

WBA Comments on Australia ACMA's Proposed updates to the LIPD Class Licence for 6 GHz RLANs

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1. Introduction

Wireless Broadband Alliance (WBA®) submits these comments in response to Australian Communications and Media Authority (“ACMA”) consultation on Proposed updates to the LIPD Class License for 6 GHz RLANs. WBA strongly applauds and supports ACMA’s proposal to authorise use of 5925-6425 MHz for low power indoor (“LPI”) and very low power (“VLP”) unlicensed applications. Furthermore, WBA strongly urges ACMA to release 6425-7125 MHz (“upper 6 GHz band”) for unlicensed use, as well as formulate rules to permit use of standard power over the entire 6 GHz band. The upper 6 GHz band is an essential component in fully realizing the benefits of the 6 GHz band.

Comments in this response address some of the questions raised by ACMA in the consultation. WBA will be happy to address any follow on questions as they may come up.

2. Consultation Questions and WBA’s Comments

ACMA consultation questions are listed below followed by WBA’s comments

Consultation Question #1 – Out-of-Band Emissions

(Lower 6 GHz band) Are the proposed out-of-band emission limits of -37 dBm/MHz for outdoor very low power (VLP) devices and -27 dBm/MHz for low power indoor devices suitable, both in terms of protecting intelligent transport systems (ITS) services and their effect on the operation of RLAN devices near/adjacent to the 5925 MHz boundary?

WBA Comment – -27 dBm/MHz is sufficient in reducing chance of interference with ITS equipment operating below 5925 MHz for LPI as well as VLP class of devices. As argued

by Broadcom and Facebook in their filing with the United States FCC,¹ the characteristics of both RLAN and ITS technologies make the probability of coincident transmissions extremely low, which means that such devices are highly unlikely to create harmful interference even in situations of close proximity. It illustrated the point with an example that probability of three or more collisions with ITS transmissions is extremely low (about 0.01%). As a result, even if an RLAN were transmitting co-channel to an ITS receiver, the probability of harmful interference would be extremely low.

Wi-Fi 7, the generation following the Wi-Fi 6E, will enable 320 MHz channels. In case Australia's unlicensed allocation of the 6 GHz band remains at 5925-6425 MHz, the only 320 MHz channel that will be available in Australia will be at a severe disadvantage because of the - 37 dBm/MHz OOB emission limit of that will - in turn - unnecessarily limit the in-band power. Being conservative on OOB here will have ramifications even beyond the current generation of Wi-Fi, and therefore should be avoided.

Consultation Question #2 – Coexistence

(Lower 6 GHz band) Is the specification of contention management protocols in the LIPD Class Licence necessary to enable equitable access between potentially competing technologies such as RLANs and 5G new radio-unlicensed (NR-U) services? If so, is the proposed condition, and the language used to express it, appropriate?

WBA Comment – ACMA's proposed language will permit both Wi-Fi and NR-U to coexist. Wi-Fi solutions are implemented as listen-before-talk/collision avoidance for a particular channel per IEEE 802.11 specifications for RLANs. This capability is inherent in Wi-Fi designs and is the means used by Wi-Fi devices to share medium even among themselves.

¹ Broadcom and Facebook Comments to the FCC on OET Proceeding 19-138, 27 April 2020: <https://tinyurl.com/n2n9xtv5>

ACMA can therefore assume listen-before-talk & collision avoidance mechanism is available from Wi-Fi equipment by default.

Consultation Question #4 – Directional Antennas

(Upper 6 GHz band / higher power) Should the ACMA make arrangements that permit high-gain directional antennas (for example, for wireless internet service providers in remote areas) under a class licensing regime?

WBA Comment –Yes, ACMA should definitely permit high-gain directional antennas for standard power operation and enable Wi-Fi coverage in settings that LPI is not sufficient for. Use of higher speed Wi-Fi via 6 GHz standard power operation in stadiums, warehouses and other large venues can cost-effectively extend coverage and deliver the benefits of faster connectivity to all constituents. Outdoor spaces have become even more popular in these pandemic times, and robust Wi-Fi connectivity is essential for staying productive.

ACMA has the additional advantage of Register of Radiocommunications Licences (“RRL”) database that can be readily used to guide standard power usage and deliver dividends for the Australian economy. A lightly licenced query based solution such as the Automated Frequency Coordination (“AFC”) system in the United States can potentially be leveraged and adopted for use with the RRL. The AFC system employs an interference protection criteria of -6 dB I/N to calculate the frequency availability for outdoor use to protect incumbent Fixed Services against interference from outdoor devices operating with maximum transmit power of 36 dBm EIRP for APs and 30 dBm EIRP for connected Clients.

Consultation Question #5 – AFC System

If ‘high power’ class-licensed devices were to be introduced under an AFC system, what aspects of the system would need to be considered in setting it up? Is there interest from industry in administering such a system?

WBA Comment – As commented under #4, provisioning ‘high power’ (same as 6 GHz ‘standard power’ in other jurisdictions) in the 6 GHz band is highly logical and important to the unlicensed 6 GHz ecosystem. A database query based approach can address concerns for any possibility of interference to incumbent services and while extending the benefits of 6 GHz to large venues. There are sufficient commercial benefits to enabling such capability and WBA fully expects the industry to host and operate such a service. For its part, WBA will certainly consider taking steps to facilitate any such capability for its member companies.

Consultation Question #6 – AFC System Questions

If ‘high power’ class-licensed devices were to be introduced under an AFC system:

- > Is there interest from industry in administering such a system?**

WBA Comment – WBA is confident that there will be strong interest from the industry. For its part, WBA will certainly attempt to facilitate such a service for its member companies.

- > Are there any impediments to developing and/or operating a system in Australia? What could be done to help enable, or otherwise encourage, the development and/or operation of a system in Australia?**

WBA Comment – Existence of RRL is a key enabler to creating a database query based solution. Operators and Service Providers in general should be encouraged to make use of the RRL and enable the advanced connectivity ecosystem to all Australians and in all settings.

- > To what extent would an Australian system need to be aligned with those to be implemented elsewhere? What scope could there be for customisation in an Australian system?**

WBA Comment – Unlicensed connectivity technologies benefit from economies of scale. To the extent that the ACMA can align with Federal Communications Commission in the United States’ AFC system, it should be strongly considered. Working with RRL system as the underlying database should be relatively straightforward to enable local Operators.

1. **If ‘high power’ devices were to be introduced under a manual registration process, what might those arrangements look like? Would the introduction of apparatus licensing for such devices be an appropriate option?**

WBA Comment – An automated query system will be more effective in delivering best resources for best performance, agile, and economical than a manual registration based process. Manual registration may not align even in spirit with unlicensed approach and prevent desired outcome from this exercise. WBA strongly urges the ACMA to consider an automated system instead of a manual registration based process.

2. **Would there be advantages in implementing different licensing and/or access management arrangements in different geographic areas for the use of high power RLAN devices?**

WBA Comment – Economic benefit directly correlates with Australians’ ability to connect easily and leverage the modern connectivity ecosystem regardless of their location. A simpler system will go a long way towards reaching that objective. A single hierarchy level that determines availability of an available 6 GHz unlicensed resource will keep deployment and maintenance costs low. To that end, releasing all of 5925-7125 MHz for high power use will increase likelihood of identifying spectrum resource available for unlicensed use. Query based system will continue to provide sufficient protection to incumbent uses.

3. Concluding Remarks

AMCA is making the correct decision by making the lower 6 GHz band for unlicensed LPI and VLP connectivity use cases. The ACMA is also correct in now considering upper half of the 6 GHz band for unlicensed use, as well as standard power (a.k.a., 'high power') to complete the ecosystem. Favorable decisions here will help promote further economic activity to benefit the Australian citizens. WBA is taking additional steps to assist in realizing deployments leveraging standard power. Please reach out should there be any additional questions in the meantime.

For more information please contact the WBA at: contactus@wballiance.com