Aqura Technologies Response to ACMA Consultation Paper

Variation to the Low Interference Potential Device Class Licence

December 2022

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DOCUMENT REVISION HISTORY

Revision History				
Revision	**Description**	**Written By**	**Approved**	**Date**
A	Initial Document Creation	LB/MR	AS	4/12/2022
B	Updated	LB/MR	AS	05/12/2022
C	Updated for issue	LB/MR	AS	15/12/2022

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	Variation to the Low Interference Potential Device Class Licence Consultation Paper
ACMA	draft_radiocommunications_lipd_class_licence_variation_notice_2020_no._2
ACMA	notice_under_subsection_136_of_proposed_lipd_class_licence_variation

Table 3: Reference Documents

ACRONYMS

Acronym	Description
AAS	Active Antenna System

Table 4: Acronyms

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Introduction

Aqura is a specialist 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 have recently delivered one of the first Private 5G enabled networks in Australia.

Our networks are found across Australia and serviced by in-house specialists with extensive experience in broadband wireless technologies and their use in carrier and industrial environments.

Aqura welcome the opportunity to provide our views on the ACMA's proposal for **New arrangements for low interference potential devices**, as outlined in ACMA consultation IFC 35/2022.

Our organisation represents predominantly industrial, private users of high-performance wireless broadband for Industry 4.0 initiatives. The users are located across Australia and have significant investments in wireless technologies that underpin critical performance and safety systems in their operations.

Question 1: RLAN radiocommunications transmitters in the 5150-5250 MHz band.

Question 1

Should a separate new item be introduced to facilitate higher-power RLAN transmitters in 5150–5250 MHz, or should existing item 61 be modified?

Aqura support the higher power of +30dBm EIRP for outdoor use. The existing item 61 should be modified to include the higher power EIRP for outdoor use and including the 200mW EIRP for indoor.

Question 2 Emission Mask

Question 2

Which of the 2 simple emission masks outlined in ITU Resolution 229 (Rev. WRC-19) should be implemented in Australia for 1 W RLAN transmitters in the 5150–5250 MHz band?

Many countries, including the USA, Canada and Japan, have adopted the RLAN transmitter limit at 125 mW (21 dBm) EIRP above 30° elevation for protection of the Mobile Satellite Service feeder-links. Harmonising Australia's regulations with this limit would facilitate equipment commonality and operational compatibility.

Question 3 Device Registration

Question 3

Subject to which emission mask is implemented (see Question 2), would a device registration system (or similar – see Canadian approach above) be needed for outdoor deployments exceeding 200 mW (23 dBm) transmission power? Note that such a regime would require further regulatory development. Accordingly, a decision to implement such a regime may delay access under those arrangements.

Aqura agrees with the ACMA that based on the 1W EIRP and emission mask, that registration of high-power devices is not necessary in the 5150-5250MHz band.

Question 4 Maximum EIRP for WMAS Device

Question 4

What should be the maximum EIRP for WMAS devices in the 520–694 MHz and 1785–1800 MHz bands?

Aqura recommend the EIRP for WMAS devices operating above 612 MHz is not increased from its current maximum of 100mW EIRP. 3GPP band n71 (617-698MHz) and potentially n105 (612-698) use this band and if it is brought into use in Australia for IMT, it may raise interference and band clearing issues.

For devices operating below 612 MHz, we have no concerns regarding an increase in the limit.

We do not offer a view on devices operating in 1785-1800 MHz.

Question 5 WMAS Maximum Bandwidth

Question 5

Should a maximum bandwidth limitation be implemented for WMAS devices? If so, what should the maximum emission bandwidth be?

No comment.

Question 6 WMAS Channel Width

Question 6

Should a WMAS emission in 520–694 MHz be limited to fall entirely within a single TV channel? For emissions greater than a single TV channel, should a whole number of TV channels be required (for example, emission bandwidths of 7 MHz or 14 MHz)? Should any other limitations regarding the relative positioning of WMAS emissions with respect to the TV channel raster be implemented?

No comment.

Question 7 WMAS Spectral Efficiency

Question 7

Should a minimum spectral efficiency limitation be implemented for WMAS devices? If so, what should the minimum spectral efficiency be?

No comment.

Question 8 WMAS Standard Compliance

Question 8

Should WMAS devices be required to comply with ETSI Standard EN 300 422?

No comment.

Question 9 Schedule 1

Question 9

Should new items be added to Schedule 1 of the LIPD class licence to facilitate WMAS, or should existing items be modified?

In line with our answer to Question 1, we consider the existing item should be “modified”, rather than a new entry added alongside the existing entry.

Question 10 Underground Wireless Broadband

Question 10

Have third-party access arrangements to spectrum-licensed bands been explored?

Should we consider the introduction of arrangements in the LIPD class licence to facilitate underground communications in the 700 MHz, 800 MHz and/or 900 MHz bands? What technical limitations should be included in these arrangements if they are introduced?

Aqura continues to advocate on behalf of Enterprise end-users to acquire spectrum for specified private industrial use.

At a macro level, Aqura recognises the significant investment spectrum licensees have made in both acquiring spectrum and building of networks using this spectrum for their customers. Allowing class licence use of IMT spectrum could minimise the opportunity for a spectrum licensee to realise the value of their investment in spectrum to support their core business.

Spectrum licensees are have been willing to authorise access to their spectrum holdings for specific use-cases but granting of access is not guaranteed. Whilst this is an evolving dynamic, there is still a requirement for regulated, specified use by an end-user to access spectrum.

Allowing LIPD class licences in the 700, 800 and 900MHz bands would be difficult to manage and not allow a spectrum licensee to evaluate any potential impacts to its network. Potential class licence users may not consider potential interference to operators’ networks due to coverage near or outside a portal, air vent or escape shaft, or believe that as a class licence, they can use it above ground as well as below.

Question 11: Radiocommunications receivers communicating with satellites in the 915-928 MHz and 2400-2483.5 MHz Bands

Question 11

Should we consider the introduction of arrangements to facilitate systems that utilise space-based transmitters that operate in the bands 915–928 MHz and 2400–2483.5 MHz at power levels higher than currently permitted under the LIPD class licence? If so, what matters should be considered in the regulatory framework? In particular, comment is sought on:

- What is an appropriate power for such services so that there is no impact on other services? While some might operate at power levels slightly higher than those currently supported under the LIPD class licence, others could at operate higher levels. The impact also depends on other technical parameters such the orbital characteristics, number of satellites and what types of services are sharing the band. Such considerations suggest a case-by-case approach (more akin to an apparatus licensing regime) may be required.
- What effect, if any, will the proposed use have on existing services such as the amateur-satellite services and services authorised under the LIPD class licence? For example, Wi-Fi, Bluetooth and radio frequency identification devices (RFID).
- Do systems need to be brought under the scope of the Radiocommunications Act via variations to the Radiocommunications (Australian Space Objects) Determination 2014 or the Radiocommunications (Foreign Space Objects) Determination 2014?
- Is the LIPD class licence or the communication with space objects (CSO) class licence the appropriate legislative instrument to be used to facilitate such systems?
- If apparatus licensing is used, are the current apparatus licence fees and taxes appropriate? (Assuming the entire band is licensed, for the 915–928 MHz band, the annual tax for an Australia-wide space licence is estimated as $36,673; for the 2400–2483.5 MHz band, the annual tax for an Australia-wide space licence is $235,194.)

Aqura supports the introduction of arrangements that facilitate the use of space-based transmitters that operate in the bands 915–928 MHz and 2400–2483.5 MHz. The current power levels supported in the current LIPD class licence may be sufficient for most satellite services such as mobile satellite service and satellite IoT. Some satellite services may require higher power, but this must be balanced with the potential to cause interference to other services. One possible approach could be a review of current and future satellite service providers and the transmitter powers involved.

As most satellite devices will be outdoors, there will be limited interaction with indoor LIPD. For LIPD devices outdoors, there will be the potential for interference, but this is no different than the current situation for LIPD. The potential for DL interference is low based on path loss but UL interference may be an issue. Potentially, the majority of satellite-based services will be remote area with a low density of LIPD users so interference between satellite services and terrestrial users may be limited.

For the other items listed in Q11, Aqura have no comment.

ACMA Proposed Variations

Definition of Indoor

Aqura agree and support the ACMA's definition of "Indoors".

Radiocommunications receivers communicating with satellites in the 915–928 MHz and 2400–2483.5 MHz bands

Aqura agree with and support the ACMA's preferred approach of creating a new schedule in the LIPD class licence for the introduction of radiocommunications receivers communicating with satellites in the 915-928 MHz and 2400-2483.5 MHz bands. We note that earth-based transmitters (earth stations) in the earth-to-satellite direction are already licensed under item 54 of Schedule 1 to the LIPD class licence, and that the ACMA's proposed amendment is to introduce earth-based receivers (earth-receive stations) into the LIPD class licence.

Frequency hopping devices in 5925-6425 MHz

Aqura agree with and support the insertion of the item 57A into schedule 1 of the LIPD class licence to support frequency hopping devices in the 5925-6425 MHz band.

RLAN radiocommunications transmitters in the 5925–6425 MHz band

Aqura agree with the ACMA's proposed amendment to implement out-of-band emission limits of -37 dBm/MHz for very low-power (VLP) devices and -27 dBm/MHz for low-power indoor RLAN devices operating in this band.