EXPLANATORY STATEMENT

Issued by the Australian Communications and Media Authority

Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 2.3 GHz Band) 2009

Radiocommunications Act 1992

Purpose

The purpose of the *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 2.3 GHz Band) 2009* (the Advisory Guideline) is to provide information to spectrum licensees to assist in managing the potential for interference to receivers operating in and adjacent to the 2.3 GHz band. The Advisory Guidelines also provide advice regarding the protection of radio-astronomy services operating in the band 2200-2550 MHz on an opportunistic basis, and to the Mid West Radio Quiet Zone 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 and describes advisory guidelines for the following areas:

- 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.

These examples provided in the Act are not limiting. ACMA may make written advisory guidelines about any aspect of radiocommunications or radio emissions. The Advisory Guideline contains advice regarding interference with radiocommunications.

Background

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

- The core conditions of the spectrum licence;
- A determination made under s.145 of the Act about what constitutes acceptable interference; and
- Advisory guidelines made under s.262 of the Act about managing interference in specific circumstances.

Receivers of apparatus licensed and class licensed services have operated in frequency bands adjacent to the 2.3 GHz band from well before the Minister's designation of the band for spectrum

licensing in 2000, and continue to do so. There is potential for interference to these services from unwanted emissions, blocking and intermodulation products, caused by transmitters operating under a spectrum licence.

The Advisory Guideline attempts to manage these three types of interference to receivers operating in and adjacent to the 2.3 GHz band. The types of services include:

- Fixed services, such as point-to-point links authorised under apparatus licences and operating in spectrum adjacent to the spectrum licensed 2.3 GHz band;
- Mobile services including aeronautical telemetry systems operating in the frequency band 2200-2300 MHz, adjacent to the spectrum licensed 2.3 GHz band;
- Space services including space research systems receiving signals from deep space in spectrum below the spectrum licensed 2.3 GHz band; and
- Receivers operating with transmitters authorised for use under class licences in the band 2400-2483.5 MHz, immediately above the spectrum licensed 2.3 GHz band.

The Advisory Guideline form part of a set of legislative instruments that give effect to the variation of the technical framework applicable to the 2.3 GHz band. The set of instruments required for this purpose is listed below:

- *Radiocommunications (Spectrum Designation) Notice No.1 of 2000 (14/01/2009)*
- *Radiocommunications Spectrum Marketing Plan (2.3 GHz Band) 2009*
- *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Determination 2009*
- *Radiocommunications Advisory Guidelines (Registration of Devices under Spectrum Licences without an Interference Impact Certificate) 1998*
- *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.3 GHz Band) 2009*
- *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 2.3 GHz Band) 2009*
- *Radiocommunications (section 145 (3) Certificates) Determination 2000*

Operation

The Advisory Guideline sets out the technical parameters for spectrum licensees to assist in mitigating interference to receivers operating in or adjacent to the 2.3 GHz band.

ACMA also takes the Advisory Guideline 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 Guideline does not limit the actions of a spectrum licensee in negotiating operating or protection requirements with another licensee.

Consultation

To ensure that ACMA met the requirements of the *Legislative Instruments Act 2003* (the LIA), ACMA undertook consultation in the Commonwealth Gazette and on ACMA's website beginning in May 2008. The Advisory Guideline was made available from these sources for public comment from 12 May – 30 June 2008.

No submissions were received in relation to the Advisory Guideline during this time.

Regulatory Impact Statement

ACMA obtained advice from its SES contact officer for the Government's regulation impact analysis arrangements that the Advisory Guideline has no or low impact. For those reasons under the self assessment regime administered by the Office of Best Practice Regulation (OBPR), ACMA has determined that there is no need to produce a Business Cost Calculator report or to prepare a Regulation Impact Statement. The ACMA RIS exemption reference number is ACMA 078.

Documents incorporated into this Advisory Guideline by reference

This Advisory Guideline incorporates a number of International Telecommunications Union (ITU) instruments and documents, such as the ITU Radio Regulations, ITU-R Recommendations and Reports. These instruments are available for download from the ITU's internet site (www.itu.int)..

The Advisory Guideline also incorporates several instruments and documents produced by ACMA, two Radiocommunications Assignment and Licensing Instructions (RALI FX-3 and RALIMS-25), the Spectrum Planning Report 10/01: Coordination Information for Defence Aeronautical Mobile Telemetry Systems Operating in the 2200-2300 MHz Frequency Range and Embargo No. 41, which are available from ACMA's internet site (www.acma.gov.au).

Detailed Description of the Instrument

Details of the instrument are in the attachment.

ATTACHMENT

NOTES ON SECTIONS

Background

This section explains the information and guidance provided in the Advisory Guideline in order to mitigate interference to receivers operating in and adjacent to the 2.3 GHz band from transmitters operated under a spectrum licence.

Part 1 – Preliminary

Subsection 1.1 – Name of Advisory Guidelines

This section gives the citation for the Advisory Guideline.

Subsection 1.2 – Commencement

This section specifies that the Advisory Guideline commences on the same day as the *Radiocommunications Spectrum Marketing Plan (2.3 GHz Band) 2009*.

Subsection 1.3 – Purpose of Advisory Guidelines

This section states the purpose of the Advisory Guideline is to manage interference from transmitters operated under a spectrum licence and provide protection to receivers operating in or adjacent to the 2.3 GHz band.

This section also indicates ACMA's intention to refer to the Advisory Guideline as a basis upon which to settle any interference dispute that may arise between spectrum licensees and any licensees in adjacent licence areas and bands.

Subsection 1.4 – Interpretation

This section provides definitions for the terms used in the Advisory Guideline.

Subsection 1.5 – Propagation models

This section refers to the propagation model provided in Schedule 1 that may assist spectrum licensees in establishing the protection requirements set out in the Advisory Guideline.

Part 2 – Fixed service receivers

Subsection 2.1 – Background

This section explains the protection requirements for receivers in systems operating as Fixed Services in spectrum in and adjacent to the 2.3 GHz band. The types of systems referred to include point-to-point fixed links and point-to-multipoint fixed link systems.

The point-to-point fixed links are assigned in accordance with criteria set out in RALI FX-3 and this section refers spectrum licensees to the RALI when considering the deployment of infrastructure under the spectrum licence.

Subsection 2.2 – Protection requirements

This section sets out the protection requirements that spectrum licensees must refer to in order to ensure that they do not cause interference to point-to-point fixed links. Point-to-multipoint link receivers are to be afforded the same protection as receivers operated under the 2.3 GHz band.

Part 3 – Mobile service receivers

Subsection 3.1 – Background

This section explains that protection is to be afforded to receivers that operate in a system that is part of a Mobile service in spectrum adjacent to the 2.3 GHz band.

Subsection 3.2 – Aeronautical mobile telemetry

This section explains the use of aeronautical mobile telemetry services operated by the Department of Defence in adjacent spectrum 2200 – 2300 MHz. These types of services operate in geographically distinct areas of Australia, such as the Woomera Test Facility (WTF).

Subsection 3.3 – Protection requirements

This section refers spectrum licensees to the coordination requirements set out in ACMA's Spectrum Planning Report 10/01: Coordination Information for Defence Aeronautical Mobile Telemetry Operating in the 2200 to 2300 MHz Frequency Band.

Part 4 – Space services receivers

Subsection 4.1 – Background

This section explains that protection is required for receivers that operate as part of the Space Research, Space Operation and Earth Exploration Satellite services in spectrum adjacent to the 2.3 GHz band.

Subsection 4.2 – Space services

This section outlines what space services require protection in the frequency bands 2200-2290 MHz and 2290-2300 MHz in particular.

Subsection 4.3 – Protection requirements

This section outlines protection requirements for earth stations in accordance with relevant ITU-R Recommendations and Appendix 7 of the ITU Radio Regulations.

Part 5 – Radio astronomy service receivers

Subsection 5.1 – Background

This section requests that spectrum licensees pay regard to radio astronomy receivers that operate on frequencies in and adjacent to the 2.3 GHz band. This section also provides information to spectrum licensees on particular radio astronomy facilities that operate in bands of the Australian Radiofrequency Spectrum Plan (ARSP) with Australian footnote AUS87.

Footnote AUS87 indicates that the CSIRO operate facilities in various areas of New South Wales, Tasmania and Canberra.

Subsection 5.2 – Protection requirements

This section accepts that the radio astronomy services operate on a fortuitous reception basis, however ACMA encourages spectrum licensees to liaise directly with radio astronomy station operators in order to minimise the potential for interference to occur.

Subsection 5.3 – The Mid West Radio Quiet Zone

This section provides information on the location of the Mid West Radio Quiet Zone and its protection via Embargo 41 and RALI MS-32. The embargo places restrictions on frequency assignments for apparatus licensed services in certain frequency bands and in certain geographic areas.

Part 6 – Class licensed receivers

Subsection 6.1 – Background – receivers associated with transmitters operated under Class Licences

This section provides information about the types of low interference potential devices that may be operated under class licences authorised by ACMA in spectrum adjacent to the 2.3 GHz band.

These types of devices include wireless video senders, radiofrequency identification (RFID) tags, telemetry and telecommand equipment, and spread spectrum devices including wireless local area network (WLAN) equipment.

Subsection 6.2 – Protection requirements

This section provides spectrum licensees with the types of activities and compliance with core conditions that ACMA would consider acceptable as providing sufficient protection to minimise the potential for interference for devices operating under a class licence.

Schedule 1 – Propagation models

The schedule provides spectrum licensees with two different propagation models relevant to point-to-point and point-to-area services. These propagation models are consistent with ITU Recommendation P.1144 respectively.

Table 1 – ITU-R Propagation Prediction Models

This table is essentially an extract of the 1995 issue of ITU-R Recommendation P.1144 and provides a summary of the ITU propagation models relevant to services operating in the 2.3 GHz band.