Rick Chessen
Senior Vice President
Legal & Regulatory Affairs and Chief Legal Officer
o (202) 222-2447 e rchessen@ncta.com

March 7, 2024

Via E-mail

Mr. Scott Blake Harris
Senior Spectrum Advisor
National Telecommunications and Information Administration
1401 Constitution Avenue NW
Washington, DC 20230

Re: Implementation of the National Spectrum Strategy, 88 Fed. Reg. 85266

Dear Mr. Harris,

The implementation of the National Spectrum Strategy ("Strategy")[1] presents a unique opportunity for our country to modernize U.S. spectrum policy to reflect how Americans use wireless technologies today, to position the U.S. for continued global technological leadership, and to promote greater competition and innovation in spectrum markets. To achieve these connectivity goals, we must transform our approach to spectrum policy to embrace coexistence solutions with federal users when doing so would unlock government spectrum for commercial use in a manner consistent with American security interests. NCTA's comments in response to the National Telecommunications and Information Administration's ("NTIA") Request for Comments on the Strategy[2] and the implementation of the Strategy[3] provide our

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1 National Spectrum Strategy, THE WHITE HOUSE (Nov. 13, 2023), available at https://www.ntia.gov/sites/default/files/publications/national_spectrum_strategy_final.pdf ("National Spectrum Strategy" or "NSS"); Implementation of the National Spectrum Strategy, 88 Fed. Reg. 85266 (Dec. 7, 2023).

2 Comments of NCTA – The Internet & Television Association, NTIA-2023-0003 (filed Apr. 17, 2023), https://www.ntia.gov/sites/default/files/publications/ncta_the_internet_and_television_association.pdf ("NCTA NSS Comments").

3 Comments of NCTA – The Internet & Television Association on Implementation Plan for National Spectrum Strategy, NTIA-2023-0003 (filed Jan. 2, 2024), https://www.ntia.gov/sites/default/files/ncta-written-input.pdf ("NCTA NSS Implementation Comments").

recommendations for how industry and policymakers can work together to improve U.S. spectrum policies. We write today to discuss the importance of fostering wireless innovation and competition while protecting national security interests and to respond to a recent letter from CTIA arguing that NTIA should preference high-power, exclusive spectrum over proven shared and unlicensed options as it implements the Strategy.[4]

In the past, U.S. spectrum policies prioritized exclusive-use licensing and the relocation of federal incumbents because expanding geographic coverage was the primary goal. But the increased availability of powerful, proven coexistence techniques show that it is now possible (and necessary) for NTIA to implement the Strategy by expanding access to spectrum resources for robust commercial applications through unlicensed and shared-licensed use that avoids disrupting critical federal operations. Therefore, implementation of the Strategy should account for the following key factors:

- *The future of U.S. spectrum policy must map to the transformation of American wireless use*. We spend 90% of our time, and consume 80% of data, indoors where exclusive licensed spectrum coverage is far less practical.[5] Americans now rely on Wi-Fi and unlicensed wireless technologies far more than high-power, exclusive coverage networks, even when those connections are via mobile devices: 87% of the bits generated by at least one mobile provider are carried over Wi-Fi.[6]

- *NTIA faces a complex incumbent landscape*. With the depletion of greenfield spectrum, the impacts of previous compressions and relocations, and the rise of congested operational environments, identifying and then clearing spectrum bands solely to support full power, exclusive commercial operations is increasingly time consuming and expensive—if possible at all. However, well-established coexistence technologies, like Wi-Fi and shared-licensed models, make it possible for the U.S. to increase commercial access to critical bandwidth without displacing federal incumbent operations—a win-win for national security, innovation, and competition.

- *China promotes exclusive-licensed networks around the world to advance the interests of its domestic equipment suppliers*. The Chinese government aims to block the advancement of unlicensed technologies in order to maximize global

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4 Letter from Umair Javed, SVP, Spectrum, CTIA, to Scott B. Harris, Senior Spectrum Advisor, NTIA (filed Jan. 30, 2024) ("CTIA Letter").

5 Diana Adams, *5 Ways Indoor 5G Will Change Your Life (and Mine)*, ERICSSON, (July 26, 2023), https://www.ericsson.com/en/blog/2023/7/5-ways-indoor-5g-will-change-life.

6 Daniel Frankel, *Charter's Winfrey Declares Cable King of Speed at SCTE 2023 … but Latest Ookla Data Shows T-Mobile's 5G Fixed Wireless Access Quickly Catching Up*, NEXTTV, (Oct. 17, 2023), https://www.nexttv.com/news/charters-winfrey-declares-cable-king-of-speed-at-scte-2023-but-latest-ookla-data-shows-t-mobile-fixed-wireless-access-5g-quickly-catching-up.

market share for Chinese government-sponsored companies, like Huawei and ZTE, undermining U.S. leadership. To counter these goals, the U.S. must support the development and expansion of technologies where it has a competitive advantage at home and abroad, led by Wi-Fi and spectrum-sharing.

- *Promoting shared spectrum use will further ongoing competition in the wireless and broadband marketplace*. Shared-licensed frameworks allow more players to enter the marketplace and give consumers more options and better prices for connectivity. Americans are concerned about the cost of mobile phone plans,[7] and promoting spectrum coexistence will further ongoing competition in the wireless and broadband marketplace. In 2023, 86% of Americans said they were concerned about cellphone prices. One in four Americans are looking to move away from the major cell phone carriers (i.e., Verizon, AT&T, and T-Mobile) and to a carrier that offers more flexibility.[8]

The National Spectrum Strategy rightly recognizes that the path forward requires us to adopt forward-looking coexistence approaches to support commercial use through unlicensed and shared-licensed models.

I. Implementation of the National Spectrum Strategy Should Reflect How Americans Use Spectrum Today.

The National Spectrum Strategy committed to "moderniz[ing] spectrum policy."[9] To achieve this goal, it is critical that the Strategy's implementation reflects how Americans use wireless technologies today—which is primarily through Wi-Fi—and the growing appetite for targeted use cases by consumers and enterprises. High-power, exclusively licensed coverage networks *formerly* supported most American wireless traffic. For many years now, however, technological advances as well as changes in consumer and enterprise demand have caused Americans' Wi-Fi usage to surpass the use of exclusive-licensed spectrum.

The data show that high-power, exclusively licensed spectrum is no longer the "lynchpin" of the Nation's wireless landscape.[10] Over half of *all* U.S. *and* global internet traffic—wired or wireless—is delivered over Wi-Fi.[11] Even for mobile users, the internet has become synonymous with Wi-Fi, as more than 80% of cable operators' mobile data traffic is offloaded

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7 Alex Kerai, *How Much Are You Overspending on Your Phone Bill?*, WHISTLEOUT (Feb. 16, 2024), https://www.whistleout.com/CellPhones/Guides/mobile-overspending-report.

8 *Id.*

9 National Spectrum Strategy at 1.

10 CTIA Letter at 3.

11 *Broadband Facts & Stats*, NCTA, https://www.ncta.com/broadband-facts (last visited Feb. 14, 2024).

to Wi-Fi networks.[12] As of 2022, the average U.S. household owned 16 connected devices.[13] And Wi-Fi demand continues to surge. For example, from 2018 to 2021, Comcast witnessed a *12x increase* in devices connected to Wi-Fi.[14]

NTIA should adopt a Strategy that allows unlicensed spectrum resources to grow with consumer demand, not shrink as CTIA members argue.[15] Despite evidence that American demand for unlicensed bands continues to grow and that Wi-Fi usage continues to skyrocket year over year, CTIA argues that there is too much spectrum designated for unlicensed use.[16] To support this contention, CTIA argues that the U.S. has designated 7x more spectrum "in the mid band" for unlicensed operations than for exclusively licensed operations.[17] This comparison is misleading for several reasons.

First, CTIA ignores the majority of nationwide wireless carriers' spectrum holdings, including cellular bands that constitute the core of their networks. It is critical to include these bands because the U.S. has designated *9x more licensed-exclusive spectrum than unlicensed*

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12 Eric Peter et al., *Uncovering Real Mobile Data Usage and the Drivers of Customer Satisfaction*, BOSTON CONSULTING GROUP (Nov. 16, 2015), https://www.bcg.com/publications/2015/telecommunications-customer-insight-uncovering-real-mobile-data-usage-drivers-customer-satisfaction; *see also* Linda Hardesty, *Charter, Comcast Share Their Wi-Fi Networks for MVNO Services*, FIERCE WIRELESS (May 10, 2023), https://www.fiercewireless.com/wireless/charter-talks-spectrum-connectx.

13 *Broadband Stats: A World of Wi-Fi*, NCTA (June 22, 2023), https://www.ncta.com/whats-new/broadband-stats-a-world-of-wi-fi.

14 *Comcast Connected Nearly 1 Billion Devices Over WiFi in 2021*, COMCAST (Feb. 16, 2022), https://corporate.comcast.com/press/releases/comcast-report-xfinity-households-1-billion-devices-wifi-2021.

15 AT&T and T-Mobile argue in their comments on the implementation of the Strategy that NTIA should advocate that the FCC rescind its recent 6 GHz Order and remove Wi-Fi consumers from the majority of the 6 GHz band, despite the fact that consumers and enterprises have already invested in Wi-Fi equipment for these frequencies. Comments of T-Mobile USA, Inc. at 10–11, Document No. 2023-26810 (filed Jan. 2, 2024), https://www.ntia.gov/sites/default/files/t-mobile-written-input.pdf ("Comments of T-Mobile"); Comments of AT&T, Inc. at 7, Dkt. No. 230308-0068 (filed Jan. 2, 2024), https://www.ntia.gov/sites/default/files/att-written-input.pdf ("Comments of AT&T").

16 *See* CTIA Letter at 2, 12–13.

17 *See* Comments of CTIA at 2–3, NTIA-2023-0003 (filed Apr. 17, 2023); Accenture, *Spectrum Allocation in the United States*, 2 (2022), https://api.ctia.org/wp-content/uploads/2022/09/ Spectrum-Allocation-in-the-United-States-2022.09.pdf.

spectrum below 3 GHz, all of which is inappropriately and inexplicably excluded from CTIA's assessment.[18]

Second, CTIA's comparison depends on an incorrect accounting even within mid-band spectrum. It excludes from the number of licensed-exclusive megahertz the spectrum already set for licensed use in the C-band, as well as the 2.5 GHz band.[19]

Third, a megahertz-to-megahertz comparison does not account for fundamental differences in the rules for how licensed and unlicensed spectrum bands are used. Exclusive spectrum auctions award a single entity with the right to use frequencies within a designated geographic area *while excluding all other users*. Unlicensed spectrum, on the other hand, is shared among a myriad of diverse users in the same geographic area—including nationwide wireless carriers. In fact, Verizon was one of the first internet service providers to launch Wi-Fi 6E technology, using newly available 6 GHz unlicensed spectrum. And the subscribers of the three nationwide carriers liberally rely on unlicensed Wi-Fi spectrum. Further, exclusive spectrum is afforded high-power operations and complete flexibility of use within the allocated band, whereas unlicensed spectrum operators use lower power and avoid causing harmful interference.

The Nation needs more unlicensed spectrum. Wi-Fi enables a far larger number of entities to deliver a far broader range of services and support a far larger amount of traffic than exclusively licensed networks. NTIA can deliver the most consumer and economic benefit by implementing the Strategy in a way that opens up more unlicensed resources to meet this growing demand.

II. The U.S. Must Continue to Advance Spectrum Sharing Strategies in an Increasingly Complicated Spectrum Environment.

U.S. demand for spectrum continues to grow, and greenfield spectrum is nonexistent. Accordingly, today's bands are more densely packed than ever before with diverse federal and non-federal incumbents, and NTIA must consider these important incumbent operations for each band identified in the Strategy. Spectrum sharing strategies, as demonstrated by dynamic spectrum sharing in the 3.5 GHz band and Wi-Fi operations in the 6 GHz band, dramatically increase the utility of spectrum bands—all while protecting critical incumbent operations. These proven spectrum sharing approaches will open bands to new commercial operations without incurring exorbitant clearing costs or requiring federal incumbent operations to relocate.

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[18] *See* Janette Stewart et al., *Comparison of Total Mobile Spectrum in Different Markets*, ANALYSYS MASON, 6 (2022), https://api.ctia.org/wp-content/uploads/2022/09/Comparison-of-total-mobile-spectrum-14-09-22.pdf ("Analysys Mason 2022 Spectrum Comparison").

[19] *See* NCTA NSS Comments at 18.

Recognizing this complex wireless landscape, the Strategy properly finds that spectrum sharing technologies are "essential" to maintaining U.S. wireless leadership[20] and that dynamic spectrum sharing is key to meeting increased wireless demand.[21] Despite this finding, CTIA argues that the U.S. should designate nearly every band under active consideration for high-power, exclusive licensing and that the U.S. should only consider shared-spectrum approaches for future exploration.[22] CTIA's approach will undermine U.S. wireless leadership by precluding the majority of companies and federal users from accessing valuable spectrum resources at a time when the largest wireless companies have invested less than expected in densification of their networks, which would have reduced the impact of their operations on the nation's spectrum resources. U.S. wireless carriers have promised investment in 5G small cell deployment. However, wireless carriers have failed to invest to densify their 5G networks as expected, resulting in inefficient spectrum use and disappointment surrounding the promises of 5G.[23] Government earmarks of even more exclusive spectrum are not needed for carriers to make these investments—quite the opposite, as the deployment of more 5G facilities would result in greater spectral efficiency.

The U.S. has already demonstrated the power of successful sharing regimes. For instance, the CBRS band—a key band for the development of shared spectrum in the U.S.—successfully diversified spectrum ownership at a time of high concentration in the U.S. spectrum market. Yet CTIA nonetheless continues to argue that the CBRS band is underutilized, and thus high-power, exclusive licensing is the only choice for future bands.[24] The facts show otherwise.

As a testament to the band's utility, the CBRS auction attracted substantially more participants than the contemporaneous 3.45 GHz exclusive auction and produced *10x more*

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20 National Spectrum Strategy, Cover Page.

21 *Id.* at 1.

22 *See* CTIA Letter at 1 (proposing that the Lower 3 GHz band and 7/8 GHz band be designated for "licensed, full-power spectrum").

23 *See* Mike Dano, *America's 5G Spending Slowdown Proves Bigger than Expected*, LIGHT READING, (July 24, 2023), https://www.lightreading.com/5g/america-s-5g-spending-slowdown-proves-bigger-than-expected (reporting that Verizon, T-Mobile, and Dish Network spent 50% less on their 5G networks than expected). Accordingly, the U.S. significantly lags behind other countries in the deployment of 5G facilities. *See European 5G Scoreboard*, EUROPEAN 5G OBSERVATORY, https://5gobservatory.eu/observatory-overview/interactive-5g-scoreboard/ (last visited Mar. 1, 2024) (finding that the European Union has over 2.5x more 5G base stations as of July 2023).

24 *See* CTIA Letter at 8–9, 14–15.

winning bidders.[25] Auction participants were also much more diverse—education and health care providers, wireless internet service providers, utilities, Tribes, equipment providers, and traditional broadband internet service providers all successfully obtained CBRS spectrum licenses, thereby advancing the President's directive to make spectrum available to a more diverse set of users and further drive competition.[26] In addition, an even larger and more diverse set of users can access the band through General Authorized Access licenses. The vibrant market for CBRS services and devices continues to grow, with over 300,000 CBRS base-station devices deployed in just the past three years.[27] That's more than 60% of the *total* number of cell sites deployed by the commercial wireless industry in *over forty years*.[28]

Importantly, NTIA recently evaluated the CBRS band and conclusively stated, "it is working."[29] NTIA Deputy Assistant Secretary for Communications and Information April McClain-Delaney concluded, "[t]he success and growth of the CBRS band shows the promise of dynamic spectrum sharing to make more efficient use of this finite resource."[30]

A recent report by the Commerce Spectrum Management Advisory Committee ("CSMAC") further demonstrates widespread agreement that the CBRS band is a success.[31] CSMAC reported that (1) "government commenters generally indicated that the three-tiered

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[25] The CBRS auction involved 271 qualified bidders and resulted in 228 unique winning bidders. FCC, *Public Reporting System: Auction Data*, *Auction 105 – 3.5 GHz*, https://auctiondata.fcc.gov/public/projects/auction105 (last visited Feb. 14, 2024).

[26] *See* President Joseph R. Biden, Jr., *Executive Order on Promoting Competition in the American Economy*, THE WHITE HOUSE, § 5(l)(ii) (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*").

[27] Michael Woodley, *Using CBRS and Haven't Heard About TARDYs3? Don't Be Late to The Party.*, ERICSSON (Apr. 17, 2023), https://www.ericsson.com/en/blog/6/2023/impact-of-tardys3-on-cbrs-commercial-operations.

[28] NCTA's National Spectrum Strategy comments provide additional details on the success of the CBRS band. *See generally* NCTA NSS Comments.

[29] *The Innovative Spectrum Sharing Framework Connecting Americans Across the Country*, NTIA (2023), https://www.ntia.gov/blog/2023/innovative-spectrum-sharing-framework-connecting-americans-across-country ("NTIA CBRS Report"); *see* Douglas Boulware et al., *An Analysis of Aggregate CBRS SAS Data from April 2021 to January 2023*, Report No. TR-23-567, NTIA (May 2023), https://its.ntia.gov/umbraco/surface/download/publication?reportNumber=TR-23-567.pdf.

[30] NTIA CBRS Report.

[31] *Commerce Spectrum Management Advisory Committee (CSMAC), Report of Subcommittee on CBRS*, NTIA (2023), https://www.ntia.gov/sites/default/files/2023-12/cbrs_subcommittee_final_report.pdf.

sharing framework has so far proven to be a positive spectrum access solution for protecting federal users and enabling them to continue to meet their missions while opening up unique and innovative commercial sharing opportunities;" and (2) "[f]ixed wireless providers, new-entrant wireless companies, and their corresponding associations, generally stated that the CBRS framework has served to protect incumbents, diversify use of the band, enhance opportunities for private networks, promote efficient spectrum use, and lay a foundation for dynamic spectrum sharing possibilities."[32] CTIA cites this same report as counterevidence.[33] However, CTIA cites only the report's references to the opinions of CTIA's own members. Reading the entire report demonstrates that, while many parties suggested ways to improve the technical rules that govern the band, CTIA's members stood alone in criticizing CBRS's approach to spectrum sharing. Building on the success of CBRS in other bands is necessary for continued expansion of commercial operations in densely packed bands with federal and non-federal incumbents.[34]

III. To Maintain U.S. Leadership, Policymakers Should Build on American Strengths Rather than Acquiesce to China's Campaign to Block Coexistence Technologies and Maximize Huawei and ZTE's Global Market Share.

American companies lead the world in the unlicensed and shared-spectrum marketplaces. The U.S. invented Wi-Fi, was the first country to designate spectrum bands for unlicensed sharing, and was the first to design and deploy the multi-layer CBRS federal and commercial sharing framework. American companies continue to dominate production of Wi-Fi chips and access points,[35] and innovate with the use of new CBRS-supported private networks

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[32] *Id.* at 8.

[33] CTIA Letter at 8–9.

[34] CTIA has suggested routinely that lower power CBRS-like shared operations in the 3 GHz band are inappropriate as it would put us behind in "the race" with China since they have already moved to enable high-powered operations throughout the 3 GHz band. However, CTIA fails to accurately describe China's allocation of spectrum. In fact, China has allocated the 3.3-3.4 GHz band for low-power, indoor use. *See* Analysys Mason 2022 Spectrum Comparison at 10 n.4 (noting that China's licensed mid-band spectrum currently assigned for mobile use "includes 100MHz (3.3-3.4 GHz) of shared indoor spectrum"); *Global 5G Spectrum Update and Innovations for Future Wireless Systems*, QUALCOMM (May 31, 2023), https://www.qualcomm.com/content/dam/qcomm-martech/dm-assets/documents/global-5g-spectrum-status-and-innovations-for-future-wireless-systems.pdf (noting that Mainland China "[a]llocated 3.3-3.4 GHz for shared indoor use").

[35] *See Wi-Fi Chipset Market is Expected to Reach USD 27,183.7 Million by 2025 at 6.02% CAGR – Report by Market Research Future (MFRF)*, GLOBE NEWSWIRE (Aug. 30, 2021), https://www.globenewswire.com/news-release/2021/08/30/2288362/0/en/Wi-Fi-Chipset-Market-is-Expected-to-Reach-USD-27-183-7-Million-by-2025-at-6-02-CAGR-Report-by-Market-Research-Future-MRFR.html.

and specialized technologies. And American use of unlicensed technologies far outpaces that of many other countries. In fact, unlicensed bands power far more traffic from American consumers than *all high-power licensed wireless networks combined*.[36] American innovation and enthusiasm for unlicensed technologies give the U.S. an enormous competitive advantage by boosting the economy, supporting American-made equipment, and providing superior and more accessible connectivity that powers education, retail, and social engagement.

By contrast, China controls the global 5G network equipment market. Today, the two leading suppliers outside of China have less than 10% of the global market combined.[37] And China's primary goal is to solidify its state-sponsored companies' global market share by closing off access to American- and Western-made unlicensed and shared-licensed technologies and non-exclusive licensed spectrum. Making more high-powered licensed spectrum available around the world supports China's agenda by carving out significant portions of the global market, boxing out the American companies that lead the unlicensed and shared-licensed markets by denying them spectrum resources. The Chinese government's two-fold strategy is clear: (1) promote high-power, exclusive licensing (also known as international mobile telecommunications or "IMT") to help Huawei, ZTE and other Chinese government-sponsored companies; and (2) undermine unlicensed technologies so that American chip and equipment makers lose the ability to compete.

China's strategy to promote IMT and undermine unlicensed operations played out at the most recent World Radiocommunications Conference ("WRC"). China fought hard to convince countries to abandon or preclude unlicensed operations in the 6 GHz band. Fortunately, the U.S. government stood strong and achieved two major wins. *First*, the U.S. blocked the Chinese government's attempt to designate the upper part of the 6 GHz band exclusively for IMT operations across the Americas—which was a direct challenge to U.S. spectrum policy and rules.[38] *Second*, the U.S., working with allies, succeeded in ensuring that any country in Europe, the Middle East, or Africa ("EMEA") can choose to permit unlicensed operations throughout the 6 GHz band. Likewise, the designation of IMT in Asia for the top 100 MHz of the 6 GHz band also recognizes Wi-Fi in that segment. Therefore, although the upper 6 GHz band has been "designated" for IMT in EMEA and Asia, it has also been recognized for Wi-Fi, and our allies are still free to join the U.S. in opening the entire band to unlicensed operations.

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[36] *See Broadband Facts & Stats*, NCTA, https://www.ncta.com/broadband-facts (last visited Feb. 14, 2024).

[37] *See* Daniel Slotta, *Market Share of 5G Equipment in China 2023, By Provider*, STATISTA (Oct. 11, 2023), https://www.statista.com/statistics/1194757/china-market-share-of-5g-base-stations-by-manufacturer

[38] *See* ITU-R Resolution COM 4/7 (WRC-23) (recognizing "that the identification of a frequency band for IMT does not establish priority in the Radio Regulations and does not preclude the use of the frequency band by and application of the services to which it is allocated"). However, individual countries can still adopt the Chinese prioritization of IMT over the U.S. position.

Following the WRC, many countries have a choice in their own 6 GHz licensing regime. China will therefore continue pushing its IMT vision in a country-by-country struggle. The U.S. now more than ever needs to take a strong stance in support of unlicensed technologies to promote its own competitive advantage in the global arena.

CTIA, however, argues, "The key to . . . advancing national security is more licensed spectrum."[39] In other words, to counter China's strategy, CTIA recommends the U.S. embrace the same goal as China: preferencing IMT spectrum over unlicensed and shared spectrum.[40] Not only does this approach undermine U.S. competitiveness and leadership, it undercuts the U.S. Government's ongoing efforts to reduce the risks created by the presence of Chinese telecommunications equipment in wireless networks. The best way to compete with China and to give American consumers the best wireless service in the world is to promote unlicensed and shared-spectrum equipment and services at home and abroad. To maintain U.S. leadership and support our allies, we must continue building on the exceptional success of U.S. companies in deploying unlicensed and shared-spectrum technologies where the U.S. has the advantage. NTIA can achieve this through its implementation of the Strategy and counter China's global campaign to lock in exclusive-licensed IMT by expanding unlicensed and shared-licensed approaches at home and abroad.

IV. Promoting Shared Spectrum Use Will Further Ongoing Competition in the Wireless and Broadband Marketplaces.

A central goal of the Strategy should be to promote competition. CTIA claims that the *Executive Order on Promoting Competition in the American Economy* ("*Executive Order*")[41] does not implicate wireless competition.[42] This is incorrect. The text of the *Executive Order* is clear—it identifies "spectrum stockpiling, warehousing of spectrum by licensees, [and] the creation of barriers to entry" for "industries that depend upon radio spectrum, *including mobile communications*"[43] as targets of its directives. The *Executive Order* encourages the FCC, as the agency that regulates commercial spectrum and conducts auctions, to address these issues "to promote competition, lower prices, and a vibrant and innovative telecommunications

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39 CTIA Letter at 6.

40 Following the WRC, two of CTIA's members even argued that the FCC should reverse its 6 GHz rules. That would mean clearing incumbent licensees, blocking the use of already-deployed Wi-Fi devices, and auctioning the band for IMT. *See* Comments of T-Mobile at 10–11; Comments of AT&T at 7.

41 *Executive Order* § 5(l).

42 CTIA Letter at 12.

43 *Executive Order* § 5(l) (emphasis added).

ecosystem."[44] And NTIA has a clear role, in coordination with the FCC, in implementing the *Executive Order*'s directive.

NCTA's members are some of the fastest growing wireless providers in the country. Cable providers are focused on providing real, sustained competition to the nationwide wireless providers by using their existing wired and wireless networks along with the deployment of innovative new technologies like shared spectrum.[45] In just a few years, new competitive wireless offerings by cable companies have grown to almost 15 million subscribers, producing significant consumer and economic benefits[46] and bringing new competition to the wireless marketplace.[47] More allocation of spectrum for Wi-Fi and other shared spectrum use will continue to foster this increasing competition from cable MVNO and other providers. Specifically, the shared-licensed CBRS networks that cable companies are building are key to their efforts to compete with entrenched incumbents and will require spectrum resources beyond the 3.5 GHz band to keep this competition moving ahead. But if future spectrum bands are licensed reflexively as the high-power, exclusive bands demanded by the largest incumbent carriers, new entrants will be blocked from bringing their innovation and competition to the wireless marketplace.

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44 *Id.*

45 *See, e.g.,* Tom Nagel, *Comcast in Wireless – Building a Strategy for Sustained Growth*, COMCAST (Sept. 12, 2023), https://corporate.comcast.com/stories/comcast-wireless-building-strategy-sustained-growth (discussing the success of Comcast's CBRS field tests); *Cox, Intel and Future Technologies Collaborate to Deliver End-to-End Private Networks for Commercial Customers*, COX (Feb. 20, 2023), https://newsroom.cox.com/2023-02-20-Cox,-Intel-and-Future-Technologies-collaborate-to-deliver-end-to-end-private-networks-for-commercial-customers (describing Cox's use of CBRS to connect low-income students); Comments of Charter Communications, Inc., NTIA-2023-0003, at 3 (filed Apr. 17, 2023), https://www.ntia.gov/sites/default/files/publications/charter_communications.pdf (describing Charter's efforts to integrate CBRS into a hybrid mobile network).

46 Sue Marek, *Marek's Take: The Complex World of Wireless Price Plans*, FIERCE WIRELESS (May 24, 2022, 10:40 AM), https://www.fiercewireless.com/wireless/mareks-take-complex-world-wireless-price-plans ("So why are AT&T And T-Mobile testing the waters with these lower priced postpaid plans? . . . Wireless operators initially shrugged off competition from Xfinity Mobile, Spectrum Mobile and Optimum Mobile, but every quarter the cable players are taking more and more share away from the wireless operators.").

47 Jeff Baumgartner, *Cable Snared Nearly Half of US Mobile Line Adds in Q3—Analyst*, LIGHT READING (Nov. 16, 2023), https://www.lightreading.com/wireless/cable-snared-nearly-half-of-us-mobile-line-adds-in-q3-analyst; Jeff Baumgartner, *US Cable Captured 75% of Mobile Net Adds in Q1—Study*, LIGHT READING (May 30, 2023), https://www.lightreading.com/cable-technology/us-cable-captured-75-of-mobile-net-adds-in-q1-study.

In an attempt to redirect NTIA's focus, CTIA asserts that the markets for cable television and broadband are inadequately competitive. Cable providers face strong competition in both their video and broadband services that only continues to increase. The marketplace for video programming is competitive as cable companies compete vigorously with over-the-top online streaming services that fight hard to convince subscribers to "cut the cord."[48] In fact, the top seven subscription video services in the U.S. are now online streaming services.[49] Meanwhile, the market share of traditional multichannel video programming distributors ("MVPD") continues to decrease—in stark contrast to the market share of nationwide wireless carriers. The number of MVPD subscribers dropped from over 101 million subscribers in 2012 to under 60 million at the end of 2023.[50] In turn, cable providers continue to lower prices and offer new bundles to maintain subscribers in the new streaming era—indications that the competitive video programming market is serving consumers.

Likewise, the broadband marketplace is competitive.[51] Today, broadband providers come in many different shapes and sizes—fiber, copper, fixed wireless, mobile wireless, LEO satellite, geostationary satellite, as well as coaxial cable. This competition has resulted in significant leaps in closing the digital divide and consumer choice. In fact, according to data from the FCC's Broadband Data Collection efforts, 80% of households with at least 25/3 Mbps service from a fixed broadband provider had a choice of two or more providers and almost half of the households had a choice of three or more providers.[52] Accordingly, broadband providers must continue to invest in their networks to stay competitive. In 2022 alone, cable operators invested $21.7 billion towards improving and expanding their broadband networks.[53]

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48 *See* 2022 Communications Marketplace Report ¶¶ 237–247; *id.* ¶¶ 283–288.

49 These services include Netflix, Hulu, Disney+, Paramount+, Peacock Premium, Max/HBO Max, and ESPN+. *See generally* Naveen Sarma, *U.S. Media and Entertainment Industry*, S&P GLOBAL (Jan. 2024), https://spglobal.com/_assets/documents/ratings/research/101591713.pdf.

50 *Compare Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Fifteenth Report, 28 FCC Rcd. 10496 ¶ 3 (2013) (noting that MVPD subscribership totaled 101 million in 2012) *with* Mau Rodriguez & John Fletcher, *US Video Home Forecast Through 2027*, S&P Global IQ (Oct. 12, 2023) (noting current trends in MVPD subscribership).

51 *See* Declaration of Mark Israel, Bryan Keating and Allan Shampine, WC Docket No. 23-320, at 9 (Dec. 14, 2023), *as attached to* Comments of NCTA — The Internet & Television Association, WC Docket Nos. 23-320, 17-108, 17-287, and 11-42 (filed Dec. 14, 2023) ("Competition is evident from the number of options available, their rapid growth, the huge increases in output, and the decline in real prices in the industry").

52 *Id.* at 11.

53 NCTA estimates this value based on member companies' financial disclosures.

In short, cable operators face immense competition in both the video and broadband markets, and spectrum sharing is a powerful tool that can and will continue to enhance and expand competition in the wireless market as evidenced by the diverse winners of the CBRS auction.

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For these reasons, NCTA urges NTIA to reject CTIA's recommendation that the Nation should favor exclusive licensing above all other options in implementing the National Spectrum Strategy. This approach is no longer consistent with how Americans use wireless technologies, would block critical spectrum sharing tools, is inconsistent with an effective response to China's wireless ambitions, and would undermine competition and diversity in the wireless and broadband markets.

Sincerely,

/s/ *Rick Chessen*

Rick Chessen
Becky Tangren
Traci Biswese
NCTA – The Internet &
Television Association
25 Massachusetts Avenue NW
Suite 100
Washington, DC 20001
(202) 222-2445