

## EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

*Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015*

*Radiocommunications Act 1992*

### Purpose

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015 (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 3.4 GHz band 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 and the resolution of interference.

### Legislative provisions

These Advisory Guidelines have been made by the Australian Communications and Media Authority 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 AI Act)*.

Under section 262 of the Act, the Australian Communications and Media Authority (**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 AI Act 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 under the *Legislative Instruments Act 2003 (the LI Act)*.

### 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 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 that may be caused to a radiocommunications receiver operating under a spectrum licence. One of these includes the ability to make advisory guidelines under section 262 of the Act about interference. The *Radiocommunications Advisory Guidelines (Managing Out-of-Band Interference in Receivers Operating in Spectrum Licensed Space — 3.4 GHz Band) 2000 (the 2000 Guidelines)* made under section 262 of the Act previously provided guidance to assist with the protection of spectrum licensed radiocommunications receivers operating in the 3.4 GHz band from radiocommunications transmitters operated under other licences.

Current spectrum licences in the 3.4 GHz band will expire on 13 December 2015. To prepare for the re-issue and/or re-allocation of spectrum licences in the 3.4 GHz band, the ACMA conducted a review of the 3.4 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 3.4 GHz band, and in adjacent bands; and
- > address deficiencies that have come to light during the current licence period.

The review recommended that the 2000 Guidelines be amended to account for the modernisation of mobile communications technologies that has occurred since the 2000 Guidelines were made, as well as to allow for developments that may be expected to take place in the next spectrum licence period.

The Advisory Guidelines are one of a set of legal instruments made by the ACMA to vary the spectrum licensing technical framework applicable to the 3.4 GHz band according to the review recommendations. The Advisory Guidelines revoke the 2000 Guidelines and implement the review recommendations. The ACMA has also made the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015*, and the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015*.

### **Operation**

The Advisory Guidelines provide guidance on the management and settlement of interference to radiocommunications receivers operating under spectrum licences in the 3.4 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 holders of spectrum, class and apparatus 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 has consulted extensively with stakeholders about the review of the spectrum licensing technical framework for the 3.4 GHz band.

In July 2014, the ACMA established an advisory body known as a Technical Liaison Group (**TLG**) to support the review of the technical framework in the 3.4 GHz band. Incumbent and prospective licensees for the 3.4 GHz band were invited to participate in the TLG process. The role of the TLG was to consider and provide advice to the ACMA on technical aspects required for the development or review of the technical framework for the 3.4 GHz band.

The ACMA developed a discussion paper which outlined the proposed approach to the spectrum licensing framework for the 3.4 GHz band. This paper was provided for comment by the ACMA to TLG members and is available on the ACMA website at [www.acma.gov.au](http://www.acma.gov.au).

The ACMA took into account the views expressed by TLG members when preparing the Advisory Guidelines. The draft Advisory Guidelines were also available for public comment from 18 December 2014 to 6 February 2015 in order to give all interested parties a further opportunity to comment on the draft instrument.

Five submissions were received during public consultation regarding the revised technical framework. As a result of the public consultation, changes were made to Part 1, Part 3, Part 5 and Schedule 2 of the draft Advisory Guidelines. A new Schedule 3 was also created. Details of these changes follow:

- Changes to Part 1 clarify how and when the ACMA would use the Advisory Guidelines when determining if interference has occurred. They also clarify that affected licensees are free to come to agreement to implement alternative arrangements where appropriate. Due to changes to Part 3, a definition for RALI MS39 was also required in Part 1.
- Changes to Part 3 incorporate by reference RALI MS39, which sets out the protection criteria between radiodetermination transmitters and radiocommunications receivers operating under a spectrum licence.
- Changes to Part 5 clarify when the compatibility requirement applies. Licensees only have to implement stricter out-of-band emission limits on their radiocommunications transmitters if and

when required to facilitate compatibility with radiocommunications receivers operated under a 3.4 GHz band spectrum licence.

- Changes to Schedule 2 were made to help accredited persons and licensees determine a maximum level of interference that could be used for coordination purposes.
- A new Schedule 3 was added to define the stricter out-of-band emissions limits that need to be implemented if and when required to facilitate compatibility with services operated under other licences.

## **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 do not warrant the preparation of a RIS because the instrument is likely to have only minor and machinery impacts. The reference number for the OBPR's assessment is OBPR, ID 18035.

## **Documents incorporated by reference**

The Advisory Guidelines incorporate the following documents by reference:

- > The *Radiocommunications Assignment and Licensing Instruction No. MS39, Frequency Coordination and Licensing Procedures for Apparatus Licensed Public Telecommunications Services in the 3400-3425 MHz & 3492.5-3542.5 MHz Bands* (RALI MS39) published by the ACMA, as in existence from time to time.
- > The *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015*, made by the ACMA, as in force from time to time (accessible at [www.comlaw.gov.au](http://www.comlaw.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 LI Act applies to cause a statement of compatibility to be prepared in respect of that legislative instrument. This statement is in Attachment A.

## **Detailed description of the instrument**

### **Part 1 – Introduction**

#### **Section 1.1 – Name of Advisory Guidelines**

This section provides that the name of the instrument is the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015*.

#### **Section 1.2A – Commencement**

This section provides that the Advisory Guidelines commence on 14 December 2015.

#### **Section 1.2B – Revocation**

This section revokes the *Radiocommunications Advisory Guidelines (Managing Out-of-Band Interference in Receivers Operating in Spectrum Licensed Space — 3.4 GHz Band) 2000*.

#### **Section 1.3 – Purpose**

This section states that the purpose of the Advisory Guidelines is to manage in-band and out-of-band interference to registered spectrum licensed radiocommunications receivers operating in the 3.4 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:

- (i) an apparatus licence issued on or after the date on which the Advisory Guidelines commence; or
- (ii) a spectrum licence where the transmitter is registered under Part 3.5 of the Act on or after date on which the Advisory Guidelines commence.

This section also indicates that the Advisory Guidelines should be referred to in the planning of services in the 3.4 GHz band and the resolution of any interference dispute that may arise between spectrum licensees and any licensees in adjacent licence areas and bands.

### **Section 1.4 – Interpretation**

This section provides definitions for terms used in the Advisory Guidelines. The section also states that unless a contrary intention appears, terms used in the Advisory Guidelines that are defined in the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015* (subsection 145(4) Determination) or in the Act have the same meaning as in the subsection 145(4) Determination or the Act, as applicable.

### **Part 2 – Background**

This Part 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 the 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 3 – Managing interference from other services**

#### **Section 3.1 – In-band interference**

This section 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 subsection 145(4) Determination. .

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 14 December 2015, the date on which the Advisory Guidelines commence.

Subsection 3.1(4) provides a different method for managing in-band interference caused by radiocommunications transmitters operating under a radiodetermination apparatus licence. Specifically, radiodetermination transmitters are not required to adhere to the device boundary criteria provided they are operated in such a way that they do not cause unacceptable interference to radiocommunications receivers operating under a spectrum licence in the 3.4 GHz band. The criteria for what is deemed an unacceptable level of interference are contained in RALI MS39. RALI MS39 is incorporated by reference to give effect to these criteria.

Subsection 3.1(5) provides that spectrum licensees must accept any in-band interference caused by radiocommunications transmitters operating under an apparatus licence issued before 14 December 2015. [This condition does not apply to transmitters operated under a radiodetermination apparatus licence. The relevant interference management criteria for radiodetermination apparatus licences, irrespective of the date they were issued, is contained in subsection 3.1\(4\).](#)

Subsection 3.1(6) provides that the interference management framework for class licensed radiocommunications transmitters is contained in the class licence. Class licensed radiocommunications transmitters operating in accordance with the conditions of the licence will not generally be considered to cause interference to a spectrum licensed receiver operating in the 3.4 GHz band.

### **Section 3.2 – Out-of-band interference**

This section sets out 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 5 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 3.3 – Recording radiocommunications receiver details in the Register**

This section 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 3.4 – Mobile and nomadic devices**

This section specifies that the compatibility requirement in Part 5 does not apply to mobile or nomadic devices due to their transient nature.

## **Part 4 – Minimum level of receiver performance**

### **Section 4.1 – Notional receiver performance**

This section explains the basis for definition of 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 5 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 exceed 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 5 – Compatibility requirement**

### **Section 5.1 – Compatibility**

This section explains what is required when applying 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 5.1(3) provides that a licensee is required to implement stricter out-of-band emission limits on radiocommunications transmitters operated under its licence if and when required to facilitate compatibility with radiocommunications receivers operated under a 3.4 GHz band spectrum licence. The note under this subsection reflects the fact that strict out-of-band core condition limits at the frequency boundaries between apparatus licences and other spectrum licences have not been imposed on spectrum licensees. This was done to:

- avoid any unnecessary costs and burden on licensees to implement arrangements that are only required to enable compatibility in specific situations; and
- simplify any potential future retuning process as part of a 3400-3600 MHz band replan.

Subsection 5.1(4) provides that a radiocommunications receiver operating in the restricted block is not afforded protection from interference.

Subsection 5.1(5) provides that radiocommunications transmitters operated under a radiodetermination licence ensure compatibility with radiocommunications receivers operated under a 3.4 GHz band spectrum licence by meeting the criteria specified in RALI MS39. These criteria are incorporated by reference in subsection 3.1(4).

Subsection 5.1(6) 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**

This Schedule defines the notional receiver performance level for spectrum licensed radiocommunications receivers. Such receivers should meet or exceed this performance level in order to minimise interference from spectrum licensed and apparatus licensed transmitters. The notional receiver performance level consists of requirements for the following:

- 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 communications devices.
- 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**

This Schedule defines the compatibility requirement for managing interference from radiocommunications transmitters operating under an apparatus or spectrum licence.

#### **Schedule 3 – Additional out-of-band emission limit**

This Schedule defines the stricter out-of-band emissions limits for radiocommunications transmitters that are required to be implemented by licensees if and when required to facilitate compatibility with services operated under other licences.

**ATTACHMENT A****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 – 3.4 GHz Band) 2015***

This legislative instrument is 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 (ACMA) to may make advisory guidelines about any aspect of radiocommunication or radio emissions.

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015* (the Advisory Guidelines) is to provide for the protection of radiocommunications receivers operating under spectrum licences issued in the 3.4 GHz band from interference which may be caused by transmitters operated under other licences.

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 *Legislative Instruments Act 2003* (the LIA) applies to cause a statement of compatibility with human rights 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 LIA.

**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.