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Ministry of Transport and Communications
Directorate of Telecommunications

RE: Spectrum Roadmap (2020): Facilitate the Sustainable Growth of Industry - consultation draft

Introduction

Broadcom Inc., Cisco Systems, Inc., Facebook, Inc. Intel Corporation, and Qualcomm Incorporated (hereinafter the "Companies") are grateful for the opportunity to submit joint comments into the Posts and Telecommunications Department (PTD) of Myanmar consultation to revise Myanmar's Spectrum Roadmap.

The Companies respectfully recommend that PTD initiate a proceeding to make the 6 GHz band (5925-7125 MHz) available on a license-exempt basis to support next generation Wi-Fi (Wi-Fi 6E) (based on IEEE 802.11ax) and Wi-Fi 7 (based on IEEE 802.11be).

1. More mid-band spectrum for license-exempt technologies like Wi-Fi is needed to complement 5G and next generation broadband as well as support innovation in new applications like Augmented Reality/Virtual Reality (AR/VR).

License-exempt technologies are transforming society and the economy of every country around the world. Technologies like Wi-Fi dramatically enhance the value of fixed broadband access to consumers, increase the efficiency and productivity of a variety of economic sectors, and address critical societal goals, such as connecting those without home access to the Internet. During the COVID-19 pandemic, the value of Wi-Fi and the advantages it brings have significantly increased. Under the current circumstances, broadband--often accessed through a Wi-Fi connection--is a precondition for a functioning society.

Wi-Fi is also a critical complement to 5G connectivity. It ensures that the mobile operators' networks function better, by providing a means for consumers to offload data from cellular networks. Wi-Fi plays an integral role in off-loading a large portion of the data traffic from cellular 4G networks and is expected to continue to provide offloading for future 5G networks as well. By 2022, nearly 60 percent of global mobile data traffic is projected to be offloaded onto the fixed network through Wi-Fi[1]. Without the ability to offload traffic to Wi-Fi, 5G networks would be more expensive and less efficient: mobile

[1] Cisco, Visual Networking Index: Global Mobile Data Traffic Update (2017-2022): White Paper, (Feb. 2019) at https://s3.amazonaws.com/media.mediapost.com/uploads/CiscoForecast.pdf.

operators would need to invest more in network densification, deploying many more small cells in dense urban areas to offer gigabit throughput.

Next generation Wi-Fi in the 6 GHz band (Wi-Fi 6E), in particular, will be an important complementary part of the 5G ecosystem and will be critical for popular 5G use cases such as high definition (HD) video streaming, Wi-Fi calling, smart home devices, hotspot access, automation of city-wide services, augmented reality and virtual reality (AR/VR) applications, health monitoring devices, wearables, and seamless roaming. 5G and Wi-Fi 6E together will deliver dramatically better performance to consumers, remote workers, and organizations.

Despite the importance of Wi-Fi, the existing Wi-Fi spectrum footprint (2.4 GHz and 5 GHz) is insufficient both because existing spectrum allocations are becoming more crowded as Wi-Fi demand/traffic grows and there is an insufficient number of 80 and 160 MHz-wide channels available to offer gigabit service. It is estimated that by 2025, there will be a worldwide Wi-Fi spectrum shortfall of up to 1.6 GHz in the mid-frequency range that will limit the performance and availability of broadband[2]. Therefore, to avoid this shortfall, the Companies recommend that the PTD initiate a proceeding to explore making the full 6 GHz band (5925-7125 MHz) license-exempt.

The 6 GHz band is uniquely suited to support future growth of Wi-Fi due to both its propagation characteristics and its proximity to existing Wi-Fi deployments in the 5 GHz band. Critically, the full 6 GHz band offers contiguous spectrum blocks to accommodate seven 160 MHz channels, supported by Wi-Fi 6E and three 320 MHz channels supported by future Wi-Fi 7, which are required for high-bandwidth applications, such as high definition video streaming and lower latency applications like AR/VR.

Opening up the full 6 GHz band for license-exempt use will have tremendous benefits for the economy and connectivity in Myanmar. The Wi-Fi Alliance projects the total global economic value of Wi-Fi in 2023 will be nearly US $3.5 trillion.[3] The economic benefits of Wi-Fi in the 6 GHz band has been further captured in an economic study in the United States found that the total economic value of making the 6 GHz band license-exempt for two uses cases (Low Power Indoor and Very Low Power portable) in the United States would add more than US $153 billion to the US economy between 2020 and 2025.[4]

As Myanmar looks to harmonise its 5G spectrum release timelines with the rest of the world, it should also take note of the global progress in making the 6 GHz band license-exempt and PTD should take the lead to pave the way for the country. There is global momentum to make this band available for license-exempt use by Wi-Fi and 5G NRU (new radio unlicensed, unlicensed 5G applications). Chile, South Korea, the US, UK and the Electronic Communications Committee of Europe have decided to allow license-exempt use of the 6 GHz frequency range for Wi-Fi 6E and 5G.[5] In Asia, administrations in

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[2] Quotient Associates, Wi-Fi Spectrum Needs Study, Final Report to Wi-Fi Alliance (February 2017).

[3] "What is the value of Wi-Fi?" Wi-Fi Alliance, *at* https://www.wi-fi.org/value-of-wi-fi.

[4] Raul Katz, Telecom Advisory Services, Assessing the Economic Value of Unlicensed Use of the 5.9 GHz and 6 GHz Bands, 56 (April 2020) *at* http://wififorward.org/wp-content/uploads/2020/04/5.9-6.0-FINAL-for-distribution.pdf.

[5] Republica de Chile, Ministerio de Transportes y Telecomunicaciones, Subsecretaría de Telecomunicaciones Modifica Resolucion N° 1.985 Extenta, de 2017, de la Subsecretaria DE Telecomunicaciones (6 October 2020); Ministry of Science and ICT, supplies 6 GHz band as a broadband unlicensed frequency October 16, 2020 (https://www.msit.go.kr/web/msipContents/contentsView.do?cateId=_policycom2&artId=3140715); https://ecfsapi.fcc.gov/file/0424167164769/FCC-20-51A1_Rcd.pdf.; ement: Improving Spectrum access for wifi—spectrum use in the 5 and 6 GHz bands (24 July 2020) *available at* https://www.ofcom.org.uk/__data/assets/pdf_file/0036/198927/6ghz-statement.pdf ("Ofcom 6 GHz Statement").; The Electronic Communication Committee approved the ECC Decision 20(01) and the CEPT Report 75

Australia, Taiwan and Japan had released public consultations in 2020 to assess the 6 GHz and potentially making it available as license-exempt bands.[6]

2. Conclusion

In sum, the Companies appreciate this opportunity to comment on the PTD's Spectrum Roadmap. We respectfully recommend that PTD initiate a proceeding to make the 6 GHz band available for license-exempt use to expand and enhance affordable connectivity in Myanmar.

Respectfully submitted:

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during its plenary meeting 16-20th November 2020. Available at: https://docdb.cept.org/download/50365191-a99d/ECC%20Decision%20(20)01.pdf and https://docdb.cept.org/download/aefb853d-8780/CEPT%20Report%2075.pdf.

[6] Australia Communications and Media Authority, Draft Five-year spectrum outlook 2020–24 - consultation 09/2020 at https://www.acma.gov.au/consultations/2020-04/draft-five-year-spectrum-outlook-2020-24-consultation-092020
Ministry of Transport and Communications Taiwan, Consultation Paper on Plan to Use 5925-7125 MHz as the Harmonized Band, *available at* https://www.motc.gov.tw/ch/home.jsp?id=15&parentpath=0,2&mcustomize=multimessages_view.jsp&dataserno=202006180001&aplistdn=ou=data,ou=bulletin,ou=chinese,ou=ap_root,o=motc,c=tw&toolsflag=Y&imgfolder=img% 2Fstand.
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