

WBA Comments on Australia ACMA's 6 GHz Consultation

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Wireless Broadband Alliance (WBA®) submits these comments in response to Australia's Authority ("ACMA") consultation on unlicensed use of the 6 GHz Band. WBA strongly applauds and supports ACMA's consideration of unlicensed use of the 6 GHz band and recommends that the entire 1200 MHz (5925 – 7125 MHz) be considered for unlicensed use.

1. Introduction

WBA's mission is to enable collaboration between service providers, technology companies and organizations to achieve broad technology adoption by showcasing user benefits and by supplementing with specifications to enable widespread technology adoption.¹ WBA's membership is comprised of major operators and leading technology companies.²

WBA believes that the opening of the 6 GHz band for Wi-Fi 6E is revolutionary for global Wi-Fi use and is a critical enabler for growth and delivery of advanced wireless services to consumers, enterprises, carriers, and creates new opportunities for innovation and businesses.

WBA industry report 2021³ on Wi-Fi 6E shows that about 72% of respondents consider 6 GHz as critical or very important to their Wi-Fi business. 62% rated an additional allocation of 6 GHz spectrum as a very important regulatory topic for their business. The report offers strong evidence that Wi-Fi is, if not the dominant, at least a key component of the connectivity

¹ <https://wballiance.com/openroaming/>

² [Complete list of WBA members](http://www.wballiance.com/join-us/current-members/): <http://www.wballiance.com/join-us/current-members/>

³ WBA Annual Industry Report, <https://wballiance.com/resource/wba-annual-industry-report-2021/>

ecosystem. Adopting rules that unlock the full potential of the 6 GHz band and next-generation Wi-Fi will help complete this ecosystem.

2. Answers to ACMA's Consultation Questions

Following please find our answers to the questions listed in the ACMA consultation:

#1 - What is the demand for spectrum for RLAN use in the 6 GHz band (5925–7125 MHz)?

Answer – There is significant bandwidth deficiency to support even today's workloads, let alone the rapidly increasing data traffic of the future. Countries all across the world came to the reckoning in these pandemic times that productivity of their workers and students depends on the networks they are able to connect over, and same applies to Australia. Making the 6 GHz band unlicensed can immediately offer relief. With 6 GHz based devices being announced at a steady pace, Australians will be able to quickly benefit from these and make their daily activities a lot more efficient.

#2 - Should the ACMA proceed, as proposed to consult, on a formal variation to the LIPD class licence that adds the frequency range 5925–6425 MHz for RLAN use, bounded by the parameters described in the ACMA's preliminary view section of this paper?

Answer – WBA supports making the 5925-6425 MHz band available for unlicensed RLAN use. In fact, WBA strongly encourages ACMA to consider making the entire 6 GHz band available for unlicensed RLAN use. Having the entire 6 GHz band available for unlicensed use will permit up to seven concurrent 160 MHz channels. This is key to ensuring that high data rates will be feasible in multi-dwelling and other dense environments. In these environments

where signals from multiple cells can be present across cell boundaries, seven available channels ensures that adjacent cells can communicate over unique channels and thereby deliver peak performance to their respective users.

Wi-Fi Alliance, in its spectrum study conducted in 2017,⁴ concluded that up to 1 GHz of new spectrum would be needed in 2025 to satisfy the anticipated busy hour, with 1.3 to 1.7 GHz needed if demand exceeds the busy hour prediction. Because of the current pandemic times, we have already seen Wi-Fi provide vital connectivity and its use exceeding past projections. The Wi-Fi Alliance study also emphasized the importance of contiguous spectrum to be assigned with sufficient contiguity such that 160 MHz channels, or even wider 320 MHz channels can be utilized by future IEEE 802.11be technology.⁵ Forward thinking spectrum regulation that allocates contiguous spectrum to accommodate multiple 160 MHz and 320 MHz channels will enable new applications and the economic benefits associated with them. The Wi-Fi Alliance study assumes that new spectrum will be fully accessible by Wi-Fi.

#3 – If class licensing arrangements are to be made in the lower 6 GHz band (by variation to the LIPD class licence), should alternative/additional power limits and/or other conditions be considered?

Answer – With regard to the indoor operation of Wi-Fi Low Power devices (LPI) and Very Low Power (VLP) portable devices, a number of studies around attenuation of Wi-Fi signal

⁴ Wi-Fi Alliance, Spectrum Needs Study (2017). <https://www.wi-fi.org/news-events/newsroom/additional-unlicensed-spectrum-needed-to-deliver-future-wi-fi-connectivity>

⁵ 320 MHz channels are already being already provisioned in IEEE 802.11be

due to building entry loss conducted in United States and Europe⁶ concluded that co-existence of indoor Wi-Fi devices is achieved by restricting transmit power of these indoor devices.

In case of the United States, the FCC opened the entire 6 GHz band for unlicensed indoor use without the need for frequency coordination. The FCC is seeking comment in its Further Notice⁷ to allow low power indoor devices to operate at a higher power with a maximum permissible EIRP of 33 dBm when a device uses a bandwidth of 320 MHz in the entire band.

WBA recommends authorization of the following unlicensed operation modes using channel bandwidth of up to 320 MHz:

Low Power Indoor over 5925-7125 MHz with

- a. For 160 MHz channel width: 30 dBm Max Tx Power (EIRP) for Access Points and Clients
- b. For 320 MHz channel width: 33 dBm Max Tx Power (EIRP) for Access Points and Clients

Very Low Power (VLP) portable RLAN devices with

17 dBm max Tx power (EIRP)

⁶ RKF report (commissioned by 6USC, detailed report from 2018): <https://s3.amazonaws.com/rkfengineering-web/6USC+Report+Release+-+24Jan2018.pdf>

ECC report 302 (CEPT report with multiple studies developed by European administrations and industry): <https://www.ecodocdb.dk/download/cc03c766-35f8/ECC%20Report%20302.pdf>

ECC report 316 (CEPT report with multiple studies developed by European administrations and industry, focuses on VLP and short term criteria): <https://www.ecodocdb.dk/download/8951af9e-1932/ECC%20Report%20316.pdf>

6USC Group Fixed Link Interference Testing: [https://ecfsapi.fcc.gov/file/108230735019254/6GHz%20FS%20coexistence%20study%20ex%20parte%20\(final\).pdf](https://ecfsapi.fcc.gov/file/108230735019254/6GHz%20FS%20coexistence%20study%20ex%20parte%20(final).pdf)

6USC Comments to NPRM (outdated but good

information): [https://ecfsapi.fcc.gov/file/10216633127609/6%20GHz%20RLAN%20Group%20Comments%20\(Feb%2015%202019\).pdf](https://ecfsapi.fcc.gov/file/10216633127609/6%20GHz%20RLAN%20Group%20Comments%20(Feb%2015%202019).pdf)

Summary of 6USC position (before

R&O): [https://ecfsapi.fcc.gov/file/1031999525288/AFC%20Ex%20Parte%20\(Mar%2019%202020\).pdf](https://ecfsapi.fcc.gov/file/1031999525288/AFC%20Ex%20Parte%20(Mar%2019%202020).pdf)

⁷ <https://s3.amazonaws.com/public-inspection.federalregister.gov/2020-11236.pdf>

#4 - Is it appropriate to consider inclusion of the upper 6 GHz band (6425–7125 MHz) in the LIPD class licence or should this be deferred to monitor future developments (for example, in the wide-area International Mobile Telecommunications (IMT) space) as outlined in the ACMA’s preliminary view? We invite comments from submitters on the utility of the band for IMT use.

Answer – WBA supports unlicensed use of the lower 6 GHz band and the upper 6 GHz band (6425 MHz to 7125 MHz). Unlicensed use of radio spectrum reduces equipment cost and accelerates time to market, proliferating benefits to a much broader set of users. Broad adoption lends itself to greater economic prosperity of Australians.

In a 2018 study conducted by Telecom Advisory Services,⁸ the global economic value of Wi-Fi in 2018 was estimated at US \$ 1.96 trillion. Most recent refresh in 2021 of this study shows that, by 2025, the global value of Wi-Fi will increase to US \$ 4.9 trillion. At the same time, the study shows that global jobs attributable to Wi-Fi will increase by more than 50% to nearly one million by 2023.

We are convinced that by opening up the 6 GHz band for unlicensed use, ACMA will act in the best interest and to the benefit of the Australian people.

WBA does not support an IMT identification for 6425-7125 MHz band. Based on the results of the coexistence studies we have done over the past five years to gain access for licence-exempt uses, we believe that licence-exempt RLAN equipment can coexist well with all current incumbent services. We do not believe this to be the case for high power outdoor IMT use. In addition, licence-exempt equipment is available now, and according to publicly available

⁸ <https://www.wi-fi.org/value-of-wi-fi>

information, the absolute soonest IMT equipment could be made available is 2025. The U.S. FCC specifically declined requests to “repurpose substantial portions of the 6 GHz band for new licensed services in place of new unlicensed operations and existing incumbents,” finding that “[r]epurposing large portions of the 6 GHz band for new licensed services would diminish the benefits of such use” to the public.⁹

#5 - Should standard power (that is, higher power devices, including for outdoor use) operating under a dynamic spectrum access system such as the automatic frequency coordination (AFC) system adopted in the USA, be adopted in Australia for some or all of the 6 GHz band? Is there an appetite and capability for industry to provide the necessary systems to enable such use? We welcome views and evidence on the commercial and technical feasibility of introducing AFC systems in the band.

Answer – Yes, outdoor unlicensed operation in the 6 GHz band is feasible and should be considered to offer applications a seamless indoor and outdoor ecosystem. ACMA could follow the US FCC lead where the FCC concluded that 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 Clients will be sufficient. A frequency coordination database could be used to locate incumbent services. Outdoor Access Points providing 6 GHz unlicensed services could query the database to determine availability of permitted channels. Alternatively, a light-licensing scheme could be considered.

Extensive studies conducted by CEPT in Europe have shown that unlicensed Very Low Power (VLP) portable RLAN devices can operate outdoors without causing harmful interference to incumbents at 14 dBm EIRP level. Brazil however permits operations up to 17 dBm, and offers a good model for the ACMA to follow.¹⁰

⁹⁹ Unlicensed Use of the 6 GHz Band, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 3852, ¶ 205 (2020)

¹⁰ https://sei.anatel.gov.br/sei/modulos/pesquisa/md_pesq_documento_consulta_externa.php?eEP-wqk1skrd8hSlk5Z3rN4EVg9uLJqrLYJw_9INcO7uvjUt3vSOWT_4Z5fukj9ylzPErY4KWH5cpE9W_9hcTZkC G-vLPIdpXyuhgMG-L9M-uBLoSdAAXO0clb3Slt1i

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Standard Power (using frequency coordination database) over 5925-7125 MHz with

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17 dBm max Tx power (EIRP)

#6 - Should the higher power regulatory arrangements and associated interference mitigation measures added to the International Telecommunication Union (ITU) Radio Regulations at WRC-19 (see [Resolution 229 \(Rev WRC-19\)](#)) in the 5 GHz band be included in any amendment to the LIPD class licence?

WBA recommends ACMA to follow the FCC rules. These rules permit up to 30 dBm plus 6 dBi of antenna gain for indoor and outdoor operation.

Other administrations, such as United Kingdom, are now also permitting outdoor operation.

3. Conclusion and Summary Recommendation

Based on the arguments listed in this document, WBA supports and strongly recommends opening the entire 6 GHz (5925-7125 MHz) band for unlicensed operation. Speedy completion of the ACMA proceeding for unlicensed designation of the 6 GHz band will be key in keeping Australians aligned with deployment of the technology with other countries that are already moving forward with this initiative.

Useful Definitions

Term	Definition
6USC	6 GHz Unlicensed Spectrum Coalition -- also called the RLAN Group (Radio LAN Group), is a coalition of organizations working towards a common goal of advocating for licence-exempt use of the 6 GHz band

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