



## **Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 700 MHz Band) 2012**

*Radiocommunications Act 1992*

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The AUSTRALIAN COMMUNICATIONS AND MEDIA AUTHORITY makes these Advisory Guidelines under section 262 of the *Radiocommunications Act 1992*.

Dated 19<sup>th</sup> December 2012

*Chris Chapman*  
[signed]  
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## Part 1 Preliminary

### 1.1 Name of Advisory Guidelines

These Advisory Guidelines are the *Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 700 MHz Band) 2012*.

### 1.2 Commencement

These Advisory Guidelines commence on the day after they are registered.

*Note* All legislative instruments and compilations are registered on the Federal Register of Legislative Instruments kept under the *Legislative Instruments Act 2003*. See <http://www.frli.gov.au>.

### 1.3 Purpose of these Advisory Guidelines

- (1) The purpose of these Advisory Guidelines is to manage interference from radiocommunications transmitters operated under a spectrum licence in the 700 MHz band by providing for the protection of radiocommunications receivers operating in or adjacent to the 700 MHz band.
- (2) The ACMA will take these Advisory Guidelines into account in determining whether a spectrum licensed radiocommunications transmitter is causing interference to a radiocommunications receiver operating in any of the circumstances set out in these Advisory Guidelines.
- (3) These Advisory Guidelines do not prevent a licensee negotiating other protection requirements with another licensee.

### 1.4 Interpretation

- (1) In these Advisory Guidelines, unless the contrary intention appears:

**700 MHz band** means the frequency bands:

- (a) 703 MHz to 748 MHz (the **700 MHz lower band**); and
- (b) 758 MHz to 803 MHz (the **700 MHz upper band**).

**Act** means the *Radiocommunications Act 1992*.

**broadcasting service** has the meaning given by section 6 of the *Broadcasting Services Act 1992*.

**Mid-West Radio Quiet Zone** means the area defined in the Schedule to the *Radiocommunications (Mid-West Radio Quiet Zone) Frequency Band Plan 2011*.

**RALI MS-32** means the Radiocommunications Assignment and Licensing Instruction No. MS-32 Coordination of Apparatus Licensed Services Within The Mid West Radio Quiet Zone, published by the ACMA, as in force from time to time.

**retransmission service** means a service that is referred to subsection 212(1) of the *Broadcasting Services Act 1992*.

**TLAP** means a television licence area plan, which has the meaning given by subsection 6(1) of the *Broadcasting Services Act 1992*.

(2) The following terms used in these Advisory Guidelines are defined in the *Radiocommunications (Unacceptable Levels of Interference – 700MHz Band) Determination 2012*, and have the same meaning as in that determination:

- (a) fixed receiver;
- (b) fixed transmitter; and
- (c) geographic area.

*Note* A number of terms used in these Advisory Guidelines are defined in the *Radiocommunications Act 1992*, and have the meanings given to them by that Act:

- ACMA
- core condition
- frequency band
- interference
- radiocommunications receiver
- radiocommunications transmitter
- re-allocation period
- spectrum licence

## Part 2                      Background

### 2.1                      Background

- (1) Radiocommunications receivers operate in or adjacent to the 700 MHz band. These radiocommunications receivers, which include apparatus, class and spectrum licensed receivers, could potentially suffer interference caused by radiocommunications transmitters operated under a spectrum licence in the 700 MHz band.
- (2) These Advisory Guidelines have been made for the management of this interference to radiocommunications receivers operating in and adjacent to the 700 MHz band, including in the following circumstances:
  - (a) digital television receivers operating below the 694 MHz frequency boundary after the end of the re-allocation period for the 700 MHz band on 31 December 2014 (Part 3 of these Advisory Guidelines);
  - (b) digital television receivers operating in the 700 MHz band after the end of the re-allocation period for the 700 MHz band on 31 December 2014 (Part 4 of these Advisory Guidelines);
  - (c) the Mid-West Radio Quiet Zone (Part 5 of these Advisory Guidelines).
- (3) As radio waves propagate in different ways because of factors such as frequency, terrain, atmospheric conditions and path length, there are a number of ways to predict path loss. The International Telecommunication Union's Radio Sector publishes Recommendation P.1144 "Guide to the application of the propagation methods of Radiocommunication Study Group 3" to assist in the choice and application of propagation prediction methods suitable for determining path loss for coordination. The use of other published models applicable to the band may also be suitable.

## Part 3 Digital television receivers operating below 694 MHz

### 3.1 Background

Digital television broadcasting and retransmission services operate in the band 520 to 694 MHz. UHF broadcast channels 49, 50 and 51, are adjacent to the 700 MHz lower band. The core conditions of the 700 MHz band spectrum licence require radiocommunications transmitters to comply with specific emission limits outside the band in areas where these channels are used.

### 3.2 Out-of-band emissions limits from transmitters in the lower band

- (1) A limit of -40 dBm/MHz is to apply to out-of-band emissions from radiocommunications transmitters operating in the 700 MHz lower band in areas where these devices co-exist with digital television receivers in the coverage areas of digital television broadcasting or retransmission services operating on UHF broadcast channels 49, 50 and 51. Specifically, the out-of-band requirements for radiocommunications transmitters in the 700 MHz lower band are as follows:
  - (a) -40 dBm/MHz (averaged over a 7 MHz television channel bandwidth) in the frequency range 673 to 694 MHz when operating in an area (identified in maps published by the ACMA pursuant to subsection 3.2(2)) designated for use of UHF broadcast channels 49, 50 and 51;
  - (b) -34 dBm/MHz (averaged over a 7 MHz television channel bandwidth) in the frequency range 673 to 694 MHz when operating in any other area;
  - (c) -40 dBm/MHz (averaged over a 7 MHz television channel bandwidth) below the frequency of 673 MHz in any area;

where the corresponding UHF broadcast channels are as follows:

UHF Broadcast Channel	Lower Edge Frequency (MHz)	Centre Frequency (MHz)	Upper Edge Frequency (MHz)
49	673.0	676.5	680.0
50	680.0	683.5	687.0
51	687.0	690.5	694.0

- (2) Spectrum licensees in the 700 MHz band are required to implement these out-of-band limits in those areas identified by a series of maps (based on broadcasting service planning performed by the ACMA) depicting predicted coverage areas of digital television broadcasting and retransmission services, as published by the ACMA including in a TLAP. These maps identify those areas in which the -40 dBm/MHz limit must be adhered to over the 673 to 694 MHz frequency range and are available on the ACMA website.

*Note* Implementation of the -40 dBm/MHz limit may be achieved through user equipment design and/or network operation and deployment measures.

- (3) In this section, **coverage area**, in relation to a broadcasting or retransmission service, means the area within which transmitters make that service available.

## Part 4      **Digital television receivers operating in the 700 MHz band**

### 4.1      **Background**

Some digital television broadcasting and retransmission services may continue to operate in the 694 to 820 MHz frequency range after the end of the re-allocation period for the 700 MHz band. If this occurs, digital television receivers that receive those broadcasting or retransmission services may potentially suffer co-channel or adjacent-channel interference from spectrum-licensed services until the broadcast and retransmission services are “re-stacked” to channels below 694 MHz.

*Note* A licence condition will be included in each 700 MHz band spectrum licence requiring licensees to comply with this guideline if the circumstances described in section 4.1 occur.

### 4.2      **Digital television receivers**

- (1) Where a digital television broadcasting or retransmission service continues to operate in the 694 to 820 MHz frequency range after the end of the re-allocation period, there is potential for interference to digital television receivers from spectrum-licensed transmitters operating in either the 700 MHz upper band or 700 MHz lower band.
- (2) To mitigate potential interference, spectrum-licensed transmitters must be separated from coverage areas of digital television broadcasting and retransmission services. The ACMA will publish a set of maps showing the required exclusion zones that implement these separation distances. For that area, as designated by these published maps, where a UHF digital television broadcasting or retransmission service operates on any channel in the channel 52 to channel 69 range, a spectrum licensee must not deploy a service in any part of the 700 MHz band. This is for reasons of equitable access.
- (3) These maps will be made available on the ACMA website and will be updated from time to time (for example, the number of applicable maps may be reduced) as digital television broadcasting and retransmission services are “re-stacked” to channels below 694 MHz. Spectrum licensees should consult the ACMA website and refer to these maps when planning services in the 700 MHz band.
- (4) In this section, **coverage area**, in relation to a broadcasting or retransmission service, means the area within which transmitters make that service available.

## **Part 5      The Mid-West Radio Quiet Zone**

### **5.1      Background**

The site located in remote central Western Australia identified for future radio astronomy use has been protected by the establishment of the Mid-West Radio Quiet Zone across the radio spectrum from 100 MHz through to 25 GHz. The location of the site, and the definition of the Mid-West Radio Quiet Zone, can be found in the *Radiocommunications (Mid-West Radio Quiet Zone) Frequency Band Plan 2011*. An area within 70 km of the site has been excluded from the geographic area of the 700 MHz band spectrum licences.

### **5.2      The Mid-West Radio Quiet Zone protection requirements**

Licensees in areas adjacent to the Mid-West Radio Quiet Zone should coordinate proposed stations using the methods and limits set out for apparatus licensees in RALI MS-32.