EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

*Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Band) 2012*

*Radiocommunications Act 1992*

Purpose

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Band) 2012* (the **Advisory Guidelines**) is to provide recommendations on the management and settlement of interference to radiocommunications receivers operating under spectrum licences in the 2.5 GHz band and caused by radiocommunications transmitters operating under other licences.

Legislative Provisions

Under section 262 of the *Radiocommunications Act 1992* (the **Act**), the Australian Communications and Media Authority (**ACMA**) may make written advisory guidelines about any aspect of radiocommunication or radio emissions.

Subsection 262(2) of the Act gives the following examples of matters on which advisory guidelines can be made:

* any matter in respect of which standards may be made under Part 4.1 of the Act;
* the use, construction, design or performance of any thing;
* interference with radiocommunications; or
* frequency allocation and coordination.

The examples provided in the Act are not exhaustive. The ACMA may make written advisory guidelines about any aspect of radiocommunication or radio emissions.

Background

The 2.5 GHz band is currently used primarily by free to air broadcasters and the Australian Broadcasting Corporation for television outside broadcasting (**TVOB**), including electronic news-gathering (**ENG**). However, broadcasters have faced uncertainty about long-term spectrum arrangements since 2000, when the band was identified internationally for broadband wireless access services (**WAS**).

In January 2010, the ACMA commenced a review of the 2500-2690 MHz frequency band to:

* plan and allocate the band to maximise the overall benefit derived from that spectrum; and
* provide incumbent licensees with greater long-term certainty in light of strong emerging demand for the band to be used for competing purposes—for example, for WAS.

In January 2010, the ACMA released a discussion paper, ‘*Review of the 2.5 GHz band and long-term arrangements for ENG’[[1]](#footnote-1)*. The paper indicated that the ACMA had formed a preliminary view on its preferred approach for the band, which was broadly:

* reallocation of 2500–2570 MHz and 2620–2690 MHz via spectrum licensing, with technical frameworks that are technology flexible but optimised for wireless access services;
* conversion of ENG apparatus licences to spectrum licences in the 2570–2620 MHz band; and
* facilitation of ENG/TVOB access to identified alternative bands.

Following consideration of responses received to its January discussion paper, in October 2010, the ACMA announced its intention to give existing TVOB/ENG services access to the 2570-2620 MHz band (the **mid-band gap**) and to make the 2500-2570 MHz and the 2620-2690 MHz bands (together, the **2.5 GHz band**) available in Australia to support WAS, including 4G mobile broadband[[2]](#footnote-2). To assist stakeholders in understanding how the ACMA reached a view on appropriate future arrangements in the 2.5 GHz and alternative bands, the ACMA released a Response to Submissions paper which summarised issues raised in response to the January discussion paper and provided the ACMA’s preliminary response to those issues[[3]](#footnote-3).

To enable spectrum in the 2.5 GHz band to support WAS, the ACMA will need to put into place a spectrum licence technical framework for the 2.5 GHz band. The technical framework will define a spectrum licensee’s rights and obligations and provide an interference management framework for the 2.5 GHz band.

These Advisory Guidelines are part of a set of legal instruments which will give effect to the spectrum licence technical framework applicable to the 2.5 GHz band. The set of instruments required for this purpose is listed below:

* *Radiocommunications (Spectrum Designation) Notice No. 1 of 2012*;
* *Radiocommunications (Spectrum Re-allocation) Declaration No. 2 of 2011;*
* *Radiocommunications Spectrum Marketing Plan (2.5 GHz Band) 2012*;
* *Radiocommunications (Unacceptable Levels of Interference — 2.5 GHz Band) Determination 2012*;
* *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 2.5 GHz Band) 2012*; and
* these Advisory Guidelines*.*

Operation

A spectrum licence permits a licensee, subject to specified conditions, to operate radiocommunications devices within 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 respectively.

Spectrum licensed radiocommunications receivers operating in the 2.5 GHz band could potentially suffer interference caused by radiocommunications transmitters operated under a licence in or adjacent to the 2.5 GHz band.

Interference is generally managed by a set of interference management tools given effect by the Act and implemented by the ACMA. These tools include:

* the core conditions of the spectrum licence;
* determinations made under section 145 of the Act about what constitutes acceptable interference; and
* advisory guidelines made under section 262 of the Act about managing interference in specific circumstances.

These Advisory Guidelines are made under section 262 of the Act. They aim to assist the ACMA and licensees to manage interference by providing:

* compatibility requirements for registered fixed receivers operating under spectrum licences issued for the 2.5 GHz band in order to manage in-band and out-of-band interference; and
* protection from interference caused by fixed transmitters operated under apparatus licenses, class licenses and spectrum licenses issued after the commencement of the *Radiocommunications Spectrum Marketing Plan (2.5 GHz) 2012*.

The ACMA will take these Advisory Guidelines into account when determining whether a spectrum licensee is causing interference to a licensed receiver that is operating in accordance with its licence conditions.

These Advisory Guidelines do not limit the actions of a spectrum licensee in negotiating operating or protection requirements with another licensee.

Consultation

The ACMA has engaged extensively with stakeholders about its plans to develop a spectrum licensing technical framework for the 2.5 GHz band.

In July 2011, the ACMA set up a short-term industry technical liaison group (the **TLG**) to support the development of a technical framework to support the introduction of 4th generation broadband mobile/WAS in the 2500-2570 GHz and 2620-2690 MHz bands within the 2.5 GHz band.

The TLG was asked to consider and provide advice to the ACMA on technical aspects required for the development of the spectrum licence technical framework. These included:

* the development of the core conditions of the spectrum licensed band in accordance with section 66 of the Act;
* the development of the determination on unacceptable levels of interference made under section 145 of the Act;
* the development of any associated radiocommunications advisory guidelines made under section 262 of the Act;
* the development of the draft spectrum licence; and
* the development of the minimum contiguous bandwidth.

The ACMA developed three papers which outlined its proposed approach to the spectrum licensing framework for the 2.5 GHz band. These papers were made available by the ACMA to the TLG members for comment. These papers can be found on the ACMA website[[4]](#footnote-4).

The ACMA had regard to the views expressed by the TLG members when preparing the Advisory Guidelines.

The ACMA has also undertaken public consultation in relation to the Advisory Guidelines.

On 11 April 2012, the ACMA released the draft legislative instruments for the digital dividend auction (including the Advisory Guidelines) for comment. These instruments were accompanied by an information paper to explain the draft instruments and provide context to assist interested parties in making a submission. The information paper was made available on the ACMA’s website[[5]](#footnote-5), and was publicised via a media release on 11 April 2012, notices on the ACMA’s website and in the Spectrum Auction e-Bulletin publication. On 24 April 2012, the ACMA also held an industry briefing on the draft legislative instruments for the digital dividend auction. This briefing (conducted through an online seminar) outlined key aspects of the ACMA’s draft instruments and was aimed at assisting interested parties to make a submission

Submissions to the consultation were originally due on 9 May 2012, although this was subsequently extended to 14 May 2012. A total of 11 responses were received.

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 *Legislative Instruments Act 2003* applies to cause a statement of compatibility to be prepared in respect of that legislative instrument. This statement is in Attachment B.

Regulatory Impact Analysis

The Office of Best Practice and Regulation (the **OBPR**) advised in August 2011 that these Advisory Guidelines being an outcome of the 2.5 GHz review, are covered by the existing regulation impact statement (**RIS**) for the 2.5 GHz review (OBPR ID 11300) and that no further RIS is required.

On the 17 August 2012, OBPR confirmed that no further impact statement is required as OBPR considers these Advisory Guidelines will have only minor and machinery impacts. The OBPR reference for this later assessment is ID 14150.

**Documents Incorporated into these Advisory Guidelines by Reference or Otherwise Referred to**

These Advisory Guidelines incorporate the following documents by reference, or otherwise refers to them:

* A number of legislative instruments, namely the *Radiocommunications (Spectrum Licence Allocation – Combinatorial Clock Auction) Determination 2012*, the *Radiocommunications Spectrum Marketing Plan (2.5 GHz) 2012* and the *Radiocommunications (Unacceptable Levels of Interference – 2.5 GHz Band) Determination 2012*. These instruments may be found on the Australian Government ComLaw website (www.comlaw.gov.au).

In accordance with subsection 314A(2) of the Act, a legislative instrument made under the Act may incorporate a matter contained in any other instrument or writing as in force from time to time.

Detailed Description of the Instrument

Further details of these Advisory Guidelines are in Attachment A.

attachment A

NOTES ON SECTIONS

**Part 1 – Preliminary**

**Section 1.1 – Name of Advisory Guidelines**

This section gives the citation for the Advisory Guidelines.

**Section 1.2 – Commencement**

This section provides that the Advisory Guidelines commence on the day after they are registered.

**Section 1.3 – Purpose**

This section outlines the purpose of these Advisory Guidelines, which is to assist in the management of interference by providing recommended compatibility requirements for registered fixed receivers operating under spectrum licences issued in the 2.5 GHz band. The compatibility requirements aim to assist operators of spectrum-licensed services and apparatus-licensed services to plan their services in order to manage interference, and/or resolve interference issues, which may be caused by transmitters operated under other licences.

**Section 1.4 – Interpretation**

This section provides definitions for terms used in the Advisory Guidelines. Some terms have the same meaning as in the *Radiocommunications (Unacceptable Levels of Interference – 2.5 GHz Band) Determination 2012* and the Act.

**Part 2 – Background**

**Section 2.1 – Interference**

This subsection sets out the two categories of interference:

* in-band interference, which is interference from devices operating in the band but in a different geographic area; and
* out-of-band interference, which is interference caused by a device operating in a different frequency band.

**Section 2.2 – Interference management**

This section explains how it is intended that interference is to be managed by creating buffer zones and sets out tools that will be used for the management of interference available to spectrum licensees under the Act.

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

**Section 3.1 – In-band interference**

This section explains the methods through which in-band interference to a radiocommunications receiver operated under a spectrum licence and caused by spectrum and class licensed transmitters respectively is managed.

If interference is from an adjacent spectrum licensed transmitter, it is managed through the core conditions of the licence and the device boundary criteria of the section 145 determination.

If interference is caused by an apparatus-licensed transmitter issued after the date the *Radiocommunications Spectrum Marketing Plan (2.5 GHz Band) 2012* (the **Marketing Plan**) starts, it is managed as if the transmitter is operated under a spectrum licence. This means that the same device boundary criterion that applies to spectrum-licensed radiocommunications transmitters applies to those apparatus licensed radiocommunications transmitters.

The section also indicates that the ACMA will not regard in-band interference to a radiocommunications receiver operating under a spectrum licence caused by a transmitter operating under a class licence as unacceptable if the transmitter is operated in accordance with all relevant conditions of the class licence.

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

This section explains what constitutes out-of-band interference in 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 either near 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 the definition of a notional receiver performance level and 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 radiocommunications transmitter side.

**Part 4 – Requirements for receiver protection**

**Section 4.1 – Recording receiver details in the Register**

This section explains that a receiver will not be afforded protection unless the details of the receiver are included in the Register of Radiocommunications Licences. In order to meet the compatibility requirement in section 5.1, a fixed radiocommunications receiver operated under a 2.5 GHz band spectrum licence 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.

**Section 4.2 – Mobile and nomadic devices**

This section explains that the compatibility requirements are not applicable to mobile or nomadic devices.

**Section 4.3 – Notional receiver performance**

This section explains why a notional receiver performance level is needed. The level of interference experienced by a receiver is in part dependent on the quality of the receiver itself. Emissions from a 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 of the Advisory Guidelines.

Section 4.3 also provides that a receiver will need to meet this benchmark in order to receive protection from interference.

**Part 5 – Compatibility requirement**

**Section 5.1 – Compatibility**

This section sets out the general requirements to be met for a fixed radiocommunications receiver to receive protection from interference. A fixed radiocommunications receiver must:

* have at least the notional level of receiver performance set out in Schedule 1;
* meet the compatibility requirement of the minimum wanted signal level set out in section 5.2;
* be included in the Register before the transmitter with which compatibility is sought is recorded in the Register; and
* operate with an effective antenna height that complies with paragraph 5.1(1)(d).

**Section 5.2 – The minimum wanted signal level at the receiver**

This section outlines the minimum level of wanted signal that a receiver should meet to receive protection from interference under subsection 5.1.

**Schedule 1 – Notional receiver performance level**

This Schedule provides spectrum licensees with information regarding the notional performance of receivers operating in the 2.5 GHz band. The Schedule provides information relating to:

* receiver performance reference points;
* receiver adjacent channel selectivity;
* receiver intermodulation response rejection; and
* receiver blocking.

Spectrum-licensed radiocommunications receivers operating in the 2.5GHz band should meet this performance level in order to minimise interference from transmitters operating under other types of licences.

There is note indicating that the measurement equipment, procedure and corrections should take account of practical filter shape factors in line with good engineering practice.

**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 to Receivers – 2.5 GHz Band) 2012***

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* (the **Act**) permits the Australian Communications and Media Authority (the **ACMA**) to may make advisory guidelines about any aspect of radiocommunication or radio emissions.

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Band) 2012* (the **Advisory Guidelines**) is to provide information to assist in managing the potential for interference to spectrum licensed receivers from 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 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.

1. Full discussion paper can be accessed at www.acma.gov.au [↑](#footnote-ref-1)
2. See ACMA media release 132/2010, 21 October www.acma.gov.au [↑](#footnote-ref-2)
3. Response to submissions paper, and submissions received, can be accessed at

www.acma.gov.au [↑](#footnote-ref-3)
4. These documents can be accessed at: www.acma.gov.au. [↑](#footnote-ref-4)
5. The information paper can be accessed at: engage.acma.gov.au [↑](#footnote-ref-5)