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VIA ELECTRONIC FILING
Radio.Spectrum@mbie.govt.nz

Draft Five Year Spectrum Outlook 2022-2026
Radio Spectrum Management Policy and Planning
Ministry of Business, Innovation and Employment
PO Box 2847
WELLINGTON 6140

Re: Five Year Spectrum Outlook – Draft For Discussion

Dear Colleagues,

Wi-Fi Alliance commends the New Zealand Ministry of Business, Innovation and Employment, Radio Spectrum Management (the "RSM") on its ongoing work in the area of spectrum management. The Draft Five Year Spectrum Outlook 2022-2026 document ("*Draft Document*")[1/] is a critical tool to inform the public of the areas in which the RSM expects to focus and to solicit feedback that will provide the RSM with the information necessary to identify main trends and implications for spectrum management over the next five years. In this regard, Wi-Fi Alliance urges the RSM to consider the future of Wi-Fi technology and its need for spectrum access

Introduction

Wi-Fi Alliance is a global, non-profit industry association of over 850 leading companies from dozens of countries devoted to seamless interoperability. With technology development, market building, and regulatory programs, Wi-Fi Alliance has enabled widespread adoption of Wi-Fi worldwide, certifying thousands of Wi-Fi products each year. Radio Local Area Network systems (RLANs) using Wi-Fi standards have become increasingly important in connecting people and devices.

Wi-Fi Alliance Responses to the *Draft Document* Questions[2/]

Q1. *Have we identified the range of technological advancements and probable new demands relevant to New Zealand?*

Q2. *Have we prioritised the right issues that we will need to actively manage through our work programme (to the extent this is possible to predict now)?*

1/ The Ministry's Radio Spectrum Management (RSM), Draft Five-Year Spectrum Outlook 2022-2026 ("*Draft Document*") available at: https://www.rsm.govt.nz/projects-and-auctions/consultations/five-year-spectrum-outlook-2022-2026/

2/ *Draft Document* at 3.

Response to Q1and Q2 (ref. 6 GHz for Wi-Fi 6E)[3]: Wi-Fi Alliance generally supports the General User Licences (GUL) regime for Short Range Devices (SRDs) which is currently used by the RSM to authorize Wi-Fi operations. Hundreds of millions of people rely on Wi-Fi to connect billions of devices every day, and studies show this is increasing rapidly.[4/] Devices using spectrum that supports Wi-Fi are now the primary means by which New Zealanders connects to the Internet. This central role will only increase in the future, since Wi-Fi technology will be an essential complement to Fifth Generation wireless ("5G") networks, as highlighted by the recently released Cisco VNI Mobile Report showing that traffic offloaded to Wi-Fi increase with each successive technology generation.[5/] Dramatic growth in a number of active Wi-Fi devices and data traffic volumes require additional spectrum capacity than what is currently unavailable under the GUL-SRD provisions. Wi-Fi Alliance's previously released *Spectrum Needs Study*[6/] demonstrates that significantly more spectrum access is required to meet expanding connectivity needs. Importantly, the connectivity provided by Wi-Fi through low-cost GURL-SRDs delivers billions of dollars in value to the New Zealand's economy. Indeed, the economic value generated by Wi-Fi connectivity in New Zealand is estimated to exceed NZ$9.7 billion in 2021 and increase to NZ$13.8 billion by 2025.[7/]

The *Draft Document* comes at a pivotal time in the development the Wi-Fi ecosystem. Earlier this year, Wi-Fi Alliance introduced new Wi-Fi 6E terminology to distinguish the latest generation Wi-Fi 6 devices that are capable of 6 GHz operation.[8/] Wi-Fi 6E brings a common industry name for Wi-Fi users to identify devices that offer the features and capabilities of Wi-Fi 6 – including higher performance, lower latency, and faster data rates – extended into the 5925–7125 MHz band. Wi-Fi 6E devices are quickly becoming available, following regulatory approvals in several countries. As the 6 GHz regulatory landscape evolves, Wi-Fi Alliance member companies are expanding the Wi-Fi 6E ecosystem even further.[9/] The first Wi-Fi devices to use the 5925-7125 MHz band include Wi-Fi 6E consumer access points and smartphones, followed by enterprise-grade access points. Industrial environments are also expected to see strong adoption of Wi-Fi 6E to deliver applications including machine analytics, remote maintenance, or virtual employee training. Wi-Fi 6E will utilize 6 GHz to deliver much anticipated AR/VR use cases for consumer, enterprise, and industrial

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3 *Draft Document, Section 3.3 a*t 23

4/ *See Wi-Fi Celebrates 20 Years with More Than 20 Billion Anticipated Device Shipments over the Next Six Years*, ABI Research (Jun. 13, 2019) available at: https://www.abiresearch.com/press/wi-fi-celebrates-20-years-more-20-billion-anticipated-device-shipments-over-next-six-years/

5/ Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2017–2022, White Paper at page 18, available at https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.pdf

6/ Wi-Fi Alliance, *Spectrum Needs Study* at p. 23, Feb. 2017, available at https://www.wi-fi.org/downloads-registered-guest/Wi-Fi%2BSpectrum%2BNeeds%2BStudy_0.pdf/33364

7/ *Discussion Paper* at Table 1.

8/ *See* Wi-Fi Alliance® brings Wi-Fi 6 into 6 GHz, WI-FI ALLIANCE (Jan. 3, 2020) *https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-brings-wi-fi-6-into-6-ghz.*

9/ See Product Finder, WI-FI ALLIANCE (last visited on Feb. 22, 2021) https://www.wi-fi.org/product-finder-results?sort_by=certified&sort_order=desc&certifications=1335.

environments. The list of Wi-Fi 6E certified products is growing.[10/] In 2021 alone, over 348 million Wi-Fi 6E devices were expected to enter the market.[11/]

Several countries already decided to allow Wi-Fi access to the 5925-7125 MHz spectrum to support rapidly growing demand for gigabit connectivity, including Brazil, Canada, Saudi Arabia, South Korea, US and others.

Considering the above, Wi-Fi Alliance urges the RSM to act promptly on expanding Wi-Fi spectrum access to the 5925–7125 MHz band. Such action will ensure regulatory harmonization, create economies of scope and scale and produce a robust equipment market, benefitting New Zealand's businesses, consumers, and the economy.

Response to Q1and Q2 (ref. use of multigigabit wireless systems in the 66 -71 GHz range)[12]: Many countries have identified 66-71 GHz and adjacent bands for implementation of license-exempt technologies (e.g. IEEE 802.11ad/ay (WiGig)). For example, the US Federal Communication Commission decided to maintain the unlicensed use of the 64-71 GHz band and even to expand these operations on to aircraft in flight.[13] Similarly, UK Ofcom adopted regulations for license-exempt operations in the 57-71 GHz band.[14] And, importantly, the International Telecommunication Union confirmed plans for implementation of the Multiple Gigabit Wireless Systems (MGWS) in this frequency band.[15]

The MGWS such as WiGig offer low-latency connectivity that expands the Wi-Fi experience for virtual reality, multimedia streaming, gaming, wireless docking, and enterprise applications requiring high speed, data-intensive connections. These systems need access to the uncongested 60 GHz frequency band with wide channels to transmit data efficiently at multi-gigabit per second speeds. Users benefit from expanded capacity and focused transmission between devices to reduce interference, even in crowded environments. Given nascent state of the communications ecosystem in the 60-70 GHz frequency range, it is difficult to predict how technologies, spectrum needs, market demands and other factors will evolve. Wi-Fi Alliance urges the RSM to allow sufficient regulatory flexibility to support deployment of the MGWS systems in the 66-71 GHz band.

Conclusion

10/ *See Product Finder,* WI-FI ALLIANCE (last visited on Feb. 22, 2021) https://www.wi-fi.org/product-finder-results?sort_by=default&sort_order=desc&certifications=1275; *see also* Wi-Fi 6E: Expanding Wi-Fi into 6 GHz spectrum (English), Video, Wi-Fi Alliance (Jan. 6, 2021) https://www.youtube.com/watch?v=oOZLhkaehzU.

11/ *See* Wi-Fi Alliance 2022 Wi-Fi Trends (Jan. 2022) https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-2022-wi-fi-trends

12 *Draft Document, Section 3.2 a*t 22

13 Use of Spectrum Bands Above 24 GHz for Mobile Radio Services Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum Opinion and Order, GN Docket No. 14-177

14 UK Ofcom Decision to implement technical and regulatory changes to the 57 – 71 GHz band, available at https://www.ofcom.org.uk/__data/assets/pdf_file/0013/126121/Statement_Implementing-Ofcoms-decision-on-the-57-71GHz-band.pdf

15 *See* ITU-R Doc. 5-1/32, Recommendation ITU-R M.2003-2 and Report ITU-R M.2227

Policymakers worldwide recognize that broadband connectivity is increasingly dependent on Wi-Fi technology. And this *Draft Document* represents an important step toward making much-needed spectrum capacity available for GUL- operations in New Zealand. Wi-Fi Alliance appreciates the opportunity to contribute to the RSM's efforts.

Respectfully submitted,

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