

## EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

*Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2 GHz Band) 2016*

*Radiocommunications Act 1992*

### Purpose

The Australian Communications and Media Authority (**the ACMA**) has made the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2 GHz Band) 2016* (**the Advisory Guidelines**).

The purpose of the Advisory Guidelines is to provide guidance to assist in the protection of radiocommunications receivers operating under apparatus or class licences from interference caused by radiocommunications transmitters operating under spectrum licences in the 2 GHz band in adjacent geographic areas, or adjacent frequency bands. The Advisory Guidelines also provide guidance on managing interference across the geographical boundaries of spectrum licences issued in the 2 GHz band.

The Advisory Guidelines are designed to be used by operators of spectrum licensed services and apparatus licensed services in the planning of services or in the resolution of interference.

The Advisory Guidelines revoke and replace the *Radiocommunications Advisory Guidelines (Protection of Apparatus- licensed and Class-licensed Receivers – 2 GHz Band) 2015* [F2015L00721] (**the 2015 Advisory Guidelines**).

### Legislative Provisions

The Advisory Guidelines are made by the ACMA in accordance with section 262 of the *Radiocommunications Act 1992* (**the Act**) and in accordance with subsection 33(3) of the *Acts Interpretation Act 1901* (**the AIA**).

Under section 262 of the Act, the ACMA may make Advisory Guidelines about any aspect of radiocommunication or radio emissions. Subsection 262(2) of the Act provides a non-exhaustive list of examples of the matters about which Advisory Guidelines may be made, one of which is 'interference with radiocommunications'.

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 the like conditions (if any) to repeal, rescind, revoke, amend or vary any such instrument.

The Advisory Guidelines are a legislative instrument for the purposes of section 8 of the *Legislation Act 2003*.

### Background

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 can occur between spectrum licensed services and services operating under apparatus and class licensing arrangements in adjacent areas and/or frequencies.

The Act provides a number of means by which the ACMA may manage interference resulting from operation of a radiocommunications transmitter under a spectrum licence, including the ability to make advisory guidelines under section 262 of the Act. The Advisory Guidelines provide guidance to assist with the protection of radiocommunications receivers operating under other licences from spectrum licensed radiocommunications transmitters operating in the 2 GHz band.

The 2 GHz band was re-allocated for spectrum licensing in the year 2000. Current spectrum licences in the 2 GHz band will expire on 11 October 2017. To prepare for the re-issue or re-allocation, or both, of spectrum licences in the 2 GHz band, the ACMA conducted a review of the 2 GHz spectrum licensing technical framework. The aim of the review was to:

- > ensure flexibility so that a range of modern technologies can be used in the band, with a particular focus on International Mobile Telecommunications (IMT) technologies;
- > provide conditions that enable continued usage of existing network technologies in the band;
- > provide interference management within the 2 GHz band, and in adjacent bands; and
- > address deficiencies that have come to light during the current licence period.

The review recommended that the 2015 Advisory Guidelines be revoked and replaced with the Advisory Guidelines to take into account the modernisation of mobile communications technologies, which has occurred since 2000, as well as to allow for developments that may be expected to take place in the next spectrum licence period.

Adjustments made in the new Advisory Guidelines include:

- > inclusion of protection requirements for new services introduced both in and adjacent to the 2 GHz band, such as television outside broadcast (TVOB) and public telecommunications services (PTS);
- > removal of protection requirements for Multipoint Distribution Systems as they are no longer operating in the band below 2110 MHz;
- > introduction of generic guidelines for radiocommunications devices operating under class licences;
- > removal of the schedule relating to propagation models, and replacing it with a reference to ITU-R Recommendation P.1144 *Guide to the application of the propagation methods of Radiocommunications Study Group 3*
- > updating references to ITU-R and other documents incorporated by reference; and
- > removing the 1900-1920 MHz frequency range from the definition of the 2 GHz band. This is in-line with other instruments that make up the 2 GHz band spectrum licence technical framework. It is intended that the 1900-1920 MHz frequency range will undergo a separate review.

The Advisory Guidelines are one of a set of instruments made by the ACMA to vary the technical framework applicable to the 2 GHz band according to the review recommendations. The ACMA has also made the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers - 2 GHz Band) 2016* and the *Radiocommunications (Unacceptable Levels of Interference – 2 GHz Band) Determination 2016*.

The Advisory Guidelines commence on 12 October 2017 and revoke the 2015 Advisory Guidelines on that same day.

## **Operation**

The 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 Parts 2, 3, 4, 5, 6 and 7 of the Advisory Guidelines. Operators of spectrum licensed and apparatus licensed services should use the Advisory Guidelines in the planning of services or the resolution of interference. The ACMA also takes the 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.

## Consultation

The ACMA consulted with stakeholders about the review of the spectrum licensing technical framework for the 2 GHz band from 6 January 2016 to mid-August 2016. The ACMA developed a discussion paper which outlined the proposed changes to the spectrum licensing framework for the 2 GHz band. This discussion paper is available on the ACMA's website at [www.acma.gov.au](http://www.acma.gov.au).

The ACMA received five submissions in response to its consultation process. The submissions commented on various aspects of the proposed changes to the 2 GHz band technical framework. All written submissions from this consultation process are available on the ACMA's website at [www.acma.gov.au](http://www.acma.gov.au).

Submissions generally agreed with the proposed changes to the Advisory Guidelines. As a result no substantive changes were made to the instrument as consulted on.

## Regulatory Impact

Prior to releasing the draft Advisory Guidelines for comment, the ACMA consulted with the Office of Best Practice Regulation (**the OBPR**) on the requirement for a regulation impact statement (RIS) for this legislative instrument. The OBPR advised that the Advisory Guidelines did not warrant the preparation of a RIS because they were likely to have only minor and machinery impacts. The OBPR reference for this assessment is ID 19935.

## Detailed Description of the Advisory Guidelines

Details of the Advisory Guidelines are set out in Attachment A.

## Documents Incorporated by Reference

The Advisory Guidelines incorporate the following legislative instruments and documents by reference:

- > The *Radiocommunications Assignment and Licensing Instruction No. FX 3 - Microwave Fixed Services Frequency Coordination* (RALI FX 3) published by the ACMA, as in existence from time to time. Copies of RALI FX 3 can be obtained from the ACMA's website at [www.acma.gov.au](http://www.acma.gov.au).
- > The *Radiocommunications Assignment and Licensing Instruction No. FX 21, Television Outside Broadcasting Services in the bands 1980-2110 MHz and 2170-2300 MHz* (RALI FX21), published by the ACMA, as in existence from time to time. Copies of RALI FX21 can be obtained from the ACMA's website at [www.acma.gov.au](http://www.acma.gov.au).
- > The *Radiocommunications (Unacceptable Levels of Interference – 2 GHz Band) Determination 2016*, the *Radiocommunications (Interpretation) Determination 2015* and the *Television Outside Broadcast Service (1980–2110 MHz and 2170–2300 MHz) Frequency Band Plan 2012* are available from the Federal Register of Legislation website: [www.legislation.gov.au](http://www.legislation.gov.au)
- > The following documents published by the ITU Radiocommunications Sector and available on the ITU website at [www.itu.int](http://www.itu.int):
  - a. Recommendation ITU-R P.1144 *Guide to the application of the propagation methods of Radiocommunications Study Group 3*;
  - b. Recommendation ITU-R M.1456-0 *Minimum performance characteristics and operational conditions for high altitude platform stations providing IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2*;
  - c. ITU R Recommendation SA.1154 *Provisions to protect the space research (SR), space operations (SO) and Earth exploration satellite services (EES) and to facilitate sharing with the mobile service in the 2 025-2 110 MHz and 2 200-2 290 MHz bands*;
  - d. ITU R Recommendation SA.363 5 *Space operation systems*; and

- e. ITU-R Recommendation SA.1157-1 *Protection criteria for deep space research*.

**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 *Legislation Act 2003* applies to cause a statement of compatibility to be prepared in respect of that legislative instrument. The Advisory Guidelines are a legislative instrument that is subject to disallowance under section 42 of the *Legislation Act 2003*. The Statement of Compatibility with Human Rights for the Advisory Guidelines is set out in Attachment B.

## **Attachment A**

### **Detailed Description of the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2 GHz Band) 2016***

#### **Section 1 – Name of Advisory Guidelines**

Section 1 provides that the name of the guidelines is the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2 GHz Band) 2016 (the Advisory Guidelines)*.

#### **Section 2 – Commencement**

Section 2 provides that the Advisory Guidelines commence on 12 October 2017.

#### **Section 3 – Revocation**

Section 3 provides that the *Radiocommunications Advisory Guidelines (Managing Interference from Apparatus-licensed and Class-licensed Transmitters - 2 GHz Band) 2015* are revoked.

#### **Section 4 – Purpose of these guidelines**

Section 4 provides that the purpose of the Advisory Guidelines is to manage interference to radiocommunications receivers operating under another licence that is in or adjacent to the 2 GHz band. The Advisory Guidelines should also be referred to in the planning of services in the 2 GHz band as well as in the settling of any interference dispute that may arise between spectrum licensees and any licensees in adjacent licence areas and bands.

Section 4 also notes that affected licensees are free to negotiate and come to agreement on alternative measures to manage interference.

#### **Section 5 – Interpretation**

Section 5 provides definitions for the terms used in the Advisory Guidelines. It also states that unless the contrary intention appears, terms used in the Advisory Guidelines that are defined in the *Radiocommunications (Unacceptable Levels of Interference – 2 GHz Band) Determination 2016*, the *Radiocommunications (Interpretation) Determination 2015* or the Act have the same meaning as in those instruments.

#### **Part 1 – Background**

Part 1 provides background information about the 2 GHz band and spectrum licensing. A radiocommunications transmitter operating under a spectrum licence may cause interference by way of unwanted emissions and blocking. Part 1 outlines what Parts 2-7 of the Advisory Guidelines address. Part 1 also refers to ITU-R Recommendation P.1144 *Guide to the application of the propagation methods of Radiocommunications Study Group 3*. This recommendation provides a guide on the application of various propagation methods developed internationally by the ITU-R. It is recommended that consideration be given to this recommendation when choosing a propagation model to assess interference.

#### **Part 2 – Point-to-point fixed service receivers**

##### **Section 2.1 – Background**

Section 2.1 provides background information on point-to-point fixed service receivers operating in and adjacent to frequencies and areas that have been allocated for spectrum licensing in the 2 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, licensees are advised to consult the most current version when planning systems and managing interference.

## Section 2.2 – Point-to-point receiver categories

Section 2.2 provides that for the purpose of the Advisory Guidelines, radiocommunications receivers of a fixed service operating in the 2 GHz band are taken to belong to one of two categories. Category 1 is a receiver operating under an apparatus licence that was issued before 12 October 2017, and Category 2 is a receiver operating outside the spectrum space of a 2GHz band spectrum licence under an apparatus licence that was issued on or after 12 October 2017.

This is done to simplify interference management considerations and allow services operating before 12 October 2017 to receive the full protection offered by RALI FX3.

## Section 2.3 – Protection requirements

Section 2.3 of Part 2 explains the protection afforded to the different point-to-point receiver categories. It is intended that Category 1 receivers are provided with out-of-band and in-band protection in accordance with the protection requirements detailed at Appendix 1 to RALI FX 3.

Category 2 receivers are provided with:

- > out-of-band protection from frequency adjacent radiocommunications transmitters operated under a spectrum licence in accordance with the protection requirements detailed at Appendix 1 to RALI FX 3. Out-of-band protection for Category 2 receivers is based on a first-in-time coordination process; and
- > the same in-band protection from co-channel interference as afforded to radiocommunications devices operated under a spectrum licence. In this case, a radiocommunications transmitter operated under a spectrum licence will not be deemed to cause unacceptable interference if it is operated in accordance with the conditions of that spectrum licence and the *Radiocommunications (Unacceptable Levels of Interference – 2 GHz Band) Determination 2016*.

## Part 3 – Mobile Satellite Service

### Section 3.1 – Background

Section 3.1 sets out the frequencies used by the Mobile Satellite Service (**MSS**). It provides information on general interference management issues between the MSS and radiocommunications transmitters operated under a 2 GHz band spectrum licence. It states that:

- > the core conditions of the licence are generally considered sufficient to provide adequate protection to the MSS from terrestrial radiocommunications transmitters operating in the 2 GHz band; and
- > High Altitude Platform (HAPs) transmitters should pay regard to the requirements of Recommendation ITU-R M.1456-0 *Minimum performance characteristics and operational conditions for high altitude platform stations providing IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2* for the protection of MSS earth terminals.

### Section 3.2 – Protection requirements

Section 3.2 provides that a spectrum licensed radiocommunications transmitter operating in the 2 GHz band will not be deemed to cause unacceptable interference to a MSS satellite receiver operating in the 1980-2010 MHz band if it is operated in accordance with the conditions of the licence. It also states that HAPS transmitters need to adhere to the requirements of Recommendation ITU-R M.1456-0 *Minimum performance characteristics and operational conditions for high altitude platform stations providing IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2*.

## **Part 4 – Space services**

### **Section 4.1 – Background**

Section 4.1 outlines the use of the 2025-2120 MHz and 2200-2300 MHz bands by space research, space operations and earth exploration-satellite services. Details of the relevant earth stations to protect are contained on the Register of Radiocommunications Licences (**the Register**) established and kept under the Act.

### **Section 4.2 – Protection requirements**

Section 4.2 provides the protection requirements for Earth station radiocommunications receivers operating in the space research, space operations and earth exploration-satellite services in the 2025-2110 MHz, 2110-2120 MHz and 2200-2300 MHz bands.

## **Part 5 – Television outside broadcast (TVOB) services**

### **Section 5.1 – Background**

Section 5.1 states that the *Television Outside Broadcast Service (1980–2110 MHz and 2170–2300 MHz) Frequency Band Plan 2012* makes provision for television outside broadcast (**TVOB**) services to operate in the 1980–2110 MHz and 2170–2300 MHz frequency bands.

### **Section 5.2 – Protection Requirements**

Section 5.2 provides that a radiocommunications transmitter operated under a 2 GHz band spectrum licence is required to protect TVOB services in accordance with RALI FX 21, if the transmitter was registered in the Register after the date of issue of the TVOB apparatus licence. Only TVOB receivers with site details recorded in the Register will be afforded protection.

## **Part 6 – Public Telecommunications Services**

### **Section 6.1 – Background**

Section 6.1 of Part 6 states that a Public Telecommunications Service (**PTS**) operates under apparatus licences in the 2 GHz band, however, such use is limited to those areas and frequencies of the 2 GHz band not subject to spectrum licencing.

### **Section 6.2 – Protection Requirements**

Section 6.2 provides that a spectrum licensed radiocommunications transmitter operating in the 2 GHz band will not be deemed to cause unacceptable interference to a service operating under a PTS apparatus licence if it is operated in accordance with the conditions of the licence.

## **Part 7 – Class Licensed Services**

### **Section 7.1 – Background**

Section 7.1 states that various class licences permit the operation of a number of different types of radiocommunications transmitters in and adjacent to the 2 GHz band. Such operation is typically on a no-interference and no-protection basis.

### **Section 7.2 – Protection Requirements**

Section 7.2 provides that a spectrum licensed radiocommunications transmitter operating in the 2 GHz band will not be deemed to cause unacceptable interference to a radiocommunications device operating under a class licence if it is operated in accordance with the conditions of the licence.

**Attachment B****Statement of Compatibility with Human Rights**

Prepared in accordance with Part 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*

***Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2 GHz Band) 2016***

The *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2 GHz Band) 2016* (**the Advisory Guidelines**) are compatible with the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

**Overview of the Legislative Instrument**

Section 262 of the *Radiocommunications Act 1992* permits the Australian Communications and Media Authority to make advisory guidelines about any aspect of radiocommunication or radio emissions.

The purpose of the Advisory Guidelines is to provide information and guidance to assist with the management of interference to radiocommunications receivers operating under apparatus and class licences in or adjacent to the 2 GHz band caused by radiocommunications transmitters operating under spectrum licences issued for the 2 GHz band.

**Human Rights Implications**

The Advisory Guidelines do not engage any of the applicable rights or freedoms.

**Conclusion**

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