

# EXPLANATORY STATEMENT

Approved by the Australian Communications and Media Authority

*Radiocommunications Act 1992*

## ***Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Amendment Determination 2021 (No. 1)***

### **Authority**

The Australian Communications and Media Authority (**the ACMA**) has made the *Radiocommunications (Unacceptable Levels of Interference – 3.4 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.

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

The purpose of the instrument is to amend the *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015* (**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 3.4 GHz 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:

- extend the parts of the 3.4 GHz band to which the ULI Determination applies;

- adopt some technical measures that are consistent with other instruments made under subsection 145(4) of the Act for other parts of the spectrum;
- provide an additional exception to what constitutes an unacceptable level of interference.

These amendments are made to improve the utility of the band and support the deployment of next generation fixed and mobile broadband services. 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 following, as existing from time to time:

- *3 second SRTM Derived Digital Elevation Model (DEM) Version 1.0 (DEM-3S)*, created by Geoscience Australia, and available, free of charge, from its 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);
- ITU-R Recommendation “P.525-4 Calculation of free space attenuation”, published by the International Telecommunication Union (ITU) and available, free of charge, from its website at [www.itu.int](http://www.itu.int);
- ITU-R Recommendation “P.526-15 Propagation by diffraction”, published by the ITU and available, free of charge, from its website at [www.itu.int](http://www.itu.int);
- ITU-R Recommendation “P.2108-0 Prediction of clutter loss”, published by the ITU and available, free of charge, from its website at [www.itu.int](http://www.itu.int).

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 of Radiocommunications Licences (**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 October 2020, the ACMA established a Technical Liaison Group (**TLG**) to provide advice on what changes should be made to the 3.4 GHz band technical framework to accommodate emerging technologies such as active antenna systems. Membership of the TLG included incumbent 3.4 GHz band spectrum licensees, some adjacent band licensees, equipment manufacturers and some industry groups. The ACMA took into account the views expressed by the TLG when preparing draft variations to the ULI Determination. The outcomes of the TLG are available on the ACMA website at [www.acma.gov.au](http://www.acma.gov.au).

The ACMA also publicly consulted on the draft variations proposed to be made by the instrument from 27 August to 30 September 2021.

Fourteen submissions were received during the public consultation period. Submissions were generally supportive of the proposed changes. After considering all submissions, the ACMA decided to:

- not repeal subsection 9(2) of the ULI Determination;
- 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 25773.

### **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.

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 3.4 GHz band. If the ACMA is satisfied that the operation of a 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:

- extend the parts of the 3.4 GHz band to which the ULI Determination applies;
- adopt some technical measures that are consistent with other instruments made under subsection 145(4) of the Act for other parts of the spectrum;
- provide an additional exception to what constitutes an unacceptable level of interference.

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 – 3.4 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 – 3.4 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 – 3.4 GHz Band) Determination 2015 (the ULI Determination)*.

**Schedule 1—Amendments**

**Item 1**

Item 1 amends the definition of **3.4 GHz band** in the ULI Determination to encompass the entire 3400-3700 MHz frequency band. This is done to include the additional areas and frequencies subject to spectrum licensing resulting from the *Radiocommunications (Spectrum Designation—3.4 GHz Band) Notice 2020*. Spectrum licences were allocated as a result of that notice in May and June 2021.

**Item 2**

Item 2 includes definitions of **active antenna system** or **AAS** and **Australian territorial sea baseline** in section 5 of the ULI Determination. The term AAS is referenced in the definition of the ‘level of protection’ (**LOP**) in Part 2 of Schedule 2 of the ULI Determination, which has been amended by the instrument. The Australian territorial sea baseline is used to determine a specific case where a radiocommunications transmitter does not cause an unacceptable level of interference (see subsection 9(4) of the ULI Determination), but under paragraph 9(1)(b) of the ULI Determination would have done so.

**Item 3**

Item 3 replaces the definitions **DEM-9S** and **DEM-9S cell** with definitions of **DEM-3S** and **DEM-3S cell**. DEM-3S and DEM-3S cell are terms used in Schedule 2 and Schedule 3 of the ULI Determination, as amended by the instrument.

**Item 4**

Item 4 inserts definitions for the terms **group of radiocommunications receivers**, **group of radiocommunications transmitters** and **Recommendation ITU-R P.525-4**. These are referenced in sections 7 and 8, and Part 3 of Schedule 2 of the ULI Determination respectively.

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## **Item 5**

Item 5 replaces the definition of the term *Recommendation ITU-R P.526-13* with a definition for *Recommendation ITU-R P.526-15*, a document published by the International Telecommunication Union (ITU). Recommendation ITU-R P.526-15 is used in Part 3 of Schedule 2 of the ULI Determination for the calculation of the propagation loss in the device boundary criterion.

## **Item 6**

Item 6 includes a definition for *Recommendation ITU-R P.2108-0*, a document published by the ITU. Recommendation ITU-R P.2108-0 is used in Part 3 of Schedule 2 of the ULI Determination for the calculation of the propagation loss in the device boundary criterion.

## **Item 7**

Item 7 inserts new section 5A after section 5. This section provides that in the ULI Determination, 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 8**

Subsection 9(1) of the ULI Determination sets out four cases when a radiocommunications transmitter would cause an unacceptable level of interference in the 3.4 GHz band. One of those cases, in paragraph 9(1)(b), is subject to exceptions in other subsections of section 9.

Item 8 repeals existing paragraph 9(1)(b) and substitutes new text to include a reference to a new exception in subsection 9(5).

## **Item 9**

Item 9 omits a reference to Geoscience Australia in subparagraph 9(4)(b)(ii), which is no longer required as a result of the change made by item 2.

## **Item 10**

Item 10 repeals two notes, which are no longer required.

## **Item 11**

Item 11 inserts new subsections 9(5) and 9(6) after subsection 9(4).

Subsection 9(1) of the ULI Determination sets out four cases when a radiocommunications transmitter would cause an unacceptable level of interference in the 3.4 GHz band. Paragraph 9(1)(b) of the ULI Determination provides that a radiocommunications transmitter operated under a spectrum licence in the 3.4 GHz band will cause unacceptable interference if any part of the ‘device boundary’ of the transmitter lies outside the geographic area of the licence. The ‘device boundary’ is worked out in accordance with Schedule 2.

New subsection 9(5) provides for an exception to what is taken to be a cause of unacceptable interference in paragraph 9(1)(b), in the case where:

- the device boundary lies outside the geographic area of the licence but inside an urban area specified in new Schedule 5; and
- the device boundary relates to the operation of a radiocommunications transmitter with an occupied bandwidth contained within the 3400-3475 MHz frequency range; and
- is connected to a radial that is mentioned in Part 1 of Schedule 2 (along each of which the device boundary is calculated).

Currently, no spectrum licence authorises the operation of radiocommunications devices in the 3400-3475 MHz frequency range in the urban areas specified in new Schedule 5.

New subsection 9(6) provides that section 9 of the ULI Determination does not apply in relation to a radiocommunications transmitter to which section 11 applies.

### **Item 12**

Item 12 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 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 device.

### **Item 13**

Item 13 amends the heading of Schedule 2 as a result of new subsections 9(5) and 11(3).

### **Items 14 to 16**

Items 14 to 16 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 250 metres to 100 metres, and the corresponding calculation points have been increased from 432 to 1010, 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 transmissions from the transmitter to a receiver.

### **Item 17**

Item 17 adds a note explaining the notation  $\sigma_n$ .

### **Item 18**

Item 18 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 19**

Item 19 replaces the propagation loss calculation required to be used when calculating the device boundary criterion. Recommendation ITU-R P.525-4 for free-space attenuation has been included and the existing ITU Recommendation for propagation by diffraction has been updated to Recommendation ITU-R P.526-15. These changes ensure that both free space loss and diffraction are taken into account when calculating propagation loss. For radiocommunications transmitters that are not more than 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 20 and 21**

Items 20 and 21 make consequential changes to include references to Recommendation ITU-R P.526-15.

### **Item 22**

Item 22 amends item 3 of Part 3 of Schedule 2 to the ULI Determination as a consequence of the adoption of the higher resolution DEM-3S, instead of DEM-9S.

### **Item 23**

Item 23 adds a new item 4 to Part 3 of Schedule 2 to the ULI Determination. New item 4 sets specific requirements for using Recommendation ITU-R P.2108-0 when determining propagation losses. This will constrain additional losses due to clutter to between 0 and 8 dB.

### **Items 24 to 29**

Items 24 to 29 amend Schedule 3 to the ULI Determination, replacing references to the DEM-9S with references to the DEM-3S, and making consequential changes. These changes account for the increase in resolution from DEM-9S to 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.

### **Item 30**

Item 30 inserts new Schedule 5 after Schedule 4 to the ULI Determination. This Schedule defines urban areas for the purposes of new subsection 9(5), by reference to the ASMG and HCIS identifiers.