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VIA ONLINE SUBMISSION

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RE: New approaches to spectrum sharing

Facebook is pleased to submit these comments in response to the Australian Communications and Media Authority's (ACMA's) consultation regarding new approaches to spectrum sharing.¹ Facebook commends the ACMA for recognizing that "[s]pectrum sharing is a fundamental component of effective spectrum management and is a key tool in maximising the benefits derived from the use of the spectrum resource."²

Facebook's mission is to give people the power to build community and bring the world closer together. And connecting people is a critical first step in executing this mission. Today, nearly half of the world's population is still not connected to the Internet.³ Among those that have connectivity, many are under-connected. Connecting these people is a complicated effort that requires not just bringing network infrastructure to more people, but establishing a regulatory environment that fosters innovation and encourages investment.

To do its part, Facebook, working with a range of partners, has launched several initiatives focused on connecting the unconnected and under-connected. It will take a mix of technical solutions to bring connectivity to all. As such, Facebook has been investing in research and development efforts in a range of technologies, including mobile, for both licensed and license-exempt operation, satellite, and aerial, such as high altitude platform stations ("HAPS").

Improving connectivity in Australia and around the world means pursuing spectrum policies that maximize the utilization of this limited resource and promote the expansion of both the capacity and coverage of wireless networks. To this end, as the ACMA explores new approaches to spectrum sharing, Facebook encourages the ACMA to pursue the introduction of a

¹ "Spectrum sharing: Overview and new approaches," IFC 25/2019, August 2019, ACMA <https://www.acma.gov.au/theACMA/new-approaches-to-spectrum-sharing-1>. ("Spectrum Sharing Information Paper").

² *Id.* at 1.

³ International Telecommunication Union, Measuring the Information Society Report 2018-Volume 1 at 2 (11 Dec. 2018) at <https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2018/MISR-2018-Vol-1-E.pdf>.

multi-tier spectrum sharing model.⁴ In addition, Facebook recommends that the ACMA consider how spectrum sharing can be integrated with infrastructure sharing through the use of neutral host platforms.

1. Facebook agrees that it is “timely” for the ACMA to develop a more detailed consideration of spectrum sharing opportunities in Australia.⁵

Enabling and promoting the sharing of scarce spectrum resources will be critical to meeting spectrum demand today and in the long-term. While significant technology developments have increased spectrum efficiency to deliver wireless services (*e.g.* LTE for mobile broadband), demand for spectrum has increased due to the use of bandwidth intensive applications like video. Moreover, high-speed delivery of services through the use of 4G and 5G technologies and developments like the Internet of Things (IoT) have led to demand for spectrum across every economic sector, including agriculture, transport, and energy.

While the continued rise in data traffic means both fixed and mobile services rely on access to growing amounts of spectrum to meet demand, it is increasingly difficult to open access to new frequency bands since they are encumbered by the delivery of other public (or commercial) services. Clearing encumbered spectrum not only requires significant new investment, but also requires regulators to relocate existing users to suitable spectrum, which can be a major challenge. Given the growing demand for spectrum, the challenges involved in clearing spectrum, and ongoing technology developments, shared spectrum access can help regulators balance the needs of multiple spectrum users while also keeping spectrum open to innovation by new users.

2. A tiered spectrum sharing model (“TSSM”) would be an effective mechanism for enabling sharing and increasing spectrum use.⁶

Around the world, regulators are introducing policies to encourage spectrum sharing through different approaches, such as, Licensed Shared Access (LSA) and tiered spectrum access, among others. For example, Facebook, alongside other companies across the industry, is working to evaluate and promote the development of the automated frequency coordination mechanism (AFC) that the Federal Communications Commission has proposed to use in the 6 GHz band proposed rulemaking.⁷ Through this work and other efforts such as the Citizens

⁴ See Spectrum Sharing Information Paper at 4, Questions 6-7.

⁵ See *id.* Question 1

⁶ See *id.* Questions 6 and 7.

⁷ See *Unlicensed Use of the 6 GHz Band et al.*, Notice of Proposed Rulemaking, ET Docket No. 18-295, FCC 18-147 (rel. Oct. 24, 2018) at <https://docs.fcc.gov/public/attachments/FCC-18-147A1.pdf>. (“6 GHz NPRM”).

Broadband Radio Service in the United States,⁸ Facebook believes that a tiered spectrum sharing model (“TSSM”) can be a very effective mechanism for enabling important new use cases and increasing spectrum utilization. In TSSM, a regulator can allow new users to access spectrum licensed to incumbent users while incumbent operations are protected from interference. By allowing new users to access spectrum in local areas, such users can fill in network gaps, bring service to areas that are not effectively covered, such as underserved rural areas, and deploy specialized local and private networks. And by allowing these users to access spectrum in specific geographies that would typically be licensed nationally, new users can address local connectivity needs on a smaller scale and in a way that is financially sustainable.

In light of the above, Facebook recommends that to achieve effective and efficient use of spectrum, the ACMA should establish policies that encourage spectrum sharing, such as a TSSM. In addition, the ACMA should facilitate spectrum leasing and encourage trials of spectrum sharing technologies. These policies, taken together, would help to ensure efficient use of spectrum resources as well as improve provision of high-speed broadband services in all areas, including in rural and remote areas.

3. Spectrum sharing can enhance connectivity access and competition as part of infrastructure sharing.

Spectrum sharing can also be used in certain scenarios to enhance connectivity access and competition. For example, a neutral host platform that shares both passive and active resources such as spectrum, Radio Access Network (RAN) edge node (e.g. LTE eNodeB) or a Wi-Fi access point in managed or private spaces (e.g. stadiums, commercial buildings) can have several advantages. Neutral host networks are cost-saving to the hosted operators. In addition, depending on the specific active and passive components shared among hosted clients, neutral host networks can benefit subscribers as well.

Moreover, spectrum sharing can be used to extend rural coverage. To this end, spectrum policies should be sufficiently flexible to allow for spectrum use by multiple parties in high-cost rural areas where infrastructure sharing is not feasible. For example, in a rural area, if a third party infrastructure provider can deploy radio access network (RAN) equipment that can support customers from multiple mobile operators on a single physical network, users from different competing mobile operators would be able to use the same channel in a rural area without the expense of roaming fees or requiring mobile virtual network operator (MVNO) relationships between operators. This can reduce costs for operators and thereby consumers.

⁸ See Federal Communications Commission, “3.5 GHz Band/Citizens Broadband Radio Service” at <https://www.fcc.gov/wireless/bureau-divisions/broadband-division/35-ghz-band/35-ghz-band-citizens-broadband-radio>.



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