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Updates to assessment procedures for space-based communications systems

Including Q/V bands, earth station protection zones and ESIM

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Contents

Executive summary 1

Issue/s for comment 2

1 Updates to assessment procedures 3

1.1 Requirements for Ka NGSO ESIM 4

1.2 Space research treaty obligations 5

1.3 S-band bandwidth requirements 6

2 Assessment procedures – other matters 9

2.1 Overview 9

2.2 Approach to coordination of satellite systems 9

2.3 Identifying when coordination between satellite systems is required 10

2.4 Identification of relevant matters 13

3 Q/V bands and embargo 80 15

4 East coast earth station protection zones 18

4.1 Making a submission 19

Executive summary

We are seeking comment on proposed updates to our assessment procedures used for assessing the space regulatory matters associated with applications for apparatus licenses for space-based communications systems.

Key updates consider in this consultation:

- Updates for non-geostationary satellite orbit earth stations in motion (ESIM) in the bands 17.7–18.6 GHz, 18.8–19.3 GHz, 19.7–20.2 GHz, 28.5–29.1 GHz and 29.5–30 GHz (NGSO Ka-band ESIM).
- Inclusion of guidance on S-band (2025–2110 MHz and 2200–2290 MHz) emission bandwidth requirements.
- Implementation of the outcomes of the review of our satellite filing procedures to include coordination with specified European Space Agency (ESA) and US National Aeronautics and Space Administration (NASA) space research facilities.
- Changes to interim arrangements for Q/V-band[1] earth stations in spectrum embargo 80.

We are also seeking industry views on:

- Whether changes are required to our approach to licensing for space-based communications systems.
- What matters we should consider in any future review of the east coast earth station protection zone.

This paper provides further explanation of the more substantive changes on arrangements for NGSO Ka-band ESIM, S-band emission bandwidth guidance, coordination with certain space research facilities and interim arrangements for Q/V-band gateway earth station

Feedback received through this consultation will inform finalisation of the updates to our licensing procedures and our consideration of whether further work is required.

You have until **5 pm (AEDT) on Tuesday 19 January 2027** to send us your submission.

[1] The bands 40 GHz (37.5–43.5 GHz), 46 GHz (45.5–47 GHz) and 47 GHz (47.2–48.2 GHz) frequency bands, and the adjacent 48.2–50.2 GHz and 50.4–52.4 GHz bands, which are collectively known as Q/V bands.

Issue/s for comment

We invite comments on the issues set out in this paper:

1. The proposed updates to our space regulatory assessment procedures.
2. The proposed changes to interim Q/V-band earth station arrangements in spectrum embargo 80.
3. Matters that should be considered in a future review of the east coast earth station protection zones.
4. Whether improvements are required to our approach to assessing regulatory requirements of space-based communications systems.

1 Updates to assessment procedures

Currently, assessment procedures for apparatus licensed space-based communications systems are specified in business operating procedures (BOPs) on:

- Interim arrangements for the submission and processing of applications for space and space receive apparatus licences authorising the use of earth stations in motion (ESIM) in the fixed-satellite service communicating with non-geostationary space stations in the frequency ranges 17.7–18.6 GHz, 18.8–19.3 GHz, 19.7–20.2 GHz, 28.5–29.1 GHz and 29.5–30 GHz (Interim NGSO Ka-band ESIM).
- Submission and processing of applications for licences authorising the use of earth stations in motion (ESIM) communicating with geostationary space stations in the fixed-satellite service in the frequency bands 19.7–20.2 GHz and 29.5–30.0 GHz.
- Submission and processing of applications for space and space receive apparatus licences.
- Submission and processing of applications for earth, earth receive apparatus licences and device registrations under area-wide apparatus licences for fixed earth stations.

We are proposing updates to the assessment procedure to meet the growth in spectrum needs and developments in emerging space-based technologies and applications. The proposed changes are summarised in Table 1: Summary of changes to assessment procedures. To reduce duplication, we are including the ESIM requirements into the space and space receive assessment procedures. This will reduce the number of procedures to 2:

- one for space and space receive apparatus licences
- one for earth, earth receive apparatus licences and device registrations under area-wide apparatus licences for fixed earth stations.

Table 1: Summary of changes to assessment procedures

Summary of changes
Procedures for space and space receive apparatus licences
• Inclusion of arrangements for NGSO Ka-band ESIM following the Australian Radiofrequency Spectrum Plan being updated in October 2025 to include the outcomes of WRC-23 for ESIM. • Consequential updates to arrangements for 2 GHz narrowband mobile-satellite services now that the date for clearance of TOB services from 1980–2010/2170–2200 MHz by 28 February 2026 as specified in the Radiocommunications (Mobile-Satellite-Service) (1980–2010 MHz and 2170–2200 MHz) Frequency Band Plan 2022 has passed. • Incorporating the requirements from the procedures for earth stations in motion (ESIM) communicating with geostationary space stations in the fixed-satellite service in the frequency bands 19.7–20.2 GHz and 29.5–30.0 GHz as Appendix J. • For L-Band MSS, adding a clarification (in case not self-evident) on what is meant by our statement in section 3.5.10 (extended L-band MSS) that the ITU satellite coordination process is sufficient to resolve any compatibility matters

Summary of changes
Procedures for earth, earth receive apparatus licences and device registrations under area-wide apparatus licences
• Including coordination with specified ESA and NASA space research facilities, implementing the outcome of the review of our satellite filing procedures. • S-band emission bandwidth requirements. • Advice on infrared earth stations. • Interim arrangements for W-band earth stations. • Interim arrangements for Q/V earth stations.
Interim arrangements for NGSO Ka-band ESIM
• To be suppressed with updated requirements included into the procedures for space and space receive apparatus licences
Procedures for GSO ESIM in the frequency bands 19.7–20.2 GHz and 29.5–30.0 GHz
• To be suppressed with requirements included into the procedures for space and space receive apparatus licences.
General updates
• Updating the example of information required for regulatory assessment to make clear that we always required information on who is the owner/controller/operator of the related satellite network and if different the entity related to the ITU satellite filing and evidence of an agreement to operate a satellite system under that filing.

Proposed updates are shown in revisions marks in the draft updated procedures for ease of review. The documents will be reformatted into the current ACMA style once finalised after this consultation.

Additional information is provided on the background on changes for Ka Band NGSO ESIM, S-band emission bandwidths and coordination requirements with ESA/NASA space research facilities below. Arrangements for interim Q/V earth stations are discussed later in this document. Other changes are considered simple and self-explanatory with no additional explanation required.

1.1 Requirements for Ka NGSO ESIM

With the Australian Radiofrequency Spectrum Plan updated in October 2025 to include the outcomes of WRC-23, the ACMA business operating procedure 'Interim licensing procedures for ESIM communicating with NGSO space stations in the FSS in part of the Ka band' is no longer relevant.

As outlined in the 'Proposed update to the Australian Radiofrequency Spectrum Plan: Summary and response to submissions paper', the update revoked the supporting Spectrum Plan subsection 10(10) decision and included requirements of:

- ITU RR 5.517B (The operation of aeronautical and maritime earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service in the frequency bands 17.7–18.6 GHz, 18.8–19.3 GHz and 19.7–20.2 GHz (space-to-Earth) and 27.5–29.1 GHz and 29.5–30 GHz (Earth-to-space) shall be subject to the application of Resolution 123 (WRC-23)).
- Australian footnote AUS108, which provides for land-based earth stations in motion in the frequency bands 27.5–29.1 GHz and 29.5–30 GHz, as land-band ESIM are not considered in ITU RR 5.517B.

Consequentially, the requirements for NGSO Ka-band ESIM are now:

- The general requirement of the space/space receive assessment procedures.
- Requirements of Resolution 123 (WRC-23).
- Requirements in the space/space receive assessment procedures of:
  - Section 3.5.7 Earth station receivers and 11/18 GHz point to point fixed link transmitters.
  - Section 3.5.8 Earth station transmitters in 27.5–29.5 GHz band, which references Appendix G (Additional conditions to the applied to space receive licence in the frequency 27.5–29.5 GHz).

These requirements have been included in the space/space receive assessment procedures as Appendix I.

In addition to the above requirements, we have:

- Outlined an approach we will use in cases where there are delays in publishing the ESIM notification (as required by Resolution 123 (WRC-23)) due to ITU processing timeframes.
- Included advice that where space or space-receive licences have already been issued and the request is limited to the addition of ESIM, it is generally considered unlikely that there would be a need to seek the views of potentially affected Australian satellite operators, provided the other requirements (including Resolution 123) are satisfied.

1.2 Space research treaty obligations

Please note that in considering the discussion that follows, there are various restrictions and different licensing arrangements in bands used for space research services. The coordination arrangements discussed below do not replace or override those requirements, and apply only where those other requirements can also be met.

In our 2025 response to submissions paper on the outcome of the review of our satellite filing procedures, we committed to updating our licensing procedures to include coordination requirements for certain space research facilities operating under treaties between the Australian Government and ESA, and the Australian and United States governments.[2]

The coordination requirements address a gap in our assessment procedures about Australia's obligations under the space treaties. Under the space treaties, the obligation on Australia is to provide spectrum access and best-endeavours protection of earth station

[2] The specific wording varies between treaty. For details, see the Australian Treaties Library for the Agreement between the Government of Australia and the European Space Agency for a Co-operative Space Vehicle Tracking Program ((Capetown, 5 October 2011) [2012] ATS 29) and Agreement between the Government of Australia and the Government of the United States of America for Space Vehicle Tracking and Communication Facilities ((Washington D.C., 17 October 2017) [2018] ATS 4).

receivers, in accordance with Australian law.[3] The coordination requirements are intended to support these obligations. The facilities being included in our procedures are:

- ESA's New Norcia (Western Australia) facility.
- NASA's Canberra Deep Space Communication Complex (Tidbinbilla, Australian Capital Territory).

These facilities are managed by the Commonwealth Scientific and Industrial Research Organisation. The frequency bands currently used by earth stations at the New Norcia and Tidbinbilla facilities are:

Earth-to-space

- 2025–2110 MHz
- 2110–2120 MHz (deep space)
- 7145–7190 MHz (deep space)
- 7190–7235 MHz
- 22.55–23.15 GHz
- 34.2–34.7 GHz (deep space).

Space-to-Earth

- 2200–2290 MHz
- 2290–2300 MHz (deep space)
- 8400–8450 MHz (deep space)
- 8450–8500 MHz
- 25.5–27 GHz
- 31.8–32.3 GHz (deep space).

Except for the band 2025–2110 MHz, the update introduces coordination triggers in all bands listed above. When coordination is required, we will seek the views of CSIRO (as the representative of ESA/NASA) in Australia on the proposed use. For S-band earth station receivers, applicants may also provide evidence, such as a coordination study, demonstrating protection of the relevant sites.

1.3 S-band bandwidth requirements

Please note that in considering the discussion that follows, spectrum embargo 23 restricts the operation of earth stations in S-band in all areas except for the Mingenew earth station protection zone. While exemptions to the embargo are possible (generally in regional/remote areas), they should not be assumed.

We have been monitoring the growth in the use of S-band for space operations by non-GSO satellite networks for a number of years.

[3] Refer to article 13 of the US treaty (including 13.4 – 'The Government of Australia shall take all reasonable steps to protect the Facilities used for the activities under this Agreement from harmful radiofrequency interference within Australia) and article 14 of the ESA treaty (including 14.5 – The Australian Government shall use its best endeavours to protect the radio receiving Facilities used for the Agreed Activities from harmful radio frequency interference from radio communications stations within Australia that are subject to Australian law. The measures to be taken by the Australian Government in this respect shall be specified in the Implementing Arrangements).

When assessing requests, we remind applicants that emission bandwidths should be consistent with requirements as outlined in ITU-R Recommendations SA.2155 and SA.2156 for the earth exploration-service (EESS), space research service (SRS) and space operation service (SOS). The recommendations also consider that for relatively high data-rate payload data transmission, higher frequency bands should be considered as alternatives, as they provide adequate bandwidths for such transmissions.

In June 2024, noting the increasing use of S-band, the ECC published ECC Recommendation (24)03 on the licensing of earth stations operating in the 2025–2110 MHz and 2200–2290 MHz bands. The recommendation:

- recognises that spectrum occupancy in these bands is increasing and that the number of satellite links is expected to continue to increase
- notes that this growth may increase interference between satellite networks
- states that congestion can be reduced by selecting the minimum bandwidth necessary to accomplish the intended mission
- recommends an operational bandwidth of no more than 2 MHz for earth station transmissions in 2025–2110 MHz
- recommends that earth stations in 2200–2290 MHz receive protection for an operational bandwidth of no more than 6.2 MHz
- recommends earth stations only be authorised in the frequency bands 2025–2110 MHz and 2200–2290 MHz when in view of their associated space stations
- notes that the recommendation may not be applicable during launch operations.

With the continued growth in the use of these bands, we now consider it appropriate to provide more formal guidance in our licensing procedures. This will provide greater recognition of the increasing demand for S-band spectrum and the need to use the spectrum efficiently.

In developing this guidance, we have sought to balance the need for efficient spectrum use with industry self-management of S-band spectrum. Our approach relies on applicants acting in good faith and limiting requests to the bandwidth, carriers and frequency ranges reasonably required to support their operations.

Our proposals for ongoing licences are:

- To adopt the ECC recommendations on maximum bandwidth of 2 MHz for an earth station transmitter transmissions and 6.2 MHz for earth station receivers.
- Require that earth stations are only authorised when in view of their associated space stations (a current practice).
- Where multiple carriers are requested:
  - Each individual carrier must not exceed the maximum bandwidth requirements.
  - Allow operators flexibility to nominate multiple carriers across a frequency range, provided each carrier complies with the applicable bandwidth limit. This may include carriers that are not intended to operate simultaneously but are required to provide flexibility in frequency selection.
  - Information must show there are sufficient earth station antenna operating at the facility to support the requested number of active carriers.

- Advice is needed on the number of space stations that have been launched, or are expected to be launched in the near future, to support the requested number of carriers.

For the number of space stations, we would not accept the number of space stations listed in the ITU satellite filings by itself as a valid justification. The number of satellites in the API filing often differs from the number deployed. We will accept advice from the applicant or accredited person on the number of deployed or planned space stations without requiring supporting evidence.

Where multiple carriers are authorised, the licence would include a special condition specifying the number of earth station antennas active at any one time, carrier bandwidth and frequency range of operating. For example, this licence supports 4 identified co-sited earth station antennas. At any one time, up to 4 carriers may be in the bandwidth range 125 kHz to 2 MHz operating across the frequency range 2035–2100 MHz.

For non-ongoing licences (one year or less), we will allow greater bandwidth or multiple carriers for short-term activities, such as launch support, where the need is explained.

2 Assessment procedures – other matters

2.1 Overview

We have identified some areas where our assessment procedures and how they are applied could be better explained or improved:

- Our approach to resolve coordination of satellite system.
- How we identify when coordination is required.
- How we work out what matters are relevant.

While we believe that the discussion in this paper and the proposed updates will assist, arrangements can be complex. For this reason, our key message is to engage early with the ACMA. Early engagement ensures that Australian spectrum planning arrangements are considered when planning new space-based communications systems, which is particularly important before commencing earth station site selection processes.

2.2 Approach to coordination of satellite systems

Our approach to coordination between satellite operators flows from the requirements of the Radiocommunications Act. Under subsection 100(4) of the Act, in deciding whether to issue an apparatus licence, the ACMA is required to have regard to all matters it considers relevant and the effect on radiocommunications of the proposed operation.

While for coordination between terrestrial and space services, we have a variety of coordination procedures, for coordination between satellite systems we have no such procedures. As such, when we identified coordination may be required between satellite systems (see discussion in next section), our standard approach is to encourage cooperation and coordination between satellite operators to achieve mutual benefit, without the burden and delays of additional prescriptive regulation to that which would occur if the ACMA were involved.

Where we consider that the proposed operation may impact a satellite system in Australia (which may include an Australian filed satellite system which is yet to be licensed), we require that the views of the impacted satellite operator are sought before we complete our assessment. If operators disagree, our expectation is that they will continue discussions and work in good faith to resolve the matter.

Coordination can be technically challenging and may not always be achievable. In such circumstances, parties sometimes ask us to make a decision on the matter. However, we are unlikely to have sufficient information on the satellite systems involved to determine an appropriate technical outcome in a timely manner. We are also wary about the burden on parties our intervention would bring, considering requirements of administrative decision-making and procedural fairness.

As such, our view, as it has been when we have previously considered this matter, is that alternative approaches are likely to result in prescriptive regulation and regulatory intervention by ACMA to the disadvantage of industry, without necessarily improving outcomes.

Please note that coordination between Australian satellite systems is managed through our Australian satellite filing procedures. Where we receive a licensing request involving 2 or more Australian satellite operators, the requirements of the satellite filing procedures apply. However, we expect Australian satellite operators to have regard to the approach outlined below when undertaking that coordination

2.3 Identifying when coordination between satellite systems is required

Whether coordination is required is determined by the types of satellite system (e.g. NGSO or GSO), type of satellite filing, the frequency band and types of satellite services operating in that band, applicable ITU Regulations and whether there is an Australian satellite filing that needs to be considered.

For most of the licence requests we receive, the associated ITU satellite filing falls into 2 broad types:

- Those that are subject to the regulatory procedures of ITU RR Article 9, Section II – Procedure for effecting coordination.
- Those that are not.

These are colloquially known as ‘not subject to coordination’ (not coordinated) and ‘subject to coordination’ (coordinated). For satellite filings not subject to coordination, the first step is to submit an API – Advance Publication Information (API).[4] For satellite filing subject to coordination, the first step is to submit a coordination request (CR). For simplicity in this paper, we will refer to as API and CR respectively.

2.3.1 Coordination case study

To illustrate, S-band (2025–2110/2200–2290 MHz) supports space research, space operations and earth exploration services. S-band earth station requests accounted for approximately 25% of all requests we received in the last 3 years. Requests are typically from ground station service providers supporting launch activities and NGSO LEO satellite operators. We do not see requests for very large constellations in this band. These operate in other bands, and it is unlikely that they could be supported in S-band, given their bandwidth requirements.

NGSO satellite systems operating in S-band are subject to the ITU API filing process. They do not follow the more detailed coordination procedures that apply to the CR filing process.

Given the types of satellite systems that operate in S-band and ITU API requirements, we do not undertake an assessment of coordination between NGSO satellite systems. This simplifies the assessment process and reduces assessment time (provided all other requirements are met) to the benefit of industry.

[4] While we have not considered as rarely received and so have ignored, for satellite filings subject to the procedures of Appendix 30, 30A or 30B (known as ‘planed bands), they would be treated similarly to filing subject to coordination. To explore further, see presentations from ITU World Radiocommunication Seminar 2024 (WRS-24) on Regulatory Process for Satellite Networks/Systems Subject to Coordination and Regulatory Procedure for Satellite Systems Not Subject to Coordination and Earth Stations at https://www.itu.int/wrs-24/programme/presentations, and ITU RR Article 9, Procedure for effecting coordination with or obtaining agreement of other administrations.

While we are aware that other countries such as the US do have more detailed coordination requirements,[5] we do not consider such requirements are necessary in Australia. However, if the satellite industry use of S-band were to markedly change, we might need to reconsider the approach. Our preference is to retain the simpler approach, with its benefits compared with a more complex coordination assessment.

While the above approach is well known to parties that we regularly receive requests from, our approach to coordination is not currently recorded in our documentation or reflected on licences.

To provide greater visibility of our approach, we are considering including advice in all licences explaining how coordination between satellite systems has been assessed, and more guidance on the coordination principles we follow.

An example of what this advice might be is – no assessment of coordination between NGSO satellite systems has been undertaken for stations authorised by this licence. The licensee and satellite operator remain responsible for managing the potential for interference with other NGSO satellite systems, including through direct operator arrangements and the applicable ITU Radio Regulations procedures.

2.3.2 General coordination principles

General coordination principles we follow are:

- Coordination is only required where there is a frequency overlap.
- Satellite systems are expected to operate in accordance with ITU Radio Regulations.
- For satellite systems filed under ITU RR 4.4, we will determine an approach on a case-by-case basis.
- For Australian filed satellite systems given the ACMA's role as the responsible administration for those systems, depending on the specifics of an application a matter that might be relevant is the impact on existing Australian satellite filings. While the weighting given to any considerations in the decision-making process will depend on specific circumstances, as a general principle, greater weight is normally given to consideration of the impact on an Australian satellite filing if the operation of the satellite is authorised by a radiocommunications licence
- When we consider there could potentially be an impact on an Australian satellite filing, we will ask the applicant to seek the views of Australian satellite operators in line with our standard approach, to encourage cooperation and coordination between satellite operators for operators to achieve mutual benefit without ACMA involvement.
- For coordination between NGSO satellite systems with API filings in well-established bands, we do not assess coordination between satellite systems. It is the responsibility of the earth station licensee and the satellite operator to manage coordination with other NGSO satellite systems, either directly or through the ITU satellite coordination process. These are principle we apply for S-band earth stations and earth exploration earth stations (space-to-Earth) in frequency band 8025–8400 MHz.
- Scenarios involving coordination with an Australian-filed NGSO satellite network that is subject to ITU CR filing procedures occur rarely. When they do, they are considered on a

[5] See information on FCC website on https://www.fcc.gov/coordination and Informal Satellite Frequency Coordination ('Pre-Coordination') between Commercial and Federal Agencies. For US satellite systems, we do review the FCC approvals as they will include coordination with NASA facilities in Australia, which can assist us is assessing our space research treaty obligations.

case-by-case basis. In doing so, we would have regard to the applicable ITU coordination requirements, Australia's responsibilities as the filing administration, the licensing status of the networks involved, and our general preference for first-in-time licensing.

- For coordination between foreign filed satellite systems, our standard view is that coordination matters between foreign-filed satellite networks are the responsibility of the relevant filing administrations and satellite operators. Accordingly, Australia's and the ACMA's role is limited to the domestic licensing of these systems. As much as possible; we take the view that coordination will be addressed via the ITU process and does not have to be considered by the ACMA. However, where coordination is likely to be challenging (for example, where a proposed mobile satellite service overlaps the frequency range of an existing licensed mobile satellite service in Australia), we would require the views of the existing licensee to be sought.
- For coordination of a foreign GSO satellite system with an Australian-filed GSO satellite system, we generally follow ITU orbital arc separation coordination criteria of ITU RR Appendix 5. If no coordination arc is specified in Appendix 5, we consider coordination requirements on a case-by-case basis.[6]
- For coordination of a foreign NGSO satellite system with an Australian-filed GSO network in the frequency bands in the bands 10.7–12.75 GHz, 14–14.5 GHz, 17.7–20.2 GHz, 27.5–30 GHz, coordination is required where there is a frequency overlap. This approach is supported by various ITU Regulations, such as ITU RR 22.2, which require that NGSO satellite systems do not cause interference to or claim protection from geostationary satellite networks in the fixed-satellite and broadcasting-satellite services. Requirements can vary across a band, and diligence is required in their application. [7]

While the above principles have worked well, they do not cover all scenarios and require revision to include emerging bands like Ka space research, Q/V and E bands.

2.3.2.1 Ka-band space science bands

For the Ka space science bands (22.55–23.15 GHz and 25.5–27 GHz), NGSO systems are subject to the ITU API filing process. ITU coordination procedures regarding coordination and interference management between NGSO and GSO systems that apply in other bands like ITU RR 22.2[8] are not applicable. As these bands are lightly used, our view is that a similar approach to that of S-band would be suitable. That is, we would only consider coordination for foreign GSO satellite system using these bands with an Australian-filed GSO network, where:

- where there is a frequency overlap
- orbital for arc separation is 8 degrees or less
- the Australian-filed satellite network is authorised to operate under a radiocommunications licence.

We would not generally assess coordination between NGSO systems or coordination between foreign filed satellite systems.

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[6] We follow a similar approach for orbital drift activities or NGSO systems that transverse the GSO. Inclusion of additional coordination arcs in Appendix 5 is under consideration for WRC-27. Refer Report on the fifty-ninth meeting of Working Party 4A (Geneva, 19-29 October 2026), Annex 13 - Draft CPM text for WRC-27 agenda item 7, Topic B.

[7] These frequency bands are from the Radiocommunications (Communication with Space Object) Class Licence 2025 and are key bands for the commercial satellite industry. Generally speaking, we follow the same approach for frequency bands with the same characteristics.

[8] ITU RR 22.2: Non-geostationary-satellite systems shall not cause unacceptable interference to and, unless otherwise specified in these Regulations, shall not claim protection from geostationary satellite networks in the fixed-satellite service and the broadcasting-satellite service operating in accordance with these Regulations.

2.3.2.2 Q/V bands

For Q/V bands (37.5–43.5 GHz, 45.5–47 GHz, 47.2–48.2 GHz, 48.2–50.2 GHz and 50.4–52.4 GHz, there are ITU requirements (for example, ITU RR 22.5L and 22.5M) regarding coordination and interference management between NGSO and GSO systems. In this scenario, our view is that:

- For coordination between a foreign GSO satellite system and Australia filed GSO network, coordination would need to be considered where orbital arc separation is 8 degrees or less and the Australian satellite network is authorised to operate under a radiocommunications licence.
- For coordination between a foreign NGSO satellite system and Australian filed GSO network, coordination would need to be considered where there is a frequency overlap and the Australian satellite network is authorised to operate under a radiocommunications licence.
- We would make no assessment of coordination between foreign-filed satellite systems. However, if circumstances indicate that coordination is likely to be challenging, we may require the applicant to seek views of the existing licensee.

2.3.2.3 E-band

In E-band (71–76 GHz and 81–86 GHz), ITU RR22.2 applies to NGSO fixed satellite services with the requirement not to cause interference to nor claim interference from GSO fixed and broadcasting satellite services. At present, only one satellite operator (using an NGSO system) is authorised to operate earth stations in the band.

Considering this, for E-band our current view is that our approach to coordination can be:

- For coordination between a foreign-filed GSO satellite system and an Australian-filed GSO satellite network, coordination would need to be considered where there is a frequency overlap, the relevant orbital separation is 8 degrees or less, and the Australian-filed satellite network is authorised to operate under a radiocommunications licence.
- For a foreign-filed NGSO satellite system operating in frequencies where RR No. 22.2 applies and there is a frequency overlap with an Australian-filed GSO network, we would not undertake a separate coordination assessment. Instead, the radiocommunications licence would include an appropriate condition reflecting the NGSO system's obligations under RR No. 22.2.
- For coordination between foreign-filed satellite systems, we would make no assessment of coordination. Where there are particular circumstances indicating that coordination may be difficult, however, we may require the applicant to seek the views of the existing licensee.

2.4 Identification of relevant matters

An assessment of the space regulatory requirements for a proposed space-based communications system is generally made before an application for an apparatus licence is submitted. While this assessment process is separate from the licence application process, it has regard to matters that will be relevant to consideration of a subsequent licence application under the *Radiocommunications Act 1992*. Where a request does not contain sufficient information to complete the assessment of the requirement in our procedures, it is returned with advice on what needs to be addressed.

As outlined in the background section to our assessment procedures for earth, earth receive apparatus licences and device registrations under area-wide apparatus licences and for

space and space receive apparatus licences, our procedures are reflective of the status of satellite networks associated with typical licence applications, and cover the majority of licensing scenarios only.

That is, the procedures do not document all matters considered when assessing requests, as this would result in an unnecessary repetition of ITU of material. Instead, the procedures outline key principles (such as the requirement to be consistent with regulatory arrangements and that proposed operation is supported by an ITU satellite filing). Depending on the specifics of the proposed operation, other ITU requirements, information published by other countries[9] or treaties of the Australian government might be relevant.

For this reason, our key message is to engage early with the ACMA. Early engagement ensures that Australian spectrum planning arrangements are considered when planning new space-based communications systems, which is particularly important before the commencing earth station site selection processes.

[9] For example, FCC approval can include requirements to coordinate with NASA facilities, including Tidbinbilla and other US users of S-band.

3 Q/V bands and embargo 80

As described in our Five-year spectrum outlook, the ACMA is currently monitoring developments in the 40 GHz (37.5–43.5 GHz), 46 GHz (45.5–47 GHz) and 47 GHz (47.2–48.2 GHz) frequency bands, and the adjacent 48.2–50.2 GHz and 50.4–52.4 GHz bands, which are collectively known as Q/V bands.

Of these bands, 37.5–43.5 GHz and 47.2–48.2 GHz have been identified for International Mobile Telecommunications (IMT) in the Radio Regulations, meaning they may be used for wide-area wireless broadband services in future. The bands 48.2–50.2 GHz and 50.4–52.4 GHz have not been identified for IMT.

While we do not intend to undertake a full review of these bands at this time, we have acknowledged that the satellite industry is seeking greater certainty in accessing this spectrum to assist with long-term planning (particularly for gateway earth stations), with a number of operators looking to deploy new satellite systems in the coming years. For this reason, in October 2023, we developed interim licensing process for licence applications for satellite gateway earth stations in these bands, as set out in spectrum embargo 80.

With limited take up for mmWave wireless broadband services, we are open to considering whether changes can be made to the interim arrangements currently recorded in Attachment 2 of embargo 80, to provide greater certainty for gateway earth stations, depending on resourcing and competing requirements. Our initial view is that:

- Restrictions can be removed from bands with no IMT identifications (that is, 48.2–50.2 GHz and 50.4–52.4 GHz).
- Restrictions can be removed for areas outside of areas specified in Radiocommunications (Spectrum Re-allocation—26 GHz band) Declaration 2019.
- That for the technical restrictions specified in the embargo (minimum antenna diameter: 2.4 m and minimum antenna elevation: 20 degrees), which were a way of limiting usage to gateway earth stations only, our view is the restrictions can be relaxed and still meet that objective. We intend to the reduce the antenna size to 1.8 m and align the minimum elevation angles with that specified in RALI MS 45: Frequency coordination requirements between microwave fixed point-to-point links and earth stations.
- For bands with IMT identification (37.5–43.5 GHz and 47.2–48.2 GHz), there are restrictions in areas of anticipated high IMT usage, as defined by areas specified in Radiocommunications (Spectrum Re-allocation—26 GHz band) Declaration 2019. While we do not have a specific proposal, we seek views of industry on whether any changes are required to those area definitions.

A revised version of Attachment 2 of embargo 80 showing these changes follows. Applicable relevant changes have been included in the proposed updates to our licensing procedures for Submission and processing of applications for earth, earth receive apparatus licences and device registrations under area-wide apparatus licences for fixed earth stations.

Revised Table 1: Interim Q/V band earth station licensing process

Area	Bands identified for IMT (37.5–43.5 GHz, 47.2–48.2 GHz)	Bands not identified for IMT (48.2–50.2 GHz, 50.4–52.4 GHz)
Embargo 49 (Mingenew) and east coast ESPZs as specified in RALI MS44 (Moree, Quirindi and Roma).	Normal application process. No specific conditions related to potential replanning of the band.	Normal application process. No specific conditions related to potential replanning of the band.
Outside of areas specified in Radiocommunications (Spectrum Re-allocation — 26 GHz band) Declaration 2019 (except Mingenew and east coast ESPZ).	Normal application process. No specific conditions related to potential replanning of the band.	Normal application process. No specific conditions related to potential replanning of the band.
Inside areas specified in Radiocommunications (Spectrum Re-allocation — 26 GHz band) Declaration 2019.	Written acknowledgement from applicant (satellite operator) that bands are under review and planning arrangements may change, requiring operations to cease or to be modified (explicitly acknowledge all requirements). Application of advisory note BL on any licence issued. Two-year, non-renewable licence. Technical restrictions apply (see below).	Normal application process. No specific conditions related to potential replanning of the band.

Licensing considerations, conditions and advisory notes

In additional to the above, licence applications for Q/V earth stations will be considered in accordance with the procedures in our document *Submission and processing of applications for earth, earth receive apparatus licences and device registrations under area-wide apparatus licences for fixed earth stations* with the following modifications:

- Where an acknowledgement from the applicant is required that the band is under review, that acknowledgment is to be provided in the form of a signed letter from the relevant responsible entity (normally the head of regulatory affairs within the satellite operator or equivalent) stating that the bands are under review, that arrangements may change in the future, and that they accept any licence conditions that might be imposed. (Only required when in IMT bands are inside areas specified in Radiocommunications (Spectrum Re-allocation — 26 GHz band) Declaration 2019).

- The applicant will be responsible for undertaking an assessment of existing terrestrial services (a standard requirement).

Technical restrictions

For IMT bands inside areas specified in Radiocommunications (Spectrum Re-allocation—26 GHz band) Declaration 2019:

- Minimum antenna diameter: 1.8 m.
- Minimum antenna elevation: 15 degrees.

For clarity, as per the original (current embargo), these restrictions continue to only apply in IMT bands inside areas specified in the Radiocommunications (Spectrum Re-allocation—26 GHz band) Declaration 2019 – it is just the antenna size and minimum elevation that is being relaxed.

Elsewhere, the minimum elevation angles are as specified in RALI MS 45: Frequency coordination requirements between microwave fixed point-to-point links and earth stations. (added for clarity).

4 East coast earth station protection zones

The ACMA encourages the sustainable siting of earth stations and other space communications facilities. This is particularly relevant to those earth stations operating in bands shared with other services in Australian planning arrangements. We aim to provide options for satellite earth stations and other space communications facilities while meeting the needs of these facilities into the future and providing long-term planning certainty. One approach used to meet this aim is to create earth station protection zones (ESPZs).

ESPZs are a tool the ACMA and industry can jointly use to provide increased long-term predictability and security to the satellite industry, while enabling spectrum in more populous areas to reach the uses that maximise the overall public benefit. This approach involves identifying an area where regulatory measures can be implemented to protect the operation of the satellite and space sectors. The framework defining these zones includes mechanisms to provide increased assurance of spectrum availability and use into the future.

Siting earth stations away from capital cities in areas of low population density enables the ACMA to protect an area around these sites, while freeing up spectrum in highly populated areas for use by terrestrial services where doing so is determined to represent the optimal overall public benefit. Developments such as the expansion of optical fibre networks throughout Australia mean there are a range of more flexible opportunities and reduced requirements to maintain or establish all earth stations within capital cities.

We initially recognised the value of locating earth stations in areas of low population density through the established an ESPZ around Mingenew in Western Australia. Further ESPZs on the east coast were established in 2018 in Uralla (for 3575–4200 MHz band) and Quirindi, Moree and Roma for a range of bands.

Details of the arrangements are contained in:

- Spectrum embargo 49 (Mingenew, for a variety of frequency bands between 2015 MHz and 59300 MHz).
- Spectrum embargo 72 (Quirindi, Moree, Roma for 2025–2110 MHz 2200–2290 MHz).
- RALI MS 44: Frequency coordination procedures for the earth station protection zones, which primarily covers Quirindi, Moree, Roma (frequency bands included of each of these locations is the same supporting FSS services between) with arrangements for Mingenew (Ka and C band) and Uralla (C Band) included as an outcome of planning reviews for those bands.

In creating the east coast ESPZ of Quirindi, Moree and Roma, our intention was to review the arrangements after a number of years with the view of considering the viability of the exclusion zones to ensure efficient use of the spectrum.

To assist in preparing of a future review, we are seeking the views of industry on what matters to consider in a future review of ESPZs, including the ongoing applicability of frequency bands and locations currently covered by those zones. Here we note that after 8 years there has been limited deployment of earth station within the east coast ESPZs, with earth stations only licensed in the bands 17.7–20.2 GHz and 27–30 GHz.

4.1 Making a submission

We invite comments on the issues set out in this discussion paper.

- Online submissions can be made by uploading a document. Submissions in PDF, Microsoft Word or Rich Text Format are preferred.
- Submissions by post can be sent to:

  The Manager
  Space Systems Section
  Australian Communications and Media Authority
  PO Box 78
  Belconnen ACT 2616

The closing date for submissions is **COB, Tuesday 19 January 2027**.

Consultation enquiries can be emailed to satellite.coordination@acma.gov.au.

4.1.1 Publication of submissions

We publish submissions on our website, including personal information (such as names and contact details), except for information that you have claimed (and we have accepted) is confidential.

Confidential information will not be published or otherwise released unless required or authorised by law.

4.1.2 Privacy

View information about our policy on the publication of submissions, including collection of personal information during consultation and how we handle that information.

Information on the *Privacy Act 1988*, how to access or correct personal information, how to make a privacy complaint and how we will deal with any complaints, is available in our privacy policy.