

# EXPLANATORY STATEMENT

## **Radiocommunications Act 1992**

Approved by the Australian Communications and Media Authority

*Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Amendment Determination 2021 (No. 1)*

### **Authority**

The Australian Communications and Media Authority (the **ACMA**) has made the *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Amendment Determination 2021 (No. 1)* (**the instrument**) under subsection 145(4) of the *Radiocommunications Act 1992* (**the Act**) and subsection 33(3) of the *Acts Interpretation Act 1901* (**the AIA**).

Section 145 of the Act provides that the ACMA may refuse to include details of a radiocommunications transmitter that is proposed to be operated under a spectrum licence in the Register of Radiocommunications Licences, maintained by the ACMA under Part 3.5 of the Act, if the ACMA is satisfied that the transmitter could cause an unacceptable level of interference to the operation of other radiocommunications devices under that spectrum licence or any other licence.

Subsection 145(4) of the Act provides that the ACMA may determine, by written instrument, what are unacceptable levels of interference for the purposes of section 145 of the Act.

Subsection 33(3) of the AIA provides that where an Act confers a power to make, grant or issue any instrument of a legislative or administrative character (including rules, regulations or by-laws) the power shall be construed as including a power exercisable in the like manner and subject to the like conditions (if any) to repeal, rescind, revoke, amend, or vary any such instrument.

The instrument is a disallowable legislative instrument for the purposes of the *Legislation Act 2003*.

### **Purpose and operation of the instrument**

The purpose of the instrument is to amend the *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Determination 2013* (**the ULI Determination**).

Under subsection 145(1) of the Act, the ACMA may, if it is satisfied that the operation of a radiocommunications transmitter could cause an unacceptable level of interference to other radiocommunications devices, refuse to register the transmitter. The ULI Determination sets out what is meant by an ‘unacceptable level of interference’ in relation to a radiocommunications transmitter operated under a spectrum licence issued in the 2.3 GHz band.

### **Background**

A spectrum licence permits a licensee, subject to specified conditions, to operate radiocommunications devices within a particular spectrum space, defined by a frequency band and a geographic area. Interference occurring between adjacent spectrum licences consists of in-band interference across geographic boundaries, and out-of-band interference across frequency boundaries. Interference can also occur between spectrum licensed services and services operating under apparatus licences and class licensing arrangements.

The Act provides a number of means by which the ACMA may manage interference to and from radiocommunications transmitters and receivers operating under a spectrum licence. These include determining by written instrument what constitutes an unacceptable level of interference under subsection 145(4) for the purpose of registering transmitters. Along with the conditions on a spectrum

licence and advisory guidelines made under section 262 of the Act about interference management, these form the technical framework for a spectrum licensed band.

In April 2020, the ACMA established a Technical Liaison Group (TLG) to provide advice on what changes should be made to the 2.3 GHz band technical framework to accommodate emerging technologies. This instrument is the culmination of that process.

A provision-by-provision description of the instrument is set out in the notes at **Attachment A**.

### **Documents incorporated by reference**

The instrument incorporates by reference the *Australian Spectrum Map Grid 2012 (ASMG)* as it exists from time to time, as permitted by subsection 314A(2) of the Act. A copy of the ASMG is published on the ACMA's website at [www.acma.gov.au](http://www.acma.gov.au).

The instrument also incorporates, or otherwise refers to, several International Telecommunication Union (ITU) Recommendations (ITU-R Recommendations). The ITU describes itself as the United Nations' specialised agency for information and communication technologies, and the ITU-R Recommendations constitute a set of international technical standards developed by the Radiocommunication Sector of the ITU. They are available to be downloaded for free from the ITU's website at [www.itu.int](http://www.itu.int). The ITU-R Recommendations are incorporated as existing from time to time, as permitted by subsection 314A(2) of the Act.

The instrument also incorporates the designation of the Geocentric Datum of Australia in Commonwealth of Australia *Gazette* GN 35, dated 6 September 1995 (**GDA94**), as in existence on that date. *Gazette* GN 35 is available, free of charge, from the Federal Register of Legislation: [www.legislation.gov.au](http://www.legislation.gov.au).

### **Consultation**

Before the instrument was made, the ACMA was satisfied that consultation was undertaken to the extent appropriate and reasonably practicable, in accordance with section 17 of the LA.

In April 2020, the ACMA established the TLG to provide advice on what changes should be made to the 2.3 GHz band spectrum licence technical framework to improve utility of the band and accommodate new technologies such as active antenna systems. Incumbent spectrum licensees, adjacent band apparatus licensees, manufacturers and other interested stakeholders for the 2.3 GHz band were invited to participate in the TLG process.

The outcomes of the TLG are available on the ACMA website at [www.acma.gov.au](http://www.acma.gov.au).

The ACMA took into account the views expressed by the TLG when preparing variations to the ULI Determination. The ACMA also publicly consulted on the draft variations proposed to be made by the instrument from 8 December 2020 to 22 January 2021 in order to give all interested parties an opportunity to comment on the proposed changes.

Eight submissions were received during the public consultation period. Submissions were generally supportive of the proposed changes. After considering all submissions, no additional changes were proposed to the instrument.

### **Regulatory impact assessment**

The ACMA consulted with the Office of Best Practice Regulation (the **OBPR**) on the requirement for a Regulation Impact Statement (**RIS**). The OBPR advised that the instrument does not warrant the

---

*Explanatory Statement to the Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Amendment Determination 2021 (No. 1)*

preparation of a RIS because the instrument is likely to have only minor and machinery impacts. The reference number for the OBPR's assessment is OBPR ID 43195.

### **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 LA applies to cause a statement of compatibility with human rights to be prepared in respect of that legislative instrument.

The statement of compatibility set out below has been prepared to meet that requirement.

### **Overview of the instrument**

Section 145 of the Act provides that the ACMA may refuse to include details of a radiocommunications transmitter that is proposed to be operated under a spectrum licence in the Register of Radiocommunications Licences if the ACMA is satisfied that the transmitter could cause an unacceptable level of interference to the operation of other radiocommunications devices under that or any other spectrum licence, or any other licence.

Subsection 145(4) of the Act provides that the ACMA may determine, by written instrument, what are unacceptable levels of interference for the purposes of section 145.

The purpose of the instrument is to amend the ULI Determination. These amendments are made to improve utility of the band and support the deployment of next generation fixed and mobile broadband services.

### **Human rights implications**

The ACMA has assessed whether the instrument is compatible with human rights, being the rights and freedoms recognised or declared by the international instruments listed in subsection 3(1) of the *Human Rights (Parliamentary Scrutiny) Act 2011* as they apply to Australia.

Having considered the likely impact of the instrument and the nature of the applicable rights and freedoms, the ACMA has formed the view that the instrument does not engage any of those rights or freedoms.

### **Conclusion**

The instrument is compatible with human rights as it does not raise any human rights issues.

**Notes to the Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Amendment Determination 2021 (No. 1)**

**Section 1 Name**

This section provides for the instrument to be cited as the *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Amendment Determination 2021 (No. 1)*.

**Section 2 Commencement**

This section provides for the instrument to commence at the start of the day after the day it is registered on the Federal Register of Legislation.

**Section 3 Authority**

This section identifies the provision of the Act that authorises the making of the instrument, namely subsection 145(4) of the Act.

**Section 4 Amendments**

This section provides that Schedule 1 varies the *Radiocommunications (Unacceptable Levels of Interference – 2.3 GHz Band) Determination 2013*.

**Schedule 1 Amendments**

**Item 1 – Subsection 5(1)**

Definitions of *active antenna system or AAS* and *Australian territorial sea baseline* have been included. The term AAS is referenced in the definition of the level of protection (LOP) in Part 2 of Schedule 2 of the ULI Determination. The term Australian territorial sea baseline is referenced in new subsection 9(3) of the ULI. It is used to determine a specific case where paragraph 9(1)(b) of the ULI does not apply in relation to a part of the device boundary.

**Item 2 – Subsection 5(1)**

The terms *DEM-9S* and *DEM-9S cell* have been replaced with *DEM-3S* and *DEM-3S cell*. These terms are referenced in Schedule 2 and Schedule 3 of the ULI regarding the application of the device boundary criteria.

**Item 3 – Subsection 5(1)**

Definitions for the terms *group of radiocommunications receivers*, *group of radiocommunications transmitters*, *HCIS identifier*, *hierarchical cell identification scheme or (HCIS)* and *Recommendation ITU-R P.525-4* have been included. These are referenced in sections 7 and 8, the new subparagraph 9(3)(b)(iii) and Part 3 of Schedule 2 of the ULI Determination respectively.

**Item 4 – Subsection 5(1)**

The term *Recommendation ITU-R P.526-12* has been replaced with *Recommendation ITU-R P.526-15*. The term is referenced in Part 3 of Schedule 2 of the ULI Determination for the calculation of the propagation loss in the device boundary criteria.

### **Item 5 – Subsection 5(1)**

Definitions for the terms *Recommendation ITU-R P.2108-0* and *total radiated power* have been included. The term Recommendation ITU-R P.2108-0 is referenced in Part 3 of Schedule 2 of the ULI Determination for the calculation of the propagation loss in the device boundary criteria. The term total radiated power is referenced in a new note inserted as a note in Part 2, Schedule 2 of the ULI Determination.

### **Item 6 – After section 5**

New section 5A has been included after section 5. This section provides that in the instrument, unless the contrary intention appears:

- a reference to any other legislative instrument is a reference to that other legislative instrument as in force from time to time; and
- a reference to any other kind of instrument is a reference to that other instrument as in force from time to time or existing from time to time.

### **Item 7 – Paragraph 9(1)(b)**

This item repeals the existing paragraph 9(1)(b) and substitutes new text.

### **Item 8 – Subsection 9(2)**

This item repeals the existing subsection 9(2) and substitutes new subsections 9(2), 9(3) and 9(4).

Subsection 9(2) provides for an exception to what is deemed to cause unacceptable interference in subsection 9(1) in the case where:

- the device boundary is calculated to include a point that lies outside the Australian Spectrum Map Grid (**ASMG**) (that is, outside Australia); and
- a line from that point to the location of the relevant radiocommunications transmitter does not pass over the geographic area of another spectrum licence in the 2.3 GHz band.

Subsection 9(3) provides that if, in the calculation of the device boundary, a point lies outside the geographic area of the licence and it is connected to a radial (calculated in accordance with Schedule 2) that, when outside the geographic area of the licence, only crosses over water, then the device is declared not to be causing unacceptable interference. The exceptions to this are radials that cross over defined sections of the Gulf of St Vincent and Bass Strait (as defined by the HCIS identifiers IW3E, IW3I, IW3M, IW6A, IW6E, KX9, LX7, LX8, LX9). This is because there is a strong risk of interference to and from services deployed in Adelaide and Yorke Peninsula, as well as, between Victoria and Tasmania due to frequent and long periods of ducting.

Subsection 9(4) provides that section 9 of the ULI Determination does not apply in relation to a radiocommunications transmitter to which section 11 applies.

### **Item 9 – After section 10**

New section 11 has been added.

The new section 11 provides guidance for transmitters that were registered before the commencement of the instrument. Such transmitters are only considered to be causing unacceptable interference if they were causing unacceptable interference before the commencement of the instrument.

### **Items 10 to 12 – Schedule 2, Part 1, item 1**

The amendments in these items are to account for the shorter distance between increments on a radial where the device boundary is calculated. In this case the distance between calculation points has been changed from 500m to 100m and the corresponding calculation points have been increased from 202 to 1010 to account for the higher resolution of the DEM-3S.

### **Item 10A, Schedule 2, heading**

This item amends the heading to reflect the operation of sub-section 9(3).

### **Item 13 – Schedule 2, Part 1, at the end of item 2**

This item adds a note at the end of Part 1 item 2. This note provides a definition of  $\sigma_n$ .

### **Item 14 – Schedule 2, Part 2 item 1, after the definition of RP**

This item adds a note at the end of Part 2 item 1. This note provides guidance on how to determine radiated power along different radials.

### **Item 15 – Schedule 2, Part 2 item 1, definition of LOP**

This item amends the definition of LOP. It defines different LOPs for radiocommunications transmitters with and without AAS. The LOP for transmitters that incorporate AAS is 8 dB lower to account for the statistical nature of the beamforming.

### **Item 16 – Schedule 2, Part 3 item 1**

This item updates the propagation models that are required to be used when calculating propagation loss in the device boundary criterion. Recommendation ITU-R P.525-4 has been included and the existing propagation model has been updated to Recommendation ITU-R P.526-15. This ensures both free space loss and diffraction are taken into account when calculating propagation loss. For transmitters that are located at or below 6 metres above ground level, additional losses due to clutter (e.g. buildings and trees) can be calculated using Recommendation ITU-R P.2108-0.

### **Items 17 and 18 – Schedule 2, Part 3 item 2 and item 3**

These items update the reference to Recommendation ITU-R P.526-12 to be Recommendation ITU-R P.526-15.

### **Item 19 – Schedule 2, Part 3 Item 3**

This item changes the reference to “DEM-9S at 500 metre increments” to the “DEM-3S at 100 metre increments”. This is to account for the adoption of the higher resolution DEM-3S.

### **Item 20– Schedule 2, Part 3 Item 4**

This item repeals and replaces existing item 4. The new item 4 provides guidance for using Recommendation ITU-R P.2108-0 when determining propagation losses. This item constrains the additional losses due to clutter to between 0 and 8 dB.

### **Items 21 to 28 – Schedule 3, Part 2 and Part 3**

These items change references to the DEM-9S to the DEM-3S and update the associated step size in Diagram 1 and Part 3 item 1 from 500 m to 100 m. Item 23 addresses a minor accuracy issue in

determining terrain heights for the DBC equation resulting in the change from using a 9 second DEM to a 3 second DEM. This accounts for the increase in resolution from DEM-9S to DEM-3S.