

## **EXPLANATORY STATEMENT**

**Issued by the Australian Communications Media Authority**

### ***Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Determination 2009***

#### ***Radiocommunications Act 1992***

#### **Purpose**

The purpose of the *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Determination 2009* (the Determination) is to set out what is an unacceptable level of interference caused by a transmitter operating under a spectrum licence issued in the 2.3 GHz band. The Determination aims to ensure that high levels of emission from transmitters operated under a spectrum licence are kept within the geographic area and frequency band of the licence.

#### **Legislative Provisions**

Under subsection 145 (4) of the *Radiocommunications Act 1992* (the Act) the Australian Communications and Media Authority (ACMA) may determine what are unacceptable levels of interference for the purposes of deciding whether to refuse to include in the Register of Radiocommunications Licences (the Register) the details of a transmitter that is proposed to be operated under a spectrum licence.

Section 69 of the Act requires each spectrum licence to include a condition which specifies that a radiocommunications transmitter must not be operated under the licence unless the requirements of ACMA under Part 3.5 of the Act for registration of transmitters have been met. Section 69 also provides that the condition may exempt radiocommunications transmitters of particular kinds from having to meet those registration requirements.

Subsection 33(3) of the *Acts Interpretation Act 1901* provides that where an Act confers a power to make an instrument, that power shall, unless the contrary intention appears, be construed as including a power exercisable in a like manner and subject to like conditions, to revoke that instrument.

#### **Background**

Existing spectrum licensees in the 2.3 GHz band requested a variation to the technical framework applicable to the band. The current technical framework for spectrum licences in the 2.3 GHz band is based around the pre-existing technical framework for Multi-point Distribution Station (MDS) services and did not have technology flexibility as a goal. Initially, the focus of the current, applicable framework was to expedite conversion of the MDS apparatus licences, which were used to provide terrestrial subscription television services, to spectrum licences with a view that the framework would be revised at a later date.

The revised technical framework now incorporates principles of technology flexibility by providing for a broader range of services or technologies not necessarily considered at the time of conversion.

The Determination is part of a set of legal instruments to 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 (14/01/2000)*;

- *Radiocommunications Spectrum Marketing Plan (2.3 GHz Band) 2009;*
- *Radiocommunications (Allocation of Spectrum Licences by Auction or Pre-determined Price) Determination 2006;*
- *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 from Transmitters – 2.3 GHz Band) 2009;*
- *Radiocommunications Advisory Guidelines (Managing Interference to Receivers – 2.3 GHz Band) 2009;* and
- *Radiocommunications (section 145 (3) Certificates) Determination 2000*

## **Operation**

The Determination sets out what is considered to be unacceptable levels of interference for transmitters operated under a spectrum licence issued in the 2.3 GHz band. The Determination also revokes an existing determination made under subsection 145(4) of the Act that was applicable to the earlier technical framework for the 2.3 GHz band.

## **Consultation**

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

No submissions were received in relation to the Determination.

## **Regulatory Impact Statement**

ACMA obtained advice from its SES contact officer for the Government's regulation impact analysis arrangements that the Determination 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 Determination by reference**

This Determination incorporates information from the ACMA Business Operating Procedure titled Radiocommunications Site Data Requirements. This document can be downloaded from ACMA's internet site ([www.acma.gov.au](http://www.acma.gov.au))

## **Detailed Description of the Determination**

Details of the Determination are in the Attachment.

## NOTES ON SECTIONS

### Section 1 – Name of Determination

This section gives the citation for the Determination.

### Section 2 – Commencement

This section specifies that the Determination commences on the day after it has been registered.

### Section 3 – Purpose of Determination

This section states the purpose of the Determination, which is to set out the technical rules defining what will be considered unacceptable levels of interference when a licensee applies to ACMA to register transmitter devices for operation in the 2.3 GHz band on the Register.

The notes attached to this section explain that although ACMA may refuse to register transmitters considered to cause unacceptable levels of interference, registration is still possible where licensees can demonstrate that sufficient 'guard space' has been applied in accordance with ACMA's *Radiocommunications Advisory Guidelines (Registration of Transmitters without an Interference Impact Certificate) 1998* to provide an equivalent level of interference protection as defined in this Determination.

The notes also provide references to other advisory guidelines made by ACMA under section 262 of the Act which will provide a basis for its settlement of any interference disputes that may arise between spectrum licensees and any licensees in adjacent licence areas and bands.

### Section 4 – Interpretation

This section provides definitions for the terms used in the Determination.

### Section 5 – Group of transmitters

This section defines what is 'a group of transmitters' for the purpose of the Determination. The purpose of defining transmitters in groups makes registration of devices easier for licensees. A group of transmitters consists of two or more fixed transmitters that have the following common features:

- the same emission centre frequency;
- the same emission designator;
- they each operate for the purpose of communicating with the same receiver or group of receivers; and
- the same identification number is assigned to the antenna used with each transmitter.

### Section 6 – Group of receivers

This section defines what is 'a group of receivers' for the purpose of the Determination. The purpose of defining receivers in groups makes registration of devices easier for licensees. A group of receivers consists of two or more fixed receivers that have the following common features:

- they each operate for the purpose of communicating with the same transmitter or group of transmitters; and

- the same identification number is assigned to the antenna used with each receiver.

## **Section 7 – Unacceptable levels of interference**

This section provides a technical definition of what will be deemed unacceptable levels of interference for the purpose of interference management in this band. A transmitter producing emissions that are found to cause unacceptable levels of interference to other services are not likely to be registered on the Register for operation under a spectrum licence in the band. Licensees who operate such devices without registration may become subject to further compliance action under the Act.

Under section 7, a transmitter is taken to be causing unacceptable interference if:

- the operation of the transmitter breaches the core conditions of the licence. The core conditions define the geographic area and bandwidth of the licence and the maximum permitted levels of radio emission outside the geographic and frequency boundaries of the licence; or
- the device boundary of the transmitter exceeds the geographic boundary of the licence. The 'device boundary' is a theoretical boundary calculated around the device using the methodology set out in this Determination; or
- the device is a mobile or portable transmitter exceeding certain emission levels specified in the Determination; or
- the transmitter operated under a spectrum licence is located on an airship or on a balloon.

A note to this section clarifies that low power mobile transmitters are exempt from the registration requirement. These devices are exempt because they have a low interference potential.

## **Section 8 – Emission designator**

This section explains how to work out the designation of a transmitter's emission for the purpose of device registration. The emission designator is a series of alphanumeric symbols used internationally by the radiofrequency industry to classify the type and bandwidth of a radiofrequency emission.

## **Section 9 – Revocation**

This section revokes the *Radiocommunications (Unacceptable Levels of Interference – 2302-2400 MHz Band) Determination 2000*.

## **Schedule 1 – Centre location and effective radius of a fixed transmitter**

This Schedule defines the centre location, in terms of the location of the antenna in latitude and longitude, and effective radius of a transmitter (and for a group of transmitters) for use in determining unacceptable levels of interference under section 7. The effective radius of a transmitter can range from zero for a single fixed transmitter up to the greatest distance from the centre location of a group of transmitters to the location of any transmitter in the group.

## **Schedule 2 – Device boundaries and device boundary criteria**

This Schedule sets out the technical procedure for calculating the device boundary of a transmitter. Under subsection 7 (3), a transmitter is taken to cause an unacceptable level of interference if its device boundary exceeds the geographic boundary of the spectrum licence. Under subsections 7(3)(a) and 7(3)(b), where they apply, a transmitter is taken to cause an unacceptable level of

interference if its device boundary exceeds both the geographic boundary of a licence and the geographic boundary of the licence area adjacent to the spectrum licence.

Part 1 of the Schedule details the steps involved in the device boundary calculation. The calculation is an iterative process and involves testing whether the device boundary criterion specified in Part 2 is met at increasing distances from the transmitter of 5 minute increments along radial lines spaced around the centre location of the transmitter.

Part 2 provides the mathematical expression for determining the device boundary criterion. The criterion is achieved when the received signal along a radial reaches a target interference limit.

### **Schedule 3 – Effective antenna height**

This schedule specifies the procedure for calculating effective antenna height, taking account of average ground height above sea level and antenna height above ground.

These heights are calculated with reference to a digital elevation model sourced from Geoscience Australia and are made available to all spectrum licensees to ensure consistency in application of the propagation loss calculations.