

EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 700 MHz Band) 2012

Radiocommunications Act 1992

Purpose

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 700 MHz Band) 2012* (the **Advisory Guidelines**) is to provide information to spectrum licensees to assist in managing the potential for interference to radiocommunications receivers operating in or adjacent to the 700 MHz band from radiocommunications transmitters operated under a spectrum licence in the 700 MHz band. The Advisory Guidelines also provide advice regarding the protection of radio astronomy services operating in the Mid West Radio Quiet Zone (**RQZ**) in Western Australia.

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 radiocommunications or radio emissions.

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

- > any matter in respect of which standards may be made under Part 4.1 of the Act; or
- > the use, construction, design or performance of any thing; or
- > 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 radiocommunications or radio emissions.

Background

The Government has announced that analog television transmission will be progressively turned off from 2010, with a complete switchover to digital television transmission by December 2013. The transition from analog to digital television will make spectrum available in the UHF band for new services.

In January 2010, the Department of Broadband, Communications and the Digital Economy (the **DBCDE**) released the *Digital Dividend Green Paper*. The paper provided information on the digital

dividend and sought public comment on a range of issues, including potential uses of the digital dividend spectrum.¹ The majority of submissions to the DBCDE's Digital Dividend Green Paper suggested that the characteristics of digital dividend spectrum were highly attractive for use in the deployment of mobile telecommunications services, particularly Long Term Evolution (**LTE**) networks.

Similar changes in spectrum use are occurring internationally as a result of the adoption of digital television systems. The spectrum which will become available does not align internationally from region to region, mainly due to historical differences in the frequency bands used for television and other radiocommunications services.

The increasing demand for spectrum for mobile broadband telecommunications services around the world has seen a significant proportion of the world-wide digital dividend spectrum being allocated to support wireless access services (**WAS**) – in particular, next generation systems such as LTE. This demand has been for spectrum to support broad bandwidth, two-frequency systems, particularly in high density areas.

By aligning with a major established international set of arrangements in the band, Australia will be able to take advantage of economies of scale – providing lower costs for both service providers and end users – as well as easier and wider roaming capabilities for users.

Following consideration of several established international band arrangements, including those from the USA and Europe, the ACMA intends for Australia to follow the plan developed by the Asia-Pacific Telecommunity (**APT**) Wireless Group (**AWG**). However, due to the difference in the exact frequency boundaries between Australia's Digital Dividend and the AWG plan, the lower guard band (between proposed WAS and broadcast television services) in Australia will be 9 MHz wide, as opposed to 5 MHz in many other Asia-Pacific nations.

Spectrum licence technical frameworks define a spectrum licensee's rights and obligations, and provide an interference management framework. To allow for use of the 700 MHz band which is aligned to the plan developed by AWG, the ACMA wishes to put into place a spectrum licence technical framework for the 700 MHz band that permits deployment of mobile telecommunications services but is, as far as practical, technology flexible.

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

- > *Radiocommunications (Spectrum Re-allocation) Declaration No. 1 of 2011;*
- > *Radiocommunications Spectrum Marketing Plan (700 MHz Band) 2012;*
- > *Radiocommunications (Unacceptable Levels of Interference — 700 MHz Band) Determination 2012;*
- > these Advisory Guidelines; and

¹ A copy of this paper can be found on www.dbcde.gov.au

- > *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 700 MHz Band) 2012.*

Operation

A spectrum licence consists of 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.

However, interference can also occur between spectrum licensed services and services operating under apparatus and class licensing arrangements.

Apparatus, class and spectrum licensed radiocommunications receivers operate in or adjacent to the 700 MHz band. Potentially, these radiocommunications receivers could suffer interference caused by radiocommunications transmitters operated under a spectrum licence in the 700 MHz 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;
- > a determination 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.

The Advisory Guidelines are made under section 262 of the Act. They aim to manage interference to radiocommunications receivers operating in the following circumstances:

- > digital television receivers operating below the 694 MHz frequency boundary after the end of the re-allocation period for the 700 MHz band on 31 December 2014 (Part 3 of the Advisory Guidelines);
- > digital television receivers operating in the 700 MHz band after the end of the re-allocation period for the 700 MHz band on 31 December 2014 (Part 4 of the Advisory Guidelines);
- > the RQZ (Part 5 of the Advisory Guidelines).

The ACMA will take the 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.

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 engaged extensively with stakeholders about its plans to develop a spectrum licensing technical framework for the 700 MHz band.

In January 2010, the DBCDE released the *Digital Dividend Green Paper*. The paper provided information on the digital dividend and sought public comment on a range of issues, including potential uses of the digital dividend spectrum.² The majority of submissions to the DBCDE's Digital Dividend Green Paper suggested that the characteristics of digital dividend spectrum were highly attractive for use in the deployment of mobile telecommunications services, particularly LTE networks.

On 24 June 2010, after examining responses to the discussion paper on possible uses of this spectrum, the Minister for Broadband Communications and the Digital Economy (the **Minister**) announced that the digital dividend would consist of 126 MHz of contiguous spectrum in the frequency range 694 MHz to 820 MHz,³ and in July 2010, the Minister directed the ACMA to clear 126 MHz of digital dividend spectrum (694–820 MHz).⁴

In October 2011, the ACMA set up a short-term industry technical liaison group (the **TLG**) to support the development of a technical framework for the 700 MHz 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. This included advice on the following:

- > the development of the core conditions of the spectrum licensed band in accordance with section 66 of the Act;
- > the development of the section 145 determination on unacceptable levels of interference;
- > the development of any associated advisory guidelines made under section 262 of the Act;
- > the development of the draft spectrum licence; and
- > the development of the minimum contiguous bandwidth for spectrum licences in the 700 MHz band.

The ACMA developed three papers which outlined its proposed approach to the spectrum licensing framework for the 700 MHz band. These papers were made available by the ACMA to the TLG members for comment. These papers can be found on the ACMA website⁵.

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

The ACMA has also undertaken public consultation in relation to these 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.

² A copy of this paper can be found on <http://www.dbcde.gov.au>.

³ A copy of the media release is available at www.minister.dbcde.gov.au.

⁴ A copy of this direction (*Australian Communications and Media Authority (Releasing the Digital Dividend) Direction 2010*) can be found at <http://www.comlaw.gov.au>.

⁵ See www.acma.gov.au.

The information paper was made available on the ACMA's website,⁶ and was publicised via a media release on 11 April 2012, notices on the ACMA 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**) has advised that a Regulation Impact Statement is not required for the technical instruments made under section 145 and section 262 of the Act for the digital dividend auction. The OBPR considers that these instruments will have only minor and machinery impacts. The OBPR reference for this 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 series of maps to be published by the ACMA, depicting predicted broadcast coverage. These maps will identify those areas in which the -40 dBm/MHz limit described in Part 3 of the Advisory Guidelines must be adhered to over the 673 to 694 MHz frequency range. These maps will be made available on the ACMA's website.
- > A series of maps to be published by the ACMA, showing the exclusion zones required to implement the separation distances set out in Part 4 of the Advisory Guidelines. These maps, which will be updated as the 're-stack' of digital television services progresses, will also be available on the ACMA's website.
- > A number of legislative instruments, namely the *Radiocommunications (Spectrum Licence Allocation – Combinatorial Clock Auction) Determination 2012*, the *Radiocommunications (Unacceptable Levels of Interference – 700MHz Band) Determination 2012* and the *Radiocommunications (Mid-West Radio Quiet Zone) Frequency Band Plan 2011*. These instruments, once made, may be found on the Australian Government's ComLaw website (www.comlaw.gov.au).

⁶ See <http://engage.acma.gov.au>

- > RALI MS-32 *Coordination of Apparatus Licensed Services Within the Mid West Radio Quiet Zone*, which are Radiocommunications Assignment and Licensing Instructions that provide processes for co-ordination with the RQZ. These instructions are available from ACMA's website at www.acma.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, even if the other instrument or writing does not exist at the time the first instrument is made.

Detailed Description of the Instrument

Details of the instrument are in 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 these Advisory Guidelines commence on the day after they are registered.

Section 1.3 – Purpose of these Advisory Guidelines

This section states the purpose of these Advisory Guidelines is to manage interference from transmitters operated under a spectrum licence and provide protection to receivers operating under other radiocommunications licences in or adjacent to the 700 MHz band.

This section also indicates ACMA's intention 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 the terms used in these Advisory Guidelines. Some terms used in these Advisory Guidelines have the same meaning as in the *Radiocommunications (Unacceptable Levels of Interference – 700 MHz Band) Determination 2012* and the Act.

Part 2 – Background

Section 2.1 – Background

This section provides general information and guidance in order to mitigate interference to receivers operating in and adjacent to the 700 MHz band from transmitters operated under the 700 MHz spectrum licence. The section provides a list of receivers covered by the Advisory Guidelines. It also recommends the International Telecommunications Union Radio sector Recommendation P.1144 as a guide to be followed for suitable propagation models for determining path loss for planning transmitters to minimise the risk of interference to receivers covered by the Advisory Guidelines.

Part 3 – Digital television receivers operating below 694 MHz

Section 3.1 – Background

This section notes the television services operating in bands adjacent to the spectrum licence, and the core licence conditions on the spectrum licence designed to protect these services.

Section 3.2 - Out-of-band emissions limits from transmitters in the lower band

This section describes the maximum out-of-band power levels that a transmitter must meet to give protection to adjacent broadcasting services. Geographic areas that are designated for use by any of the three television channels closest to the 700MHz band (channels 49, 50 and 51) are subject to more stringent out-of-band conditions. These areas will be identified to licensees through maps published by the ACMA.

Part 4 - Digital television receivers operating in the 700 MHz band

Section 4.1 – Background

This section notes that there may be a period during which broadcasting services will operate co-channel with the spectrum licences. That is, after the spectrum licences commence, broadcasting services may still be allowed to operate on channels in the 700 MHz band, until moved out of the 700 MHz band by television licence area plans made under the *Broadcasting Services Act 1992*. The digital television receivers that receive those broadcasting services will require protection from interference.

Section 4.2 – Digital television receivers

This section describes how the ACMA plans to deal with broadcasting and retransmission services operating co-channel with the spectrum licences.

The ACMA has consulted on a draft version of a marketing plan for the 700 MHz band. In accordance with section 3.7 of the draft *Radiocommunications Spectrum Marketing Plan (700 MHz Band) 2012*, each spectrum licence issued in the 700 MHz band will be subject to a condition providing that where:

- (a) a transmitter is used to provide:
 - (i) a broadcasting service in accordance with a television licence area plan; or
 - (ii) a retransmission service; and
- (b) the service mentioned in paragraph (a) is provided on a channel between 694 MHz and 820 MHz; and
- (c) the transmitter is operated under an apparatus licence;

the licensee must comply with Part 4 of these Advisory Guidelines to the extent that Part 4 prevents the operation of a radiocommunications device in an exclusion zone that includes the transmitter site.

The condition is intended to prevent interference with broadcasting and retransmission services provided in the 700 MHz band.

The ACMA will, from time to time, publish (on the ACMA website) maps showing these exclusion zones. The maps will be updated as digital television and retransmission services are 're-stacked' to channels below 694 MHz.

Part 5 – The Mid-West Radio Quiet Zone

Section 5.1 – Background

This section introduces the details of a site located in remote central Western Australia which has been identified for future radio astronomy use and has been protected by the establishment of the RQZ by the *Radiocommunications (Mid-West Radio Quiet Zone) Frequency Band Plan 2011*.

Section 5.2 – The Mid-West Radio Quiet Zone protection requirements

This section references RALI MS-32 – this is the document to be used by licensees to protect the RQZ.

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 from Transmitters – 700 MHz 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 (**Act**) 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 from Transmitters – 700 MHz Band) 2012* (the **Advisory Guidelines**) is to provide information and guidance to assist with the management of interference to radiocommunications receivers operating under apparatus, class and spectrum licences in or adjacent to the 700 MHz band caused by radiocommunications transmitters operating under spectrum licences issued for the 700 MHz band.

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.