

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Facilitating Shared Use in the 3.1 – 3.55 GHz
Band

WT Docket No. 19-348

REPLY COMMENTS OF 5G AMERICAS

5G Americas, the voice for 5G and LTE in the Americas, submits these reply comments in the Commission’s Further Notice of Proposed Rulemaking (“*Further Notice*”) in the above-referenced proceeding on facilitating shared use of the 3.1 – 3.55 GHz band. 5G Americas advocates for the advancement and transformation of LTE, 5G and beyond throughout the Americas through broad membership of leading wireless operators and vendors of 5G core and radio access network equipment and products.¹ With a growing number of countries around the world making broad swaths of spectrum available in the globally-harmonized 5G range of 3.3 – 4.2 GHz range, a commercial ecosystem is already forming for 3.3 – 3.55 GHz.² Licensed spectrum at 3.3 – 3.55 GHz, awarded for exclusive use in Partial Economic Areas (PEAs) through competitive bidding and subject to Part 27 rules like those adopted for 3.7 – 3.98 GHz, is necessary to ensure the U.S. leads in 5G.

¹ 5G Americas Board of Governors include AT&T, Cable & Wireless Communications, Ciena, Cisco, CommScope, Crown Castle, Ericsson, Intel, Mavenir, Nokia, Qualcomm, Samsung, Shaw, T-Mobile USA, VMware, WOM, and Telefónica.

² Comments of CommScope, Inc. at 4, WT Docket No. 19-348 (filed November 20, 2020) (“CommScope Comments”).

1. INTRODUCTION

5G Americas submits these reply comments primarily to underscore the broad support on the record for making 3.45 – 3.55 GHz available for full commercial power flexible use through competitive bidding for exclusive PEAs governed by operating and technical rules akin to those applicable to the 3.7 – 3.98 GHz band.³ Moreover, many commenters urge the Commission and its fellow agencies to quickly conclude the review of making the 3.3 – 3.45 GHz band available for commercial use.⁴ 5G Americas supports calls for the Commission expeditiously adopting a second Report and Order on 3.45 – 3.55 GHz, then quickly turning its focus to completing a decision on 3.3 – 3.45 GHz.⁵ Auctions for 3.45 – 3.55 GHz should be held next year.⁶ Ideally, spectrum below 3.45 GHz would be available within a year or two at the maximum.⁷ As the Commission is aware, the international Third Generation Partnership Project (3GPP), of which 5G Americas is a market representative partner, has identified 3.3 – 4.2 GHz as the leading global 5G band. There is a growing list of countries that have auctioned, plan to do so soon, or otherwise have made spectrum available in that range, also known as band 77.⁸ More and more countries are making portions of 3.3 – 4.2 GHz available for 5G services, confirming that it is the

³ See, e.g., Comments of AT&T Services, Inc. at 3-5, WT Docket No. 19-348 (filed November 20, 2020) (“AT&T Comments”); Comments of T-Mobile USA, Inc. at 23, WT Docket No. 19-348 (filed November 20, 2020) (“T-Mobile Comments”).

⁴ T-Mobile Comments at 4-5; Comments of Qualcomm Incorporated at 2, WT Docket No. 19-348 (filed November 29, 2020) (“Qualcomm Comments”); Comments of Nokia at 2, WT Docket No. 19-348 (filed November 20, 2020); Comments of Ericsson at 17-18, WT Docket No. 19-348 (filed November 20, 2020); CommScope Comments at 14-15.

⁵ See e.g., AT&T Comments at 2-3, 10.

⁶ See, e.g., Ericsson Comments at 19.

⁷ Qualcomm Comments at 2.

⁸ *Delivering the 5G Future in Latin America*, 36 Meeting of CITEL PCC.II, GSA Spectrum Group at 10-11 (2020) (“GSA Presentation”) noting that seven countries in our region have made or are planning to assign the 3.3 GHz band for 5G and two more have consultations on 3.3 GHz, as well as almost twenty countries in the Middle East and four, including China, in Asia.

globally-harmonized band for 5G.⁹ China is among those countries making 3.3 – 3.45 GHz available for 5G, as well as many of the countries in the Americas.¹⁰

The Commission, the National Telecommunications and Information Administration (“NTIA”) and other federal stakeholders should adopt a holistic view on band 77, with the goal of making as much of 3.3 – 4.2 GHz available as possible on an exclusively licensed basis for flexible use under Part 27 rules, akin to those recently adopted for 3.7 – 3.98 GHz.¹¹ While 5G Americas believes that ideally the full range of 3.1 – 3.55 GHz could be made available for full-power commercial operations, to the extent federal systems cannot relocate entirely out of the 3.1 – 3.55 GHz band, it supports suggestions that remaining federal operations consolidate within 3.1 – 3.3 GHz,¹² which is a globally harmonized band for radar.¹³

5G Americas also files these reply comments to highlight helpful guidance on the record regarding the need to clearly define and accurately develop Coordinated Planning Areas (“CPAs”) and Periodic Use Areas (“PUAs”), as well as the technical and economic benefits of applying rules akin to those adopted for 3.7 GHz – 3.98 GHz to below 3.55 GHz.

⁹ As discussed in 5G Americas’ comments, the United Nations’ International Telecommunication Union (“ITU”) has long identified 3.4 – 3.6 GHz for International Mobile Telecommunication (“IMT”), and at the recently concluded World Radiocommunication Conference, the ITU agreed to study both the 3.3 – 3.4 GHz and the 3.6 – 3.8 GHz band regionally for IMT. Also at this past WRC, nine countries joined footnotes allocating 3.3 – 3.4 GHz for mobile or additionally identifying it for IMT, for a total of seventy-six country members of such footnotes at the end of WRC, even in advance of studies to identify the band for IMT at WRC-23. *See* Comments of 5G Americas at 2, n.3, WT Docket No. 19-348 (filed November 20, 2020) (“5G Americas Comments”).

¹⁰ GSA Presentation at 10.

¹¹ *See, e.g.*, Ericsson Comments at 17-18; *see also* 5G Americas at 2, 15.

¹² *See* T-Mobile Comments at 4, 7 n.18.

¹³ ITU-R Table of Allocations, Art. 5, Radio Regulations.

2. COORDINATION BETWEEN COMMERCIAL AND REMAINING FEDERAL INCUMBENTS

Several commenters commend the Executive branch’s America’s Mid-Band Initiative Team (“AMBIT”) study and urge that the Commission adopt processes that mirror its recommendations.¹⁴ 5G Americas supports proposals to make the AMBIT study publicly available,¹⁵ redacting only text strictly necessary for national security purposes. With an unclassified public AMBIT study available, industry will be able to directly collaborate with the Department of Defense (“DoD”) to evaluate the study’s findings and underlying assumptions so that proposed coordination and protection requirements can be tested and developed with the most realistic data available.¹⁶ A public, unclassified version of the AMBIT study will allow better definition of CPAs and Periodic Use Areas during National Emergencies.¹⁷ 5G Americas noted in its comments that to date, CPAs and PUAs have not been clearly defined and proposed that the CPAs and PUAs should be developed only after industry input, prior to auctions for the 3.45 – 3.55 GHz band. 5G Americas takes this opportunity to underscore that by “industry”, it proposes that workshop discussions include 5G vendors as well, and not just wireless carriers.¹⁸ 5G Americas agrees with commenters that as part of industry-DoD collaboration, the inclusion of various Aerospace and Defense contractor test sites must be clarified as well as any differences between the CPAs and PUAs and the Exclusion Zones identified in NTIA’s technical feasibility study and other reports and letters.¹⁹ 5G Americas

¹⁴ T-Mobile Comments at 1.

¹⁵ See CommScope Comments at 3, 5.

¹⁶ See *id.* at 6; see also T-Mobile Comments at 13-14.

¹⁷ *Facilitating Shared Use in the 3100 – 3550 MHz Band*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd. 11,078, ¶ 45 (Oct. 2, 2020) (“*Further Notice*”).

¹⁸ See *Further Notice* at ¶ 46; see also Ericsson Comments at 7; CommScope Comments at 8.

¹⁹ See, e.g., CommScope Comments at 6-7.

recommends that any Part 5 experimental licensees working with DoD participate in the planned 3.45 GHz workshops so potential flexible use licensees and their vendors understand if experimental operations within any CPAs can be accommodated. 5G Americas objects to protecting Part 5 experimental licensees outside of defined CPAs or PUAs post auction of the lower 3 GHz band.

5G Americas urges that the Commission seek clarity on these discrepancies, and specifically obtain definitions of the geographic and temporal boundaries of the CPAs and PUAs. To maximize commercial access, as well as auction proceeds, it is critical that the “limited circumstance and locations” in which commercial users will not be protected against federal harmful interference be minimized, to maximize use of the band for 5G, and therefore be precisely defined, identified in advance to the extent practicable, and clearly communicated to all prospective licensees.²⁰

5G Americas also noted in its comments that the industry needs periodic use, natural disaster or other national emergencies well defined, both with respect to cause, notification, actions, authority, and steps to return to status quo operation.²¹ 5G Americas adds here that since NTIA cites Section 606(c) of the Communications Act on the President’s national emergency powers, that the Commission should consider whether band-specific rules are required at all.²² If DoD seeks authority that is narrower than already provided under Section 606(c), then any Commission rules relative to 3.45 GHz should address only those national emergencies where DoD needs access to additional spectrum.²³ Many national emergencies – COVID-19 for one –

²⁰ AT&T Comments at 7.

²¹ 5G Americas Comments at 14.

²² See T-Mobile Comments at 15-16; *see also* AT&T Comments at 10; Ericsson Comments at 10.

²³ T-Mobile Comments at 16.

result in enhanced need by commercial operators for spectrum to meet spikes in demand, but not necessarily increased spectrum needs by DoD.²⁴ Commercial operators’ loss of spectrum during a national emergency can negatively impact Americans consumers in times of crisis.²⁵ To limit this problem, the coordination framework for 3.45 – 3.55 GHz should identify what enhanced federal spectrum need would qualify as a national emergency; consider the impact on consumers and businesses from the loss of carrier access to non-federal spectrum; what entities have delegated authority to declare national emergencies; and what frequencies commercial operators must surrender during a national emergency.²⁶

As noted above, 5G Americas welcomes the Commission adopting a process for sharing sensitive and classified information between commercial and federal operators, based on procedures used in AWS-3, relative to the formation of CPAs and PUAs.²⁷ 5G Americas supports calls for the industry and agencies together clearly and narrowly defining each of these federal areas, so that commercial licensees will experience minimal unexpected disruption in accessing the band.²⁸ Promoting transparency and information sharing between federal incumbents and commercial licensees will be critical to the long-term success of the band.²⁹

With respect to commercial licensees being notified of temporary inaccessibility of 3.45 – 3.55 GHz through an Incumbent Informing Capability (“IIC”), 5G Americas cautions that the

²⁴ *Id.* at 16-17; *see also* Ericsson Comments at 10.

²⁵ Ericsson Comments at 10.

²⁶ *See id.*; *see also* T-Mobile Comments at 17.

²⁷ *See* AT&T Comments at 8 (commending the process for clearing “Trusted Agents” for AWS-3 deliberations); *see also Further Notice* at ¶ 46.

²⁸ *See, e.g.*, AT&T Comments at 7-8.

²⁹ *Id.* at 8; *see also* 5G Americas Comments at 12.

development of an IIC must not delay access to 3.45 – 3.55 GHz, given that PUAs are small relative to the overall population.³⁰

3. TECHNICAL ISSUES RELATED TO LICENSING REGIME

The Commission proposes to align technical rules for flexible use in 3.45 – 3.55 GHz with those recently adopted for 3.7 – 3.98 GHz.³¹ 5G Americas reiterates its agreement with this proposal, as many commenters did. Likewise, many commenters shared 5G Americas’ desire to see similar full-power commercial rules adopted for below 3.45 GHz as well, through exclusive PEA licenses.³² Smaller geographic areas like the counties licensed for Citizen Broadband Radio Services (CBRS) require more interference protection that restrict licensees’ ability to maximize use of its assigned spectrum.³³ Moreover, integrating county-wide licenses into an operator’s network that consists of PEA licenses creates complexity and adds costs to network design, build-out and management.³⁴ The complexity and cost of having a unique framework in the middle of the global 5G band are already challenging enough, without additionally requiring a guard band below the CBRS band. 5G Americas opposes such a requirement, as others have.³⁵ Since the Commission did not impose a guard band in 3.7 – 3.98 GHz above CBRS, it likewise should not do so below CBRS.

³⁰ Ericsson Comments at 10; *see also* AT&T Comments at 9 (advocating that the Commission should ensure that PUAs and CPAs are small, static quiet zones where licensees coordinate with federal incumbents as needed).

³¹ *Further Notice* at ¶ 72.

³² *See, e.g.*, T-Mobile Comments at 25.

³³ *Id.* at 25-26.

³⁴ *Id.* at 26.

³⁵ *Id.* at 22; Qualcomm Comments at 3.

Creating additional unique sharing arrangements in the U.S. within band 77 will limit our providers' and vendors' ability to compete in the global ecosystem already developing, to the detriment of U.S. commercial *and* federal users. Specialized technical parameters and sharing arrangements adopted for CBRS have not been adopted internationally, and should not be imposed on the critical range of 3.3 – 3.55 GHz.³⁶

As for full power operations within 3.3 – 3.45 GHz, 5G Americas supports efforts to make spectrum commercially available as close to 3.3 GHz as feasible, to free up as much as a full 150 MHz, as possible under similar conditions to rules adopted for 3.7-3.98 GHz. If that is not possible spectrum below 3.45 GHz should be made available through spectrum sharing, local licensing, or other tools, rather than forego the entire 3.3 – 3.45 range.³⁷ Spectrum in an amount close to 150 MHz would allow another 100 MHz channel in 3.3 – 3.45 GHz along with a guard band to protect federal radar below 3.3 GHz, thereby enabling the channelization required to meet the 1 Gigabit capacity envisioned by 5G standards.³⁸ Allocation of 3.45 – 3.55 GHz with similar service and licensing rules as 3.7 – 3.98 GHz would provide four (4) contiguous blocks of 5G-optimized spectrum in the U.S.³⁹

The Commission invites comment on the ability of 5G New Radio (“NR”) to operate in the presence of pulsed radar and to engage in cooperative sharing.⁴⁰ 5G Americas noted in its comments that 5G NR beamforming can minimize interference and carrier aggregation can facilitate cooperative sharing by minimizing the impact of a commercial licensee losing access to

³⁶ *See e.g.*, Ericsson Comments at 6.

³⁷ Nokia Comments at 6-7.

³⁸ Ericsson Comments at 4; *see also* CommScope Comments at 4.

³⁹ CommScope Comments at 4.

⁴⁰ *Further Notice* at ¶ 50.

spectrum during DoD’s periodic need, assuming a primary carrier is available. We now add to the list the 5G NR function of network slicing, which will support co-existence with federal systems, particularly during National Emergencies. Network slicing enables the creation of separate logical networks, with each slice having its own architecture, engineering mechanism, security requirements, and network provisioning.⁴¹ To the extent DoD itself needs 5G during an national emergency, commercial service providers could provide individual network slices tailored to meet specific DoD use case requirements.⁴²

Of course, co-existence of federal systems and commercial operators will be facilitated by the relocation of as many federal system from the 3.45 GHz band as possible, particularly airborne radar.⁴³ Fortunately, NTIA’s September 2020 Letter reports that the U.S. Air Force plans to replace its Station Keeping Equipment system, which enhances flight safety and facilitates the formation flight of cargo, “with one developed to operate in another band in order to improve 5G spectrum availability.”⁴⁴ Similar considerations as those that guided the Commission’s decision to relocate amateur and non-federal radar operations out of the 3.3 – 3.55 GHz band should guide the government on decisions relating to relocation of federal systems out of the band.⁴⁵ To maximize commercial access to the lower 3 GHz band, 5G Americas joins other commenters in urging the Commission and its federal partners to continue to review the

⁴¹ Ericsson Comments at 11.

⁴² *See id.*

⁴³ *See* Nokia Comments at 5; T-Mobile Comments at 7; CommScope Comments at 14.

⁴⁴ Letter from Charles Cooper, Associate Administrator, NTIA, to Ronald T. Repasi, Acting Chief, Office of Engineering and Technology, FCC, and Donald K. Stockdale, Jr., Chief, Wireless Telecommunications Bureau, FCC, WT Docket No. 19-348 (filed Sept. 8, 2020).

⁴⁵ Ericsson Comments at 18.

possibility of allowing commercial access in States and regions beyond the continental United States, such as Alaska, Hawaii and the Gulf of Mexico.⁴⁶

4. CONCLUSION

5G Americas thanks the Commission for moving on the 3.3 – 3.55 GHz band this year, and for its recognition that the band, as well as the entire range up to 4.2 GHz, is being harmonized globally for 5G. As the Commission is aware, if the U.S. wants to lead in 5G, then we need more licensed mid-band spectrum in amounts and with parameters comparable to that licensed by and supplied by our global competitors. Movement on the broader 3.3 – 3.55 GHz band would help to gather a critical mass of internationally-harmonized licensed mid-band spectrum here in the U.S., to benefit our users through economies of scale in network infrastructure, devices, chipsets, and middleware and the innovation that such economies deliver. While other nations are making 100 Megahertz-wide channels available today to support a variety of 5G use cases, there is no large swath of mid-band spectrum available for licensed macro 5G service in the United States today.⁴⁷ The industry needs in the near-term more licensed mid-band spectrum, available for full power commercial operations through aggregated bandwidths aligned with 3GPP standards to compete and win globally.

Finally, to maximize commercial access in 3.45 – 3.55 GHz and ultimately 3.3 – 3.55 GHz, 5G Americas supports direct collaboration between the mobile industry and DoD, facilitated by the Commission, prior to any auctions, subject to the guiding principle that coordination should

⁴⁶ See, e.g., T-Mobile Comments at 26.

⁴⁷ Ericsson Comments at 17.

prioritize commercial operator flexibility.⁴⁸ The coordination framework ultimately adopted for CPAs and PUAs must be clear, transparent and predictable, if the U.S. is to lead in 5G.⁴⁹

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December 7, 2020

⁴⁸ See AT&T Comments at 8.

⁴⁹ *Id.* at 9; see also T-Mobile Comments at 14-15.