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U.S. DEPARTMENT OF COMMERCE  
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Development of a National Spectrum Strategy ) NTIA–2023–0003  
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**COMMENTS OF  
NCTA – THE INTERNET & TELEVISION ASSOCIATION  
ON IMPLEMENTATION PLAN FOR NATIONAL SPECTRUM STRATEGY**

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## INTRODUCTION AND SUMMARY

The National Telecommunications and Information Administration’s (“NTIA”) National Spectrum Strategy (“NSS”)<sup>1</sup> is an important step forward in the effort to provide innovators with commercial access to the spectrum necessary for the Nation’s “economic prosperity, national security, and industrial readiness.”<sup>2</sup> NCTA appreciates the opportunity to comment.

The Implementation Plan offers an opportunity to promote competition in the wireless marketplace, further innovation, and quickly put commercial spectrum to use for the benefit of consumers—all while protecting Federal incumbents. NCTA encourages NTIA to implement the NSS with these goals in mind. In particular, the studies that will drive the Implementation Plan should be based on technical assumptions and coexistence mechanisms that are consistent with shared-licensed and unlicensed operations. These two approaches offer NTIA the best opportunity to achieve its goals. Studying shared-licensed and unlicensed operations is critical to ensuring that NTIA’s Implementation Plan complies with President Biden’s directive that all executive agencies take actions that increase competition and decrease concentration in the wireless industry in the *Executive Order on Promoting Competition in the American Economy* (the “*Executive Order*”).<sup>3</sup> By contrast, the use of other study assumptions about commercial operations, such as high power levels and exclusive-licensed use, would impair competition and innovation by reserving spectrum for a small number of the nation’s largest carriers and require

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<sup>1</sup> *National Spectrum Strategy*, The White House (Nov. 13, 2023), available at [https://www.ntia.gov/sites/default/files/publications/national\\_spectrum\\_strategy\\_final.pdf](https://www.ntia.gov/sites/default/files/publications/national_spectrum_strategy_final.pdf) (“National Spectrum Strategy” or “NSS”).

<sup>2</sup> *Id.* at 6.

<sup>3</sup> See President Joseph R. Biden, Jr., *Executive Order on Promoting Competition in the American Economy*, THE WHITE HOUSE (July 9, 2021), <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/> (“*Executive Order*”).

extremely costly and lengthy efforts to relocate critical Federal operations, particularly those used to protect our national security.

With respect to individual bands identified in the spectrum pipeline, NCTA encourages NTIA to leverage to the greatest extent practicable shared-licensed and unlicensed frameworks, which are advancing coexistence and American leadership in wireless. As the NSS rightly emphasizes, “[d]ynamic spectrum sharing is one key” to meet “growing demands” for spectrum access to support broadband networks and other uses.<sup>4</sup> These actions will also adhere to the Biden Administration’s directive to “build on prior innovation by promoting efficient and effective spectrum use by both agencies and non-Federal users.”<sup>5</sup>

- In the **3.1 GHz band**, NTIA should build on the foundation created by the hard work of a broad group of stakeholders during the PATHSS process to identify how to share the band with a CBRS-like service. Disregarding that progress or favoring a partial relocation to support full-power operation in the band would, for practical purposes, earmark the band for the dominant nationwide carriers that control today’s highly concentrated spectrum market and would require the disruption of critical military operations.
- In the **7.125-8.4 GHz range**, first, NTIA should move forward immediately to coordinate with the Federal Communications Commission (“Commission” or “FCC”) to make the Lower 7 GHz band, containing the lowest 125 megahertz, available for use by unlicensed technologies. Access to the Lower 7 GHz band would deliver enormous value for American consumers by completing a 320-megahertz channel currently stranded at the top of the 6 GHz band. Next, NTIA should study additional frequencies in the band to determine how the use of established unlicensed coexistence mechanisms or dynamic sharing techniques can permit a diverse group of commercial users and use cases to coexist with the range of different incumbent Federal agencies using these frequencies.
- In the **37.0-37.6 GHz band**, the Implementation Plan should build on the robust technical work already completed on this band and strong support in the FCC’s rulemaking record

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<sup>4</sup> National Spectrum Strategy at 1.

<sup>5</sup> President Joseph R. Biden, Jr., *Memorandum on Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy*, THE WHITE HOUSE (Nov. 13, 2023), <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/11/13/memorandum-on-modernizing-united-states-spectrum-policy-and-establishing-a-national-spectrum-strategy/> (“2023 Memorandum”).

for a shared-use approach. NTIA should identify any remaining issues related to Federal/commercial coexistence, allowing NTIA and the FCC to move ahead quickly with a process to open the band to shared-licensed operations.

Finally, NCTA strongly supports NTIA's work to improve the framework for longer-term spectrum access planning and to study further dynamic spectrum sharing possibilities. NTIA should ensure that efforts to study and commercialize future bands are informed by a wider variety of perspectives and more effectively promote competition. Too often in the past, studies assumed that commercial use would be limited to the high-power, wide-area-coverage networks favored by the dominant wireless carriers. In addition, NTIA should put in place protections to ensure that its spectrum-access planning procedures and studies are tools for progress rather than opportunities for incumbents to delay decision making.

**I. NTIA'S IMPLEMENTATION PLAN MUST SERVE TO DECREASE CONCENTRATION IN THE WIRELESS MARKETPLACE**

President Biden has directed executive branch agencies, including NTIA and the Department of Commerce more broadly, to "consider using their authorities to further" the Administration's policies to combat "excessive market concentration," including in the market for wireless communications.<sup>6</sup> President Biden left no doubt that reducing the concentration of valuable licensed spectrum resources now controlled by a handful of companies is a top priority. In addition to its directive to executive agencies, the *Executive Order* also states that the FCC should consider "conducting future spectrum auctions under rules that are designed to help avoid excessive concentration of spectrum license holdings in the United States, so as to prevent spectrum stockpiling, warehousing of spectrum by licensees, or the creation of barriers to entry,

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<sup>6</sup> *Executive Order* §§ 1, 5(a) (identifying "lack of adequate competition" as an issue in the "telecommunications sector").

and to improve the conditions of competition in industries that depend upon radio spectrum, including mobile communications and radio-based broadband services.”<sup>7</sup>

The President’s *Executive Order* also rejected the arguments made by nationwide carriers that more concentration is necessary to combat global competitors like China: “This order reasserts as United States policy that the answer to the rising power of foreign monopolies and cartels is not the tolerance of domestic monopolization, but rather the promotion of competition and innovation by firms small and large, at home and worldwide.”<sup>8</sup>

The *Executive Order* is a directive for NTIA, as it is part of a cabinet agency. Consistent with that directive, NTIA rightly committed that the NSS will “work in tandem with, and further the objectives of, relevant executive orders and Presidential memoranda, strategies, and other directives.”<sup>9</sup> To comply with the *Executive Order*, NTIA’s implementation decisions must actively promote competition in the spectrum marketplace and combat today’s excessive spectrum concentration. The most effective way to do that is to support shared and unlicensed use of bands in both the near term and the long term. At a minimum, NTIA should ensure that its implementation decisions do not support further consolidation in spectrum holdings. NTIA must avoid implementing the NSS in a way that favors the three dominant wireless carriers by making substantive and procedural choices that favor exclusive licensing.

The spectrum marketplace is heavily concentrated. As of the FCC’s 2022 Communications Marketplace Report, approximately 78% of all the spectrum included in the Commission’s overall spectrum screen, measured on a MHz-POPs basis, is held by AT&T,

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<sup>7</sup> *Id.* § 5(l)(ii).

<sup>8</sup> *Id.* § 1.

<sup>9</sup> National Spectrum Strategy at 22.

T-Mobile, and Verizon.<sup>10</sup> Additionally, population-weighted average mobile wireless market concentration for these providers across 172 economic areas measured via the Herfindahl-Hirschman Index has increased at a rate that confirms that already excessive spectrum concentration shows no sign of slowing, let alone stopping.<sup>11</sup> Even AT&T itself has very recently called the mid-band spectrum environment a “textbook case of anticompetitive foreclosure.”<sup>12</sup>

NTIA can best enable participation by new and innovative entrants by working with the FCC to expand the number of shared-licensed and unlicensed bands. Shared spectrum is the key for growth in the private wireless networks that are the future for manufacturing, automotive, agriculture, energy, retail, commercial real estate, communications, media, and supply chain industries—as well as schools, libraries, and civil society groups. Shared spectrum, with lower power limits and smaller geographic license sizes, is also used by larger carriers to augment their already substantial networks. The difference is that shared spectrum bands are not dominated by these carriers and do not effectively block access by other entities, as is often the case for geographically large, high-power exclusive-use licenses auctioned in bands like the C-Band.

Further, as NTIA has recognized, unlicensed spectrum access is also an essential complement for wireless competition and innovation: It lowers barriers to entry for experimentation and innovation, and it carries the vast majority of internet traffic. Wi-Fi, using unlicensed spectrum, serves as a critically important wireless technology in homes, businesses,

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<sup>10</sup> *Communications Marketplace Report*, Report, FCC No. 23-103, GN Docket No. 22-203, ¶ 86 (rel. Dec. 30, 2022).

<sup>11</sup> *Id.*

<sup>12</sup> Reply Comments of AT&T in Response to Public Notice on Petition for a Rulemaking to Establish a Mid-Band Spectrum Screen at 3, WT Docket No. 23-319; RM-11966 (filed Nov. 8, 2023).

schools, and healthcare facilities, and carries more traffic for smartphones than the entire cellular network. For example, 80% of data traffic consumed on mobile phones uses Wi-Fi rather than a licensed technology.<sup>13</sup> Wi-Fi, and the unlicensed spectrum on which it operates, add approximately a trillion dollars to the U.S. economy annually, with projections for those economic contributions to reach \$1.58 trillion by 2025.<sup>14</sup> The NSS is correct to emphasize the importance of spectrum sharing in facilitating coexistence with Federal operations—but these pro-competitive benefits must be recognized as well.

The decisions NTIA makes in implementing the NSS will play a major role in the competitive marketplace looking ahead. The spectrum roadmap does not involve greenfield bands, but rather environments with significant use by Federal incumbents. The NSS states that “[b]ecause the spectrum is congested—and as ‘greenfield’ spectrum becomes harder to find—U.S. policy (and stakeholders) must recognize that ‘studying’ a band for potential repurposing to enable more efficient use does not prejudice the outcome of the study (i.e., that all, part, or none of the band ultimately will be repurposed as a result of the study).”<sup>15</sup> NCTA agrees with this statement, but the Implementation Plan should recognize that—even absent any intent to do so—the process through which a band is studied can have an enormous and even dispositive impact

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<sup>13</sup> See, e.g., Christopher Szymanski, *#20yearsofwifi with Broadcom*, WI-FI ALLIANCE (Aug. 28, 2019), <https://www.wi-fi.org/beacon/christopherszymanski/20yearsofwifi-with-broadcom>; Mike Dano, *A Closer Look at How Cable Can Profit in Mobile*, LIGHT READING (Jan. 4, 2023), <https://www.lightreading.com/cable-tech/acloser-look-at-how-cable-can-profit-in-mobile/d/d-id/782545>.

<sup>14</sup> See *Global Economic Value of Wi-Fi 2021-2025*, WI-FI ALLIANCE 11 (2021), [https://www.wi-fi.org/system/files/Global\\_Economic\\_Value\\_of\\_Wi-Fi\\_2021-2025\\_202109.pdf](https://www.wi-fi.org/system/files/Global_Economic_Value_of_Wi-Fi_2021-2025_202109.pdf).

<sup>15</sup> National Spectrum Strategy at 7.



on its outcome. In an environment with limited time and resources, *when* and *how* NTIA decides to study a band can drive particular outcomes as much as a substantive prejudgment.

NTIA's Implementation Plan should also recognize the changing nature of 5G wireless use cases. Rather than providing the wide-area coverage needed by traditional wireless networks, developing innovative wireless services tends to require high capacity in localized areas. Spectrum is being used for residential and commercial connectivity, enterprise connectivity, industrial automation, and predictive maintenance in environments ranging from population clusters, warehouses, ports, factories, airports, and office buildings, in rural as well as densely populated areas, supporting supply chain efficiency. Lower power levels and shared spectrum allow for greater spectrum reuse and sharing between operators for these growing innovative uses.

Given that reality, NTIA's NSS implementation decisions should err on the side of competition by adopting procedures and using study assumptions that offer a path for the FCC to open bands through shared-licensed and unlicensed access.

The remainder of our comments explain how NTIA can promote competition in the particular bands the NSS has identified for further study, as well as through the design of a longer-term process for public-private collaboration on future bands. But at a high level, NCTA encourages NTIA to harness the vast technical resources and expertise of the wireless and technology industry and government agencies to ensure the United States remains a world leader in wireless technology by focusing efforts on developing the most innovative and efficient use of spectrum in the world. To accomplish this, we should approach new bands by asking how they can be shared, rather than how they can be cleared only for nationwide carriers. Likewise, NTIA's starting assumptions in modeling commercial use should be premised on sharing (*e.g.*,

lower power levels and smaller geographic areas) that are most conducive to bringing spectrum to market more quickly with the least disruption to existing spectrum users.

**II. NSS IMPLEMENTATION STEPS SHOULD PROMOTE COMPETITION IN INDIVIDUAL BANDS UNDER STUDY AND PRIORITIZE ACTIONS THAT CAN DELIVER COMMERCIAL USE MORE QUICKLY**

**A. 3.1-3.45 GHz**

In the NSS, NTIA explained that the “Departments of Commerce and Defense will co-lead any follow-on studies to the Emerging Mid-band Radar Spectrum Study (EMBRSS) that focus on future use of the 3.1-3.45 GHz band,” including studies to “explore dynamic spectrum sharing.”<sup>16</sup> As stated in the NSS, the Department of Defense (“DoD”) “determined that sharing is feasible if certain advanced interference mitigation features and a coordination framework to facilitate spectrum sharing are put in place.”<sup>17</sup> As NTIA develops its Implementation Plan for this band, it should build on the strong foundation developed in the two-year, multi-stakeholder PATHSS process. The goal should be to finalize the coordination framework and advanced mitigation features needed to allow commercial use of the spectrum. NTIA should not discard the extensive work that has already been conducted in the PATHSS process, pursue exclusive-use approaches that involve incredibly costly and time-consuming relocations, or allow further delay in expanding shared-use frameworks where they are feasible.

The 3.1 GHz band is important for NCTA members, particularly under a shared-licensed approach. For cable providers developing their own mobile networks to compete with nationwide carriers, the 3.1 GHz band is not fungible—it is the single most important band for spectrum sharing, and its value derives largely from its proximity to the CBRS band.

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<sup>16</sup> *Id.* at 6.

<sup>17</sup> *Id.*

Nationwide carriers, by contrast, use a wide variety of bands (including AWS, PCS, and others far from 3.1 GHz) for their networks. As competitive new entrants in the wireless business without huge spectrum portfolios, cable providers do not have this flexibility, and use of 3.1 GHz frequencies would complement and strengthen the same kinds of investments they have made in the CBRS band. And cable operators are only one of a growing list of diverse users of shared spectrum. Parties with demonstrated interest in shared licensing also include wireless internet service providers, manufacturing centers, universities, utilities, and more. Shared use of the 3.1 GHz band would thus have a significant positive impact on the wireless competitive landscape.

Because of the substantial progress made in the PATHSS process, the 3.1 GHz band is primed for action in the relatively short term. PATHSS was a significant improvement in transparency and information sharing compared to previous processes for studying bands for sharing with Federal incumbents. Indeed, PATHSS is a good model for how to put into action the principles NTIA identified in the NSS as critical for assessing Federal use of spectrum: “First, Federal operations often do not fully occupy their spectrum assignments at all times; however, the nature of an agency’s mission may require constant availability of a spectrum assignment for immediate use. Second, the metrics for assessing the ‘efficiency’ of a Federal agency’s spectrum usage must be tailored to the operational requirements for the spectrum usage and the agency’s mission. Third, decision-makers would benefit from increased transparency and additional data regarding Federal spectrum usage when making these decisions—to the extent permitted by law and subject to necessary operational security protections.”<sup>18</sup> The NSS also correctly calls for future spectrum assessments to be “comprehensive, documented, and

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<sup>18</sup> *Id.* at 4 (emphasis omitted).

appropriately transparent,” using “[d]ata-driven processes” and “unbiased technical, scientific, mission, and economic” work.<sup>19</sup> NTIA should leverage a model based on communication between Federal incumbents and potential commercial users, such as PATHSS, to best engage stakeholders and promote transparency in the NSS implementation process.

The PATHSS process has demonstrated that sharing is feasible based on power levels comparable to CBRS and a capacity-focused use case similar to CBRS small cells. For cable’s competitive wireless networks, this use case enables sharing because of planned deployments at lower heights in dense urban and suburban areas with lower power to increase the capacity for wireless traffic and innovative services. Such use cases produce less interference to Federal incumbent systems because of lower power, clutter loss, and targeted deployment areas. Other providers, including WISPs, have demonstrated the success of the CBRS model for rural areas. Further study should prioritize remaining issues like how dynamic sharing can be implemented in this band, building on the lessons learned in the CBRS band, and how propagation models can be improved to inform a dynamic-sharing model that accounts for appropriate separation distances and clutter. NTIA should not design studies that retread well-worn territory or reopen issues already settled in this multi-year process.

NTIA should conduct its work on the 3.1 GHz band in parallel with any broader study of dynamic sharing—but this broader study should not delay action in the 3.1 GHz band. NCTA supports the establishment of a “national testbed for dynamic spectrum sharing,”<sup>20</sup> for example, but it would be a mistake to delay progress in this band while the testbed is developed. As discussed above, PATHSS made significant progress toward sharing in this band, and there is a

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<sup>19</sup> *Id.* at 7.

<sup>20</sup> *Id.* at 16.

significant risk that dominant carriers opposed to sharing will use delay as a tool to build pressure for an outcome that prioritizes exclusive use.

Finally, NTIA should not prioritize study of approaches to the band that would relocate Federal users from one part of the band (to clear it for exclusive use) into another part of the band which would then be significantly less attractive for sharing. A study designed to promote exclusive use in one part of the band and shared use in another part of the band (or only exclusive use anywhere in the band alongside existing Federal use) would, for these reasons, promote exclusive use and further diminish the possibility of meaningful competition. Further, as a recent study by the Brattle Group demonstrates, the estimated \$120 billion cost of relocating Federal operations necessary to pursue a clear-and-auction exclusive-licensing approach in the 3.1 GHz band would produce lower auction revenues for the United States than would a shared-licensed approach—in fact, the Brattle analysis demonstrates that an auction of exclusive licenses would fail to cover these relocation costs.<sup>21</sup> This is a prime example of how the process NTIA adopts for the Implementation Plan could significantly influence substantive outcomes.

#### **B. 7.125-8.4 GHz**

In the 7.125-8.4 GHz range, NCTA recommends a first phase of NTIA's Implementation Plan that prioritizes coordinating the Lower 7 GHz band (7.125-7.250 GHz) so the FCC can act to make it available for shared use on an unlicensed basis as soon as possible. This action should be followed by a second phase that would study higher frequencies to determine how established

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<sup>21</sup> Coleman Bazelon, Paroma Sanyal, & Yong Paek, *Principles of Spectrum Sharing: Understanding the Value of Shared Spectrum*, THE BRATTLE GROUP 45-49 (2023), <https://spectrumfuture.com/wp-content/uploads/2023/09/Principles-of-Spectrum-Sharing-Understanding-the-Value-of-Shared-Spectrum.pdf>.

unlicensed mechanisms or dynamic sharing techniques can expand consumer access to vital mid-band spectrum while protecting the range of different incumbent Federal users.

The Lower 7 GHz band is important to NCTA members because it is the best near-term opportunity for growth in unlicensed spectrum based on its proximity to the existing 6 GHz band. The 6 GHz band is clearly the biggest growth band for continued unlicensed innovation. And for cable providers in particular, the 6 GHz band's wide channels will help consumers experience the same speeds over Wi-Fi that they receive via the wireline networks that bring high-speed broadband to the home. Wi-Fi equipment must make cost-effective use of spectrum, and the proximity of the Lower 7 GHz band to the 6 GHz band has resulted in current-generation Wi-Fi 6E radios already having the capability to operate up to 7.250 GHz. This is of central importance. This capability means that completing the stranded 320-megahertz channel will have rapid and beneficial effects on consumers and will produce enormous economic value. Conversely, opening a new band for unlicensed operations far from an existing band would impose much higher costs, create substantial delays, and depend on chipmakers investing to support the new frequencies. There is therefore no substitute for the Lower 7 GHz band. The remainder of the 7/8 GHz range is also promising, as discussed below, but has a different incumbent environment than the Lower 7 GHz band and will require separate study regarding coexistence mechanisms.

A key role of the Implementation Plan is to find mechanisms for coexistence with Federal users, rather than to decide on the assignment approach for commercial operations. But it is both important and within the scope of the Implementation Plan that NTIA implement the NSS in a way that facilitates the FCC opening the Lower 7 GHz band for unlicensed operations, for three reasons.

First, the coordination work that NTIA will undertake to implement the NSS will require assumptions regarding commercial power levels and operating rules. An analysis or study without such parameters would be unproductive and wasteful. In conducting this work, NTIA should consider (1) the power levels and operating rules that the FCC established for unlicensed low-power indoor (“LPI”) devices in its 2020 *6 GHz Report & Order* and (2) the higher power levels the FCC is considering as part of its still-pending *6 GHz Further Notice of Proposed Rulemaking*. These power levels and operating parameters will enable additional consumer services and devices and allow the continued operation of Federal fixed links. Furthermore, aligning LPI power levels and operating rules will allow the FCC to consider rules for the band that match those being used in the 6 GHz band, reducing costs for consumer devices and promoting economies of scale. Additionally, an unlicensed LPI assumption will allow NTIA to work with Federal fixed microwave operators and commercial companies on probability studies that build on and are similar to those used by the FCC in the 6 GHz proceeding, giving NTIA access to a robust technical record rather than requiring it to start from scratch.

Second, although the Commission regulates commercial spectrum use, NTIA also is the voice of the Administration’s spectrum policy, and allowing unlicensed sharing of the Lower 7 GHz frequencies is critical to achieving the Administration’s broadband goals. Wi-Fi is an extremely powerful tool for advancing broadband, as it offers high performance, reliability, and security, with low barriers to entry, all while being built to share and to avoid harmful interference to other uses. As discussed above, the vast majority of data traffic consumed on mobile phones uses Wi-Fi, and because of heavy consumer and enterprise demand, Wi-Fi and other unlicensed technologies add nearly a trillion dollars to the U.S. economy annually. Wi-Fi’s

importance will increase with time: total wireless data usage is projected to increase by five times from 2018-2026, and Wi-Fi is expected to deliver 90% of that growth.<sup>22</sup>

The Lower 7 GHz band is particularly critical for near-term Wi-Fi growth to support broadband. Wi-Fi frequencies are not fungible because of standardized channelization plans, and contiguous spectrum is necessary to form the wide channels needed for Wi-Fi 7 and Wi-Fi 8. The Lower 7 GHz band addresses both of these needs in a way frequencies in other bands would not. As cable broadband networks invest heavily to bring 10 Gbps and higher speeds to the home, additional unlicensed spectrum will allow consumers to experience those speeds over Wi-Fi, the way they primarily connect. Moreover, a continued pipeline of unlicensed spectrum will support continued investment and development of real-time, low-latency applications with enormous value for consumers, including the proliferation of connected devices (IoT), immersive media content and AR/VR devices, and new use cases such as connected vehicles.

Opening the Lower 7 GHz band would be particularly effective because it would complete a currently stranded 320-megahertz, 10 Gbps-capable Wi-Fi channel that was cut off in the FCC's 6 GHz rules at the point where Federal incumbents use the band. The impact of access to those frequencies on the Administration's broadband goals would thus be far greater than 125 megahertz of spectrum elsewhere. The radios in current Wi-Fi 6E equipment can operate up to 7.250 GHz already, which means that consumers can quickly access these additional frequencies and the higher speeds without hardware upgrades or new equipment. For the same reasons, *declining* to permit unlicensed operations in the Lower 7 GHz band would be a significant blow to Wi-Fi stakeholders and consumers, because it would forgo the benefits of

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<sup>22</sup> PWC, *Perspectives from the Global Telecom Outlook 2023-2027*, at 5 (2023), <https://www.pwc.com/gx/en/industries/tmt/assets/pwc-gto-2023.pdf>.



completing the stranded channel. In contrast, studies or relocation efforts intended to preference exclusive-licensed use would produce limited consumer benefits, undermine Wi-Fi evolution, and further consolidate the wireless marketplace. Even delaying making the bottom portion of the band available pending study of the full, more-complex environment higher in the band would unnecessarily delay vital consumer access and leave significant value on the table for many years.

Third, prioritizing unlicensed use of the Lower 7 GHz band is the best way for the Implementation Plan to promote NTIA’s objectives from the NSS, including ensuring consideration of the “societal value of the spectrum” and “expanding wireless service to unserved and underserved communities.”<sup>23</sup> Unlicensed access, and Wi-Fi in particular, exemplify these values. For many, Wi-Fi is synonymous with internet access—over 80% of data traffic consumed on mobile phones uses Wi-Fi rather than a licensed technology, and an increasing majority of *all* global fixed and mobile internet traffic relies on Wi-Fi.

In unanimously adopting the 2023 *Second Report and Order* authorizing very-low-power operations in the 6 GHz band, the FCC reaffirmed Wi-Fi’s importance to American consumers and the economy: Chairwoman Rosenworcel explained that unlicensed spectrum “contributes more than \$95 billion to our economy every year” and that “as fiber, cable, and commercial wireless move to gigabit speeds, we need to ensure our Wi-Fi connections have the wider channels and additional bandwidth they need to keep pace.”<sup>24</sup> Commissioner Carr noted that the

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<sup>23</sup> National Spectrum Strategy at 11.

<sup>24</sup> *Unlicensed Use of the 6 GHz Band, Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Second Report and Order, FCC No. 23-86, ET Docket No. 18-295, GN Docket No. 17-183 (Oct. 19, 2023), Statement of Chairwoman Jessica Rosenworcel.

results of the next generation of Wi-Fi in the 6 GHz band “speak for themselves.”<sup>25</sup> And Commissioner Starks highlighted the 6 GHz band’s ability to “serve as a lynchpin for a more innovative, and more inclusive, wireless future.”<sup>26</sup> Facilitating FCC consideration of the Lower 7 GHz band would continue to promote those economic and societal benefits.

This initial work to allow coexistence in the Lower 7 GHz band, building on the extensive technical studies of interactions between LPI and similar microwave link incumbents in the 6 GHz band, would also satisfy the NSS’s call for an “evidence-based national spectrum decision-making methodology.”<sup>27</sup> Federal incumbent operations in the Lower 7 GHz band closely resemble the commercial Fixed Service incumbents in the 6 GHz band. The FCC has amassed an enormous record over several years on the ability of unlicensed operations to coexist with those incumbent operations in the 6 GHz band, and prioritized action on the Lower 7 GHz band would focus on extending those coexistence approaches to protect Federal users. CableLabs conducted the Monte Carlo study of Fixed Service/LPI interactions in the 6 GHz band that formed the basis of the FCC’s decision to open the band in 2020. There is no similar evidence of the ability of high-site, high-power exclusive licensed operations to coexist with those kinds of users; to the contrary, the position of nationwide carriers in bands like 12.7-13.25 GHz has been that such users must instead be relocated.<sup>28</sup>

As a second phase of NTIA’s Implementation Plan concerning the 7.125-8.4 GHz range, NCTA recommends conducting a study of frequencies above 7.250 GHz for Federal coexistence

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<sup>25</sup> *Id.*, Statement of Commissioner Brendan Carr.

<sup>26</sup> *Id.*, Statement of Commissioner Geoffrey Starks.

<sup>27</sup> National Spectrum Strategy at 11.

<sup>28</sup> *See, e.g.*, Comments of Verizon at 8-10, GN Docket No. 22-352 (filed Aug. 9, 2023) (encouraging the FCC to “relocat[e] incumbent licensees to new spectrum”).

with unlicensed or shared-licensed operations. The incumbent landscape in these frequencies is more diverse and complicated than that of the Lower 7 GHz band. In order to best address this complexity in a way that both protects Federal operations and permits new commercial operations, NTIA should study a variety of unlicensed sharing techniques used in other bands. For example, as in the Lower 7 GHz band, NTIA should study whether LPI power levels and an indoor-only restriction would protect Federal incumbents in certain portions of these frequencies.

### **C. 37.0-37.6 GHz**

Finally, NCTA appreciates NTIA’s work to “implement a co-equal, shared-use framework” for the 37.0-37.6 GHz band.<sup>29</sup> As NTIA is aware, there is a strong record at the FCC regarding how to enable shared use in this band, including wide support in the Commission’s 42 GHz proceeding for acting on that band together with the Lower 37 GHz band, rather than alone.<sup>30</sup> NCTA recommends that NTIA implement the NSS by confirming with Federal agencies that sharing using the following parameters for the Lower 37 GHz band will both protect incumbent operations and provide opportunities for commercial investment.<sup>31</sup>

*Licensing.* The FCC would issue non-exclusive, nationwide licenses without the need for an auction. Licensees would use uniform, 100-megahertz channels in the band, subject to coordination.

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<sup>29</sup> National Spectrum Strategy at 7.

<sup>30</sup> *See, e.g.*, Reply Comments of NCTA – The Internet & Television Association at 1-5, WT Docket No. 23-158; GN Docket No. 14-177 (filed Sept. 29, 2023) (describing record support).

<sup>31</sup> *See, e.g.*, Letter from Colleen King, Vice President, Regulatory Affairs, Charter Communications, to Marlene H. Dortch, Sec’y, FCC, GN Docket No. 14-177 (filed Apr. 21, 2023) (attaching presentation regarding shared-use proposal).

*Coordination.* Licensees would register base stations with a third-party database administrator charged with verifying non-interference with Federal users in the Lower 37 GHz band. Licensees would provide to the database (1) the location of their base stations, (2) the number of channels they would like to use, and (3) whether they plan to use Time Division Duplex (“TDD”) configuration. Upon successful registration and coordination, licensees would be permitted to use some or all of the available 100-megahertz channels for flexible-use operations, including commercial mobile systems and fixed-wireless broadband systems.

In connection with this process, the database operator would verify whether another licensee or incumbent DoD operation exists within 200 meters of the desired location. The operator would protect nearby DoD operations. If another licensee were in the area, the operator would facilitate a TDD configuration and, depending on whether configuration occurs, permit operation in all or part of the band. Additional protections, such as first-in-time rights, should be unnecessary given the relatively short 200-meter range for TDD synchronization, the strong commercial incentives for synchronization, and the ability of even unsynchronized operations to access adjacent channels. In rare circumstances, the Commission-designated database operators could assign spectrum access based on a first-in-time registration process similar to that in the 70/80/90 GHz band.

*Technical Rules.* The power levels and emissions limits for commercial operations would be the same as those under the FCC’s rules for the Upper 37 GHz band.<sup>32</sup> The FCC’s technical rules could also facilitate coordination among licensees by specifying a default TDD configuration (*e.g.*, 80:20, or Downlink: Uplink using UTC as the reference phase clock). This would not be a mandate, but rather a means of facilitating coordination for those using the same

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<sup>32</sup> See 47 C.F.R. §§ 30.202-.203, 30.404-.405.

configuration. Those users that require different TDD configurations would coordinate via the third-party database operator or divide the available channels equitably. These default TDD configurations would not need to apply to licensees operating in the adjacent Upper 37 GHz band because the highly directional nature of the signals poses a very low risk of potential interference to operations in those adjacent frequencies.

NTIA's Implementation Plan should build upon existing analyses and seek to identify and quickly study any unresolved issues regarding shared use of the band based on these parameters. NCTA believes that the existing record supports action now. To that end, NTIA should use its role as the voice of the executive branch at the FCC to recommend that the Commission move forward with rules allowing commercial services promptly based on a database-centered sharing mechanism.

## **II. THE IMPLEMENTATION PLAN FOR A LONGER-TERM SPECTRUM-PLANNING PROCESS SHOULD ALSO SEEK TO PROMOTE COMPETITION**

NCTA applauds NTIA for recognizing that the Nation needs a process for long-term spectrum planning. The response to NTIA's request for input on the NSS provides an important snapshot of various needs and perspectives, but meaningful progress will require ongoing collaboration involving both commercial interests and NTIA's partners in the Federal government. This process will be critical moving forward, and NTIA's Implementation Plan can identify key ways to improve on existing processes.

NCTA agrees that "[t]he United States needs a process for bringing all stakeholders together for advanced planning, so they can generate recommendations earlier, based on the combined knowledge and perspectives of both the Federal Government and the private sector."<sup>33</sup>

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<sup>33</sup> National Spectrum Strategy at 10.

One important way to achieve this goal is to consider improving the mechanism for obtaining security clearances to participate in fora like the PATHSS process. We greatly appreciate the current process, as it allows necessary technical discussions, but it raises challenges for entities that, in the regular course of business, do not have large numbers of engineers with security clearances. Unlike the dominant wireless carriers, NCTA members and other similarly situated parties are not established government contractors with a cadre of cleared technical staff.

In meetings involving sensitive government information, such as in the PATHSS process, each attendee to a classified meeting must hold the appropriate clearance level. Clearances require a government agency sponsor and are tied to a contract with that agency. Private-sector personnel can get a clearance if their work is related to the company's contract with the Federal agency. Once the clearance is granted, it can be used for other work such as the PATHSS process.

PATHSS participants who did not have personnel with pre-existing clearances were able to get clearances through the National Spectrum Consortium's management company, ATI, because it administered a government contract ("OTA") for DoD that required clearances. Due to cost, ATI limited the number of clearances offered to one per company to enable each company participating in PATHSS to have a representative in the classified PATHSS meetings. Companies with existing clearances due to DoD contracts, like AT&T, did not need to use ATI-provided clearances and, as a result, could have multiple representatives in the classified meetings. While there was no formal rule that classified PATHSS meetings were limited to one representative per company, the security-clearance process effectively limited many companies to just one representative based on the ATI-sponsored clearance.

NCTA and its members appreciated DoD's efforts to provide technical and operational information on its systems in an unclassified manner, and NTIA should encourage that approach moving forward wherever possible. Where access to classified information is necessary, however, certain companies should not have greater representation than others simply because they have existing clearances. NCTA encourages NTIA to (1) limit the total number of participants per entity in the classified meetings to ensure balance in the group to avoid overrepresentation, thereby ensuring NTIA receives more balanced input, and/or (2) sponsor that same number of clearances per participating entity to avoid giving companies with DoD or other federal contracts disproportionate representation in the work group. To ensure a rapid start to the stakeholder meetings, NTIA should leverage an organization with existing engagements with a broad cross-section of stakeholders and the infrastructure to enable the sharing of both classified and unclassified controlled information. Standing up the necessary processes from scratch would cause unnecessary delay.

Further, the NSS discusses how NTIA "will solicit the views of stakeholder Federal agencies in a timely fashion, providing sufficient time and procedures for agencies to present their views (and supporting technical information) to NTIA as well as written feedback on how agency views will be incorporated into the position that NTIA communicates to the FCC."<sup>34</sup> As NTIA develops an Implementation Plan for an improved process in developing and communicating those views, it should distinguish between its roles in at least two contexts:

Where a federal agency is a spectrum user, NTIA has a special role as the coordinator for interagency work. This role allows both the FCC and federal agencies to receive clear and timely input and information given the dual jurisdiction in the U.S. system for

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<sup>34</sup> *Id.* at 12.

Federal/commercial shared bands. By contrast, where an agency is *not* a spectrum user, but instead regulates commercial entities with an interest in the band, NTIA's role is different. Here, NTIA should consider the views of the relevant agency, as required by the President's memorandum accompanying the NSS,<sup>35</sup> but NTIA should develop the views of the executive branch based on the full perspective of the Administration's objectives. And because NTIA is advocating to an independent agency with sole jurisdiction over commercial operations, its role is more like that of other commenters. Importantly, the commercial parties of interest to Federal agencies can and should participate in relevant FCC proceedings themselves rather than expecting NTIA to represent those stakeholders' views. NTIA's implementation of its longer-term spectrum-planning process should recognize this key difference.

### **III. NTIA'S IMPLEMENTATION PLAN SHOULD SUPPORT RESEARCH AND DEVELOPMENT, INCLUDING THE DYNAMIC SPECTRUM SHARING TESTBED, TO PROMOTE SHARING AND OTHER AVENUES FOR COMPETITION**

Finally, NCTA supports NTIA's efforts to research new technologies and approaches for spectrum sharing, including the national testbed for dynamic spectrum sharing.<sup>36</sup> NTIA is correct that "[t]echnologies alone will not suffice to ensure that spectrum sharing is successful,"<sup>37</sup> but a focused venue for collaboration and research on a band-agnostic basis likely will pay dividends in future spectrum-sharing efforts and proceedings.

As NTIA seeks to implement the NSS's commitments in this area, it should ensure that they are additive, rather than potentially detracting from progress already made or spectrum-sharing efforts already underway in particular bands. New technologies and additional research

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<sup>35</sup> See generally 2023 Memorandum.

<sup>36</sup> National Spectrum Strategy at 16.

<sup>37</sup> *Id.* at 14.



on spectrum-sharing techniques are not prerequisites to sharing in bands already under study, such as the 3.1 GHz band. This work thus should not slow existing commercialization efforts. Further, just as discussed above with respect to the long-term spectrum-planning process, NTIA should design the testbed and other research efforts to allow for industry input early in the process and on an equitable, representative basis.

### CONCLUSION

The National Spectrum Strategy is of central importance to advancing the spectrum availability needed to support consumers, innovation, and continued U.S. technological leadership. As NTIA works to develop the Implementation Plan, it should ensure that its work complies with President Biden’s directive to promote competition and decrease concentration in the wireless marketplace. Properly timed and structured studies of the 3.1 GHz band, 7/8 GHz range, and Lower 37 GHz band for shared and unlicensed use will achieve those objectives. NCTA stands ready to work with NTIA and its Federal partners on those bands and looks forward to productive efforts on longer-term spectrum-planning efforts and research and development for shared-spectrum approaches.

Respectfully submitted,

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