December 18, 2017

**Via Electronic Delivery**

Spectrum Licensing Policy Section

Spectrum Management Policy Branch

Australian Communications and Media Authority

PO Box 78

Belconnen ACT 2616

Re: **Future Use of the 3.6 GHz Band**

Dear Sir or Madam,

Wi-Fi Alliance submits this letter in response to the ACMA’s Decisions and Preliminary Views on the Future Use of the 3.6 GHz band (the “Decision”).[[1]](#footnote-1)/ Wi-Fi Alliance is disappointed that ACMA has not designated spectrum in the 5.6 GHz band for radio local area network (“RLAN”) operations. Having determined to protect radar operations with a “radar only” band in the 5.6 GHz band, ACMA should not further restrict RLAN operations by designating spectrum for radar operations that will impede, more than necessary, use of 5 GHz spectrum for RLANs. In particular, Wi-Fi Alliance recommends that ACMA locate this “radar only” band at 5610-5620 MHz.

1. **Introduction and Background**

In June, ACMA issued the Options Paper in this proceeding,[[2]](#footnote-2)/ which sought comment on the relocation of incumbent users of the 3.6 GHz band in order to make way for fifth generation wireless (“5G”) operations in that spectrum. As part of the proposal, ACMA also generally sought comment on potential uses of the 5.6 GHz band.In its response to the Options Paper[[3]](#footnote-3)/ Wi-Fi Alliance urged ACMA to expand class-licensed operations into the 5.6 GHz band and to decline to permit relocation of 3.6 GHz incumbents into the band.Wi-Fi Alliance noted thatWi-Fi has become increasingly important in connecting people and devices. Hundreds of millions of people rely on Wi-Fi every day and studies show this is increasing rapidly.[[4]](#footnote-4)/ It is now one of the primary means by which Australians connects to the Internet, and can be deployed at relatively low cost.[[5]](#footnote-5)/ Many new and emerging applications and industry verticals rely on Wi-Fi. This proliferation of wireless, class-licensed devices will continue into the future, leading to a critical shortage of available spectrum for these networks. ACMA also noted the need for additional spectrum, citing to Wi-Fi Alliance’s past analyses of spectrum needs.[[6]](#footnote-6)/

In the Decision*,* the ACMA declined to designate the 5.6 GHz band for class-licensed use. Instead, it elected to designate the spectrum for apparatus-based licensing,[[7]](#footnote-7)/ though it also contemplates a “radar-only” band within the band.

1. **“Radar Only” Band in the 5.6 GHz Band**

Having decided to designate the 5.6 GHz band for apparatus-based licensing and radar operations (and not RLAN use), ACMA must now decide which segment of the 5.6 GHz band should be reserved for radar operations alone. In the Options Paper, the ACMA proposed to place this band at 5600-5610 MHz; in the Decision, it proposed as an alternative, the 5620-5630 MHz.[[8]](#footnote-8)/ ACMA stated that it would address laterthe specific band that will be designated for radar use.

In making its final determination, ACMA should recognize the protection that RLAN operations must provide to radars and the amount of spectrum separation required between the two systems. In particular, in order to adequately protect radar, RLANs cannot transmit within 30 megahertz of the edge of a radar signal. In practice, a 10 megahertz radar band eliminates 70 megahertz of RLAN operation to mitigate interference. Today, not all of the 5 GHz band is available for RLAN operations in Australia. Instead, only 5150-5350 MHz, 5470-5600 MHz, and 5650-5850 MHz are available to RLAN operations like Wi-Fi.[[9]](#footnote-9)/Accordingly, careful placement of the radar band in the 5.6 GHz range can limit the amount of spectrum that is correspondingly made unavailable for RLAN use.

Placement of the radar band at 5610-5620 MHz will have considerably less impact on the availability of spectrum for RLANs than if ACMA designates any of the remaining portion of the band. The specific channels lost to RLAN operation as a result of the potential “radar only” locations can be determined utilizing the standard IEEE 802.11 channelization plan.[[10]](#footnote-10)/ In particular, designating the 5610-5620 MHz band for exclusive radar use will result in the loss of only channels 120, 124, and 128 (with channel 116 operating in 20 MHz only mode). Designating any other segment for radar will mean losing at least an additional 20 megahertz channel, with the possible losses of additional 40 megahertz or 80 megahertz channels.

While Wi-Fi Alliance continues to believe that the ACMA’s decision not to designate the 5.6 GHz band for RLANs is a lost opportunity, it is possible for ACMA to implement the decision it did make in a less disruptive way. ACMA should therefore decline to propose to locate the “radar only” band at 5600-5610 MHz or 5620-5630 MHz, and instead reserve the 5610-5620 MHz band for those operations. This will reduce the negative impact on class-licensed operations, which ACMA has recognized are of great importance to Australia.

1. **CONCLUSION**

The future of the Internet is more: more traffic, more devices, more uses. Class-licensed devices will be at the center of this growth. It is therefore crucial that ACMA ensure that Australians can fully participate in that future by making as much spectrum available for class licences as possible. While it has elected not to allow these operations in the 5.6 GHz band, its decision regarding the location of its proposed “radar-only” band within that spectrum will have an important impact on RLAN operations in nearby spectrum. Wi-Fi Alliance encourages ACMA to consider carefully the effect on class-licensed operations in adjacent spectrum when determining its plan for the 5.6 GHz band and to designate the 5610-5620 MHz band for “radar only” operations.

Respectfully submitted,



**Wi-Fi Alliance**

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1. / *Future use of the 3.6 GHz band – Decisions and preliminary views*, October 2017 (“*ACMA 3.6 GHz Band Decisions*”). [↑](#footnote-ref-1)
2. / *Future Use of the 3.6 GHz band*, Options Paper, June 2017 (“Options Paper”). [↑](#footnote-ref-2)
3. / *Response of Wi-Fi Alliance to ACMA,* August 2017, available at https://www.acma.gov.au/-/media/Spectrum-Transformation-and-Government/Issue-for-comment/9-2017/WiFi-Alliance-submission-docx.docx (“WFA Response”). [↑](#footnote-ref-3)
4. / *See* Wi-Fi Alliance*, Additional unlicensed spectrum needed to deliver future Wi-Fi® connectivity,* Feb. 27, 2017, available at https://www.wi-fi.org/news-events/newsroom/additional-unlicensed-spectrum-needed-to-deliver-future-wi-fi-connectivity. [↑](#footnote-ref-4)
5. / CISCO, *VNI Complete Forecast Highlights Tool*, Australia, Wired Wi-Fi and Mobile Growth (2016), http://www.cisco.com/c/m/en\_us/solutions/service-provider/vni-forecast-highlights.html (select “Australia” from the “Asia/Pacific” drop-down menu, select “2021 Forecast Highlights” and expand “Wired Wi-Fi and Mobile Growth.” [↑](#footnote-ref-5)
6. / *Options Paper* at Appendix 3, citing to Wi-Fi Alliance, *Spectrum Needs Study*, Feb. 2017, available at https://www.wi-fi.org/downloads-registered-guest/Wi-Fi%2BSpectrum%2BNeeds%2BStudy0.pdf/33364. [↑](#footnote-ref-6)
7. / *Decision* at 35. [↑](#footnote-ref-7)
8. / *Id.*  [↑](#footnote-ref-8)
9. / *See*, Radiocommunications (Low Interference Potential Devices) Class Licence, 2015, Schedule 1. [↑](#footnote-ref-9)
10. / *See*, Rohde & Schwarz, *802.11ac Technology Introduction*, White Paper, March 2012, p. 6, available at https://cdn.rohde-schwarz.com/pws/dl\_downloads/dl\_application/application\_notes/1ma192/1MA192\_7e\_80211ac\_technology.pdf [↑](#footnote-ref-10)