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Attention  
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February 11, 2022

**RE: DRAFT RADIO FREQUENCY MIGRATION PLAN AND IMT ROADMAP**

Meta, Inc (formerly known as Facebook, Inc.) is pleased to submit these comments in response to the Independent Communications Authority of South Africa (ICASA) consultation on the Draft Radio Frequency Migration Plan and IMT Roadmap.

As of January 2021, South Africa's internet penetration stood at 64%. That means millions of South Africans, many of whom live in rural areas, still do not have access or use the internet. Among those that have connectivity, many are under connected. It will take a mix of technical solutions to bring high-speed connectivity to all South Africans. To do its part, Meta, working with partners, has invested in a range of connectivity technologies including both mobile technologies and complementary license-exempt technologies. Access to spectrum (both licensed and license-exempt) is an essential part of delivering fast and affordable internet to all South Africans, so it is imperative to put in place a framework that ensures the optimal use of spectrum for 5G and next generation wireless networks. Therefore, Meta encourages ICASA to ensure its current efforts in this consultation do accommodate the growing demand for existing wireless services, the emergence of new technologies and use cases, and international harmonization decisions relevant to spectrum.

Meta suggests that ICASA consider the following general principles as it reviews and updates its draft Radio Frequency Migration Plan and IMT Roadmap:

- *Ensure a timely and abundant supply of spectrum is available.* A timely and abundant release and supply of spectrum in low (sub 1 GHz), medium (1-12 GHz) and high (above 12 GHz) frequency bands will reduce service providers' barriers to entry and increase competition and innovation across a wide range of broadband use cases.
- *A mix of license-exempt, lightly licensed, and licensed spectrum.* License-exempt, lightly licensed, and licensed spectrum allocations are critical to the expansion of wireless

infrastructure. Ensuring sufficient unlicensed spectrum is available drives innovation and investment in a range of technologies that can complement and support networks and expand broadband access at low cost.

- *Promote flexible use.* Spectrum policy should promote flexible use of spectrum and sharing across users and platforms, such as mobile, satellite, and new technologies like AR/VR. It will take a mix of technical solutions to bring connectivity to all.
- *Enhance both the capacity and coverage of networks.* Promote policies that not only enhance network capacity but also expand their coverage to underserved areas and populations.

Given these principles, Meta offers the following specific comments on the 6 GHz band.

### 1) 6 GHz band

Opening the full 1200 MHz of spectrum in the 6 GHz band for license-exempt use is an important opportunity for South Africa as part of its overall strategy to support high-speed broadband connectivity through 5G and next generation wireless networks.

License-exempt spectrum is a key enabler of 5G and next generation broadband. Today, roughly half of global mobile data is offloaded onto Wi-Fi, and by 2022, nearly 60 percent of global mobile data traffic is projected to be offloaded onto the fixed network through Wi-Fi or femtocells.<sup>1</sup> And, as mobile and Wi-Fi technologies evolve and continue to be integrated to meet wireless and mobile communications needs, demand for license-exempt spectrum will continue to grow. 5G networks will be critical for mobile connectivity, and Wi-Fi will be critical for connecting to broadband at home and work (in-building environments) due to quality of service and lower cost.

Moreover, augmented reality/virtual reality or AR/VR is a key next generation application that relies on licensed exempt spectrum — both for indoor use cases and as a link between wearables (such as AR glasses) and a smartphone. These use cases will drive further demand for both 5G services and Wi-Fi. Access to license-exempt spectrum will be critically important to future innovations and enhancements of internet apps and other products with more interactive content, retina resolution videos, AR/VR and remote presence.

Despite the increasing reliance on license-exempt technology such as Wi-Fi, and the enormous growth in traffic demands being placed on the technology globally, the spectrum allocated to Wi-Fi use remains as it was 12-15 years ago. Today, newer Wi-Fi technology uses much wider channelization to meet the far more intensive broadband needs of consumers and businesses alike. For example, the latest generation of Wi-Fi technology, Wi-Fi 6, can utilize radio channels

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<sup>1</sup> Cisco, Virtual Networking Index: Global Mobile Data Traffic Update (2017-2022): White Paper, (Feb. 2019) at [https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.html#\\_Toc953332](https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-738429.html#_Toc953332).

as broad as 80 or 160 megahertz, and a future generation of Wi-Fi technology that is already in development will utilize channels of 320 megahertz.<sup>2</sup>

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, which are required for high-bandwidth applications, such as high-definition video streaming and lower latency applications like AR/VR.

Global momentum is building behind making the 6 GHz band license-exempt as regulators see the benefit of allowing license-exempt devices to access the band at low power levels and on a non-interference basis immediately, rather than deal with the delay and cost of relocating incumbents. The United States Federal Communications Commission (FCC) determined in April 2020 to make the full 1200 MHz of the 6 GHz band license-exempt for indoor use and is exploring making it available for VLP portable use.<sup>3</sup> In Korea, the Ministry of Science and ICT has made the full 6 GHz band (5925-7125 MHz) license-exempt for use by LPI devices and the lower half of the band for use by portable VLP devices.<sup>4</sup> And Ofcom in the United Kingdom recently approved both LPI use and VLP portable use of the lower 6 GHz band (5925-6425 MHz) as an initial matter and will continue to review use of 6425-7125 MHz in the future.<sup>5</sup> In Europe, the Electronic Communication Committee approved a decision that allows both LPI and VLP in the lower 500 MHz of the band.<sup>6</sup> Europe has not yet reached a decision on the upper 700 MHz of the band. And notably, in the past year, Brazil, Saudi Arabia, Peru, Costa Rica, and Canada opened the entire 5925-7125 MHz band to license-exempt use. At this time, countries in all three ITU regions have embraced license-exempt use of the full 6 GHz band, with additional decisions expected this year.

Opening up the 6 GHz band for license-exempt use will have tremendous benefits for the economy and connectivity in South Africa. The Wi-Fi Alliance projects the total global economic value of Wi-Fi in 2023 will be nearly US \$3.5 trillion.<sup>7</sup> By acting quickly, South Africa will be able to take advantage of new technologies right away. Wi-Fi standards for the 6 GHz band are in place and ready for use when the spectrum is made available. Wi-Fi 6E is a term that will be used to distinguish devices that will offer the features and capabilities of Wi-Fi 6 – including

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<sup>2</sup> “Wi-Fi 6 Certified, Capacity, efficiency, and performance for advanced connectivity,” Wi-Fi Alliance, <https://www.wi-fi.org/discover-wi-fi/wi-fi-certified-6>. There are a number of technological improvements contained in Wi-Fi 6 that make this generation of technology the most spectrally efficient version of Wi-Fi in history, including multi-user MIMO, beamforming, and “target wake time” to improve network efficiency and device battery life. When deployed in 6 GHz, Wi-Fi 6 will be called Wi-Fi 6E.

<sup>3</sup> [https://ecfsapi.fcc.gov/file/0424167164769/FCC-20-51A1\\_Rcd.pdf](https://ecfsapi.fcc.gov/file/0424167164769/FCC-20-51A1_Rcd.pdf).

<sup>4</sup> 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?catelId=\\_policycom2&artId=3140715](https://www.msit.go.kr/web/msipContents/contentsView.do?catelId=_policycom2&artId=3140715))

<sup>5</sup> Statement: 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](https://www.ofcom.org.uk/_data/assets/pdf_file/0036/198927/6ghz-statement.pdf) (“Ofcom 6 GHz Statement”).

<sup>6</sup> The Electronic Communication Committee approved the [ECC Decision 20\(01\)](#) and the [CEPT Report 75](#) during its plenary meeting 16-20<sup>th</sup> November 2020.

<sup>7</sup> “What is the value of Wi-Fi?” Wi-Fi Alliance, at <https://www.wi-fi.org/value-of-wi-fi>.

higher performance, lower latency, and faster data rates – extended into the 6 GHz band as it becomes available.<sup>8</sup> Because the United States has made 1200 megahertz of spectrum available, manufacturers were expected to bring some Wi-Fi 6E consumer devices to the US market as early as the 2020 holiday season. The Wi-Fi Alliance projected that 300 million “6E” chipsets will be shipped by 2021.

Opening the full band for license-exempt use would allow it to be put to use immediately for popular high-speed connectivity/5G use cases, such as HD video streaming, Wi-Fi calling, smart home devices, hotspot access, automation of city-wide services, AR/VR, health monitoring devices, wearables, and seamless roaming. Licensing the upper 700 MHz of the band would require ICASA to navigate the delay and complexity of relocating incumbents.

While 5G delivers connectivity to the smartphones outside of homes, Wi-Fi 6E will provide the Personal Area Network (PAN) to deliver the 5G services to smart devices such as AR/VR glasses. Furthermore, while 5G can deliver Fixed Wireless Access to a window or rooftop antenna, 5G services will rely on Wi-Fi 6E to be delivered within buildings. Wi-Fi is the true last link enabling citizens to access broadband services, regardless of the access network (Fiber, xDSL, Mobile, Satellite) bringing connectivity to a specific geographical zone. Wi-Fi 6E is allowing consumers to access 5G and broadband services.

## **Recommendation**

Meta recommends ICASA to open the lower 6GHz band (5925-6425 MHz) immediately to allow South Africans to access broadband services and 5G services within buildings through Wi-Fi 6E. Allowing Wi-Fi 6E immediately in the lower 6GHz band (5945-6425 MHz) as a start would not only support the delivery of 5G services within buildings in South Africa, but would enable South Africans to immediately start leveraging emerging 5G and AR/VR applications.

In the long term, Meta strongly believes that the full 6GHz band (5925-7125 MHz) should be open to Wi-Fi to avoid congestion in the lower 6GHz band. Meta encourages ICASA to investigate the economic and societal benefits of each option in the band, not limiting itself to IMT but also studying the benefits of license-exempt technologies in the band. This would place ICASA in the best position to determine its national position ahead of WRC-23.

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<sup>8</sup> Wi-Fi Alliance brings Wi-Fi 6 into 6 GHz: Wi-Fi 6E will rapidly deliver benefits in 6 GHz once available,” <https://www.wi-fi.org/news-events/newsroom/wi-fi-alliance-brings-wi-fi-6-into-6-ghz>. Wi-Fi CERTIFIED 6™, or Wi-Fi 6 is the industry certification program based on the IEEE 802.11ax standard, which provides higher data rates, increased capacity, performance in environments with many connected devices, and improved power efficiency. IEEE 802.11 ax IEEE Draft Standard for Information Technology-Telecommunications and Information Exchange Between Systems Local and Metropolitan Area Networks at [https://standards.ieee.org/project/802\\_11ax.html](https://standards.ieee.org/project/802_11ax.html).

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Meta is grateful for the opportunity to provide these comments, and welcomes the opportunity to provide additional comments in the future in response to further consultation on this issue or any other related issues, as well as future opportunities to engage with ICASA on these important issues.

Respectfully submitted by:

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