

Allocation and technical instruments for the 3.4/3.7 GHz bands allocation process Outcomes paper

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Introduction

The ACMA is preparing to re-allocate spectrum in the 3.4 GHz (3400–3575 MHz in some regional areas) and the 3.7 GHz (3700–3800 MHz in metropolitan and regional areas) bands by issuing spectrum licences, pursuant to section 153L of the [Radiocommunications Act 1992](#) and the [Radiocommunications \(Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands\) Declaration 2022](#) (the re-allocation declaration).

This 3.4/3.7 GHz bands allocation process is part of the ACMA’s wider mid-band allocations work program in the 3.4–4.0 GHz band. An overview of the milestones for mid-band allocation projects is available on [our website](#), as follows:

- > An administrative allocation of area-wide licences (AWLs) in remote areas of the 3.4–4.0 GHz band, intended to support both wide-area (WA) and local-area (LA) wireless broadband (WBB) use-cases. The ACMA expects to commence this allocation process in Q3 2023.
- > The auction of spectrum licences in the 3.4/3.7 GHz bands (the subject of this paper), intended to support the continued deployment of WA WBB services, such as mobile and fixed wireless networks. The ACMA expects to commence this process in Q4 2023.
- > An administrative allocation of AWLs in the 3.8 GHz band (3.8–3.95 GHz in metropolitan areas and surrounds, and 3.75–3.95 GHz in some regional areas) to support new LA WBB services, and the continued deployment of satellite and point-to-point (PTP) services. The ACMA expects to commence this allocation process in Q1 2024.
- > An allocation of apparatus licences in select metropolitan areas (known as ‘urban excise areas’) in the 3.4–3.475 GHz band, and metropolitan and regional areas of the 3.95–4.0 GHz band, intended to support restricted cell LA WBB use. The timing for this allocation is yet to be determined.

In preparation for the auction of spectrum licences, we consulted on [allocation and technical instruments](#), which describe the parts of the spectrum available, as well as setting out the rules and procedures that we propose will govern the allocation process. We consulted on draft versions of the following allocation and technical instruments:

- > the Radiocommunications Spectrum Marketing Plan (3.4/3.7 GHz Bands) 2023 (the marketing plan), to be made under section 39A of the Radiocommunications Act, describing the 3.4/3.7 GHz bands products available
- > the Radiocommunications (Spectrum Licence Allocation—3.4/3.7 GHz Bands) Determination 2023 (the allocation determination), to be made under sections 60 and 294 of the Radiocommunications Act, covering the auction procedures and rules for the allocation of spectrum licences in the 3.4/3.7 GHz bands
- > an amendment to the Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015
- > an amendment to the Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015
- > an amendment to the Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015.

The ACMA also consulted on amendments to a policy document, the Radiocommunications Assignment and Licensing Instruction MS47 Frequency

coordination and licensing procedures for Area-Wide Licences (AWL) in the 3400–4000 MHz band ([RALI MS47](#)).

We undertook a [further consultation](#) to consider whether we should require applicants to provide greater assurance to the ACMA that the allocation process has not been affected by collusive behaviour in the lead-up to the allocation process being advertised. We noted that such behaviour may be prohibited under the cartel conduct provisions of Division 1 of Part IV of the *Competition and Consumer Act 2010*.

This outcomes paper relies on concepts and definitions in the [consultation paper on the draft allocation and technical instruments](#) (the consultation paper), and should be read alongside that paper.

Legislative context and policy objectives

As stated in the consultation paper, the ACMA's decisions in relation to allocation processes for the 3.4–4.0 GHz band are guided by the object of the Radiocommunications Act, which is to promote the long-term public interest derived from the use of the spectrum by providing for the management of the spectrum in a manner that:

- > facilitates the efficient planning, allocation and use of the spectrum
- > facilitates the use of the spectrum for:
 - > commercial purposes
 - > defence purposes, national security purposes and other non-commercial purposes (including public safety and community purposes)
- > supports the communications policy objectives of the Australian Government.

On 10 February 2022, the Radiocommunications (Ministerial Policy Statement – 3.4–4.0 GHz) Instrument 2022 (the MPS) commenced. Under section 28C of the Radiocommunications Act, the ACMA must have regard to the MPS in performing its spectrum management functions and exercising its spectrum management powers.

The MPS sets out 4 objectives for the allocation of the 3.4–4.0 GHz band:

- > supporting the deployment of new and innovative technology, including 5G
- > supporting a wide range of use-cases and users
- > supporting digital connectivity and investment in regional Australia
- > promoting competitive markets.

On 7 December 2022, the Minister for Communications, the Hon Michelle Rowland MP, issued a Statement of Expectations (SoE) to the ACMA. The SoE sets out government policies and objectives relative to the ACMA's regulatory and spectrum management remit. Of relevance to this allocation are the government's objectives to:

- > support government policies related to regional, rural and remote Australia including by having regard to relevant ministerial policy statements in the planning and allocation of spectrum to support innovation and competition in these areas
- > promote the long-term public interest derived from spectrum, including the benefits of technological developments that improve spectrum utilisation.

We are considering these objectives in relation to all the mid-band (3.4–4.0 GHz) allocations above. Different allocations are intended to support different use-cases. The objective to support a wide range of use-cases and users is supported by the availability of the suite of mid-band allocations. The 3.4/3.7 GHz bands allocation process is intended to support the deployment of WA WBB, while the AWL allocations

are intended to support other services such as LA WBB, PTP and fixed satellite services (FSS). The spectrum licence allocation process – and the considerations on allocation limits – intends to support digital connectivity and investment in regional Australia, and promote competitive markets.

Allocation limits

Procedures determined under section 60 of the Radiocommunications Act for the allocation of spectrum licences may impose limits on the aggregate of the parts of the spectrum that, under transmitter and existing spectrum licences, and as a result of the allocation of spectrum licences under section 60, may be used by any one person, a specified person, or, in total, by the members of a specified group of persons (subsection 60(5)). Such a limit is known as an ‘allocation limit’. An allocation limit may apply in relation to one or more of a specified part of the spectrum, a specified area or a specified population reach (subsection 60(6)). A limit for a specified person, or for a specified group of persons, may be nil (subsection 60(6A)).

As such, in imposing an allocation limit, the ACMA can determine procedures that count existing transmitter licences and existing spectrum licences towards an assessment of whether allocating new spectrum licences under section 60 would exceed those limits. For example, if the ACMA is allocating spectrum licences in the 500 MHz to 1000 MHz frequency band, it is allocating 500 MHz of spectrum. However, it might impose an allocation limit that no person may, under existing spectrum licences and because of the allocation of new spectrum licences, use more than 250 MHz in the 500 MHz to 1500 MHz frequency band. This may be because there are already existing spectrum licences in the 1000 MHz to 1500 MHz frequency band.

In this example, a person who holds no existing spectrum licences in the 1000 MHz to 1500 MHz band could be allocated new spectrum licences in the 500 MHz to 1000 MHz band totalling 250 MHz, but a person who already holds existing spectrum licences in the 1000 MHz to 1500 MHz band totalling 250 MHz could not be allocated any new spectrum licences in the 500 MHz to 1000 MHz band. The consideration of existing spectrum licences outside the band currently being allocated is sometimes referred to as a consideration of a ‘cross-band frequency range’.

There are existing spectrum licences in the parts of the spectrum that adjoin the 3.4/3.7 GHz bands (these parts are sometimes referred to as the 3.4 GHz band, or the 3.4 GHz and 3.6 GHz bands). There are also existing spectrum licences in the parts of the spectrum known as:

- > the 700 MHz band
- > the 850/900 MHz band
- > the 1800 MHz band
- > the 2.3 GHz band
- > the 2.5 GHz band
- > the 20 GHz band (though these licences are only held by the Department of Defence)
- > the 30 GHz band (though these licences are only held by the Department of Defence)
- > the 26 GHz band.

Before the ACMA determines procedures under section 60 of the Radiocommunications Act, it must consult the Australian Competition and Consumer Commission (ACCC) about whether the procedures should impose allocation limits and, if so, the nature of those limits (subsection 60(13A)).

A determination under section 60 of the Radiocommunications Act is a legislative instrument. Accordingly, before the determination is made, the ACMA must be satisfied that such consultation as was appropriate, and was reasonably practicable to undertake, has been undertaken (section 17 of the *Legislation Act 2003*).

Final allocation and technical instruments

Having considered submissions to the consultation on the draft allocation and technical instruments, the ACMA has made the following legislative instruments:

- > [the allocation determination](#)
- > [the marketing plan](#)
- > the [Radiocommunications \(Unacceptable Levels of Interference – 3.4 GHz Band\) Amendment Determination 2023 \(No. 1\)](#)
- > the [Radiocommunications Advisory Guidelines \(Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band\) Variation 2023 \(No. 1\)](#)
- > the [Radiocommunications Advisory Guidelines \(Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band\) Variation 2023 \(No. 1\)](#).

We have also made amendments to RALI MS47.

The ACMA formulated the proposals in the consultation paper and draft versions of the allocation and technical instruments based on views gathered through ongoing engagement, including:

- > public consultation (including previous consultation on [replanning and optimising arrangements in the band](#) and [the re-allocation declaration](#))
- > targeted consultation ([referred to as ‘tune-ups’ and held in March 2022, July 2022 and February 2023](#)), and
- > individual meetings with stakeholders.

In developing the spectrum licence technical framework, we also convened a [technical liaison group](#) well in advance of the allocation to inform our proposals and views. This provides a forum for stakeholders to comment and provide advice on the development of technical frameworks in advance of a public consultation.

Having considered stakeholder submissions to the consultation on the draft allocation and technical instruments, some of the ACMA's views, contained in the final instruments, are different to the proposals contained within the consultation paper. These include:

- > We will make results of the 3.7 GHz band auction available to all registered bidders at the conclusion of that auction.
- > We will not require applicants to certify an anti-collusion statement in their application materials.
- > We have included a new Part 13 (guidance on managing interference with radio altimeters) to the [Radiocommunications Advisory Guidelines \(Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band\) 2015](#) ('RAG Tx'), which defines the following requirements for transmitters operating in the 3700-3800 MHz band:
 - > Until 31 March 2026, licensees must ensure that transmitters operate in a manner that is consistent with the requirements for AWLs under [RALI MS47](#) regarding radio altimeters.

- > We have included the following conditions for licences issued in the 3700–3800 MHz band to align with the [Wireless broadband and radio altimeter coexistence outcomes paper](#):
 - > Transmitters must not exceed a total EIRP of 72 dBm/5 MHz
 - > Licensees must ensure that transmitters operate in a manner consistent with the requirements for AWLs under [RALI MS47](#) regarding radio altimeters (as detailed in new Part 13 of the RAG Tx).
- > We did not adopt the more stringent FSS filter mask proposed by AMTA. This is because we did not formally consult on it. We are consulting on it as part of the [area-wide apparatus licences in the 3.8 GHz band in metropolitan and regional Australia – licensing, allocation process, technical framework and pricing arrangements](#) consultation process. This will ensure all interested and potentially affected stakeholders have an opportunity to consider and comment on the proposed changes.
- > We have amended the definition for receiver blocking in the [Radiocommunications Advisory Guidelines \(Managing Interference to Spectrum Licenced Receivers\) 2015](#).

These changes are discussed in more detail in the body of this paper.

The [Wireless broadband and radio altimeter coexistence outcomes paper](#) (the ‘RA outcomes paper’) details decisions made to regarding coexistence between wireless broadband (WBB) services in the 3400–4000 MHz band and radio altimeters. Interested parties should read the RA outcomes paper for further details.

The key changes from what we consulted on are:

- > The size of interim restricted zones was revised based on new information about WBB antennas.
- > Runway coordinates have been provided to assist stakeholders and accredited persons.
- > The approach to unwanted emissions was revised so the spurious domain commences below 4200 MHz.
- > The recommendation for spectrum licensees to coordinate with airports and heliports when deploying services was replaced with mandated EIRP restrictions as well as deployment restrictions for transmitters operating in the 3700–3800 MHz band. The latter will apply until 31 March 2026.
- > The mandate that beam-scanning of base station antennas must not occur above the horizon was removed.
- > There was an acknowledgement that the technical framework for TRP or EIRP limits generally applied to total emissions rather than per-plane of polarisation, which resulted in subsequent changes.

Summary of submissions and ACMA responses

In response to our consultation paper, 12 submissions were received, including one in-confidence. The public submissions can be found on the [ACMA's website](#). Seven submissions specifically addressed the draft marketing plan and draft allocation determination. A summary of views expressed at consultation as well as the ACMA's view is outlined in detail in this section.

Marketing plan

Issues for comment

Licence commencement and duration

We sought comments on our preliminary views that:

- > 3.4 GHz licences will commence as soon as possible after a winning bidder pays its spectrum access charge. The expiry date will be 13 December 2030 (approximately 7 years), to align with existing 3.4 GHz band licences.
- > Subject to the payment of the spectrum access charge, 3.7 GHz licences will commence on the later of 8 weeks after publication of the auction results, or the day the licence is issued, for a term ending 20 years and 8 weeks after the publication of auction results (so most licence durations will be for 20 years, the maximum allowable under subsection 65(3) of the Radiocommunications Act).

Licence renewal statements

We sought comments on our preliminary views to include the following statements in spectrum licences issued as a result of the 3.4/3.7 GHz bands allocation process:

- > *For 3.4 GHz licences:*
 - > The spectrum licences may be renewed at the ACMA's discretion.
 - > There is a renewal application period of 13 December 2028 to 12 December 2030 (a period of 2 years before licence expiry).
 - > There is a renewal decision-making period of 6 months after receiving an application for renewal of the licence.
 - > There will be a public interest statement.
- > *For 3.7 GHz licences:*
 - > The spectrum licences may be renewed at the ACMA's discretion.
 - > There is a renewal application period of one year, commencing 5 years before licence expiry.
 - > There is a renewal decision-making period of 2 years, commencing immediately after the renewal application period.
 - > There will be no public interest statement.

Frequency lot configuration

We sought comments on the following proposed lot sizes:

- > generic lots – 5 MHz
- > leftover lots – 2.5 MHz.

Geographic lot configuration

We sought views on our proposal to:

- > Disaggregate the rural Australia area in both the 3.4 GHz and 3.7 GHz bands according to the boundaries of existing 3.6 GHz band spectrum licences (3.6 GHz regional areas).
- > Configure the regional areas in 3700–3800 MHz as follows:
 - > 3700–3750 MHz: aligned with 3.6 GHz regional areas.
 - > 3750–3800 MHz:
 - > Queensland and Victoria: Regional Area 2 (RA2) + Major Regional Centres 1 (MRC1)
 - > Other regional areas: RA2.
- > Configure the metropolitan areas as independent products.
- > Aggregate the regional WA south and regional WA central areas in 3475–3510 MHz and 3700–3800 MHz.
- > Aggregate Tamworth with surrounding areas as follows:
 - > 3400–3575 MHz: aggregate with regional NSW south and Quirindi East.
 - > 3700–3750 MHz: aggregate with Rural North NSW/South Queensland.
- > These settings were reflected in Schedules 1–4 to the draft marketing plan that accompanied the consultation paper.

Product naming

We sought comments on the proposed naming scheme for products in the auction.

Responses to issues for comment and the ACMA's views

Licence commencement and duration

Two submissions generally supported the ACMA's preferred view on licence commencement and duration, 3 offered partial support and 2 did not provide any comment.

Views outlined in submissions included:

- > A concern that the 'arbitrary' 8-week period before commencement would unduly delay bidders from being able to access their spectrum, noting there is no 'early access' mechanism being proposed for any spectrum being sold at this auction.
- > Both 3.4 GHz licences 3.7 GHz band licences should be issued as soon as possible after a winning bidder pays its spectrum access charge.
- > Commencement of the 3.7 GHz licences should be a date no later than 4 weeks after publication of auction results, and the ACMA should invoice successful bidders immediately after the auction. Bidders should be given up to 8 weeks to pay the invoice.
- > Licences in the 3.4 GHz band should be subject to a mandatory 'defragmentation process' once the licences are issued.
- > The above defragmentation process should be advised to all licensees before the issue of any licences.
- > Common licence commencement dates for 3.4 GHz and 3.7 GHz band licences should be implemented, with commencement in mid-April 2024. The submission asserted that this would sufficiently cover for any potential auction delays.
- > There was concern that the 8-week period following auction announcement is insufficient for the commencement of 3.7 GHz licences. The reasoning provided is that this period should only commence following the completion of any affiliations assessment, and the issue of final invoices following completion of auction

processes. (The ACMA's proposal was for licences to commence 8 weeks following auction results announcement, not the announcement of the auction commencement.)

- > The licence term for 3.7 GHz licences should not be 20 years, with the reasoning that a shorter licence term could provide a 'reset' point where the ACMA could force defragmentation of all spectrum licences in the 3.4–4.0 GHz band.
- > If, by 2030, the band is defragmented and fully optimised, the ACMA should undertake a renewal process instead of a 'reset' (which we understand to mean a re-allocation of spectrum licences), if it believes that is the best course of action at the time. However, if licensees had not defragmented the band by then, the only 'realistic option' to optimise the entire 3.4–3.8 GHz band would be through an ACMA-led 'reset' of the band. In that case, licence boundaries could be 'modernised', and licensees would have the opportunity to reorganise holdings to be contiguous to maximise the utility of the spectrum.
- > There was concern that commercial negotiations will lead to defragmentation, and the ACMA's draft allocation instruments created unacceptable fragmentation and exposure risk.
- > Expiry of licences in 2030 could provide an opportunity to re-evaluate the use of the 3.8–4 GHz band and the spectrum in the urban excise areas, and potentially allocate it for WA WBB use.
- > There was concern that a long licence term may result in defragmentation being deferred to 2043.

ACMA view

When reviewing submissions, the ACMA noted that, particularly regarding 3.7 GHz licences commencing 8 weeks after publication of the auction results, we proposed the 8-week delay to licence commencement to ensure that the ACMA has sufficient time to send invoices, and winning bidders have sufficient time to pay those invoices, to maximise the opportunity for all 3.7 GHz licences to have:

- > a 20-year period; and
- > a common expiry date.

In contrast, 3.4 GHz licences have an approximate 7-year licence term to align with the expiry dates of existing spectrum licences the 3.4 GHz band. The 3.4 GHz licences will commence immediately due to the greater flexibility in relation to their term (there is no need to maximise the opportunity for the licences to have a 20-year term), and the date of expiry already being known (13 December 2030). The actual term of these licences will depend on when winning bidders pay their spectrum access charges.

As reflected in the marketing plan, the ACMA considers that the different licence durations proposed in the consultation paper strike the right balance between investment certainty and a market environment that supports licence trading. Therefore, no change to the relevant sections of the marketing plan have been made.

We also consider there should be no change to the ACMA's preliminary views on licence commencement, and that 3.4 GHz band licences should commence immediately after issue, and 3.7 GHz band licences commence at the later of 8 weeks after the auction results are announced publicly, or the day the licence is issued.

Licence renewal statements

Three submissions generally supported the ACMA's preferred view in relation to licence renewal statements, two offered partial support and two did not provide any comment.

Views outlined in submissions included:

- > Renewal statements for 3.4 GHz band licences needed to be 'stronger' and 'more objective' and the likelihood of renewal and reissue is a material factor in spectrum valuations when the term is as short as 7 years.
- > Defragmentation of spectrum licences in the band would only occur if all parties were confident that all of their post-defragmentation licences would be renewed.
- > Renewal statement for 3.4 GHz licences should be 'more specific' and contain objective outcomes for defragmentation.
- > The matters that the ACMA suggested may be relevant to the public interest statement for 3.4 GHz licences were 'too ambiguous', as efficient allocation and efficient use are not necessarily co-existent.
- > Spectrum may be efficiently allocated from a technical perspective but remain unused, and this may reward licensees that are using their spectrum but block defragmentation for strategic competitive reasons.
- > The public interest statement for 3.4 GHz licences should 'clearly articulate' and 'incentivise' defragmentation of the band prior to 2030.
- > There should be certainty that renewal considerations will commence 5 years prior to licence expiry and be completed 2 years prior to licence expiry.
- > Industry expects renewal discussions to commence 5 years prior to licence expiry in 2025, at the latest, for the existing 3.4 GHz and 3.6 GHz licences. Therefore, the renewal application period should ideally align with existing spectrum licences in the 3.4 GHz band. (Note: The ACMA proposal was intended to align renewal processes for new 3.4 GHz licences issued as a result of this allocation process with the renewal processes for existing 3.4 GHz and 3.6 GHz band licences under the transitional arrangements for the *Radiocommunications Legislation Amendment (Reform and Modernisation) Act 2020*.)
- > 3.7 GHz licensees should not be excluded from any associated defragmentation discussions in the adjacent 3.6 GHz licence areas.
- > 3.7 GHz licences should have a common expiry date with 3.4 GHz licences to facilitate secondary trading to assist defragmentation. 3.7 GHz licences should also have licence renewal statements consistent with the 3.4 GHz licences, for the same reason.

ACMA view

Under section 65A of the Act, a spectrum licence must include a renewal statement. The ACMA has discretion to determine whether the statement provides that the licence cannot be renewed, that the licence may be renewed at the discretion of the ACMA, or that the licence may be renewed at the discretion of the ACMA so long as the circumstances specified in the statement exist. In our consultation paper, the ACMA proposed that for both 3.4 GHz and 3.7 GHz licences, the renewal statement indicate that the spectrum licences may be renewed at the ACMA's discretion, and that, for 3.4 GHz licences, the statement also include a public interest statement.

For 3.4 GHz licences, we consider that renewal statements should provide for a renewal process that is aligned, to the extent possible, with the renewal process for existing licences in the 3.4 GHz band. The existing licences in the 3.4 GHz band do not have renewal statements, and their renewal process is set out in various provisions of the Act. The renewal statements for the 3.4 GHz band in the marketing

plan reflect, to the extent possible, those processes set out in the Act. For this reason, the ACMA has decided not to include a renewal statement in the 3.4 GHz band licences that the licence may be renewed so long as circumstances specified in the statement exist, where those circumstances relate to the defragmentation of the 3.4 GHz band. Given the existing 3.4 GHz licences do not contain such a statement, the inclusion of such a statement in new 3.4 GHz licences would cause difficulties in relation to the renewal of licences in the band.

Instead, the public interest statement for the 3.4 GHz band licences is intended to reflect that, when the ACMA has regard to the object of the Radiocommunications Act, particularly in relation to facilitating efficient planning, allocation and use of the spectrum, the ACMA may consider the extent of fragmentation of licences across a band, among other things.

The ACMA acknowledges industry interest regarding defragmentation of the 3.4 GHz band. However, it is not possible to predict all matters that may be relevant to a future decision on whether renewal of a particular licence is in the public interest. Given this, the ACMA does not consider it is appropriate to predetermine a set of necessary circumstances for the exercise of our future discretion. We consider the public interest statement in the marketing plan will preserve the ACMA's future discretion to consider a range of public interest factors when dealing with expiring spectrum licences, including the extent of fragmentation in the 3.4 GHz band.

The ACMA further notes that for consideration of a licence renewal for more than 10 years, under section 77C(5) of the Radiocommunications Act, the ACMA must be satisfied it is in the public interest to do so, regardless of whether there is a public interest statement included in the licence.

Given that the ACMA's legislative requirements under the Radiocommunications Act are to consider the public interest for a renewal of over 10 years, regardless of whether there is a public interest statement included in a licence, the ACMA considers that it is appropriate not to include a public interest statement on 3.7 GHz licences.

Frequency lot configuration

Four submissions generally supported the ACMA's preferred view on frequency lot configurations, while 3 did not provide any comment. Submission comments or concerns included:

- > One submission stated that their first preference was for 10 MHz lots. However, they also accepted 5 MHz lots if the auction rules included an 'minimum spectrum requirement' (MSR)¹ of 2 lots (which would ensure a bidder did not get stranded with one 5 MHz lot).
- > Another submission supported the ACMA's proposal to offer generic lots of 5 MHz, with leftover lots of 2.5 MHz in MRC1 and Major Regional Centres 2 (MRC2).
- > That a lot size of 5 MHz has the advantage of enabling existing licensees with holdings that are not multiples of 10 MHz to potentially 'round up' their holdings and that while some bidders may require a minimum of 10 MHz, this may be addressed through an MSR.

¹ A minimum spectrum requirement is a mechanism that allows a bidder to avoid winning lots of the product less than the minimum specified, which would be used by a bidder that considered anything less than the minimum to be an unviable amount of spectrum. A minimum spectrum requirement of 2 means that bidders that select the requirement won't be left with 1 lot of a product.

ACMA view

After considering consultation submissions and current technical operational trends, the ACMA notes that 10 MHz lots would be the optimal configuration to enable the deployments of 5G technologies. However, given the nature of existing licences in the 3.4 GHz and 3.6 GHz bands, we understand that some potential bidders may seek to supplement their existing licences to obtain contiguous licences consistent with the 10 MHz-based configuration.

To mitigate the risk that a bidder will acquire an amount of spectrum that is unusable due to the technology standards (that is, less than 10 MHz of spectrum), we have implemented the MSR feature used in previous auctions.

Therefore, the ACMA considers a 5 MHz lot size is appropriate to address a range of demand from potential bidders while ensuring that bidders can acquire usable amounts of spectrum. The ACMA has not made changes to the proposed 5 MHz generalised lot configuration and the 2.5 MHz leftover lot configuration.

Geographic lot configuration

Three submissions generally supported the ACMA's preferred view for geographic lot configuration, one did not support the ACMA's proposal in relation to rural areas while 3 did not provide comment.

Views outlined in submissions included:

- > A preference was expressed in one submission that the geographic boundaries of existing licences in the 3.6 GHz band be used for the configuration of the rest of the band, as it would deliver greater alignment across licences and would support potential future band defragmentation.
- > There is an exposure risk associated with the geographic divide, for example, in metropolitan Sydney and regional NSW. This submission suggested that spectrum in regional NSW areas had limited economic value and ultimately may not be used by a winning bidder if the bidder did not also win spectrum in the Sydney area.
- > For 'rural Australia', one submission expressed a preference for Option B, which proposed that 3.4 GHz licences to be allocated should be aligned with the boundaries of existing licences in the 3.4 GHz band. The submission asserted that Option B would:
 - > support defragmentation
 - > maximise efficiency by enabling contiguous holdings across a wide geographic area
 - > minimise complexity for potential bidders.

ACMA view

In the consultation paper, the ACMA proposed that the products should be geographically divided as follows:

- > metropolitan areas should be separate products rather than one nationwide metropolitan product
- > the boundaries of regional areas should be aligned with the boundaries of existing licences in regional areas in the 3.6 GHz band as much as possible (shown in Figure 1A)
- > for the 3.75–3.8 GHz frequency range, each regional area surrounding each metropolitan area should be configured as one regional product (rather than two or more regional products) (shown in Figure 1B).

Figure 1A: 3.6 GHz band licence boundaries

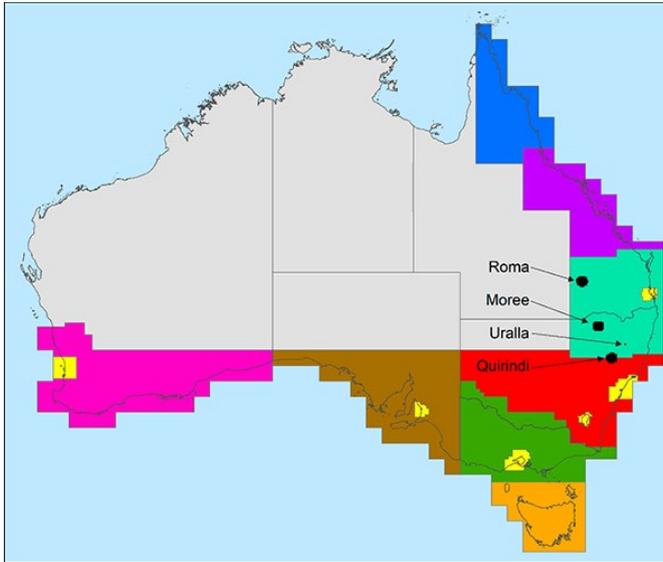
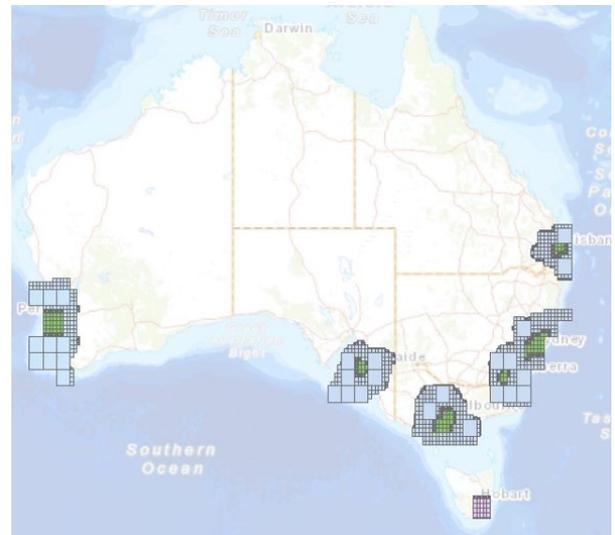


Figure 1B: Proposed 3.75 GHz upwards licence boundaries



After considering consultation submissions, the ACMA acknowledges that aligning spectrum licence boundaries with existing licences in the 3.4 GHz band may facilitate trading to defragment 3.4 GHz band licences. However, the ACMA considers that the resulting large regional lots may not adequately address regionally focused demand for spectrum from potential bidders across regional Australia. The ACMA also notes that the large regional lots may result in an unfair or counter-intuitive application of allocation limits. On that basis, the ACMA has retained the regional lot alignment with the boundaries of existing licences in regional areas in the 3.6 GHz band as much as possible.

Product naming and metropolitan/regional classification

Two submissions generally supported the ACMA’s preferred view for product naming, one proposed an alternative product order and four did not provide any comment. In relation to the metropolitan/regional classification of products, there was only one suggested change to the ACMA’s preferred view, while six submissions did not provide any comment.

Views outlined in submissions included:

- > One submission, while agreeing with the product naming scheme, proposed an alternative product order be used in the auction system. The submission asserted that the current order groups ‘types of region’ together, but are not geographically ordered, and that this will make it harder to use the auction system and creates the potential for bid errors.
- > Another submission, while supporting the proposed naming scheme, did not support the proposal to treat the Hobart product as a metropolitan product.

ACMA view

In the consultation paper, the ACMA proposed that products in the 3400–3475 MHz frequency range have a product name ending with ‘Lower’ and product ID ending in 01, products in the 3475–3575 MHz range have a name ending in ‘Middle’ with a product ID ending in 02, and products in the 3700–3800 MHz range have a name ending in ‘Upper’ with a product ID ending in 03.

The ACMA also proposed to define the metropolitan products to be those that related to Adelaide, Brisbane, Canberra, Hobart, Melbourne, Perth and Sydney. Regional

products related to all other areas in which spectrum would be available through the allocation process.

The ACMA acknowledges that the optimal product order may differ between bidders depending their specific demand (for example, one bidder may wish to acquire spectrum on a geographic basis, another bidder may only want in spectrum in major regional centres while another bidder may only seek to acquire metropolitan area spectrum). However, there are various filtering functions available in the auction system, including a search function that will enable bidders to look up the specific product they wish to express demand for in any given round.

Allocation determination

Issues for comment

Sequencing

We sought comments on our proposal to sequentially allocate the 3.4/3.7 GHz bands spectrum. We proposed to auction the 3.7 GHz band first, followed by the auction of 3.4 GHz band spectrum, with a minimum period of 5 working days between auctions.

Commencement of auctions and power to delay the 3.7 GHz auction

We sought comments on a proposal to include a power for the ACMA to vary the start date and time of the 3.7 GHz band auction.

Auction stages and rounds

We sought comments on our proposal to:

- > include a pre-bidding round in the primary stages of each auction, during which bidders must specify their start demand and may adopt the MSR for each product in the relevant band
- > include a pre-bidding round in the secondary stages of the auction, during which bidders must confirm their interest in the available lots (if any).

Allocation of leftover lots

We sought comments on our proposal to:

- > directly allocate each leftover lot (of 2.5 MHz, see also *Frequency lot configuration*) to an 'eligible recipient' that applies for it, for a set price, before the 3.7 GHz auction
- > allocate any leftover lots (not allocated an eligible recipient) to the winner of a lot that is assigned the frequency range adjacent to the leftover lot in the assignment stage of the 3.4 GHz band auction.

Auction announcements

We sought comments on the proposal to publish the following information at the following times:

- > after the eligibility deadline, the names of all registered bidders
- > after the end of the auction, the results of the auction including the names of unsuccessful bidders.

Minimum spectrum requirement

We sought comments on our proposal to:

- > apply a MSR of 2 lots for each product in the 3.4/3.7 GHz bands auction.

Information policy

We sought comments on our proposal to:

- > provide exact excess demand information to bidders at the end of each clock round in the primary stages of the auction.

Assignment stage settings

We sought comments on our proposal that:

- > the frequency range of any unsold lots be contiguous and be determined based on the assignment bids, rather than pre-assigned.

Responses to issues for comment and the ACMA's views

Submissions to the allocation determination consultation were generally supportive however, some stakeholders provided alternative views to the ACMA's preferred approach.

Sequencing of auctions

Four submissions generally supported the ACMA's preferred view about the sequencing of auctions, 3 submissions proposed 3 separate auctions to allocate the 2 bands and 3 submissions did not provide comment on auction sequencing.

Views outlined in submissions included:

- > One submission stated that the ACMA should take action to help bidders manage the strategic risk of making a one-way switch of demand from the 3.7 GHz band to the 3.4 GHz band.
- > One submission stated that a fixed 5 working days' recess between the auctions was unnecessary and that a recess of one to 2 days between the auctions should be enough for bidders and the ACMA to prepare for the 3.4 GHz band auction. The submission asserted that it is inconvenient and wasteful to have unduly long pauses between auctions. That submission stated that the recess should be 'not more than 5 working days', and the ACMA could commence the 3.4 GHz auction earlier with the consent of all bidders.
- > Another submission stated that each bidder should be provided with 10 working days' notice before the start of each auction, rather than the 5 working days proposed, asserting that 5 working days is not enough to ensure auction participants have enough certainty to prepare for the second auction.
- > A concern was raised in one submission about the ACMA providing only 'at least 3 working days' notice of the calculation of the 'unused allocation limit' and eligibility points for each bidder in the 3.4 GHz band auction. These concepts affect what a bidder may be able to bid on during the 3.4 GHz band auction, and may be affected by the results of the 3.7 GHz auction.
- > One submission suggested that the ACMA auction 3.7 GHz licences in metropolitan areas as a first and discrete phase of the auction, followed by 3.7 GHz licences in regional areas and then 3.4 GHz licences in a third phase. It stated that allocating both regional and metropolitan products for the 3.7 GHz band in the same primary stage could lead to inefficient outcomes. The submission said that regional products should be considered complementary to the metropolitan products, and the auction rules should be designed to reflect this. The submission further stated that a bidder could bid on lots for both Sydney and Regional Sydney (which borders Sydney), but only be allocated lots for Regional NSW. Without the complementary Sydney lots, the submission stated that the Regional NSW lots would have limited economic value and ultimately may not be used. The submission stated that sequencing the 3.7 GHz metropolitan products before the 3.7 GHz regional products would eliminate this exposure risk.
- > One submission stated that 2 mock auctions should be held, one before each auction. (The ACMA proposed to conduct a mock auction only at the start of the allocation process).

ACMA view

We acknowledge that sequencing the 3.7 GHz band auction as 2 auctions, one for metropolitan products followed by one for regional products, would alleviate a potential exposure risk for bidders, but we have concerns over alternative risks it would generate.

We consider that implementing 2 sequenced auctions for the 3.7 GHz band has the potential to create an exposure risk for bidders with different complementarities, such as a bidder winning lots of metropolitan products but failing to win lots of regional products, despite the bidder's value for metropolitan products being dependent on obtaining surrounding regional products. The more relaxed allocation limits of 160 MHz in relation to regional products should also help mitigate exposure risk by increasing excess demand for regional products, which may make it easier for a bidder to reduce demand to zero if they were concerned about not winning lots of metropolitan products. In addition, we note that running 2 sequential auctions is already more burdensome for the ACMA and participating bidders than previous allocation processes, so adding a third auction would further increase the time required to allocate the spectrum and impact resourcing and costs to the ACMA and bidders.

Regarding the request to reduce the recess between auctions to less than 5 days, we do not consider this to be appropriate. Following the conclusion of the 3.7 GHz band auction, we will need to re-calculate the unused allocation limits of bidders to take into consideration the winnings from the 3.7 GHz auction, and ensure the new 3.4 GHz auction is configured accurately. This is a critical process. In addition, if there are parties that are only interested in participating in the 3.4 GHz auction, they would need a suitable amount of warning to form their bid teams before the auction commences.

Regarding the concern expressed in a submission about the ACMA providing only 'at least 3 working days' notice of the calculation of the 'unused allocation limit' and eligibility points for each bidder in the 3.4 GHz band auction, we consider that each bidder will know at the end of the primary stage and secondary stage how many lots of each product they have won in the 3.7 GHz auction and, therefore, can relatively easily calculate their unused allocation limit and eligibility points for the 3.4 GHz auction.

On balance, and having considered the benefits and risks of different proposals, the ACMA does not propose to change the proposed auction sequencing.

Commencement of auctions and power to delay the 3.7 GHz auction

Two submissions generally supported the ACMA's preferred view for an estimated October 2023 auction commencement. While another 2 submissions generally supported the auction commencement date, they did not agree with the proposal to give the ACMA the power to delay the start of the 3.7 GHz auction. Three submissions did not provide comment.

Views outlined in submissions included:

- > One submission did not support giving the ACMA the power to delay the 3.7 GHz auction by at least 10 working days, stating that the delay should be 'the minimum time necessary' to address the issue so that the ACMA can proceed with confidence in running the auction. It proposed the drafting to be 'not more than 10 working days', with an allowance for additional delay to address serious or unexpected circumstances. The submission acknowledged that circumstances may arise where more time is needed to 'ensure the integrity of the auction'.
- > Another submission did not support the proposal to include a power for the ACMA to vary the commencement of the 3.7 GHz band with 2 working days' notice,

claiming that this would undermine the allocation process. The submission further stated that this would undermine bidder preparation activities, including planning and resourcing requirements, as well as internal governance processes, which are not able to accommodate last minute changes to auction scheduling.

ACMA view

Upon reviewing the submissions, the ACMA has not changed the estimated auction commencement or removed the power to delay the 3.7 GHz auction from the allocation determination.

Given the ACMA has a new auction system, we consider that the power to delay the auction is necessary to respond to any auction system issues that arise shortly before the 3.7 GHz auction. The power can also be used if a delay is required for any other reason.

The ACMA is unable to predict how long it will take to resolve an issue that may arise, making it not feasible to provide a maximum timeframe to resolve unknown issues. A minimum 10-day delay will provide certainty to stakeholders that we will not reschedule the 3.7 GHz auction to commence too quickly, as it is our view that bidders will require some notice to bring together their auction teams, following a delay. The delay will also give the ACMA time to assess and resolve any issues ahead of the 3.7 GHz auction commencing.

Auction stages and rounds

Three submissions generally supported the ACMA's preferred view about the auction stages and rounds, while four did not provide comment.

ACMA view

Upon reviewing submissions, the ACMA notes that stakeholders were generally supportive of the proposed auction stages and rounds, and considers that no change to the allocation determination is required.

Allocation of leftover lots

Three submissions generally supported the ACMA's preferred view about the allocation of left-over lots, while four did not provide comment.

Views outlined in submissions included:

- > One submission supported direct allocation in the first instance to the licensee of an already existing frequency-adjacent spectrum licence, stating that that if the leftover lot were not taken up as a direct allocation, an assignment stage allocation should be the fallback where the leftover lot is automatically allocated to the person who is allocated the adjoining lot.
- > The submission also proposed that the price of the leftover lots should be the starting price for the adjacent 3.4 GHz lots, expressed in \$/MHz/pop. It further stated that all bidders would need to be informed prior to the pre-bidding stage of the primary stage of the 3.4 GHz auction which leftover lots, if any, were not directly allocated so that this can be taken into account in bidding decisions.
- > Another submission, while supporting the ACMA's preferred option for leftover lots to be available for direct allocation at a set price to the existing adjacent licensee before the 3.7 GHz auction commences, stated that given the limited utility of these lots on their own, they expect the price set by the ACMA for these lots to be low. In particular, they noted that given internationally harmonised channel bandwidths are typically in multiples of 5 or 10 MHz, the price for these 2.5 MHz lots should be lower than the starting price for the 5 MHz lots.

ACMA view

Noting that submissions were broadly supportive, no change was made to the exposure draft of the allocation determination.

Other matters

Stakeholders also commented on other relevant matters, which include the MSR, information policy, assignment stage settings, application and registration process, variation of prices and payment terms. Discussion of these matters follows.

MSR

Three submissions generally supported the ACMA's preferred view about the implementation of a MSR, although one of these suggested more flexibility for how an MSR is defined by a bidder. Four submissions did not provide comment.

Views outlined in submissions included:

- > One submission proposed an approach to the use of an MSR within the bidding system where bidders could set how excess demand should be dealt with. The submission cited an example where, if a bidder was to make an increase bid for 20 MHz (that is, 4 lots), they could specify that if the bid was not applied in full, then the bid should be taken to be a bid for, say, 10 MHz (2 lots), and not 15 MHz (3 lots). The submission asserted that such arrangements would facilitate bidder certainty and spectrum efficiency would be increased because bidders would not be left with unviable lot combinations.

ACMA view

The proposal outlined above would (in addition to increasing the risk of unsold lots due to each bidder's ability to determine how its bid should be partially applied if it cannot be applied in full) allow bidders to drive up the price of spectrum and withdraw with reduced commitment, thereby strategically disadvantaging other bidders.

The ACMA notes that the bid processing algorithm in the allocation determination has been successfully used in previous 2-stage generic lots auctions and is recommended by our auction system provider. We consider the bid processing algorithm is easy for interested stakeholders to understand and generates the fairest and most intuitive outcome.

On this basis, the ACMA considers that an MSR of 2 is appropriate.

Information policy

Three submissions generally supported the ACMA's preferred view about the implementation of an information policy, although one of these suggested that more information be made available. Four submissions did not provide comment.

Views outlined in submissions included:

- > a detailed proposal included in one submission for what kinds of information should be provided at particular times during the allocation process.

ACMA view

Upon reviewing the submissions, the ACMA notes general support for our proposal to release exact excess demand information to bidders at the end of each clock round and we intend to on maintain this approach.

In relation to one submission mentioned above that included a detailed proposal for what information should be provided at particular times during the allocation process, the ACMA disagrees with the rationale underlying the proposal, which was that the risk of anti-competitive behaviour is diminished where sequential auctions are conducted.

The ACMA did not propose to provide any information about the outcome of the 3.7 GHz auction before the commencement of the 3.4 GHz auction. In response to stakeholder feedback, the ACMA considered the prospect that bidders participating in both the 3.7 GHz auction and the 3.4 GHz auction may have additional information that could be used to formulate a bid strategy based on their own demand, compared to bidders participating only in the 3.4 GHz auction. The ACMA considers that releasing information about the outcome of the 3.7 GHz auction to all registered bidders ahead of the 3.4 GHz auction is unlikely to increase the risk of strategic behaviour in the 3.4 GHz auction.

Therefore, a change was made in the determination to provide for some information about the outcome of the 3.7 GHz auction to all bidders before the commencement of the 3.4 GHz auction.

Assignment stage settings

Two submissions generally supported the ACMA's preferred view for the assignment stage settings, although one of these suggested an alternative to the allocation of unallocated lots. One submission partially supported the ACMA's preferred view, and four submissions did not provide comment.

Views outlined in submissions included:

- > One submission proposed that where more than one combination of assignment bids meets the necessary criteria to constitute the winning combination of bids, instead of a pseudorandom tie-break process, there should be a 'first tiebreak method'. This method would use a combination that resulted in unallocated lots being located in a particular part of the 3.7 GHz or 3.4 GHz band, as appropriate. If there were still more than one combination of assignment bids after this preference is applied, then the pseudorandom process should be used.
- > This submission also stated that providing bidders only with contiguous assignment options, regardless of whether they are 'feasible' (that is, could be a winning option for a bidder, taking into account what has been allocated to other bidders), will significantly increase the amount of valuation work that each bidder will need to undertake before the assignment stage for no additional benefit. It proposed that information about the allocation of lots during the primary and secondary stages of an auction be provided to bidders before the assignment stage. Failing that, it proposed the same practice in previous auctions, and for only feasible assignment options to be offered to bidders during the assignment stage.
- > Another submission proposed that unallocated lots of a product should occupy the frequencies at the top of the product's frequency band.
- > Another submission proposed that, for the 3.7 GHz band, contiguity should be guaranteed, where applicable, with existing 3.6 GHz band licences.
- > Another submission recommended a change to the pricing formula, asserting that would be simpler and would yield the same benefits in terms of encouraging bidders to reveal their genuine valuation.

ACMA view

In relation to the proposal for a 'first tiebreak method', the ACMA consider that it is unlikely to be required. Additionally, the proposal would disadvantage a bidder who expresses an interest in the spectrum in the part of the band where the tie-break method prefers the unallocated lots to be located. Therefore, no change was made to the allocation determination.

In relation to providing bidders with only the feasible assignment options, auctions in Canada and the US involve the provision of all contiguous frequency range options, rather than only winnable or feasible options. This is because showing only feasible

options reveals information about the lots allocated to other winning bidders, which can be used by bidders to 'game' the assignment stage. We are conscious that showing all contiguous options will impose costs on bidders because they will have to develop bids on options that are not feasible. However, given the gaming risk associated with displaying only feasible assignment options, we consider it is worthwhile to display all contiguous options. On that basis, no change was made to the allocation determination.

In relation to the location of unallocated lots, the ACMA notes that not assigning frequencies to those lots increases flexibility for bidders in the assignment stage to bid for the assignment of spectrum the bidder values most highly. We consider that some bidders may express demand for frequency ranges adjacent to their existing spectrum licences in the 3.6 GHz band. Therefore, the relative value of frequency ranges may differ between bidders. We consider that the frequency range for any unallocated lots should be determined by the assignment stage bids, rather than be pre-assigned, and therefore no change has been made to the allocation determination.

In relation to guaranteeing contiguity with a bidder's existing licences, we cannot predict the business cases of bidders, and where they may prefer to be allocated spectrum. If such a rule was imposed, it may negatively affect bidders that prefer flexibility in determining the frequency location of their holdings.

The purpose of the assignment stage is to enable bidders to express their demand for the frequency location of the lots allocated during the primary and secondary stages. The ACMA considers that if a bidder values contiguity with existing licences in the 3.6 GHz band, then the bidder should bid accordingly in the assignment stage.

We note that this does introduce the risk that bidders may value spectrum based on fragmenting their competitors' licences. However, this risk is ameliorated by not providing bidders with only the feasible assignment options.

In relation to the pricing formula, the benefit of the nearest Vickrey core pricing is that it removes counter-intuitive outcomes where coalitions of bidders can potentially pay less than the opportunity cost that they impose. We acknowledge that it is more complicated to calculate than other pricing rules, often requiring the use of specialised software. However, we consider that the nearest Vickrey core pricing rule should continue to be used in these auctions.

Application and registration process

All submissions received about the proposed application and registration process were either generally supportive of, or silent on, the ACMA's preferred view.

ACMA view

Submissions were generally supportive of the proposed application and registration process and no change to the allocation determination is considered necessary.

Variation of prices

One submission generally supported the ACMA's preferred view in relation to the ACMA's ability to vary starting prices, two opposed the proposal and four did not provide comment.

Views outlined in submissions included:

- > One submission did not support the ACMA's power to vary starting prices, arguing that this power creates financial exposure risks for bidders if the starting prices increase. It stated that the rigorous corporate governance procedures and board

approvals required to participate in auctions follow a 'strict calendar cadence', which is incompatible with the ACMA's power to vary starting prices.

- > This submission further considered the power to change auction pricing after applications close to be a form of 'market manipulation' based on the ACMA's discovery of how much demand there is. The submission stated that the 3.4/3.7 GHz bands allocation process has already been delayed, and that there should be no further delays.
- > Similarly, another submission did not support the inclusion of the ACMA's power to vary key auction settings such as lot ratings, starting prices and application/registration deadlines, following the publication of the applicant information package. It asserted that this introduces uncertainty into the process.
- > This submission also stated that internal governance issues such as internal executive and board approvals (which may affect eligibility payments) would need to be restarted.
- > This submission said that the simplest way to ensure that the spectrum is attractive to bidders at the start of an auction process is to ensure that starting prices are sufficiently low to encourage participation.
- > A third submission supported the ACMA having the ability to vary prices before the eligibility deadline, as in previous auctions, provided that:
 - > such power can only be used to increase prices in exceptional circumstances that could not have been foreseen at the time starting prices were set
 - > deadlines are appropriately extended to allow applicants an appropriate opportunity to vary or withdraw their application.

ACMA view

While 2 submissions opposed the ability of the ACMA to vary key pricing parameters, we note that the power for the ACMA to change starting prices was first introduced in the 26 GHz auction in 2021. So far, this power has never been used.

The ACMA notes that if it were to remove this power from the allocation determination, the ACMA would have no flexibility to respond to changes in market circumstances after the auction is advertised. The intent of this power is for the ACMA to respond to market changes where the number of applicants is different to what was expected.

The ACMA considers that the power to change starting prices and/or set prices is an appropriate tool to respond to a major market change after applications open. Therefore, the ACMA has retained the ability to vary starting prices for the 3.4/3.7 GHz bands allocation process.

Payment terms

One submission generally supported the ACMA's preferred view on licence payment terms, one offered partial support, one did not support the ACMA's preferred views and four did not provide any comment.

Views outlined in submissions included:

- > One submission stated that, contrary to the ACMA's preferred upfront payment option, the option to elect to make instalment payments should be reinstated, as was the case for the 26 GHz auction in 2021.
- > This submission further proposed that the instalment payments be structured for equal payments over the licence length; for example, for 3.4 GHz licences, there would be 7 annual instalment payments of equal amounts, and for the 3.7 GHz licences, there would be 20 annual instalment payments of equal amounts. The submission also suggested the instalments for the 3.7 GHz licences be secured by a bank guarantee, as was the case in the 26 GHz auction.

- > A second submission stated that it would be preferable if payment by instalments were available to winning bidders in the auctions.

ACMA view

The Spectrum Pricing Review (available from the website of the Department of Infrastructure, Transport, Regional Development, Communications and the Arts) finalised in 2018, recommended that the ACMA should generally require upfront payments. The ACMA was not persuaded that instalment payments were warranted for these auctions. On balance, the ACMA considers it appropriate that the allocation determination include a single payment of winning prices. This payment would be required prior to licence issue and commencement.

Publication of bidder identities

One submission generally supported the ACMA's preferred approach to publishing bidder identities after the eligibility deadline (before the 3.7 GHz auction commences), one offered partial support, one did not support the ACMA's preferred view, and four submissions did not provide any comment.

Views outlined in submissions included:

- > One submission that did not support the ACMA's proposal stated that identity information should continue to remain private to registered bidders and be subject to confidentiality rules.
- > The submission also supported all registered bidders being informed, after the eligibility deadline, of all the registered bidders. It recommended that applicants should not disclose participation in the 3.4/3.7 GHz bands allocation process without the permission of other bidders.

ACMA view

As a response to issues raised in the submissions, the ACMA intends to publish the identities of all bidders after the conclusion of the auction when the results are released.

Allocation limits

In accordance with subsection 60(13A) of the Radiocommunications Act, the ACMA consulted with the ACCC about whether the allocation determination should impose allocation limits and, if so, the nature of those limits. The ACCC published its advice to the ACMA on allocation limits in August 2022. Before publishing its advice, the ACCC conducted its own consultation on allocation limits.

Based on the ACMA's analysis of 3.4/3.7 GHz bands and the allocation objectives, the ACCC's advice to the ACMA, and the responses to the ACCC's own consultation, we identified 3 options for the quantum of allocation limits for the purpose of consulting with stakeholders. This approach is consistent with guidance provided by the Office of Impact Analysis.

Issues for comment

The ACMA sought views on the following proposed options for allocation limits:

- > Option 1: 140 MHz limit in both metropolitan and regional areas in the cross-band frequency range of 3.4–3.8 GHz.
- > Option 2: 140 MHz limit in metropolitan areas and 160 MHz in regional areas in the cross-band frequency range of 3.4–3.8 GHz.
- > Option 3: No limits.

In particular:

- > We sought views on which of the allocation limits options, including the spectrum included in the cross-band frequency range, best achieves our identified objectives for this allocation (that is, by facilitating the efficient planning, allocation and use of the spectrum, supporting digital connectivity and investment in regional Australia, and promoting competitive markets).
- > We sought views on how the implementation of an allocation limit at auction may affect likely demand for the 3.4 GHz band and/or 3.7 GHz bands individually and whether demand would differ between the imposition of an allocation limit under Options 1, 2 and 3.
- > We sought views on weighing the different efficiency impacts of auction settings that seek to minimise the risk of unsold lots versus the risk of spectrum monopolisation.
- > We sought views on the matters relevant to the substitutability of other spectrum with 3.4/3.7 GHz bands, and the appropriate cross-band frequency range to apply to the allocation limits.
- > We sought views on a proposal to auction the 3.7 GHz and 3.4 GHz sequentially and its impact on the appropriate approach to applying allocation limits in the auction, if at all.
- > We sought views on a proposal to apply a metropolitan allocation limit (140 MHz) to Hobart and Rural TAS Upper in the 3700–3800 MHz frequency range. We note that for the 3.6 GHz band spectrum licence auction held in 2018, Hobart was included in the 'Tasmania' product, which was considered a regional area for the purposes of applying allocation limits in that auction.
- > We sought views on the short-, medium- and long-term costs and benefits if Options 1, 2 or 3 were implemented in this auction.

Responses to issues for comment and the ACMA's views

Submissions were divided on allocation limits. The ACMA received 6 submissions on allocation limits that provided different responses.

Using the 3.4–3.8 GHz frequency band as the cross-band frequency range would mean that existing spectrum licences in the 3.4 GHz and 3.6 GHz bands would be counted to assess whether a person could be allocated new spectrum licences in the 3.4/3.7 GHz bands without exceeding the allocation limits. Any right to use spectrum under a transmitter licence, under a class licence, or under an authorisation made under section 68 of the Radiocommunications Act, would not be counted.

The following responses were received from stakeholders about the proposed allocation limit options, and were considered in the assessment of net benefits for each option:

- > One submission opposed all the allocation limits options proposed in the consultation paper, as they would enable any bidder to acquire more than 35% of spectrum-licensed holdings in the 3.4–3.8 GHz band in a particular geographic area. The submitter expressed an ongoing concern about the potential for bidders to monopolise spectrum in regional areas. They also stated that the proposed options placed undue emphasis on the need to avoid unsold lots, and instead proposed 140 MHz and 100 MHz limits in metropolitan and regional areas, respectively. The submission supported the proposed 3.4–3.8 GHz cross-band frequency range.
- > Another submission expressed a first preference for Option 3, stating that allocation limits are not necessary, due to lack of evidence that bidders demonstrate anti-competitive behaviour without allocation limits. Failing that, however, the submission strongly supported Option 2 if limits must be imposed in the allocation process. They considered the higher limit in regional areas in Option 2 (compared to Option 1) would enable bidders to potentially bid in both bands in a sequential auction and may reduce the likelihood of unsold lots. The submission also supported the proposed 3.4–3.8 GHz cross-band frequency range.
- > A third submission proposed that the 2.3 GHz band be included in the cross-band frequency range of the allocation limits. As a weak second preference, the submission proposed a 120 MHz limit in Sydney and Melbourne and a 160 MHz limit in all other areas, using the 3.4–3.8 GHz cross-band frequency range.
- > A fourth submission supported Option 2 (140 MHz in metropolitan areas and 160 MHz in regional areas). This submission considered this option appropriately accounted for demand in regional areas and balanced the risk of unsold lots with the risk of monopolising spectrum holdings. The inclusion of all spectrum below 6 GHz in the cross-band frequency range was supported in this submission.
- > A fifth submission supported Option 1 and suggested it should also include any future AWLs in the 3.8–4.0 GHz frequency range. The submission asserted that this would discourage bidders for spectrum licences from taking up AWL options to build their population profile at the expense of genuine LA WBB opportunities.
- > A sixth submission proposed 100 MHz limits in all areas to further encourage competition by limiting established operators' ability to amass spectrum and also supported a 3.4–4.0 GHz cross-band frequency range.

Cross-band frequency range

The allocation limits take into account existing spectrum licences in the cross-band frequency range of 3.4–3.8 GHz.

As outlined in our consultation paper, following receipt of the ACCC advice, we conducted an analysis of the technical characteristics of the spectrum, complexity of the application of allocation limits, and approaches used in other jurisdictions. We have further considered these matters in light of the submissions received.

Spectrum substitutability is an important consideration in setting the cross-band frequency range. If spectrum licences are in spectrum that is 'substitutable', that

means they can generally be used for the same purpose and in the same manner. Accordingly, if a person can use spectrum in one band, there is a case to say that that spectrum should be counted when assessing whether the person can be allocated spectrum in another, substitutable band.

In considering the issue of spectrum substitutability, we note that there are different degrees of similarities and difference between bands. In this context, the ACMA agrees with the analysis provided in one submission that spectrum in the 2.3 GHz band (2302–2400 MHz) could be considered broadly substitutable with spectrum in the 3.4–4.0 GHz band. The ACMA agrees that 2.3 GHz band spectrum is more directly substitutable for the 3.4–4.0 GHz band than other ‘mid-band’ spectrum (namely, the 2.5 GHz band (2500–2570/2620–2690 MHz), the 2 GHz band (1920–1980/2110–2170 MHz) and the 1800 MHz band (1710–1785/1805–1880 MHz)), due to the similarity in frequency range, large bandwidths held by licensees, and time division duplex (TDD) operation. However, we are of the view that other mid-band spectrum can be used to varying degrees to provide similar services and are also, to differing extents, substitutable with the 3.4–4.0 GHz band.

While the 5G equipment ecosystem is currently more mature in the 3300 MHz to 3800 MHz frequency range, equipment availability for other mid-band spectrum is rapidly increasing and is expected to continue to do so. The ACMA therefore considers that any near-term differences in equipment availability across these bands are of limited relevance, which supports the view that in the medium to longer term, these bands will become more substitutable from an equipment ecosystem perspective.

While acknowledging that the 2.3 GHz band (and other bands to varying degrees) is broadly substitutable for the 3.4–4.0 GHz band, the ACMA has considered relevant technical, practical and policy matters that would arise if the 2.3 GHz band (or other bands) were included in the cross-band frequency range.

Approaches used in other jurisdictions are of some assistance. Within the last 2 years, where 3.4–3.8 GHz spectrum has been auctioned and an allocation limit imposed, the limit has only been applied within the frequency range on offer (see also Belgium’s 2022 auction of 3410–3800 MHz, Denmark’s 2021 auction of 3410–3800 MHz, France’s 2020 auction of 3490–3800 MHz and Sweden’s 2021 auction of 3400–3720 MHz). This contrasts with the UK’s 2016–17 spectrum allocation of 3410–3480 MHz and 3500–3580 MHz frequency ranges, which accounted for all spectrum-licensed holdings in any band and limited each bidder to acquiring licences so that the bidder did not have more than 37% of all currently licensed spectrum.

If spectrum licences in any other mid-band spectrum were to be counted for the purposes of the allocation limits, the misaligned geographic areas of existing licences in the 2.3 GHz band (and further misalignment in some other mid-bands) with the 3.4/3.7 GHz bands would substantially increase the complexity of the allocation limits and require reconsideration and potential redesign of the allocation limits, as well as other auction settings. While the ACMA could partially address this misalignment issue by adopting further disaggregation of the products available at auction, this would increase the need for interference management measures around those geographic boundaries (increasing the risk of loss of utility around those boundaries if different licensees obtained different lots) and therefore potentially comprising the efficient use of the spectrum.

In the context of the allocation process, additional product disaggregation makes it more difficult for bidders to obtain geographically contiguous areas, and introduces further complexities into an already complex process, making bid strategy formulation for bidders and implementation by the ACMA more complex. Should any additional frequency ranges be considered for inclusion in the allocation limit, this would require

the ACMA to conduct a further detailed consideration of both the quantum of the allocation limit and aspects of the auction design, supported by further consultations, which would delay the commencement of the auction.

The inclusion of other spectrum in the cross-band frequency range would lead to significant additional auction complexity and a likely loss in the utility of the spectrum if different licensees obtain different lots. As such, the ACMA has decided that existing spectrum licences in the 2.3 GHz band, or in other mid-band spectrum, should not be considered for the purposes of the allocation limits, other than those in the 3.4–3.8 GHz frequency band (which surround and adjoin the 3.4/3.7 GHz bands, and may be combined with the licences to be issued in the 3.4/3.7 GHz bands to form larger contiguous holdings).

Quantum of allocation limit

The ACMA has decided to implement an allocation limit during the allocation process. As a result of the allocation of spectrum licences in the 3.4/3.7 GHz bands, no group of persons (consisting of a person and all the person's associates) may, in total, use more than 140 MHz of spectrum in metropolitan areas in the 3.4–3.8 GHz frequency range, and 160 MHz in regional areas in the 3.4–3.8 GHz frequency range.

As outlined in the consultation paper, an allocation limit that restricts demand too much may impede the efficient allocation and use of the spectrum by increasing the risk that spectrum will be left unsold following the allocation. Conversely, an allocation limit that is too relaxed may enable one bidder to obtain all or a significant amount of the spectrum on offer, which as noted by the ACCC may '... starve competitors of [this] essential input, and erode competitive vigour in the relevant markets'.²

The appropriate allocation limit will be informed by how well it supports the objectives to facilitate the efficient planning, allocation and use of the spectrum, support digital connectivity and investment in regional Australia, and promote competitive markets.

The ACMA had regard to the other objectives in the MPS but considered they did not significantly influence the decision on allocation limits.

In addition to these objectives, we consider that the application of allocation limits should be practical and avoid imposing undue complexity on the allocation. We note that all options posed in the consultation paper, while complex, were able to be practically applied.

In response to the ACMA consultation, some stakeholders proposed alternative allocation limits options to those consulted on. One submission suggested a more restrictive limit in regional areas, and another suggested a more restrictive limit in Sydney and Melbourne only.

Our views on alternatives to the options presented at consultation are:

- > There is little evidence to support a tighter limit in metropolitan areas (if allocation limits are to apply). We consider a 140 MHz limit in the 3.4–3.8 GHz frequency range for metropolitan areas strikes the correct balance between promoting competitive markets and supporting an efficient allocation of the spectrum by mitigating the risk of unsold lots.
- > There is little evidence to support imposing tighter limits in regional areas. As discussed below, the presence of unsold lots will not support the efficient allocation

² ACCC, *Allocation limits advice for the 3.4 GHz and 3.7 GHz spectrum allocation*, p. 17

of the spectrum. Unallocated spectrum may present a barrier to the defragmentation of the 3.4 GHz band.

Given Option 3 is the benchmark policy option (that is, the option with no regulatory intervention in allocation limits), the following provides an analysis of Option 3 first. Options 1 and 2 will then be compared with Option 3. The ACMA's assessment of each of the 3 options for allocation limits is summarised in Table 1.

Table 1: Assessment of objectives against allocation limits options

Objective	Option 3	Option 1	Option 2
Objective 1: Supporting the efficient planning, allocation and use of the spectrum	Fair	Fair	Good
Objective 2: Supporting digital connectivity and investment in regional Australia	Poor	Fair	Good
Objective 3: Promoting competitive markets for the long-term benefit of consumers	Poor	Good	Good

Option 3: No limits

If Option 3 was implemented, there would be no allocation limits applied in the 3.4/3.7 GHz allocation process. In this case, the issue of spectrum licences in the 3.4/3.7 GHz band is taken to be an acquisition by the person of the asset of another person, and conduct engaged in by the person, for the purposes of section 50 of the Competition and Consumer Act (see section 71A of the Radiocommunications Act). This means that if the issue of a spectrum licence would have the effect, or be likely to have the effect, of substantially lessening competition in any market, the issue of the licence is prohibited by section 50 of the Competition and Consumer Act. The ACCC is responsible for enforcing section 50 of the Competition and Consumer Act.

While section 50 of the Competition and Consumer Act is a critical element of the regulatory framework that supports competitive markets, relying on it for use in the allocation and issue of spectrum licences introduces significant risks into the processes. There is a degree of uncertainty about the circumstances in which section 50 may be taken to be contravened. Stakeholders may differently perceive whether the issue of a licence would substantially lessen competition in a market, which may create uncertainty around the market conditions for an allocation process under section 60 of the Radiocommunications Act. In such an uncertain bidding environment, each bidder's own approach to risk of a contravention of section 50 of the Competition and Consumer Act may impact their bidding strategies.

Allocation limits provide relative certainty about the regulatory parameters for prospective bidders prior to auction, which provides a stronger foundation for informed bidding decisions. Allocation limits do not prevent the operation of section 50 of the Competition and Consumer Act.

In addition, allocation limits (that are set before the start of the auction) enable the ACMA to be guided by the relevant competition-related allocation objective, which in this case is 'promoting competitive markets' under the MPS. Section 50 of the Competition and Consumer Act is about the reduction in existing competition, not the promotion of new competition. The ACMA considers that allocation limits can often be used to promote competition, not just prevent the reduction of competition.

An auction without allocation limits promotes competitive tension in the auction, in turn promoting the opportunity for all lots to be allocated. Spectrum remaining unsold

following the auction is unlikely to be allocatively efficient. However, an outcome where competition is not promoted (for example, if all spectrum is purchased by one party), may also be an inefficient allocation. As noted by the ACCC in its advice to the ACMA:

... auction settings such as allocation limits can help promote competition and economic efficiency in markets that rely on spectrum by giving operators an opportunity to acquire sufficient spectrum which, when used with existing holdings, allows them to compete effectively in the downstream markets. When the operators can compete effectively, this promotes good outcomes for consumers, in terms of choice, price and quality of services available.³

Option 3 poses another risk where larger bidders may acquire spectrum for the purposes of keeping it from their competitors. As such, we consider that in terms of achieving objective 1, Option 3 can only be considered 'fair'. In relation to the assessment against objectives 2 and 3, we considered the following matters.

One submission strongly supported Option 3 on the grounds that allocation limits are not necessary due to a lack of evidence of bidders' anti-competitive behaviour in the absence of allocation limits. This contrasts with another submitter's opposition to any allocation limits (including Option 3) that would enable any bidder to acquire more than 35% of spectrum-licensed holdings in a particular geographic area. Other submissions did not express support for Option 3.

The ACMA considers that an allocation limit is necessary to achieve the objectives of this allocation. The presence of an allocation limit provides an opportunity for improved competition at auction, and consequently provides an opportunity for improved competition in the mobile and fixed broadband markets. As outlined in the ACMA's consultation paper, Option 3 could prevent some interested bidders from being issued licences in regional areas, which would allow them to roll out services in competition with existing regional providers. This would work against objectives 2 and 3.

The ACMA is also aware that significantly imbalanced holdings as a result of this auction may have long-term impacts on competition in downstream markets, noting some of the spectrum licences to be issued may be for a period of 20 years.

As such, the ACMA considers Option 3 should be assessed as 'poor' against objectives 2 and 3.

Option 1: 140 MHz limit in both regional and regional areas, in the cross-band frequency range of 3.4–3.8 GHz

On 1 August 2022, the ACCC provided its advice to the ACMA on the 3.4/3.7 GHz bands allocation, and stated that limits are required in order to promote competition in downstream mobile and fixed wireless broadband markets post-auction.⁴ The ACCC's considerations that an allocation limit of 140 MHz is in the long-term interests of end users, which complements the ACMA's objectives for this allocation (particularly objective 3), informed the basis for Option 1 proposed in the ACMA's consultation paper.

Compared to Option 3, this option increases the risk of unsold spectrum, which the ACMA considers would work against objective 1 (supporting the efficient planning, allocation and use of the spectrum). This option may suppress aggregate demand, resulting in insufficient competitive tension to support an efficient allocation of spectrum. As noted in the consultation paper, the ACMA considers the risk of unsold lots is greater in regional areas under Option 1. If this risk eventuates, it may make subsequent 'defragmentation' activities (that is, the rationalisation of spectrum licences

³ ACCC advice, p. 6.

⁴ ACCC advice, p. 17.

to make the licences held by a single person contiguous to the greatest extent possible) more difficult, particularly in the 3.4 GHz band (3400–3575 MHz). Submissions to our consultation process did not alleviate concerns regarding this risk to the efficient allocation of spectrum. The ACMA recognises that there are efficiency benefits from licensees holding geographically contiguous spectrum, including the improved ability to deploy services near licence boundaries. Spectrum that remains unallocated has the potential to further fragment holdings. Option 1, therefore, has a greater risk of unsold lots and therefore of contributing to fragmentation, which poses a risk to the efficient use of spectrum in the long term. As such, the ACMA considers Option 1 should be assessed as ‘fair’ against assessment objective 1.

Given the risk of unsold lots, and the extent of fragmentation, are both greatest in regional areas, this option may also impact the achievement of objective 2. Spectrum that is not efficiently allocated, and where there are fragmented holdings, risks suboptimal deployment of regional communications networks. As such, the ACMA considers Option 1 should be assessed as ‘fair’ against objective 2.

The existing spectrum licensees in the 3.4–3.8 GHz band are Optus, TPG and Telstra (the mobile network operators, or MNOs) and NBN Co. In its advice, the ACCC considered that 60 MHz in the 3.4–3.8 GHz band is sufficient to realise the benefit of early 5G services over 4G services, and that all MNOs have at least this amount in all capital cities, but not necessarily in regional areas.⁵ Comparatively, NBN Co has at least this amount in 3.4 GHz regional areas, but not necessarily in capital cities.⁶ The ACCC stated that MNOs consider spectrum available in this allocation process to be critical to providing quality 5G services in the medium- to long-term.⁷ Submissions to the ACMA’s consultation from the incumbent licensees reaffirmed that the spectrum on offer is crucial to expanding the deployment of 5G services.

Option 1 provides the best opportunity to promote competition in the downstream mobile and fixed broadband markets. As such, the ACMA considers Option 1 should be assessed as ‘good’ against assessment objective 3.

Option 2: 140 MHz limit in metropolitan areas, and 160 MHz limit in regional areas, in the cross-band frequency range of 3.4–3.8 GHz

Under this option, the ACMA proposed a less-restrictive limit of 160 MHz in regional areas. The following considerations were taken into account when assessing Option 2 against objectives 1 and 2.

One submission strongly supported Option 2, if limits had to be imposed at the allocation process, noting that the higher limit may promote bids in both bands in a sequential auction, and may reduce the likelihood of unsold lots. Another submission considered Option 2 to account for demand in regional areas and balance the risk of unsold lots with the risk of monopolisation of holdings. More broadly, the ACMA considers that the views expressed in submissions demonstrate there is some uncertainty about overall demand for regional spectrum, which suggests there is a higher risk of unsold lots under Option 1 compared to Option 2. Unsold spectrum is inefficient in the sense that it is an unused resource and also may obstruct potential future defragmentation activities.

Option 2 also provides more of an opportunity for MNOs to build upon their existing spectrum licences in the 3.4–3.8 GHz band, which may improve digital connectivity in

⁵ ACCC advice, p. 15

⁶ ACCC advice, p. 14–15.

⁷ ACCC advice, p. 15.

regional areas. Given these points, the ACMA considers Option 2 should be assessed as 'good' against assessment objectives 1 and 2.

Option 2 would allow one party to obtain 40% of the spectrum in the 3.4–3.8 GHz band in regional areas.⁸ If this were to eventuate, this may have the effect of reducing the capacity of another person to obtain their ideal quantum of spectrum in the 3.4–3.8 GHz band. While this may be considered to be counter to the objective of promoting competition compared to Option 1, we consider that the effect is likely to be only marginal, given the relatively small difference between 140 MHz and 160 MHz across the wider 400 MHz in the band (a change from 35% to 40% of the total spectrum-licensed spectrum in the 3.4–3.8 GHz band).

Furthermore, the ACCC's chief concern related to the possibility that one person would be able to monopolise the spectrum in this allocation, and starve competitors of this essential input, which is why it advised in support of an 'anti-monopolisation limit'. However, given the likely demand for this spectrum, we do not consider an outcome where one party obtains 40% of the 3.4–3.8 GHz band in regional areas to be a monopolistic outcome for this allocation. As such, we consider that a limit of 160 MHz in regional areas is still likely to promote competition. The ACMA therefore considers that Option 2 should be assessed as 'good' against assessment objective 3.

ACMA view

Taking into account the consideration of the views expressed during the consultation, as well as the ACMA's own analysis of relevant technical and policy matters, the ACMA considers a less restrictive allocation limit in regional areas (Option 2), with a cross-band frequency range of 3.4–3.8 GHz, will better facilitate an efficient allocation of spectrum and fulfil the ACMA's identified objectives for this allocation process.

Given the objectives of the allocation, and the impact that unsold spectrum may have on subsequent defragmentation processes, the ACMA has a low tolerance to the risk of unsold lots. In reaching this decision, the ACMA has considered how to best balance the objectives of supporting efficiency and promoting competition.

As noted above, without an allocation limit, the consequent negative impact on competition in downstream markets may only be ameliorated through use of the ACCC's powers under section 50 of the CCA. To provide industry with certainty, the ACMA considers that it is important to design allocation settings so as to guard against monopolistic outcomes.

The ACMA considers that setting a limit of 40% of cross-band holdings in regional areas is appropriate to mitigate the risk of unsold lots, while guarding against a monopolistic outcome. The ACMA acknowledges that stakeholders have presented differing views about which option best addresses the identified allocation objectives. However, we consider that the less-restrictive limit in regional areas enhances the likelihood of an efficient allocation – while also promoting competition in downstream markets – and supports digital connectivity and investment in regional Australia.

⁸ In some regional areas, only the 3.4–3.75 GHz band will be allocated for spectrum licensing. In these regions, a limit of 160 MHz would equal 45.7% of the spectrum available for spectrum licensing.

Evaluation of the allocation limits

The ACMA's decision regarding allocation limits is contained in the allocation determination.

The number of winning bidders and the extent of spectrum licences issued in the 3.4/3.7 GHz bands will provide an early indication of the success of the implemented allocation limits in relation to the efficient allocation of spectrum (which is part of objective 1). In the longer term, the degree of regional fragmentation in these bands and improved competition may be related to appropriately set allocation limits (objectives 2 and 3). However, we note the many other factors that contribute to achieving these outcomes, which relate to market developments and commercial decisions that are outside the remit of the ACMA.

Through the ACMA's annual five-year spectrum outlook (FYSO), the ACMA has an ongoing process to assess the effectiveness of the Australian spectrum management framework. We will monitor the implementation and ongoing use in the band and respond to changing uses or demand as part of our continual planning process outlined in the yearly FYSO updates. This will include scanning the domestic and international environments.

The ACCC's annual [Communications Market Report](#) examines competitive safeguards of the industry and the prices paid by consumers, which are 2 aspects that allocation limits seek to improve. Though it is difficult to assess the impact of allocation limits alone, the ACCC is equipped to monitor the overall competition of the industry.

Insignificant holdings threshold

The nature of the existing spectrum licences in the cross-band frequency range (3.4–3.8 GHz) is such that there is little uniformity between the parts of the spectrum and geographic areas in the existing spectrum licences, and the parts of the spectrum and geographic areas that make up the 3.4/3.7 GHz bands. Where there is only a small overlap between an existing spectrum licence and a part of the 3.4/3.7 GHz bands, counting the spectrum licence in that overlap area can result in disproportionate or counter-intuitive results when applying the allocation limits. Accordingly, the ACMA proposed an 'insignificant holdings threshold' of 30%. That means, if a bidder's marginal existing holdings cover less than 30% of the population of the whole geographic area of a product, those marginal existing holdings will be disregarded for the purpose of applying the allocation limits.

One submission generally supported the ACMA's preferred approach to the insignificant holdings threshold. Two other submissions did not support the preferred view and 4 submissions did not provide any comment.

Views outlined in submissions included:

- > One submission proposed that the insignificant holdings threshold should be 50% of the population of a product. The submission stated the proposed 30% threshold may deny a bidder from acquiring spectrum to serve 70% of the population in that licence area, which would effectively deny that population from receiving higher quality services or more competition from providers that doesn't align with objectives to promote competition
- > A second submission proposed that the insignificant holdings threshold should be 15% as was applied in the 3.6 GHz band auction in 2018, noting that setting the threshold at 30% will further entrench misaligned holdings across the band.
- > This second submission also considered that the licensees of existing spectrum licences in the 3.4 GHz band should be encouraged to increase their holdings in misaligned areas, creating the benefit of greater geographical alignment in the 3.4–3.8 GHz band and providing more incentive to defragment licences.

ACMA view

The ACMA invited stakeholders to comment on the proposed terms for the insignificant holdings threshold. The ACMA proposed to implement an insignificant holdings threshold of 30%. That is, existing holdings that encompass more than 30% of the population of a product available at auction will be disregarded for the purposes of applying the allocation limits.

Based on the ACMA's calculations, there is no appreciable difference in demand able to be expressed by existing spectrum licensees between a 30% threshold and a 50% threshold. In the few instances where more existing holdings would be disregarded under the 30% threshold, the existing licensee typically already has expressible demand that exceeds supply for the product. There are also few differences in expressible demand for incumbent licensees with a 15% threshold. We do not consider that a change to either 50% or 15% would result in a better outcome in terms of the policy intent of allocation limits.

On that basis, a change to the threshold would have a limited impact on expressible demand and since existing spectrum licences in the 3.4–3.8 GHz band largely have consistent expressible demand across geographically related products, we propose no change to the 30% insignificant holdings threshold.

Types of holdings to be considered for the purposes of allocation limits

In relation to the type of holdings to be considered, we proposed to only count spectrum licences where a person is the licensee. Any right to use spectrum under a transmitter licence, under a class licence, or under an authorisation made under section 68 of the Radiocommunications Act, would not be counted.

One submission generally supported the ACMA's preferred approach to the types of holdings to be considered for the purposes of the proposed allocation limits. A further submission did not fully support the ACMA's preferred view, and 5 submissions did not provide any comment.

Views outlined in submissions included:

- > One submission considered that the ACMA's proposed approach of not taking into account any third-party authorisations under section 68 of the Radiocommunications Act for the purposes of the allocation limits would undermine the utility of the allocation limits.
- > Another submission noted that, to maximise the amount of 3.8–3.95 GHz band available to operators of LA WBB systems, AWLs issued in the 3.4–4.0 GHz band should count towards an assessment of allocation limits.
- > A third submission recommended that the allocation limits proposed should also include limits on the AWLs that will apply to adjacent bands. To ensure a competitive market is maintained, it is important that bidders for spectrum licences cannot make up any deficiencies in their plans by taking up AWL options to build their population profile at the expense of genuine LA WBB opportunities

ACMA view

The ACMA's view is that taking third-party authorisations into account may detract from certainty for bidders at auction as to the application of the allocation limits:

- > Third-party authorisations may be made on different terms and confer different rights on the recipient, when compared to the rights of a spectrum licensee.
- > The geographic areas in a third-party authorisation may not align with the product areas for the 3.4/3.7 GHz bands allocation process.

- > For third-party authorisations that have been subject to regulatory consideration under the Competition and Consumer Act, allocation limits may not be the appropriate tool to remediate competition concerns.

On that basis, the ACMA has made no changes to the types of holdings to be considered for the purposes of the allocation limits.

Exclusions from allocation limits

In relation to the exclusions from the allocation limits, we proposed to exclude 'leftover lots' and a part of the 3.4/3.7 GHz bands known as the Regional WA Central Middle product from the allocation limits. 'Leftover lots' are smaller parts of the 3.4/3.7 GHz band that are adjacent to existing spectrum licences, and that existing spectrum licensees may apply to have directly allocated to them. Because these small parts are of very limited use on their own, the ACMA proposed for them not to be counted.

The marketing plan divides the 3.4/3.7 GHz bands into 'products', characterised by frequency band and geographic region. The nature of the Regional WA Central Middle product is such that, even applying an insignificant holdings threshold of 30%, counting it towards an assessment of the allocation limits would result in disproportionate or counter-intuitive results. Because of this, the ACMA proposed for the product not to be counted. Of the 7 submissions received, 3 were generally supportive of the ACMA's approach to allocation limits, with one of these submissions stating that the ACMA might also like to consider not applying allocation limits to residual lots (that is, if there are unallocated lots of a product after the end of the primary stage as a result of insufficient demand).

Affiliates test

Two submissions partly supported the ACMA's proposed approach to an affiliates test, and one did not support the ACMA's proposed approach. Four submissions did not provide comment.

- > One submission supported the addition of a requirement that applicants make a statement that no conduct that would contravene the cartel provisions of the Competition and Consumer Act had occurred; however, if this approach was adopted, the submission said there was no benefit in continuing to impose the associates disclosure process on applicants.
- > This submission stated that it considered the purpose of the associates process is to ensure allocation limits are not exceeded by preventing parties that are closely related from participating in an allocation process as separate bidders; in other words, it is to prevent 'proxy bidding' being used to circumvent the allocation limits. The submission suggests that the proposed statement should also incorporate an express promise to the effect that proxy bidding would not occur during the allocation process. The submission considered that this would be in line with the Minister for Communications' Statement of Expectations for the ACMA, specifically that the ACMA pursues opportunities to simplify requirements or reduce burden, particularly for parts of the industry with lower-risk operations
- > A second submission considered that the proposed approach to affiliations does not reflect the current market circumstances. It contended that if a narrow view of affiliations was taken for the purposes of the 3.4/3.7 GHz bands allocation process, it would undermine the integrity of the process, due to the potentially high levels of cooperation between potential bidders for existing spectrum licences that would be substitutable with the licences to be issued in the 3.4/3.7 GHz bands.
- > This submission suggested that third-party authorisations under section 68 of the Radiocommunications Act for existing licences in the 3.4–3.8 GHz band should cause the licensee and the third party to be associates and, therefore, affiliated for the purposes of the allocation determination.

- > A third submission stated that it was important to ensure that affiliated applicants would not be able to bid separately and would be treated jointly for the purpose of the allocation limits. This submission also stated that the test for whether 2 applicants were affiliated should be broader, to better reflect existing market circumstances and agreements between potential applicants.

ACMA view

We note that the associates process is necessary for the purposes of ensuring licences are not allocated in excess of the allocation limits. A secondary role of the associates test is to identify associated parties and therefore remove the possibility that they can collude in relation to an allocation process.

However, the associates process (which is primarily for the implementation of allocation limits) should not be confused with collusion provisions under the Competition and Consumer Act (which apply more broadly). One way the ACMA has strengthened the collusion provisions is to impose confidentiality requirements on bidders and their related persons. The ACMA consulted on applicants making a further positive statement about not having engaged in collusive conduct, which is prohibited by the Competition and Consumer Act, as part of the application process.

Given the different focuses of the 2 proposals, the ACMA is retaining the definitions of associates and affiliations included in the allocation determination for the purposes of the allocation limits.

Collusion provisions

In response to submissions on the draft allocation and technical instruments for the 3.4/3.7 GHz spectrum auction, the ACMA undertook a further consultation on proposed collusion provisions from 15–22 May 2023.

Issues for comment

We proposed to require those seeking to apply to participate in the auction to give the ACMA a deed of acknowledgement that contained the following clause:

1 Collusion and Anti-Competitive Conduct

1.1 The Applicant warrants that the Applicant, and, where acting on behalf of the Applicant, its officers, employees, agents, contractors, subcontractors and associates, have not engaged in any conduct that would, or might reasonably be construed to, contravene any provision in Division 1 of Part IV of the *Competition and Consumer Act 2010* in relation to the allocation determination or the allocation of spectrum licences in the 3.4/3.7 GHz bands.

1.2 The Applicant further warrants that if, from the date of this deed to the date of publication of allocation results under [section 90] of the Determination, the Applicant is put on notice of any actual or suspected contravention described in 1.1 above, the Applicant will notify the ACMA in writing of that contravention, within 48 hours of such notice.

1.3 The Applicant acknowledges and agrees that the ACMA may give documents or information, including confidential documents and confidential information, to a person where that information may be relevant to any actual or suspected contraventions described in 1.1, without notice to the Applicant. Without limiting this clause, the ACMA may give documents or information to the Australian Competition and Consumer Commission and disclose any document or information in relation to that contravention. This clause does not limit or affect the exercise of any function or power the ACMA has to disclose documents or information to any person.

The proposed wording above was prepared separately from the entire deed. An applicant's obligations and responsibilities in relation to the deed will need to take the entire deed into account, and it was noted the proposed text may be slightly modified to adapt better to the remainder of the deed.

Proposed form and timing of the requirement

We considered the most suitable approach for imposing the collusion requirement on an applicant. The options considered were:

1. a statement in a separate form; or
2. an obligation in the deed of acknowledgement.

Responses to issues for comment and the ACMA's views

Form and timing of the requirement

The ACMA received 3 public submissions to the collusion provision consultation. Two of these supported the inclusion of the statement in the deed of acknowledgement form but suggested the following changes to the statement:

- > Replacing 'might' by 'would' in this text: '... have not engaged in any conduct that would, or might reasonably be construed to contravene any provision in Division 1 of Part IV of the *Competition and Consumer Act 2010* ...'. This submission also suggested 5 working days for a right-of-reply to cartel conduct notifications.
- > Providing clarity around the meaning of 'suspected contravention'.
- > Replacing the reference to '48 hours' with '2 working days'.
- > Specifying that the ACMA may give confidential information only to the ACCC.

The third submission did not provide comment on whether there should be a separate form or an obligation in the deed of acknowledgement. This submission stated that:

- > they did not agree that the statement was necessary
- > the use of 'might be reasonably construed' in the text is unclear.
- > they had concerns about the obligation to notify the ACMA in writing of any actual or suspected contravention within 48 hours. They asserted that this obligation could interfere with an applicant's ability to seek immunity in respect of cartel conduct under the ACCC Immunity and Cooperation Policy for Cartel Conduct (October 2019) (ACCC Immunity Policy).

ACMA view

Following consideration of submissions to the consultation and further ACMA analysis, we consider that existing protections against collusive behaviour are sufficiently robust without the need for the additional affirmation.

Technical instruments

Issues for comment

Coexistence of radio altimeters with wireless broadband: Alongside the consultation paper, we published a report on coexistence between radio altimeters and WBB. Published at Appendix A of the consultation paper was a list of separate questions aimed at eliciting evidence to assist us in making final decisions around the technical framework to manage coexistence between wireless broadband and radio altimeters.

Spectrum licence technical framework: We sought comments on the proposed technical framework, including relevant aspects of draft RALI MS47 as they relate to spectrum licences.

Responses to issues for comment and the ACMA's views

Ten submissions commented on the proposed changes to the 3400–3800 MHz spectrum licence technical framework. Submissions were generally supportive of the proposals, but there were some other substantive proposals offered and editorial suggestions.

Coexistence of radio altimeters with wireless broadband

A summary of submissions as well as the outcomes of the consultation are provided in the [Wireless broadband and radio altimeter coexistence outcomes paper](#) (the RA outcomes paper).

Technical conditions on the spectrum licence (as detailed in the marketing plan)

- > Submissions identified a possible error to the spurious emission limits detailed in Table 4 at Schedule 6 of the Marketing Plan. 3GPP specifications define a limit of -30 dBm/MHz for spurious emissions in the 1–19 GHz frequency range. However, Table 4 specified a limit of -36 dBm/MHz.
- > The mobile industry supported the ACMA's preferred approach to not include the clause in Licence Schedule 4 of the sample licence that references the proposed new Part 13 of the [Radiocommunications Advisory Guidelines \(Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band\) 2015](#) ('RAG Tx'). The clause and new Part provided guidance on the management of interference to aeronautical radionavigation services. It was argued that there is no such clause on existing 3.4 GHz spectrum licences. Applying it to new licences in the 3.7–3.8 GHz frequency range could impact any future spectrum licence defragmentation process.
- > One submission recommended that the synchronisation condition on the sample licence at Schedule 6 of the Marketing Plan be expanded to include reference to 3GPP specifications related to 5G. This includes reference to a suitable 5G special subframe configuration and uplink-downlink configuration case.

ACMA view

We note that submissions were generally supportive of the proposed conditions on the spectrum licence.

After considering consultation submission we have decided to adopt those technical conditions with the following changes:

- > The spurious emissions limit for the 1–19 GHz frequency range in Table 4 at Schedule 6 of the Marketing Plan was corrected to align with 3GPP specifications.
- > To align with decisions in the RA outcomes paper, the following 2 conditions are included at the end of Licence Schedule 4 of the sample spectrum licence:
 - > Radiocommunications transmitters operating in the 3700–3800 MHz frequency range not to exceed a total EIRP of 72 dBm/5 MHz.
 - > A spectrum licensee must provide protection in the manner set out in Part 13 of the RAG Tx, or any instrument made under section 262 of the Radiocommunications Act that replaces those guidelines, as in force from time to time. In summary, spectrum licensees will be required to ensure that radiocommunications transmitters in the 3700–3800 MHz frequency range operate in a manner that is consistent with the requirements for area-wide licences (AWLs) under [RALI MS47](#) regarding radio altimeters. RALI MS47 describes interim mitigations for radio altimeters that apply until 31 March 2026.

We considered the proposal to include reference to 3GPP specifications related to 5G in the synchronisation condition at Licence Schedule 4 of the sample spectrum licence. However, it is our view that Note 1 associated with this condition already addresses this issue. Therefore, no changes are required.

To provide a consistent technical framework across the 3400–3800 MHz band, we will soon seek to update relevant technical conditions on existing 3400–3800 MHz band spectrum licensees with agreement from spectrum licensees under section 72 of the Radiocommunications Act. This will include identified changes to core conditions, as well as other relevant conditions on the licence to align with outcomes identified in this paper. It will not include band-specific changes such as those identified for the 3700–3800 MHz band to manage coexistence with radio altimeters.

The unacceptable levels of interference determination

Submissions were supportive of the changes proposed. No alternative proposals were made.

ACMA view

We have made the Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Amendment Determination 2023 (No. 1) as consulted.

Managing interference from spectrum-licensed transmitters

- > The satellite industry continues to have concerns about ongoing access to the satellite C-band downlink spectrum in Australia. They raised further concerns about the assumed filtering applying to all earth receive stations licensed on, or after, 16 July 2022, which is the date of effect for the re-allocation declaration. The satellite industry argued that operators should be given reasonable time to source and install customised filters before the upper frequency filter limit is assumed for coordination purposes. It recommended that the upper filter limits should apply after 16 July 2027.
- > The mobile industry proposed adopting a more stringent earth station filter implemented by the US Federal Communications Commission (FCC) in 2020 below 3820 MHz. They argued this represents modern filter capabilities that are in use by the satellite industry and indicated that adopting the stricter filter would reduce the size of exclusion zones and improve utility of the adjacent spectrum licence space.
- > One submission requested that a note be added to the end of Subsection 4.3 (4) stating that within the re-allocated spectrum space, earth stations will not be permitted to continue operating or establish new operations after the re-allocation period has ended.
- > One submission proposed adding the word ‘incumbent’ or ‘legacy’ before the term ‘broadband wireless access’ (BWA) services in section 5.1. This is to differentiate these services from newer WBB services to be authorised under AWLs.
- > One submission proposed deleting the note after section 6.2 as it is already clear Part 6 does not apply to the aeronautical radionavigation service in the 4200–4400 MHz band.

ACMA view

While submissions were broadly supportive of the changes proposed to the RAG Tx, there were some exceptions as detailed above.

The ACMA has considered comments made in consultation submissions and made the following decisions:

- > We acknowledge comments made by the satellite industry regarding the timeframes that earth station filter performance from the upper frequency limit are assumed to apply from and their preference for operators to have a reasonable timeframe to source and install customised filters. We note that the proposed date of application is set to apply from 16 July 2022. This corresponds to the date the re-allocation declaration commenced.

The ACMA has restricted access to the relevant spectrum since before this date. We have ensured that any earth receive licence issued since 16 July 2022 either expires before the auction of spectrum licences commences or that operators are aware of the assumed filter requirements. This ensures existing earth receive licences either won't be impacted or are issued on the basis that the updated filter provisions apply. In addition, it is expected that prospective licensees will be aware of the filter requirements and can take this into account when applying for licences.

- > We consider there is merit to the arguments made by the mobile industry to adopt the stricter FCC earth station filter requirement. Adoption of this requirement by the FCC suggests there is equipment available that is capable of achieving the stricter limits. Also, adoption of a stricter filter requirement will help reduce the level of spectrum denial between earth stations and spectrum licence devices, thereby increasing spectrum utility. This is particularly useful in populated areas where the density of service deployments is expected to be greater.

As we did not formally consult on changes to the earth station filter requirement in the consultation paper, and given the FCC filter requirement presents a significant change from the current filter performance, we do not consider it appropriate to make the changes as an outcome to this process. However, we are consulting on the change as part of the [area-wide apparatus licences in the 3.8 GHz band in metropolitan and regional Australia – licensing, allocation process, technical framework and pricing arrangements](#) consultation process. This will ensure all interested and potentially affected stakeholders have an opportunity to consider and comment on the proposed changes. We intend to make a decision on any additional changes to the RAG Tx before the auction for 3.4/3.7 GHz licences commences.

- > To align with decisions outlined in the RA outcomes paper, the proposed new Part 13 to the RAG Tx (guidance on managing interference with radio altimeters) has been maintained, but with the following updated protection requirements:
 - > For spectrum licences, the operation of radiocommunications transmitters in the 3700–3800 MHz frequency range must adhere to the same coexistence with radio altimeters requirements that apply to an area-wide licence as detailed in RALI MS47. As specified in RALI MS47, this requirement only applies until 31 March 2026.
- > We do not intend to include a note at the end of Subsection 4.3 (4) as proposed by one submission. We have already notified all earth station licensees affected by the re-allocation declaration that their licences will be cancelled at the end of the re-allocation period. We also ensure that any new licences issued are aware of this. We consider there is no need for an additional note in the RAG Tx.
- > We do not intend to insert the word 'incumbent' or 'legacy' before the term 'broadband wireless access' (BWA) in section 5.1 as proposed by one submission. This is because arrangements for the issue of new point-to-multipoint licences outside of the Australian Spectrum Map Grid are still in place. These arrangements will support the deployment of services operating in offshore territories, the Torres Strait Islands and offshore mining platforms.

After considering submissions, we have made the Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) Variation 2023 (No. 1) as consulted with the changes detailed above. We note that additional proposed changes are being consulted on as part of the [area-wide apparatus licences in the 3.8 GHz band in metropolitan and regional Australia – licensing, allocation process, technical framework and pricing arrangements](#) consultation process.

Managing interference to spectrum-licensed receivers

- > One submission proposed amendments to the definition of 'receiver blocking' to assist with understanding.
- > One submission proposed the receiver performance characteristics be updated to the format recently adopted for the 850/900 MHz and 2 GHz band technical frameworks

ACMA view

As submissions were broadly supportive of the changes consulted on, we have decided to make the Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) Variation 2023 (No. 1) as consulted, with a minor amendment to the definition of 'receiver blocking'.

Other aspects relevant to the technical framework

- > One submission asserted that AWL operators should have flexibility to synchronise with 3.4 GHz spectrum licensees to apply the less stringent device boundary criterion (DBC). They argued the more stringent DBC could be a barrier for new entrants due to the additional isolation required at the geographical boundary of spectrum licences.
- > The mobile industry argued that in the unlikely event interference occurs between a spectrum-licensed service and an AWL service, and both are complying with their licence conditions, the spectrum-licensed service should have priority.
- > The mobile industry requested that the multimode approach of registering multiple sectorised antennas under a single station with no azimuth be removed from RALI MS47. Such an approach can result in reduced efficiency of spectrum use.
- > The mobile industry considered that the minimum Hierarchical Cell Identifier Scheme (HCIS) unit size for AWLs in the 3.4–4.0 GHz frequency band should be HCIS Level 1.
- > The mobile industry expressed concerns with the determination of the licence issue dates when coordinating with services where this is important (for example, first-in-time coordination). They argued it is not uncommon for apparatus licences to not be renewed within a 60-day period after they expire. When such licences are renewed, they are provided with a new licence number and issue date. This makes it difficult for licensees to check if they are afforded protection and correctly carry out coordination.

ACMA view

The ACMA has considered comments made in consultation submissions and made the following decisions:

- > We have reviewed requests to provide flexibility for AWL operators to synchronise with services operating under a spectrum licence so the less stringent DBC could be applied. We consider there is already flexibility in the technical framework to enable AWL operators to apply the less stringent DBC, or any other criteria, at the geographical boundary of a spectrum licence. This can be achieved via negotiation with the relevant spectrum licensee. We have not made any changes to these arrangements as a result of this consultation process.
- > The mobile industry argued that in the unlikely event interference occurs between a spectrum-licensed service and an AWL service, and both are complying with their licence conditions, the spectrum licence service should have priority. The ACMA does not support this proposal and considers it reasonable that, similar to spectrum licences, primary services operating under an apparatus licence be provided with a degree of certainty regarding the management of interference and ongoing access to and use of the spectrum.

As part of this consultation process, we have implemented additional measures, to provide a higher level of protection and isolation for 3.4 GHz spectrum licences in future. This includes a stricter DBC requirement for all new apparatus-licensed transmitters and a 15 MHz restricted-use band with AWLs. Both spectrum and apparatus licensees are expected to work within these requirements. In the event interference does occur, then relevant parties should first seek to find an amicable solution. If this is not possible, there are formal mechanisms available for the ACMA to investigate and resolve the issue.

- > We have removed from [RALI MS47](#) the ability to register multiple sectored antennas under a single station. We agree with comments made that this could result in more efficient use of the spectrum. This is because there will be a more accurate reflection of spectrum use for coordination purposes.
- > Some submissions advocated use of HCIS Level 1 cells as the minimum geographical area (and 'building block') for AWLs in the 3.4–4.0 GHz band. However, this did not form part of the issues for consideration in the consultation paper, which was focused on allocation and technical instruments for the auction of spectrum licence in the 3.4/3.7 GHz bands.

The issue was considered as part of the [allocation of AWLs in the 3.4–4.0 GHz band in remote Australia](#) consultation process. It also forms part of the issues being considered in the [allocation of AWLs in the 3.4–4.0 GHz band in regional and metropolitan areas](#) consultation process. Interested stakeholders are directed to those consultation processes for further information.

- > The mobile industry expressed concerns with the determination of apparatus licence issue dates when coordinating with services where this is important (for example, first-in-time coordination). After reviewing the arguments presented, we consider our proposal made in the consultation paper is the most practical way forward. That is, the date a service operating under an apparatus licence was originally (or first) issued should be applied. If a licensee makes any variations to the technical parameters of a licence (that could affect coordination), the issue date will be considered to have changed. Operators and accredited persons are capable of keeping records of relevant information in this regard. If there is uncertainty about the date an apparatus licence was originally issued, guidance from the ACMA can be sought.

Next steps

The next steps for the 3.4/3.7 GHz band spectrum licence auction are detailed in the table below. We are also considering additional changes to the RAG Tx as part of the [allocation of area-wide apparatus licences in the 3.8 GHz band](#) consultation process. We intend to make a decision on any additional changes to the RAG Tx in Q3 2023 – that is, before the auction for 3.4/3.7 GHz licences commences.

Event	Date
The ACMA will advertise the auction, publish the applicant information pack (AIP) and invite applications to participate in the 3.4/3.7 GHz bands auction . The AIP will give potential bidders information about whether to participate, and if they choose to do so, how to participate. Starting prices, set prices for leftover lots, lot ratings and the value of each eligibility point will also be published at the same time.	Applications open July 2023
By the application deadline , applicants are required to: <ul style="list-style-type: none"> > submit a completed application form > submit a completed deed of acknowledgement form > submit a completed deed of confidentiality form > pay the application fee. 	Applications close July 2023
By the eligibility deadline , applicants are required to: <ul style="list-style-type: none"> > submit a completed eligibility nomination form > (for eligible applicants) elect whether to take up the leftover lot(s) > pay the required eligibility payment or provide a deed of financial security, or a combination of both. 	September 2023
Auction system training and mock auctions held to familiarise registered bidders with the auction system	After the eligibility deadline
Estimated auction commencement	Late October 2023

Other planned activities in the wider 3.4–4.0 GHz band allocations are outlined below. More information about allocating the 3.4–4.0 GHz band is on [the ACMA's website](#).

Event	Date
3400–4000 MHz remote area-wide apparatus licence allocation	
<ul style="list-style-type: none"> > Making relevant regulatory and technical instruments and releasing the final applicant information package (AIP). > Allocation will begin 4 weeks after publication of the AIP. 	Applications are open from 10 am (AEST) 17 July 2023 to 5 pm (AEST) 31 July 2023

Event	Date
3750–3950 MHz metropolitan/regional area-wide apparatus licence allocation	
> Consult on the draft AIP, which contains the proposed allocation process, allocation limits, pricing arrangements, and technical framework.	Consultation is open from 20 June 2023 to 1 August 2023
> Publish consultation outcomes in relation to the additional RAG Tx changes.	Q3 2023
> Publish AIP and relevant technical and regulatory instruments. > Allocation window opens 4 weeks after the AIP is published.	Q1 2024
3950–4000 MHz band regional/metropolitan restricted cell apparatus license allocation and 3400–3.750 MHz band ‘urban excise’ areas apparatus licence allocation	
> Convene a technical liaison group to develop the technical arrangements that support licensing and use of this spectrum.	Q3 2023