Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2025

The Australian Communications and Media Authority makes the following guidelines under section 262 of the *Radiocommunications Act 1992*.

Dated: 4 September 2025

Adam Suckling
[signed]
Member

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[signed]
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Australian Communications and Media Authority

Part 1—Preliminary

1 Name

These are the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2025*.

2 Commencement

This instrument commences on 23 September 2025.

Note: The Federal Register of Legislation is available, free of charge, at www.legislation.gov.au.

3 Authority

This instrument is made under section 262 of the Act.

4 Repeals

(1) The *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015* (F2015L00728) are repealed.

(2) The *Radiocommunications – 3.4 GHz Band Omnibus Variation 2018 (No. 1)* (F2018L01063) is repealed.

5 Definitions

(1) In this instrument, unless the contrary intention appears:

3.4 GHz band means the frequency band 3400 MHz to 3800 MHz.

3.4 GHz spectrum licence means a spectrum licence that authorises the operation of radiocommunications devices in the 3.4 GHz band.

3.4 GHz transmitter means a radiocommunications transmitter operated under a 3.4 GHz spectrum licence.

aeronautical radionavigation service has the meaning given by the spectrum plan.

amateur class licence means:

(a) the *Radiocommunications (Amateur Stations) Class Licence 2023*; or

(b) if another instrument replaces that class licence – the other instrument.

Note: The *Radiocommunications (Amateur Stations) Class Licence 2023* is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

RALI FX 3 means the Radiocommunications Assignment and Licensing Instruction FX 3 *Microwave fixed services frequency coordination*, published by the ACMA.

Note: RALI FX 3 is available, free of charge, from the ACMA's website at www.acma.gov.au.

RALI MS 44 means the Radiocommunications Assignment and Licensing Instruction MS 44 *Frequency coordination procedures for the Earth station protection zones*, published by the ACMA.

Note: RALI MS 44 is available, free of charge, from the ACMA's website at www.acma.gov.au.

RALI MS 47 means the Radiocommunications Assignment and Licensing Instruction MS 47 *Frequency coordination and licensing procedures for Area-Wide Licences (AWL) in the 3400–4000 MHz band*, published by the ACMA.

Note: RALI MS 47 is available, free of charge, from the ACMA's website at www.acma.gov.au.

RALI MS 50 means the Radiocommunications Assignment and Licensing Instruction MS 50 *Frequency coordination and licensing procedures for point-to-multipoint system licences in the 3400-3475 MHz and 3950-4000 MHz bands*, published by the ACMA.

Note: RALI MS 50 is available, free of charge, from the ACMA's website at www.acma.gov.au.

subsection 145(4) determination means the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2025*.

Note 1: The *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2025* is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

Note 2: A number of other expressions used in this instrument are defined in the Act, including the following:

(a) ACMA;
(b) apparatus licence;
(c) class licence;
(d) frequency band;
(e) interference;
(f) radiocommunications device;
(g) radiocommunications receiver;
(h) radiocommunications transmitter;
(i) Register;
(j) spectrum licence;
(k) spectrum plan;
(l) spectrum re-allocation declaration.

Note 3: A number of other expressions used in this instrument may be defined in the *Radiocommunications (Interpretation – Technical Framework) Determination 2024* or another instrument made under subsection 64(1) of the *Australian Communications and Media Authority Act 2005*, including:

(a) AAS;
(b) Act;
(c) fixed receiver;
(d) fixed transmitter;
(e) harmful interference;
(f) HCIS identifier;
(g) in-band;
(h) ITU-R Recommendation;
(i) LIPD class licence;
(j) out-of-band.

(2) In this instrument, unless the contrary intention appears, each of the terms listed in subsection (3) has the meaning given by:

(a) the *Radiocommunications (Interpretation) Determination 2025*; or
(b) if another instrument replaces that determination and defines the term – the other instrument.

Note: The *Radiocommunications (Interpretation) Determination 2025* is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

(3) For the purposes of subsection (2), the terms are:

(a) ***aeronautical mobile service***;
(b) ***aircraft station***;
(c) ***area-wide licence***;

(d) ***area-wide receive licence***;
(e) ***earth receive licence***;
(f) ***earth receive station***;
(g) ***earth station***;
(h) ***fixed licence***;
(i) ***fixed receive station***;
(j) ***fixed-satellite service***;
(k) ***point to multipoint station***;
(l) ***point to multipoint system***.

(4) In this instrument, unless otherwise specified, a reference to a part of the spectrum or a frequency band includes all frequencies that are greater than but not including the lower frequency, up to and including the higher frequency.

Note: This subsection means the lower number in a part of the spectrum or a frequency band is not included in the part of the spectrum or the frequency band.

6 References to other instruments

In this instrument, unless the contrary intention appears:

(a) a reference to any other legislative instrument is a reference to that other legislative instrument as in force from time to time; and
(b) a reference to any other kind of instrument or writing is a reference to that other instrument or writing as in force or existing from time to time.

Note 1: For references to Commonwealth Acts, see section 10 of the *Acts Interpretation Act 1901*; and see also subsection 13(1) of the *Legislation Act 2003* for the application of the *Acts Interpretation Act 1901* to legislative instruments.

Note 2: All Commonwealth Acts and legislative instruments are registered on the Federal Register of Legislation.

Note 3: See section 314A of the Act.

Part 2—Overview

7 Background

(1) The 3.4 GHz band has been allocated for spectrum licensing in specified parts of Australia. Spectrum licensed, apparatus licensed and class licensed radiocommunications transmitters communicate with radiocommunications receivers in and adjacent to the 3.4 GHz band. These receivers may suffer interference from unwanted emissions, blocking and intermodulation caused by a 3.4 GHz transmitter.

(2) This instrument has been made to provide guidance on the management of interference from 3.4 GHz transmitters operated under a 3.4 GHz spectrum licence to radiocommunications receivers operating in the following circumstances:

(a) as part of point to point fixed services on frequencies in and adjacent to the 3.4 GHz band (Part 3);

(b) as fixed-satellite service earth receive stations operating in the 3400 MHz to 4200 MHz frequency band (Part 4);

(c) as part of point to multipoint services in the 3400 MHz to 3700 MHz frequency band (Part 5);

(d) as part of radiolocation services in the 3300 MHz to 3400 MHz frequency band, or the 3400 MHz to 3600 MHz frequency band (Part 6);

(e) as authorised by a class licence, or to receive transmissions from a radiocommunications transmitter operated in accordance with a class licence (Part 7);

(f) as spectrum licensed receivers in areas adjacent to the 3.4 GHz spectrum licence (Part 8);

(g) in earth station protection zones (Part 9);

(h) at an earth station facility near Uralla, New South Wales (Part 10);

(i) as part of highly localised wireless broadband services provided under fixed licences (Part 11);

(j) as authorised by area-wide licences in the 3400 MHz to 4000 MHz frequency band, adjacent to the 3.4 GHz spectrum licence (Part 12);

(k) as authorised by area-wide licences in areas adjacent to the 3.4 GHz spectrum licence (Part 13);

(l) as part of aeronautical mobile and aeronautical radionavigation services in the 4200 MHz to 4400 MHz frequency band (Part 14).

(3) As radio waves propagate in different ways because of factors such as frequency, terrain, atmospheric conditions and topography, there are a number of ways to predict path loss. The ITU-R Recommendation P.1144 “Guide to the application of the propagation methods of Radiocommunication Study Group 3” provides a guide on the application of various propagation methods developed by the Radiocommunication Sector of the International Telecommunication Union. It advises on the most appropriate methods for particular applications, as well as the limits, required input information and output for each of these methods. The most recent version of propagation models developed by the Radiocommunication Sector of the International Telecommunication Union should be considered when modelling propagation in the 3.4 GHz band.

Note 1: ITU-R Recommendation P.1144 is available, free of charge, from the International Telecommunication Union’s website at www.itu.int.

Note 2: The use of other published propagation models applicable to the 3.4 GHz band may also be suitable.

(4) The ACMA may take this instrument into account in determining whether a 3.4 GHz transmitter is causing interference to an apparatus licensed or class licensed radiocommunications receiver operating in circumstances set out in this instrument.

(5) This instrument does not prevent a person negotiating and implementing other protection requirements with other persons.

Part 3—Point to point fixed service receivers

8 Background

(1) Point to point fixed services operating on frequencies in and adjacent to the 3.4 GHz band are generally licensed in accordance with the frequency assignment criteria set out in RALI FX 3. RALI FX 3 provides details about channel plans for individual microwave bands, and guidance on interference criteria and frequency coordination between microwave links to achieve certain performance objectives. It provides assignment criteria for each frequency band and specifies protection ratios. The criteria and assumed performance are generally based on accepted ITU-R Recommendations and European Telecommunications Standards Institute standards, modified as required for the Australian context.

(2) RALI FX 3 is subject to continuing review in consultation with industry, to incorporate improved assignment techniques and changing technology requirements. Particular account is taken of changes in ITU-R Recommendations, and standards made by other bodies. As revisions made by the ACMA seek to improve spectrum access opportunities, without causing undue detriment to existing licences, users of RALI FX 3 should consult the current version when planning systems, to increase spectrum productivity.

9 Point to point receiver protection requirements

(1) The protection requirements, to be met by a 3.4 GHz transmitter for a radiocommunications receiver:

(a) used in the provision of point to point fixed services on frequencies in and adjacent to the 3.4 GHz band; and

(b) included in the Register before the relevant was included in the Register;

are specified in RALI FX 3.

(2) In planning for the operation of 3.4 GHz transmitters, spectrum licensees are to provide a level of in-band and out-of-band protection from those transmitters as would be provided for apparatus licensed radiocommunications transmitters used for fixed services, the frequencies of which are assigned in accordance with RALI FX 3.

Part 4—Fixed-satellite service earth receive stations

10 Background

(1) Fixed-satellite service earth receive stations operate in the 3400 MHz to 4200 MHz frequency band.

(2) The spectrum plan allocates the 3600 MHz to 4200 MHz frequency band for the fixed-satellite service as a primary service.

(3) The spectrum plan allocates the 3400 MHz to 3600 MHz frequency band for the fixed-satellite service as a secondary service.

Note: For more about primary services, see sections 6, 7 and 12 of the spectrum plan.

11 Protection requirements – fixed-satellite service earth receive stations under earth receive licences in 3400 MHz to 3600 MHz

(1) Section 12 of the spectrum plan provides that:

(a) a secondary service in a frequency band is not to cause harmful interference to a primary service in that band; and

(b) a secondary service in a frequency band is not entitled to protection from harmful interference caused by a primary service in that band.

(2) A 3.4 GHz transmitter operated in accordance with the conditions of a 3.4 GHz spectrum licence is taken not to cause unacceptable interference to a fixed-satellite service earth receive station operating in the 3400 MHz to 3600 MHz frequency band.

(3) A 3.4 GHz spectrum licensee, in planning for the operation of a fixed transmitter under the licence, is to notify the licensee of an earth receive licence that authorises the operation of fixed-satellite service earth receive station (the ***affected licensee***) before registering the transmitter, if frequency coordination indicates that interference may occur. Such notification will allow the affected licensee to implement mitigation measures, implement alternative arrangements for the delivery of services, or negotiate with the 3.4 GHz spectrum licensee in relation to the continued delivery of services.

Note: Where practical, 3.4 GHz spectrum licensees are encouraged to work with affected licensees to resolve any interference.

12 Protection requirements – fixed-satellite service earth receive stations under earth receive licences in 3600 MHz to 4200 MHz

Application

(1) If subsection (2) applies to an earth receive station, a person operating a 3.4 GHz transmitter (the ***relevant transmitter***) under a 3.4 GHz spectrum licence is to protect the station for a fixed-satellite service from the following:

(a) co-channel emissions;

(b) unwanted emissions;

(c) receiver overload.

(2) This subsection applies to an earth receive station if:

(a) the station is operated under an earth receive licence; and

(b) the station was included in the Register before the relevant transmitter was included in the Register; and

(c) the station is located within:

(i) if the relevant transmitter does not operate on the same frequency as the station – 100 kilometres of the relevant transmitter; or

(ii) if the relevant transmitter operates on the same frequency as the station – 200 kilometres of the relevant transmitter; and

(d) the station operates on a frequency in the 3600 MHz to 4200 MHz frequency band.

Co-channel emissions

(3) A 3.4 GHz spectrum licensee is to protect a fixed-satellite service earth receive station from co-channel emissions to a maximum interference level of -128.6 dBm/MHz, which is not to be exceeded for more than 20% of the time.

Note: See ITU-R Recommendation SF.1006 for further guidance on the procedure to use for the protection of fixed-satellite service earth receive stations. ITU-R Recommendation SF.1006 is available, free of charge, from the International Telecommunication Union's website at www.itu.int.

Unwanted emissions

(4) A 3.4 GHz spectrum licensee is to protect a fixed-satellite service earth receive station from unwanted emissions (both out-of-band emissions and spurious emissions) to a level of -128.6 dBm/MHz, assuming a receiver noise temperature of 100° Kelvin, which is not to be exceeded for more than 20% of the time.

Note: When assessing interference from unwanted emissions, the highest level of out-of-band or spurious emissions that fall within the licensed bandwidth of the earth receive station should be considered in calculations.

Receiver overload

(5) A 3.4 GHz transmitter is not considered to overload a fixed-satellite service earth receive station if the total power received from the transmitter at the input of the earth receive station does not exceed -65 dBm.

(6) For the purposes of subsection (5), the total power received from the transmitter is assessed after considering antenna gain, radiofrequency filtering and other losses.

(7) For the purposes of subsection (5), for the operation of a 3.4 GHz transmitter before 16 July 2027, the minimum radiofrequency filtering level described in Table 1, at the front end of the earth receive station for the specified frequency offsets, should be assumed.

Note: The re-allocation period specified in the *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022* ends on 16 July 2027. That legislative instrument is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

Table 1

	Column 1	**Column 2**
	Frequency offset from appropriate frequency limit of earth receive licence	**Rejection (dB)**
1	0 MHz to 50 MHz	$0.5 + 0.6*f_{offset}(MHz)$
2	50 MHz to 110 MHz	45.5
3	110 MHz to 150 MHz	$30.5 + 0.25*(f_{offset}(MHz) – 50)$
4	150 MHz to 200 MHz	55.5

	Column 1	Column 2
	Frequency offset from appropriate frequency limit of earth receive licence	**Rejection (dB)**
5	≥200 MHz	70

(8) For the purposes of subsection (5), for the operation of a 3.4 GHz transmitter on or after 16 July 2027, the minimum radiofrequency filtering level described in Table 2 should be assumed.

Note: The re-allocation period specified in the *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022* ends on 16 July 2027. That legislative instrument is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

Table 2

	Column 1	Column 2
	Frequency offset from appropriate frequency limit of earth receive licence	**Rejection (dB)**
1	0 MHz to 15 MHz	$0.5 + 0.6*f_{offset}$(MHz)
2	15 MHz to 20 MHz	30
3	20 MHz to 100 MHz	60
4	≥100 MHz	70

(9) For the purposes of the tables in subsections (7) and (8), for a fixed-satellite service earth receive station operated under an earth receive licence, the assumptions set out in subsections (10) to (12) apply.

(10) If the earth receive licence was first issued before 16 July 2022, then, until 16 July 2027, the filter is assumed to apply only below the lower limit of the licence. In this subsection, ***lower limit of the licence*** means:

(a) if the licensee of the earth receive licence holds only one earth receive licence authorising the operation of one earth receive station protected under this section, on a particular centre frequency at a specific site and on a specific antenna, subject to a particular bandwidth – the frequency obtained by subtracting half the particular bandwidth from the particular centre frequency;

(b) if the licensee of the earth receive licence holds only one earth receive licence authorising the operation of more than one earth receive station protected under this section at the same site and on the same antenna, each on a particular centre frequency and subject to a particular bandwidth – the frequency obtained by subtracting half the bandwidth for the earth receive station authorised to operate on the lowest of the particular centre frequencies from that centre frequency;

(c) if the licensee of the earth receive licence holds more than one earth receive licence, each authorising the operation of one or more earth receive stations protected under this section at the same site and on the same antenna, each on a particular centre frequency and subject to a particular bandwidth – the frequency obtained by subtracting half the bandwidth for the earth receive station authorised to operate on the lowest of the particular centre frequencies from that centre frequency.

(11) If the earth receive licence was first issued before 16 July 2022, then, on and after 16 July 2027, the filter is assumed to apply below the lower limit for the station and above the upper limit of the station. In this subsection:

lower limit for the station means the frequency obtained by subtracting half the bandwidth specified in the licence for the station from the particular centre frequency or emission frequency specified in the licence for the station.

upper limit for the station means the frequency obtained by adding half the bandwidth specified in the licence for the station to the particular centre frequency or emission frequency specified in the licence for the station.

Note: The re-allocation period specified in the *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022* ends on 16 July 2027. That legislative instrument commenced on 16 July 2022 and is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

(12) If the earth receive licence was first issued on or after 16 July 2022, the filter is assumed to apply below the lower limit for the station and above the upper limit for the station. In this subsection:

lower limit for the station means the frequency obtained by subtracting half the bandwidth specified in the licence for the station from the particular centre frequency or emission frequency specified in the licence for the station.

upper limit for the station means the frequency obtained by adding half the bandwidth specified in the licence for the station to the particular centre frequency or emission frequency specified in the licence for the station.

Note 1: To operate consistently with the assumptions in subsections (11) and (12), bandpass or notch filters may be required between different earth receive stations that are operating on different frequencies in the 3600 MHz to 4200 MHz frequency band, but on the same antenna. This is the case irrespective of whether operation of the stations is authorised by the same or different earth receive licences. If there are multiple earth receive licences authorising stations that operate on the same antenna in the 3600 MHz to 4200 MHz frequency band, for interference management purposes a bandpass filter can be assumed at the lower and upper edges of each group of licences, where the stations operated under those licences are directly adjacent in frequency.

Note 2: The *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022* commenced on 16 July 2022. That legislative instrument is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

Other matters

(13) When assessing interference caused by unwanted emissions, or receiver overload:

(a) propagation loss between a 3.4 GHz transmitter and a fixed-satellite service earth receive station should be calculated using ITU-R Recommendation P.452, with $p = 20\%$;

(b) if actual antenna radiation patterns are not available for a fixed-satellite service earth receive station, assume the antenna radiation pattern defined in ITU-R Recommendation S.465.

Note 1: For paragraph (a), the parameter p is defined in ITU-R Recommendation P.452 as the required time percentage for which the calculated basic transmission loss is not exceeded.

Note 2: ITU-R Recommendations P.452 and S.465 are available, free of charge, from the International Telecommunication Union's website at www.itu.int.

(14) The first time a 3.4 GHz licensee performs adjacent channel coordination for a radiocommunications transmitter with a fixed-satellite service earth receive station operated under an earth receive licence in the 3600 MHz to 4200 MHz frequency band, before the transmitter is included in the Register, the 3.4 GHz licensee is to notify the earth receive licensee. This is to ensure that the earth receive licensee has the opportunity

to install a radiofrequency filter with the relevant characteristics in subsection (7) or (8), as appropriate, to the front end of the earth receive station.

13 Additional protection requirements – incumbent fixed-satellite service earth receive stations under earth receive licences in 3600 MHz to 3800 MHz

Application

(1) If subsection (2) applies to an earth receive station, a person operating a 3.4 GHz transmitter (the ***relevant transmitter***) under a 3.4 GHz spectrum licence is to protect the station in the manner set out in:
  (a) sections 11 and 12, as if those sections apply to the earth receive station; and
  (b) subsection (3).

(2) This subsection applies to an earth receive station if:
  (a) the station is operated under an earth receive licence; and
  (b) the station operates in the 3600 MHz to 3800 MHz frequency band; and
  (c) the station is authorised to use a frequency, and be located at a site, that is within the frequencies and areas contained in one of the following spectrum re-allocation declarations, as in force at the time the declaration commenced:
    (i) the *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022*;
    (ii) the *Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Adelaide and Eastern Metropolitan Australia) Declaration 2018*;
    (iii) the *Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Perth) Declaration 2018*;
    (iv) the *Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Regional Australia) Declaration 2018*.

Note: Each of these spectrum re-allocation declarations is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

Co-channel emissions

(3) A 3.4 GHz spectrum licensee is to protect an earth receive station within 300 kilometres of the relevant transmitter from co-channel emissions to a maximum interference level of - 119.9 dBm/MHz, which is not to be exceeded more than 0.005% of the time.

Note 1: See ITU-R Recommendation SF.1006 for further guidance on the procedure to use for the protection of fixed-satellite service earth receive stations. ITU-R Recommendation SF.1006 is available, free of charge, from the International Telecommunication Union's website at www.itu.int.

Note 2: Locations of earth receive stations are available, free of charge, from the Register of Radiocommunications Licences on the ACMA's website at www.acma.gov.au.

14 Protection requirements – fixed-satellite service earth receive stations under area-wide receive licences in 3750 MHz to 4000 MHz

(1) If subsection (2) applies to an earth receive station, a 3.4 GHz transmitter (the ***relevant transmitter***) operated under a 3.4 GHz spectrum licence is to protect the station for a fixed-satellite service from receiver overload.

(2) This subsection applies to an earth receive station if:
  (a) the station is operated under an area-wide receive licence; and
  (b) the station was included in the Register before the relevant transmitter was included in the Register; and

(c) the station is located within 100 kilometres of the relevant transmitter.

(3) A 3.4 GHz transmitter is not considered to overload an earth receive station if the total power received from the transmitter at the input of the station does not exceed -65 dBm.

(4) For the purposes of subsection (3), the total power received from the transmitter is assessed after considering antenna gain, radiofrequency filtering and other losses.

(5) For the purposes of subsection (3), for the operation of a 3.4 GHz transmitter, the minimum radiofrequency filtering level described in Table 3 should be assumed.

Table 3

	Column 1	Column 2
	Frequency offset from lower limit or upper limit of a licence for earth receive station	**Rejection (dB)**
1	0 MHz to 80 MHz	60
2	≥80 MHz	70

(6) In subsection (5):

lower limit of a licence means, in relation to the geographic area specified in an area-wide receive licence that authorises the operation of an earth receive station, the lowest frequency specified in the licence for the operation of radiocommunications receivers in that geographic area.

upper limit of a licence means, in relation to the geographic area specified in an area-wide receive licence that authorises the operation of an earth receive station, the highest frequency specified in the licence for the operation of radiocommunications receivers in that geographic area.

(7) When assessing interference caused by receiver overload:

(a) propagation loss between a 3.4 GHz transmitter and an earth receive station should be calculated using ITU-R Recommendation P.452, with p = 20%;

(b) if actual antenna radiation patterns are not available for a fixed-satellite service earth receive station, assume the antenna radiation pattern defined in ITU-R Recommendation S.465.

Note 1: For paragraph (a), the parameter p is defined in ITU-R Recommendation P.452 as the required time percentage for which the calculated basic transmission loss is not exceeded.

Note 2: ITU-R Recommendations P.452 and S.465 are available, free of charge, from the International Telecommunication Union's website at www.itu.int.

(8) For coordination occurring before 16 July 2027, the first time a 3.4 GHz licensee performs adjacent channel coordination for a radiocommunications transmitter with an earth receive station in the 3750 MHz to 4200 MHz frequency band, before the transmitter is included in the Register, the 3.4 GHz licensee is to notify the area-wide receive licensee. This is to ensure that the area-wide receive licensee has the opportunity to install a radiofrequency filter with the relevant characteristics in subsection (5) to the front end of the earth receive station.

Part 5—Point to multipoint services

15 Background

Point to multipoint services operate in the 3400 MHz to 3700 MHz frequency band, using apparatus licensing arrangements. Frequency assignments arrangements for point to multipoint services are set out in RALI MS 47.

Note: RALI MS 47 is available, free of charge, from the ACMA's website at www.acma.gov.au.

16 Protection requirements

(1) If subsection (2) applies to a radiocommunications receiver that is part of a point-to-multipoint station, a 3.4 GHz transmitter (the ***relevant transmitter***) operated under a 3.4 GHz spectrum licence is to comply with the requirements specified in RALI MS 47 relating to the levels of interference protection to be afforded to the receiver,

(2) This subsection applies to a radiocommunications receiver that is part of a point-to-multipoint station where:

(a) a radiocommunications transmitter that is part of the station is operated under a transmitter licence; and

(b) the station was included in the Register before the relevant transmitter was included in the Register.

Part 6—Radiolocation services

17 Background

The spectrum plan allocates the 3100 MHz to 3400 MHz and 3400 MHz to 3600 MHz frequency bands to the radiolocation service as a primary service.

Note: For primary services and secondary services, see sections 5, 7 and 12 of the spectrum plan.

18 No protection requirements in some cases

A 3.4 GHz transmitter operated in accordance with the conditions of a 3.4 GHz spectrum licence is taken not to cause unacceptable interference to radiolocation services in the 3100 MHz to 3400 MHz and 3400 MHz to 3600 MHz frequency bands.

Part 7—Class licensed services

19 Background

(1) The LIPD class licence and the amateur class licence authorise the operation of a number of different kinds of radiocommunications transmitters in the 3.4 GHz band.

(2) The operation of radiocommunications transmitters under a class licence is generally on a ‘no-interference’ and ‘no-protection’ basis.

20 No protection requirements in some cases

A 3.4 GHz transmitter operated in accordance with the conditions of a 3.4 GHz spectrum licence is taken not to cause unacceptable interference to a radiocommunications device operated under the LIPD class licence or the amateur class licence.

Part 8—Spectrum licensed receivers

21 Background

(1) Fixed receivers operate under various 3.4 GHz spectrum licences in adjacent geographic areas. The device boundary criterion in the subsection 145(4) determination is the primary method for managing interference between geographically-adjacent 3.4 GHz spectrum licences.

(2) However, it may be necessary for licensees of 3.4 GHz spectrum licences to negotiate with each other to avoid harmful interference.

22 Recommended preliminary coordination procedures

(1) Before a radiocommunications transmitter is included in the Register for a 3.4 GHz spectrum licence, the licensee should have regard to radiocommunications receivers included in the Register for other 3.4 GHz spectrum licences.

(2) When planning to operate a fixed transmitter under a 3.4 GHz spectrum licence, the licensee should coordinate with any fixed receivers included in the Register for other 3.4 GHz spectrum licences. The coordination should:

(a) use the details of each fixed receiver, as included in the Register; and

(b) use the level of protection set out in the subsection 145(4) determination; and

(c) use a suitable propagation model to model path loss between the fixed transmitter and each fixed receiver; and

(d) take into account the terrain and any other relevant factors.

Example for paragraph (c): The propagation model in the latest version of ITU-R Recommendation P.526 “Propagation by diffraction” is an example of a suitable propagation model. ITU-R Recommendation P.526 is available, free of charge, from the International Telecommunication Union’s website at www.itu.int.

(3) If such coordination indicates that harmful interference may occur to a fixed receiver as a result of operating the fixed transmitter, the licensee should consider:

(a) replanning the fixed transmitter to avoid the harmful interference; or

(b) negotiating with the licensee of the affected 3.4 GHz spectrum licence to find a resolution.

(4) If harmful interference cannot be avoided in accordance with subsection (3), or another agreement between affected licensees cannot be reached, interference may be managed in accordance with a condition in a 3.4 GHz spectrum licence about synchronisation requirements.

Note: For a radiocommunications transmitter with AAS, the radiated power in the direction of a radiocommunications receiver operated under a different licence is defined as the sum of the gain of the antenna towards the direction of the receiver (accounting for azimuth and elevation) and the total radiated power (measured in dBm). This allowance is based on the assumption that beam pointing angles or power, or both, can be controlled dynamically to ensure that a defined level of radiated power in a specific direction is not exceeded.

Part 9—Earth station protection zones

23 Background

The ACMA has identified a number of locations that may be suitable as earth station protection zones in eastern and western Australia. The purpose of an earth station protection zone is to define an area, outside of reasonably sized population centres, that provides long-term certainty and flexibility for investment in, and operation of, commercial space communications gateway and teleport facilities.

24 Protection requirements

A 3.4 GHz transmitter is to comply with the coordination and protection requirements specified in RALI MS 44.

Note 1: RALI MS 44 sets out the earth station protection zones identified by the ACMA. The ACMA may change the earth station protection zones identified.

Note 2: RALI MS 44 is available, free of charge, from the ACMA's website at www.acma.gov.au.

Part 10—Earth station facility near Uralla

25 Background

There is an earth station facility near Uralla (the ***Uralla facility***) within the area covered by HCIS identifier NU7K4, where services operate in the 3400 MHz to 4200 MHz frequency band.

26 Protection requirements

A person operating a 3.4 GHz transmitter is to protect an earth station operating in the 3400 MHz to 4200 MHz frequency band at the Uralla facility to the levels specified in RALI MS 44.

Note 1: RALI MS 44 is available, free of charge, from the ACMA's website at www.acma.gov.au.

Note 2: Given some of the services operating at the Uralla facility are temporal in nature and/or may only track certain parts of the sky, there may be opportunity for detailed negotiations between licensees to manage interference while improving spectrum utilisation.

Note 3: The long-term viability of the Uralla facility may be reviewed in the future. This is in light of the increasing demand for fixed and mobile broadband capacity, growing international interest in the 3400 MHz to 4200 MHz band for use by fixed and mobile wireless broadband services, and the proximity of the site to major regional population centres. However, if fixed and mobile broadband service deployments in nearby major towns are not unreasonably restricted (noting there are likely to be some restrictions), this would be taken into consideration when assessing the long-term viability of the Uralla facility.

Part 11—Highly localised wireless broadband services under fixed licences

27 Background

(1) The ACMA has identified the 3400 MHz to 3475 MHz and the 3950 MHz to 4000 MHz frequency bands for use for highly localised wireless broadband services in urban areas, using fixed licences authorising the operation of point to multipoint systems. Such services encompass public, private and enterprise networks, including services at warehouses, factories, airports, ports, transport hubs, hospitals, schools and smart buildings.

(2) Arrangements for point to multipoint systems are described in RALI MS 50.

Note: RALI MS 50 is available, free of charge, from the ACMA's website at www.acma.gov.au.

(3) For conditions that may apply to fixed licences that authorise the operation of point to multipoint systems, see the *Radiocommunications Licence Conditions (Fixed Licence) Determination 2025*.

Note: The *Radiocommunications Licence Conditions (Fixed Licence) Determination 2025* is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

28 Protection requirements

(1) Point to multipoint systems operating in the 3950 MHz to 4000 MHz frequency band are considered to have sufficient frequency separation so that coordination of 3.4 GHz devices with them is not required.

(2) RALI MS 50 and the *Radiocommunications Licence Conditions (Fixed Licence) Determination 2025* specify that point to multipoint systems in the 3400 MHz to 3475 MHz frequency band do not receive protection from interference from a 3.4 GHz transmitter and must not cause interference to a 3.4 GHz receiver.

(3) RALI MS50 and the *Radiocommunications Licence Conditions (Fixed Licence) Determination 2025* require point to multipoint systems in the 3400 MHz to 3475 MHz frequency band to time synchronise the operation of their service with a co-channel, adjacent area 3.4 GHz band spectrum licence in certain circumstances.

Part 12—Frequency-adjacent area-wide licences in 3400 MHz to 4000 MHz

29 Background

(1) Area-wide licences may authorise the operation of radiocommunications transmitters, with associated radiocommunications receivers recorded in the Register, on frequencies adjacent to the 3.4 GHz band. These radiocommunications devices are typically used to provide wireless broadband services.

(2) Arrangements for area-wide licences are described in RALI MS 47. These arrangements note that area-wide licences will generally not be issued in areas subject to spectrum licensing in the 15 MHz of spectrum directly adjacent to a 3.4 GHz band spectrum licence.

Note: RALI MS 47 is available, free of charge, from the ACMA's website at www.acma.gov.au.

Note: For conditions that may apply to an area-wide licence, see the *Radiocommunications Licence Conditions (Area-Wide Licence) Determination 2020*, which is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

30 Protection requirements

Area-wide licences are considered to have sufficient frequency separation so that adjacent frequency coordination for 3.4 GHz devices is not required.

Part 13—Geographically-adjacent area-wide licences

31 Background

Area-wide licences may be issued to authorise the operation of radiocommunications transmitters, with associated radiocommunications receivers recorded in the Register, in the 3.4 GHz band. These radiocommunications transmitters are typically used to provide wireless broadband services, and may be near or geographically adjacent to a 3.4 GHz spectrum licence.

Note: For conditions that may apply to an area-wide licence, see the *Radiocommunications Licence Conditions (Area-Wide Licence) Determination 2020*, which is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

32 Protection requirements

(1) The device boundary criterion in the subsection 145(4) determination and RALI MS 47, and the registration of radiocommunications transmitters, are the primary methods for managing interference across the geographical boundary, from a 3.4 GHz transmitter to a radiocommunications device associated with an area-wide licence.

(2) Licensees may also agree on the implementation of alternative measures to manage interference.

Part 14—Aeronautical service

33 Background

(1) The spectrum plan allocates the 4200 MHz to 4400 MHz frequency band to the aeronautical mobile service and the aeronautical radionavigation service, as primary services.

Note: For primary services and secondary services, see sections 5, 7 and 12 of the spectrum plan.

(2) The operation of aircraft stations as radio altimeters in the 4200 MHz to 4400 MHz frequency band is authorised under the *Radiocommunications (Aircraft and Aeronautical Mobile Stations) Class Licence 2016*.

34 Protection requirements

(1) A 3.4 GHz transmitter is not to be operated in the 3700 MHz to 3800 MHz frequency band if the operation of the transmitter is inconsistent with any requirement for an area-wide licence specified in RALI MS 47, in relation to coexistence with radio altimeters.

Note: RALI MS 47 is available, free of charge, from the ACMA's website at www.acma.gov.au.

(2) For the purposes of this section, a reference in RALI MS 47 to:

(a) ***non-exempt AWL tx transmitter*** is taken to be a reference to a 3.4 GHz transmitter that is required to be included in the Register, being operated, or proposed to be operated, in the 3700 MHz to 3800 MHz frequency band; and

(b) ***AWL tx*** is taken to be a reference to a 3.4 GHz spectrum licence; and

(c) ***clause 4 of Schedule 4 to the AWL LCD*** is taken to be a reference to this section.

Note: For the requirement of a 3.4 GHz transmitter to be included in the Register, see the licence condition included in the relevant 3.4 GHz spectrum licence in accordance with section 69 of the Act.