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Coordination of 2.5 GHz Band Spectrum Licensed Transmitters with Radiodetermination Stations operated by the Department of Defence in the 2700-2900 MHz band

RALI: MS 35

DATE OF EFFECT: 2 AUGUST 2019

Amendment history

Date	Comments
23 September 2013	Initial release
December 2018	Draft for consultation to include additional radar sites at Darwin, Tindal, East Sale and Townsville
2 August 2019	Update finalised

Suggestions for improvements to Radiocommunications Assignment and Licensing Instruction MS 35 may be addressed to:

The Manager, Spectrum Planning Section
Australian Communications and Media Authority
PO Box 78
Belconnen ACT 2616

or by email to: freqplan@acma.gov.au.

Please notify the ACMA of any inaccuracy or ambiguity found in this RALI, so that it can be investigated and appropriate action taken.

Contents

1 Introduction

1.1 Purpose

The purpose of this Radiocommunications Assignment and Licensing Instruction (RALI) is to provide additional information to assist in the coordination and registration of 2.5 GHz band spectrum licensed transmitters (2500-2570 MHz and 2620-2690 MHz) with existing radiodetermination stations operated by the Department of Defence in the 2700-2900 MHz band.

The information in this document reflects the ACMA's current policy in relation to the coordination of transmitters to be operated under spectrum licences in the 2.5 GHz band. A broader set of guidelines for the coordination of transmitters operating under spectrum licences in the 2.5 GHz band with other services can be found in the Radiocommunications Advisory Guidelines (Managing Interference from Transmitters – 2.5 GHz Band) 2012[1].

In making decisions, accredited frequency assigners and the ACMA's officers should take all relevant factors into account and decide each case on its merits. Issues relating to this document that appear to fall outside the enunciated policy should be referred to:

The Manager, Spectrum Planning Section
Australian Communications and Media Authority
PO Box 78
Belconnen ACT 2616

or by email to: freqplan@acma.gov.au.

1.2 Background

A review of the 2500-2690 MHz band undertaken in 2010 by the ACMA led to the bands 2500-2570 MHz and 2620-2690 MHz being designated for allocation by the issue of spectrum licences Australia wide[2] by the Minister for Broadband, Communications and the Digital Economy[3].

The technical framework for spectrum licenses in the 2.5 GHz band was developed in consultation with potential licensees of the band and representatives of adjacent services. During that development it was identified that there was scope for further guidance to assist the coordination of fixed transmitters with existing stations in the radiodetermination services operated in the 2700-2900 MHz band.

1.3 Scope

This RALI applies to fixed transmitters for the purposes of registration under spectrum licenses issued in the 2.5 GHz band.

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[1] See www.comlaw.gov.au/Details/F2012L02550

[2] Excluding the Mid West Radio Quiet Zone as defined in Table C of the Schedule to the *Radiocommunications (Spectrum Re-allocation) Declaration No. 2 of 2011*, see footnote 3.

[3] See www.comlaw.gov.au/Details/F2011L02181

2 Coordination

Coordination arrangements are detailed below and summarised at Appendix A.

2.1 General

It is a condition of the spectrum licenses for the 2.5 GHz band that a transmitter must have its details entered in the Register of Radiocommunications Licences (the Register) before operation is permitted under the licence unless it is of a type specifically exempt from registration by the licence.

The parts of the 2.5 GHz technical framework most relevant to the coordination of devices with stations in the radiodetermination service operated by the Department of Defence in the 2700-2900 MHz band are:

1. It is a condition of the spectrum licence in the 2.5 GHz band that low power transmitters with a radiated maximum true mean power less than or equal to 35 dBm per 5 MHz are exempt from registration.
2. It is a core condition of the spectrum licence in the 2.5 GHz band that unwanted emissions from transmitters operating in the band 2620-2690 MHz that fall into the band 2700-2800 MHz must be no greater than a radiated maximum true mean power of -45 dBm EIRP per MHz.
3. The Radiocommunications Advisory Guidelines (Managing Interference from Transmitters -2.5 GHz band) 2012 states that the level of emission from a station under a spectrum licence in the 2.5 GHz band falling within the bandwidth of a radiodetermination receiver licensed to the Department of Defence at the height of the antenna should not exceed a maximum power flux density of -125 dBm per MHz per m^2.

Due to limits on the maximum radiated power level of in-band emissions of transmitters operated under the spectrum licence in the 2.5 GHz band and the typical antenna deployment characteristics of fixed stations in the 2.5 GHz band, additional blocking and other interference checks are typically not required.

3 Exceptions

Exceptions to the requirements of this RALI for prospective assignments require case-by-case consideration by the Manager, Spectrum Planning Section.

A request for exemption from the requirements of this RALI would need to be accompanied by evidence to support the request.

All requests for exemptions should be submitted to freqplan@acma.gov.au.

4 RALI Authorisation

[Approved] 02/08/2019

Zarko Krusevac
Manager
Space Planning Section
Spectrum Planning and Engineering Branch

Communications Infrastructure Division
Australian Communications and Media Authority

Appendix A: Summary of Coordination Arrangements

The following coordination requirements for transmitters to be operated under a spectrum licence in the 2.5 GHz band with radiodetermination stations operated by the Department of Defence in the band 2700-2900 MHz represent only part of the coordination that may be required for a proposed new transmitter. See the Radiocommunications Advisory Guidelines (Managing Interference to Transmitters - 2.5 GHz Band) 2012 for more information and the conditions of the licence.

Recommendation ITU-R P.1144 "*Guide to the application of the propagation methods of Radiocommunications Study Group 3*" provides a guide on the application of various propagation methods developed internationally by the ITU-R. It advises users on the most appropriate methods for particular applications as well as the limits, required input information, and output for each of these methods. It is recommended that the most recent version of propagation models defined by the ITU-R should be considered when modelling propagation.

Coordination requirements

1. These requirements apply to fixed transmitters operating in the frequency range 2620-2690 MHz.

2. These requirements apply to fixed transmitters that are subject to registration.

3. The maximum power flux density (pfd) of unwanted emissions (anywhere within 2700-2900 MHz) from the transmitter, determined at the antenna height at the site of the radiodetermination receiver station, must not exceed -125 dBm per MHz per m^2.

4. This pfd applies to Defence radiodetermination stations in the Register and the Defence sites listed in the table below.

Site Information for Defence Radiodetermination Stations:

Site Name	State	Lat (GDA94)	Long (GDA94)	Height (AGL)
AMBERLEY DEFENCE RADAR SITE	QLD	S 27.635147	E 152.681339	20 m
PEARCE DEFENCE RADAR SITE	WA	S 31.393889	E 115.931694	20 m
WILLIAMTOWN DEFENCE RADAR SITE[4]	NSW	S 32.775150	E 151.821310	20 m
NOWRA DEFENCE RADAR SITE	NSW	S 34.937086	E 150.571813	20 m
OAKEY DEFENCE RADAR SITE	QLD	S 27.328403	E 151.737761	20 m
DARWIN DEFENCE RADAR SITE[5]	NT	S 12.402839	E 130.862702	20 m
TINDAL DEFENCE RADAR SITE[5]	NT	S 14.492922	E 132.392000	20 m
EAST SALE DEFENCE RADAR SITE[5]	VIC	S 38.188206	E 147.182350	20 m
TOWNSVILLE DEFENCE RADAR SITE[5]	QLD	S 19.188721	E 146.764791	20 m

[4] Coordinates only applicable to devices registered after 2 August 2019. Prior to this date, coordinates for Williamtown Defence Radar Site were Lat: 32.799753°S, Long: 151.827953°E.

[5] Only applicable to devices registered after 2 August 2019.