



Aqura Technologies Response to ACMA Consultation Paper

Review of the 1.5GHz band

June 2022

Document Reference:

Final - 11/06/2022

DOCUMENT REVISION HISTORY

Revision History				
Revision	Description	Written By	Approved	Date
0	Initial Document Creation	MR	LB	1/06/2022

Table 1: Revision History

DISTRIBUTION LIST

Distribution List		
Name	Position/Title	Controller/Approver/ Informed

Table 2: Distribution List

REFERENCE DOCUMENTS

This document is intended to be read in conjunction with the following

Reference Documents	
Document Number	Description
ACMA	Review of the 1.5GHz band Discussion Paper

Table 3: Reference Documents

Table of Contents

INTRODUCTION	4
INTERNATIONAL ARRANGEMENTS AND TECHNOLOGY TRENDS	4
DOMESTIC CONSIDERATIONS	6
BAND PLANNING SCENARIOS	6
PRELIMINARY COEXISTENCE CONSIDERATIONS	7

Introduction

Aqura is a leader in the design, delivery, operation, and support of Private LTE networks across Australia. Anecdotal feedback indicates that Aqura has either been responsible for, or involved in, or supports a significant majority of Private LTE deployments that are in operation across Australia. We have a solid grounding in the delivery of 4G and are now delivering one of the first Private 5G enabled networks in Australia. Our networks are found across Australia and serviced by our in-house specialists with extensive experience in broadband wireless technologies and their use in carrier and industrial environments.

[REDACTED]

Aqura respects the significant investment of carriers to acquire spectrum and equipment to provide a valuable service to a broad consumer base, which must be considered when planning spectrum availability.

[REDACTED]

Additionally, those holding spectrum for competitive gain (spectrum squatters) are restricting the ability of end-user organisations to create and operate their own Private networks and the opportunities this can provide.

Spectrum Access a Critical Driver of Future Opportunity

At a broader macro-economic level, ACMA led the way nearly 10 years ago by issuing spectrum to enterprise users to enable the roll out of private 4G networks in rural Australia. It is imperative that ACMA continue enable private enterprise to adopt the latest technologies, like 5G, which will enable Australia to be more competitive, productive, sustainable and efficient in the global marketplace.

[REDACTED]

International arrangements and technology trends

Issue for Comment 1

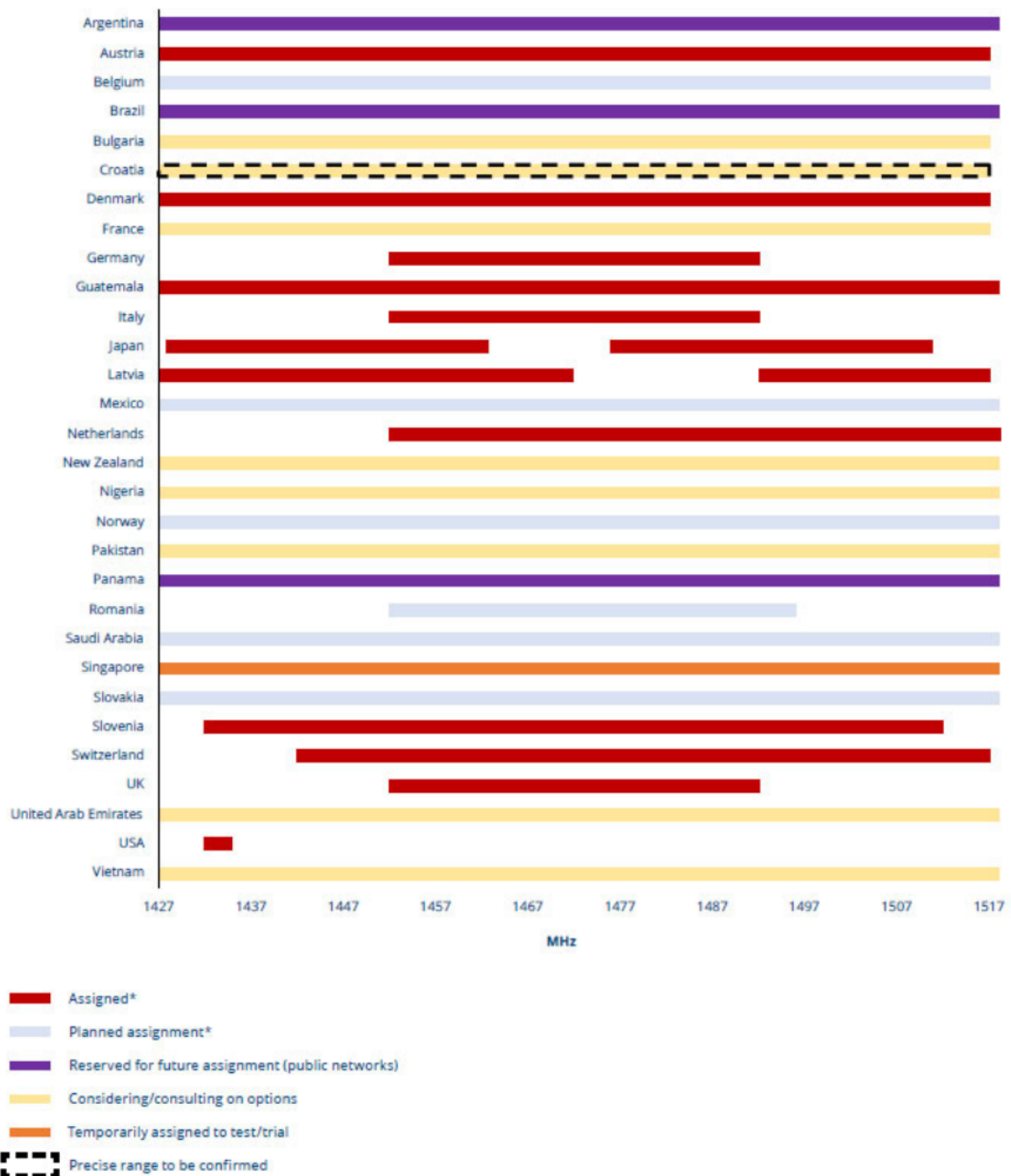
Are there any international arrangements or technology trends that the ACMA should be aware of?

As mentioned in the discussion paper, the 1.4-1.5GHz band is increasingly being allocated for International Mobile Telecommunications (IMT) and Wireless Broad Band (WBB) use mostly in ITU (International Telecommunication Union) regions 1 and 3.

The equipment ecosystem targeting to leverage this band is emerging and will continue to grow as further allocations occur worldwide.

The GSA spectrum positions report ([Reports - GSA \(gsacom.com\)](https://www.gsacom.com/reports)) for May 2022 shows a number of allocations in the 1400 -1500 MHz band have occurred or are under consideration in other countries. The screen shot below shows an extract from the GSA report.

Figure 1. National spectrum licensing for mobile services in the 1400 MHz to 1500 MHz range — Global status



* Nationwide or regional individual licensing for public mobile or fixed wireless access networks

Domestic considerations

Issue for comment 2

What is the demand for access to the 1.5GHz band for WBB, MSS and broadcasting services? Are there any other new services that should be considered?

Issue for comment 3

What are the ongoing requirements for incumbent services in the 1.5GHz band Are there any viable alternative options?

Comment 2

WBB is increasingly being considered for use in the 1.5GHz band for both 4G and 5G services, specifically between 1427 MHz and 1518 MHz

For the enterprise private cellular market, the availability of spectrum in the 1.5GHz band would allow overflow in remote and regional areas where the existing 1.8GHz and 2.1 GHz bands for private networks are already full, or not available for use.

Both 4G and 5G services could be used and due to the lower frequency would be ideal for private networks covering a wide area such on large industrial precincts such as mine sites and rail lines. This would be more favourable for wide area coverage than the 3.6GHz band.

Comment 3

There are many incumbent services such as Telstra's HCRC to support USO. As mentioned in the discussion paper, a suitable transition time should be allowed for existing services. There are alternatives such as satellite services or cellular (LTE-M). Coexistence in remote area could be considered for existing services.

Band planning scenarios

Issue for comment 4

What planning scenarios should be considered in the 1.5GHz band?

Aqura align with the ACMA's preliminary view on incumbent services.

Aqura believe that 4G/5G services on 1.5GHz would be of interest as an additional spectrum in areas where existing private WBB spectrum is full, or not available for use. Due to its lower frequency, it would be a good choice for wide area coverage on large industrial precincts such as mine site and along rail lines.

Support for B50, B51 n50 n51 bands should be considered as this supports 4G/5G TDD. FDD could be considered but is less efficient use of spectrum than TDD. SDL is better suited for wide area WBB and carriers. It's expected that 5G services would be the main use eventually for the 1.5GHz band but is dependent on the developing device ecosystem, which early indications will be the case.

Geographically, the band should be offered for remote area, regional area and metro area. For remote and regional areas, AWL or apparatus licencing could be considered. For metro area, a mixture of apparatus and spectrum licencing could be considered. This would allow use by both carriers and enterprise in a coordinated coexistence to preserve orderly use. Co-ordination of services and licences would be necessary to ensure fair and equitable use and minimise situations of spectrum 'squatting' for commercial gain.

Access should be on a shared basis in remote and regional areas. Existing fixed services could continue to use the band but no new licences for PTP should be issued. Metro area access should be exclusive.

Preliminary coexistence considerations

Issue for comment 5

Comment is sought on the coexistence scenarios identified including the ACMA's preliminary thinking on these scenarios. Are there any other coexistence scenarios the ACMA should consider?

Coexistence with radio astronomy services

Aqura agree with the ACMA's preliminary views on radio astronomy coexistence.

Coexistence with services below 1427 MHz

Aqura agree with the ACMA's preliminary view.

Coexistence with services between 1427 and 1518 MHz

For fixed services (DRCS), Aqura recognise that existing licence holders have USO obligations. For remote area, shared access could be considered. Longer term plans of stakeholders supplying services in the 1.5GHz band should be considered.

For regional and metro areas, the use of DRCS is likely to be more limited than remote area, consideration should be given to the eventual re-location of DRCS from this band.

Further consideration should be given to PTP links such as:

- are the number of licences increasing or decreasing?
- availability of PTP equipment at 1.5GHz
- consequence of restricting future PTP licencing in this band.

Aqura's preliminary position is that future PTP licences should be restricted in this band in remote, regional and metro areas. For regional and metro areas, consider moving services to other bands.

For stratospheric balloon communications, its remote and limited use may allow coexistence.

Coexistence with services above 1518 MHz

Aqura believes that MSS should operate on a no protection basis. A small guard band could be implemented to provide some protection of MSS services.

MSS

Aqura supports the ACMA's preliminary views on MSS coexistence with astronomy services.

Coexistence with services below 1518 MHz

Aqura believes that MSS should operate on a no protection basis. A small guard band could be implemented to provide some protection of MSS services.

Coexistence with services between 1518 and 1525 MHz

Aqura believes that MSS should operate on a no protection basis.

Coexistence with services between 1668 and 1675 MHz

Aqura supports the protection of existing Earth receive apparatus licences.

Coexistence with services above 1675 MHz

Aqura supports the ACMA's approach and consult with the Bureau of Meteorology