DEPARTMENT OF COMMERCE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

Implementation of the National Spectrum Strategy	)	NTIA Docket No. 230308-0068
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COMMENTS OF CHARTER COMMUNICATIONS, INC.

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TABLE OF CONTENTS

I. INTRODUCTION

Charter Communications, Inc. ("Charter") commends NTIA's release of the National Spectrum Strategy[1] and welcomes the opportunity to provide comment on the Implementation Plan needed for the United States to meet the growing connectivity needs of American consumers, enterprises, and government agencies.[2] Promoting shared-spectrum models—especially a shared-licensed framework in the 3.1-3.45 GHz ("3.1 GHz") band, an unlicensed access model in the 7.125-8.4 GHz ("7 GHz") band, and a simple shared-licensed framework in the 37-37.6 GHz ("Lower 37 GHz") band—promises to ensure an ongoing supply of spectrum to meet the constantly growing connectivity needs of American consumers, government agencies, schools, manufacturers, farmers, healthcare providers, and financial institutions. Meeting these connectivity needs is vital to maintaining our country's leadership globally and to advancing national security, economic growth, innovation, and competition.

II. SHARED-LICENSED AND UNLICENSED FRAMEWORKS PROMOTE INNOVATION AND COMPETITION.

Wireless connectivity is essential to maintaining leadership over U.S. economic rivals and geopolitical adversaries.[3] As the President's principal advisor on telecommunications policies and the manager of federal agencies' radiofrequency spectrum operations, NTIA has the weighty statutory responsibility to help satisfy the many competing demands for limited spectrum resources throughout the United States.[4] Unlicensed and shared-licensed models offer proven mechanisms

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[1] National Telecommunications and Information Administration, National Spectrum Strategy (Nov. 13, 2023) ("National Spectrum Strategy" or "Strategy").

[2] National Telecommunications and Information Administration, Implementation of the National Spectrum Strategy, Notice of Opportunity for Public Input, 88 Fed. Reg. 85266 (Dec. 7, 2023).

[3] Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy (Nov. 13, 2023) ("Presidential Memorandum").

[4] *See* 47 U.S.C. § 902(b)(2).

to reduce barriers to entry, accelerate innovation, and stimulate investment in new devices, applications, and services without unduly burdening critical Federal and non-Federal incumbent operations.

Spectrum sharing through both unlicensed and shared-licensed models generates tremendous economic benefits and encourages the efficient and widespread use of spectrum by a wide range of diverse commercial and government users. Unlicensed Wi-Fi adds about a trillion dollars to the U.S. economy annually, with projections for its economic contributions to reach $1.58 trillion by 2025.[5] Wi-Fi's economic success is driven by American consumers' heavy demand for and reliance on it—supporting more than 85% of mobile traffic and a growing majority of all internet traffic today—and its low barriers to entry, which allow for essentially unlimited innovation and technological development. As total wireless data usage is projected to increase by five times from 2018-2026, Wi-Fi is expected to deliver 90% of that growth, mostly due to recent advances in Wi-Fi performance, reliability, and security that make it a viable and more cost-effective substitute for cellular.[6] Wi-Fi is the key means by which consumers experience wireless technology. Although unlicensed spectrum has recently been allocated by the Federal Communications Commission ("FCC" or "Commission"), this spectrum is already being used and additional unlicensed spectrum is needed in the near future to meet the continued and growing demand for high-capacity, high-speed, low-latency services that allow consumers and businesses to fully experience the benefits of developing connectivity advancements. Citizens Broadband Radio Service ("CBRS") shared licenses have similarly enabled a diverse participant group to deliver innovative 5G services, including to improve the efficiency of supply chains, warehouses,

[5] *See* Wi-Fi Alliance, Global Economic Value of Wi-Fi, 2021-2025 (Sept. 2021).

[6] PWC's Global Entertainment & Media Outlook for 2022-2026.

and seaports; to enhance worker safety and productivity; to increase efficiencies and cost savings through precision agriculture; and to close the digital divide and homework gap for underserved communities. Spectrum sharing enables a range of competing business models to meet an entity's wireless needs, rather than forcing reliance on off-the-shelf services that a small number of vertically integrated service providers control or choose to offer. Although CBRS has been deployed for less than five years, it has already proven how shared spectrum can be the driver for advanced 5G that will be critical to maintaining U.S. leadership in wireless technology.

Additionally, and importantly, spectrum sharing creates opportunities for all of this growth, competition, and innovation without disrupting mission-critical government operations or creating a need to divert government resources to spectrum-clearing activities. Compared to the clear-and-replace mechanisms needed for exclusive-use licensing, dynamic spectrum sharing allows government agencies to continue their operations without interruption, and without having to re-assess needs, re-evaluate compatibility, pilot alternatives, integrate new technologies with legacy systems, or retrain employees. NTIA can realize these competitive benefits, cost savings, and efficiency gains for the American public by working with the FCC to allocate the 3.1 GHz band and 37 GHz band for shared-licensed deployments and the 7 GHz band for unlicensed use.

III. THE NATIONAL SPECTRUM STRATEGY RECOGNIZES THAT SHARED-LICENSED AND UNLICENSED FRAMEWORKS ARE KEY TO MEETING NTIA'S STRATEGIC OBJECTIVES.

The National Spectrum Strategy recognizes the significance of NTIA's spectrum-planning and highlights coexistence models as the best mechanisms to satisfy competing demands on limited radiofrequency resources.[7] As described in the National Spectrum Strategy, NTIA intends to "pursue the development of a mechanism to manage shared-spectrum access, including through

[7] *See generally* National Spectrum Strategy at 13-18.

the development of a common spectrum management platform."[8] The Strategy correctly recognizes that by better understanding the benefits of dynamic sharing, NTIA can support the scaled deployment of shared-spectrum methods, standards, technologies, and trust mechanisms.[9] Moreover, NTIA observes "the importance of embracing opportunities to expand dynamic spectrum access" and makes clear that "the U.S. will set measurable goals for advancing the state of technology for spectrum access, with an emphasis on dynamic forms of sharing."[10] Charter welcomes these commitments to understanding the benefits of spectrum sharing and establishing goals for its use as an integral part of U.S. wireless policy.

Charter also strongly supports NTIA's call for the research community to analyze and refine ways to improve spectrum coexistence.[11] As wireless networks and technologies evolve and as greenfield spectrum grows more scarce, continued research and investment in "daring regulatory and policy ideas"[12] will hold the keys to accommodating the growing demand for finite national spectrum resources. Innovative spectrum sharing models of unlicensed spectrum access and dynamic spectrum sharing are the products of significant research and investment. Continued investment in unlicensed and shared-licensed frameworks will promote additional innovation and

[8] *Id.* at 15.

[9] *Id.* ("Real-world testing of dynamic sharing principles and the evolving technologies supporting them will provide a baseline for wider deployment and a way forward to develop shared spectrum methods, standards, technologies, and trust mechanisms in order to make dynamic sharing of spectrum scalable.").

[10] *Id.* at 13.

[11] *Id.* (explaining that "it is imperative for the spectrum research community to enhance the coordination of U.S. research and development endeavors and address areas where innovation is critical, including improving spectrum coexistence").

[12] *Id.* at 23.

competition by continuing to lower barriers to entry for new entrants and smaller providers to innovate and compete.

Consistent with the National Spectrum Strategy, the Presidential Memorandum directs executive agencies to favor the development and procurement of systems that enable coexistence with other spectrum users.[13] This policy preference manifests itself in systems "development," systems "procurement," and NTIA's "certification" of additional bands of spectrum as available for use. Sharing in the 3.1 GHz, 7 GHz, and Lower 37 GHz bands offers the greatest benefit and least burden for government and non-government stakeholders alike to meet these goals.

IV. THE 3.1 GHZ, 7 GHZ, AND LOWER 37 GHZ BANDS ARE CRITICAL NEAR-TERM OPPORTUNITIES TO EXPAND THE BENEFITS OF SHARED-LICENSED AND UNLICENSED SPECTRUM.

The National Spectrum Strategy identifies 2,786 megahertz of spectrum across five spectrum bands for near-term study to determine their suitability for potential repurposing to meet the United States' evolving spectrum needs. Charter encourages NTIA to focus these studies on developing shared-licensed models for the 3.1 GHz and 37 GHz bands and an unlicensed model for the 7 GHz band. Because all three bands have allocations for Federal incumbents, including the Department of Defense ("DoD"), shared licensing and unlicensed uses are ideal models to cause the least disruption to Federal operations, while also unleashing valuable commercial and consumer benefits.

As NTIA fulfills its role in managing the federal government's spectrum resources, allocating spectrum for shared uses without unnecessary delay will yield the greatest benefits for American consumers and businesses at the least cost to the U.S. government and public. While

[13] Presidential Memorandum, Section 7(e) ("Agencies shall favor the development and procurement of systems that enable coexistence with other spectrum users.").

each band identified in the Strategy differs in its particulars and may require a customized approach, continuing to study clear-and-replace solutions followed by an extended relocation period to review, plan, move, and rebuild government operations comes at a significant cost for all stakeholders. Unnecessary analysis in search of a workable path to band-clearing will only serve to block commercial investment and innovation from spectrum bands with a demonstrated capacity to support more intensive uses.[14] These costs will also compound over time: every day lost to inaction denies consumer and economic benefits and exacerbates deadweight loss to the American economy and consumer. Charter therefore encourages NTIA, in coordination with the FCC, to rapidly identify a viable shared-licensed approach for the 3.1 GHz and 37 GHz bands and an unlicensed use model for the 7 GHz band.

A. A CBRS-Like Shared-Licensed Framework Is Key to Enabling Commercial Use of the 3.1 GHz Band in the Near Future.

The National Spectrum Strategy identifies the 3.1 GHz band as an opportunity for expanded Federal and non-Federal use, consistent with past studies' conclusions.[15] The DoD recently completed the Emerging Mid-band Radar Spectrum Sharing ("EMBRSS") Feasibility Assessment, which concluded that "sharing is feasible if certain advanced interference mitigation

[14] *See* J. A. Hausman et al., *Valuing the Effect of Regulation on New Services in Telecommunications* at 3-4, Brookings Papers on Economic Activity (1997) (discussing how delay in the introduction of new telecommunications services results in lower consumer welfare); *see also generally* Laura Ambrosio and Jim Fellinger, Unlicensed Spectrum and the U.S. Economy: Quantifying the Market Size and Diversity of Unlicensed Devices (Jan. 2022) (estimating that unlicensed spectrum generates $95.8 billion per year in incremental sales value); M. Cooper, Efficiency Gains and Consumer Benefits of Unlicensed Access to the Public Airways, The Dramatic Success of Combining Market Principles and Shared Access (Jan. 2012) (discussing how unlicensed access encourages investment in products and services that consumers value).

[15] National Spectrum Strategy at 6; *see also* NTIA, *Feasibility of Commercial Wireless Services Sharing with Federal Operations in the 3100-3550 MHz Band* (July 2020).

features and a coordination framework to facilitate spectrum sharing are put in place."[16] This conclusion does not require a new study. Rather, Charter encourages NTIA to focus on finalizing the interference-mitigation features and coordination framework, building off the success of existing sharing frameworks, to allow this critical mid-band spectrum to efficiently and expeditiously allow competition and innovation, while protecting existing military operations that have long used this spectrum to train and protect U.S. national security interests.

Quickly finalizing the applicable coordination framework for the 3.1 GHz band would allow the commercial sector and individual users to put this valuable spectrum to productive use while avoiding the expense and delay of disrupting and relocating DoD systems. A CBRS-like, lower-power, shared-licensed framework for the 3.1 GHz band allows highly valuable mid-band spectrum to be used to meet growing demands for 5G by a wide range of diverse users, while also ensuring robust protection of critically important DoD and other Federal operations.[17] NTIA, working with the FCC, should be able to identify the encumbered spectrum for commercial operations on a shared-licensed basis far more quickly than would otherwise be possible using a licensed spectrum model.

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[16] *See* National Spectrum Strategy at 6 ("DoD determined that sharing is feasible if certain advanced interference mitigation features and a coordination framework to facilitate spectrum sharing are put in place."); *see also* Press Release, Joint Statement from Department of Defense Chief Information Officer John Sherman and Assistant Secretary of Commerce Alan Davidson on the Emerging Mid-Band Radar Spectrum Sharing (EMBRSS) Feasibility Assessment (Sept. 28, 2023); C. Todd Lopez, DOD News, *Spectrum Sharing is Way Ahead to Maintain Economic Dominance, Defense Official Says*, Sept. 21, 2022, https://www.defense.gov/News/News-Stories/Article/Article/3165774/spectrum-sharing-is-way-ahead-to-maintain-economic-dominance-defense-official-s/. DoD has also worked with NTIA, FCC, and others through the Partnering to Advance Trusted and Holistic Spectrum Solutions (PATHSS) working group to explore sharing in the 3.1 GHz band.

[17] *See* Comments of Charter Communications at 10, NTIA Docket No. 230308-0068 (Apr. 17, 2023).

For its part, DoD explained the scope of its existing 3.1 GHz operations as follows:[18]

> Within the 3100-3450 band, the DoD relies on hundreds of air, sea, and land-based radars for a wide range of missions. It would be untenable for DoD to outright vacate these systems from the parts of the spectrum in which they currently operate. To do so would take decades, cost hundreds of billions of dollars, and cause significant mission impacts to the Joint Force's warfighting readiness and capabilities.

Given the clear direction from DoD, it is indisputable that studies focused on campaigns for the relocation of government operations will serve only to delay deployment of much-needed bandwidth. Moreover, any study of partial relocation or compression of critical DoD operations from portions of the band is similarly problematic. In particular, attempting to clear the top portion of the band would result in exclusive spectrum only for a small group of the nation's largest carriers, and would make sharing in the lower portion of the band almost impossible.[19] If, despite the clear direction from DoD, any further study of DoD operations is advanced, analysis should focus on how to better manage operations in the band to support sharing, rather than continuing to pursue clear-and-replace solutions that government users have found ill-suited to their agencies' operational needs and missions. In all events, it is critical that any further study of the 3.1 GHz

[18] *See* Statement by John B. Sherman, Department of Defense Chief Information Officer, Before the House Armed Services Committee, Subcommittee on Cyber, Innovative Technology, and Information Systems, on "Defense in a Digital Era: Artificial Intelligence, Information Technology, and Securing the Department of Defense" at 11-12 (Mar. 9, 2023), https://armedservices.house.gov/sites/republicans.armedservices.house.gov/files/Sherman%20Testimony.pdf.

[19] Of note, DoD originally considered the full 3.1-3.55 GHz band. A decision was made to clear the top 100 megahertz of spectrum from 3.45 to 3.55 GHz, allowing an auction of this spectrum which was largely won by the nation's largest carriers. *See, e.g.*, Monica Alleven, *AT&T, Dish Top List of FCC's 3.45 GHz Auction Winners*, FIERCE WIRELESS (Jan. 14, 2022), https://bit.ly/48wQE5B (noting that DISH and AT&T were the two largest winners in the 3.45 GHz auction by far); *see generally, e.g.*, *Wireless Telecommunications Bureau Exempts Certain Communications From Ex Parte Permit-But-Disclose Requirements*, Public Notice, 37 FCC Rcd 5287 (2022) (providing legislative and historical context for the FCC's focus on shared uses below 3.45 GHz and exclusive-use licensing from 3.45-3.55 GHz). The expectation was that the rest of the band, from 3.1-3.45 GHz, would be shared spectrum. This decision should not be disregarded to provide more spectrum to the largest carriers, which would undermine the growing competition and innovation shared spectrum is providing.

band should be completed in 2024 and focus only on the practical details of multi-use sharing. After years of analysis, evaluation, and review of existing sharing models, the time has come to build on the success of CBRS and focus on concrete measures to enable dynamic sharing in the 3.1 GHz band to quickly make critical bandwidth available for commercial use.

B. Permitting Unlicensed Uses in the 7 GHz Band Will Enable Innovation to Keep Pace with American Consumers' Growing Connectivity Demands.

Unlicensed Wi-Fi carries the majority of all internet traffic,[20] and Charter's mobile customers rely on Wi-Fi for approximately 87% of the data traffic they consume on their mobile devices.[21] As consumers demand more data through an increasing number of devices and data-intensive applications for home security, automation, video-conferencing, digital learning, remote medicine, and more, and total wireless data usage is projected to increase by five times from 2018-2026, consumers increasingly turn to Wi-Fi for their connectivity needs. In fact, Wi-Fi data growth is projected to be twelve-times more than cellular, due to recent advances in Wi-Fi's performance, reliability, and security, and the failure of high-bandwidth 5G use cases to materialize in the marketplace.[22] The National Spectrum Strategy recommends studying 1,275 megahertz of the 7 GHz band for wireless broadband use on a licensed or unlicensed basis.[23] Building on the tremendous success of the FCC's work in the 6 GHz band, the 7 GHz band now presents an excellent opportunity to expand high-speed, high-capacity Wi-Fi, keep pace with Americans' growing demand for and reliance on Wi-Fi connectivity, lay the foundation for Wi-Fi 7 and future

[20] *See* NCTA, *3Q: How More Unlicensed Spectrum Could Impact America*, Jan. 24, 2020 ("Wi-Fi carried more than 50% of U.S. Internet traffic in 2017, and it'll carry almost 57% of traffic by 2022.").

[21] *See* Charter Communications, *Spectrum is Transforming Everyday Life,* June 14, 2023, https://policy.charter.com/spectrum-is-transforming-everyday-life.

[22] PWC's Global Entertainment & Media Outlook for 2022-2026.

[23] National Spectrum Strategy at 15.

generations, and promote further economic growth, without displacing or imposing significant costs and burdens on critical DoD and other Federal incumbent operators currently using the band.

In the interests of time, consumer demands, and government resources, NTIA can take an incremental approach to studying and reallocating the 7 GHz band, starting with the lower 125-megahertz frequency range, which is directly adjacent to the 6 GHz unlicensed band. The 7 GHz frequencies from 7125-7250 MHz are already supported by existing Wi-Fi and other unlicensed devices; once made available, this spectrum can quickly be put to use for consumers. Incumbent operations in this portion of the 7 GHz band are very similar to those in the 6 GHz band, which the FCC made available through an unlicensed-use framework that affords strong protections to important utility, public safety, and broadcast operations in the band.[24] Those same types of protections could be applied here to insulate incumbents from harmful interference. Extending the FCC's 6 GHz band unlicensed rules up to 7250 MHz would also allow technology companies to rapidly deploy new equipment while still protecting those incumbent operations.

Prioritizing this portion of the 7 GHz band for unlicensed use comes with significant benefits and minimal costs. The allocation would not only secure an additional 125 megahertz for unlicensed deployment in the 7 GHz band, but also remove band-edge constraints on unlicensed channel combinations in the existing 6 GHz U-NII band. Enhanced channel combinations at 6 GHz represent an important, but easily overlooked, public interest benefit: the allocation would give consumers critical and quick access to additional wider-bandwidth, multi-gigabit Wi-Fi channels to support the growing number of devices and higher-bandwidth applications they use, like video-conferencing, digital learning, telemedicine, and more. Allocating additional

[24] *See In re Unlicensed Use of the 6 GHz Band*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 3852 (2020).

contiguous spectrum would unlock more resources for large channel blocks that can carry more traffic with less overhead than smaller channels can. Unlicensed use would also allow manufacturers and providers to quickly develop and scale technologies to take advantage of both bands. By continuing the same unlicensed framework into the 7 GHz band, operators would have access to three new 40-megahertz-wide channels, two new 80-megahertz-wide channels, one new 160-megahertz-wide channel, and one new 320-megahertz-wide channel, even though the bottom portion of the band from 7125-7250 MHz itself only has 125 megahertz available. All of these new channels would leverage spectrum at the top of the 6 GHz band, resulting in tangible consumer benefits and measurable efficiencies.

Given the readily available synergies of extending 6 GHz unlicensed uses into the adjacent lower 7 GHz band, Charter encourages NTIA to prioritize making the 7125-7250 MHz frequencies available for unlicensed uses as quickly as possible. Extending the 6 GHz unlicensed use model to the 7 GHz band would be the most efficient and cost-effective way to put valuable midband spectrum into the marketplace to fuel faster, higher-capacity and even more reliable Wi-Fi for consumers, without relocating or jeopardizing Federal incumbents. NTIA therefore can realistically complete this study in sufficient time to allow the FCC to commence a 7 GHz rulemaking by mid-2024.

As American consumers continue to demonstrate through their high Wi-Fi usage and growing demands for more devices and more data-intensive applications to connect more aspects of their lives to the internet—for security, home automation, energy management, wellness monitoring, entertainment and more—125 megahertz will quickly prove to be insufficient to keep pace with their needs. NTIA can continue to leverage technological efficiencies and minimize the costs and burdens for Federal incumbents by also studying the upper 7 GHz band for unlicensed

opportunities. Although the incumbent users vary above 7250 MHz, unlicensed technologies are well-suited to, and experienced in, coexisting with mission-critical operations. As with the lower 7 GHz frequencies, allowing unlicensed uses in the upper 7 GHz band would allow DoD to maintain existing operations, protect them against harmful interference, and unleash expansive consumer and economic benefits. Charter therefore strongly encourages NTIA to evaluate how the remaining portion of the 7 GHz band (7250-8400 MHz) can be made available for unlicensed operations with incumbent users.

Generally, unlicensed operations require considerably less power compared to exclusive-licensed uses, and lower power reduces the risk of harmful interference to co- and adjacent-channel operations. Unlicensed technologies like Wi-Fi also operate with "polite" protocols that require them to "listen" before "talking" or transmitting in a particular frequency range. The FCC recognized this in its 6 GHz proceeding and required all unlicensed users to use a "contention-based protocol" (like Wi-Fi's listen-before-talk), in order to bolster incumbent protections. The same could be applied to 7 GHz without undermining the consumer, economic, or efficiency benefits of unlicensed uses. NTIA can use its study to better understand which unlicensed regimes above 7250 MHz will provide the best flexibility and protections for existing DoD operations.

C. The Lower 37 GHz Band Is Poised to Quickly Deliver Benefits to U.S. Consumers.

While no substitute for the 3.1 GHz or 7 GHz bands, acting now to open the Lower 37 GHz band for shared-licensed use will also realize substantial public interest benefits. The National Spectrum Strategy acknowledges the prior collaborative efforts of NTIA, DoD, and the FCC in studying the Lower 37 GHz band and states that further study of a "co-equal, shared-use

framework" for the band is forthcoming.[25] The FCC first allocated the Lower 37 GHz band as a shared-licensed band more than seven years ago,[26] but still has not adopted a mechanism to make available the band for shared-licensed flexible uses. NTIA should now build on its own efforts studying the band to arrive at a decision quickly to open the band for shared commercial and Federal use. In light of the extensive record and years of review, there is no compelling reason for an extended study of this band. Of critical note, there is existing equipment that is available for use in the Lower 37 GHz band, allowing deployment as soon as the FCC is able to finalize rules in this band.

The National Spectrum Strategy generally acknowledges that many of the spectrum bands at issue are more encumbered than others previously under consideration for non-Federal use.[27] But that is not as true in the Lower 37 GHz band, which will aid NTIA in designing a plan to implement the National Spectrum Strategy that does not allow this valuable spectrum to lay fallow for even longer while awaiting unnecessary analysis.

To that end, any study that NTIA undertakes in the Lower 37 GHz band should begin with a simple sharing framework—as already proposed in the FCC record—that then allows the FCC to quickly finalize that framework.[28] The FCC record includes an extensive technical study that

[25] National Spectrum Strategy at 7.

[26] *See In re Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.*, Report and Order, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 (2016).

[27] National Spectrum Strategy at 7.

[28] *See, e.g.*, Letter from Virginia Lam Abrams, SVP, Gov. Affairs & Strategic Advancement, Starry, Inc., to Marlene H. Dortch, GN Docket No. 14-177, WT Docket No. 10-112 (Sept. 23, 2020); Letter from Colleen King, Vice President, Regulatory Affairs, Charter Communications, Inc., to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (Apr. 21, 2023) (recommending that the FCC build on "the approach that the Commission has used successfully in the 70/80/90 GHz bands") ("Charter Ex Parte").

demonstrates coexistence among multiple co-channel operators.[29] Any additional study of this band can begin with the parameters already proposed and considered by industry. The equivalent isotopically radiated power levels and out-of-band emission limits would be the same as the Upper 37 GHz band.[30] Licenses would be available in 100-megahertz channels and would be on a non-exclusive, nationwide basis, with licensees able to apply to use full 600 megahertz of spectrum available in the Lower 37 GHz band, subject to coordination. A database-enabled sharing regime in the Lower 37 GHz band, modeled on the FCC's approach in the 70/80/90 GHz bands, would allow wireless carriers to expand multi-gigabit wireless connectivity while coexisting with Federal operations.[31] As Charter has explained, this type of licensing regime is particularly well-suited for the Lower 37 GHz band because sharing in millimeter wave spectrum is simpler, as signals do not travel far and operators generally must use highly directional antennas to deliver service.[32]

Charter appreciates NTIA's desire to exercise caution in preparing the National Spectrum Strategy and fulfilling the directives of the Presidential Memorandum. A Lower 37 GHz band study, however, should be completed in no more than three months so that the FCC can move quickly to finalize rules for this band and allow both commercial and Federal operators to deploy innovative, advanced communications services. Laying the groundwork so that the FCC may

[29] Comments of NCTA - The Internet & Television Association, WT Docket No. 23-158; GN Docket No. 14-177 (filed Aug. 30, 2023).

[30] *See* 47 C.F.R. §§ 30.202 (power limits), 30.203 (emission limits).

[31] Based on the amount of spectrum available and the propagation characteristics in this band, overlapping demand is unlikely. But in rare circumstances where demand exceeds spectrum availability, the Commission-designated database operators could assign commercial operators access to spectrum based on a first-in-time registration process similar to that in the 70/80/90 GHz band.

[32] *See* Charter Ex Parte at 1-2.

implement a simple sharing regime as soon as possible will promote more efficient spectrum use and greater benefits for consumers.

Finally, quick action in the Lower 37 GHz band represents the start of NTIA's implementation of the National Spectrum Strategy, not the end. Making available this spectrum, consistent with the sharing framework described above, would represent a long-awaited and productive development that NTIA can achieve quickly, but the steps that NTIA takes must not be a substitute for similarly anticipated progress in the 3.1 GHz and 7 GHz bands.

V. CONCLUSION

NTIA's development of the Implementation Plan represents a key step as the United States continues to spur competition and drive innovation while promoting key national interests. Charter appreciates the opportunity to provide input on how NTIA should operationalize the National Spectrum Strategy and address critical issues as it develops a plan to keep the United States at the forefront of wireless policy and looks forward to continued participation in these efforts.

Respectfully submitted,

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