

Review of the 2.5 GHz band and long-term arrangements for ENG

Designation proposal

MAY 2011

Canberra

Purple Building
Benjamin Offices
Chan Street
Belconnen ACT

PO Box 78
Belconnen ACT 2616

T +61 2 6219 5555
F +61 2 6219 5353

Melbourne

Level 44
Melbourne Central Tower
360 Elizabeth Street
Melbourne VIC

PO Box 13112
Law Courts
Melbourne VIC 8010

T +61 3 9963 6800
F +61 3 9963 6899

Sydney

Level 15 Tower 1
Darling Park
201 Sussex Street
Sydney NSW

PO Box Q500
Queen Victoria Building
NSW 1230

T +61 2 9334 7700
1800 226 667
F +61 2 9334 7799

© Commonwealth of Australia 2011

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth. Requests and inquiries concerning reproduction and rights should be addressed to the Manager, Editorial Services, Australian Communications and Media Authority, PO Box 13112 Law Courts, Melbourne Vic 8010.

Published by the Australian Communications and Media Authority

Contents

Executive summary	1
Introduction	2
Context	2
Purpose	3
Submissions	4
Designation of 2570–2620 MHz: the mid-band gap	6
Objectives	6
Process	6
Areas excluded from nationwide designation	9
Radioastronomy services in the Mid West Radio Quiet Zone	9
North West Shelf oil and gas facilities	10
Matter for comment	11
Attachment A: Draft designation notice	

Executive summary

The Australian Communications and Media Authority (the ACMA) announced its proposed way forward for the 2.5 GHz band in October 2010. The objectives of the 2.5 GHz review are to:

- > plan and allocate the band to maximise the overall benefit derived from the spectrum
- > provide incumbent licensees with greater long-term certainty.

Implementing the proposed way forward will include replanning parts of the 2.5 GHz band to allow services, such as wireless access services, to be introduced in conjunction with ongoing use by incumbent electronic news gathering (ENG) services.

This information paper outlines, and provides an opportunity for public comment on, one of the first steps in the implementation phase of the 2.5 GHz band review—that is, to recommend that the Minister for Broadband, Communications and the Digital Economy (the minister) make a designation notice that the 2.5 GHz mid-band gap (2570–2620 MHz) should be allocated by issuing spectrum licences. Designating the spectrum in this way would allow processes to be undertaken to convert the existing apparatus licences in the mid-band gap to spectrum licences. Spectrum licences allow for greater flexibility in use of the spectrum and provide for licence terms of up to 15 years.

As required by section 36 of the *Radiocommunications Act 1992*, this paper provides the public with a reasonable opportunity to make representations to the ACMA on the recommendation it should make to the minister. To assist interested parties in making representations to the ACMA, a draft of a designation notice that the minister might give to the ACMA, should he accept the ACMA's recommendation, is in [Attachment A](#).

Introduction

In Australia, the frequency range 2500–2690 MHz (the 2.5 GHz band) is licensed almost exclusively to commercial free-to-air television broadcasters and the Australian Broadcasting Corporation (the ABC) for television outside broadcasting, including electronic news gathering (ENG).¹ This operation is authorised via Television Outside Broadcast Network (TOBN) apparatus licences.

In October 2010, the ACMA announced its intention to replan part of the 2.5 GHz band to facilitate new uses such as wireless access services (WAS), while retaining other parts of the band for use by current licensees for ENG.² A range of other bands will be made available for ENG to enable provision of ENG service delivery that is equivalent to that currently provided.

The purpose of this paper is to provide an opportunity for interested parties to make representations to the ACMA on the designation recommendation that the ACMA intends to make to the minister.

The effect of a notice from the minister designating a part of the spectrum to be allocated by issuing spectrum licences is that the ACMA must undertake a range of processes to issue spectrum licences that replace any apparatus licences that are within that part of the spectrum. The new spectrum licences must, so far as is practicable, authorise the operation of radiocommunications devices to the same extent as, or to a greater extent than, the apparatus licences they replace. This process is referred to as ‘conversion’.

The conversion of ENG apparatus licences in the mid-band gap of the 2.5 GHz band (2570–2620 MHz) to spectrum licences requires a notice to be made by the minister designating that part of the spectrum to be allocated by issuing spectrum licences; he may choose to make this in response to a recommendation from the ACMA. This is one step in a series of implementation phases to achieve the preferred approach for the replanning of the 2.5 GHz band.

Context

In January 2010, the ACMA released a discussion paper, *Review of the 2.5 GHz band and long-term arrangements for ENG*, which outlined a range of options to achieve two key objectives:³

- > planning and allocation of the 2.5 GHz band to maximise the overall benefit derived from that spectrum
- > provision of long-term certainty for the current incumbents of the 2.5 GHz band—the free-to-air commercial television broadcasters and the ABC.

¹ Within the context and parameters of this paper and the 2.5 GHz review, the acronym ‘ENG’ encompasses the following: electronic news gathering—the rapid, unplanned deployment of links to cover breaking news events, generally for short periods of time; television outside broadcast (TVOB)—a planned use of group links employing a variety of techniques to provide specialist coverage of a particular event such as live sports, live entertainment and cultural events; and electronic field production (EFP)—a planned use of links to provide elements of a television production. This technique can be used for ‘live-to-air’ television or pre-recording for later broadcast (the latter generally involves more elaborate television production values).

² For the purposes of this paper, WAS (wireless access services) includes International Mobile Telecommunications (IMT) services, wireless broadband services, next generation—3G and 4G—mobile telecommunications services and emerging technologies such as WiMAX.

³ Full discussion paper can be accessed at:

www.acma.gov.au/webwr/assets/main/lib311275/2.5ghz_discussion_paper_ifc01-10.pdf.

The paper also indicated that the ACMA had come to a preliminary view on its preferred approach for the band, which was broadly:

- > reallocation of 2500–2570 MHz and 2620–2690 MHz (the upper and lower 2.5 GHz bands) for spectrum licences, with technical frameworks that are technology flexible but optimised for WAS
- > conversion of ENG apparatus licences to spectrum licences on an Australia-wide basis in the band 2570–2620 MHz—‘the mid-band gap’
- > facilitation of ENG access to identified alternative bands:
 - > shared use of the bands 2025–2110 MHz and 2200–2300 MHz
 - > exclusive use of the band 2010–2025 MHz, at least in capital city areas
 - > facilitation of ENG access to 1980–2010 MHz and 2170–2200 MHz, with the caveat that mobile-satellite services may be introduced into these bands in the future, with the ACMA investigating the viability of long-term sharing between ENG and mobile-satellite services.

The ACMA received 42 submissions in response to the discussion paper.

In October 2010, the ACMA published its *Response to submissions*, which explained that while the majority of submissions were broadly accepting of the 2.5 GHz band review, a number raised concerns with elements of the ACMA’s preferred approach.⁴ In the paper, the ACMA remained of the view that its preferred broad approach is appropriate, and emphasised its commitment to ongoing consultation with affected stakeholders to address the important issues raised in submissions.

This paper is concerned with only one part of the implementation of arrangements arising from the 2.5 GHz band review—the conversion of ENG apparatus licences to spectrum licences in the mid-band gap. The first step to achieve this part of the review is for the ACMA make a designation recommendation to the minister for this part of the spectrum for spectrum licences, as stipulated in section 36 of the *Radiocommunications Act 1992* (the Act).

Purpose

This paper is intended to provide the public with the opportunity to make representations to the ACMA about the recommendation it should make to the minister under section 36 of the Act.

The ACMA is proposing to recommend to the minister that he designate the frequency range 2570–2620 MHz to be allocated by issuing spectrum licences throughout Australia. Two small areas would be excluded—one in remote Western Australia and the other off the north-west coast of Western Australia (these are discussed below at *Areas excluded from nationwide designation*). The ACMA considers the recommendation appropriate because if the minister accepted it, it would enable the ACMA to undertake processes to convert existing ENG apparatus licences to 15-year spectrum licences.

To assist the public in their considerations of whether this is an appropriate recommendation, a draft of the kind of notice the minister might issue in response to such a recommendation from the ACMA is at [Attachment A](#).

⁴ Response to submissions paper, and submissions received, can be accessed at: www.acma.gov.au/WEB/STANDARD/pc=PC_312013.

Running in parallel with this step, but through a separate process, the ACMA is seeking comments from potentially affected licensees on the terms of a draft reallocation recommendation to the minister. The draft proposes the Australia-wide reallocation of 2500–2570 MHz and 2620–2690 MHz for spectrum licences. Before the ACMA can make a recommendation to the minister, it is required to provide potentially affected apparatus licensees with a written notice setting out the terms of the draft recommendation and invite comment on it.

In addition to this, the ACMA intends to circulate the terms of its draft recommendation more widely through a publicly available information paper, to inform all stakeholders of its intended recommendation and reasoning. The information paper is available on the ACMA website at www.acma.gov.au/WEB/STANDARD/pc=PC_312542. Inquiries on the draft recommendation and information paper should be directed to the Allocations Liaison Officer in the Major Spectrum Allocations Section on (03) 8651 5712 or by email to majorspectrumallocations@acma.gov.au.

Submissions

The ACMA invites comments on the issues set out in this paper. Submissions should be made:

By email: 2.5GHzproject@acma.gov.au

By mail: Manager
 Spectrum Outlook and Review Section
 Australian Communications and Media Authority
 PO Box 78
 Belconnen ACT 2616

The closing date for submissions is close of business on **Friday 15 July 2011**.

Media enquiries should be directed to Ms Emma Rossi on (02) 9334 7719 or by email to media@acma.gov.au.

Any other enquiries may be directed to Manager, Spectrum Outlook and Review Section on (02) 6219 5430 or by email to 2.5GHzproject@acma.gov.au.

Electronic submissions in Microsoft Word or Rich Text Format are preferred.

Publication of submissions

In general, the ACMA publishes all submissions it receives. However, the ACMA will not publish submissions that it considers contain defamatory or irrelevant material.

The ACMA prefers to receive submissions which are not claimed to be confidential. However, the ACMA accepts that a submitter may sometimes wish to provide information in confidence. In these circumstances, submitters are asked to identify the material over which confidentiality is claimed and provide a written explanation for confidentiality claims.

The ACMA will not automatically accept all claims of confidentiality. The ACMA will consider each claim for confidentiality on a case-by-case basis. If the ACMA accepts a confidentiality claim, it will not publish the confidential information unless required to do so by law.

When can the ACMA be required by law to release information?

The ACMA may be required to release submissions by law under the *Freedom of Information Act 1982* (Cth) or for other reasons including for the purpose of parliamentary processes or under court subpoena. The ACMA will seek to consult submitters of confidential information before that information is provided to another body or agency, but the ACMA cannot guarantee that confidential information will not be released through these or other legal means.

Sharing of information

Under the *Australian Communications and Media Authority Act 2005*, the ACMA is able to disclose submissions to the minister, department including authorised officials, Royal Commissions and certain Commonwealth authorities such as the Australian Competition and Consumer Commission and Australian Securities and Investments Commission.

If information is accepted by the ACMA as confidential, the ACMA will seek to consult with the submitter of the information where the ACMA intends to share that information.

Designation of 2570–2620 MHz: the mid-band gap

Objectives

The ACMA considers that, of the spectrum options considered in the 2.5 GHz band review, the mid-band gap is well suited, without technical restrictions, to the support of airborne operations, where ENG transmitters are fitted to helicopters. The ACMA considers that the preservation of capacity for operations of this nature is important.

In order to provide long-term certainty to broadcasters about the ongoing availability for spectrum for ENG services, the ACMA therefore proposes to recommend to the minister that he designate the band 2570–2620 MHz to be allocated on a nationwide basis by issuing spectrum licences, excluding the two small areas discussed under *Areas excluded from nationwide designation* below.

Before making this recommendation to the minister, the ACMA is seeking representations from the public on the recommendation to be made, including whether the ACMA's proposed recommendation is appropriate. [Attachment A](#) provides, for the purpose of this consultation, a draft of the section 36 notice that the minister might give to the ACMA if he were to accept the designation recommendation.

Process

Designating the mid-band gap of the 2.5 GHz band to be allocated by issuing spectrum licences is necessary if the ACMA is to convert the existing apparatus licences in that spectrum to spectrum licences, which is one important element in the overall 2.5 GHz band review, as shown in Table 1 below. As outlined in Table 1, this designation stage, along with the reallocation procedure running in tandem, precedes other processes that are required for the conversion and allocation of the spectrum, as proposed in the ACMA's previous discussion papers.

Throughout these processes, the ACMA will continue to consult with interested parties to ensure that implementation of the 2.5 GHz review causes minimum disruption to spectrum users.

Table 1 Process for the reallocation and conversion of the 2.5 GHz review

Stage	Details	Status	Indicative timeframe
Consultation			
1	WAS consultation process <ul style="list-style-type: none"> > Two papers released, one seminar > Review of submissions > Review of international developments/trends > Investigation of options > Decision on way forward 	Completed	2006–08
2	Announcement on consultation outcomes and further work <ul style="list-style-type: none"> > Targeted stakeholder consultation > Consideration of potential band for long-term ENG > Consideration of appropriate regulatory arrangements, including licensing and allocation options 	Completed	2009
3	Public consultation process <ul style="list-style-type: none"> > Release of public discussion paper > Industry tune-up on content of discussion paper > Analysis of submissions 	Completed	January to September 2010
4	Way forward announcement <ul style="list-style-type: none"> > Release of <i>Response to submissions</i> paper > Announcement of decision on way forward 	Completed	October 2010
Implementation			
5	Reallocation processes—2.5 GHz band <ul style="list-style-type: none"> > Consultation on draft reallocation recommendation > Development of technical frameworks in consultation with industry > Development of draft licences > Consultation on price-based allocation instruments > Price-based allocation 	Current	May 2011 to December 2012
6	Conversion processes—2.5 GHz band <ul style="list-style-type: none"> > Consultation with public on recommendation to the minister on designation > Development of technical frameworks in consultation with licensees > Development of draft licences > Consultation on conversion plan > Conversion 	Current	Underway Conclude late 2012/early 2013

7	Alternative band arrangements <ul style="list-style-type: none"> > Development of sharing and coordination arrangements in consultation with industry > Consultation on draft band plan(s) for clearance of fixed links > Band plan > Development of licensing arrangements > Completion and publication of sharing and coordination arrangements 	Current	Underway Conclude mid-2012
8	Relocation of ENG to identified alternative bands <ul style="list-style-type: none"> > Any necessary relocation of fixed links > Gradual relocation of ENG services to identified alternative bands 	Not yet commenced	By late 2013 By mid-2014

Note: Indicative timeframe does not apply to Perth where ENG operations are expected to continue in the 2.5 GHz band until after the anticipated earth station relocation at the end of 2015.

Further detail on the conversion process, which designation of the mid-band gap would enable, and the anticipated timeline for key milestones is provided in Table 2 below. The legislative framework provides a process for converting apparatus-licensed spectrum to spectrum licences, with several consecutive steps. Sections 36 and 38 of the Act outline the process for converting the spectrum for allocation by issuing spectrum licences, while sections 52–59 of the Act direct the development and issuing of new spectrum licences to replace existing apparatus licences.

Table 2 Anticipated timeline for key milestones in the mid-band gap conversion process

Step	Forecast
The ACMA intends to recommend that the minister make a designation notice for the 2.5 GHz mid-band gap and a reallocation declaration in relation to the upper and lower bands.	Q3/4 2011
The minister may make the designation and reallocation instruments relating to the 2.5 GHz band.	Q3/4 2011
If the minister makes the instruments:	
The ACMA anticipates working with licensees to develop a technical framework for the new spectrum licences.	From Q3 2011
The ACMA anticipates developing the required conversion plan for the mid-band gap.	Late 2011-early 2012
The ACMA intends to make the offer of new, mid-band gap spectrum licences to current Television Outside Broadcast Network (TOBN) licensees.	Q3 2012

Areas excluded from nationwide designation

Radioastronomy services in the Mid West Radio Quiet Zone

There is an embargo on new apparatus licences in the 100 MHz–25.5 GHz frequency range around Boolardy Station (approximately 300 kilometres north-east of Geraldton, Western Australia). The ACMA maintains the Mid West Radio Quiet Zone (RQZ) around the site, to preserve the current ‘radio-quietness’.⁵ The area has very low levels of radiofrequency energy because of its sparse population and remote location. The RQZ facilitates the development and use of new radio astronomy technologies at that location, and supports Australia's bid to host the Square Kilometre Array (SKA).

The SKA is a proposed radio telescope with a collecting area of one square kilometre. It is expected to have 50 times the sensitivity of the best radioastronomy telescopes currently in use. The broad mission of the SKA, which is expected to operate until 2050, is to address fundamental questions in research on the origin and evolution of the universe. In 2006, the International SKA Steering Committee announced that Australia and South Africa had been short-listed as potential sites for the SKA. The final decision is currently scheduled for some time in 2012.

Two key administrative instruments provide protections for the RQZ. Embargo 41 applies to the granting of licences in the frequency ranges: 100–230 MHz within a 150 kilometre radius and 230 MHz–25.25 GHz within a 100 kilometre radius of the proposed SKA site. Radiocommunications Assignment and Licensing Instruction (RALI) MS32 sets out processes to coordinate apparatus licensed services with the RQZ and provides criteria for assessment of proposed assignments located within a coordination zone of up to 260 kilometres from the proposed SKA site.

These two instruments have the effect of providing an inner ‘restricted zone’ and an outer ‘coordination zone’. Access to apparatus licences in these zones will usually be subject to consultation with the manager of the radioastronomy facilities and the development of appropriate technical solutions to minimise interference to radioastronomy services.

In order to continue to protect the RQZ and support the SKA bid, spectrum licences in areas around the RQZ will also be subject to a licence condition designed to prevent harmful interference to radioastronomy services at the site.

The ACMA also intends to exclude the proposed SKA site at the centre of the RQZ from all new spectrum licences that are granted on a nationwide basis. This will preserve options surrounding apparatus licensing of radioastronomy receivers at the centre of the site.

In the case of the spectrum under discussion in this paper, that is the mid-band gap of the 2.5 GHz band, the ACMA therefore proposes to excise the following area from its recommendation to the minister that he designate the spectrum for allocation by issuing spectrum licences:

⁵ For more information on the Mid West Radio Quiet Zone, see the ACMA website at www.acma.gov.au/WEB/STANDARD/pc=PC_100628.

Area A (excised area)

Row	° South	° East
1	25.998719	115.918031
2	25.998712	116.668032
3	25.998708	117.418029
4	26.665385	117.418042
5	27.415393	117.418053
6	27.415394	116.668053
7	27.415397	115.918054
8	26.665393	115.918047
9	25.998719	115.918031

(The coordinates in this document use the Geocentric Datum of Australia 1994.)

This is illustrated in the map in Figure 1 below.

North West Shelf oil and gas facilities

While the mid-band gap of the 2.5 GHz band is almost exclusively licensed to the free-to-air commercial television broadcasters and the ABC via TOBN apparatus licences, there is also a single non-TOBN apparatus licence in the band, relating to an area approximately 130 kilometres from the Dampier coastline in Western Australia. This licence authorises one of a number of fixed links associated with communications operations associated with the North West Shelf oil and gas facilities.

If the ACMA was to recommend that the minister designate the mid-band gap on a nationwide basis to be allocated by issuing spectrum licences, then this would unintentionally include the apparatus licence off the Dampier coastline. The ACMA therefore proposes to excise the geographic area relating to that licence from its recommendation to the minister that he designate the spectrum for allocation by issuing spectrum licences:

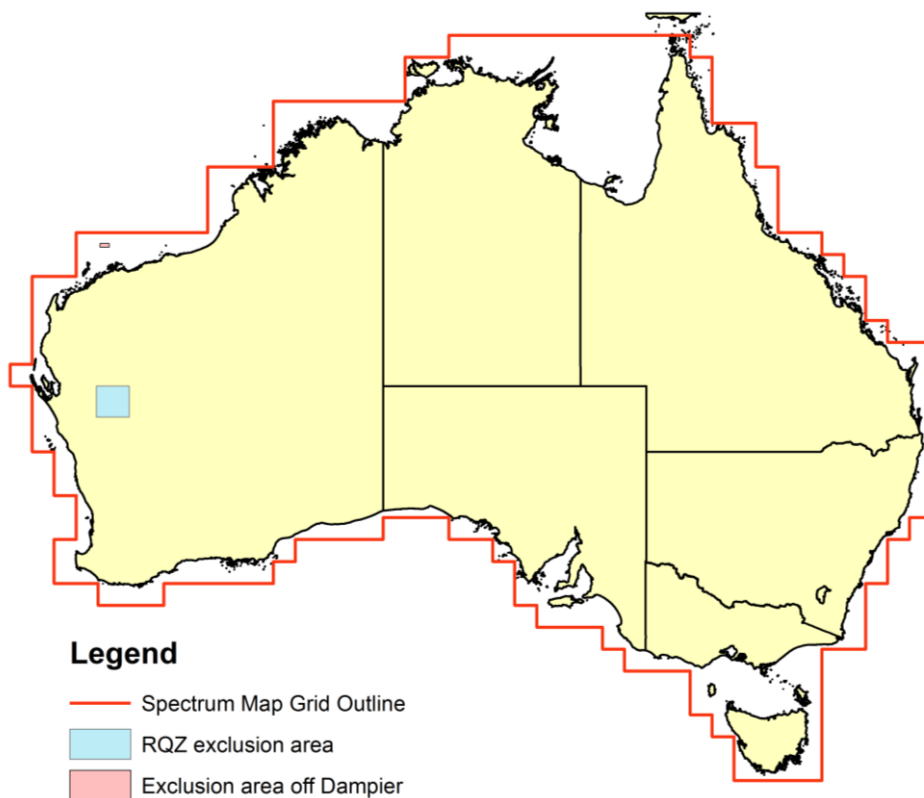
Area B (excised area)

Row	° South	° East
1	19.498676	116.084648
2	19.498673	116.501314
3	19.665338	116.501313
4	19.665344	116.084649
5	19.498676	116.084648

(The coordinates in this document use the Geocentric Datum of Australia 1994.)

This is illustrated in the map at Figure 1 below.

Figure 1 Areas to be excised from designation recommendation



Matter for comment

The ACMA proposes to recommend to the minister that he issue a notice under section 36 of the *Radiocommunications Act 1992* designating the 2570–2620 MHz band to be allocated by issuing spectrum licences. This designation would apply throughout Australia, except for areas relating to the Mid West Radio Quiet Zone and off the coast of Dampier in Western Australia, as shown in Figure 1 above.

[Attachment A](#) provides, for the purpose of this consultation, a draft of the section 36 notice that minister might give to the ACMA if he were to accept the designation recommendation.

The ACMA seeks comment from interested parties on its intention to make this recommendation to the minister.

Attachment A: Draft designation notice

Commonwealth of Australia

Radiocommunications Act 1992

Radiocommunications (Spectrum Designation) Notice No. 1 of 2011

I, STEPHEN CONROY, Minister for Broadband, Communications and the Digital Economy, having consulted with the Australian Communications and Media Authority, under subsection 36(1) of the *Radiocommunications Act 1992*, designate the frequency band between 2570 MHz and 2620 MHz throughout Australia except for those parts of Australia bounded by the co-ordinates specified in the Schedule as part of the spectrum to be allocated by issuing spectrum licences.

In this Notice, the range of numbers that identifies a frequency band includes the higher but not the lower number.

Dated dd mm 2011.

STEPHEN CONROY

Minister for Broadband, Communications and the Digital Economy

Schedule

Each Area is a polygon bounded by a line joining each of the following coordinates of latitude and longitude.

Area A (excised area)

Row	° South	° East
1	25.998719	115.918031
2	25.998712	116.668032
3	25.998708	117.418029
4	26.665385	117.418042
5	27.415393	117.418053
6	27.415394	116.668053
7	27.415397	115.918054
8	26.665393	115.918047
9	25.998719	115.918031

Area B (excised area)

Row	° South	° East
1	19.498676	116.084648
2	19.498673	116.501314
3	19.665338	116.501313
4	19.665344	116.084649
5	19.498676	116.084648

The coordinates in this document use the Geocentric Datum of Australia 1994.