



## **Radiocommunications – 3.4 GHz Band Omnibus Variation 2018 (No.1)**

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The Australian Communications and Media Authority makes this instrument under section 88, subsection 145(4) and section 262 of the *Radiocommunications Act 1992*.

Dated: 27 July 2018

Creina Chapman  
[signed]  
Member

James Cameron  
[signed]  
Member/~~General Manager~~

Australian Communications and Media Authority

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## Section 1

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### 1 Name

This is the *Radiocommunications – 3.4 GHz Band Omnibus Variation 2018 (No.1)*.

### 2 Commencement

This instrument commences at the start of the day after it is registered on the Federal Register of Legislation.

Note: The Federal Register of Legislation may be accessed at [www.legislation.gov.au](http://www.legislation.gov.au).

### 3 Authority

This instrument is made under section 88, subsection 145(4) and section 262 of the *Radiocommunications Act 1992*.

### 4 Variation – *Radiocommunications (Trading Rules for Spectrum Licences) Determination 2012*

The instrument that is specified in Schedule 1 is amended as set out in the items in that Schedule.

### 5 Variation – *Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015*

The instrument that is specified in Schedule 2 is amended as set out in the items in that Schedule.

### 6 Variation – *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015*

The instrument that is specified in Schedule 3 is amended as set out in the items in that Schedule.

### 7 Variation – *Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015*

The instrument that is specified in Schedule 4 is amended as set out in the items in that Schedule.

### 8 References to other instruments

In this instrument, unless the contrary intention appears:

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

Note 1: For references to Commonwealth Acts, see section 10 of the *Acts Interpretation Act 1901*; and see also subsection 13(1) of the *Legislation Act 2003* for the application of the *Acts Interpretation Act 1901* to legislative instruments.

Note 2: All Commonwealth Acts and legislative instruments are registered on the Federal Register of Legislation.

## Schedule 1 – Amendments

(section 4)

### *Radiocommunications (Trading Rules for Spectrum Licences) Determination 2012 (F2012L01718)*

**1 Schedule 1 (item 13)**

Omit “3542.5–3575”, substitute “3542.5–3700”.

**2 Schedule 1 (item 14)**

Repeal the item.

## Schedule 2 – Amendments

(section 5)

### ***Radiocommunications (Unacceptable Levels of Interference – 3.4 GHz Band) Determination 2015 (F2015L00727)***

**1 Subsection 5(1) (definition of 3.4 GHz band)**

Repeal the definition, substitute:

**3.4 GHz band** means the following frequency bands:

- (a) 3425 MHz to 3492.5 MHz; and
- (b) 3542.5 MHz to 3700 MHz.

**2 Subsection 5(1) (after the definition of geographic area)**

Insert:

**HCIS identifier** means an identifier used to describe a geographic area in the HCIS.

**hierarchical cell identification scheme** or **HCIS** means the cell grouping hierarchy scheme used to describe areas in the Australian Spectrum Map Grid 2012 published by the ACMA on its website, as existing from time to time.

**3 Subsection 5(1) (after the definition of Recommendation ITU-R P.526-13)**

Insert:

**total radiated power**, is defined as the integral of the power transmitted in different directions over the entire radiation sphere. It is measured considering the combination of all radiating elements on an antenna panel or individual device.

**4 Paragraph 9(1)(b)**

Omit “subject to subsection (2)”, substitute “subject to subsections (2), (3) and (4)”.

**5 Subsection 9(2)**

After subsection 9(2), insert above the Note:

(3) A level of interference mentioned in paragraph 9(1)(b) is not unacceptable in relation to a part of the device boundary that:

- (a) lies outside the geographic area of the licence; and
- (b) lies inside an earth station protection zone specified in Schedule 4; and
- (c) is connected to a radial that:
  - (i) is mentioned in Part 1 of Schedule 2; and
  - (ii) does not cross the geographic area of another spectrum licence in the 3.4 GHz band.

(4) A level of interference mentioned in paragraph 9(1)(b) is not unacceptable in relation to a part of the device boundary that:

- (a) lies outside the geographic area of the licence; and
- (b) is connected to a radial that:
  - (i) is mentioned in Part 1 of Schedule 2; and

## Schedule 2

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- (ii) does not cross over land outside the geographical area of the licence that is permanently above the Australian territorial sea baseline as defined by Geoscience Australia;
- (iii) does not cross into any of the following HCIS: IW3E, IW3I, IW3M, IW6A, IW6E, KX9, LX7, LX8, LX9.

Note The definitions referred to at paragraph (4)(b)(ii) are found at Geoscience Australia's website ([www.ga.gov.au](http://www.ga.gov.au)).

### 6 Schedule 2 (Part 1, paragraph 1)

Repeal the paragraph, substitute:

1. The device boundary of a single radiocommunications transmitter is established as follows:

Step 1: Calculate the device boundary criterion at each  $m \times 250$  metre increment along each of the  $n$ -degree radials, where:

- (a)  $m$  is the values 2 through 432; and
- (b)  $n$  is the values 0 (true north) through 359.

Step 2: For each radial, find the latitude and longitude of the first point (lowest value of  $m$ ) where either:

- (a) RP-MP is less than or equal to 0; or
- (b)  $m$  is equal to 432.

Step 3: The end point of each radial is the device boundary of the radiocommunications transmitter.

Note: RP-MP (device boundary criterion) is calculated under Part 2.

### 7 Schedule 2 (Part 2, paragraph 1, after the definition of RP)

Add:

Note: For a device with an active antenna system, the RP at bearing  $\sigma_n$  is defined as the sum of the gain of the antenna towards the horizontal plane and towards azimuth  $\sigma_n$  (dB) and the total radiated power (dBm). This allowance is based on the assumption that beam pointing angles and/or power can be controlled dynamically to ensure RP is not exceeded.

### 8 Schedule 2 (Part 2, paragraph 1, definition of LOP)

Omit "set to -111 dBm per MHz", substitute "set to -98 dBm per MHz".

### 9 Schedule 2 (Part 3, paragraph 3)

Omit "DEM-9S at 500 metre", substitute "DEM-9S at 250 metre".

### 10 Schedule 3 (Part 3, paragraph 1)

Omit:

" $d$  : is the separation distance to required point ( $m \times 500$  metres)",

substitute:

## Schedule 2

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“*d* : is the separation distance to required point (m×250 metres)”.

### 11 After Schedule 3

Insert:

## Schedule 4 Earth station protection zones

(subsection 9(3))

### Description of Area

1. The earth station protection zones are the areas named in Column 1 of the table below.
2. An earth station protection zone consists of the aggregation of block areas referenced by HCIS identifiers used to describe it which are specified in the corresponding Column 2 of the table below. (Refer to the ASMG for a complete description of the naming convention referred to as the HCIS.)

Column 1 Name	Column 2 HCIS Identifiers
Moree	MU5G, MU5H, MU5L, MU5C8, MU5C9, MU5D7, MU5D8, MU5D9, MU5K1, MU5K2, MU5K3, MU5K4, MU5K5, MU5K6, MU5K8, MU5K9, MU6A7, MU6E1, MU6E2, MU6E4, MU6E5, MU6E7, MU6E8, MU6I1, MU6I2, MU6I4, MU6I5, MU6I7
Quirindi	MV3G, MV3H, MV3K, MV3L, MV3C8, MV3C9, MV3D7, MV3F3, MV3F5, MV3F6, MV3F8, MV3F9, MV3J2, MV3J3, MV3J5, MV3J6, MV3J9, MV3O1, MV3O2, MV3O3, MV3P1
Roma	MT4H, MT4K, MT4L, MT4F9, MT4G2, MT4G3, MT4G4, MT4G5, MT4G6, MT4G7, MT4G8, MT4G9, MT4J3, MT4J6, MT4O1, MT4O2, MT4O3, MT4O6, MT4P1, MT4P2, MT4P3, MT4P4, MT4P5, MT5E4, MT5E7, MT5I1, MT5I2, MT5I4, MT5I5, MT5I7, MT5M1
Uralla	NU7K4

## Schedule 3 – Amendments

(section 6)

### *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers – 3.4 GHz Band) 2015 (F2015L00729)*

#### 1 Subsection 1.4(1) (definition of 3.4 GHz band)

Repeal the definition, substitute:

**3.4 GHz band** means the following frequency bands:

- (a) 3425 MHz to 3492.5 MHz; and
- (b) 3542.5 MHz to 3700 MHz.

#### 2 Subsection 1.4(1) (after the definition of Act)

Insert:

**active antenna system (AAS)** refers to a base station antenna system where the amplitude and/or phase between antenna elements is continually adjusted, resulting in an antenna pattern that varies in response to short term changes in the radio environment.

#### 3 Subsection 1.4(1) (after the definition of subsection 145(4) determination)

Insert:

**unwanted emissions** means any emissions (both out-of-band and spurious emissions) outside the lower and upper frequency limits of a spectrum licence.

#### 4 Part 3

Repeal the Part, substitute:

### **Part 3 Managing interference from other services**

#### **3.1 In-band interference**

- (1) In-band interference caused in a radiocommunications receiver operating under a spectrum licence in the 3.4 GHz band by a radiocommunications transmitter operating under an adjacent spectrum licence issued on or after 14 December 2015 is managed by:
  - (a) the core conditions imposed on the spectrum licences under section 66 of the Act;
  - (b) the device boundary criteria and deployment constraints prescribed in the subsection 145(4) Determination; and
  - (c) any condition set out in the spectrum licence relating to synchronisation (a **synchronisation requirement**), unless other arrangements are agreed to by the affected licensees.
- (2) In-band interference caused in a radiocommunications receiver operating under a spectrum licence in:

- (a) the 3425-3492.5 MHz and 3542.5-3575 MHz frequency bands by a radiocommunications transmitter operating under an apparatus licence issued on or after 14 December 2015; or
- (b) the 3575-3700 MHz frequency band by a radiocommunications transmitter operating under an apparatus licence issued on or after 9 March 2018;

is managed as if the transmitter is operated under a spectrum licence. The same device boundary criteria, as applied to spectrum licensed radiocommunications transmitters at the time of registration are also applied to new apparatus licensed radiocommunications transmitters. Therefore, spectrum licensed receivers are afforded the same level of in-band protection from new apparatus licensed radiocommunications transmitters as they are afforded from radiocommunications transmitters operated under adjacent spectrum licences.

- (3) Application of the device boundary criteria manages in-band interference and these criteria incorporate emission limits that provide reasonable protection inside the geographic area of a licence. Emission limits are also used to manage out-of-band interference but these do not provide protection along the frequency boundaries of a spectrum licence throughout the entire geographic area. Because of the nature of out-of-band interference, emission limits cannot be used to provide protection from out-of-band interference for devices that are located near each other, for example, at multi-operator sites.
- (4) Radiocommunications transmitters operating under a Radiodetermination apparatus licence are not required to adhere to the device boundary criteria, provided the licensee implements measures to minimise the impact on services operated under 3.4 GHz band spectrum licences. In-band interference from radiodetermination licences is expected to be transient in nature. In the event this is not the case, the radiodetermination licensee will be required to implement further mitigation measures to reduce the impact on services operated under 3.4 GHz band spectrum licences. To further assist with managing interference, when planning and operating fixed or mobile wireless networks, spectrum licensees should also have regard to subclause 3.2(4) of these guidelines.
- (5) Spectrum licensees must accept any in-band interference to radiocommunications receivers operating in:
  - (a) the 3425-3492.5 MHz and 3542.5-3575 MHz frequency bands caused by radiocommunications transmitters operating under an apparatus licence issued before 14 December 2015; or
  - (b) the 3575-3700 MHz frequency bands caused by radiocommunications transmitters operating under an apparatus licence issued before 9 March 2018.

This subsection does not apply to radiodetermination apparatus licences.

- (6) The interference management framework, if any is required, for devices operated under a class licence is contained in the relevant class licence.



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**3.2 Out-of-band interference**

- (1) Out-of-band interference is difficult to predict because the levels and frequencies of unwanted emissions depend on both the nearness of, and the operating frequencies of, radiocommunications transmitters and radiocommunications receivers that are close in terms of both frequency and distance. In addition, out-of-band interference:
  - (a) can extend for many Megahertz either side of the frequency boundary of a spectrum licence;
  - (b) is dependent on the quality of the radiocommunications receiver as well as the levels of the radiocommunications transmitter emission; and
  - (c) is difficult to model accurately.
- (2) If emission limits were used to manage out-of-band interference for devices in close proximity, the interference modelling inaccuracy would require large probability margins to be added to those limits. These margins would place severe constraints on use of the spectrum because the frequency boundaries of a licence extend throughout the entire geographic area of a licence. Therefore, emission limits that manage out-of-band interference throughout the geographic area of a spectrum licence cannot be used because they would lead to a severe loss of utility of the spectrum on both sides of the frequency boundary.
- (3) Instead of making large tracts of spectrum space unusable through the imposition of emission limits, out-of-band interference is managed through interference management procedures based on a compatibility requirement for radiocommunications receivers. A minimum level of receiver performance is specified in conjunction with the compatibility requirement because the performance level of receivers:
  - (a) affects the level of interference; and
  - (b) can vary for receivers operating under spectrum licences.

*Note:* The compatibility requirement is set out in Part 4.

- (4) High power radiolocation services in the 3100-3500 MHz band are operated by the Department of Defence on an itinerant basis. These radiolocation services have the potential to disrupt the throughput of 3.4 GHz receivers particularly on the uplink channel (base station receiver). The Department of Defence already employ techniques to minimise impacting other in-band and adjacent band services. However, there will be occasions when interference cannot be fully mitigated by these techniques. In such instances the interference may be due to blocking, strong out of band emissions of the radar, or other susceptibilities within a 3.4 GHz fixed or mobile wireless network configuration. When planning service deployments, spectrum licensees are urged to consider different engineering techniques to reduce the likelihood of impact to their spectrum licensed service. Such engineering techniques by spectrum licensees may include additional RF filtering, network redundancy, or resilience of network configuration where vulnerabilities to radar signal interference are identified. The ACMA will work with the Department of Defence to

provide what additional information it can to assist spectrum licensees on this matter. Such information will only be given directly to existing or likely prospective spectrum licensees.

**3.3 Recording radiocommunications receiver details in the Register**

A radiocommunications receiver operated under a spectrum licence must be recorded in the Register to be afforded protection in accordance with these guidelines.

**3.4 Mobile and nomadic devices**

The compatibility requirement specified in Part 5 does not apply to mobile or nomadic radiocommunications receivers operated under a spectrum licence in the 3.4 GHz band because the transient nature of these devices prevents the use of this requirement as an interference management procedure.

**5 Subsection 4.1(1)**

Omit “out-of-band”, substitute “unwanted”.

**6 Subsection 5.1(3), including the note**

Repeal the subsection, substitute:

- (3) Unless alternative arrangements are negotiated and agreed to, in the event a 3.4 GHz band spectrum licensee claims interference from one or more radiocommunications transmitters operating under another 3.4 GHz band spectrum licence into a radiocommunications receiver operated under their 3.4 GHz band spectrum licence, all relevant 3.4 GHz band spectrum licensees are required to synchronise their services as specified in any synchronisation requirement condition included in their spectrum licence.

**7 Subsection 5.1(4)**

Repeal the subsection, substitute:

- (4) Subsections (1), (2) and (3) do not apply to a radiocommunications transmitter operated under a radiodetermination licence. The licensee of a radiodetermination service ensures compatibility by meeting the criteria defined in subsection 3.1 (4).

**8 Subsection 5.1(5)**

Repeal the subsection, substitute:

- (5) The interference management framework for radiocommunications devices operated under a class licence are contained in the relevant class licence.

*Note:* For a device with an active antenna system, the radiated power in the direction of a receiver operated under another licence, is defined as the sum of the gain of the antenna in the direction of the receiver (accounting for azimuth and elevation) and the total radiated power (dBm). This allowance is based on the assumption that beam pointing

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angles and/or power can be controlled dynamically to ensure a defined level of radiated power in a specific direction is not exceeded.

**9 Subsection 5.1(6)**

Repeal the subsection.

**10 Schedule 1 (paragraph (3))**

Repeal the paragraph, substitute:

**(3) Adjacent channel selectivity**

- (a) For radiocommunications receivers operating in a bandwidth of 20 MHz or less, the adjacent channel selectivity shall be greater than or equal to 45 dB in the adjacent 5 MHz of the licence under which the radiocommunications receiver operates.
- (b) For radiocommunications receivers operating in a bandwidth greater than 20 MHz, the adjacent channel selectivity shall be greater than or equal to 45 dB in the adjacent 20 MHz of the licence under which the radiocommunications receiver operates.

**11 Schedule 1 (paragraph (5))**

Repeal the paragraph, substitute:

**(5) Receiver blocking**

- (a) The receiver blocking requirement for a radiocommunications receiver operating in the 3340-3760 MHz frequency range with a bandwidth of:
  - (i) 20 MHz or less is -43 dBm per 5 MHz at frequency offsets greater than 5 MHz from the upper and lower frequency limit of the spectrum licence under which the radiocommunications receiver operates; or
  - (ii) more than 20 MHz is -43 dBm per 20 MHz at frequency offsets greater than 20 MHz from the upper and lower frequency limit of the spectrum licence under which the radiocommunications receiver operates.
- (b) The receiver blocking requirement for a radiocommunications receiver operating at all other frequencies is a total mean power of -15 dBm.

**12 Schedule 3**

Repeal the Schedule.

## Schedule 4 – Amendments

(section 7)

### ***Radiocommunications Advisory Guidelines (Managing Interference from Spectrum Licensed Transmitters – 3.4 GHz Band) 2015 (F2015L00728)***

**1 Subsection 1.5(1) (definition of 3.4 GHz band)**

Repeal the definition, substitute:

**3.4 GHz band** means the following frequency bands:

- (a) 3425 MHz to 3492.5 MHz; and
- (b) 3542.5 MHz to 3700 MHz.

**2 Subsection 1.5(1) (definition of RALI FX19)**

Omit “, 2010 – 2025”.

**3 Subsection 1.5(1) (after the definition of RALI MS 39)**

Insert:

**RALI MS 44** means the Radiocommunications Assignment and Licensing Instruction MS 44, *Frequency coordination procedures for the Earth station protection zones*, published by the ACMA, as in existence from time to time.

*Note:* RALI MS44 is available on the ACMA website at [www.acma.gov.au](http://www.acma.gov.au).

**4 Section 2.3 (first dot point)**

Omit “in frequency bands adjacent”, substitute “in and adjacent”.

**5 Section 2.3 (fifth dot point)**

Omit the full stop, insert a semi colon and the following text:

- Earth station protection zones (Part 9 of these guidelines);
- Earth station facility near Uralla, NSW (Part 10 of these guidelines).

**6 Subsection 3.1(1)**

Omit “operating in frequencies adjacent to”, substitute “operating on frequencies in and adjacent to”.

**7 Subsection 4.2 (3) (second sentence)**

Omit “arrangments”, substitute “arrangements”.

**8 Section 4.3**

Repeal the section, substitute:

### 4.3 Protection requirements – Earth receive stations operating in the 3600-4200 MHz band for fixed-satellite services

- (1) Radiocommunications transmitters operated under a spectrum licence in the 3.4 GHz band must protect earth receive stations for fixed-satellite services from co-channel emissions, unwanted emissions and receiver overload, if the radiocommunications receiver for the earth receive station:
- (a) is licensed under the Act;
  - (b) was registered in the Register prior to the date on which the radiocommunications transmitter operated under the spectrum licence is registered;
  - (c) is located within:
    - (i) 100 km of and not operating co-channel to a radiocommunications transmitter operated under a spectrum licence in the 3.4 GHz band; or
    - (ii) 200 km of and operating co-channel to a radiocommunications transmitter operated under a spectrum licence in the 3600-3700 MHz frequency band; and
  - (d) is operating in the 3600 to 4200 MHz band.
- (2) Earth receive stations for fixed-satellite services are to be protected from co-channel emissions to a maximum interference level of -128.6 dBm/MHz not to be exceeded for more than 20% of the time.

*Note* Refer to Recommendation ITU-R SF.1006 for further guidance on the procedure to use for the protection of earth receive stations for fixed-satellite services.

- (3) Earth receive stations are to be protected from unwanted emissions (out-of-band and spurious) to a level of -128.6 dBm/MHz, assuming a receiver noise temperature of 100K which is not to be exceeded for more than 20% of the time.

*Note* When assessing interference from unwanted emissions, the highest level of out-of-band or spurious emissions that fall within the licensed bandwidth of the FSS Earth station receiver should be considered in calculations.

- (4) A radiocommunications transmitter operated under a spectrum licence in the 3.4 GHz band is not considered to overload the receiver of an FSS Earth station if the total power received from the interfering service at the input of an FSS Earth station receiver (i.e. after considering Antenna gain, radiofrequency (RF) filtering and other losses) does not exceed -65 dBm. The minimum RF filtering level described in Table 1, at the front end of the Earth receive station for different frequency offsets, should be assumed.

Frequency offset from lower edge of Earth station receiver (MHz)	Rejection (dB)
< 50	$0.5 + 0.6 * f_{\text{offset}} \text{ (MHz)}$
<110	45.5
< 150	$30.5 + 0.25 * (f_{\text{offset}} \text{ (MHz)} - 50)$

Frequency offset from lower edge of Earth station receiver (MHz)	Rejection (dB)
< 200	55.5
≥ 200	70

**Table 1: Minimum frequency response of earth receive station's RF filter**

*Note* When there are multiple earth receive licences operating on the same antenna, the RF filter characteristics described in Table 1 should only be applied from the lower edge of the lowest frequency licence.

(5) When assessing interference caused by unwanted emissions or receiver overload:

- Propagation loss between a radiocommunications transmitter and an earth receive station for a fixed-satellite service should be calculated using Recommendation ITU-R P.452 with  $p = 20\%$ .

*Note:* The parameter  $p$  is defined in Recommendation ITU-R P.452 as the required time percentage for which the calculated basic transmission is not exceeded.

- In the event actual antenna radiation patterns are not available for an earth receive station in a fixed-satellite service, the antenna radiation pattern defined in ITU-R Recommendation S.465 can be assumed.
- The first time a spectrum licensee performs adjacent channel coordination with an apparatus licensed earth receive station operating in the 3600 to 4200 MHz band, and before the spectrum licensee registers their device, the spectrum licensee must notify the affected earth receive station licensee. This is to ensure the FSS licensee has installed an RF filter with the relevant characteristics from Table 1 to the front end of their earth station receiver.

#### **4.4 Additional protection requirements for incumbent Earth receive stations operating in the 3600-3700 MHz band**

- (1) An incumbent earth receive station is one that operates in the 3600–3700 MHz band and falls within one of the frequencies and areas contained in the following re-allocation declarations:
  - (a) *Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Adelaide and Eastern Metropolitan Australia) Declaration 2018;*
  - (b) *Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Perth) Declaration 2018;* and
  - (c) *Radiocommunications (Spectrum Re-allocation—3.6 GHz Band for Regional Australia) Declaration 2018.*
- (2) Incumbent earth receive stations are to be provided with the protection defined in section 4.2 and section 4.3 of these guidelines.
- (3) Incumbent earth receive stations within 300 km of a transmitter operated under a 3.4 GHz spectrum licence are also to be protected from co-channel emissions to a maximum interference level of -119.9 dBm/MHz not to be exceeded for more than 0.005% of the time.

## Schedule 4

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*Note 1:* Details of earth receive stations and site ID's are contained on the Register of Radiocommunications Licensees, accessible at [www.acma.gov.au](http://www.acma.gov.au).

*Note 2:* Refer to Recommendation ITU-R SF.1006 for further guidance on the procedure to use for the protection of FSS Earth receive stations.

### 9 Section 5.1

Omit each occurrence of “arrangments”, substitute “arrangements”.

### 10 Subsection 5.2(2)

Repeal the subsection and the notes, substitute:

- (2) The licensee who is second-in-time is responsible for bearing the costs of any changes required to facilitate coexistence.

### 11 Subsection 6.1

Omit “3300-3400 MHz”, substitute “3100-3400 MHz”.

### 12 Subsection 6.2

Omit “3300-3400 MHz”, substitute “3100-3400 MHz”.

### 13 Subsection 7.1

Omit “3400-3600 MHz”, substitute “3400-3700 MHz”.

### 14 Note after subsection 8.2(2)

Omit “propogation”, substitute “propagation”.

### 15 After subsection 8.2(3)

Insert:

- (4) In the event a solution under subsection (3) is not possible, interference is managed in accordance with any synchronisation requirement condition included in the spectrum licence, unless other arrangements are agreed to by the affected licensees.

*Note:* For a device with an active antenna system, the radiated power in the direction of a receiver operated under another licence, is defined as the sum of the gain of the antenna towards in the direction of the receiver (accounting for azimuth and elevation) and the Total Radiated Power (dBm). This allowance is based on the assumption that beam pointing angles and/or power can be controlled dynamically to ensure a defined level of radiated power in a specific direction is not exceeded.

### 16 After Part 8

Insert:

## **Part 9 Earth station protection zones**

### **9.1 Background**

The ACMA has identified a number of locations that may be suitable as earth station protection zones (ESPZs) in eastern and western Australia. The

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purpose of these ESPZs is to define areas outside of reasonably sized population centres that provide long-term certainty and flexibility for investment in and operation of commercial space communications teleport facilities in Australia. The general protection requirements for these ESPZs are defined in RALI MS44.

## 9.2 Protection requirements

Radiocommunications transmitters operated under a spectrum licence in the 3.4 GHz band must comply with the coordination and protection requirements specified in RALI MS44.

*Note:* Should it become apparent that an ESPZ is not viable, the ACMA will remove any protection requirements in place in relation to it.

## Part 10 Earth station facility near Uralla

### 10.1 Background

There is an Earth station facility located near Uralla (the *Uralla facility*) within the HCIS NU7K4. Services at the Uralla facility operate at various frequencies in the 3400-4200 MHz band.

### 10.2 Protection requirements

- (1) Radiocommunications transmitters operated under a spectrum licence in the 3.4 GHz band must protect earth stations operating in the 3600-4200 MHz band at the Uralla facility to the levels specified in RALI MS44.
- (2) No protection is afforded to earth stations operating in the 3400-3600 MHz band at the Uralla facility. However, the notification requirements specified in subsection 4.2(3) of these guidelines apply.

*Note 1:* Given some of the services operating at the Uralla facility are temporal in nature and/or may only track certain parts of the sky, there may be opportunity for detailed negotiations between licensees to manage interference while improving spectrum utilisation.

*Note 2:* The long-term viability of the Uralla facility may be reviewed in the future. This is in light of the increasing demand for fixed and mobile broadband capacity, growing international interest in the 3700–4200 MHz band for use by fixed and mobile wireless broadband services and the proximity of the site to major regional population centres. However, if it is shown that fixed and mobile broadband service deployments in nearby major towns are not unreasonably restricted (noting there is likely to be some restrictions), this would be taken into consideration when assessing the long term viability of the Uralla facility.