

## EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

*Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 2 GHz Band) 2016*

*Radiocommunications Act 1992*

### Purpose

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

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

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

The Advisory Guidelines revoke and replace the *Radiocommunications Advisory Guidelines (Managing Interference from Apparatus-licensed and Class-licensed Transmitters – 2 GHz Band) 2015* [F2015L00722] (**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.

The Act provides a number of means by which the ACMA may manage interference that may be caused to a radiocommunications receiver operating under a spectrum licence. One of these is the ability to make advisory guidelines under section 262 of the Act about interference. The Advisory Guidelines made under section 262 of the Act provide guidance to assist with the protection of spectrum licensed radiocommunications receivers operating in the 2 GHz band from interference caused by radiocommunications transmitters operated under other licences.

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 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:

- > updating the definition of the notional receiver and compatibility requirement to align with international standards defined for Long Term Evolution (LTE) technologies; 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 spectrum licensing technical framework applicable to the 2 GHz band according to the review recommendations. The ACMA has also made the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 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 provide guidance on the management and settlement of interference to radiocommunications receivers operating under spectrum licences in the 2 GHz band which is caused by radiocommunications transmitters operating under another licence in an adjacent band or adjacent area. The Advisory Guidelines should be used by spectrum and apparatus licensees and users of class licences 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 website at [www.acma.gov.au](http://www.acma.gov.au).

The ACMA received five written 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. One submission caused a simplification to be made to the wording of the compatibility requirement in Schedule 2.

### **Regulatory impact**

The ACMA consulted with the Office of Best Practice Regulation (**the OBPR**) on the requirement for a regulation impact statement (RIS). The OBPR advised that the Advisory Guidelines did not warrant the preparation of a RIS because they are 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.

### **Instrument incorporated by reference**

The Advisory Guidelines incorporate the *Radiocommunications (Unacceptable Levels of Interference – 2 GHz Band) Determination 2016* by reference. This legislative instrument is available from the Federal Register of Legislation: [www.legislation.gov.au](http://www.legislation.gov.au).

### **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.

## Detailed description of the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 2 GHz Band) 2016*

### Section 1 – Name of Advisory Guidelines

Section 1 provides that the name of the instrument is the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 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 Advisory Guidelines

Section 4 provides that the purpose of the Advisory Guidelines is to assist in managing in-band and out-of-band interference to registered spectrum licensed radiocommunications receivers operating in the 2 GHz band. The Advisory Guidelines define the circumstances under which protection will be afforded to radiocommunications receivers from radiocommunications transmitters operating under a class licence, and from fixed transmitters operating under:

- > an apparatus licence issued on or after 12 October 2017; or
- > a spectrum licence where the transmitter is registered under Part 3.5 of the Act on or after that date.

Section 4 also provides that:

- > the Advisory Guidelines should be referred to in the planning of services in the 2 GHz band and the resolution of any interference dispute that may arise between spectrum licensees and any licensees in adjacent licence areas and bands; and
- > affected licensees are free to negotiate and come to agreement on alternative measures to manage interference.

### Section 5 – Interpretation

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

### Part 1 – Background

Part 1 provides basic information about spectrum licences and the modes of interference occurring across frequency boundaries and geographical boundaries of spectrum licences. It describes how interference is managed, and specifies some provisions of the Act relevant to interference management.

The Advisory Guidelines have been made to provide guidance in the resolution of cases of interference occurring to spectrum licensed radiocommunications receivers and caused by radiocommunications transmitters operated under other licences.

## **Part 2 – Managing interference from other services**

### **Section 2.1 – In-band interference**

Section 2.1 provides that in-band interference to a radiocommunications receiver operating under a spectrum licence from a radiocommunications transmitter operating under an adjacent spectrum licence is managed through the core conditions imposed on the spectrum licences, and using the device boundary criteria and deployment criteria prescribed in the *Radiocommunications (Unacceptable Levels of Interference – 2 GHz Band) Determination 2016*.

In-band interference from a radiocommunications transmitter operating under an apparatus licence is managed as if the transmitter is operated under a spectrum licence. The device boundary criteria applicable to spectrum licensed transmitters also apply to apparatus licensed transmitters which operate under licences issued on or after the date on which the Advisory Guidelines commence. As a result, new spectrum licences are afforded the same level of in-band protection from new apparatus licensed transmitters as they are from radiocommunications transmitters operated under an adjacent area spectrum licence.

It is noted that the Advisory Guidelines do not cover interference caused by radiocommunications transmitters operating under an apparatus licence issued before 12 October 2017, the date on which the Advisory Guidelines commence. The reason for this is that these apparatus licences either met the criteria previously defined for interference management or were exempt from it as set out in the 2015 Advisory Guidelines. In effect, these apparatus licences have been “grandfathered”.

Subsection 2.1(5) provides that class licensed radiocommunications transmitters operating in accordance with the conditions of their licence will not be considered to cause interference to a spectrum licensed receiver operating in the 2 GHz band. Subsection 2.1(6) provides that any interference management framework for class licensed radiocommunications transmitters is contained in the class licence.

### **Section 2.2 – Out-of-band interference**

Section 2.2 provides for what constitutes out-of-band interference in a radiocommunications receiver operated under a spectrum-licence. Out-of-band interference can occur under a number of circumstances and may be caused by intermodulation products, harmonic signals, parasitic signals or other spurious signals generated internally to the radiocommunications receiver. Out-of-band interference may also 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 the definition of a notional receiver performance level and a compatibility requirement for coordination with apparatus licensed services (set out in Part 4 of the Advisory Guidelines). The use of a performance standard for spectrum licensed receivers ensures that the burden of mitigating interference is not solely placed on the transmitter side.

### **Section 2.3 – Recording radiocommunications receiver details in the Register**

Section 2.3 provides that in order for a radiocommunications receiver operating under a spectrum licence to be afforded protection from interference under the Advisory Guidelines, details of the receiver must be recorded in the Register of Radiocommunications Licences (**the Register**) established under section 143 of the Act.

### **Section 2.4 – Mobile and nomadic devices**

Section 2.4 provides that the compatibility requirement in Part 4 does not apply to mobile or nomadic devices due to their transient nature.

### **Part 3 – Minimum level of receiver performance**

#### **Section 3.1 – Notional receiver performance**

Section 3.1 sets out the benchmark for the notional receiver performance level. The degree of interference seen in a radiocommunications receiver is dependent on the nature of the emissions from a radiocommunications transmitter as well as the performance of the receiver. Emissions from radiocommunications transmitters should not have to be reduced below a point where the performance of a radiocommunications receiver is the problem. A registered radiocommunications receiver must meet the notional receiver performance level set out in Schedule 1 in order to obtain protection under the Advisory Guidelines.

The compatibility requirement described in Part 4 of the Advisory Guidelines is based on a system that performs to this level or better. In order to gain the full benefits, a radiocommunications receiver should meet or perform better than the notional receiver performance level and must do so if it is to be afforded protection under the Advisory Guidelines. Also when assessing interference, the ACMA will assume radiocommunications receivers perform to the levels specified in the Advisory Guidelines.

### **Part 4 – Compatibility requirement**

#### **Section 4.1 – Compatibility**

Section 4.1 sets out the compatibility requirement for the protection of a spectrum licensed radiocommunications receiver from a radiocommunications transmitter operating under other licences.

The compatibility requirement for radiocommunications transmitters operating under an apparatus or spectrum licence affords protection to radiocommunications receivers operated under a spectrum licence on a first-in-time basis. This means that in order to be afforded protection, the radiocommunications receiver must have its details included in the Register before the date that the radiocommunications transmitter with which compatibility is sought has its details recorded in the Register.

Subsection 4.1(2) provides that the interference management framework for a radiocommunications transmitter operating under a class licence is as set out in the relevant class licence.

Subsection 4.1(3) provides that a radiocommunications transmitter operating under a class licence must comply with the conditions of the class licence. If the conditions of the class licence are met then the radiocommunications transmitter is deemed to meet the compatibility requirement.

### **Schedule 1 – Notional receiver performance level**

Schedule 1 sets out the notional receiver performance level for spectrum licensed radiocommunications receivers. Such receivers should meet or exceed this performance level in order to receive protection as defined in Part 4, as well as minimise interference from spectrum licensed and apparatus licensed transmitters. The notional receiver performance level consists of the following requirements:

- > Adjacent channel selectivity performance which is the measure of the ability of a radiocommunications receiver to receive a wanted signal without exceeding a specified degradation in output quality due to the presence of an unwanted adjacent channel signal.
- > Receiver intermodulation response rejection performance, which is defined as the measure of the ability of a radiocommunications receiver to receive a wanted signal in the presence of two or more unwanted signals with a specific amplitude and frequency relationship to the wanted signal frequency.
- > Receiver blocking performance, which is the measure of the ability of a radiocommunications receiver to receive a wanted signal in the presence of a high level unwanted interferer on frequencies other than those of the adjacent channels.

The notional receiver performance level assumes:

- > A standard receiver performance for modern mobile radiocommunications devices. Specifically, the levels defined are typical of those defined in standards for LTE base station receivers.
- > The use of registered details on antenna gain and feeder losses in performing interference analysis. A representative combination of antenna gain and feeder/branching losses is provided in the event these details are not contained in the Register.

### **Schedule 2 – Compatibility requirement**

Schedule 2 sets out the compatibility requirement for managing interference from radiocommunications transmitters operating under an apparatus or spectrum licence.

## **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 to Spectrum Licensed Receivers – 2 GHz Band) 2016***

The *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 2GHz 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 for the protection of radiocommunications receivers operating under spectrum licences issued in the 2 GHz band from interference which may be caused by radiocommunications transmitters operated under other licences.

#### **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.