

# EXPLANATORY STATEMENT

Approved by the Australian Communications and Media Authority

*Radiocommunications Act 1992*

***Radiocommunications (Unacceptable Levels of Interference – 1800 MHz Band) Amendment Determination 2021 (No. 1)***

## Authority

The Australian Communications and Media Authority (**the ACMA**) has made the *Radiocommunications (Unacceptable Levels of Interference – 1800 MHz 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 (**Register**), 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.

## Purpose and operation of the instrument

The purpose of the instrument is to amend the *Radiocommunications (Unacceptable Levels of Interference – 1800 MHz Band) Determination 2012* (**the ULI Determination**).

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.

Section 69 of the Act requires each spectrum licence to include a condition that a radiocommunications transmitter must not be operated under the licence unless the requirements of the ACMA under Part 3.5 of the Act for registration of transmitters have been met.

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 part of the spectrum known as the 1800 MHz band. If the ACMA is satisfied that the operation of the radiocommunications transmitter could cause an unacceptable level of interference of the kind set out in the ULI Determination, the ACMA will be able to refuse to register the radiocommunications transmitter. Refusal to register a radiocommunications transmitter is subject to internal reconsideration and review by the Administrative Appeals Tribunal (see paragraph 285(n) of the Act).

The instrument makes a number of changes to the ULI Determination to specify a different level of protection for radiocommunications devices that have ‘active antenna systems’, and to make some other minor changes.

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

The instrument is a disallowable legislative instrument for the purposes of the *Legislation Act 2003* (**the LA**). The ULI Determination is subject to the sunset provisions of the LA.

### **Documents incorporated by reference**

Subsection 314A(1) of the Act provides that an instrument under the Act may make provision in relation to a matter by applying, adopting or incorporating (with or without modifications) matter contained in any Act as in force at a particular time, or as in force from time to time.

The instrument amends the ULI Determination to incorporate the *Seas and Submerged Lands Act 1973*, as in force from time to time. The *Seas and Submerged Lands Act 1973* is available, free of charge, from the Federal Register of Legislation at [www.legislation.gov.au](http://www.legislation.gov.au).

Subsection 314A(2) of the Act provides that an instrument under the Act may make provision in relation to a matter by applying, adopting or incorporating (with or without modifications) matter contained in any other instrument or writing as in force or existing at a particular time, or as in force or existing from time to time.

The instrument amends the ULI Determination to incorporate the *3 second SRTM Derived Digital Elevation Model (DEM) Version 1.0 (DEM-3S)*, created by Geoscience Australia, as existing from time to time. DEM-3S is available, free of charge, from Geoscience Australia’s website at [www.ga.gov.au](http://www.ga.gov.au). Geoscience Australia has also published a smoothed variation of DEM-3S. This smoothed variation contains different elevation data than DEM-3S and is not to be used for the purposes of the ULI Determination.

The instrument inserts a transitional provision into the ULI Determination that applies in relation to a radiocommunications transmitter that has had its details included in the Register before the commencement of the instrument. The provision incorporates the ULI Determination as in force at the time the radiocommunications transmitter had its details included in the Register. The ULI Determination is available, free of charge, from the Federal Register of Legislation at [www.legislation.gov.au](http://www.legislation.gov.au).

The instrument inserts hierarchical cell identifier scheme (**HCIS**) identifiers into the ULI Determination (see new Schedule 5). The ULI Determination already incorporates by reference the Australian Spectrum Map Grid 2012 (**ASMG**), as existing from time to time, published by the ACMA. The ASMG explains how different parts of Australia are represented by particular HCIS identifiers. The ASMG is available, free of charge, from the ACMA’s website at [www.acma.gov.au](http://www.acma.gov.au).

The instrument also amends the ULI Determination to refer to the Act, the AIA and the LA. The new references do not, however, incorporate these Acts.

### **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 July 2020, the ACMA established a technical liaison group (**TLG**) to provide advice on what changes should be made to the 1800 MHz 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 1800 MHz 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 6 October 2021 to 5 November 2021 in order to give all interested parties an opportunity to comment on the proposed changes.

Four submissions were received during the public consultation period. Submissions were generally supportive of the proposed changes. After considering all submissions, the ACMA decided to amend section 11 of the instrument to allow modifications to be made to a radiocommunications device that results in the same or a smaller device boundary to that calculated when the device was originally registered. The option to do this was included in the public consultation process and there was support to implement it.

### **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 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 44613.

### **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 69 of the Act requires each spectrum licence to include a condition that a radiocommunications transmitter must not be operated under the licence unless the requirements of the ACMA under Part 3.5 of the Act for registration of the transmitter have been met.

Subsection 145(1) 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 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 ULI Determination sets out what is meant by an 'unacceptable level of interference' in relation to radiocommunications transmitters operated under a spectrum licence issued in the part of the spectrum known as the 1800 MHz band.

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 – 1800 MHz 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 – 1800 MHz 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 – 1800 MHz Band) Determination 2012*.

**Schedule 1–Amendments**

**Item 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(2) of the ULI Determination. It is used to determine a specific case where paragraph 9(1)(b) of the ULI Determination does not apply, in relation to a part of the device boundary.

**Item 2**

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

**Item 3**

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 4**

Section 9 of the ULI Determination provides the technical definition of what will be deemed unacceptable levels of interference for the purpose of interference management in the 1800 MHz band. Item 4 repeals and replaces section 9.

A radiocommunications transmitter producing emissions that are found to cause unacceptable levels of interference to other radiocommunications services will, in most circumstances, not be registered on the Register for operation under a spectrum licence in the 1800 MHz band, in accordance with subsection 145(1) of the Act. Licensees who operate such devices without registration will be in breach of the condition included in the licence because of section 69 of the Act and may become subject to further compliance action under the Act. It is an offence, and subject to a civil penalty, to operate a radiocommunications device otherwise than as authorised by a spectrum licence (see Part 3.1 of the Act). The maximum penalty for the offence is 2 years imprisonment for an individual, or 1500 penalty units (\$333,000 on the current value of a penalty unit) where the radiocommunications device is a radiocommunications transmitter. The maximum civil penalty is 300 penalty units (\$66,600 on the current value of a penalty unit) where the radiocommunications device is not a radiocommunications transmitter. Operation of a radiocommunications device is not authorised by a spectrum licence if it is not in accordance with the conditions of the licence (subsection 64(2) of the Act).

Under new subsection 9(1), a radiocommunications transmitter operated under a spectrum licence is taken to be causing unacceptable interference if:

- the operation of the transmitter breaches the core conditions of the licence relating to the maximum permitted level of radio emissions from the radiocommunications transmitter outside the geographic and frequency boundaries of the licence; or
- any part of the ‘device boundary’ of the transmitter lies outside the geographic area of the licence. The ‘device boundary’ is a theoretical boundary calculated around the device using the methodology set out in the Schedules to the ULI Determination; or
- the device boundary of the transmitter cannot be calculated in accordance with Part 1 of Schedule 2 to the ULI Determination; or
- if the transmitter operates in the part of the 1800 MHz band known as the 1800 MHz Lower band, it has an effective antenna height greater than 10 metres, and has an occupied bandwidth with lower or upper frequency limits that is less than 10 MHz from a frequency adjacent spectrum licence in the same area; or
- any part of the ‘additional device boundary’ of the transmitter lies outside the geographic area of the licence, where:
  - the transmitter operates in the 1800 MHz Lower band; and
  - the transmitter has an effective antenna height greater than 10 metres; and
  - the transmitter operates outside an area of ‘high mobile use’ defined in Schedule 4 to the ULI Determination.

Paragraph 9(1)(g) was revoked and not replaced, removing the restriction in the frequency band 1877.5 MHz – 1880 MHz regarding a horizontally radiated power greater than 50 dBm per 30 kHz.

Subsection 9(2) 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 areas 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. Ducting is caused by temperature inversions in the atmosphere. It is a short-term atmospheric event that can result in interference occurring at much greater distances than usual.

In each of these cases, the fact that the device boundary is located outside of the geographic area of the licence does not mean that the radiocommunications transmitter is taken to be causing unacceptable interference. The transmitter may, however, be taken to be causing unacceptable interference for other reasons.

Subsection 9(3) provides that section 9 of the ULI Determination does not apply in relation to a radiocommunications transmitter to which section 11 applies.

#### **Item 5**

Item 5 inserts new section 11.

New section 11 applies in relation to radiocommunications transmitters that were registered before the commencement of the instrument. Such transmitters are only considered to be causing unacceptable interference when based on the provisions of the ULI Determination as at the time of registration. This will be the case even if the registration of the transmitters is changed, so long as the change does not result in an extension of the device boundary in any direction away from the transmitter.

#### **Item 6**

This item repeals the existing reference to subsection 5(1) in the heading to Schedule 1 to the ULI Determination, and substitutes new text referencing relevant subsections.

#### **Item 7**

This item repeals the existing reference to subsection 5(1) in the heading to Schedule 2 to the ULI Determination, and substitutes new text referencing relevant subsections.

#### **Items 8 to 10**

Items 8 to 10 amend item 1 of Part 1 of Schedule 2 to the ULI Determination. Schedule 2 provides for the calculation of the ‘device boundary’ of a radiocommunications transmitter. The amendments in these items account for the shorter distance between increments on a radial when the device boundary is calculated. That is, the distance between calculation points has been changed from 500 metres to 100 metres, and the corresponding calculation points have been increased from 80 to 400, to account for the higher resolution of the DEM-3S. DEM3S is used to work out the ground height at the place where a radiocommunications transmitter is located and at each 100 metre interval along a radial centred at the transmitter’s location. The height of the ground can affect the propagation of radiofrequency emissions from the transmitter to a receiver.

#### **Item 11**

This item adds a note at the end of Part 1, item 2, explaining the notation  $\sigma_n$ .

#### **Item 12**

Item 12 amends the definition of **LOP** in item 1 of Part 2 of Schedule 2 to the ULI Determination, to provide for LOPs for radiocommunications transmitters with and without AAS. The LOP for

transmitters that incorporate AAS is 8 dB lower to account for the dynamic interference environment associated with transmitters using AAS. The LOP is used to calculate the device boundary for a transmitter.

**Item 13**

This item repeals the existing reference to subsection 5(1) in the heading to Schedule 3, and substitutes new text referencing relevant subsections.

**Items 14 and 15**

Items 14 and 15 amend item 1 of Part 1 of Schedule 3 to the ULI Determination as a consequence of the adoption of the higher resolution DEM-3S, instead of DEM-9S.

**Item 16**

Item 16 repeals and replaces item 3 of Part 1 of Schedule 3 to the ULI Determination, to change references to the DEM-9S to the DEM-3S and to address a minor accuracy issue in determining terrain heights for the device boundary criterion equation resulting in the change from using a 9 second DEM to a 3 second DEM.

**Item 17**

This item repeals the note to item 3 of Part 1 of Schedule 3 to the ULI Determination.

**Items 18 and 19**

Items 18 and 19 amend item 1 of Part 2 of Schedule 3 to the ULI Determination as a consequence of the adoption of the higher resolution DEM-3S, instead of DEM-9S.

**Item 20**

Item 20 repeals and replaces item 2 of Part 2 of Schedule 3 to the ULI Determination, to change references to the DEM-9S to the DEM-3S and to address a minor accuracy issue in determining terrain heights for the device boundary criterion equation resulting in the change from using a 9 second DEM to a 3 second DEM.

**Item 21**

This item repeals the note in item 2 of Part 2 of Schedule 3 to the ULT Determination.

**Items 22 and 23**

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 1000m to 200m and 500m to 100m.

**Items 24 to 26**

The amendments in these items rectify a mistake in the definitions. These definitions should be measured in decimal radians.

**Item 27**

This item inserts the definition of  $\phi_l$  required for the change made in item 28.



**Item 28**

The amendment in this item rectifies a mistake in the equation for  $\phi_m$ .

**Item 29**

This item repeals the existing reference to subsection 5(1) in the heading to Schedule 4, and substitutes new text referencing relevant subsections.