

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

The Australian Communications and Media Authority makes this instrument under sections 88 and 262 of the *Radiocommunications Act 1992*.

Dated:

Member

Member/General Manager

Australian Communications and Media Authority

# Name

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

# 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).

# Authority

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

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

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

# Schedule 1 – Amendments

(section 4)

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

**1 Schedule One (item 13)**

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

**2 Schedule One (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 (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 (HCIS)*** means the cell grouping hierarchy scheme used to describe areas in the Australian Spectrum Map Grid 2012 published by the ACMA, as existing from time to time.

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

***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 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.

**5 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×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.

**6 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 σn is defined as the sum of the gain of the antenna towards the horizontal plane and towards azimuth σn (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.

**7 Schedule 2 (Part 2, paragraph 1, in the definition of LOP)**

Omit “set to –111 dBm per MHz”, substitute “set to -98 dBm per MHz”.

**8 Schedule 2 (Part 3, paragraph 3)**

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

**9 Schedule 3 (Part 3, paragraph 1)**

Omit:

*d* : is the separation distance to required point (m×500 metres)

substitute:

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

**10 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 described in Column 1 of the table below.
2. An earth station protection zone can be determined by 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 *intermodulation response rejection*)**

Insert:

***Non-active antenna system (non-AAS)***refers to a base station antenna system that is not an AAS.

**4 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.

**5 Schedule 2 (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:

* + - 1. the core conditions imposed on the spectrum licences under section 66 of the Act;
      2. the device boundary criteria and deployment constraints prescribed in the subsection 145(4) Determination; and
      3. any Synchronisation Requirement set out in a relevant spectrum licence, if the requirement is specified on both spectrum licences.

(2) In-band interference caused in a radiocommunications receiver operating under a spectrum licence in:

* + - 1. 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
      2. 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 they do not cause unacceptable interference to a radiocommunications receiver operating under a spectrum licence in the 3.4 GHz band. Unacceptable interference is deemed to occur if the criteria for managing interference from radiodetermination apparatus licensed services provided for in RALI MS39 are exceeded into a radiocommunications receiver operated under a 3.4 GHz band spectrum licence. When planning and operating fixed or mobile wireless networks, spectrum licensees should also have regard to subsection 3.2(4) of these guidelines.

(5) Spectrum licensees must accept any in-band interference to radiocommunications receivers operating in:

* + - 1. 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
      2. 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.

**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 3.4GHz 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 3.4GHz 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.

**4 Subsection 4.1(1)**

Omit “out of bound”, substitute “unwanted”.

**5 Subsection 5.1(3)**

Repeal the subsection, substitute:

(3) The following applies when managing out-of-band interference between spectrum licences in the 3.4 GHz band:

* 1. If one or both licensees do not have a *Synchronisation Requirement* condition on their licence, the licensees are required to reduce the level of out-of-band emissions from radiocommunications transmitters operated under their licence to the levels defined in Schedule 3 if it would facilitate compatibility with registered radiocommunications receivers operating under the adjacent frequency spectrum licence. This is irrespective of which radiocommunications device was registered first-in-time. Licensees are responsible for bearing the costs of changes to their own system. In the event that reducing out-of-band emissions does not facilitate compatibility between services, the radiocommunications device registered first-in-time has priority.
  2. If both licensees have a *Synchronisation Requirement* condition on their licences, in the event interference is experienced by one of these licensees, and no agreement can be reached on how to manage it, both licensees must synchronise their services in the way specified by the *Synchronisation Requirement* condition.

**6 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).

**7 Subsections 5.1(6)**

Repeal the subsection.

**8 Schedule 1 (paragraph (3))**

Repeal the paragraph, substitute:

**Adjacent channel selectivity**

1. 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.
2. 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.

**9 Schedule 1 (paragraph (5))**

Repeal the paragraph, substitute:

**Receiver blocking**

1. The receiver blocking requirement for a radiocommunications receiver operating over a bandwidth of:
2. 20 MHz or less, is 80.5 dB at frequency offsets greater than 5 MHz from the upper and lower frequency limit of the licence under which the radiocommunications receiver operates; or
3. More than 20 MHz, is 80.5 dB at frequency offsets greater than 20 MHz from the upper and lower frequency limit of the licence under which the radiocommunications receiver operates.

**10 Schedule 3**

Repeal the Schedule, substitute:

**Schedule 3 Additional out-of-band emission limit**

(subsection 5.1 (3))

1. The out-of-band emission limits in Table 1 apply to radiocommunications transmitters with non-AAS:
2. at frequencies outside the upper or lower frequency limits of the spectrum licence; and
3. offset from the upper or lower frequency limits of the spectrum licence;

where:

foffset: is the frequency offset from the band edge and the closest -3dB point of the specified bandwidth to the band edge is placed at foffset.

Table 1: Additional out-of-band emission limit for non-AAS devices

|  |  |  |
| --- | --- | --- |
| **Frequency offset range** | **Radiated maximum true mean power**  **(dBm EIRP)** | **Specified**  **Bandwidth** |
| foffset ≥ 10 MHz | -34 | 5 MHz |

1. The out-of-band emission limits in Table 2 apply to radiocommunications transmitters with AAS:
2. at frequencies outside the upper or lower frequency limits of the spectrum licence; and
3. offset from the upper or lower frequency limits of the spectrum licence;

where:

foffset: is the frequency offset from the band edge and the closest -3dB point of the specified bandwidth to the band edge is placed at foffset.

Table 2: Additional out-of-band emission limit for AAS devices

|  |  |  |
| --- | --- | --- |
| **Frequency offset range** | **A total radiated mean power**  **(dBm)** | **Specified**  **Bandwidth** |
| foffset ≥ 10 MHz | -43 | 5 MHz |

# 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) (after the definition of *out-of-band*)**

Insert:

***RALI MS44*** means the Radiocommunications Assignment and Licensing Instruction No. ES 1, *Frequency coordination procedures for the Earth station protection zones*, published by the ACMA, as existing from time to time.

*Note* RALI MS44 is available on the ACMA website at <http://www.acma.gov.au>.

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

Omit “, 2010 – 2025”.

**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:

* Earth station protection zones (Part 9 of these guidelines);
* Earth stations 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 Section 4.1**

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

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

Omit “arrangments”, substitute “arrangements”.

**9 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:

1. is licensed under the Act;
2. was registered in the Register prior to the date on which the radiocommunications transmitter operated under the spectrum licence is registered;
3. 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

1. 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; and

*Note* Refer toRecommendation 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 earth receive station can be assumed to have the filter characteristics in Table 1.

(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 (MHz) from the lower or upper frequency on the earth receive station licence** | **Rejection (dB)** |
| < 50 | 0.5 + 0.6\*foffset (MHz) |
| < 150 | 30.5 + 0.25\*foffset (MHz) |
| < 200 | 55.5 |
| ≥ 200 | 70 |

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

(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 inRecommendation 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 mustnotify the affected earth receive station licensee. This is intended to give notice to the affected earth receive station licensee to ensure they have installed an RF filter with the relevant characteristics to the front end of the receiver of their earth receive station.

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 subsection 4.3(3) of these guidelines.

(3) Incumbent earth receive stations within 300 km of a transmitter operated under a 3.4 GHz spectrum licence are 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.

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

**10 Section 5.1**

Repeal the section,

substitute:

**Background**

Broadband wireless access (BWA) services are authorised to operate in the 3400-3700 MHz band under apparatus licence arrangements. Frequency assignment arrangements for BWA are defined in RALI FX14, RALI FX19 and RALI MS39.

**11 Section 5.2**

Repeal the section, substitute:

**5.2 Protection requirements**

1. Radiocommunications transmitters operated under a spectrum licence in the 3.4 GHz band must comply with the requirements specified in RALI FX14, RALI FX19 and RALI MS39 relating to the levels of interference protection to be afforded to point-to-multipoint receivers and PMTS class B receivers, if the receiver:
   1. is licensed under the Act; and
   2. was registered in the Register prior to the date on which the device operated under the spectrum licence is registered.

When coordinating with point-to-multipoint and public mobile telecommunication service class B licences in the 3400-3542.5 MHz band, the licensees of radiocommunications transmitters operating under a spectrum licence are expected to reduce their out-of-band emissions to the levels defined in Schedule 3 of the *Radiocommunications Advisory Guidelines (Managing Interference to Spectrum Licensed Receivers — 3.4 GHz Band) 2015* with the levels applying at a 5 MHz offset from the licence edge*,* if it would facilitate compatibility with receivers operating under an adjacent frequency apparatus licence. This is irrespective of which device was registered first-in-time. In the event that reducing out-of-band emissions does not facilitate compatibility between services, the device registered first-in-time has priority.

*Note: Licensees need not reduce their out-of-band emissions in the event agreement can be reached on the use of synchronisation of uplink and downlink emissions to manage interference.*

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

**12 Subsection 6.1**

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

**13 Subsection 6.2**

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

**14 Subsection 7.1**

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

**15 Subsection 8.2(2)**

Omit “propogation”, substitute “ propagation”.

**16 After Part 8**

Insert Part 9 and Part 10:

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 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 frequency assignment requirements specified in RALI MS44.

*Note:* Should it become apparent that one or more of the ESPZs are not viable, the ACMA will remove any protection requirements in place.

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 section 4.2 of these guidelines applies.

*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.