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April 16, 2020

Doug Kinkoph
Acting Administrator
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Re: NTIA Technical Report 20-546 (January 2020)

Mr. Kinkoph:

5G Americas, the voice for 5G and LTE in the Americas, thanks you and your team for your commitment to the evaluation required by the Mobile Now Act of 2018 of 3100 – 3550 MHz (the “Lower 3 GHz Band”) for commercial use.¹ 5G Americas facilitates and advocates for the advancement and transformation of LTE, 5G and beyond throughout the Americas.² We do so as a Market Representative Partner of the Third Generation Project Partnership (3GPP), a consortium of standards-setting bodies from around the world.³ We appreciate the difficulty of the evaluation, tasked of you by Congress over two years ago, given the important federal systems in the band. Your Technical Report on the upper 100 MHz in 3450 – 3550 MHz in January of this year is a good start, but given the need for more mid-band spectrum for 5G, particularly in the globally harmonized range of 3.3 – 4.2 GHz identified by 3GPP, it is imperative that NTIA concludes its evaluation of the entire Lower 3 GHz Band in the immediate term so that industry can begin to analyze the study and repurposing the band commence. 5G Americas, which prepares white papers on the technical aspects of 3GPP technologies to educate policymakers and analysts, offers its assistance in analyzing the complete evaluation.

¹ See Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, Division P, The Repack Airwaves Yielding Better Access for Users of Modern Services (RAY BAUM’S) Act, Title VI, The Making Opportunities for Broadband Investment and Limiting Excessive and Needless Obstacles to Wireless Act or MOBILE NOW Act, § 603(a)(1) (“MOBILE NOW”).

² 5G Americas Board of Governors includes AT&T, Cable & Wireless, Ciena, Cisco, CommScope, Crown Castle, Ericsson, Intel, Mavenir, Nokia, Qualcomm, Samsung, Shaw, T-Mobile USA, Telefónica and WOM.

³ 3GPP unites seven telecommunications standard development organizations (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC), known as “Organizational Partners” and provides their members with a stable environment to produce the reports and specifications that define 3GPP technologies.



The 100 MHz considered in NTIA’s above-captioned feasibility report is not a sufficient amount of spectrum to enable the U.S. to lead on 5G. As 5G Americas recently commented to the Federal Communications Commission (“FCC”), the operational constraints on the Citizens Broadband Radio Service (“CBRS”) in the 3.5 GHz band, including the maximum 40 MHz that any single licensee may hold in a county, is not ideal for 5G, which has been standardized by 3GPP for 100 MHz channels.⁴ That is why key competitors around the world have assigned 100 MHz nationwide to each operator in the globally harmonized range of 3.3 – 4.2 GHz.⁵ Indeed, as Chairman Pai recently stated in the context of the FCC’s obligations under Mobile Now, channels as wide as 100 MHz and larger “could dramatically expand the range of services available to consumers and enable innovators to think big as they develop the applications of the future.”⁶ And yet, the 150 MHz of CBRS spectrum – only 40 MHz of which can be held by a single licensee in a service area – is today the only spectrum in the global 5G range allocated in the U.S. for licensed commercial use. While this spectrum is part of the harmonized 5G band, the sharing requirements and extremely low power levels severely limit its utility for wide-area mobile use, compared to full power deployments permitted around the world. The FCC has announced plans to auction 280 MHz of C-Band spectrum currently held by satellite operators later this year, however that auction – which has been opposed by some members of the satellite industry – could take years to successfully conclude and result in spectrum assigned and ready to be deployed for 5G. Hence, as Commissioner O’Rielly recently suggested to the President, it is critical for NTIA to complete its study of the entire Lower 3 GHz Band, in order to provide a critical mass of mid-band spectrum for licensed commercial use, which by some estimates is 350 MHz in addition to C-Band and CBRS.⁷

A recent study by Analysys Mason found that in leading countries around the globe, an average close to 400 MHz of mid-band spectrum is being allocated for 5G by the year 2020.⁸ In some countries, such as China, the entire 3.3 – 4.2 GHz range is being planned for 5G.⁹ For the U.S to be competitive, more than just the upper 100 MHz of 3.4 – 3.5 GHz must be cleared for commercial use. Consistent with the President’s *Sustainable Spectrum Strategy* Memorandum, NTIA should not limit its review to sharing the 3.1 – 3.55 GHz band, but should evaluate relocation of federal systems. To 5G Americas, it is necessary that federal systems be relocated out of all or at least a significant portion of the Lower 3 GHz Band, and have it repurposed for

⁴ Comments of 5G Americas at 8, WT Docket No. 19-348 (filed Feb. 21, 2020).

⁵ E.g., China; So. Korea. See Analysys Mason, *Global Race to 5G Update*, Final Report for CTIA, at 25-26 (April 2019) (showing that China has awarded 300 MHz of mid-band spectrum to 5G, 100 MHz to each of its three national operators, and South Korea has awarded 280 MHz of mid-band spectrum to 5G) (“Global Race to 5G Update”), <https://ecfsapi.fcc.gov/file/1040331077123/Analysys%20Mason%20-%20Global%20Race%20to%205G%20Update.pdf>.

⁶ See Letter from Ajit V. Pai, Chairman, FCC to Senators Fischer, Moran, and Thune (Mar. 6, 2020).

⁷ Letter from Michael O’Rielly, Commissioner, FCC to President Trump (Apr. 8, 2020).

⁸ See Analysys Mason, *5G Mid-Band Spectrum Global Update*, Final Report for CTIA (March 2020), <https://api.ctia.org/wp-content/uploads/2020/03/5G-mid-band-spectrum-global-update-march-2020.pdf>.

⁹ See Global Race to 5G Update at 31 (“Reports also indicate that China is likely to assign the 3.6 – 4.2 GHz range to 5G use in the future . . .”).



commercial broadband use. In sub-portions of the band where relocation is not feasible, and sharing therefore required between commercial and federal systems, technical rules must be agreed that support 5G services, both with respect to channelization and power limits. Moreover, a new sharing regime must be agreed and effectuated more expeditiously than in the past, if the U.S. is to lead in 5G. The traditional 10-year cycle of repurposing and clearing will no longer suffice. After only one year of 5G deployment, it is clear that customers are making 5G the fastest growing generation of cellular wireless technology. There are now over 17.7 million 5G connections globally as of the fourth quarter 2019, which represents 329% growth over the third quarter 2019. The number of 5G connections is five million subscribers *ahead* of previous projections, which includes over 60 million 5G connections by year end.¹⁰ The industry will need more licensed mid-band spectrum, and in a timely manner, if the U.S. is to lead in 5G.

In order to ensure this leadership, 5G Americas offers these recommendations to NTIA:

- Release the technical feasibility report on 3100 – 3450 MHz as soon as possible, and no later than the end of the month.
- Establish a subcommittee of the Committee on Spectrum Management Advisory Council (CSMAC) to focus exclusively on facilitating commercial access to the Lower 3 GHz Band with a goal of developing recommendations by the end of 2020, for action in 2021.
- As was done with AWS-3, credential spectrum engineering experts from a number of operators and vendors through Non-Disclosure Agreements to allow them to dialogue with the spectrum managers at the Department of Defense (“DOD”), its service branches, and other user agencies.
- Identify officials at NTIA and DOD to begin biweekly meetings with the FCC and industry on evaluating the Lower 3 GHz for commercial access. Once company representatives have been credentialed, meetings should increase to weekly, conducted by video conferencing as necessary during the COVID response.
- Move forward with planning to relocate the airborne systems in the Lower 3 GHz Band, both the AWACS and station-keeping systems, because these systems are incompatible with commercial licensed systems in the band.
- Issue a statement committing to licensed commercial use in the Lower 3 GHz Band where feasible.

The FCC will commence its auction of the adjacent CBRS spectrum on July 23, 2020. As you know, the CBRS framework includes an Environmental Sensing Capability (“ESC”) to protect Navy and other government radar. The approved Spectrum Access Systems (SAS) have been assigning frequencies in conjunction with the ESCs since last fall in initial commercial deployment and in full commercial deployment since late January. By the time the Priority Access Licenses are awarded, the SAS assign them frequencies, and they begin to provide commercial service, there will be almost a year of real-world data to assess.

¹⁰ See Daniel Gleeson, *2020 Will Be the Year of 5G For All*, Omdia (Jan. 10, 2020), <https://www.omdia.com/resources/product-content/2020-will-be-the-year-of-5g-for-all>.



NTIA was instrumental in making CBRS possible, including through engagement in the interagency Joint Working Group that met regularly throughout the process. To the extent some portions of the 3100 – 3550 MHz need to be shared between commercial and federal systems, NTIA should ensure that established collaborative processes such as the Joint Working Group are leveraged for the Lower 3 GHz Band, to expedite the development of recommendations for protection zones around radar installations, to maximize the area over which commercial systems can operate without causing harmful interference to federal incumbents. With the involvement of credentialed representatives from the private sector meeting with NTIA, FCC, DOD and other stakeholders weekly as recommended above, NTIA should attempt to develop a sharing plan for the Lower 3 GHz Band with right-sized protection zones by year end, as suggested above.

NTIA should also work with DOD to accumulate data from DOD’s spectrum sharing projects under the National Spectrum Consortium’s proposed operations of 5G systems across 3.1 – 4.2 GHz,¹¹ to extract any additional lessons learned on how to maximize access for licensed commercial users in the Lower 3 GHz Band while continuing to meet the needs of federal users.

As many policymakers have noted, high-speed broadband is critical to weathering the current COVID crisis, and America’s reliance on broadband is only growing. In light of the challenges ahead in recovering economically, America will need the efficiencies and innovation 5G brings all the more across the range of industrial, government and personal applications 5G makes possible. Time is of the essence. In order to ensure America’s leadership and self-reliance with respect to 5G, the U.S. needs to accelerate the timing and maximize spectrum availability in the band globally identified for 5G.

Best regards,

A handwritten signature in black ink that reads "Chris Pearson".

Chris Pearson
President, 5G Americas

¹¹ See, e.g., <https://www.nationalspectrumconsortium.org/about-us-2/>