

EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Mid-band Gap) 2012

Radiocommunications Act 1992

Purpose

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Mid-band Gap) 2012* (the **Advisory Guidelines**) is to provide guidance to assist in the protection from interference of radiocommunications receivers operating under spectrum licences in the frequency band 2570-2620 MHz (the **2.5 GHz Mid-band Gap**) including from interference caused by radiocommunications transmitters operating under apparatus licences, class licences or spectrum licences issued after the commencement of the *Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012* (the **Conversion Plan**).

Legislative Provisions

Section 262 of the *Radiocommunications Act 1992* (the **Act**) provides that 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 provides a non-exhaustive list of examples of the matters on which advisory guidelines can be made, one of which is 'interference with radiocommunications'.

The Advisory Guidelines are a legislative instrument under the *Legislative Instruments Act 2003*.

Background

The 2500-2690 MHz frequency band is 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 in that frequency band 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 (**January 2010 discussion paper**). The January 2010 discussion paper included the ACMA's preliminary view on its preferred approach for the band, which was broadly:

- > reallocation of 2500–2570 MHz and 2620–2690 MHz for spectrum licensing, with technical frameworks that are technology flexible but optimised for WAS;
- > 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 the January 2010 discussion paper, in October 2010, the ACMA announced its intention to give existing TVOB/ENG services access to the 2.5 GHz 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

To assist stakeholders in understanding how the ACMA reached a view on appropriate future arrangements in the 2.5 GHz band and alternative bands, the ACMA released a response paper, '*Review of the 2.5 GHz band and long-term arrangements for ENG – Response to Submissions*' which summarised the issues raised in response to the January 2010 discussion paper and set out the ACMA's preliminary response to those issues.³

To provide long term access in the 2.5 GHz Mid-band Gap the ACMA proposed to convert the ENG/TVOB apparatus licences in the 2.5 GHz Mid-band Gap to spectrum licences. To enable the conversion to spectrum licensing the ACMA is required to put in place a spectrum licence technical framework for the 2.5 GHz Mid-band Gap. The technical framework will define a spectrum licensee's rights and obligations and provide an interference management framework for the 2.5 GHz Mid-band Gap.

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

- > *Radiocommunications (Spectrum Designation) Notice No. 1 of 2012*;
- > *Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012*;
- > *Radiocommunications (Unacceptable Levels of Interference — 2.5 GHz Mid-band Gap) Determination 2012* (the **section 145 Determination**); and

¹ The full discussion paper can be accessed at

http://www.acma.gov.au/webwr/_assets/main/lib311275/2.5ghz_discussion_paper_ifc01-10.pdf.

² See ACMA media release 132/2010, 21 October http://www.acma.gov.au/WEB/STANDARD/pc=PC_312322.

³ Response to submissions paper, and submissions received, can be accessed at http://www.acma.gov.au/WEB/STANDARD/pc=PC_312013.

- > *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 2.5 GHz Mid-band Gap) 2012.*

Operation

The Advisory Guidelines are made under section 262 of the Act. The Advisory Guidelines provide guidance on the management of interference to radiocommunications receivers operating under spectrum licences in the 2.5 GHz band by providing:

- compatibility requirements for registered fixed receivers operating under spectrum licences issued for the 2.5 GHz Mid-band Gap; and
- protection from interference caused by fixed transmitters operated under apparatus licenses, class licenses and spectrum licenses (other than those issued for the 2.5 GHz Mid-band Gap) issued after the commencement of the *Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012.*

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

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

Consultation

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

In July 2011, the ACMA set up a number of short-term industry technical liaison groups (the **TLGs**) to assist with the development of spectrum licence technical frameworks including the support of ENG/TVOB in the 2.5 GHz Mid-band Gap and the introduction of 4th generation broadband mobile/WAS in the 2500-2570 GHz and 2620-2690 MHz bands.

As part of the TLG process for the 2.5 GHz Mid-band Gap, existing ENG/TVOB licensees for the 2.5 GHz Mid-band Gap were 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; and
- > the development of the draft spectrum licence.

The ACMA prepared several papers which outlined its proposed approach to the spectrum licensing framework for the 2.5 GHz Mid-band Gap. These technical papers were made available by the ACMA to the ENG/TVOB licensees for comment. The ACMA had regard to the views expressed by the ENG/TVOB licensees when preparing the Advisory Guidelines. There were no specific or significant concerns raised by the licensees relating to the Advisory Guidelines.

The ACMA also undertook wider public consultation in relation to these Advisory Guidelines. On 13 July 2012, the ACMA released draft legislative instruments (including a draft version of these Advisory Guidelines) for comment.⁴ These instruments were accompanied by an information paper to explain the draft instruments and provide context to assist interested parties in making a submission.⁵

Submissions to the consultation were open until 3 September 2012. A total of 4 responses were received. There were no specific or significant concerns raised in the submissions relating to the Advisory Guidelines.

Regulatory Impact Analysis

The Office of Best Practice Regulation (the **OBPR**) approved the Regulation Impact Statement '*Future Arrangements for the 2.5 GHz radiofrequency band and long-term arrangements for ENG*' on 24 May 2011 (OBPR ID 11300).

Detailed Description of the Instrument

Further details of the Advisory Guidelines are set out in Attachment A.

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 Attachment B.

⁴ See http://www.acma.gov.au/scripts/nc.dll?WEB/STANDARD/1001/pc=PC_410423.

⁵ The information paper can be accessed at:
http://www.acma.gov.au/scripts/nc.dll?WEB/STANDARD/1001/pc=PC_410423.

NOTES ON SECTIONS

Part 1 – Preliminary

Section 1.1 – Name of guidelines

This section provides that the name of the Advisory Guidelines is the *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Mid-band Gap) 2012*.

Section 1.2 – Commencement

This section provides that the Advisory Guidelines commence on the day on which the *Radiocommunications Spectrum Conversion Plan (2.5 GHz Mid-band Gap) 2012* commences. This provision ensures that the commencement of the Advisory Guidelines coincides with the process for converting existing apparatus licences in the band to spectrum licences.

Section 1.3 – Purpose

This section states that the purpose of the Advisory Guidelines is to manage interference to radiocommunications receivers by providing recommended compatibility requirements for registered fixed receivers operating under spectrum licences issued in the 2.5 GHz Mid-band Gap. 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 resolve interference issues, which may be caused by transmitters operated under other licences.

The ACMA intends to take these Advisory Guidelines into account in settling any interference dispute that may arise between spectrum licensees and any licensees in or adjacent to the licensed areas and bands.

Section 1.4 – Interpretation

This section provides definitions for terms used in the Advisory Guidelines. Some terms used in the instrument have the same meaning as in the section 145 Determination, the *Radiocommunications (Interpretation) Determination 2000* and the Act.

Part 2 – Background

Section 2.1 – Interference

This subsection sets out the two categories of interference occurring between licenses:

- > interference from devices operating in the band but in a different geographic area (in-band interference); and
- > interference caused by a device operating in a different frequency band (out-of-band interference).

Section 2.2 – Interference management

This section explains that interference will be managed by creating buffer zones and sets out the tools that will be used for the management of interference for the benefit of spectrum licensees.

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 are 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 specified in the section 145 Determination.

If interference is caused by an apparatus-licensed transmitter issued after the date the Conversion Plan commences, it is managed as if the transmitter is operated under a spectrum licence. This means that the same device boundary criteria that apply to spectrum-licensed radiocommunications transmitters also apply to those apparatus licensed radiocommunications transmitters.

The section provides 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 there is close proximity between radiocommunications transmitters in terms of 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 (or MHz) on either side of the frequency boundary 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 radiocommunications 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 (**Register**). In order to meet the compatibility requirement in section 5.1, a fixed radiocommunications receiver operated under a spectrum licence in the 2.5 GHz Mid-band Gap 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 requirement set out in Part 5 of the Advisory Guidelines do not apply to mobile or nomadic radiocommunications receivers.

Section 4.3 – Frequency band

This section explains that receivers will not be protected for the reception of radiocommunications signals outside the frequency band 2575-2615 MHz.

Section 4.4 - 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 4.4 also provides that a receiver will need to meet this benchmark in order to receive protection from the ACMA. This is because the interference management measures established by the ACMA under the Act are predicated on this benchmark level of performance.

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 of the Advisory Guidelines;
- > meet the compatibility requirement of the minimum wanted signal level set out in section 5.2 of the Advisory Guidelines; and
- > be included in the Register before the transmitter with which compatibility is sought is recorded in the Register.

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 Mid-band Gap. 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 2.5 GHz Mid-band Gap should meet the performance level in order to minimise interference from transmitters operating under other types of licences.

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

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 Mid-band Gap) 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

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.

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.5 GHz Mid-band Gap) 2012* (the **Advisory Guidelines**) is to provide information to assist in managing the potential for interference to spectrum licensed receivers from transmitters other than those operated under a spectrum licence in the 2.5 GHz Mid-band Gap.

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 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.