifies registered bidders about the start date and time of the first and second clock rounds of the primary stage of the auction.	Early November 2018
Estimated auction commencement	Late November 2018

*Note: The above timetable is subject to change. Any changes made to the timetable will be announced through the sources listed in Section 6.1.*

# **Part one—Understanding the auction process**

# 1. What is the 3.6 GHz band auction?

**This chapter provides information about the:**

- **purpose and structure of the auction guide, and the other elements of the applicant information package**
- **background to the spectrum that is available in the 3.6 GHz band to be auctioned**
- **instruments that provide the legal basis for the auction**
- **consultative processes by which the auction instruments were developed.**



## 1.1 Overview

The ACMA is conducting an allocation process for spectrum licences in the 3.6 GHz band, referred to in this auction guide as the '3.6 GHz band auction'. There are 350 lots on offer in the 3.6 GHz band designated for allocation, as set out in Table 3 in section 2.1.

Spectrum licences issued to successful bidders as a result of the 3.6 GHz band auction will authorise licensees to operate radiocommunications devices for a fixed period, within a particular frequency range, within a particular geographic area.

To conduct an efficient and effective auction of the 3.6 GHz band, the ACMA has made a number of legislative instruments in accordance with the *Radiocommunications Act 1992* (the Act), including:

- Radiocommunications (Spectrum Licence Allocation – 3.6 GHz Band) Determination 2018
- Radiocommunications Spectrum Marketing Plan (3.6 GHz Band) 2018.

These legislative instruments are collectively referred to as the allocation instruments.

This auction guide is designed to give prospective bidders information to help them decide whether to apply to take part in the auction—and, if they wish to take part, how to do so. The auction guide is structured as follows:

- **Chapter 1: What is the 3.6 GHz band auction?**  
Information about the background to the auction, the decisions to allocate the 3.6 GHz band via auction, and the instruments that provide the legal basis for the auction.
- **Chapter 2: What is being offered in the auction?**  
Information about the spectrum available, how the spectrum is configured as auction lots, and key issues that will affect how winning bidders can use the spectrum.
- **Chapter 3: How will the auction be conducted?**  
Information about the auction format and procedures, the online auction system, as well as support and training opportunities for prospective bidders.
- **Chapter 4: How do I participate in the auction?**  
A practical step-by-step guide to participating in the auction, from the commencement of the application period to the issuing of licences.
- **Chapter 5: Spectrum licensing and technical framework**  
Information about the spectrum licensing and technical frameworks applicable to the spectrum on offer.
- **Chapter 6: Updates, queries, lodgements and payments**  
Information about how the ACMA will keep stakeholders informed about developments leading up to the auction, and how stakeholders can submit queries, give auction documents and make payments to the ACMA.

**Attachments**—include:

- the allocation instruments and technical framework documents that provide the legal basis for the auction
- spectrum reallocation declarations for the 3.6 GHz band in metropolitan and regional areas
- forms that auction participants may be required to complete.

The glossary at the end of this guide may assist readers to understand particular terms used throughout the guide.

Together, the auction guide and its attachments form the AIP for the 3.6 GHz band auction.

## 1.2 Background to the allocation of 3.6 GHz band lots

Prior to 2008, the 3.6 GHz band was mainly used by fixed point-to-point links and earth stations of the fixed satellite services (FSS). On 14 October 2008, the ACMA announced its intention to allow the use of the 3.6 GHz band to deploy site-based broadband wireless access services in regional and remote areas of Australia.<sup>1</sup> These were authorised by apparatus licences. Capital cities, except for Hobart, were not included in the release to preserve future planning options within those areas.<sup>2</sup>

Since that time, the band was considered under WRC-15 agenda 1.1, resulting in the 3600–3700 MHz band being identified for international mobile telecommunications (IMT) in Canada, Colombia, Costa Rica, and the US.<sup>3</sup> The 3.6 GHz band also forms a subset of the 3300–3800 MHz band, which since 2016 has been recognised internationally as a pioneer band for 5G services. The standardisation of both non-standalone and standalone 5G equipment was completed by the 3GPP in June 2018. Several domestic and international operators have commenced trials of 5G services. Europe, the US, China, Japan and Korea are also investigating or have announced their intention to allocate all or some of the 3300–3800 MHz band for next generation fixed/mobile wireless broadband services.

The ACMA recognised that the 3.6 GHz band was being targeted as a pioneer band for 5G services internationally, and in October 2016 released a [discussion paper](#) on the future use of the band. A further [options paper](#) for the future use of the band was released in June 2017 for consultation. In October 2017, the ACMA released its [decisions and preliminary views paper](#) on the future use of the band and a draft [spectrum reallocation recommendation](#) that the Minister for Communications (the minister) declare that spectrum in the band be subject to reallocation by issuing spectrum licenses.

On 5 March 2018, following consideration of the ACMA's recommendation, the minister made three spectrum reallocation declarations under section 153B of the Act:

- [Radiocommunications \(Spectrum Re-allocation—3.6 GHz Band for Adelaide and Eastern Metropolitan Australia\) Declaration 2018](#)
- [Radiocommunications \(Spectrum Re-allocation—3.6 GHz Band for Perth\) Declaration 2018](#)
- [Radiocommunications \(Spectrum Re-allocation—3.6 GHz Band for Regional Australia\) Declaration 2018](#).

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<sup>1</sup> [MR 124/2008](#)

<sup>2</sup> The ACMA, *Release of the 3.6 GHz band for wireless access services (WAS)*, April 2009.

<sup>3</sup> WRC 15 Summary of outcomes.

The declarations provide that the spectrum in frequency ranges 3575–3700 MHz is to be reallocated by issue of spectrum licences. The three declarations provide for different reallocation periods (which commenced on 30 March 2018) in the respective areas:

- Adelaide, Brisbane, Canberra, Melbourne, Sydney: **two years**
- Perth: **five years**
- Regional Australia: **seven years**.

## 1.3 Legislative framework

The Act provides the legislative framework for allocating spectrum licences. A brief overview of the legislative instruments associated with the allocation of spectrum licences is provided below.

### 1.3.1 Allocation Determination

Section 60 of the Act requires the ACMA to determine written procedures to apply to the allocation of spectrum licences by auction, by tender or for a pre-determined price. Provisions drafted under s60 are not disallowable under the *Legislation Act 2003*.

Section 294 of the Act allows the ACMA to fix the spectrum access charges payable by licensees for issuing spectrum licences, which may be won through an allocation process, such as an auction or a pre-determined price process. It also allows the ACMA to specify when the charges are payable. Provisions drafted under s294 are disallowable under the *Legislation Act 2003*.

A determination made under sections 60 and 294 of the Act sets out the allocation rules for allocation by auction. This includes procedures for determining the spectrum access charges payable, based on the starting prices for each lot. For the 3.6 GHz band auction, the ACMA has made the Allocation Determination. Broadly speaking, the Allocation Determination specifies, among other things:

- that the auction will be conducted using the ESMRA format and the procedures for the auction
- the allocation limits (also referred to as ‘competition limits’ or ‘spectrum caps’) on the amount of spectrum a person will be permitted to purchase in the auction—see 3.2.6
- administrative matters such as the bidder registration process and the different payments auction participants may be required to make.

Further information about the procedures set out in the Allocation Determination is provided in Chapter 3.

### 1.3.2 Marketing plan

The marketing plan has been made under section 39A of the Act. Section 39A of the Act requires the ACMA to prepare a marketing plan for issuing spectrum licences within a part of the spectrum where a spectrum reallocation declaration has been made.

A marketing plan made under section 39A essentially sets out the product offering and may specify matters, including:

- the spectrum products that will be available
- the procedures to be followed for issuing spectrum licences
- how the spectrum is to be apportioned among the spectrum licences to be issued

- the conditions, or types of conditions, that may be included in spectrum licences to be issued.

A marketing plan can also specify other matters. Key aspects of the marketing plan are discussed in chapters 2 and 5.

### 1.3.3 Technical framework

The technical framework for a spectrum-licensed band is a set of technical conditions and instruments prepared by the ACMA for operation within a spectrum-licensed band.

Under the Act, the framework consists of three interlocking regulatory elements:

- conditions on the licence (including core licence conditions)
- a determination of unacceptable interference for device registration
- radiocommunications advisory guidelines.

The instruments that, in conjunction with licence conditions, constitute the technical framework of the spectrum licences are made under subsection 145(4) and section 262 of the Act. Subsection 145(4) provides that the ACMA may determine what constitutes an ‘unacceptable level of interference’ caused by devices operated under a spectrum licence. The ACMA may refuse to include details of a radiocommunications transmitter on the Register of Radiocommunications Licences if it is satisfied that operation of the transmitter could cause an unacceptable level of interference to the operation of another radiocommunications device. If the transmitter is not included on the Register and is not exempt from the registration requirements, the licensee must not operate the transmitter under the licence.<sup>4</sup> A determination under subsection 145(4) effectively, therefore, sets out the circumstances where the ACMA may refuse to register a radiocommunications transmitter under the spectrum licence. Generally, these circumstances include:

- if any part of the ‘device boundary’ of a radiocommunications transmitter falls outside the geographic area of the spectrum licence
- if the operation of the transmitter will breach a core condition of the spectrum licence
- if the transmitter will exceed any specified deployment constraints.

Section 262 of the Act provides that the ACMA may make advisory guidelines about any aspect of radiocommunications. Generally, the radiocommunications advisory guidelines include provisions to assist in the assessment of the risk of interference between spectrum-licensed devices and services operating under apparatus or class licences.

Based on advice received during the development and [consultation of arrangements for the 3.6 GHz band](#), the ACMA has decided to combine the technical frameworks for the 3.6 GHz band and existing 3.4 GHz band spectrum licences. This is because the bands are directly adjacent to each other and considered substitutable. A single framework will also simplify network design for any licensees that end up holding licences in both bands and will help to reduce the complexity of any potential future defragmentation of spectrum holdings in the broader 3400–3700 MHz band.

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<sup>4</sup> Section 69 of the Act provides that spectrum licences must include a licence condition that radiocommunications transmitters not be operated under the licence unless the requirements of the ACMA under Part 3.5 for registration of the transmitter have been met. The condition may exempt particular kinds of radiocommunications transmitters from meeting those requirements.

For the 3.6 GHz band auction, the ACMA has amended the following technical instruments<sup>5</sup> to apply them to spectrum licences in the 3.6 GHz band:

- [Radiocommunications \(Unacceptable Levels of Interference – 3.4 GHz Band\) Determination 2015](#)
- [Radiocommunications Advisory Guidelines \(Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band\) 2015](#)
- [Radiocommunications Advisory Guidelines \(Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band\) 2015](#).

The purpose and effect of these technical instruments are discussed further in Chapter 5.

## 1.4 Stakeholder consultation

The ACMA has been working with relevant stakeholders on how best to allocate the 3.6 GHz band spectrum. The ACMA held two industry tune-ups to seek stakeholder feedback on the proposed lot configuration and the proposed auction system and has consulted on the draft allocation instruments for the 3.6 GHz band auction.

Accordingly, the ACMA developed the allocation instruments and allocation processes in consultation with stakeholders, particularly prospective participants.

A [summary of the stakeholder consultation](#) undertaken in preparation for the auction, including links to all relevant information and documents, is available on the ACMA's website.

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<sup>5</sup> The amendments to these instruments are shown as 'unincorporated amendments' on the Federal Register of Legislation for a period of up to 28 days after the commencement date of the omnibus variation instrument, 28 July 2018.

## 2. What is being offered in the auction?

**This chapter provides information about:**

- available lots in the 3.6 GHz band auction
- how the spectrum will be configured as auction lots
- key matters affecting how winning bidders can use the spectrum.

## 2.1 Available spectrum

The 3.6 GHz band auction will allocate spectrum in the regions and frequency ranges shown in Table 3.

**Table 3: 3.6 GHz band auction lots**

Band	Lot identifier	Region name	Frequency (MHz)	Number of lots available	Lot bandwidth (MHz)
3.6 GHz metro	ADEL01	Adelaide	3575–3700	25	5
	BRIS01	Brisbane	3575–3700	25	5
	CANB01	Canberra	3575–3700	25	5
	MELB01	Melbourne	3575–3700	25	5
	SYDN01	Sydney	3575–3700	25	5
	PERT01	Perth–lower	3575–3655	16	5
	PERT02	Perth–upper	3655–3700	9	5
3.6 GHz regional	NQLD01	North Queensland	3575–3700	25	5
	CQLD01	Central Queensland	3575–3700	25	5
	RNSQ01	Regional Northern NSW/ Southern Queensland	3575–3700	25	5
	RSWN01	Regional Southern/ Western NSW	3575–3700	25	5
	RVIC01	Regional Victoria	3575–3700	25	5
	TASM01	Tasmania	3575–3700	25	5
	RESA01	Regional South Australia	3575–3700	25	5
	REWA01	Regional Western Australia	3575–3700	25	5

## 2.2 Spectrum lots

To be allocated efficiently, spectrum needs to be appropriately configured before it is offered to market. This process is referred to as lot configuration. Where appropriate, spectrum is packaged into units, referred to as spectrum lots. There are two dimensions to lot configuration—bandwidth and geography. In deciding lot configuration for any allocation, the ACMA considers a range of factors, including the source of demand and the technical characteristics of the spectrum. The technical frameworks for the spectrum on offer in the 3.6 GHz band have been optimised to support fixed and mobile broadband services, with a focus on the introduction of 5G services.

### 2.2.1 Frequency bandwidth—all regions except Perth

As discussed in the [draft spectrum reallocation declaration recommendation](#), the ACMA originally proposed to offer the 125 MHz of spectrum based on 25 generic lots of 5 MHz bandwidth across the designated areas. The major reasons for this proposal are:

- 5G networks are optimised for multiples of 5 MHz channels
- using substitutable generic lots reduces complexity and substitution risk

- it enables greater flexibility for prospective bidders, including smaller companies, to obtain amounts of spectrum suited to their needs, for example, 20 MHz or 30 MHz.

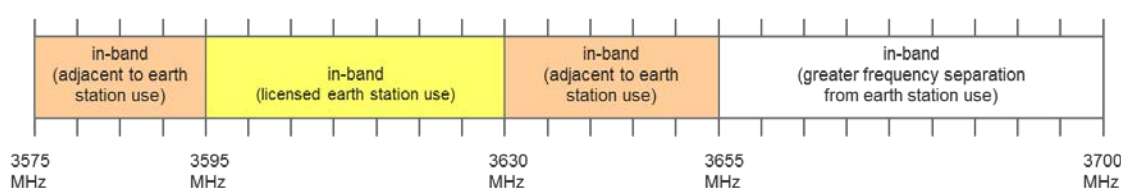
Following consideration of stakeholder submissions to the draft allocation instruments, the ACMA will offer spectrum as:

- **25 x 5 MHz generic lots (3575–3700 MHz).**

### 2.2.2 Frequency bandwidth—Perth

In Perth, there is an incumbent licensee who may be utilising part of the 3.6 GHz band until the end of the five-year reallocation period, as shown in Figure 1 below.

**Figure 1: Current spectrum utilisation—Perth**



As discussed in the [consultation paper](#) for the 3.6 GHz draft allocation instruments, the utilised spectrum may be considered to be of lower value than the unutilised spectrum. Therefore, the ACMA will offer spectrum lots in Perth as two categories, known as the Perth combined products:

- **Perth—lower—16 x 5 MHz lots (3575–3655 MHz)**
- **Perth—upper—9 x 5 MHz lots (3655–3700 MHz).**

Table 3 above sets out the available lots in the 3.6 GHz band auction. All lots will be offered concurrently in the primary stage of the 3.6 GHz band auction.

### 2.2.3 Geographic areas

Following consideration of stakeholder submissions to the draft allocation instruments, the ACMA developed geographic areas as shown on the map shown in Figure 2 below. The maps are only an indicative pictorial representation of each region and interested persons should satisfy themselves of the geographic boundaries of each region.

The spectrum reallocation declarations made by the minister excised four small areas in eastern Australia from the spectrum reallocation declarations. Therefore, these four areas are not subject to spectrum licensing and not included in the geographic lots for the 3.6 GHz band auction. Three of these areas (near Quirindi and Moree in New South Wales, and Roma in Queensland) are proposed sites for future earth satellite station protection zones. The fourth smaller area near Uralla in New South Wales would support the ongoing use of Lockheed Martin's earth station facility.<sup>6</sup>

<sup>6</sup> HCIS coordinates for the four excised areas can be found in: ACMA, [Draft spectrum reallocation recommendation for the 3.6 GHz band—Metropolitan and regional areas of Australia](#), October 2017, Attachment D.



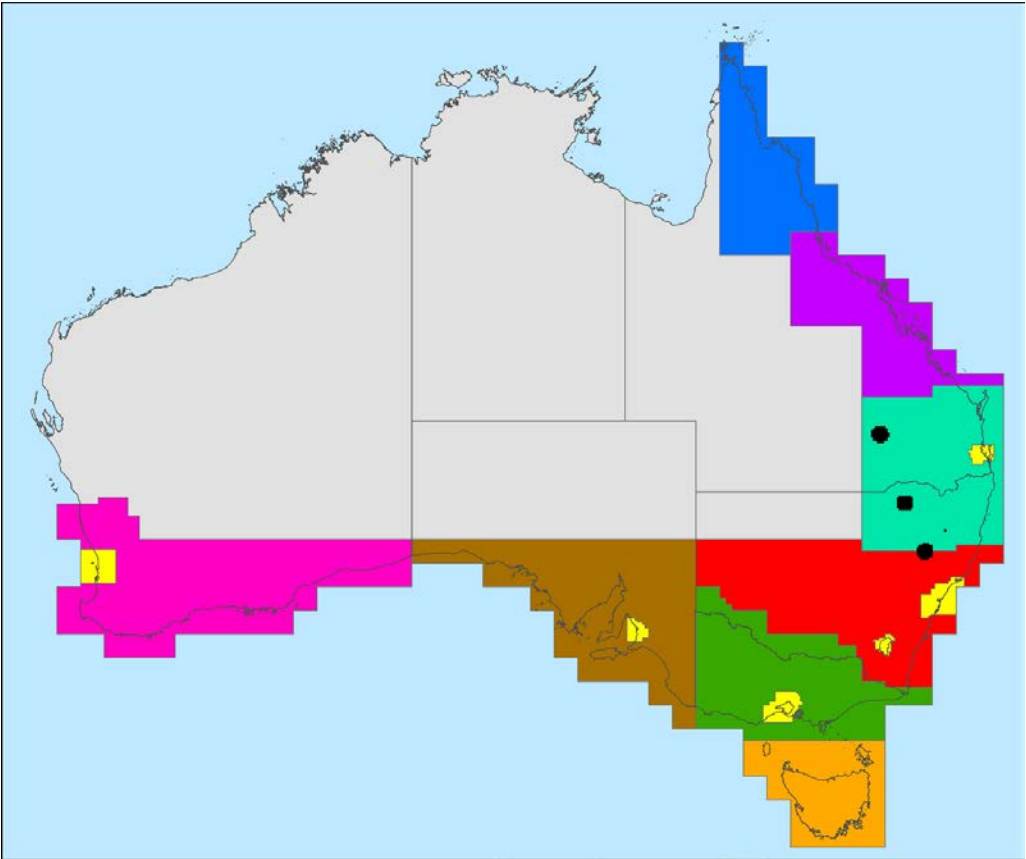
The geographic areas for the 3.6 GHz band auction are defined using a hierarchical cell identification scheme (HCIS).<sup>7</sup> The HCIS is a naming convention developed by the ACMA that applies unique labels to each square cell in the Australian Spectrum Map Grid<sup>8</sup>, derived from the cell's position in a hierarchically arranged group of cells. Schedule 3 to the marketing plan lists the HCIS identifiers for each geographic area.

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<sup>7</sup> HCIS coordinates can be converted into a Placemark file (viewable in Google Earth or other GIS tools) through a facility on the ACMA website: [www.acma.gov.au/theACMA/convert-hcis-area-description-to-a-placemark](http://www.acma.gov.au/theACMA/convert-hcis-area-description-to-a-placemark).

<sup>8</sup> Access the [Australian spectrum map grid 2012](#).

Figure 2: Map of defined geographical areas



KEY:			
Black	Excised areas	Moree, NSW	Quirindi, NSW
		Roma, QLD	Uralla, NSW
Yellow	Metro areas	Adelaide	
		Brisbane	
		Canberra	
		Melbourne	
		Sydney	
		Perth	
Blue	Regional areas	North Queensland	
Purple		Central Queensland	
Turquoise		Regional Northern NSW/Southern Queensland	
Red		Regional Southern/Western NSW	
Green		Regional Victoria	
Orange		Tasmania	
Brown		Regional South Australia	
Pink		Regional Western Australia	

## 2.3 Key issues affecting the use of the spectrum

### 2.3.1 Spectrum to be allocated as spectrum licences

Spectrum lots won at auction will be allocated as spectrum licences issued under section 62 of the Act. Spectrum licences authorise licensees to operate radiocommunications devices for a fixed period, within a parcel of spectrum space—that is, within a particular frequency range and within a particular geographic area. Spectrum licensing offers a technology-flexible, market-oriented approach to managing the radiofrequency spectrum, in that licensees may:

- subject to some limits, subdivide and trade their spectrum licences
- change their services over time in response to the changing market environment and new technologies.

Spectrum licensees must comply with:

- the Act
- a set of core licence conditions
- statutory licence conditions
- other licence conditions.

Detailed information about spectrum licensing and the technical frameworks applicable to the 3.6 GHz band, and other important matters for spectrum licensees to be aware of, is provided in Chapter 5. Information specific to the spectrum licences to be issued for the lots on offer in the 3.6 GHz band auction is available in the marketing plan, which includes a sample licence containing the conditions that may be included in the spectrum licences to be allocated.

Bidders should note that all spectrum licences issued in the 3.6 GHz band will have a condition to protect incumbent services during the relevant reallocation period. Consequently, there may be restrictions on deploying services in some locations and frequencies. Bidders should make their own assessment regarding the effect incumbent services may have on the utility of the different lots on offer.

### 2.3.2 Licence commencement and expiry

In accordance with the marketing plan, spectrum licences for all lots allocated as a result of the 3.6 GHz band auction will commence on **30 March 2020**, at the end of the two-year metropolitan reallocation period.

All spectrum licences for the 3.6 GHz band metropolitan and regional lots will expire on **13 December 2030**. This expiry date is designed to align with spectrum licences issued in the 3.4 GHz band, as both bands are likely to be used for fixed and mobile wireless broadband technologies. A common expiry date will facilitate spectrum trading between the bands and foster a smooth process for licensees in the band on expiry.

Therefore, the licence duration is anticipated to be approximately **10 years, 8 months**.

### 2.3.3 Early access to the 3.6 GHz band

Current apparatus licences in the 3.6 GHz band will be cancelled automatically at the end of the reallocation periods set in the reallocation declarations, leaving the band free for use by new spectrum licensees from the licence commencement dates mentioned above.

Because 3.6 GHz band spectrum in some locations may be available for use before spectrum licences commence on 30 March 2020, the ACMA appreciates that winning

bidders may wish to access spectrum they win in the auction from the earliest possible date. The regulatory arrangements underpinning access to spectrum prior to the commencement of spectrum licences are separate from the arrangements applicable to spectrum licences issued in the 3.6 GHz band as a result of the auction.

Winning bidders may apply to the ACMA to be issued an apparatus licence to access unencumbered spectrum for a period until the spectrum licence commences.<sup>9</sup> The ACMA will consider applications on a case-by-case basis. This will include a consideration of the legislative requirement that the 'special circumstances' of the case justify issuing an apparatus licence in spectrum that is the subject of a spectrum reallocation declaration.<sup>10</sup> In general, the ACMA considers that it is desirable that unencumbered spectrum should be utilised where possible. In the case of the 3.6 GHz band, the ACMA expects to adopt a similar approach to early access to that employed after the recent 700 MHz unsold lots auction. In that case, the ACMA found that an application to use vacant spectrum by the future owner of the relevant spectrum licence was generally recognised to satisfy special circumstances criteria.

Any apparatus licence issued in such cases would be on an interim basis only, would only be renewed where that occurred before the end of the relevant reallocation period, and would expire in alignment with the commencement of the winning bidder's spectrum licence at the end of the reallocation period.

In July 2018, the ACMA amended Part 7A of the [Radiocommunications \(Transmitter Licence Tax\) Determination 2015](#)<sup>11</sup> to incorporate base rates of tax for a PMTS Class B licence authorising the operation of a transmitter in the frequency range 3575–3700 MHz. The relevant annual licence tax rate is **\$0.0039/MHz/pop**, with population based on the relevant hierarchical cell identification scheme (HCIS) 2 block where the transmitter is located, applying population estimates from the 2016 Census. This is consistent with the transmitter licence tax rate applied for PMTS Class B licences in the 3.5 GHz band. It is expected that, like the 3.5 GHz transmitter licence tax rate, this transmitter licence tax rate would increase by inflation each year in April.

#### 2.3.4 Spectrum reform

Consultation has occurred on a draft Radiocommunications Bill. The Department of Communications and the Arts (DoCA) stated in the recent consultation package that transition to a new framework would take place over a number of years.<sup>12</sup>

Given the timeframes associated with the 3.6 GHz band allocation, the ACMA is developing new arrangements in this band based on the existing regulatory regime. Any new arrangements for the 3.6 GHz band may need to be accommodated under any new legislative framework, once it commences.

The relatively long reallocation periods in Perth and regional Australia mean that arrangements applying to incumbent apparatus licensees in the 3.6 GHz band are more likely to be affected by the new legislative framework than arrangements

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<sup>9</sup> It is not necessary that all the spectrum in a lot, licence area, or spectrum licence, be unencumbered—or unused—for such an application to be lodged. It is only necessary that sufficient spectrum be available in the area the applicant wishes to service to allow deployment of a service without causing unacceptable interference to existing licensees or suffering unacceptable interference from existing licensees.

<sup>10</sup> See section 153P of the Act. Paragraph 153P(2)(e) allows the ACMA to consider, on a case-by-case basis, whether there are special circumstances that justify the issuing of an apparatus licence notwithstanding the general prohibition under subsection 153P(2).

<sup>11</sup> The amendments to this instrument are shown as 'unincorporated amendments' on the Federal Register of Legislation for a period of up to 28 days after the commencement date of the amendment determination, 28 July 2018.

<sup>12</sup> DoCA, May 2017, [A proposed approach to transition from the 1992 Act to the Radiocommunications Bill](#).

applying to incumbent apparatus licensees in the 3.6 GHz band in metropolitan areas. In any transition process, the ACMA expects that the intent of the relevant reallocation period—that is, that the ACMA may continue to authorise incumbent licensees to operate until the end of the period, should they choose to do so—will be preserved. However, the new legislative framework may change some details of the way that the operation of transmitters is authorised—for example, the licence that provides this authorisation may change over the course of the relevant reallocation period. Regardless of the design of any licence issued under the new Radiocommunications Bill 2018 (the Bill), the ACMA expects that the licence will continue to authorise the services that are currently provided under the existing licence until the date the relevant reallocation period ends, but not beyond.

Spectrum licences issued as a result of this auction may also be affected by the new legislative framework. The ACMA understands that transitional and consequential legislation will provide that, five years after the commencement of the main provisions of the Bill, the 1992 Act will be repealed, and spectrum licences will be deemed to be licences issued under the Bill. The ACMA also understands that the transitional and consequential legislation will provide for spectrum licensees to voluntarily swap their spectrum licence at an earlier time for a licence issued under the Bill that provides similar rights and obligations.

Further information on spectrum reform is available by emailing [spectrumreform@communications.gov.au](mailto:spectrumreform@communications.gov.au).

### **2.3.5 Existing licences in the 3.4 GHz band**

In its consultation on the draft allocation instruments, the ACMA described three options for the technical framework for spectrum licences in the 3.4 GHz band (which already have been issued) and the 3.6 GHz band spectrum licences to be allocated under the allocation instruments. The main difference between the three options were:

1. The same technical framework would apply to both the 3.4 GHz and 3.6 GHz bands. A mandated synchronisation fall-back condition will apply to manage interference for all 3.4 GHz band and 3.6 GHz band spectrum licences. No spectrum is lost to guard bands under this option.
2. The same s.145 determination and radiocommunications advisory guidelines would apply to both the 3.4 GHz and 3.6 GHz bands. A mandated synchronisation fall-back condition would apply to 3.6 GHz band licences only. A stricter out-of-band emission mask would apply at the frequency boundary between 3.4 GHz band licences, as well as between 3.4 GHz band and 3.6 GHz band licences to manage adjacent band interference. Under this approach, up to 20 MHz of spectrum could be required for guard bands between 3.4 GHz band licensees, as well as 3.4 GHz band and 3.6 GHz band licensees.
3. The new technical framework would only be adopted in the 3.6 GHz band. Existing arrangements will continue to apply in the 3.4 GHz band. This means a stricter out-of-band emission mask would apply at the frequency boundary between 3.4 GHz licences as well as 3.4 GHz and 3.6 GHz licences to manage adjacent band interference. Under this approach, up to 20 MHz of spectrum could be required for guard bands between 3.4 GHz and 3.6 GHz band licensees.

Implementation of Option 1 requires changes to the licence conditions of existing 3.4 GHz band spectrum licences, and to PTS apparatus licences operating in adjacent bands (adjacent apparatus licences). On 17 July, the minister gave the [Australian Communications and Media Authority \(Radiocommunications Licence Conditions—3.4 and 3.6 GHz Bands Interference Management\) Direction 2018](#), which directs the ACMA to take all reasonable steps to ensure 3.4 GHz band spectrum licences and 3.5 GHz band PTS apparatus licences are required to manage interference via the adoption of a common frame structure and synchronisation of their services by

30 March 2020, unless other measures can be agreed to. Given the Direction, the ACMA will implement the relevant measures by imposing the new conditions on the 3.4 GHz band spectrum licences and will make or amend a licence condition determination to impose the relevant conditions on the adjacent apparatus licences. Accordingly, the ACMA expects that, before 30 March 2020, all the 3.4 GHz band spectrum licences and the adjacent apparatus licences will include the necessary conditions to allow the implementation of Option 1. Equivalent licence conditions will be included on the spectrum licences issued in the 3.6 GHz band, which will set out a process to manage interference between licensees if they cannot agree to a resolution between themselves. More information about these conditions is set out in the marketing plan.

However, there remains the possibility that the ACMA will not include the condition on a particular 3.4 GHz band spectrum licence, or that its decision to include such a condition will be subject to judicial or merits review, or that the House of Representatives or the Senate will disallow the licence condition determination. Potential applicants for 3.6 GHz band licensees should be aware that, if it is not possible to achieve uniformity of licence conditions across all 3.4 GHz band spectrum licences and adjacent apparatus licences, the ACMA may consider applying alternative interference management arrangements to 3.6 GHz band spectrum licences.

#### **2.3.6 Reallocation deadline**

Each of the reallocation declarations sets the reallocation deadline as the end of 29 March 2019. In accordance with section 153K of the Act, if no spectrum licences are allocated before the reallocation deadline, the reallocation declarations will be taken to have been revoked. This will end the allocation process.

## **Part two—Participating in the auction**

### 3. How will the auction be conducted?

**This chapter provides information about:**

- the ESMRA format
- the ESMRA procedures
- other key auction procedures
- the online auction system
- mock auction and support for bidders.



**Important warning:** The information in this chapter is intended to provide only a general overview of the procedures contained in the Radiocommunications (Spectrum Licence Allocation — 3.6 GHz band) Determination 2018.

Potential applicants should *not* rely on this information but should instead carefully review and understand the content of the Allocation Determination itself.

### 3.1 The ESMRA auction format

The 3.6 GHz band auction will be conducted online using the ESMRA auction format according to the procedures set out in the Allocation Determination. A practical step-by-step guide to registering as a bidder and participating in the auction is provided in Chapter 4.

This section provides general information about the auction system and information about how the auction process works. In this auction, bidders will compete for spectrum licences. Broadly, instead of authorising the operation of a specific device or type of device, a spectrum licence authorises the use of any radiocommunications device within a 'spectrum space' consisting of a geographic area and frequency band, provided that the device complies with the technical framework for spectrum licensing in the band.

This section explains how the ACMA will use the ESMRA format to allocate spectrum lots to winning bidders. Lots are like the 'building blocks' of spectrum space. The auction process allocates lots to the applicants who value them most highly and bid accordingly to win those lots. Lots that are sold to the one bidder may be combined after the auction by the ACMA to form a spectrum licence.<sup>13</sup> The spectrum lots on offer in the auction are defined in the marketing plan.

The ESMRA auction format consists of three stages:

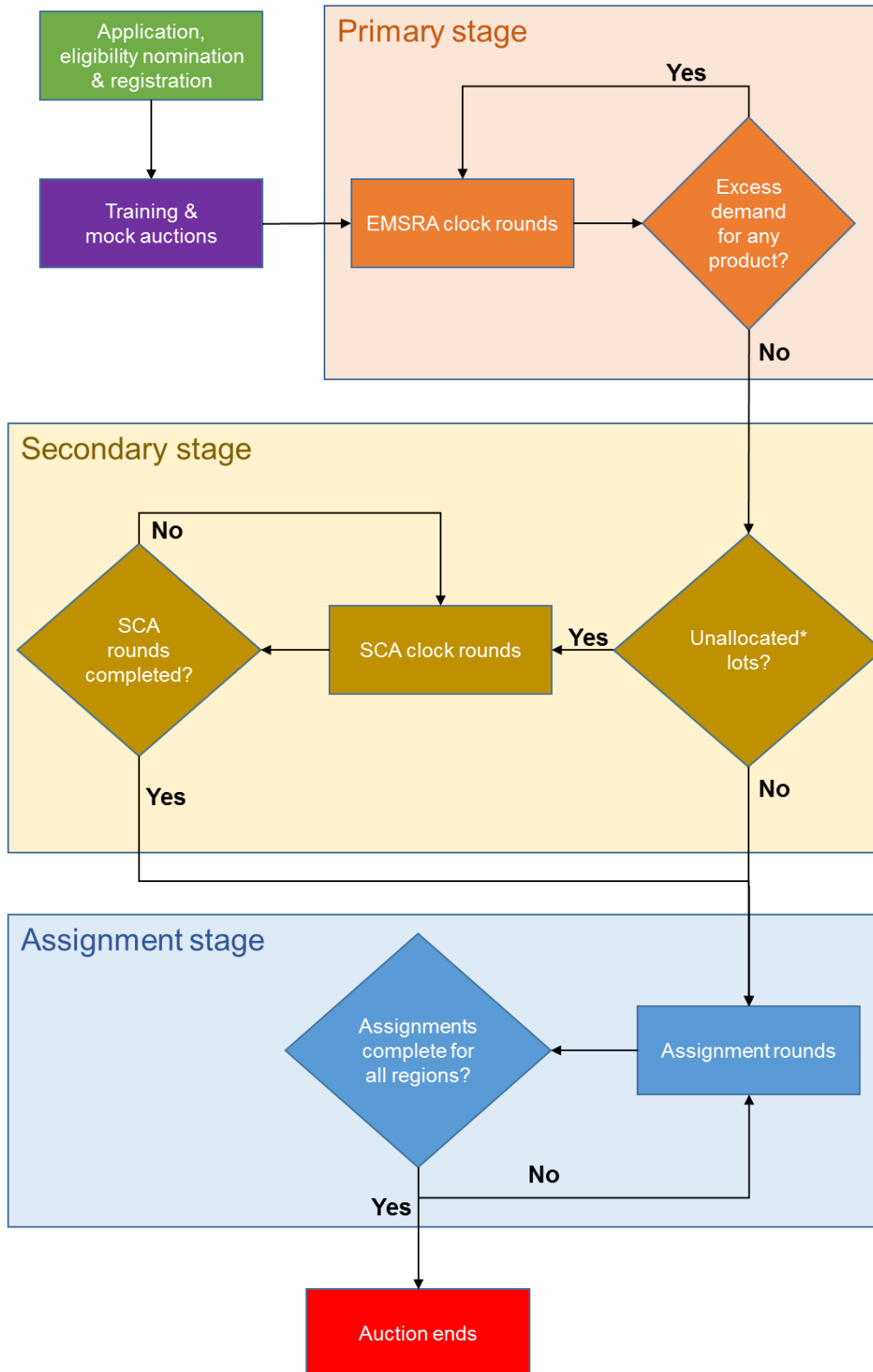
- 1) **primary stage**—a clock auction offering frequency-generic lots to determine the quantity of spectrum won by each bidder
- 2) **secondary stage**—if required, for the sale of any single lot in a region that was unallocated in the primary stage
- 3) **assignment stage**—for assignment of specific frequencies to lots allocated in the primary and secondary stages.

Figure 3 below shows an overview of the key elements of the ESMRA auction process.

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<sup>13</sup> For the purposes of the 3.6 GHz band auction, all spectrum licences may be issued in the single licence format. That is, for each winning bidder, spectrum won at auction, within a band, may be issued in one licence.

**Figure 3: Overview of ESMRA auction process**



\* For a single unallocated lot per product only, not multiple unallocated lots in a product.

The following sections describe the operation of each stage, with worked examples. Information on how to bid in each stage of the auction is available in section 4.4.2.

### 3.1.1 Primary stage

#### Overview

The primary stage (also known as the clock stage) is a form of simultaneous multiple round ascending (SMRA) auction process. Before the auction starts, the auction manager enters the start demand for all products as recorded in the register of bidders. Unlike previous SMRA auctions, bidders in the ESMRA may win the number of lots nominated as their start demand in their eligibility nomination form. If aggregate start demand is below supply for a certain product and remains so until the conclusion of the primary stage, the bidder will be liable to pay the starting price for their start demand for that product.

All products are offered simultaneously, and bidding occurs through a series of rounds that progress according to a clock function, with a defined start time, end time and recess period until the next round.

During a round, bidders may bid on all products available in the auction, subject to any allocation limits and eligibility. Bids may be changed at any time during the round until the nominated end time of the round.

Unlike previous SMRA auctions, ESMRA auctions have no concept of a 'standing high bidder' or of 'holding lots'. The key concept is demand and supply. For a given product, the price will continue to increase for each round while demand exceeds supply. At the end of a round, the auction system processes all bids from all bidders. If demand exceeds supply for any product, the auction continues to the next round. The primary stage concludes when there is no excess demand across all products.

#### What is a bid?

In ESMRA auctions, a bid is **a request to change the bidder's demand at a price**. It is neither solely a price (for example, \$100) nor solely an expression of demand (for example, eight lots in Adelaide). It is a combination of a demand change and a price. For example:

- 'I want to increase my demand in Brisbane by two lots at \$105'; or
- 'I want to decrease my demand in Canberra by one lot at \$108'.

There are three kinds of bids in ESMRA auctions:

- 1) **maintain bid**—maintain current demand for a product at the posted price for the round
- 2) **increase bid**—increase current demand by  $n$  lots at a price specified by the bidder
- 3) **decrease bid**—decrease current demand by  $n$  lots at a price specified by the bidder.

Within an ESMRA round, there are three defined price points for lots:

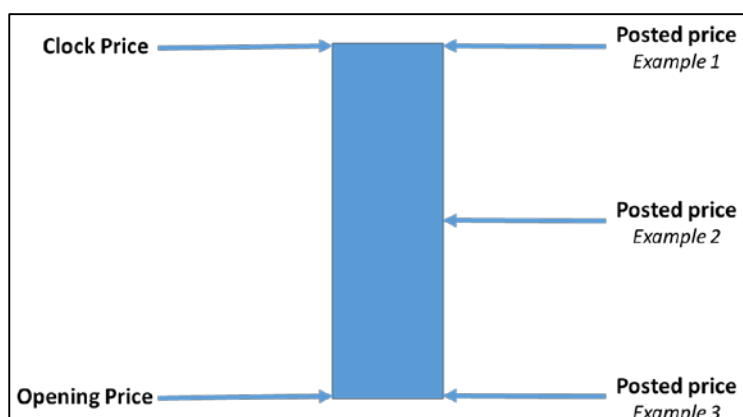
- 1) **opening price**—price at the start of the round
- 2) **clock price**—opening price plus the bid increment percentage (for example, 10 per cent)
- 3) **posted price**—calculated at the end of the round, as follows:
  - i. if demand > supply, then posted price = clock price; or
  - ii. if demand ≤ supply, then posted price = the highest price among all the bids for the product for which a decrease bid by any bidder was applied (partially or in full); or

- iii. if demand  $\leq$  supply and no decrease bid was applied, then posted price = opening price.

The posted price for a round becomes the opening price for the next round.

These prices and example scenarios are shown in Figure 4 below.

**Figure 4: Price points for ESMRA primary stage clock round**

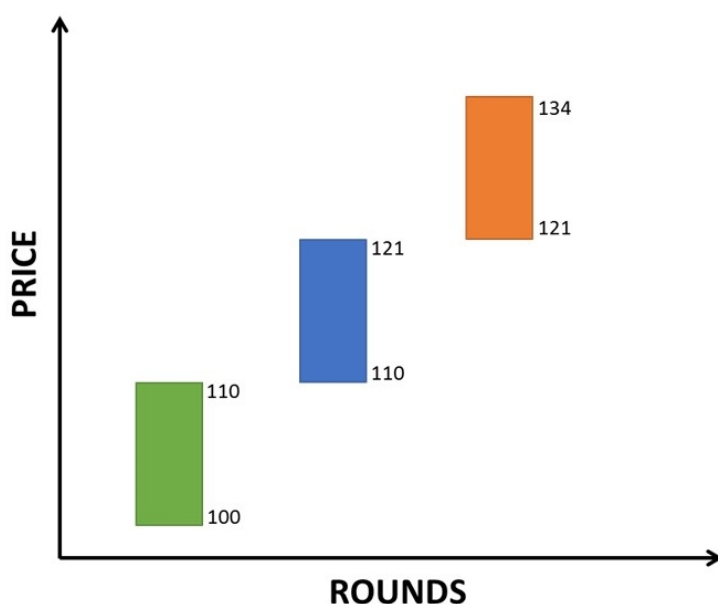


Consider the scenario where the opening price for the round is \$100, the bid increment percentage is 10 per cent, supply is 25 lots and aggregate demand is 30 lots. The clock price =  $\$100 + 10\% = \$110$ .

*Example 1:*

In Example 1 in Figure 4 above, aggregate demand is 30 lots and only maintain bids are applied during the round. Therefore, end round demand is 30 lots. Therefore, demand  $>$  supply and the posted price = clock price = \$110. If aggregate demand  $>$  25 lots in subsequent rounds, the posted price would keep increasing with the clock price by the 10 per cent bid increment percentage, to \$121 in round two and \$134 in round three. This is shown in Figure 5 below.

**Figure 5: Example 1—ESMRA primary stage rounds, where demand  $>$  supply**



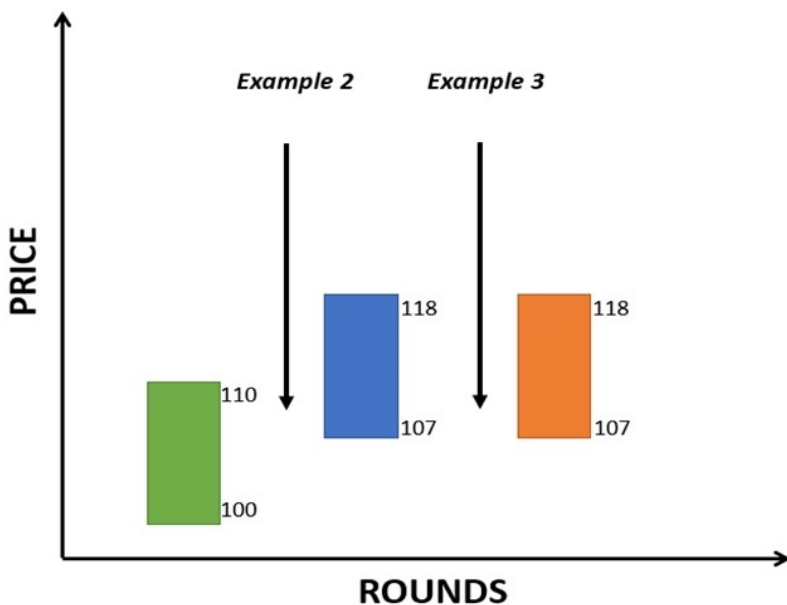
*Example 2:*

In Example 2 in Figure 4, a decrease bid of 5 lots at \$107 causes aggregate demand to equal supply at \$107. Therefore, the posted price = \$107.

*Example 3:*

Example 3 in Figure 4 shows the round immediately following Example 2, where aggregate demand is now 25 lots, the opening price is \$107 and only maintain bids are applied during the round. Therefore, demand  $\leq$  supply and no decrease bids were applied during the round. Therefore, the posted price remains at \$107. Examples 2 and 3 are shown in Figure 6 below.

**Figure 6: Examples 2 and 3—ESMRA primary stage rounds, where demand = supply**



Example 3 demonstrates how the price of a product effectively ‘pauses’ when demand  $\leq$  supply and no decrease bids were applied. However, bidding on the product remains open until there is no excess demand across all products. The price for this product may increase in later rounds if increase bids on the product cause demand to exceed supply.

The bid **price point** is an important concept in ESMRA, especially in bid processing. It defines the percentage between the opening price and the clock price at which a bid is placed. In Example 2 above, the decrease bid at \$107 equates to a 70 per cent price point, because it is 70 per cent between \$100 and \$110. All bids for all products in a round are processed in the ascending order of their price points (see bid processing section below).

***Bid validity***

A primary stage bid is valid and will be accepted by the auction system if it satisfies the following criteria:

- the bid price is between the opening and clock prices for the round
- the bid price is a multiple of one hundred dollars
- the resulting demand from the bid is between zero and the supply of spectrum lots for a given product

- the resulting demand from the bid does not violate the allocation limits, as they apply to the bidder, for a given region
- the bid is received between the start and end times of the round
- the bid does not result in a violation of the minimum spectrum requirement (see MSR section below)
- the bid does not result in available eligibility points being exceeded (see eligibility points section below).

If a bid is not valid, the auction system will not accept the bid, display an error message immediately and ask the bidder to change their bid accordingly.

### ***Bid processing***

When a bidder makes an increase bid or decrease bid in an ESMRA auction, they are willing to accept the unchanged quantity, the changed quantity or any quantity in between at their nominated price. Therefore, there are three potential results for each increase bid or decrease bid:

- 1) **rejected**—the bid is rejected
- 2) **applied**—the bid is applied in full
- 3) **partially applied**—part of the bid is applied.

The three bid types are treated during bid processing as follows:

- maintain bid—always applied, not entered in bid processing queue
- increase bid—applied subject to bidder not exceeding its eligibility and allocation limits, and not violating MSR
- decrease bid:
  - a) if excess demand for the product at the time the bid is processed<sup>14</sup>  $\leq 0$ , rejected (but remains in the queue)
  - b) if excess demand for the product at the time the bid is processed  $> 0$ ,
    - if excess demand  $\geq$  bid amount, applied
    - if excess demand  $<$  bid amount, partially applied such that demand = supply (subject to MSR described below).

As mentioned, partial application of decrease bids occurs when the demand reduction of the bid  $>$  excess demand for the product at the time the bid is processed. For example, consider where supply is 25 lots and aggregate demand is 27 lots for the Regional Northern NSW/Southern Qld product. A bidder makes a decrease bid of three lots. Since excess demand is only two lots, a reduction of two lots is applied and the remaining one lot decrease bid is left in the bid processing queue. If an increase bid by another bidder is subsequently applied at a higher price point, the remaining one lot decrease bid may subsequently be applied.

At the end of a round, the auction system undertakes the following actions:

- places all increase bids and decrease bids for all products in the bid processing queue, in ascending order of price point
- resolves price point ties using a pseudo-random process
- processes bids according to the following algorithm:
  - 1) processes each bid in the queue, starting with the first bid, as follows:

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<sup>14</sup> The term 'excess demand' in this chapter does not have the same meaning as the term 'provisional excess demand' in the Allocation Determination.

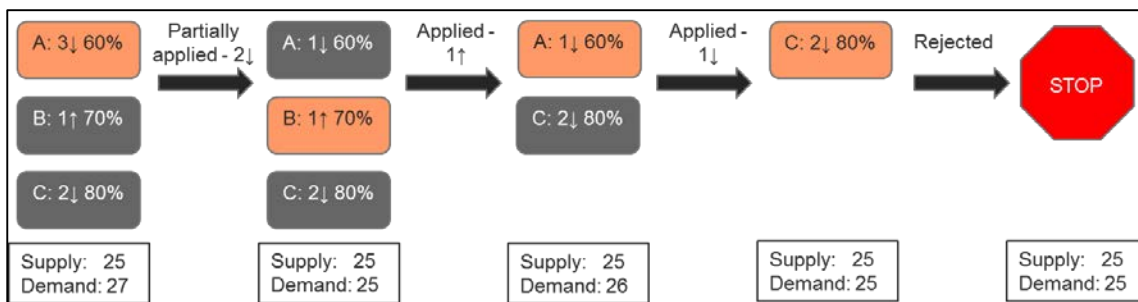
- a) if applied, remove from queue and return to 1)
  - b) if partially applied, leave remainder of bid in queue and return to 1)
  - c) if rejected, leave bid in queue and process next bid
- 2) stops if a bid is rejected and there is no next bid or there are no bids left in the queue
  - 3) remove all remaining bids from the queue before the next round
- calculates the posted price and posted demand for each product
  - calculates the eligibility points of each bidder for the next round.

As an example, consider an extension to the scenario above in Regional Southern/Western NSW, where supply = 25 lots, aggregate demand = 27 lots at the start of a round. The round opening price is \$100, clock price = \$110 and the following three bids are received for the same product during the round:

- Bidder A: decrease three lots at \$106 (60 per cent price point)
- Bidder B: increase one lot at \$107 (70 per cent price point)
- Bidder C: decrease two lots at \$108 (80 per cent price point).

At the end of the round, bid processing progresses would be as shown in Figure 7 below.

**Figure 7: ESMRA bid processing example**



### **Eligibility points and lot ratings**

The operation of eligibility points in ESMRA is similar to a standard SMRA auction. Bidders can bid on any product, or combination of products, up to their pre-declared limit. This limit is expressed as 'eligibility points'—a representation of the lots and their relative value that the bidder ultimately seeks to win. Bidders cannot bid on lots in such a way that their bidding activity would exceed their eligibility points. Applicants must make an 'eligibility payment' ahead of the auction, partly to ensure that bidders nominate their initial eligibility points in a way that is an accurate expression of their demand.

Lot ratings provide the basis for the eligibility and activity rules during rounds. Each lot is given a lot rating, expressed in eligibility points. Lot ratings are an important part of the efficiency of the auction because they reduce the scope for strategic bidding. The lot ratings used in the auction are an estimation of the relative value of the different lots on offer. The activity rule restricts a bidder's current set of bids to be no larger (in an 'eligibility point' sense) than any of its previous sets of bids. Each bidder must therefore maintain a level of activity if it wants to continue with that level of eligibility later in the auction. In doing this, the activity rule promotes meaningful bidding and price discovery. The lot ratings for the 3.6 GHz band auction are shown in Table 8 at 3.2.3.

Applicants are required to nominate their initial eligibility points in their eligibility nomination form. An applicant's initial eligibility points can be calculated by:

**Initial eligibility**

$$= \text{sum over all products of } \{ \text{product lot rating} \times \text{no. of nominated lots} \}$$

For example, if a bidder nominates the following products and lots in their eligibility nomination form:

- Canberra—six lots at 20 points/lot
- Sydney—four lots at 200 points/lot
- Central Queensland—10 lots at 20 points/lot

then, their initial eligibility =  $(6 \times 20) + (4 \times 200) + (10 \times 20) = 1,120$  points.

The initial eligibility points determine:

- a bidder's eligibility points for bidding in the first round
- the amount of the eligibility payment, deed of financial security or combination of both, they must make or give to the ACMA (see 4.2.1 below).

**Activity rule**

ESMRA auctions have a global activity rule similar to standard SMRA auctions, which is used to improve price discovery and maintain auction progress. A bidder's activity is defined as the total eligibility points for the products for which they have expressed demand.

Note that eligibility points can only be maintained or decreased as the primary stage progresses. Once decreased, eligibility points cannot be regained in future rounds.

Before the auction, the auction manager will set an eligibility requirement percentage (ERP), which is used to calculate the activity target for each round. In a given round, a bidder's activity must be at least the ERP (for example, 90 per cent), or their eligibility points will be reduced for the next round and all subsequent rounds.

Due to partial application of bids, a bidder's activity at the end of the round (**bids processed activity**) could be lower than the activity calculated based on bids placed by the bidder in that round (**bids placed activity**). To ensure that bidders are not disadvantaged when their bids are partially applied, and their resultant activity is lower than expressed in their bids, their eligibility points for the next round are calculated based on the higher of the bids placed activity (activity for bids for all products placed during the round) and the bids processed activity (activity after bid processing at the end of the round).

The eligibility for the next round ( $n+1$ ) is calculated as follows:

$$\text{Eligibility } (n + 1) = \min \left\{ \text{Eligibility } (n), \frac{\max (\text{bids processed activity}, \text{bids placed activity})}{ERP} \right\}$$

For example, say the ERP is 90 per cent and a bidder has 1,000 eligibility points at the start of round  $n$ . Their end of round activity must be  $\geq 900$  points  $(1,000 \times 0.9)$  to maintain their eligibility at 1,000 points for the next round.



During round  $n$ , say the bidder makes the following bids to switch demand from Canberra to Adelaide. Maintain bids are made for all other products:

- Canberra—decrease bid three lots at 20 points/lot → 60 points eligibility reduction
- Adelaide—increase bid one lot at 60 points/lot → 60 points eligibility increase.

Say the Canberra decrease bid is partially applied due to insufficient aggregate demand and leads to a posted decrease of two lots (40 points eligibility reduction). There is insufficient eligibility to apply the increase bid in Adelaide because their eligibility would exceed 1,000 points, so it is rejected. If end-of-round activity was calculated solely on the posted demand, the bidder's end-of-round activity would be decreased by 40 points to 960 points. However, the activity based on the expressed demand (bids placed activity) is 1,000 points. The end-of-round activity is therefore 1,000 points.

Therefore, their eligibility for round  $(n+1)$  is:

- Eligibility  $(n+1) = \min [1000, (1000/0.9)] = \min[1000, 1111] = 1,000$  points.

If the same bidder made a decrease bid of six lots in Canberra (fully applied) without an increase bid in Adelaide, their end of round activity is  $1000 - (6 \times 20) = 880$ . Their eligibility for round  $(n+1)$  is:

- Eligibility  $(n+1) = \min [1000, (880/0.9)] = \min[1000, 977] = 977$  points.

The eligibility requirement percentage will be set by the auction manager, who intends to consult on this and several other auction parameters with registered bidders closer to the auction. Note that the auction manager may change the eligibility requirement percentage during the auction, after consulting with registered bidders.

During bidding rounds, the auction system prevents a bidder from making bids if their activity would exceed their eligibility points, assuming all their bids are fully applied. In practice, this affects increase bids. If a bidder does not have sufficient eligibility to make an increase bid for a particular product, a bidder would need to make a decrease bid of equal or greater activity value for another product.

### **Minimum spectrum requirement (MSR)**

The use of 5 MHz lot sizes introduces frequency-based exposure risk, where successful bidders could obtain frequency lots that are less than the minimum they require for their business case. Within the ESMRA format, the Minimum Spectrum Requirement (MSR) feature allows the ACMA to set a maximum number of lots—the **MSR cap**—and applicants may set their own MSR for each product. The auction system prevents a bidder who selected an MSR from obtaining a bandwidth below their MSR for a product.

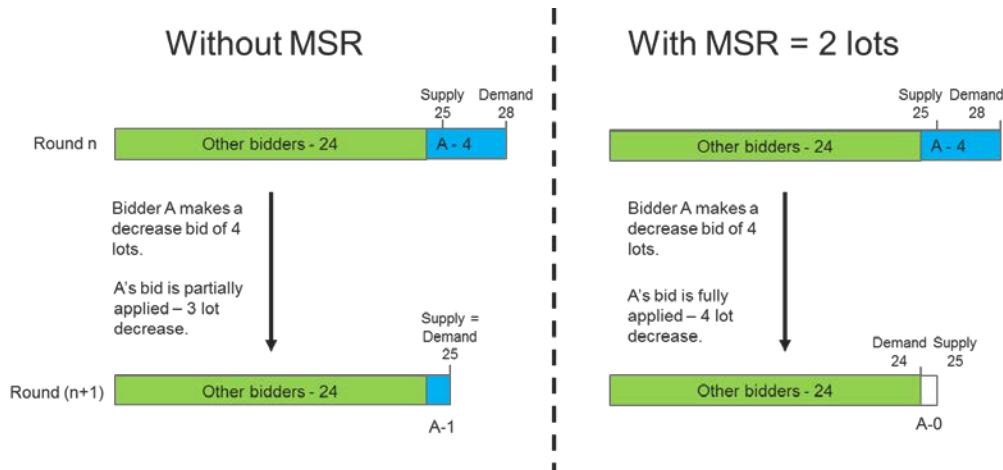
After consultation with stakeholders, the ACMA has decided to set the MSR cap at **two lots (10 MHz)**.

An MSR of two lots means that an applicant who sets an MSR for a product cannot have demand fall to one lot for that product. In effect, applicants would therefore effectively set the MSR for the 3.6 GHz band auction as 'on' (two lots) or 'off' (zero lots). Applicants may set their MSR as 'on' for some products and 'off' for other products. Applicants may also set their MSR as 'on' for products where they have not expressed start demand, in case they change strategy during the auction.

Applicants may choose whether they wish to use the MSR feature. If an applicant does use the feature, they must set their MSR before the auction via the eligibility nomination form.

As an example of how the MSR feature works, consider the scenario where bidder A has demand of four lots in Regional WA, supply is 25 lots and the aggregate demand is 28 lots, as shown in Figure 8 below.

**Figure 8: Example of MSR operation**



During round n, bidder A makes a decrease bid of four lots, reducing their demand to zero lots. No other increase or decrease bids are made during the round by other bidders. Without the MSR feature, the bid processing at the end of the round partially applies the decrease bid until demand is equal to supply, that is, a reduction of three lots, leaving the bidder with demand of one lot. However, if the MSR feature is used, the bid processing will prevent the bidder being left with one lot and apply the decrease bid fully. The bidder's demand is reduced to zero lots and overall demand is reduced to 24 lots, even though it is below supply.

**Selection of MSR feature will affect a bidder's ability to bid in the secondary stage of the auction.** If a bidder has set their MSR to two lots (10 MHz) for a product and does not purchase any spectrum of that product during the primary stage, they will not be permitted to participate in the secondary stage. This is to prevent bidders from reducing demand during the primary stage in an attempt to obtain an amount of spectrum less than their MSR at a lower price in the secondary stage.

### **Information policy**

In an ascending auction such as the ESMRA format, the auctioneer typically provides bidders with information about demand throughout the primary stage of the auction. This demand information facilitates price and allocation discovery.

In comparison to standard SMRA auctions, ESMRA auctions have a higher risk of strategic demand reduction, where bidders sacrifice some spectrum they may like to acquire in return for ending the auction earlier, at a lower price for the spectrum that they win. Providing detail about the level of excess demand can create incentives for bidders to close out the auction early.

The ACMA will provide exact excess demand information at the end of each round only if excess demand is greater than four lots. If the excess demand is four lots or fewer, the information supplied will be '≤ 4 lots'.

At the end of each round, all bidders are given the following information for each product:

- posted price (opening price for the next round)
- clock price for the next round
- excess demand.

Each individual bidder is told its own quantity of demand at the posted price for each product. Information about individual demands of other bidders is not disclosed.

### **Primary stage results**

The primary stage concludes when there is no excess demand for any product. Bidders win the amount of spectrum they have expressed demand for when the primary stage concludes. The price paid per lot by winning bidders is the final posted price for that product when the primary stage concludes. The total price to be paid by winning bidders in the primary stage ('primary price') is calculated by:

### **Primary price**

**= sum over all products of [final posted price for product  
× no. of lots of product won]**

For example, when the primary stage concludes, if a bidder has expressed demand in the following regions with the given posted prices:

- Brisbane—six lots, posted price = \$1,250,000
- Tasmania—five lots, posted price = \$150,000
- Regional SA—four lots, posted price = \$100,000.

Then, the primary price for the bidder =  $(6 \times 1,250,000) + (5 \times 150,000) + (4 \times 100,000) = \$8,650,000$ .

### **3.1.2 Secondary stage**

The purpose of the secondary stage is to auction single lots that remain unallocated from the primary stage ('residual lots'). If no lots remain unallocated from the primary stage, the secondary stage is not required.

The allocation limits continue to apply in the secondary stage. In the Perth region, it is possible that a bidder could win one lot less than their allocation limit, and then win a single lot in both the Perth—upper and Perth—lower products, causing them to exceed their allocation limit. In order to prevent this occurrence, any bidder who wins one lot less than their allocation limit in the primary stage for the Perth combined products will be asked to nominate their preferred product—Perth—upper or Perth—lower—to bid on in the secondary stage. This will be done in writing before the commencement of the secondary stage. If the bidder does not make a nomination, they may not bid for either product.

The following example outlines how this provision may work in practice:

- A bidder has an allocation limit of 60 MHz (12 lots) in Perth and wins 55 MHz (11 lots) in the primary stage.
- The auction manager asks the bidder in writing to nominate which product they will bid on in the secondary stage.
- The bidder nominates to bid on the Perth—upper product and communicates this in writing to the auction manager.
- The secondary stage proceeds, with that bidder bidding for the Perth—upper product but not the Perth—lower product.

To minimise strategic bidding, a bidder who has selected the MSR for a product and does not win any spectrum of that product during the primary stage, will not be permitted to participate in the secondary stage. Eligibility points are not applicable to the secondary stage, since there is no activity rule or ability to switch demand between products.

The secondary stage uses a Simple Clock Auction (SCA) format with a simple ascending-bid method. All residual lots will be offered concurrently within this stage.

A lot will only be offered in the secondary stage if it is the only unallocated lot in that product. If multiple lots remain unallocated in a single product, they will remain unsold and will not be allocated at this time. For example, if only one Canberra lot remains unallocated at the end of the primary stage, but two Perth–lower lots remain unallocated, then the Canberra lot will be offered in the secondary stage. The Perth–lower lots, however, will not. As another example, if a single Perth–upper lot remains unallocated and a single Perth–lower lot also remains unallocated, these lots will both be offered in the secondary stage.

Before each round in the secondary stage, the auction manager states the prices of each residual lot (the specified prices) that the bidder must meet in the upcoming round to be eligible to place a bid in the subsequent round. The specified price is calculated by reference to the specified price for the residual lot in the previous round, plus the bid increment percentage for that lot. The bidder can make a bid at or above the specified price (a continue bid) or place a lower bid (an exit bid). An exit bid must be equal to or greater than the specified price for the previous round of the auction (or the starting price, if the round is the first round). If a bid for a lot is lower than the specified price of the current round—that is, if it is an exit bid—then it is the bidder's final bid for that lot. Once a bidder has made an exit bid, the bidder cannot resume bidding on that lot in future rounds.

The bidder can also place a continue bid above the specified price for the round using the 'advance price' feature. The system automatically accepts that 'advance price' as the bid in subsequent rounds until either the advance price falls below the specified price for a round (and hence becomes an exit bid), or the bidder makes a new, replacement bid in a subsequent round (whichever occurs first).

Bidding on a residual lot ceases when there is only one continue bid made on the lot in a round, where only exit bids are made on the lot in a round, or where no bids are made on the lot in a round. A bidder will only win if no other bidder places a higher bid, such as when there is only one bidder who bids at least the specified price in the final round, or a bidder who places the highest exit bid in the final round. The highest bidder in the final round wins and pays the amount of the second-highest bid—this is the defining feature of a 'second-price auction'. This ensures that the winner never pays more than necessary to win, which encourages 'true value' bidding.

In the case of tied exit bids in the last round for a lot that are higher than all other bids, the winning bidder will be chosen by pseudo-random selection. The winning bidder will pay the amount of the last bid made by the winning bidder (that is, the amount of the tied exit bid).

The already very low likelihood of tied bids occurring can be further reduced if bidders avoid round numbers as their exit bids. For example, if a bidder's maximum valuation of a lot is around \$500,000, bidders could consider making their exit bid around this figure, for example \$503,200. Bidders should obtain their own advice about their valuation of lots and bidding strategies.

The secondary stage concludes when the final round has concluded for each residual lot available for bidding in the secondary stage.

### 3.1.3 Assignment stage

The assignment stage determines the specific frequency ranges awarded to each winning bidder from the primary and secondary stages. The assignment stage will operate in a similar way to the combinatorial clock auction (CCA) used in the digital dividend spectrum auction in 2013.

Only winning bidders from the primary and secondary stages can bid in the assignment stage. Each bidder is assigned specific frequencies to the lots of each product it won in the previous stages. While there is no requirement for a bidder to bid during the assignment stage, this stage gives bidders the opportunity to submit additional bids, at prices they choose, to express their preferences for particular frequency assignments from the options presented by the auction manager. These options will be set by the auction manager, in accordance with clause 4 of Schedule 3 of the Allocation Determination. They ensure the frequency contiguity of the lots of each product that were allocated to each bidder in the previous stages, and also the frequency contiguity of the lots of each product that were unallocated at the end of the previous stages.

In each round, the auction manager uses the auction system to generate, for each bidder, a list of frequency range options and bidders enter a single bid for each option.

#### Example 1:

For example, consider the case where for a given product with supply of 25 lots, the winning bids are:

- bidder A—nine lots
- bidder B—four lots
- bidder C—five lots
- bidder D—seven lots.

The auction software would present the frequency range options shown in Figure 9 to bidder A and ask them to submit a bid for each option.

**Figure 9: Assignment stage, Example 1: frequency range options for bidder A**

A (9 lots)		B+C+D (16 lots)		
B (4 lots)	A (9 lots)		C+D (12 lots)	
C (5 lots)	A (9 lots)		B+D (11 lots)	
D (7 lots)	A (9 lots)		B+C (9 lots)	
B+C (9 lots)		A (9 lots)		D (7 lots)
B+D (11 lots)		A (9 lots)		C (5 lots)
C+D (12 lots)		A (9 lots)		B (4 lots)
B+C+D (16 lots)			A (9 lots)	

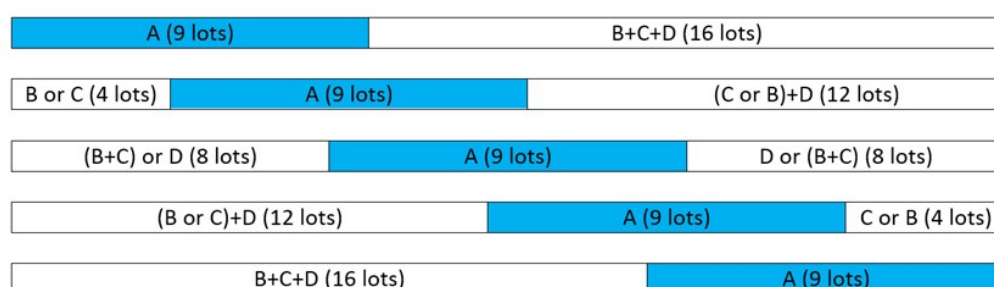
### Example 2:

In the case where other bidders have similar holdings, the number of frequency range options may be reduced. Consider the case where the winning bids are:

- bidder A—nine lots
- bidder B—four lots
- bidder C—four lots
- bidder D—eight lots.

The auction software would present a smaller number of assignment options to bidder A and ask them to submit a bid for each option, as shown in Figure 10.

**Figure 10: Assignment stage, Example 2: frequency range options for bidder A**



The assignment stage consists of one or more products being offered in a series of sealed-bid rounds. It is the ACMA's current intention to:

- offer products in the assignment stage in **descending order of the sum of the winning prices** as determined in the previous auction stages—that is, the product with the highest sum of prices will be offered first
- combine products with identical outcomes from the previous stages to ensure efficient allocations across similar regions.

The ACMA intends for the auction manager to consult with registered bidders on the principles to determine the order of products in the assignment stage before the commencement of the assignment round.

When each round has ended, the system determines:

- the frequency range option that maximises the sum of the bid prices. If there are two or more maximising assignment options, the system selects one pseudo-randomly
- the price each winner pays, based on a second-price rule known as the nearest Vickrey core pricing rule. All assignment prices are rounded up to the nearest hundred dollars.

### **Which lots are included in the assignment stage?**

For all regions except Perth (see section below), all lots allocated in the primary and secondary stages are included in the assignment stage. Any unallocated lots are treated as a contiguous block and automatically assigned to the highest position in the band. This frequency range is not included in the assignment stage.

For example, if there are three unallocated Regional SA lots after the conclusion of the primary and second stages, those lots are automatically assigned to the frequencies 3685–3700 MHz. The Regional SA assignment round would progress with frequency range options for 22 allocated lots between 3575–3685 MHz. This rule assists bidders

to differentiate between unallocated lots and lots allocated to other bidders when determining their bid values in the assignment stage.

### ***Perth—assignment stage rules***

In Perth, the rule for assigning unallocated lots to the highest place in the band will only be implemented for the upper band (3655–3700 MHz). Unallocated lots in the lower band (3575–3655 MHz) are grouped as a contiguous block, but their position in the band is determined by the assignment round bidding for Perth–lower. This is to maximise the opportunity for a bidder who wins lots in both bands to achieve contiguity between their lower and upper band holdings.

The ACMA will implement the following rules to maximise an opportunity for a bidder who holds spectrum in both lower and upper bands in Perth to achieve contiguity:

- 1) If a single bidder wins lots in both the lower and upper bands, they are guaranteed contiguity for their holdings.
- 2) If multiple bidders win lots in both the lower and upper bands, the bidder who holds the most lots is guaranteed contiguity.
- 3) If there is a tie, the bidder who holds the most in the upper band is guaranteed contiguity.
- 4) If multiple bidders win identical holdings in the lower and upper bands, there is no automatic assignment and the assignment stage proceeds for both bands. Bidders use their assignment stage bids to achieve contiguity.

If a single bidder wins all the available lots in Perth–lower or Perth–upper, there will still be an assignment round for the relevant product. The assignment price will be zero.

### ***Nearest Vickrey core pricing rule***

The assignment prices for the winning frequency range option will be calculated using a form of second-price rule referred to as nearest Vickrey core pricing. Under the rule, the Vickrey price for each bidder is calculated first. The Vickrey price is the price bid less the incremental contribution; that is, the amount by which the bidder has increased the sum of all high bids. The core price is an amount that is sufficient to ensure there is no other bidder or group of bidders prepared to pay more for the lots. If the Vickrey price is less than the core price, the price is increased to the core price in such a way that is closest to the Vickrey price. Where this price adjustment is required for a number of bidders, the price increase is shared between the bidders in proportion to the starting prices of their allocated spectrum.

For example, consider the scenario for a given product with supply = 25 lots, where bidders win the following amounts in the primary and secondary stages:

- bidder A—10 lots
- bidder B—nine lots
- bidder C—six lots.

Table 4 below shows the six possible assignment options, together with the bids submitted by each bidder for the options.

**Table 4: Example assignment stage options**

Lots	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Value
ABC	Bidder A: 10										Bidder B: 0									Bidder C: 0						10
ACB	Bidder A: 10										Bidder C: 0						Bidder B: 0									10
BAC	Bidder B: 14									Bidder A: 0										Bidder C: 0						14
BCA	Bidder B: 14									Bidder C: 0						Bidder A: 0										14
CAB	Bidder C: 13					Bidder A: 0												Bidder B: 0								13
CBA	Bidder C: 13					Bidder B: 12										Bidder A: 0										25

The CBA option has the maximum sum of bids, with \$25, and the bid prices are {A—\$0, B—\$12, C—\$13}. To calculate the Vickrey prices for each bidder, their bids are set to zero in turn and the maximum sum of bids determined. This is shown in Tables 5–7 below.

**Table 5: Calculating maximum sum of bids—bidder A excluded**

Lots	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Value
ABC	Bidder A: 0										Bidder B: 0									Bidder C: 0						0
ACB	Bidder A: 0										Bidder C: 0						Bidder B: 0									0
BAC	Bidder B: 14										Bidder A: 0									Bidder C: 0						14
BCA	Bidder B: 14										Bidder C: 0						Bidder A: 0									14
CAB	Bidder C: 13					Bidder A: 0												Bidder B: 0								13
CBA	Bidder C: 13					Bidder B: 12										Bidder A: 0										25

**Table 6: Calculating maximum sum of bids—bidder B excluded**

Lots	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Value
ABC	Bidder A: 10										Bidder B: 0										Bidder C: 0					10
ACB	Bidder A: 10										Bidder C: 0							Bidder B: 0								10
BAC	Bidder B: 0										Bidder A: 0										Bidder C: 0					0
BCA	Bidder B: 0										Bidder C: 0							Bidder A: 0								0
CAB	Bidder C: 13					Bidder A: 0												Bidder B: 0								13
CBA	Bidder C: 13					Bidder B: 0										Bidder A: 0										13

**Table 7: Calculating maximum sum of bids—bidder C excluded**

Lots	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Value
ABC	Bidder A: 10										Bidder B: 0										Bidder C: 0					10
ACB	Bidder A: 10										Bidder C: 0						Bidder B: 0									10
BAC	Bidder B: 14										Bidder A: 0										Bidder C: 0					14
BCA	Bidder B: 14										Bidder C: 0						Bidder A: 0									14
CAB	Bidder C: 0						Bidder A: 0										Bidder B: 0									0
CBA	Bidder C: 0						Bidder B: 12										Bidder A: 0									12



The incremental contribution for each bidder is:

- bidder A:  $\max(\text{Table 4}) - \max(\text{Table 5}) = 25 - 25 = \$0$
- bidder B:  $\max(\text{Table 4}) - \max(\text{Table 6}) = 25 - 13 = \$12$
- bidder C:  $\max(\text{Table 4}) - \max(\text{Table 7}) = 25 - 14 = \$11$ .

The Vickrey prices for each bidder are calculated by subtracting the incremental contribution from their bid prices. Therefore, the Vickrey prices are:

- Vickrey (bidder A) =  $0 - 0 = \$0$
- Vickrey (bidder B) =  $12 - 12 = \$0$
- Vickrey (bidder C) =  $13 - 11 = \$2$ .

However, the core constraint requires that no other option has higher total bids than the total of prices paid in the winning option. Here, bidder A bid \$10 for each of the first two options but was unsuccessful despite bidding \$8 more than the total of prices paid in the winning option. Therefore, bidders B and C must pay at least the amount of bidder A's losing bid, \$10. The \$8 difference is shared between B and C in proportion to their allocated spectrum. Since B won nine lots and C won six lots:

- Assignment price (bidder B) =  $0 + 8 \cdot (9 / (9 + 6)) = 0 + 4.8 = \$4.80$
- Assignment price (bidder C) =  $2 + 8 \cdot (6 / (9 + 6)) = 2 + 3.2 = \$5.20$ .

## 3.2 Key auction procedures

The following provides an overview of the main auction procedures. Detailed information on the bidding process and actions associated with this are provided in Chapter 4.

### 3.2.1 Application

Before the application deadline on **Friday 31 August 2018 (at or before 5.00 pm)**, applicants are required to:

- give the ACMA a completed application form
- give the ACMA a deed of acknowledgement
- give the ACMA a deed of confidentiality executed by the applicant
- pay the application fee (\$10,000).

### 3.2.2 Eligibility nomination

Before the eligibility deadline on **Thursday 27 September 2018 (at or before 5.00 pm)**, applicants are required to:

- give the ACMA a completed eligibility nomination form
- pay an eligibility payment, or give a deed of financial security, to the ACMA on behalf of the Commonwealth, or a combination of both.

Within their eligibility nomination form, applicants need to set out:

- their start demand (in lots) for each product
- their initial eligibility points, based on their start demand
- their MSR for each product, if they choose to use it.

An applicant's start demand must meet the following conditions in order to be valid:

- 1) it must not exceed the allocation limits for each product.
- 2) it must not be greater than the supply for each product.

Applicants are also required to make an eligibility payment to secure their initial eligibility points for the auction. The dollar value of each initial eligibility point nominated by the applicant has been set by the ACMA at **\$500 per eligibility point**. This value is used to calculate the eligibility payment to be paid or secured by the applicant. Applicants have the choice of:

- 1) paying this amount upfront in full
- 2) paying a portion of the amount upfront and giving the ACMA a deed of financial security for the remaining amount
- 3) giving the ACMA a deed of financial security for the full amount.

The eligibility payment for an applicant is calculated by multiplying the number of nominated lots, by the lot ratings for those lots (as listed in Table 8 below), by the dollar value per eligibility point. For example, if an applicant nominates the following demand:

- Adelaide—six lots at 60 points/lot
- Brisbane—eight lots at 100 points/lot
- Canberra—six lots at 20 points/lot
- Regional Northern NSW/Southern Queensland—four lots at 100 points/lot
- Regional Southern/Western NSW—four lots at 60 points/lot
- Regional SA—six lots at 10 points/lot.

Their eligibility payment can be calculated as follows:

Eligibility points =  $(6 \times 60) + (8 \times 100) + (6 \times 20) + (4 \times 100) + (4 \times 60) + (6 \times 10) = 1,980$  points

Eligibility payment =  $1,980 \times \$500/\text{point} = \$990,000$ .

If the eligibility payment exceeds the winning price to be paid by a bidder, then the balance of the eligibility payment will be refunded to the bidder.

### 3.2.3 Starting prices and lot ratings

The ACMA has set starting prices and lot ratings for each product on offer, as shown in Table 8 below. The starting prices for each product are as based on the following normalised prices, rounded to the nearest \$1,000:

#### ***Metropolitan spectrum (excluding Perth)***

- **\$0.08/MHz/pop**—25 x 5 MHz (3575–3700 MHz).

#### ***Perth spectrum***

- **\$0.0531/MHz/pop**—16 x 5 MHz (3575–3655 MHz)
- **\$0.08/MHz/pop**—9 x 5 MHz (3655–3700 MHz).

#### ***Regional spectrum***

- **\$0.03/MHz/pop**—25 x 5 MHz (3575–3700 MHz).

The starting prices are the opening prices for lots of all products in the first round. The auction system will not accept a bid below the starting price for the product.

For this auction, lot ratings are set to be the same within different regions with similar population sizes to enable easier substitution by bidders during the auction.

The detailed operation of eligibility points and the activity rule within the primary stage of the auction are at 3.1.1 above.

**Table 8: 3.6 GHz band auction starting prices and lot ratings**

Band	Lot identifier	Region name	Frequency (MHz)	Number of lots	Lot bandwidth (MHz)	Estimated population (Sep. 2018)	Starting price (\$/MHz/pop)	Starting price	Lot rating (points/lot)
<b>3.6 GHz metro</b>	ADEL01	Adelaide	3575-3700	25	5	1,339,396	\$0.08	<b>\$536,000</b>	60
	BRIS01	Brisbane	3575-3700	25	5	2,199,910	\$0.08	<b>\$880,000</b>	100
	CANB01	Canberra	3575-3700	25	5	459,542	\$0.08	<b>\$184,000</b>	20
	MELB01	Melbourne	3575-3700	25	5	4,744,464	\$0.08	<b>\$1,898,000</b>	200
	SYDN01	Sydney	3575-3700	25	5	5,410,725	\$0.08	<b>\$2,164,000</b>	200
	PERT01	Perth-lower	3575-3655	16	5	2,026,374	\$0.0531	<b>\$538,000</b>	100
	PERT02	Perth-upper	3655-3700	9	5	2,026,374	\$0.08	<b>\$811,000</b>	100
<b>3.6 GHz regional</b>	NQLD01	North Queensland	3575-3700	25	5	267,538	\$0.03	<b>\$40,000</b>	10
	CQLD01	Central Queensland	3575-3700	25	5	636,451	\$0.03	<b>\$95,000</b>	20
	RNSQ01	Regional Northern NSW/Southern Queensland	3575-3700	25	5	2,295,854	\$0.03	<b>\$344,000</b>	100
	RSWN01	Regional Southern/Western NSW	3575-3700	25	5	1,503,450	\$0.03	<b>\$226,000</b>	60
	RVIC01	Regional Victoria	3575-3700	25	5	1,500,786	\$0.03	<b>\$225,000</b>	60
	TASM01	Tasmania	3575-3700	25	5	526,838	\$0.03	<b>\$79,000</b>	20
	RESA01	Regional South Australia	3575-3700	25	5	383,545	\$0.03	<b>\$58,000</b>	10
	REWA01	Regional Western Australia	3575-3700	25	5	329,534	\$0.03	<b>\$49,000</b>	10

#### 3.2.4 Withdrawal from the auction

A person who has applied for registration as a bidder may only withdraw from the auction before the eligibility deadline by written notice given to the ACMA. An applicant may not withdraw after the eligibility deadline. An applicant who has withdrawn will not be re-admitted to the auction. In some circumstances, the Allocation Determination provides that an applicant may be taken to have withdrawn its application.

Applicants who withdraw from the auction will remain subject to the confidentiality provisions in the Allocation Determination until after the end of the auction period (see 3.2.8). The ACMA will notify withdrawn applicants that their confidentiality obligations have ended as soon as practicable after the end of the auction period. As previously outlined, withdrawn applicants will not be refunded their application fee.

### 3.2.5 Bidder registration

Parties wishing to participate in the auction will need to be registered as a bidder. The ACMA will only register an applicant as a bidder if the application and eligibility nomination requirements outlined at 3.2.1 and 3.2.2 above are fulfilled.

Only parties who have fulfilled all requirements (including the completion and lodgement of all relevant deeds and other forms) within the applicable deadlines will be entitled to participate in the auction.

Details about the procedures involved at each stage of the registration process (including information about the relevant payments, forms and deadlines) are provided in the step-by-step guide in Chapter 4.

Subject to the requirements of each stage being met, the ACMA will contact registered bidders after the eligibility deadline<sup>15</sup> (**27 September 2018**) to confirm their registration and provide them with relevant material (including information about how to access and use the online auction system) to enable them to participate in the auction. Bidders will be required to keep secure any material provided to them during the auction period<sup>16</sup> and to notify the ACMA immediately of any relevant disclosure, loss or theft. If the ACMA is satisfied that a bidder has breached these requirements, and that the breach affected or may have affected the auction outcome, it may take action under the breach provisions discussed at 3.2.9.

### 3.2.6 Allocation limits

Allocation limits (also referred to as spectrum caps or competition limits) have the effect of capping the total amount of spectrum that a single bidder can acquire as a result of the allocation of spectrum licences by any allocation process under section 60 of the Act.

The [Radiocommunications \(Spectrum Licence Limits—3.6 GHz Band\) Direction 2018](#) (the allocation limits Direction) specifies that no person or specified group of persons may, as a result of the allocation of a spectrum licence in accordance with a relevant reallocation declaration, use:

- more than **60 MHz** of the relevant band at any location in each **metropolitan** area
- more than **80 MHz** of the relevant band at any location in each **regional** area.

Here, the relevant band refers to the entire 3400–3700 MHz band. Metropolitan and regional areas are as defined in the allocation limits Direction and correspond to the regions for each product in the auction.

The ACMA has used the allocation limits Direction to calculate allocation limits for existing relevant band spectrum licensees and PMTS Class B apparatus licensees ('existing relevant band licensees')<sup>17</sup>, taking into account existing holdings in the 3.4 GHz band, as at publication of the AIP. These are shown in Table 9 below. Any other party could acquire spectrum in the auction up to the maximum specified in the allocation limits Direction, that is, 60 MHz in metropolitan areas and 80 MHz in regional areas.

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<sup>15</sup> 'Eligibility deadline' is the date and time before which a completed eligibility nomination form and eligibility payments must be given to the ACMA.

<sup>16</sup> 'Auction period' is defined in subsection 4(1) of the Allocation Determination, and means the period commencing on the eligibility deadline and ending immediately after the auction manager provides the results for the auction in accordance with section 64.

<sup>17</sup> This usage of 'licensee' specifically excludes other licensees, such as point-to-multipoint and amateur radio licensees.

**Table 9: Allocation limits for existing relevant band licensees as at publication of the AIP—3.6 GHz band auction**

Region	Telstra	Optus	NBN Co
Adelaide	35 MHz	0 MHz	0 MHz
Brisbane	30 MHz	0 MHz	0 MHz
Canberra	30 MHz	0 MHz	0 MHz
Melbourne	60 MHz	0 MHz	0 MHz
Sydney	60 MHz	0 MHz	0 MHz
Perth	25 MHz	0 MHz	0 MHz
North Queensland	45 MHz	80 MHz	0 MHz
Central Queensland	45 MHz	80 MHz	0 MHz
Regional Northern NSW/Southern Qld	50 MHz	80 MHz	0 MHz
Regional Southern/Western NSW	80 MHz	80 MHz	0 MHz
Regional Victoria	45 MHz	80 MHz	0 MHz
Tasmania	55 MHz	80 MHz	0 MHz
Regional South Australia	80 MHz	80 MHz	0 MHz
Regional Western Australia	80 MHz	15 MHz	20 MHz

If the holdings of existing relevant band licensees change, or a new person becomes a holder (such as through a transfer), the ACMA will consider whether to update this table publicly, or to notify just the affected parties.

The Allocation Determination includes procedures that ensure the allocation limits are complied with.

As per sections 14 and 15 of the Allocation Determination, if either:

- two applicants or bidders are affiliated, or
- an applicant or bidder is affiliated with an existing relevant band licensee who is not an applicant or bidder in the 3.6 GHz band auction;

they are taken to be in a single specified group of persons for the purposes of the allocation limits.

### 3.2.7 Affiliations

#### ***Affiliations between applicants and bidders***

Applicants and bidders who are ‘affiliated’ will not be permitted to participate in the auction as separate bidding entities. The affiliated applicant rules in Part 2 and elsewhere in the Allocation Determination are in place to:

- ensure compliance with the allocation limits
- prevent (in conjunction with the confidentiality provisions discussed below) the movement of confidential information between bidders
- deliver a fair and competitive auction.

Two applicants or bidders will be affiliated if one is an 'associate' of the other, or if they have an associate in common.<sup>18</sup> This means an applicant or bidder is affiliated with another applicant or bidder if the specified group of persons in relation to one applicant or bidder has at least one member in common with the specified group of persons in relation to the other applicant or bidder.

This auction contains a new provision to exclude some overseas roles performed by an individual from the affiliation rules. As outlined in subsection 13(4) of the Allocation Determination, an individual is not taken to be a member in common between two or more groups if the individual is acting as company secretary of a body corporate in each of those groups, where the bodies corporate are incorporated outside Australia, in particular circumstances.

#### ***Affiliations between applicant and bidder, and existing licensee***

The allocation limits Direction applies in relation to an applicant's ability to be issued spectrum licences in the 3.6 GHz band. However, it does this based on the right of the applicant, or any person in the same 'specified group of persons' as the applicant, to use spectrum in the 3400–3700 MHz band. Such a person may not be an applicant in the 3.6 GHz band auction. Accordingly, there are procedures in the Allocation Determination requiring applicants to identify whether they are affiliated with any person who already holds spectrum or PMTS Class B apparatus licences in the 3400–3700 MHz band (existing relevant band licensees).

An applicant will be affiliated with an existing relevant band licensee if one is the 'associate' of the other, or if they have an associate in common. This means an applicant or bidder is affiliated with an existing relevant band licensee if the specified group of persons in relation to the applicant or bidder has at least one member in common with the specified group of persons in relation to the existing relevant band licensees.

This auction contains a new provision to exclude some overseas roles performed by an individual from the affiliation rules. As outlined in subsection 13(4) of the allocation determination, an individual is not taken to be a member in common between two or more groups if the individual is acting as company secretary of a body corporate in each of those groups, where the bodies corporate are incorporated outside Australia, in particular circumstances.

There are rules in place to identify and respond to affiliations formed before, during, and after the auction.

#### ***Affiliations before the auction***

When lodging an application, applicants will be required to provide information about the identity of their associates, following which the ACMA will give each applicant details about the identity of all other applicants, their associates and existing relevant band licensees. Applicants will then be required to provide a statutory declaration stating whether they are affiliated with another applicant or existing relevant band licensee and, if so, providing details of the affiliation.

If an affiliation is identified at this stage between two or more applicants, the affiliated applicants will have the option of withdrawing all of their applications and submitting a new application as a single applicant or withdrawing all but one of their applications.

If an affiliation is identified at this stage between an applicant and an existing relevant band licensee, the applicant's start demand and initial eligibility points in their eligibility

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<sup>18</sup> 'Associate' is defined in section 13 of the Allocation Determination.

nomination form will be reduced to the extent that they do not exceed the allocation limits. If this requires the applicant's start demand to be reduced to zero for all products, they will be taken to have withdrawn their application.

#### ***Affiliations during the auction***

If, during the auction period, a bidder believes it may be affiliated with another bidder or existing relevant band licensee, the bidder must immediately report the matter in writing to the ACMA. If during the auction period, the ACMA is satisfied that one bidder for a lot is affiliated with another bidder or existing relevant MHz band licensee, the auction will continue, and any affiliation issues will be considered after the auction.

#### ***Affiliations after the auction***

As soon as practicable after the end of the auction period, the ACMA will give each winning bidder details about the identity of all other winning bidders including the details of those bidders' associates. Each winning bidder will then be required to provide to the ACMA a statement about whether they are affiliated with another winning bidder or existing relevant band licensee and, if so, provide details of the affiliation. If an affiliation is identified at this stage, the allocation limits will cap the amount of spectrum that can be issued to the affiliated bidders, which may result in the winning bidders being issued licences for fewer lots than they won in the auction. Regardless of this, the winning bidder will remain liable to pay the full balance of the winning price for all the lots they have won.

### **3.2.8 Confidentiality**

Applicants, bidders, 'related persons'<sup>19</sup> and contractors who have knowledge of an applicant's or bidder's confidential information will be prohibited from disclosing confidential information about the allocation process to any person, except in specified circumstances. The confidentiality rules are in place to protect the integrity of the allocation process by prohibiting communications that could influence the allocation outcome. The rules are intended to guard against anti-competitive behaviour in the auction or other allocation processes and to complement the prohibition on cartel conduct contained in the *Competition and Consumer Act 2010*.

The general prohibition on disclosing confidential information does not apply where the disclosure is made either:

- to obtain advice on the auction from a person in their professional capacity; and
- to obtain finance to purchase spectrum licences in the auction; and
- to the ACMA; and
- to the applicant or bidder, or a related person of that applicant or bidder; or
- as authorised by the Allocation Determination or otherwise required by law.

Disclosure of confidential information is not prohibited if the information is publicly available and was not made available because of a breach of the confidentiality rules.

Confidential information is defined in the Allocation Determination and includes any information that, if disclosed, could be reasonably expected to affect another applicant's or bidder's behaviour in the auction, or the auction outcome. This includes information about an applicant's or a bidder's bids or proposed bids, bidding strategy or lot valuations.<sup>20</sup>

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<sup>19</sup> 'Related person' is defined in section 4 of the Allocation Determination.

<sup>20</sup> 'Confidential information' is defined in section 17 of the Allocation Determination.

Applicants are required to complete a deed of confidentiality as part of the bidder registration process. Each 'related person' who has knowledge of the applicant's or bidder's confidential information will (if they are an employee of the applicant or bidder, or of a related body corporate of the applicant or bidder that provides services to the applicant or bidder) also be required to complete a deed of confidentiality. A contractor of an applicant or bidder who has knowledge of the applicant's or bidder's confidential information must also give the ACMA a deed of confidentiality.

By completing the deed, applicants, their related persons, and contractors will be agreeing not to disclose confidential information before their confidentiality obligations have ceased to apply. The precise point at which the rules cease to apply to an applicant, bidder, their related persons and contractors will depend on whether the applicant or bidder is a winning bidder, is not a winning bidder, or withdraws from the auction.

Applicants, bidders, their 'related persons' and contractors are required to notify the ACMA in writing about any breach of the confidentiality rules of which they become aware. The notification must be made as soon as possible, and no later than two working days after they become aware the breach has occurred. If the auction manager is satisfied that the auction has been affected by a breach of the confidentiality rules, they may take steps to, among other options, stop the auction, or wind the auction back to an earlier point (see 3.2.16). Applicants or bidders who breach the confidentiality rules may be subject to the provisions at 3.2.9.

### **3.2.9 Breaches of the auction procedures**

Section 75 of the Allocation Determination will apply in cases where the ACMA is satisfied that an applicant or bidder (or, where applicable, a related person or contractor of an applicant or bidder) has breached a provision of the Allocation Determination. If the ACMA makes such a decision:

- the ACMA may retain an eligibility payment paid, or enforce a deed of financial security given by the applicant or bidder
- in accordance with section 76, the applicant or winning bidder must not be issued a licence for any spectrum they won in the auction.

For example, the ACMA may make such a decision if it is satisfied that an applicant or bidder (or one of an applicant's related persons or contractors) breached the confidentiality rules during the auction period in a way that affected the outcome of the auction. The ACMA may also make such a decision if, after the end of the auction period, a winning bidder (or one of their related persons or contractors) breaches the confidentiality rules before their confidentiality obligations come to an end or fails to provide a statement about whether they are affiliated with another winning bidder. These examples do not limit the circumstances in which the ACMA may take enforcement action.

Section 77 of the Allocation Determination provides that, where the ACMA acts under section 75, the affected applicant or bidder may, within a year of being notified by the ACMA about the decision, apply to the Federal Court for the return of all or part of any amount retained by the ACMA.

### **3.2.10 Procedures if there is only one bidder**

Section 48 of the Allocation Determination provides that if there is only one registered bidder, the auction will proceed under an abbreviated set of procedures, as follows:

- there will be one clock round in the primary stage using the auction system in which the bidder may make a bid



- the assignment stage will be conducted as soon as possible after the primary stage to enable the bidder to indicate the frequency ranges they wish to have assigned. The assignment stage prices will be zero.

#### **3.2.11 Publication of auction results—winning bidders**

As soon as possible after the auction, the ACMA will publish the following information on its website:

- the names of winning bidders
- the spectrum allocated to each winning bidder
- the total sum paid, or to be paid, by each winning bidder—that is, the total of the primary, secondary and assignment stage prices for the lots won by the bidder.

#### **3.2.12 Payment of winning prices and issue of licences**

The Allocation Determination sets out the financial obligations to be met by winning bidders before the ACMA can issue spectrum licences.

Following the close of the auction, the ACMA will advise a winning bidder of the balance of the winning price—that is, the winning price for the bidder less any eligibility payment paid by the bidder. The balance of the winning price will be due before licences commence on 30 March 2020. The ACMA expects to issue a notice seeking payment of the balance of the winning price not earlier than Q1 2020. It is expected that the licence would be issued shortly after payment.

#### **3.2.13 Default**

If a winning bidder does not pay the balance of the winning price in accordance with section 66 of the Allocation Determination, then:

- the spectrum licence will not be allocated to the winning bidder
- the issue of a spectrum licence to other winning bidders will not be affected
- spectrum that would have been allocated to the winning bidder may be later made available for allocation in accordance with section 70.

#### **3.2.14 Unallocated spectrum**

Section 70 of the Allocation Determination provides that any spectrum lots left unallocated (for example, due to insufficient bidder demand, the operation of the affiliation rules or the operation of the breach provisions) may be later offered for allocation by a procedure to be determined by the ACMA.

Prospective bidders should not assume that unallocated lots will be offered for allocation soon after the auction, or that they will be offered for allocation at less than the starting prices set by the ACMA for the auction (see 3.2.3).

#### **3.2.15 Refund of payments and cancellation of deeds of financial security**

An application fee will not be refunded under any circumstances, including if an applicant or bidder withdraws before the auction, or is excluded from the auction.

Subject to the matters discussed in 3.2.9, an eligibility payment paid by an applicant will be refunded:

- to applicants who withdraw from the auction before the eligibility deadline; or
- to bidders who do not win any spectrum in the auction.

Subject to the matters discussed in 3.2.9, a deed of financial security provided to the ACMA under section 38 of the Allocation Determination will be cancelled, according to the terms of the deed, either:

- upon payment by the promisor of the amount secured by the deed; or
- if the promisor receives written notice from the Chair of the ACMA.

The Chair of the ACMA intends to give such written notice shortly after payment of the balance of the winning price.

### **3.2.16 Auction manager**

Pursuant to section 23 of the Allocation Determination, the ACMA has appointed the Manager of the Major Spectrum Allocations Section of the ACMA as the auction manager for the 3.6 GHz band auction.

#### ***Responsibilities of the auction manager***

The auction manager has several specific responsibilities for each stage of the auction under the Allocation Determination.

##### *Prior to auction commencement*

- scheduling and notifying bidders of the start date and time of the first and second rounds of the primary stage
- setting and notifying bidders of the bid increment percentage that will apply to the products in the first clock round of the primary stage
- setting and notifying bidders of the eligibility requirement percentage to be applied in calculating the activity target during the first clock round of the primary stage
- entering the start demand, initial eligibility points, MSR (if any) and allocation limits for each bidder, as recorded in the register of bidders, in the auction system
- correcting any errors in the applications or register of bidders.

##### *Primary stage*

- scheduling and notifying bidders of further rounds of the primary stage
- providing information to bidders at the start and conclusion of each round, as listed in clause 8, Schedule 1 (for example, clock price, eligibility points, posted demand)
- announcing the conclusion of bidding rounds
- providing to each primary winner, using the auction system:
  - the total number of lots allocated to them
  - the total posted price for the allocated lots and the primary price to be paid by the primary winner for all allocated lots
- providing to all bidders, using the auction system:
  - the total number of primary winners
  - the total number of lots of each product allocated to primary winners (for example, '23 lots were allocated to three winning bidders', not individual allocations per bidder)
- announcing the conclusion of the primary stage.

##### *Secondary stage*

- announcing which residual lots will be offered in the secondary stage (if any)
- scheduling rounds of the secondary stage
- setting and notifying bidders of the bid increment percentage that will apply to the residual lots in the first round of the secondary stage

- providing information to bidders at the start and conclusion of each round, as listed in clause 5, Schedule 2 (for example, start price, number of bidders)
- announcing the conclusion of bidding rounds
- providing to each secondary winner, using the auction system:
  - the total number of lots allocated to the secondary winner
  - the residual price for the allocated lot of each product and the secondary price to be paid by the winner for the allocated lots
- providing to all bidders:
  - the total number of secondary winners
  - whether a lot of a product has been allocated to secondary winners
- providing to each winning bidder in the primary and secondary stages, the sum of the primary and secondary prices of the lots won by that bidder
- announcing the conclusion of the secondary stage.

#### *Assignment stage*

- announcing the anticipated start time and end time of each assignment round
- announcing the product or products that will be the subject of each assignment round
- determining a set of frequency range options available to successful bidders from the primary or secondary stages, in accordance with the rules outlined in clause 4, Schedule 3
- determining the winning assignment bids and prices for each product
- providing to each winning assignment round bidder, using the auction system:
  - the frequency ranges assigned to the bidder
  - any assignment price for the frequency ranges assigned
- announcing the conclusion of the auction.

#### *After the auction*

- announcing to each winning bidder
  - the number of lots of each product allocated to the winning bidder
  - the frequency ranges assigned to the lots allocated to the winning bidder
  - the winning price to be paid by the winning bidder for the lots allocated and frequency ranges assigned to the lots allocated
- announcing to all bidders
  - the number of winning bidders in the auction
  - the frequency ranges for each product in relation to the lots allocated in the auction.

#### **Discretionary powers**

The auction manager's discretionary powers under sections 50 and 51 of the Allocation Determination include:

- permitting a bidder to submit a bid by a method other than the auction system, if the auction manager is satisfied that the bidder is unable to submit a bid using the auction system
- permitting a bidder to submit a bid for a round after the end time of the round (but not after information about the outcome of the round has been given to bidders), if the auction manager is satisfied that the bidder could not submit the bid during the round because of technical or communication problems

- taking any of the following actions if the auction manager is satisfied that the auction is affected by exceptional circumstances (for example, a significant technical difficulty with the auction system or a breach of the confidentiality rules)
  - make corrections to:
    - the results of the current round of the auction; and
    - information received by a bidder after that round; or
  - stop the current round of the auction and restart the round (for example, when the circumstances are resolved)
  - cancel the results of one or more rounds and restart the auction from the point before those rounds
  - cancel the results of all rounds of a stage and restart the auction from the first round of that stage
  - stop the auction.

The auction manager may delegate any of the auction manager's powers and functions under the Allocation Determination to another person who is a member of the ACMA or a member of ACMA staff at Executive Level 1 or above.

### **3.2.17 Communicating with the auction manager**

Before the start of the auction, all contact with the auction manager should, in the first instance, occur using the contact details/methods provided at 6.2.

During the auction, contact with the auction manager would preferably occur through the electronic messaging facility within the auction system. Alternatively, if this is not appropriate to the query or situation, contact should occur through the email address, telephone number or fax number set out in 6.2. The ACMA considers that the electronic messaging facility within the auction system should be the primary and default form of contact with the auction manager. Other forms should only be used in those circumstances where the auction system was unable to be utilised (for example, if there was an internet or power failure).

## **3.3 Online auction system**

The auction will be conducted over the internet (online) using auction system software developed for the ACMA by [Power Auctions LLC](#). Subject to the user system requirements discussed below, the online auction system is designed to allow bidders to participate in the auction from their normal office locations, or any other location of their choice.

Bidders will use the auction system to bid in all rounds of the auction. As noted, the auction system will also be the primary mode of communication between the ACMA and bidders during the auction period.

The ACMA will endeavour to provide emergency backup bidding procedures, and communication arrangements will be in place if technical or other problems prevent use of the auction system for a period.

Procedures conducted before the beginning of the auction period will be performed independently of the auction system, as set out in 3.2.17.

### **3.3.1 Accessing and using the auction system**

Bidders will use the auction system from their own computers connected to the internet, by accessing the auction system internet site. The system has been designed to minimise the requirements on bidders' equipment and to make the bid submission

process as straightforward as possible. The auction system internet site will use secure sockets layer (SSL) technology to ensure all transmissions are secure.

The auction system will employ two-factor authentication, using Time-based One-Time Password Algorithm (TOTP). To access the auction system, users will enter their username and password, as well as a validation code generated using a smartphone app and the TOTP algorithm. This additional method of verifying the user's identity adds an extra layer of security to the conduct of the auction.

After the eligibility deadline, the ACMA will give registered bidders further information about how they can participate in the auction. This will include the following material about how to access and use the auction system:

- The Auction System Bidders' User Guide (User Guide)—instructions about how to access and log-in to the auction system internet site, place bids, view round schedules and results, download bidder files, and communicate with the auction manager using the auction system.
- Each of the 'authorised persons' identified on the bidder's application form as requiring access to the auction system will separately receive a username and set up a password to login to the auction system, as well as the information necessary to set-up TOTP apps on their smartphones to generate verification codes for two-factor authentication.
- Instructions about how to use the emergency backup bidding arrangements that will apply if a bidder is unable to submit a bid using the auction system.

Bidders may access and use the auction system only in accordance with the applicable rules in the Allocation Determination. They must not attempt to interfere with the auction system or use it in an unlawful way. The information provided to registered bidders for accessing the auction system is confidential information within the meaning of the Allocation Determination. Bidders are also required by sections 18 and 20 of the Allocation Determination to keep the items mentioned in the previous paragraph secure during the auction period, and to notify the ACMA immediately of any unauthorised disclosure, loss or theft. If the ACMA is satisfied that a bidder has breached these requirements, and that the breach affected or may have affected the auction outcome, the ACMA may take action under the provisions discussed at 3.2.9.

### **3.3.2 User system requirements**

The auction system will be accessible using a standard, internet-connected personal computer (PC) with an internet browser with a minimum of TLS 1.2 security. The supported browsers are a recent version of Internet Explorer 11 or Google Chrome. The User Guide will contain details of the recommended configuration for user equipment.

The auction system may run on PC configurations other than the one recommended in the User Guide. However, it is the bidder's responsibility to check they can use the system on another configuration—preferably by testing the other configuration during the mock auction discussed at 3.4. It is recommended that bidders use the same configuration for the mock auction as they intend to use for the live auction. Bidders are encouraged to install the latest updates for their operating system and browser to maximise protection against potential security vulnerabilities.

Bidders are discouraged from using web browsers containing third-party modifications, such as search bars, tool bars or other third-party browser extensions. Third-party browser extensions may cause problems for users of interactive websites—such as the auction system—and, in principle, may render bidders' computers more vulnerable to hacker attacks. If in doubt, bidders should seek their own expert advice to disable

third-party browser extensions or, if necessary, obtain clean installations of a recommended web browser.

Bidders are encouraged to establish a backup means of connecting to the internet during the auction if their primary internet connection fails. For example, bidders could arrange to have a mobile internet service available for use if their normal fixed internet service is disrupted; or a backup bid team, with its own power and communications services and authorisation to access the auction system, at a separate location from the primary bid team.

### 3.4 Bidder support and the mock auction

The ACMA held an industry tune-up on 10 April to inform prospective bidders about the ESMRA format and seek feedback on auction procedures.

In addition to this auction guide, and the instruments and explanatory statements attached, the ACMA will make available further information in the lead-up to the auction. This will include:

- **Auction System Bidders' User Guide**—to be made available to registered bidders after the eligibility deadline.
- **Bidder training**—to be made available to registered bidders prior to the mock auctions, as an opportunity to become familiar with the auction software. The intended timeframe is during October. The training will give bidders who may be unfamiliar with the ESMRA format experience in basic system functions (for example, placing bids).
- **Mock auctions**—following the registration process (see 3.2.5), the ACMA will provide details to registered bidders about scheduling mock (trial) auctions and provide any relevant material and information required to participate. It is expected at least one mock auction per bidder will be held in October/November 2018. This will give each bidder the opportunity to practise using the auction system, from their own location, in a simulated auction environment. The mock auctions will use the same lot configuration and starting prices as the live auction, and bidders will be free to bid as they wish. Depending on the number of registered bidders and the available time between the eligibility deadline and the auction commencement, the ACMA may offer an additional mock auction per bidder, if possible.

Announcements about the release of this and other relevant information, including the final date for the mock auctions, will be made during the lead-up to the auction through the sources listed at 6.1. It is the responsibility of applicants and registered bidders to ensure that they review those sources regularly to receive all such information for the purposes of preparing for the auction.

## 4. How do I participate in the auction?

On the basis of the auction procedures discussed in Chapter 3, this chapter provides practical information to guide participants through the auction process. It includes information about:

- steps that should be taken before applying to register as a bidder
- the bidder registration process—including relevant forms, payments and deadlines
- material the ACMA will provide to registered bidders to help them access and use the auction system
- the announcement of round schedules and results during the auction
- post-auction processes.

**Important warning:** The information in this chapter is intended to provide a guide only to the steps required to participate in the auction process in accordance with the procedures contained in the Radiocommunications (Spectrum Licence Allocation — 3.6 GHz Band) Determination 2018.

A potential applicant should *not* rely on this information but should instead carefully review and understand the content of the Allocation Determination itself.

This chapter provides practical information to guide participants through the key steps in the auction process. Several of these steps require auction participants to lodge forms with the ACMA. All forms are available in the *Auction forms* booklet.

Where an auction participant is required to lodge a form with, or make a payment to, the ACMA, they must do so in accordance with the relevant procedures in the Allocation Determination.<sup>21</sup> Summaries of the lodgement and payment procedures are provided at 6.3 and 6.4, respectively, and in the *Auction forms* booklet.

Several of the steps require the ACMA to provide auction participants with information or material. Prior to the start of the auction period, and after the end of the auction period, the ACMA will direct all such communication to the 'contact person' nominated by the auction participant in their application form, using the nominated contact details.

During the auction period, the ACMA will, where practicable, direct communications to the 'authorised persons' nominated by the auction participant in their application form, using the electronic messaging facility in the auction system. Where an alternative mode of communication is required (for example, during the period before the authorised persons have access to the auction system, or if the ACMA is unable to communicate reliably using the auction system), the ACMA will direct communications to the contact person nominated by the auction participant in their application form, using the nominated contact details.

In addition to the information and material, the ACMA will provide to auction participants, using the steps below, updates about auction developments and events from time to time through the sources listed at 6.1. It is the responsibility of prospective applicants, applicants and registered bidders to ensure that they review these sources to receive all updated information.

## **4.1 Step 1—Consider the AIP and monitor developments**

Before applying to participate in the auction, prospective bidders should read and understand all the material in the AIP, including this auction guide and the instruments and explanatory statements provided as attachments to this guide. Applicants should also seek their own expert advice on regulatory and other matters.

During the lead-up to the auction, prospective bidders should also regularly monitor the sources listed at 6.1 to remain informed about auction-related developments and events.

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<sup>21</sup> Procedures for 'giving documents to the ACMA' and 'payment of amounts' are set out in sections 7 and 9 of the Allocation Determination, respectively. There are additional lodgement requirements in relation to deeds of financial security in section 38 of the Allocation Determination.



## 4.2 Step 2—Register as a bidder

As outlined at 3.2.5, people wishing to participate in the auction are required to register as a bidder. To register, applicants must fulfil the application and eligibility nomination requirements listed at 3.2.1 and 3.2.2.

Only parties who have fulfilled all requirements (including the completion and lodgement of all relevant deeds and other forms) within the applicable deadlines, will be entitled to participate in the auction.

### 4.2.1 Lodge an application

Prospective bidders will need to lodge an application by:

- paying the non-refundable application fee of \$10,000<sup>22</sup>
- lodging a completed application form (Form 1)—providing information about:
  - the applicant and any associates of the applicant for the purpose of allocation limits discussed at 3.2.6.
  - up to three ‘authorised persons’ (for example, individual staff of the applicant) who require login details for the auction system<sup>23</sup>
- lodging a completed deed of acknowledgement form (Form 2)—containing, among other things, provisions to the effect that:
  - the applicant understands and agrees to be bound by the provisions of the Allocation Determination
  - the applicant agrees to indemnify the ACMA and the Commonwealth against any liability, damages, losses, costs or expenses arising from the actions of the applicant or its associates in relation to the auction, or from any breach by the applicant of the Allocation Determination or deed of acknowledgement
- lodging a completed deed of confidentiality form (Form 3)—containing provisions to the effect that:
  - the applicant agrees not to disclose confidential information before their confidentiality obligations cease to apply (discussed at 3.2.8).

It should be noted that if the applicant is, or is affiliated with, an existing relevant band licensee, their start demand is restricted to the extent necessary to ensure that the applicant, or the specified group of persons that includes the applicant, may not exceed the allocation limits. See 4.2.2 below and section 36 and 37 of the Allocation Determination.

Applications, including application fees, must be given to the ACMA by the application deadline of **Friday 31 August, at or before 5.00 pm**.

Under the confidentiality rules in Part 3 of the Allocation Determination, a ‘related person’ or contractor of an applicant or bidder who has knowledge of the applicant’s or bidder’s ‘confidential information’ must also lodge a completed deed of confidentiality form (see 3.2.8). Where the related person or contractor receives knowledge of the

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<sup>22</sup> Section 24 of the Allocation Determination provides that before the ACMA publishes a notice inviting applications for the auction, it must set the amount of the application fee. GST is not payable on the application fee.

<sup>23</sup> In the interests of operational efficiency and security, applicants are encouraged to nominate no more than three authorised persons. However, applicants can nominate an additional two authorised persons (that is, a total of up to five persons) if they wish. Instructions for nominating authorised persons are provided in the application form. Applicants are also encouraged to nominate at least one authorised person who is in a different physical location to his or her colleagues. This will reduce the risk of complete bidder system failure—for example, because of a power outage—during the auction.

applicant's confidential information *before* the application deadline, the person must lodge a completed deed before the application deadline. Otherwise, they must lodge a completed deed as soon as reasonably practicable after receiving knowledge of an applicant's or bidder's confidential information.

The ACMA will contact applicants as soon as practicable after receiving the material above to confirm receipt and, if necessary and possible, resolve cases where an element of the application is missing, incomplete or unclear. Prospective applicants are encouraged to lodge their applications as early as possible. This will enable the ACMA to resolve such cases, and applicants to update their application if they wish, *before* the application deadline.

#### **4.2.2 Affiliations—other applicants and existing relevant band licensees**

After the application deadline, the ACMA will:

- give each applicant details about the identity of all other applicants, the persons identified by each applicant in their application form as their associates, and existing relevant band licensees
- ask each applicant to make a statutory declaration for the purposes of section 32 of the Allocation Determination (Form 4), stating whether the applicant is affiliated with another applicant or existing relevant band licensee and, if so, identifying them and giving details of the affiliation.

Such statutory declarations are required for the purposes of paragraph 28(1)(b) of the Allocation Determination and must be lodged by the deadline stated in the ACMA's request. The deadline will be at least five working days after the date of the request.

If an applicant does not give the ACMA a statutory declaration as requested, they will be taken to have withdrawn their application. The implications of this are discussed at 3.2.4.

If the ACMA is satisfied that two or more applicants are affiliated, the ACMA will notify the affiliated applicant(s) in writing:

- the basis on which the ACMA is satisfied the applicants are affiliated
- that to participate in the auction, they must either:
  - a) withdraw the applications of all the affiliated applicants and submit a new application under section 35; or
  - b) withdraw the applications of all but one of the affiliated applicants.

Within 10 working days of being notified about the affiliation, the affiliated applicants must notify the ACMA in writing about which of the two options they wish to take. If they do not do so, they will be taken to have withdrawn their applications. If some of the affiliated applicants withdraw their applications, but more than one of them does not, all of the affiliated applicants will be taken to have withdrawn their applications. Where an applicant is taken to have withdrawn its application in such circumstances, the ACMA will tell it in writing that this is the case.

A new application submitted under option (a) must comply with the procedures set out in section 35 of the Allocation Determination. Among other things, section 35 requires that the new applicant must:

- be a body corporate whose only members are one or more of the affiliated applicants
- within 10 working days of being notified about the affiliation, lodge a completed application form (Form 1) and pay the application fee
- within three working days of the ACMA providing updated details about the identity of all other applicants (including any new applicants arising from option (a)), their associates and existing relevant band licensees:
  - give a completed deed of acknowledgement form (Form 2)
  - give a completed deed of confidentiality form (Form 3)
  - give a completed eligibility nomination form (Form 10)
  - make an eligibility payment to the ACMA or give the ACMA a deed of financial security (Form 6), or provide a combination of both, for an amount calculated in the manner described in section 3.2.2
  - make and give a statutory declaration for the purposes of subsection 35(5) of the Allocation Determination that the new applicant is not affiliated with any other applicant or existing relevant band licensee in the updated list (Form 5).

The ACMA will not accept a new application under section 35 unless it is satisfied that the new applicant is not affiliated with any applicant who has not withdrawn, including another new applicant.

If the ACMA is satisfied that one or more applicants are affiliated with an existing relevant band licensee, the applicant's start demand and initial eligibility points in their eligibility nomination form will be reduced to the extent that they do not exceed the allocation limits. If this requires the applicant's start demand to be reduced to zero for all products, they will be taken to have withdrawn their application.

#### **4.2.3 Nominate and secure initial eligibility points**

To complete the registration process, applicants will need to:

- lodge a completed eligibility nomination form (Form 10), providing the following information:
  - their start demand (in lots) for each product
  - their initial eligibility points, based on their start demand
  - their MSR (in lots) for each product, if they choose to use it
- secure their initial eligibility points by making an eligibility payment to the ACMA, giving the ACMA a deed of financial security (Form 6), or a combination of both, for an amount calculated in the manner described in section 3.2.2.

The eligibility nomination form is included in the Auction forms booklet provided in this AIP. The form, among other things, contains:

- a guide to calculating initial eligibility points
- a guide to calculating the eligibility payment required to secure the nominated initial eligibility points (the guide explains that the amount is calculated by multiplying the number of nominated lots, by the lot ratings for those lots, by the dollar value per eligibility point).

GST is not payable on an eligibility payment.<sup>24</sup>

If an applicant provides an eligibility payment or deed of financial security for an amount less than the amount required to secure their initial eligibility points, subsection 38(3) of the Allocation Determination allows the applicant an opportunity to 'top up' its eligibility payment or deed of financial security. If the applicant does not take that opportunity, its start demand and initial eligibility points may be reduced, or it may be taken to have withdrawn its application (subsections 38(4) and 38(5)).

The completed eligibility nomination form, and eligibility payment and/or deed of financial security, must be given to the ACMA by the eligibility deadline of **27 September 2018, at or before 5.00 pm.**

#### **4.2.4 ACMA confirms registration and provides information**

Subject to the requirements of the registration process having been met, the ACMA will contact registered bidders after the eligibility deadline to confirm that they have been registered to participate in the auction, and provide them with the following:

- a copy of the information about the bidder recorded on the register of bidders maintained by the ACMA under section 40 of the Allocation Determination
- the ACMA's email address and telephone and fax numbers available for registered bidders to use
- information about accessing and using the auction system—for example, the User Guide for the auction system, the URL for accessing the auction system internet site, and login credentials for each of the authorised persons nominated in the bidder's application form
- information about the emergency backup bidding arrangements if the bidder is unable to submit a bid using the auction system.

The ACMA will give a set of this material to each authorised person nominated in the bidder's application form.

### **4.3 Step 3—Accessing mock auction and bidder support**

Registered bidders will be encouraged to take part in a mock auction that will be held prior to commencement of the auction. During the lead-up to the auction, announcements about the mock auction and bidder support will be made through the sources listed at 6.1.

### **4.4 Step 4—Bid in the auction**

This section of the auction guide outlines how the auction rounds will be scheduled, and how the schedules and other relevant information (for example, round results and the conclusion of the rounds) will be announced to bidders during the auction period.

Detailed instructions about how to use the auction system to participate in each stage of the auction (for example, how to log in to the auction system and submit bids and view results at each stage) will be provided in the auction system user guide.

The auction will be conducted over the internet using auction system software. Information about how to access and use the auction system, including the User Guide, will be provided to registered bidders after the eligibility deadline of

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<sup>24</sup> A New Tax System (Goods and Services Tax) Act 1999, section 81–10.

27 September 2018. That information will be supplemented by other bidder training and the opportunity for applicants to participate in a mock auction (see 4.3).

During the auction period, bidders, their related persons and contractors should remain aware of their reporting obligations under the Allocation Determination. Under these obligations:

- If at any time during the auction period, a bidder believes they may be an affiliate of another bidder or an existing relevant band licensee, they must immediately tell the ACMA in writing the identity of the other bidder or licensee and give details of the affiliation.
- A bidder, or a related person or contractor of a bidder, who discloses confidential information, or who receives the confidential information of another applicant or bidder must report the matter to the ACMA in writing as soon as possible, but no later than two working days after becoming aware the disclosure or receipt has occurred.<sup>25</sup>
- If any item provided by the ACMA to a bidder for accessing the auction system is lost or stolen during the auction period, the bidder must notify the ACMA immediately.

#### 4.4.1 Auction stages—scheduling

The Allocation Determination provides that rounds of the auction must start and end between 9.00 am and 5.00 pm (Canberra time) on working days.<sup>26</sup> Prospective applicants should note that the scheduling of rounds is at the discretion of the auction manager in accordance with the Allocation Determination. As such, the auction manager will consider relevant circumstances when scheduling rounds for any given day, and bidders are strongly advised to always be prepared for the prospect of a round commencing at 9.00 am.

The Allocation Determination provides that at least one hour before the start time of the first round of the day, the auction system will indicate the anticipated schedule of rounds for that day. However, where practical and possible to do so, the auction manager will endeavour to post the schedule of rounds for the following day before 5.00 pm each day. It is the responsibility of bidders to ensure that they monitor the auction system as necessary, to ensure they are aware of all announcements.

The auction manager may vary the schedule of rounds at any time. Any variations to the schedule will be announced to bidders via the auction system as soon as practicable.

It is at the auction manager's discretion whether there may be a recess period or a recess day between stages of the auction.<sup>27</sup> Before declaring a recess period or recess day during the auction, the auction manager will consult with the relevant bidders about timing between each stage of the auction.<sup>28</sup>

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<sup>25</sup> As well as applying to bidders, their related persons and contractors during the auction period, this obligation also applies to applicants, bidders and the related persons and contractors of applicants and bidders, *before and after* the auction period (see 3.2.8).

<sup>26</sup> Working days are defined in section 4 of the Allocation Determination as a day which is not a Saturday, a Sunday or a public holiday in the Australian Capital Territory, New South Wales or Victoria.

<sup>27</sup> In accordance with clause 1 of Schedule 1 to the Allocation Determination, there is no minimum or maximum length for the interval between rounds.

<sup>28</sup> Clause 3 of Schedule 1 to the Allocation Determination, makes provision for the auction manager to declare recess days during the auction.

The first round of the **primary stage** is expected to commence in late November 2018. The auction manager will contact registered bidders after the eligibility deadline, and at least 10 working days before the day of the first round of the primary stage, to confirm the starting date and time for the first and second rounds. The rounds for the **secondary** and **assignment stages** of the auction will be scheduled following the completion of the primary stage. The auction manager intends to consult with registered bidders after the eligibility deadline on the scheduling of the rounds for each stage of the auction, including anticipated recess days, if relevant.<sup>29</sup>

Assignment rounds will be scheduled at the auction manager's discretion, subject to the following constraints. It is the ACMA's intention to have a recess of between three to five working days before the assignment stage commences, to enable participating bidders to refine their strategies once they know the results of the primary and secondary stages.

After the completion of the primary and secondary stages, the auction manager will announce the anticipated start and end time of each assignment round and the product/s that will be the subject of each round. The start and end time of each assignment round will be confirmed, via the auction system, at least one hour before the round starts.

It is expected that several assignment rounds may be completed, in sequence, on a single day. Regions with identical outcomes from the first two stages may be combined to minimise the number of rounds. The ACMA's current intention is to conduct assignment rounds in descending order (highest to lowest) of the sum of the winning prices as determined in the previous auction stages. Assignment round order and combinations will be subject to consultation with registered bidders.

#### **4.4.2 Bidding in the auction**

Section 3.1 provides a detailed description of the three stages of the ESMRA auction format and bidding for each stage. This section provides an overview of the bidding process for each auction stage.

##### ***Starting prices***

In accordance with section 28 of the Allocation Determination, the ACMA has specified starting prices for the products on offer—see Table 8 at 3.2.3. Starting prices will apply to the primary and secondary stages of the auction.

##### ***Bid prices***

All bids in all three stages of the auction (including primary bids, specified prices, continue bids, exit bids and assignment bids) must be multiples of one hundred dollars.

##### ***Bid increment percentage***

After the eligibility deadline, the ACMA will set the bid increment percentage for the primary and secondary stages. The bid increment percentage determines the dollar amount by which the prices will go up between rounds. In accordance with clause 9 of Schedule 1 and clause 9 of Schedule 2 to the Allocation Determination, the auction

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<sup>29</sup> If the auction continues to run into the Christmas/New Year period, the auction manager may declare recess days under Part 1 of Schedule 1 to the Allocation Determination. It is anticipated that the dates for any such recess would likely to be from Saturday 15 December 2018 to Monday 14 January 2019 inclusive. However, a longer recess may be appropriate, depending on what stage the auction is up to at the commencement of the recess period. Bidders will be provided with the opportunity to comment on such a recess before the auction manager sets the recess in the auction round schedule.

manager may at any time during the auction, after consulting with bidders, change the relevant bid increment percentage.

### **Primary stage bidding**

An overview of the operation, bidding and bid processing for the assignment stage is at 3.1.1 above.

Before the **start of each round** of the primary stage, the auction manager will provide the following information to each bidder, using the auction system:

- the start time of the round
- the end time of the round
- for each product available for bidding:
  - the opening price
  - the clock price
  - the excess demand
- the bidder's eligibility points for the round
- the eligibility requirement percentage for the round
- any other information the ACMA considers necessary or convenient to conduct the primary stage of the auction.

After the **conclusion of each round** of the primary stage, the auction manager will provide the following information to each bidder, using the auction system:

- the posted prices for each product
- the posted demands of the bidder for each product
- any other information the ACMA considers necessary or convenient to conduct the primary stage of the auction.

In contrast to standard SMRA auctions, bidders must submit bids in every round if they wish to continue to express demand for products. **In any round, if a bidder does not make a valid bid for a product for which they have expressed demand in the previous round, they are taken to have requested a decrease bid to zero lots for that product.** Therefore, in the case where a bidder does not make any bid in a round, they are taken to have made decrease bids to zero lots across all products. These decrease bids are not a complete withdrawal from the auction, since they may be rejected or partially applied.

In contrast to standard SMRA auctions, the ESMRA format does not include bid withdrawals or waivers.

At the **end of the primary stage**, the auction manager will tell **each primary winner**, using the auction system:

- the total number of lots of each product allocated to them
- the total posted price for the allocated lots of each product and the price to be paid by the winning bidder for all allocated lots.

At the **end of the primary stage**, the auction manager will tell **all bidders**, using the auction system:

- the total number of primary winners
- the total number of lots of each product that were allocated to primary winners (for example, '23 lots were allocated to three winning bidders', not individual allocations per bidder).

### ***Secondary stage bidding***

An overview of the operation and bidding for the assignment stage are at 3.1.2 above. The secondary stage uses a SCA format, as used in the recent multiband residual lots auction.

Before the start of **each round** of the secondary stage, the auction manager will provide the following information to each bidder, using the auction system:

- the start time of the round
- the end time of the round
- for each residual lot available for bidding:
  - the specified price
  - the starting price (first round only)
  - the previous round's specified price (second and subsequent rounds)
  - total number of eligible bidders for the residual lot
- any other information the ACMA considers necessary or convenient to conduct the secondary stage of the auction.

After the conclusion of **each round** of the secondary stage, the auction manager will provide the following information to each bidder, using the auction system:

- the bids made by the bidder during the round (if any)
- if, as a result of the round, the bidder is the secondary winner for a lot—the secondary price for that lot
- for each lot available for bidding in that round that meets the minimum spectrum requirement test for the bidder and on which the bidder could have made a bid—the number of bidders remaining in the secondary stage of the auction for that lot after the end of the round
- any other information the ACMA considers necessary or convenient to conduct the secondary stage of the auction.

At the end of **all rounds of the secondary stage**, the auction manager will tell **each secondary winner**, using the auction system:

- the total number of lots of each product allocated to them in the secondary stage
- the total price for the allocated lots of each product and the total price to be paid by the secondary winner for all allocated lots in the secondary stage.

At the end of **all rounds of the secondary stage**, the auction manager will tell **all bidders**:

- the total number of secondary winners
- whether a lot of a product has been allocated to secondary winners.

### ***Assignment stage bidding***

An overview of the operation, contiguity rules and pricing rules for the assignment stage are at 3.1.3 above. At least two working days before the start of the first assignment round, the auction manager must provide each bidder in the assignment stage with the list of frequency range options available to the bidder in each of the assignment rounds. Each bidder may submit a single assignment bid for each frequency range option. There is only one round for each product in the assignment stage, with no price discovery or further bidding rounds as occurs in the primary and secondary stages. If an invalid bid or no bid is received for any option, the bidder is taken to have made an assignment bid of zero for that option.



After the winning bids and prices have been determined for an assignment round, the auction manager will notify each winning bidder about the frequency ranges assigned to the lots they won, and any associated assignment price.

The assignment stage is complete when the auction manager has notified bidders about the results of every round. This is also the end of the auction period.

## **4.5 Step 5—Publication of auction results**

As soon as possible following the auction, the ACMA will announce or publish:

- the names of winning bidders
- the spectrum allocated to each winning bidder
- the winning price paid, or to be paid, by each winning bidder.

## **4.6 Step 6—Post-auction procedures**

The steps to be followed after the end of the auction period will be different for:

- bidders who won lots in the auction
- bidders who did not win lots in the auction, and applicants who withdrew from the auction before the eligibility deadline, or who were taken to withdraw from the auction.

### **4.6.1 Winning bidders**

#### ***Affiliations***

As soon as possible following the auction, the ACMA will:

- give each winning bidder details about the identity of all other winning bidders and all existing relevant band licensees
- ask the bidder to make a statement for the purposes of section 58 of the Allocation Determination (Form 7), stating whether the bidder is an affiliate of another winning bidder or an existing relevant band licensee and, if so, identifying the other bidder or licensee and giving details of the affiliation.

Statements for the purposes of section 58 of the Allocation Determination must be lodged by the deadline stated in the ACMA's request. The deadline will be at least five working days after the date of the request. A winning bidder's confidentiality obligations (see 3.2.8) will end when they give the statement to the ACMA. Winning bidders who fail to give the ACMA a statement as requested may be subject to the breach provisions discussed at 3.2.9.

Where the ACMA is satisfied that two or more winning bidders for lots are affiliated, or where a winning bidder is affiliated with an existing relevant band licensee, it will notify the relevant bidders in writing and tell them the reasons why it is satisfied that this is the case.

If a winning bidder is affiliated with another winning bidder, such that issuing a spectrum licence for a lot would exceed the allocation limits, the ACMA must not issue a spectrum licence that would exceed the allocation limits in accordance with section 60 of the Allocation Determination.

If a winning bidder is affiliated with an existing relevant band licensee, such that issuing a spectrum licence for a lot would exceed the allocation limits, the ACMA must not issue a spectrum licence that would exceed the allocation limits, in accordance with section 62 of the Allocation Determination.

Instead, in both cases, the ACMA will only issue spectrum licences that would not result in the winning bidder exceeding the allocation limits.

#### ***Payments by winning bidders***

The winning price for a winning bidder is the sum of the prices across all three stages for the lots won at auction. The balance of the winning price is the winning price, less any eligibility payment paid by a winning bidder.

If, for a winning bidder, the balance of the winning price is greater than zero, the ACMA will notify the winning bidder via registered mail of the balance of the winning price. The balance of the winning price will be due before licences commence on 30 March 2020. The ACMA expects to issue a notice seeking payment of the balance of the winning price not earlier than Q1 2020. It is expected that the licence would be issued shortly after payment.

If, for a winning bidder, the balance of the winning price is equal to or less than zero, the ACMA will issue a licence to the winning bidder and refund any amount of the eligibility payment that exceeds the winning price.

#### **4.6.2 Unsuccessful bidders and withdrawn applicants**

As soon as practicable after the end of the auction period, the ACMA will notify each bidder that did not win lots in the auction that:

- the bidder was unsuccessful in the auction
- the bidder's confidentiality obligations have ended.

Subject to any decision by the ACMA to retain the bidder's eligibility payment under section 75 of the Allocation Determination, the unsuccessful bidder will be refunded any eligibility payment paid.

As soon as practicable after the end of the auction period, the ACMA will notify each withdrawn applicant that their confidentiality obligations have ended. Subject to any decision by the ACMA to retain the eligibility payment paid by the withdrawn applicant under section 75, the withdrawn applicant will be refunded any eligibility payment paid.

## **Part three—Understanding spectrum licences**

## 5. Spectrum licensing and technical framework

**This chapter provides information about:**

- spectrum licensing
- the technical framework applicable to spectrum licences for each band
- other important issues affecting spectrum licences.

**Important warning:** The information in this chapter is intended to provide a general overview of, and does not purport to contain all information regarding, rights and obligations in respect of spectrum licences issued under the Act and associated legislative instruments.

Potential applicants should *not* rely on this information but should instead make their own investigation.

This chapter provides a brief introduction to spectrum licensing and the technical framework applicable to the spectrum licences to be allocated in the 3.6 GHz band auction. It provides:

- an overview of spectrum licensing—more detailed information about the key obligations placed on spectrum licensees is available in the ACMA publication [Know your obligations—Spectrum licensees](#)
- an explanation of the technical framework underpinning spectrum licensing in each of the four bands in which lots are available—more detailed information on the development of the technical framework for each band can be found on the [spectrum licence technical liaison groups](#) page on the ACMA website.

Legislative instruments referred to in this chapter that comprise the technical framework for each band are available on the [Federal Register of Legislation](#) and the [ACMA website](#).

## 5.1 Spectrum licensing

A spectrum licence authorises the operation of radiocommunications devices for a fixed period of up to 15 years<sup>30</sup>, within a specified frequency band, within a particular geographic area. Licensees can choose how they deploy devices within their spectrum space, the nature of the services they wish to deliver and the technology they use, providing the operation of devices is consistent with the conditions on the spectrum licence.

A licensee's use of spectrum available to it under a spectrum licence is subject to several constraints, including:

- compliance with the Act
- compliance with a set of core licence conditions required to be included in the licence in accordance with subsection 66(1) of the Act
- compliance with statutory licence conditions required to be included in the licence in accordance with sections 67, 68, 69 and 69A of the Act
- compliance with other conditions that the ACMA may include under section 71 of the Act
- management of interference issues with reference to technical instruments established for the band under subsection 145(4) and section 262 of the Act.

Spectrum licensing is designed to be a technology-flexible, market-oriented approach to managing the radiofrequency spectrum. The spectrum space subject to spectrum licensing may be subdivided and traded in integer multiples of the standard trading unit (STU) defined in the [Radiocommunications \(Trading Rules for Spectrum Licences\)](#)

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<sup>30</sup> The 3.6 GHz band spectrum licences issued as a result of the Allocation Determination will be for a shorter period (see 2.3.2).

[Determination 2012](#).<sup>31</sup> The ability to trade and the flexibility of the technology that may be used in accordance with the technical framework allow licensees to change their service over time in response to commercial realities and respond to technological innovation within the flexibility of the framework.

Information specific to the spectrum licences on offer for the 3.6 GHz band is available in Part 3 of the marketing plan. The marketing plan also includes a sample licence with the conditions that would apply to any 3.6 GHz band spectrum licences issued as a result of this allocation process.

## 5.2 The technical framework

The technical framework for a band subject to spectrum licensing is the set of technical rules and guidelines, made by the ACMA in consultation with industry, applicable to the operation of radiocommunications devices within the given band. The primary purpose of the technical framework is to specify the relevant technical conditions that licensees should comply with to effectively manage interference between users of the spectrum.

The technical framework is crafted using several interlocking regulatory elements:

- the conditions on the licence, including core conditions, which must be included in all spectrum licences in accordance with section 66 of the Act, statutory conditions imposed under sections 67, 68, 69 and 69A of the Act and any other conditions placed on the licence under section 71 of the Act
- a determination of unacceptable levels of interference for the purposes of assessing applications for device registration, made under subsection 145(4) of the Act (the subsection 145(4) determination)
- radiocommunications advisory guidelines, made under section 262 of the Act, and conditions placed on the licence under section 71 of the Act relating to the advisory guidelines.

Information on each of the regulatory elements and how a technical framework is developed is provided in [Know your obligations](#).

The technical framework for the 3.6 GHz band was developed by the ACMA in consultation with industry. It has been optimised to support time division duplex (TDD)<sup>32</sup> mobile broadband services, in particular, technologies associated with 5G. This does not exclude use of the licences in the band for other uses. The framework is flexible enough to allow operators to deploy a variety of different services, provided the relevant conditions of the licence are met. See also 2.3.5 and 5.7.7 regarding the use of TDD mobile broadband services in the 3.6 GHz band.

## 5.3 Core conditions

The core conditions of a spectrum licence are mandatory technical requirements that form the basis of the licence, as required under section 66 of the Act. The core conditions specify the geographic area and frequency range of the licence, as well as the maximum permitted emission levels outside the frequency and geographic boundaries of the licence. The core conditions of a spectrum licence include:

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<sup>31</sup> The amendments to this instrument are shown as 'unincorporated amendments' on the Federal Register of Legislation for a period of up to 28 days after the commencement date of the variation instrument, 28 July 2018.

<sup>32</sup> TDD is a technique where downlink and uplink communications use the same frequency but are separated by the allocation of different time slots. This means uplink and downlink communications cannot occur at the same time.

- the area of operation
- the frequency bandwidth of operation
- the permissible outside-the-area emission limits
- the permissible outside-the-band emission limits.

Further information and explanation on each of these core conditions is available in [Know your obligations](#). The following information refers specifically to how each of the core conditions is applied in the context of 3.6 GHz band.

### 5.3.1 Area of operation

The geographic areas subject to allocation via the issue of a spectrum licence in the each of the bands are described in Schedule 3 to the marketing plan.

The geographic area within which the operation of radiocommunications devices is authorised by the spectrum licence is described in Part 2 of Licence Schedule 1 to the sample spectrum licence included in the marketing plan, in the form of HCIS identifiers. The conversion of HCIS area descriptions to a Google Earth Placemark (KML file) is available on the [ACMA website](#).

### 5.3.2 Frequency band of operation

The spectrum on offer in the auction encompasses the 3575–3700 MHz (3.6 GHz) band. It is being offered on an unpaired basis. This will support the most likely services to be deployed in the band, which are considered to be based on TDD mobile broadband technologies.

The frequency band of operation is defined in Table 1 of Part 2 of Licence Schedule 1 of a spectrum licence. A sample spectrum licence for the 3.6 GHz band is available in Schedule 6 to the marketing plan.

### 5.3.3 Outside-the-area emission limits

This limit is listed in Schedule 4 to the marketing plan and is defined in Licence Schedule 2 of the spectrum licence, as shown in the sample licence provided in the marketing plan.

This core condition effectively places a cap on the total radiated power (TRP) of transmitters anywhere outside of the area of the licence. The same limit is also used to define the maximum in-band TRP for transmitters.

An additional layer of outside-the-area emission management is imposed at the point of registration of devices, as the ACMA may refuse to register devices that the ACMA is satisfied may cause unacceptable levels of interference, within the meaning of the relevant subsection 145(4) determination. This point is discussed in detail at 5.4.

### 5.3.4 Outside-the-band emission limits

The outside-the-band emission limits for the spectrum licence, often referred to as unwanted (including out-of-band and spurious) emission limits, are listed in Schedule 5 to the marketing plan.

To better cater for new technologies such as active antenna systems, the unwanted emission limits have been defined in terms of TRP.

The unwanted emission limits specific to 3.6 GHz band licences are set out in Licence Schedule 2 of the sample licence provided in the marketing plan. These levels may be varied via agreement with affected adjacent spectrum licensees (see 5.4.3).

### 5.3.5 Core condition agreements

The outside-the-area and outside-the-band emission limit core conditions are subject to any agreement between the spectrum licensee and the licensee of another area adjacent or frequency adjacent spectrum licence. If such an agreement exists, the first spectrum licensee may exceed the emission limits in the core conditions, so long as it complies with the agreement.

## 5.4 Unacceptable levels of interference determination

Before a transmitter can be operated under a spectrum licence, its details must be recorded in the Register of Radiocommunications Licences (RRL), unless it is exempted from registration. Subsection 145(1) of the Act gives the ACMA the power to refuse to register a radiocommunications transmitter if the ACMA is satisfied that it could cause an unacceptable level of interference to the operation of other radiocommunications devices when operated. The ACMA has determined under subsection 145(4) of the Act what constitutes unacceptable interference in the 3.6 GHz band.

The subsection 145(4) determination that defines what will be taken to be unacceptable levels of interference for spectrum licences in the 3.6 GHz band is:

- [Radiocommunications \(Unacceptable Levels of Interference — 3.4 GHz Band\) Determination 2015](#).

Each subsection 145(4) determination sets out the following basic requirements that must be met for the ACMA to be satisfied that interference is not unacceptable:

- the core conditions of the licence relating to emissions are met (see 5.3)
- location details of the transmitter are provided for inclusion in the RRL (see 5.4.1)
- the specified device boundary criteria are met (see 5.4.1)
- deployment constraints applicable to the band are adhered to (see 5.4.2).

More information about device registration options and procedures is available on the ACMA [device registration site](#).

### 5.4.1 Registration of devices

It is a condition of all spectrum licences issued that licensees must not operate transmitters under their licence unless they are registered on the RRL or are exempt from the registration requirements (see 5.4.5).

Before a device is registered for use under a licence, licensees may be required to ensure that the device will not cause unacceptable interference to other spectrum users. This can be achieved by obtaining an interference impact certificate (IIC) under subsection 145(3) of the Act from an accredited person.<sup>33</sup>

The ACMA has made the [Radiocommunications \(subsection 145\(3\) Certificates\) Determination 2012](#) (Certificate Determination), pursuant to section 266A of the Act, which states the conditions that must be satisfied before an accredited person may issue a certificate for the purposes of subsection 145(3). The conditions require that, before issuing a certificate, the accredited person must be satisfied that either:

- the operation of the radiocommunications transmitter will not cause an unacceptable level of interference as set out in the relevant subsection 145(4) determination; and

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<sup>33</sup> Contact details for all current accredited persons who have consented to the release of those details are on the ACMA [website](#).



- the use of guard space is sufficient to mitigate potential interference from the radiocommunications transmitter, or
- consent in writing to interference from the radiocommunications transmitter has been given by all licensees who, in the opinion of the accredited person, may be affected by the interference.

Additional information is available in the ACMA publication [Registration of radiocommunications devices under spectrum licences](#).

Before issuing a certificate for the purposes of subsection 145(3) of the Act, an accredited person may need to calculate the device boundary of the transmitter to ensure that an unacceptable level of interference does not occur. This ensures that the strength of emissions outside the geographical area of the licence do not exceed the level defined in the relevant subsection 145(4) determination.

Calculating a device boundary involves mathematical calculations to determine where a proposed device would exceed a defined signal strength into a notional receiver. The point this first occurs along 360 horizontal radials separated by one degree each is termed the 'device boundary'.

If the device boundary falls outside the geographic area of the relevant spectrum licence, the ACMA will generally refuse to register the device. This is because such a device is deemed to cause an unacceptable level of interference within the meaning of the relevant subsection 145(4) determination. There are exceptions to this, which are detailed in the respective subsection 145(4) determinations.

Under the subsection 145(4) determination, if the device boundary of a fixed transmitter cannot be calculated in accordance with Part 1 of Schedule 2 of the subsection 145(4) determination, the transmitter is taken to cause unacceptable interference.

The Certificate Determination also defines other methods by which an accredited person can issue a certificate. This includes determining whether guard space applies or if there is an agreement to register the device with the affected licensees. In the case of an agreement, it provides that the affected adjacent area spectrum licensees are willing to allow a higher level of emissions into their spectrum space from a specific device.

Licensees may decide whether to register radiocommunications receivers based on a risk assessment of any benefits that may be achieved. A receiver will only be afforded protection by the ACMA if it is registered. The type of protection registered receivers may be provided with is defined in the relevant radiocommunications advisory guidelines as discussed at 5.5.

#### **5.4.2 Deployment constraints**

The relevant subsection 145(4) determination for each band may also define specific deployment constraints. Deployment constraints typically involve restrictions on the heights of radiocommunications transmitters, limitations on the maximum EIRP of a transmitter operated on certain frequencies or restrictions on transmitters on aircraft. No such constraints are defined for transmitters in the 3.6 GHz band.

#### **5.4.3 Registering groups of transmitters and receivers**

Unless exempted, radiocommunications transmitters must always be registered as either an individual transmitter or as part of a group of transmitters. If two or more transmitters are operated to communicate with the same receiver or same group of

receivers, and they have identical emission characteristics, then they may be treated as a group to simplify the registration process.

Each subsection 145(4) determination sets out the definition of a 'group of radiocommunications transmitters' and a 'group of radiocommunications receivers' to simplify the assessment of whether the devices cause unacceptable interference for the purpose of registration. Groups are defined to help minimise the work associated with the registration process of similar transmitters. They specify how the location details for a group of transmitters and receivers must be calculated to determine whether they meet the unacceptable levels of interference requirements.

#### **5.4.4 Registration exemptions**

Certain kinds of radiocommunications transmitters are exempt from registration. The conditions these devices need to meet to be exempt from registration are specified in Licence Schedule 3 of the spectrum licences. Typical devices that are exempt from registration are low-powered, mobile and nomadic devices such as cellular mobile telephone handsets, wireless modems, subscriber terminals and smart repeaters. For further details, see the marketing plan and sample spectrum licence.

## **5.5 Radiocommunications advisory guidelines**

Further guidance on device deployment and coordination with other services is provided in radiocommunications advisory guidelines made under section 262 of the Act (the advisory guidelines). While the use and compliance methods set out in the advisory guidelines are not generally mandatory, they set out the ACMA's policy approach and, in certain instances, will be made entirely or partly mandatory by licence conditions or other instruments under the Act that spectrum licensees must comply with. This is the case for spectrum licences to be issued for the 3.6 GHz band auction. For further details, see the marketing plan and sample spectrum licence conditions.

The advisory guidelines for each band contain information for spectrum licensees on managing interference to and from services operating under other licenses. The advisory guidelines also contain information for spectrum licensees on managing interference to non-spectrum-licensed receivers. The guidelines do not prevent licensees implementing or negotiating other protection requirements with each other. The ACMA will consider the advisory guidelines or any agreements in place when assessing interference and managing interference disputes.

There are band-specific advisory guidelines made under section 262 of the Act that are associated with spectrum licensing for the 3.6 GHz band. These are the:

- [Radiocommunications Advisory Guidelines \(Managing Interference to Spectrum Licensed Receivers— 3.4 GHz Band\) 2015](#)
- [Radiocommunications Advisory Guidelines \(Managing Interference from Spectrum Licensed Transmitters — 3.4 GHz Band\) 2015](#).

Further information on the radiocommunications advisory guidelines is available in [Know your obligations](#).

### 5.5.1 Managing interference to spectrum-licensed receivers

The Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers—3.4 GHz Band) 2015 set out a minimum performance level for receivers in each band. These criteria provide a basis from which licensees can develop procedures for managing interference between receivers and transmitters in adjacent frequency bands. When planning services and resolving interference cases, licensees (and accredited persons) should have regard for the advisory guidelines. It should be noted that these guidelines only apply to registered fixed receivers—they do not apply to receivers that are not registered on the RRL or are not fixed. This includes mobile or nomadic receivers operated under a spectrum licence.

While it is not mandatory to meet the minimum level of receiver performance specified in the guidelines, receivers will be assumed to meet these minimum levels to resolve interference disputes.

Licensees will need to take account of the emission limits permitted under the technical framework when deciding the level of performance, they require for their receivers. It is for licensees to balance the cost of receiver performance against the risk of interference.

The framework provides for the operation of receivers that have interference susceptibility commensurate with that achieved by current technology, and for this level of performance to help guide the interference settlement process. Receivers with poor interference susceptibility performance can be used; but in those cases, licensees may need to use more of their own spectrum space as guard space to limit the risk of interference.

### 5.5.2 Managing interference from spectrum-licensed transmitters

The Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 3.4 GHz Band) 2015 contain information for spectrum licensees about protection intended to be provided to receivers of services operating under other licences in or adjacent to the 3.6 GHz band.

## 5.6 Statutory licence conditions

Along with the core conditions of a licence, there are other conditions that the ACMA must include in a spectrum licence, in accordance with the requirements of the Act. These are referred to as ‘statutory conditions’ and a summary of the requirements of each is outlined below. Further information on each of the statutory conditions is available in [Know your obligations](#).

### 5.6.1 Payment of charges

Under section 67 of the Act, the ACMA must include a condition that the spectrum licensee meets all obligations to pay:

- charges fixed by the ACMA under section 60 of the ACMA Act
- any spectrum access charges fixed by a determination made under section 294 of the Act (the winning price for the lots allocated by auction)
- amounts of spectrum licence tax.

As part of the consultation for the 3.6 GHz band auction draft allocation instruments, the ACMA proposed a spectrum licence tax base amount of \$69,180 for the 3.6 GHz band. Submissions that commented on the approach supported it. In July 2018, the

ACMA amended the [Radiocommunications \(Spectrum Licence Tax\) Determination 2014](#) to reflect these arrangements.<sup>34</sup>

If a licensee contravenes a condition of its licence, the ACMA may suspend or cancel the licence (see Division 3 of Part 3.2 of the Act). The spectrum access charge may be recovered as a debt due to the Commonwealth (section 298 of the Act).

#### **5.6.2 Authorisation of third parties**

Spectrum licensees may authorise third parties to use the licensed spectrum by negotiating a private agreement that allows a 'third-party user' to operate a radiocommunications device under the licensee's licence.

Under section 68 of the Act, the ACMA must include a condition about third-party use of the spectrum licence. This condition is that the operation of devices by people other than the licensee must comply with any rules made by the ACMA about third-party use under subsection 68(3) of the Act. The licensee must also notify any third-party user of their obligations under the Act.

At present, the ACMA has not defined any rules relating to third-party use under subsection 68(3) of the Act.

#### **5.6.3 Registration of radiocommunications transmitters**

Under section 69 of the Act, the ACMA must include a condition that radiocommunications transmitters must not be operated under the licence unless the relevant requirements under Part 3.5 of the Act for registration of transmitters are met (see 5.4). The condition may exempt radiocommunications transmitters of particular kinds from meeting those requirements.

#### **5.6.4 Residency**

Under section 69A, the ACMA must include a condition that at all times when the licensee derives income, profits or gains from operating a radiocommunications device under the spectrum licence (or from authorising others to do so), the licensee must be an Australian resident, or the income, profits or gains are to be attributable to a permanent business establishment in Australia. Similarly, the spectrum licence must include a condition that at all times when an authorised person derives income, profits or gains from operating a radiocommunications device under the spectrum licence, the authorised person must be an Australian resident, or the income, profits or gains are to be attributable to a permanent business establishment in Australia.

### **5.7 Other licence conditions included by the ACMA**

Under section 71 of the Act, the ACMA may include other licence conditions on spectrum licences. The ACMA sets out indicative other licence conditions in Licence Schedule 4 of the sample licence provided with each marketing plan. These include generic conditions routinely attached to spectrum licences but may also include additional conditions specific to a single licence. The following is a list of other licence conditions that have been included on 3.6 GHz band spectrum licences. These are provided for information purposes only. The conditions contained in actual spectrum licences issued by the ACMA may vary. For more information, refer to the marketing plan.

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<sup>34</sup> The amendments to this instrument are shown as 'unincorporated amendments' on the Federal Register of Legislation for a period of up to 28 days after the commencement date of the amendment determination, 28 July 2018.

#### **5.7.1 Responsibility to manage interference**

The licensee must manage interference between radiocommunications devices operated under the licence and any other radiocommunications devices operated under that licence or another spectrum licence held by the licensee.

#### **5.7.2 Co-sited devices**

The licensee must manage interference with any co-sited devices that are operated under the licence or another licence with the holder of the other licence or site manager, as applicable.

#### **5.7.3 Information for the RRL**

The licensee must give the ACMA all required information for inclusion in the RRL.

#### **5.7.4 International coordination**

A licensee must ensure that operation of a radiocommunications device under the licence does not cause harmful interference to a receiver that operates in accordance with International Telecommunication Union Radio Regulations and is in a country other than Australia.

#### **5.7.5 Electromagnetic energy requirements**

A licensee must comply with Parts 2, 3 and 4 of the [Radiocommunications Licence Conditions \(Apparatus Licence\) Determination 2015](#), as in force from time to time, as if each reference to a licence in that determination were a reference to a spectrum licence.

#### **5.7.6 Record keeping—transmitters located at communal sites**

A licensee who operates a radiocommunications transmitter under this licence that is located at a communal site and not exempt from registration on the RRL must keep certain additional records for the transmitter and provide these records upon request to the ACMA.

#### **5.7.7 Protection of the Mid-West Radio Quiet Zone**

The ACMA established Australia's first radio quiet zone on 11 April 2005. The Mid-West Radio Quiet Zone (RQZ) aims to maintain the current 'radio-quietness' of a site in remote Western Australia. The area has very low levels of radiofrequency energy because of its low population and lack of industrial development. The Mid-West RQZ is intended to facilitate the development and use of new radio astronomy technologies at that location.

Before seeking to register a radiocommunications transmitter for use in or around the Mid-West RQZ, as defined by the [Radiocommunications \(Mid-West Radio Quiet Zone\) Frequency Band Plan 2011](#), the licensee must follow the procedures set out in Radiocommunications Assignment and Licensing Instruction (RALI) MS 32 (MS 32) as in force from time to time. While the relevant part of RALI MS32, [Coordination of Apparatus Licences within the Mid-West Radio Quiet Zone](#), applies directly to apparatus-licensed devices, the condition included in the licences makes these methods and procedures also applicable to spectrum-licensed devices.

#### **5.7.8 Harmful interference**

A licensee must ensure that the operation of any radiocommunications device that is exempt from the requirement to be registered on the RRL does not cause harmful interference to other radiocommunications devices operated under another spectrum or apparatus licence.

### 5.7.9 Coordination with earth station protection zones

Each spectrum licence will include a condition requiring the licensee to follow the procedures set out in RALI MS 44 for the coordination with, and protection of, the earth stations that may operate in defined earth station protection zones. The RALI MS 44 establishes four earth protection zones, defined by HCIS identifiers, in which earth stations may be established in future. The RALI MS 44 sets out notional earth station receiver and transmitter characteristics and establishes protection and coordination criteria that licensees operating near those areas are required to comply with.

### 5.7.10 Synchronisation requirement

In its consultation on the draft allocation instruments, the ACMA described three options for the technical framework for spectrum licences in the 3.4 GHz band (which have been issued) and the 3.6 GHz band spectrum licences to be allocated under the allocation instruments. The main difference between the three options were:

1. The same technical framework would apply to both the 3.4 GHz and 3.6 GHz bands. A mandated synchronisation fall-back condition will apply to manage interference for all 3.4 GHz band and 3.6 GHz band spectrum licences. No spectrum is lost to guard bands under this option.
2. The same s.145 determination and radiocommunications advisory guidelines would apply to both the 3.4 GHz and 3.6 GHz bands. A mandated synchronisation fall-back condition would apply to 3.6 GHz band licences only. A stricter out-of-band emission mask would apply at the frequency boundary between 3.4 GHz band licences, as well as between 3.4 GHz band and 3.6 GHz band licences to manage adjacent band interference. Under this approach, up to 20 MHz of spectrum could be required for guard bands between 3.4 GHz band licensees, as well as 3.4 GHz band and 3.6 GHz band licensees.
3. The new technical framework would only be adopted in the 3.6 GHz band. Existing arrangements will continue to apply in the 3.4 GHz band. This means a stricter out-of-band emission mask would apply at the frequency boundary between 3.4 GHz band licences, as well as between 3.4 GHz band and 3.6 GHz band licences to manage adjacent band interference. Under this approach, up to 20 MHz of spectrum could be required for guard bands between 3.4 GHz band and 3.6 GHz band licensees.

Implementation of Option 1 requires changes to the licence conditions of existing 3.4 GHz band spectrum licences, and to PTS apparatus licences operating in adjacent bands (adjacent apparatus licences). On 17 July, the minister gave the [Australian Communications and Media Authority \(Radiocommunications Licence Conditions—3.4 and 3.6 GHz Bands Interference Management\) Direction 2018](#), which directs the ACMA to take all reasonable steps to ensure 3.4 GHz band spectrum licences and 3.5 GHz band PTS apparatus licences are required to manage interference via the adoption of a common frame structure and synchronisation of their services by 30 March 2020, unless other measures can be agreed to. Given the Direction, the ACMA will implement the relevant measures by imposing the new conditions on the 3.4 GHz band spectrum licences and will make or amend a licence condition determination to impose the relevant conditions on the adjacent apparatus licences. Accordingly, the ACMA expects that, before 30 March 2020, all the 3.4 GHz band spectrum licences and the adjacent apparatus licences will include the necessary conditions to allow the implementation of Option 1. Equivalent licence conditions will be included on the spectrum licences issued in the 3.6 GHz band, which will set out a process to manage interference between licensees if they cannot agree to a resolution between themselves. More information about these conditions is set out in the marketing plan.



However, there remains the possibility that the ACMA will not include the condition on a particular 3.4 GHz band spectrum licence, or that its decision to include such a condition will be subject to judicial or merits review, or that the House of Representatives or the Senate will disallow the licence condition determination. Potential applicants for 3.6 GHz band licensees should be aware that, if it is not possible to achieve uniformity of licence conditions across all 3.4 GHz band spectrum licences and adjacent apparatus licences, the ACMA may consider applying alternative interference management arrangements to 3.6 GHz band spectrum licences.

#### **5.7.11 Managing interference to incumbent apparatus licences**

Each spectrum licence will include a condition requiring the licensee to protect any radiocommunications device operating in a reallocation zone in the 3.6 GHz band in accordance with an apparatus licence in the manner set out in Parts 3, 4 and 5 of the Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 3.4 GHz Band) 2015, until the end of the re-allocation period for the relevant re-allocation zone.

Three different areas are established by the three reallocation declarations, referred to in the marketing plan as the Metropolitan re-allocation zone, the Perth re-allocation zone and the Regional Australia re-allocation zone. Relevantly, the re-allocation period for the Perth and Regional Australia re-allocation zone does not expire until three years (for Perth) and five years (for Regional Australia) after licences issued as a result of this allocation process commence. Spectrum licensees should be aware that they may not be able to operate devices within the Perth and Regional Australia re-allocation zones if doing so would cause interference to devices operated lawfully under existing apparatus licensees. This condition, and the Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters — 3.4 GHz Band) 2015, set out detailed protection requirements applying to such devices.

At the end of the re-allocation period for those areas, the incumbent apparatus licences will be cancelled automatically, and this condition will no longer apply.

## **5.8 Other information**

There are a range of other important matters affecting spectrum licensees. This section outlines this information for prospective auction participants. Further information about each issue is available in [Know your obligations](#).

### **5.8.1 Flexibility of a spectrum licence**

The inherent flexibility of the spectrum licence technical framework allows winning bidders to choose how they deploy services in the spectrum they win, the nature of the services they deliver, and the technology they employ. However, these decisions should be based on a careful technical and commercial assessment; taking into account the harmonised generic emission limits, as well as the amount of spectrum available and purchased, for the performance of the equipment the bidder desires to operate.

The spectrum lots and subsequently issued spectrum licences are not pre-designed to accommodate any particular equipment standard. However, they may accommodate the operation of a particular standard (or even non-standard equipment) at a particular location and frequency, depending on the total bandwidth and area of the spectrum licence that a bidder has acquired. Prospective bidders should take this into account in preparing for the auction.

### 5.8.2 Spectrum trading

Spectrum licensees are permitted to trade spectrum licences, subject to the [Radiocommunications \(Trading Rules for Spectrum Licences\) Determination 2012](#) (the trading rules) developed by the ACMA. The trading rules allow spectrum licensees to sell part or all of their licences—or alternatively, to acquire additional spectrum licences to increase the size of the geographic space, or increase the bandwidth, within which the licensee is authorised to operate devices.

The trading rules define a minimum contiguous bandwidth (MCB) for each spectrum-licensed band to minimise the potential for fragmentation of holdings due to trading. The MCB is the minimum bandwidth holding in a given area for issue of a licence as part of a trade. However, the ACMA can give written permission allowing licensees to trade smaller bandwidths. The ACMA will ask the licensee to show suitable reasons before giving such permission.

Pursuant to section 86 of the Act, where trading of licences takes place, both parties to the trade must notify and provide relevant information to the ACMA as soon as practicable after the trade has been agreed, so the ACMA can amend the RRL and vary, issue or cancel licences as appropriate to give effect to the trade.

### 5.8.3 Suspension and cancellation of spectrum licences

Division 3 of Part 3.2 of the Act provides that the ACMA may, by written notice giving the reasons, suspend or cancel a spectrum licence if it is satisfied that a licensee or authorised third party has:

- breached a licence condition or the Act; or
- operated a radiocommunications device under the licence, or purportedly under the licence, either:
  - in contravention of any other law (whether written or unwritten) of the Commonwealth, a state or a territory
  - in the course of contravening such a law.

### 5.8.4 Interference that the technical framework does not prevent

No matter how rigorous an engineering analysis is performed, there is always a possibility of interference when devices are deployed in the field. Under the framework described in this chapter, and assuming compliance with licence conditions and other relevant obligations, it is anticipated that the risk of interference is low.

Before making an interference complaint, licensees are strongly advised to check the RRL to locate the source of any interference. This may reveal the cause and it may be possible to settle the problem without the ACMA's intervention. If the ACMA becomes involved, licensees may be charged for any work undertaken by or on behalf of the ACMA.

### 5.8.5 International coordination

Potential spectrum licensees should note that the ACMA will impose such additional licence conditions on spectrum licences as may be necessary to meet its international obligations in accordance with the International Telecommunication Union Radio Regulations.

### 5.8.6 Health and safety

There are some regulatory arrangements relevant to the occupational health and safety, electromagnetic exposure and the supply of radiocommunications devices operated under a spectrum licence. Prospective bidders should ensure that they inform themselves about, and are familiar with, any relevant regulations.



#### **5.8.7 Environmental and other considerations**

Antenna siting, height and construction may be regulated by state, territory or local government legislation. Prospective bidders should ensure that they inform themselves about, and are familiar with, any relevant regulations.

## **Part four—Communicating with the ACMA**

## 6. Updates, queries, lodgements and payments

**This chapter provides information about how:**

- the ACMA will release updates and announcements about the auction
- to submit queries about the auction to the ACMA
- to lodge auction documents with the ACMA
- to make auction payments to the ACMA.

## 6.1 Updates and announcements

The ACMA will post updates and announcements about the auction on the dedicated [3.6 GHz band auction online index](#). Potential applicants, applicants and registered bidders are responsible for monitoring the webpage for all current information on the auction and associated matters.

If needed, the ACMA will contact applicants and registered bidders directly using the contact details provided on the application form. Where appropriate, the auction manager will contact registered bidders using the electronic messaging facility within the auction system.

## 6.2 Queries

Queries about the auction process may be directed to the auction manager, by:

**Email:** [spectrumauctions@acma.gov.au](mailto:spectrumauctions@acma.gov.au)

**Telephone:** (02) 6219 5151

**Fax:** (02) 6219 5427

**Post:** Auction Manager  
Major Spectrum Allocations Section  
Australian Communications and Media Authority  
Red Building, Benjamin Offices, Chan St  
Belconnen ACT 2617

## 6.3 Giving documents to the ACMA

Auction documents (for example, application forms, deeds, statutory declarations, eligibility nomination forms, statements) may be given to the ACMA by:

**Email:** [spectrumauctions@acma.gov.au](mailto:spectrumauctions@acma.gov.au)

**Fax:** (02) 6219 5427

**Delivery to:** Auction Manager  
Major Spectrum Allocations Section  
Australian Communications and Media Authority  
Red Building, Benjamin Offices, Chan St  
Belconnen ACT 2617

Section 7 of the Allocation Determination sets out procedures for giving documents to the ACMA by email, fax or via delivery of documents to the physical address listed above.

If a document is **emailed**:

- the document must be included as an attachment
- the document must be in the following formats:
  - for a statutory declaration, statement under section 58 of the Allocation Determination or a deed—PDF or another format approved by the auction manager; or
  - all other documents—in Word, RTF or PDF or another format approved by the auction manager.

If a document is **faxed**, it must be accompanied by a cover sheet that states:

- the sender's name, postal address, telephone and fax numbers
- the number of pages transmitted, including the cover sheet.

If a faxed document is a completed application form, an eligibility payment form, a statutory declaration, a statement under section 58 of the Allocation Determination or a deed, the cover sheet must also state the type of document.

The Allocation Determination sets out the following additional requirements for giving deeds of financial security to the ACMA:

- if a deed of financial security is executed by a person acting under a power of attorney for a body corporate, a copy of the power of attorney must be given with the deed (subsection 38(8))
- if a deed of financial security is given to the ACMA by fax or email, the original deed must be received by the ACMA no later than three working days after the eligibility deadline (or if the ACMA agrees to a later time, the agreed time) (subsections 29(6), 35(8) and 38(9)).

## 6.4 Making payments

All amounts payable to the ACMA for the 3.6 GHz band auction (for example, application fees, eligibility payments and winning price payments) must be paid in Australian currency by one of the two following methods:

### 1. Electronic transfer

Bank: ANZ Bank  
Branch: Belconnen  
BSB: 012-951  
Account no.: 8379 24272  
Account name: ACMA Official Administered Receipts  
Transfers should be labelled: '36 (space) purpose of payment (space) company name'.  
Note: Because transfer labels are limited to 15 alphanumeric characters, abbreviations must be used.  
For example:  
'36 appfee <company name>'  
'36 eligpay <company name>'  
'36 win <company name>'

Evidence of the electronic transfer (for example, a transfer receipt) should be emailed to [spectrumauctions@acma.gov.au](mailto:spectrumauctions@acma.gov.au) as soon as practicable after the transfer is made.

### 2. Bank cheque (crossed 'not negotiable')

Made payable to: Australian Communications and Media Authority on behalf of the Commonwealth  
Delivered to: Auction Manager  
Major Spectrum Allocations Section  
Australian Communications and Media Authority  
Red Building, Benjamin Offices, Chan St  
Belconnen ACT 2617

Subsection 9(4) of the Allocation Determination sets out rules about when an amount is taken to have been paid by a relevant deadline. Under these rules, an amount is taken to have been paid by a deadline if:

- the ACMA receives a bank cheque for the full amount on or before the deadline; or
- the ACMA receives evidence that an electronic transfer of the full amount was made on or before the deadline (for example, a transfer receipt) and the amount is received in the ACMA's bank account no later than three working days after the deadline; or
- the ACMA receives other evidence that satisfies it that the person making the payment has taken all reasonable steps to pay the amount on or before the deadline.

An amount due under the Allocation Determination is not paid in full if bank charges or government duties imposed on a payment reduce the net payment to less than the amount payable. An applicant or bidder must add the value of any bank charge or government duty to the amount of the payment.

GST is not payable on the application fee or the eligibility payment.

# Appendix A: Auction documents— Attachments A to G

*Click to download or to access link*

## Allocation instruments

**Attachment A**—[Radiocommunications \(Spectrum Licence Allocation – 3.6 GHz Band\) Determination 2018](#)

**Attachment B**—[Radiocommunications Spectrum Marketing Plan \(3.6 GHz Band\) 2018](#)

## Technical framework instruments

**Attachment C**—[Radiocommunications \(Unacceptable Levels of Interference – 3.4 GHz Band\) Determination 2015](#)

**Attachment D**—[Radiocommunications Advisory Guidelines \(Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band\) 2015](#)

**Attachment E**—[Radiocommunications Advisory Guidelines \(Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band\) 2015](#)

**Attachment F**—[Radiocommunications \(Trading Rules for Spectrum Licences\) Determination 2012](#)

## Spectrum reallocation declarations

**Attachment G**—[Radiocommunications \(Spectrum Re-allocation—3.6 GHz Band for Adelaide and Eastern Metropolitan Australia\) Declaration 2018](#)

**Attachment H**—[Radiocommunications \(Spectrum Re-allocation – 3.6 GHz Band for Perth\) Declaration 2018](#)

**Attachment I**—[Radiocommunications \(Spectrum Re-allocation – 3.6 GHz Band for Regional Australia\) Declaration 2018](#)

## Ministerial directions

**Attachment J**—[Radiocommunications \(Spectrum Licence Limits—3.6 GHz Band\) Direction 2018](#)

**Attachment K**—[Australian Communications and Media Authority \(Radiocommunications Licence Conditions—3.4 and 3.6 GHz Bands Interference Management\) Direction 2018](#)

# Appendix B: Auction forms

There are 10 forms for the 3.6 GHz band auction:

- Form 1—Application form
- Form 2—Deed of acknowledgement form
- Form 3—Deed of confidentiality form
- Form 4—Statutory declaration about affiliations (section 28)
- Form 5—Statutory declaration about affiliations (section 31)
- Form 6—Deed of financial security form
- Form 7 —Statement about affiliations post auction form
- Form 8—Associates form—body corporate
- Form 9—Associates form—individuals
- Form 10—Eligibility nomination form.

Instructions on who needs to complete the forms, and when to do so, are provided in the step-by-step guide in Chapter 4 and at the start of each form.

Forms 1–10 are available in the *Auction forms* booklet from the [Applicant information package](#) on the ACMA website.



# Glossary

Word/phrase	Definition
ACMA	Australian Communications and Media Authority
ACMA Act	<a href="#">Australian Communications and Media Authority Act 2005</a>
Act	<a href="#">Radiocommunications Act 1992</a>
AIP	Applicant information package
Allocation Determination	Radiocommunications (Spectrum Licence Allocation – 3.6 GHz Band Auction) Determination 2018
allocation instruments	<ul style="list-style-type: none"> <li><a href="#">Radiocommunications (Spectrum Licence Allocation – 3.6 GHz Band) Determination 2018</a></li> <li><a href="#">Radiocommunications Spectrum Marketing Plan (3.6 GHz Band) 2018</a></li> </ul>
allocation limits	Limits on the aggregate amount of spectrum that can be used by a bidder. The allocation limits cap the total amount of spectrum that a single bidder can acquire in the auction (see 3.2.6). The allocation limits are set out in section 12 of the Allocation Determination.
auction period	Defined in subsection 4(1) of the Allocation Determination, and means the period commencing on the eligibility deadline and ending immediately after the auction manager provides the results for the auction, in accordance with section 64.
Broadcasting Services Act	<a href="#">Broadcasting Services Act 1992</a>
Competition and Consumer Act	<a href="#">Competition and Consumer Act 2010</a>
ESMRA	Enhanced Simultaneous Multi-round Ascending auction format. See 3.1.
FSS	Fixed satellite services
HCIS	Hierarchical cell identification scheme (see 2.2.2 and 2.3.1)
lot	Defined in subsection 5(1) of the Allocation Determination for the 3.6 GHz band.
marketing plan	Radiocommunications Spectrum Marketing Plan (3.6 GHz Band) 2018
MSR	minimum spectrum requirement
primary, secondary and assignment stages	The ESMRA auction format has primary, secondary and assignment stages, as defined in subsection 4(1) of the Allocation Determination.
radiocommunications advisory guidelines (RAGs)	Radiocommunications advisory guidelines are made under section 262 of the Act and can refer to any aspect of radiocommunications or radio emissions. Generally, RAGs include provisions to assist interference assessments between spectrum-licensed devices and services operating under spectrum, apparatus or class licences. Potentially affected adjacent band services are identified in the guidelines, which enables licensees to assess the risk of interference between the services and make arrangements to mitigate this risk.
RALI	Radiocommunications Assignment and Licensing Instruction

Word/phrase	Definition
reallocation deadline	The time by which at least one spectrum licence must be allocated. The reallocation deadlines for the 3.6 GHz band are defined in the reallocation declarations.
reallocation declaration	<a href="#">Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Adelaide and Eastern Metropolitan Australia) Declaration 2018</a> <a href="#">Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Perth) Declaration 2018</a> <a href="#">Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Regional Australia) Declaration 2018</a>
reallocation period	Sets the timeframe during which the reallocation process is to be completed. The reallocation periods for the 3.6 GHz band are defined in the reallocation declarations.
SCA	Simple clock auction is the auction format being employed for the secondary stage of the 3.6 GHz band auction.
SMRA	Simultaneous multi-round ascending auction was the auction format employed for the 1800 MHz spectrum auction.
TDD	Time Division Duplex is a technique where downlink and uplink communications use the same frequency but are separated by the allocation of different time slots. This means uplink and downlink communications cannot occur at the same time.
technical framework	There are three interlocking regulatory elements that make up the technical framework for a spectrum-licensed band, including: <ul style="list-style-type: none"> <li>• conditions on the licence (including core licence conditions)</li> <li>• a determination of unacceptable interference for device registration</li> <li>• radiocommunications advisory guidelines.</li> </ul> The technical instruments for each band is available on the <a href="#">ACMA website</a> .
Telecommunications Act	<a href="#">Telecommunications Act 1997</a>
3.6 GHz band lots	350 lots as listed in Table 3. (See 2.1)
TLG	Technical Liaison Group for the 3.6 GHz band is an advisory body convened by the ACMA to provide advice on the technical and regulatory aspects required to develop a spectrum licence technical framework.
Wireless Access Services	Wireless Access Services covers a range of other terms such as fixed wireless access (FWA), broadband wireless access (BWA), multipoint distribution system (MDS) and radio and wireless local area network (RLAN and WLAN).

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