EXPLANATORY STATEMENT

Approved by the Australian Communications and Media Authority

Radiocommunications Act 1992

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

Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2025

Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2025

Authority

The Australian Communications and Media Authority (the **ACMA**) has made the:

- *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2025* (**Transmitter Advisory Guidelines**); and
- *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 3.4 GHz Band) 2025* (**Receiver Advisory Guidelines**);

under section 262 of the *Radiocommunications Act 1992* (the **Act**) and subsection 33(3) of the *Acts Interpretation Act 1901* (the **AIA**).

Section 262 of the Act provides that the ACMA may make written advisory guidelines about any aspect of radiocommunication or radio emission.

Subsection 33(3) of the AIA relevantly provides that where an Act confers a power to make a legislative instrument, the power shall be construed as including a power exercisable in the like manner and subject to like conditions (if any) to repeal, rescind, revoke, amend or vary any such instrument.

The ACMA has made the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2025* (the **ULOI Determination**) under subsection 145(4) of the Act and subsection 33(3) of the AIA.

Section 145 of the Act provides that the ACMA may refuse to include details of a radiocommunications transmitter that is proposed to be operated under a spectrum licence in the Register of Radiocommunications Licences (**Register**), maintained by the ACMA under Part 3.5 of the Act. The ACMA may so refuse where it is satisfied that the transmitter could cause an unacceptable level of interference to the operation of other radiocommunications devices under that spectrum licence or any other licence. Subsection 145(4) of the Act provides that the ACMA may determine, by written instrument, what are unacceptable levels of interference for the purposes of section 145 of the Act.

Purpose and operation of the instruments

A spectrum licence permits a licensee, subject to specified conditions, to operate radiocommunications devices within a particular spectrum space, defined by a frequency band and a geographic area. Interference occurring between adjacent spectrum licences consists of in-band interference, across the geographic boundaries, and out-of-band interference, across the frequency

boundaries. Interference can also occur between spectrum licensed services and services operating under apparatus and class licensing arrangements.

The Act provides a number of means by which the ACMA may manage interference resulting from the operation of a radiocommunications transmitter under a spectrum licence, including the ability to make advisory guidelines under section 262 of the Act and the ability to determine an unacceptable level of interference under subsection 145(4) of the Act.

Section 28C of the Act requires the ACMA to have regard to any relevant Ministerial policy statements when performing its spectrum management functions, which includes its functions under subsection 145(4) and section 262 of the Act. The ACMA has had regard to the *Radiocommunications (Ministerial Policy Statement – 3.4–4.0 GHz) Instrument 2022* in making the Transmitter Advisory Guidelines, the Receiver Advisory Guidelines and the ULOI Determination (the **Instruments**). The Instruments relate to spectrum licences in the 3.4 GHz to 3.8 GHz frequency band (the **3.4 GHz band**), and are optimised for the operation of 4G and 5G technologies under those spectrum licences. The provisions of the Instruments allow spectrum licensed radiocommunications devices to coexist with other devices and services in and adjacent to the 3.4 GHz band. This helps support access to the broader 3.4 GHz to 4 GHz frequency band for a range of use cases and users.

Advisory guidelines

The ACMA has allocated spectrum licences in the 3.4 GHz band. The ACMA has previously made two instruments under section 262 of the Act in relation to those licences:

- the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015* (**2015 Transmitter Advisory Guidelines**); and
- the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 3.4 GHz Band) 2015* (**2015 Receiver Advisory Guidelines**).

The Transmitter Advisory Guidelines and the Receiver Advisory Guidelines are part of a set of instruments made by the ACMA that comprise the technical framework applicable to spectrum licences in the 3.4 GHz band, and repeal and replace the 2015 Transmitter Advisory Guidelines and 2015 Receiver Advisory Guidelines.

The purpose of the Transmitter Advisory Guidelines is to provide guidance to assist in managing the potential for interference to particular radiocommunications receivers, operating under apparatus or class licences, from interference caused by radiocommunications transmitters operating under spectrum licences in the 3.4 GHz band (**3.4 GHz transmitters**), where the 3.4 GHz transmitters operate in adjacent geographic areas, or adjacent frequency bands, to those receivers. The Transmitter Advisory Guidelines also provide guidance on managing interference across the geographic areas of spectrum licences issued in the 3.4 GHz band.

The Transmitter Advisory Guidelines aim to manage the potential for unwanted emissions, blocking and intermodulation products caused by radiocommunications transmitters operating under a spectrum licence interfering with radiocommunications receivers in the circumstances specified in the Transmitter Advisory Guidelines. The Transmitter Advisory Guidelines provide advice regarding the management of interference across the geographical areas of the 3.4 GHz band, or in adjacent frequency bands. Operators of spectrum licensed and apparatus licensed services should use the Transmitter Advisory Guidelines in the planning of services or the resolution of interference. The ACMA will also take the Transmitter Advisory Guidelines into account when determining whether a spectrum licensee is causing interference to a licensed radiocommunications receiver that is operating in accordance with its licence conditions.

The purpose of the Receiver Advisory Guideline is to provide guidance to assist in managing the potential for interference to particular radiocommunications receivers, operating under a spectrum licence, from interference caused by radiocommunications transmitters operated under an apparatus or class licence, or by 3.4 GHz transmitters, where the transmitters operate in adjacent geographic areas, or adjacent frequency bands, to those receivers. The Receiver Advisory Guidelines also provide guidance on managing interference across the geographic areas of spectrum licences issued in the 3.4 GHz band.

The Receiver Advisory Guidelines aim to manage the potential for in-band and out-of-band interference caused by radiocommunications transmitters operated under an apparatus, class or spectrum licence interfering with radiocommunications receivers in the circumstances specified in the Receiver Advisory Guidelines. The Receiver Advisory Guidelines provide advice regarding the management of interference across the geographical areas of the 3.4 GHz band, or in adjacent frequency bands. Operators of spectrum, apparatus or class licensed services should use the Receiver Advisory Guidelines in the planning of services or in the resolution of interference with radiocommunications receivers operated under spectrum licences in the 3.4 GHz band. The ACMA will also take the Receiver Advisory Guidelines into account when determining whether an apparatus licensee or spectrum licensee or person under a class licence is causing interference to a spectrum licensed radiocommunications receiver that is operating in accordance with its licence conditions.

The Transmitter Advisory Guidelines and Receiver Advisory Guidelines do not limit the actions of a spectrum licensee in negotiating operating or protection arrangements with another licensee.

The Act does not prescribe any consequences for failing to comply with the Transmitter Advisory Guidelines or the Receiver Advisory Guidelines.

ULOI Determination

Section 69 of the Act requires each spectrum licence to include a condition that a radiocommunications transmitter must not be operated under the licence unless the requirements of the ACMA under Part 3.5 of the Act for registration of transmitters have been met.

The ULOI Determination aims to ensure that high levels of radio emission from radiocommunications transmitters operated under a spectrum licence issued in the 3.4 GHz band are kept within the geographic area and frequency band of the licence so as to not cause an unacceptable level of interference to other radiocommunications.

The ULOI Determination sets out what is meant by an ‘unacceptable level of interference’ in relation to a radiocommunications transmitter operated under a spectrum licence issued in the 3.4 GHz band. If the ACMA is satisfied that the operation of the radiocommunications transmitter could cause interference of the kind set out in the ULOI Determination, the ACMA will be able to refuse to register the radiocommunications transmitter. Refusal to register a radiocommunications transmitter is subject to internal reconsideration and review by the Administrative Review Tribunal (see paragraph 285(n) of the Act).

Generally

A provision-by-provision description of:

- the Transmitter Advisory Guidelines is set out in the notes at **Attachment A**;
- the Receiver Advisory Guidelines is set out in the notes at **Attachment B**;
- the ULOI Determination is set out in the notes at **Attachment C**.

The Transmitter Advisory Guidelines, Receiver Advisory Guidelines and ULOI Determination are disallowable legislative instruments under the *Legislation Act 2003* (the **LA**). They are also subject to the sunsetting provisions in Part 4 of Chapter 3 of the LA.

Documents incorporated by reference

Subsection 314A(2) of the Act provides that an instrument under the Act may make provision in relation to a matter by applying, adopting or incorporating (with or without modifications) matter contained in any other instrument or writing as in force or existing at a particular time, or from time to time.

The Transmitter Advisory Guidelines incorporate the following documents by reference, as existing from time to time:

- The following recommendations published by the Radiocommunication Sector (**ITU-R**) of the International Telecommunication Union (**ITU**), which are available, free of charge, at www.itu.int:
    a. ITU-R Recommendation P.452 *Prediction procedure for the evaluation of interference between stations on the surface of the Earth at frequencies above about 100 MHz*;
    b. ITU-R Recommendation P.526 *Propagation by diffraction*;
    c. ITU-R Recommendation P.1144 *Guide to the application of the propagation methods of Radiocommunications Study Group 3*;
    d. ITU-R Recommendation S.465 *Reference radiation pattern of earth station antennas in the fixed-satellite service for use in coordination and interference assessment in the frequency range from 2 to 31 GHz*;
    e. ITU-R Recommendation SF.1006 *Determination of the interference potential between earth stations of the fixed-satellite service and stations in the fixed service.*
- The following Radiocommunications Assignment and Licensing Instructions (**RALI**) published by the ACMA, which are available, free of charge, from the ACMA's website at www.acma.gov.au:
    a. RALI FX 3 *Microwave fixed services frequency coordination* (**RALI FX 3**);
    b. RALI MS 44 *Frequency coordination procedures for the Earth station protection zones* (**RALI MS 44**);
    c. RALI MS 47 *Frequency coordination and licensing procedures for Area-Wide Licences (AWL) in the 3400–4000 MHz band* (**RALI MS 47**);
    d. RALI MS 50 *Frequency coordination and licensing procedures for point-to-multipoint system licences in the 3400-3475 MHz and 3950-4000 MHz bands* (**RALI MS 50**);

The Transmitter Advisory Guidelines also incorporate the following legislative instruments, as in force from time to time:

- the *Australian Radiofrequency Spectrum Plan 2021* (the **Spectrum Plan**);
- the *Radiocommunications (Aircraft and Aeronautical Mobile Stations) Class Licence 2016;*
- the *Radiocommunications (Amateur Stations) Class Licence 2023* (the **amateur class licence**);
- the *Radiocommunications (Interpretation) Determination 2025* (the **Interpretation Determination**);
- the *Radiocommunications Licence Conditions (Fixed Licence) Determination 2025* (the **Fixed LCD**)*;*

- the *Radiocommunications (Low Interference Potential Devices) Class Licence 2015* (the **LIPD class licence**);
- the ULOI Determination.

The Transmitter Advisory Guidelines also incorporate the following legislative instruments, as in force at the time the instrument commenced:

- the *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022*;
- the *Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Adelaide and Eastern Metropolitan Australia) Declaration 2018*;
- the *Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Perth) Declaration 2018*;
- the *Radiocommunications (Spectrum Re-allocation – 3.6 GHz Band for Regional Australia) Declaration 2018*.

The Transmitter Advisory Guidelines also incorporate HCIS identifier NU7K4 of the Australian Spectrum Map Grid 2012 (**Australian Spectrum Map Grid**), as existing from time to time. The area described by the HCIS identifier relates to the Uralla earth station protection zone in New South Wales. The Australian Spectrum Map Grid is published by the ACMA and available, free of charge, from the ACMA's website at www.acma.gov.au.

The Receiver Advisory Guidelines incorporate the following RALIs published by the ACMA and available, free of charge, from the ACMA's website at www.acma.gov.au, as existing from time to time:

- RALI MS 47;
- RALI MS 50.

The Receiver Advisory Guidelines also incorporate the following Acts and legislative instruments as in force from time to time:

- the Act;
- the Fixed LCD;
- the Interpretation Determination;
- the Transmitter Advisory Guidelines;
- the ULOI Determination.

The ULOI Determination incorporates the following recommendations published by the ITU-R by reference, as existing from time to time, which are available, free of charge, at www.itu.int:

- ITU-R Recommendation P.525-4 *Calculation of free-space attenuation*;
- ITU-R Recommendation P.526-15 *Propagation by diffraction*;
- ITU-R Recommendation P.2108-0 *Prediction of clutter loss*.

The ULOI Determination also incorporates HCIS identifiers of the Australian Spectrum Map Grid, as existing from time to time. The Australian Spectrum Map Grid is published by the ACMA and available, free of charge, from the ACMA's website at www.acma.gov.au. The areas described by the HCIS identifiers are:

- sections of the Gulf of St Vincent and Bass Strait;
- the Moree earth station protection zone in New South Wales;
- the Roma earth station protection zone in Queensland;
- the Quirindi Earth station protection zone in New South Wales;
- the Uralla earth station protection zone in New South Wales;
- the Adelaide urban area;
- the Brisbane urban area;
- the Canberra urban area;
- the Melbourne urban area;
- the Perth urban area;
- the Sydney urban area.

The ULOI Determination also incorporates the 2015 ULOI Determination. The effect of the 2015 ULOI Determination is saved in relation to radiocommunications transmitters included in the Register before the commencement of the ULOI Determination, and is incorporated as in force at the time each such transmitter was included in the Register.

Each of the Acts and legislative instruments mentioned above is available, free of charge, from the Federal Register of Legislation (www.legislation.gov.au).

Consultation

Before the Instruments were made, the ACMA was satisfied that consultation was undertaken to the extent appropriate and reasonably practicable, in accordance with section 17 of the LA.

Under Part 4 of Chapter 3 of the LA, the 2015 Transmitter Advisory Guidelines, 2015 Receiver Advisory Guidelines and the 2015 ULOI Determination were due to 'sunset' on 1 October 2025. The ACMA analysed the instruments and identified that they were a necessary and useful part of the regulatory framework. Spectrum licences in the 3.4 GHz band are due to expire in 2030, at the earliest. Given this, the ACMA decided to remake the 2015 Transmitter Advisory Guidelines, the 2015 Receiver Advisory Guidelines and the 2015 ULOI Determination to ensure the spectrum licence technical framework would be in place for the remainder of the spectrum licences' duration. The ACMA proposed to remake the instruments with some changes.

A draft version of each instrument was released for public consultation on 1 May 2025, together with the consultation paper *Remaking instruments for the 3.4 GHz spectrum-licensed band*. Consultation closed on 29 May 2025.

The ACMA received five submissions to the consultation from the Australian Mobile Telecommunications Association, Ericsson, NBN, Telstra and Viasat. These submissions where generally supportive of the draft instruments. They also identified a few editorial changes, corrections and minor changes to improve clarify and consistency.

After considering the feedback provided, the ACMA decided to adopt most of the changes identified.

Statement of compatibility with human rights

Subsection 9(1) of the *Human Rights (Parliamentary Scrutiny) Act 2011* requires the rule-maker in relation to a legislative instrument to which section 42 (disallowance) of the LA applies to cause a statement of compatibility with human rights to be prepared in respect of that legislative instrument.

The statement of compatibility with human rights set out below has been prepared to meet that requirement.

Overview of the Instruments

Section 262 of the Act permits the ACMA to make advisory guidelines about any aspect of radiocommunication or radio emissions. The purpose of the Transmitter Advisory Guidelines is to provide information and guidance to assist with the management of interference to radiocommunications receivers operating under apparatus, class and spectrum licences in or adjacent to the 3.4 GHz band caused by radiocommunications transmitters operating under spectrum licences issued in the 3.4 GHz band.

The purpose of the Receiver Advisory Guidelines is to provide information and guidance to assist with the management of interference to radiocommunications receivers operating under spectrum licences in the 3.4 GHz band caused by radiocommunications transmitters operating under other licences issued in or near the 3.4 GHz band.

Section 69 of the Act requires each spectrum licence to include a condition which specifies that a radiocommunications transmitter must not be operated under the licence unless the requirements of the ACMA under Part 3.5 of the Act for registration of transmitters have been met.

Under subsection 145(1) of the Act, the ACMA may, if it is satisfied that the operation of a radiocommunications transmitter could cause an unacceptable level of interference to other radiocommunications devices, refuse to register the transmitter. The ULOI Determination sets out what is meant by an 'unacceptable level of interference' in relation to a radiocommunications transmitter operated under a spectrum licence issued in the 3.4 GHz band.

Human rights implications

The ACMA has assessed whether the Transmitter Advisory Guidelines, Receiver Advisory Guidelines and ULOI Determination are compatible with human rights, being the rights and freedoms recognised or declared by the international instruments listed in subsection 3(1) of the *Human Rights (Parliamentary Scrutiny) Act 2011* as they apply to Australia.

Having considered the likely impact of the Transmitter Advisory Guidelines, Receiver Advisory Guidelines and ULOI Determination and the nature of the applicable rights and freedoms, the ACMA has formed the view that the Transmitter Advisory Guidelines, Receiver Advisory Guidelines and ULOI Determination do not engage any of those rights or freedoms.

Conclusion

The Instruments are compatible with human rights as they do not raise any human rights issues.

Attachment A

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

Part 1–Preliminary

Section 1 Name

This section provides for the instrument to be cited as the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2025*.

Section 2 Commencement

This section provides for the Transmitter Advisory Guidelines to commence on 23 September 2025.

The Federal Register of Legislation may be accessed free of charge at www.legislation.gov.au.

Section 3 Authority

This section identifies the provision of the Act that authorises the making of the Transmitter Advisory Guidelines, namely section 262 of the Act.

Section 4 Repeals

This section provides that the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015* (F2015L00727) and the *Radiocommunications – 3.4 GHz Band Omnibus Variation 2018 (No. 1)* (F2018L01063) are repealed. The Transmitter Advisory Guidelines replace the former, which are sunsetting. The latter is an amending instrument that is spent and has no further effect.

Section 5 Definitions

This section defines a number of key terms used throughout the Transmitter Advisory Guidelines.

A number of other expressions used in the instrument are defined in the Act and the *Radiocommunications (Interpretation – Technical Framework) Determination 2024* (the **ITF Determination**), which is available, free of charge, from the Federal Register of Legislation at www.legislation.gov.au.

This section also provides that unless the contrary intention appears, certain terms used in the Transmitter Advisory Guidelines are defined in the Interpretation Determination.

This section also provides that, in the Transmitter Advisory Guidelines, 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.

Section 6 References to other instruments

This section provides that in the instrument, unless the contrary intention appears:

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

Part 2–Overview

Section 7 Background

Subsection 7(1) provides basic information about spectrum licences and the modes of interference occurring across frequency boundaries and geographic areas of spectrum licences.

Subsection 7(2) explains that the Transmitter Advisory Guidelines have been made to provide guidance on managing interference to licensed radiocommunications receivers operating in relation to:

- point to point fixed services on frequencies in and adjacent to the 3.4 GHz band (Part 3);
- fixed-satellite service earth receive stations operating in the 3400 MHz to 4200 MHz frequency band (Part 4);
- point to multipoint services in the 3400 MHz to 3700 MHz frequency band (Part 5);
- radiolocation services in the 3300 MHz to 3400 MHz frequency band, or the 3400 MHz to 3600 MHz frequency band (Part 6);
- services authorised by a class licence, or to receive transmissions from a radiocommunications transmitter operated in accordance with a class licence (Part 7);
- spectrum licensed receivers in areas adjacent to the 3.4 GHz spectrum licence (Part 8);
- earth station protection zones (Part 9);
- an earth station facility near Uralla, New South Wales (Part 10);
- highly localised wireless broadband services under fixed point to multipoint system licences (Part 11);
- services authorised by area-wide licences provided in the 3400 MHz to 4000 MHz frequency band, adjacent to the 3.4 GHz spectrum licence (Part 12);
- services authorised by area-wide licences in areas adjacent to the 3.4 GHz spectrum licence (Part 13);
- aeronautical mobile and aeronautical radionavigation services in the 4200 MHz to 4400 MHz frequency band (Part 14).

Subsection 7(3) notes that, when modelling propagation loss in the 3.4 GHz band, ITU-R Recommendation P.1144 provides a guide on the application of various propagation methods. These methods were developed internationally by the ITU-R. ITU-R Recommendation P.1144 advises users on the most appropriate propagation methods for particular applications, as well as the limits, required input information, and output for each of the methods. The subsection recommends that the most recent version of the propagation models defined by the ITU-R should be considered when modelling propagation in the 3.4 GHz band.

Subsection 7(4) states that the ACMA may take the Transmitter Advisory Guidelines into account in determining whether a radiocommunications transmitter operated under a 3.4 GHz band spectrum licence is causing interference to a radiocommunications receiver operating under another licence.

Subsection 7(5) notes that the Transmitter Advisory Guidelines do not prevent a person negotiating and implementing other protection requirements with other persons.

Part 3–Point to point fixed service receivers

Section 8 Background

Section 8 provides background information on point-to-point fixed service receivers operating in and adjacent to the 3.4 GHz band. A reference to RALI FX 3 is made for guidance on channel arrangements and frequency assignment criteria for point-to-point fixed services. Since RALI FX 3 is

under continuing review, users of the RALI are advised to consult the most current version when planning systems and managing interference.

Section 9 Point to point receiver protection requirements

Section 9 provides that the protection requirements for point-to-point licences are provided in RALI FX 3. Spectrum licensees are to provide the same level of in-band and out-of-band protection to point-to-point licences as would be provided for apparatus licensed radiocommunications transmitters used for fixed services.

Part 4–Fixed satellite service earth receive stations

Section 10 Background

Section 10 outlines the frequencies of operation and status of the fixed-satellite service in the 3400-4200 MHz frequency range, as set out in the Spectrum Plan.

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

Section 11 explains the protection requirements for fixed-satellite service (**FSS**) earth receive stations operating in the 3400 MHz to 3600 MHz band. It also states that, before registering devices, 3.4 GHz band spectrum licensees are required to notify the licensee of an FSS earth receive station if coordination indicates that interference may occur. There is a note that encourages spectrum licensees to work with incumbent FSS earth receive licensees to resolve any interference issues.

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

Section 12 explains the protection requirements for FSS earth receive stations operating under an earth receive licence in the 3600 MHz to 4200 MHz band. This includes minimum levels of radiofrequency (**RF**) filtering at different frequency offsets that FSS earth station receivers can be assumed to have when assessing receiver overload. Information is also provided on the propagation model and a reference antenna radiation pattern to use in interference assessments.

Table 1 sets the minimum RF filter that is assumed to apply before 16 July 2027, in relation to earth receive stations authorised under earth receive licences. Table 2 sets the minimum RF filter that is assumed to apply on and after 16 July 2027, in relation to earth receive stations authorised under earth receive licences. This is the end of the re-allocation period specified in the *Radiocommunications (Spectrum Re-allocation – 3.4 GHz and 3.7 GHz Bands) Declaration 2022*.

The earth receive stations will be assumed to use RF filters for different frequencies at different times, depending on whether the receiver licence that authorises the station was issued before or after 16 July 2022 (the date the relevant declaration under section 153B of the Act commenced), whether the stations use the same antenna, and whether the stations are operated before or after 16 July 2027. The ACMA has generally stopped issuing earth receive licences that will be affected by these assumptions. This ensures new licensees either will not be impacted, or only apply for licences with the knowledge of the assumptions that apply.

This section also states that, the first time a 3.4 GHz licensee performs adjacent channel coordination and before registering devices, the 3.4 GHz band spectrum licensee is required to notify the earth receive licensee to provide an opportunity to install filtering with the relevant characteristics.

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

Section 13 explains the protection requirements for FSS Earth receive stations operating under an earth receive licence in a frequency range and geographic area that is covered by particular spectrum re-allocation declarations.

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

Section 14 explains the protection requirements for FSS Earth receive stations operating under an area-wide receive licence in 3750 MHz to 4000 MHz. This includes minimum levels of RF filtering at different frequency offsets that FSS earth station receivers can be assumed to have when assessing receiver overload. Information is also provided on the propagation model and a reference antenna radiation pattern to use in interference assessments.

This section also states that, for coordination occurring before 16 July 2027, the first time a 3.4 GHz licensee performs adjacent channel coordination and before registering devices, the 3.4 GHz band spectrum licensee is required to notify the earth receive licensee to provide an opportunity to install filtering with the relevant characteristics.

Part 5–Point to multipoint services

Section 15 Background

Section 15 provides background information on point to multipoint services operating in 3400 MHz to 3700 MHz and adjacent to the 3.4 GHz band. A reference to RALI MS 47 is made for arrangements for the point to multipoint services.

Section 16 Protection requirements

Section 16 provides that the protection requirements for point-to-multipoint stations are provided in RALI MS 47.

Part 6–Radiolocation services

Section 17 Background

Section 17 notes the frequencies of operation and status of radiolocation services in the 3100 MHz to 3400 MHz and 3400 MHz to 3600 MHz bands, as set out in the Spectrum Plan.

Section 18 No protection requirements in some cases

Section 18 provides that radiocommunications transmitters operated under a spectrum licence in the 3.4 GHz band in accordance with the conditions of the licence are not taken to cause unacceptable interference to radiolocation services operating in the 3100 MHz to 3400 MHz and 3400 MHz to 3600 MHz bands.

Part 7–Class licensed services

Section 19 Background

Section 19 states that the LIPD class licence and the amateur class licence permit the operation of a number of different types of radiocommunications transmitters in the 3.4 GHz band. Devices operated under these class licences must not cause interference to other services and are not afforded protection from other services.

Section 20 No protection requirements in some cases

Section 20 provides that a spectrum licensed transmitter operating in the 3.4 GHz band will not be taken to cause unacceptable interference to a device operating under the LIPD class licence or the amateur class licence if it is operated in accordance with the conditions of the spectrum licence.

Part 8–Spectrum licensed receivers

Section 21 Background

Section 21 provides background information on the primary mechanism for managing interference across spectrum licence geographical boundaries, which is through the device boundary criterion in the ULOI Determination. The device boundary criterion controls the levels of emissions across a geographical boundary. Since Time Division Duplex technologies are considered the most likely to be deployed in the 3.4 GHz band, it is noted that at times it may be necessary for licensees operating radiocommunications transmitters in the 3.4 GHz band to negotiate with adjacent area spectrum licensees when deploying services in order to avoid causing harmful interference.

Section 22 Recommended preliminary coordination procedures

In order to best manage interference across geographical boundaries, it is recommended that when planning services, spectrum licensees operating radiocommunications transmitters in the 3.4 GHz band should, in addition to meeting the requirements of the ULOI Determination, coordinate with services that are registered in the Register and operating under spectrum licences in geographic areas adjacent to their licence area to avoid harmful interference. If this preliminary coordination indicates interference may occur, it is recommended that licensees either replan their systems or negotiate with the affected spectrum licensees to find a resolution.

Part 9 –Earth station protection zones

Section 23 Background

Section 23 provides background on the purpose of the earth station protection zones in eastern and western Australia.

Section 24 Protection requirements

Section 24 provides that the protection requirements for the earth station protection zones are specified in RALI MS 44.

Part 10–Earth station facility near Uralla

Section 25 Background

Section 25 provides background on an earth station facility near Uralla, New South Wales, that operates in the 3400 MHz to 4200 MHz frequency band.

Section 26 Protection requirements

Section 26 provides that the protection requirements for the earth station facility near Uralla are specified in RALI MS 44.

Part 11–Highly localised wireless broadband services under fixed licences

Section 27 Background

Section 27 provides background on highly localised wireless broadband services in urban areas that operate in the 3400 MHz to 3475 MHz and the 3950 MHz to 4000 MHz frequency bands. These services operate under a fixed licence authorising the operation of point to multipoint systems. This

section also notes that arrangements for these services are detailed in RALI MS 50 and that relevant licence conditions are contained in the Fixed LCD.

Section 28 Protection requirements

Section 28 deals with the protection requirements for highly localised wireless broadband services. This section outlines that coordination between 3.4 GHz band spectrum licensed transmitters and highly localised wireless broadband services operating in the 3950 MHz to 4000 MHz frequency band is not required, due to the sufficient frequency separation.

This section also outlines that highly localised wireless broadband services operating in the 3400 MHz to 3475 MHz frequency band are not afforded protection from 3.4 GHz band spectrum licensed transmitters. This arrangement is specified in RALI MS 50 and the Fixed LCD.

Section 28 also notes that RALI MS 50 and the Fixed LCD require that highly localised wireless broadband services operating in the 3400 MHz to 3475 MHz frequency band are time synchronised with co-channel, adjacent area 3.4 GHz spectrum licensed services in particular circumstances.

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

Section 29 Background

Section 29 provides background on frequency adjacent services operated under area-wide licences in the 3400 MHz to 4000 MHz frequency band. This section also notes that arrangements for these services are detailed in RALI MS 47 and that area-wide licences will not generally be issued in areas subject to spectrum licensing in the 15 MHz directly adjacent to a 3.4 GHz band spectrum licence.

Section 30 Protection requirements

Section 30 states that the frequency separation between area-wide licences and 3.4 GHz devices means that adjacent frequency coordination is not required.

Part 13–Geographically-adjacent area-wide licences

Section 31 Background

Section 31 provides background on area-wide licences that may be near or geographically adjacent to a 3.4 GHz spectrum licence.

Section 32 Protection requirements

Section 32 provides that the device boundary criterion, as defined in the ULOI Determination, is the primary mechanism for managing interference across geographical boundaries from a spectrum licence to an area-wide licence. Geographically adjacent area-wide licensees and spectrum licensees are able to agree on the implementation of alternative measures to manage interference.

Part 14–Aeronautical service

Section 33 Background

Section 31 provides that the spectrum plan allocates the 4200 MHz to 4400 MHz frequency band to the aeronautical mobile service and aeronautical radionavigation service, as primary services. It notes that the operation of aircraft stations as radio altimeters in the 4200 MHz to 4400 MHz band is authorised under the *Radiocommunications (Aircraft and Aeronautical Mobile Stations) Class Licence 2016*.

Section 34 Protection requirements

Section 34 provides the protection requirements that apply to radio altimeters and limits the requirements applicable to radiocommunications transmitters operating in the 3700 MHz to 3800 MHz frequency band. For spectrum licences, it requires the operation of radiocommunications transmitters to adhere to the same co-existence with radio altimeters requirements that apply to the operation of radiocommunications transmitters under an area-wide licence, as detailed in RALI MS 47.

Attachment B

Notes to the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 3.4 GHz Band) 2025*

Part 1–Preliminary

Section 1 Name

This section provides for the Receiver Advisory Guidelines to be cited as the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 3.4 GHz Band) 2025*.

Section 2 Commencement

This section provides for the Receiver Advisory Guidelines to commence on 23 September 2025.

The Federal Register of Legislation may be accessed free of charge at www.legislation.gov.au.

Section 3 Authority

This section identifies the provision of the Act that authorises the making of the Receiver Advisory Guidelines, namely section 262 of the Act.

Section 4 Repeal of the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015*

This section revokes the 2015 Receiver Advisory Guidelines (F2015L00729).

Section 5 Definitions

This section defines a number of key terms used throughout the Receiver Advisory Guidelines.

A number of other expressions used in the Receiver Advisory Guidelines are defined in the Act and the ITF Determination.

This section also provides that unless the contrary intention appears, certain terms used in the Receiver Advisory Guidelines are defined in the Interpretation Determination.

This section also provides that, in the Receiver Advisory Guidelines, 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.

Section 6 References to other instruments

This section provides that in the Receiver Advisory Guidelines, unless the contrary intention appears:

- a reference to another legislative instrument is a reference to that other legislative instrument as in force from time to time; and
- 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.

Part 2–Overview

Section 7 Background

Subsections 7(1) and 7(2) provide basic information about spectrum licences and the modes of interference occurring across frequency boundaries and geographical areas of spectrum licences. They describe how interference is managed under the Act.

Subsection 7(3) outlines the purpose of the Receiver Advisory Guidelines. Their purpose is to provide protection to radiocommunications receivers operated under spectrum licences in the 3.4 GHz band from interference caused by radiocommunications transmitters operated under an apparatus or class licence or another spectrum licence. They are also intended to assist in the management of in-band and out-of-band interference by providing compatibility requirements for registered fixed receivers operated under a spectrum licence issued for the 3.4 GHz band. The management of, and protection from, interference is facilitated by the minimum level of receiver performance requirements set out in the Receiver Advisory Guidelines.

Subsection 7(4) states that the Receiver Advisory Guidelines are intended to provide guidance on the management and settlement of interference to 3.4 GHz band receivers, caused by radiocommunications transmitters operated under an apparatus or class licence or another spectrum licence issued under the Act. The ACMA intends to take the guidelines into account in determining whether interference has occurred, in the absence of separate protection arrangements agreed between the affected licensees.

Subsection 7(5) provides that the Receiver Advisory Guidelines should be used by licensees, and authorised third parties, under spectrum and apparatus licences, in planning services and in the resolution of interference with radiocommunications under spectrum licences in the 3.4 GHz band.

Subsection 7(6) notes that the Receiver Advisory Guidelines do not prevent a person negotiating other protection arrangements with other persons.

Part 3–Managing interference from other services

Section 8 In-band interference

Subsection 8(1) explains the methods through which in-band interference to a radiocommunications receiver operated under a spectrum licence in the 3.4 GHz band, caused by adjacent spectrum licensed transmitters, is managed. Such interference is managed through the core conditions of the licence, the application of the device boundary criterion specified in the ULOI Determination, use of the preliminary coordination procedures in the Transmitter Advisory Guidelines and any synchronisation requirement set out on the adjacent spectrum licence.

Subsection 8(2) explains the methods through which in-band interference to a radiocommunications receiver operated under a spectrum licence in the 3.4 GHz band, caused by apparatus licensed radiocommunications transmitters first licensed after particular dates, is managed. In this case it is managed as if the transmitter is operated under an area-wide licence. This means that the device boundary criterion that applies to radiocommunications transmitters operated under an area-wide licences, as detailed in RALI MS47, applies to all apparatus licensed radiocommunications transmitters.

Subsection 8(3) explains how in-band interference from radiodetermination transmitters is to be managed. This subsection also notes that in-band interference from radiodetermination transmitters is expected to be transient in nature, and that the transmitter operator may need to implement mitigation measures to reduce the impact on devices operated under a 3.4 GHz spectrum licence.

Subsection 8(4) outlines that coexistence arrangements for transmitters operating under a point-to-multipoint system licence are detailed in the Fixed LCD and RALI MS 50, and that these transmitters are not required to meet the device boundary criterion.

Subsection 8(5) states that in-band protection is not afforded to 3.4 GHz receivers from radiocommunications transmitters operated under a transmitter licence (other than a radiodetermination licence) that was first issued before particular dates.

Subsection 8(6) explains that interference management frameworks, if any are required, for radiocommunications devices operated under a class licence are contained in the relevant class licence.

Section 9 Out-of-band interference

Section 9 explains what constitutes out-of-band interference to a radiocommunications receiver operated under a spectrum licence, and how it can be managed through compatibility requirements for receivers.

Out-of-band interference can occur when radiocommunications transmitters are operated near each other, whether in frequency or distance. It may consist of intermodulation products, harmonic signals, parasitic signals or other spurious signals generated at site or arriving at the radiocommunications receiver.

Out-of-band interference may extend for significant frequency separations on either side of a spectrum licence and its severity may depend on the quality of the radiocommunications receiver. For these reasons, out-of-band interference is managed through interference management procedures based on a compatibility requirement in Part 5 for radiocommunications receivers. A minimum level of receiver performance is specified in Part 4, in conjunction with a compatibility requirement for co-ordination with other licensed services. The use of a performance standard for spectrum licensed radiocommunications receivers ensures that the burden of mitigating interference is not solely placed on the operator of the radiocommunications transmitter.

Subsection 9(5) notes that the Department of Defence operates high powered radiolocation services in the 3100 MHz to 3500 MHz frequency band, that have the potential to cause interference to 3.4 GHz receivers. This subsection also provides information about how 3.4 GHz spectrum licensees can potentially lower the risk of interference risks when planning their services.

Section 10 Recording radiocommunications receiver details in the Register

Section 10 explains that a 3.4 GHz receiver will not be afforded protection from apparatus licensed or spectrum licensed radiocommunications transmitters unless the details of the receiver are included in the Register, before the relevant apparatus licence was first issued or before the details of the spectrum licensed transmitter were included in the Register. A note is included to indicate that Part 5 is also relevant.

Section 11 Mobile devices

Section 11 explains that the compatibility requirement in Part 5 is not applicable to radiocommunications receivers that are mobile devices.

Part 4–Minimum level of receiver performance

Section 12 Notional receiver performance level

Section 12 explains why a notional receiver performance level is needed. The level of interference experienced by a radiocommunications receiver is in part dependent on the quality of the receiver itself. Emissions from a radiocommunications transmitter should not have to be reduced below a point where the performance of the receiver is the main cause of the problem. As a result, it is necessary to establish a benchmark performance level for radiocommunications receivers.

The benchmark performance level is set out in Schedule 1.

This section also provides that a receiver will need to meet the notional receiver performance level to gain protection from interference from a radiocommunications transmitter.

Part 5–Compatibility requirement

Section 13 Compatibility

Subsection 13(1) sets out the compatibility requirement to be met for a fixed radiocommunications transmitter operated under a transmitter licence or a spectrum licence, in relation to a fixed receiver specified in subsection 13(2), in order for the receiver to be afforded protection from interference under the Receiver Advisory Guidelines. The fixed transmitter licensee must ensure that the transmitter meets the compatibility requirement in Schedule 2.

Subsection 13(2) provides that a fixed receiver is specified if it:

- operates under a spectrum licence; and
- has at least the notional level of receiver performance set out in Schedule 1; and
- was included in the Register, before:
    - for a fixed radiocommunications transmitter operated under a spectrum licence – the fixed transmitter was included in the Register; and
    - for a fixed radiocommunications transmitter operated under a transmitter licence – the transmitter licence was issued.

Subsection 13(3) notes that devices operated under a 3.4 GHz spectrum licence may be required to synchronise their operation, in accordance with any synchronisation requirement condition on their licence, unless alternative arrangements are agreed. However, subsection 13(4) states that this synchronisation requirement does not apply to fixed transmitters operated under a radiodetermination licence.

Subsection 13(5) provides that a radiocommunications transmitter operated under a class licence must comply with the conditions of the class licence.

Schedule 1 Notional receiver performance level

Schedule 1 provides spectrum licensees with information regarding the notional receiver performance level under a spectrum licence in the 3.4 GHz band. This schedule provides information relating to:

- adjacent channel selectivity;
- receiver intermodulation response rejection;
- receiver blocking;
- receiver sensitivity levels; and
- receiver antenna and feeder losses.

Spectrum-licensed radiocommunications receivers operating in the 3.4 GHz band should meet this performance level to minimise interference from, and improve coexistence with, radiocommunications transmitters operating under transmitter licences. The majority of the notional receiver performance levels are based on technical specifications for 5G base stations detailed in 3GPP 38.104 *NR; Base Station (BS) radio transmission and reception*. Copies of the technical standard 3GPP 38.104 are available, free of charge, from the 3GPP website at www.3GPP.org.

Schedule 2 Compatibility requirement

Schedule 2 outlines, for the purpose of assessing compatibility of fixed receivers operated in the 3.4 GHz band with other radiocommunications services, the maximum unwanted signal level that a radiocommunications transmitter should not exceed for a 5 MHz bandwidth. It also provides that logarithmic scaling should be used to find a maximum unwanted signal level in alternative bandwidths.

Attachment C

Notes to the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2025*

Section 1 Name

This section provides for the ULOI Determination to be cited as the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2025*.

Section 2 Commencement

This section provides for the ULOI Determination to commence on 23 September 2025.

The Federal Register of Legislation may be accessed free of charge at www.legislation.gov.au.

Section 3 Authority

This section identifies the provision of the Act that authorises the making of the ULOI Determination, namely subsection 145(4) of the Act.

Section 4 Repeal of the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015*

This section repeals the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015* (F2015L00727).

Section 5 Definitions

This section defines a number of key terms used throughout the ULOI Determination.

A number of other expressions used in the ULOI Determination are defined in the Act and the ITF Determination.

This section also provides that, in the ULOI Determination, 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.

Section 6 References to other instruments

This section provides that in the ULOI Determination, unless the contrary intention appears:

- a reference to another legislative instrument is a reference to that other legislative instrument as in force from time to time; and
- 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.

Section 7 Unacceptable levels of interference

Section 7 provides the technical definition of what will be taken to be an unacceptable level of interference for the purpose of interference management in the 3.4 GHz band. A radiocommunications transmitter producing radio emissions that are found to cause unacceptable levels of interference to other radiocommunications services will, in most circumstances, not be registered in the Register for operation under a spectrum licence in the band, in accordance with subsection 145(1) of the Act. Licensees who operate such devices without registration will be in breach of the condition included in the licence because of section 69 of the Act and may become subject to further compliance action under the Act.

It is an offence, and subject to a civil penalty, to operate a radiocommunications device otherwise than as authorised by a spectrum licence (see Part 3.1 of the Act). The maximum penalty for the offence is 2 years imprisonment for an individual, or 1500 penalty units ($495,000 on the current value of a penalty unit of $330) where the radiocommunications device is a radiocommunications transmitter. The maximum civil penalty is 300 penalty units ($99,000) where the radiocommunications device is a radiocommunications transmitter. Operation of a radiocommunications device is not authorised by a spectrum licence if it is not in accordance with the conditions of the licence (subsection 64(2) of the Act).

Under subsection 7(1), a radiocommunications transmitter operated under a 3.4 GHz band spectrum licence is taken to be causing unacceptable interference if:

- the operation of the transmitter breaches the core conditions of the licence relating to unwanted emissions outside the 3.4 GHz band or outside the licence area; or
- subject to the exception identified below, any part of the 'device boundary' of the transmitter lies outside the geographic area of the licence. The 'device boundary' is a theoretical boundary calculated around the device using the methodology set out in Schedule 1 and definitions in the ITF Determination; or
- the device boundary of the transmitter cannot be calculated in accordance with item 1 of Schedule 1. This could apply to a mobile device, for example; or
- the transmitter is on an aircraft.

Subsection 7(2) provides that a level of interference mentioned in paragraph 7(1)(b) is not unacceptable in relation to a part of the device boundary that lies outside the geographic area of the licence, for any radials that extend beyond the licence area that lie outside the Australian Spectrum Map Grid and do not cross the geographic area of another 3.4 GHz spectrum licence.

Subsection 7(3) provides that a level of interference mentioned in paragraph 7(1)(b) is not unacceptable in relation to a part of the device boundary that lies inside the geographic area of the licence, for any radials that extend beyond the licence area that lie inside an earth station protection zone and do not cross the geographic area of another 3.4 GHz spectrum licence.

Subsection 7(4) provides that a level of interference mentioned in paragraph 7(1)(b) is not unacceptable in relation to a part of the device boundary that lies outside the geographic area of the licence, for any radials that extend beyond the licence area that only pass over the Australian territorial sea baseline. The exceptions to this are radials that cross defined sections of the Gulf of St Vincent and Bass Strait (as defined by the HCIS identifiers IW3E, IW3I, IW3M, IW6A, IW6E, KX9, LX7, LX8 and LX9). This is because there is a strong risk of interference to and from services deployed in Adelaide and the Yorke Peninsula, as well as between Victoria and Tasmania, due to frequent and long periods of ducting.

Subsection 7(5) provides that a level of interference mentioned in paragraph 7(1)(b) is not unacceptable in relation to a part of the device boundary that lies outside the geographic area of the licence, for any radials that extend beyond the licence area that lie inside an urban area, relate to a transmitter with an occupied bandwidth in 3400 MHz to 3475 MHz, and do not cross the geographic area of another 3.4 GHz spectrum licence.

Subsection 7(6) provides that this section does not apply in relation to a radiocommunications transmitter to which section 9 applies.

Section 8 Accuracy

Section 8 specifies that, unless otherwise specified, the value of a parameter in Schedule 1 must be estimated with a level of confidence not less than 95 percent that the true value of the parameter will

always remain below the requirement specified in the ULOI Determination. That is to say, an estimate must have a likelihood of 95 percent or greater of being within the requirement for the parameter. This level of accuracy is intended to align with 3GPP 37.141 *NR, E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) conformance testing*. Copies of technical standard 3GPP 37.141 are available, free of charge, from the 3GPP website at www.3GPP.org.

Section 9 Transitional – radiocommunications transmitter registered before commencement of this instrument

Section 9 applies to a radiocommunications transmitter included in the Register in relation to a 3.4 GHz band spectrum licence before the ULOI Determination commenced that would be taken to cause an unacceptable level of interference under section 7. For such a transmitter, a level of interference caused by the transmitter is unacceptable if it would have been unacceptable under the 2015 ULOI Determination, as in force at the time the relevant transmitter was included in the Register. This preserves the rights of spectrum licensees who have already had transmitters included in the Register. This section allows such transmitters to be modified provided that this would not result in an increase to the old device boundary on any radial.

Schedule 1 Device boundary and device boundary criterion

Schedule 1 sets out the technical procedure for calculating the device boundary of a radiocommunications transmitter or group of radiocommunications transmitters, for the purposes of the ULOI Determination.

Item 1 of Schedule 1

Item 1 of this Schedule details the steps involved in calculating the device boundary. The calculation is an iterative process and involves testing whether the device boundary criterion specified in item 2 of this Schedule is met at increasing distances (of 100 metre increments) from the transmitter along radial lines spaced around the centre location of the transmitter (worked out in accordance with this Schedule). The latitude and longitude of the first point on a radial where the device boundary criterion is less than or equal to zero is considered to be the furthest point of the device boundary on this radial. There are 360 radials for each transmitter, meaning there are 360 points that form the device boundary.

If the end point of any radial in relation to a transmitter is outside the geographic area of the licence, then unless a specified exception applies, the transmitter will be taken to cause an unacceptable level of interference.

For a group of radiocommunications transmitters the device boundary is calculated as if for a single radiocommunications transmitter. However, the radiated power for a group of radiocommunications transmitters is taken to be equal for each bearing and to have a value that is equal to the maximum horizontally radiated power, in any direction, of any of the radiocommunications transmitters in the group.

Item 2 of Schedule 1

Item 2 provides the device boundary criterion, which is the mathematical expression used to calculate a device boundary in accordance with item 1 of this Schedule. The mathematical expression consists of the horizontally radiated power of a device minus the path loss function. The device boundary criterion has function dependencies which include the horizontally radiated power, the receiver level of protection and the propagation loss set out in item 3 of this Schedule, for each segment along each radial.

Item 3 of Schedule 1

Item 3 provides the methodology for determining the propagation loss component for determining the device boundary criterion in item 2 of this Schedule. This item refers to specific ITU-R Recommendations which detail the method and parameters to be used to calculate the propagation loss. This item also details how relevant parameters, which are used in the calculation of propagation loss, are to be determined.

Item 4 of Schedule 1

Item 4 specifies the procedure for calculating the height of the antenna for a transmitter or group of transmitters. The height of the antenna for a transmitter is used to calculate the propagation loss component of the device boundary criterion as detailed in item 3 of this Schedule.

Schedule 2 Earth station protection zones

Schedule 2 sets out the geographical areas of the earth station protection zones. These areas are described using HCIS identifiers. The earth station protection zones are used for the purposes of subsection 7(3).

Schedule 3 Urban areas

Schedule 3 sets out the geographical areas of the urban areas. These areas are described using HCIS identifiers. The defined urban areas are used for the purposes of subsection 7(5).