

EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 2.3 GHz Band) 2013

Radiocommunications Act 1992

Purpose

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 2.3 GHz Band) 2013 (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 2.3 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 or the resolution of interference.

Legislative provisions

Under section 262 of the *Radiocommunications Act 1992 (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'.

Pursuant to subsection 33(3) of the *Acts Interpretation Act 1901* and section 262 of the Act, the ACMA may revoke a legislative instrument made under section 262 of the Act.

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 Interference to Receivers - 2.3 GHz Band) 2009 (the 2009 Guidelines)* made under section 262 of the Act provide guidance to assist with the protection of spectrum licensed radiocommunications receivers operating in the 2.3 GHz band from radiocommunications transmitters operated under other licences.

Current spectrum licences in the 2.3 GHz band will expire on 24 July 2015. To prepare for the re-issue and/or re-allocation of spectrum licences in the 2.3 GHz band, the ACMA conducted a review of the 2.3 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 2.3 GHz band, and in adjacent bands; and
- > address deficiencies that have come to light during the current licence period.

The review recommended that the 2009 Guidelines be amended to account for the modernisation of mobile communications technologies that has occurred since the 2009 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 being made by the ACMA to vary the spectrum licensing technical framework applicable to the 2.3 GHz band according to the review recommendations. The Advisory Guidelines revoke, with effect from 25 July 2015, the 2009 Guidelines and implement the review recommendations. The ACMA will also make the *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 2.3 GHz Band) 2013*, and the *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Determination 2013*.

Operation

The Advisory Guidelines provide guidance on the management and settlement of interference to radiocommunications receivers operating under spectrum licences in the 2.3 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 2.3 GHz band.

In October 2012, the ACMA established an advisory body known as a Technical Liaison Group (**TLG**) to support the review of the technical framework in the 2.3 GHz band. Incumbent and prospective licensees for the 2.3 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 2.3 GHz band.

The ACMA developed three discussion papers which outlined the proposed approach to the spectrum licensing framework for the 2.3 GHz band. These papers were provided for comment by the ACMA to TLG members and are available on the ACMA website at <http://www.acma.gov.au>.

The ACMA took into account the views expressed by TLG members when preparing the draft Advisory Guidelines. The draft Advisory Guidelines were available for public comment from 14 October 2013 to 13 November 2013 in order to give all interested parties an opportunity to comment on the draft technical framework before the final Advisory Guidelines were made by the ACMA.

There were two submissions received during public consultation regarding the revised technical framework. These submissions provided no comment regarding the draft Advisory Guidelines.

Regulatory impact

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 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 16044.

Documents incorporated by reference

None.

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. The Advisory Guidelines are a legislative instrument to which section 42 applies.

The ACMA is satisfied that 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*. The Advisory Guidelines do not have any human rights implications as they do not engage any of the applicable rights or freedoms.

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

Detailed description of the instrument

Section 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 – 2.3 GHz Band) 2013*.

Section 2 - Commencement

This section provides that the Advisory Guidelines commence on 25 July 2015.

Section 3 – Revocation

This section revokes the *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.3 GHz Band) 2009*, with effect from 25 July 2015.

Section 4 – Purpose

This section states 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 2.3 GHz band. The Advisory Guidelines define the circumstances under which protection will be afforded to 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 2.3 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 5 – 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 – 2.3 GHz Band) Determination 2013* (**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 1 - 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 in the 2.3 GHz band.

Part 2 - Managing interference from other services

Section 2.1 – 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 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 transmitters operated under an adjacent area spectrum licence. It is noted that the Advisory Guidelines do not cover interference caused by transmitters operating under an apparatus licence that was issued before the date on which the Advisory Guidelines commence.

Subsection 2.1(4) provides that the interference management framework for class licensed transmitters is contained in the class licence. Class licensed 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 2.3 GHz band.

Section 2.2 – 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 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

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 2.4 – Mobile and nomadic devices

This section specifies that the compatibility requirement (specified 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

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 transmitters should not have to be reduced below a point where the performance of a 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 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 receivers perform to the levels specified in the Advisory Guidelines.

Part 4 – Compatibility requirement

Section 4.1 – 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 transmitters operating under an apparatus or spectrum licence affords protection to 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 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 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. The compatibility requirement for a fixed receiver operating under a spectrum licence is a minimum wanted signal level of -95.5dBm per 5 MHz for more than 95% of time in any 1 hour period.