

CTIA
WHITE PAPER RESPONSE
REQUEST FOR INFORMATION
REGARDING DYNAMIC SPECTRUM SHARING
DEFENSE INFORMATION SYSTEMS AGENCY
U.S. DEPARTMENT OF DEFENSE

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CTIA WHITE PAPER RESPONSE TO REQUEST FOR INFORMATION

CTIA¹ hereby submits this White Paper in response to the Request for Information (“RFI”) issued by the Defense Information Systems Agency/Defense Information Technology Contracting Organization – National Capital Region, on behalf of the Department of Defense (“DoD”), regarding Dynamic Spectrum Sharing (“DSS”).²

I. INTRODUCTION.

CTIA appreciates the intent of this inquiry “to ensure the greatest effective and efficient use of [DoD’s] spectrum for training, readiness, and lethality,” and 5G capabilities most certainly will advance DoD efforts to achieve those goals. The wireless industry welcomes the opportunity to work with DoD further on enabling commercial solutions to support military needs. For example, CTIA applauds DoD’s recent announcement of \$600 million in awards for 5G test beds at five military test sites, focused on leveraging commercial innovations for DoD

¹ CTIA (www.ctia.org) represents the U.S. wireless communications industry and the companies throughout the mobile ecosystem that enable Americans to lead a 21st century connected life. The association’s members include wireless carriers, device manufacturers, suppliers as well as apps and content companies. CTIA vigorously advocates at all levels of government for policies that foster continued wireless innovation and investment. The association also coordinates the industry’s voluntary best practices, hosts educational events that promote the wireless industry and co-produces the industry’s leading wireless tradeshow. CTIA was founded in 1984 and is based in Washington, D.C.

² The Defense Information Systems Agency / Defense Information Technology Contracting Organization – National Capital Region, on behalf of the Department of Defense, Request for Information Seeking Information from Industry regarding Dynamic Spectrum Sharing (DSS) (Sept. 18, 2020).

use.³ Initiatives such as these demonstrate that we can collaborate to advance both military and commercial spectrum objectives.

At the same time, the RFI's focus on a DoD-managed spectrum sharing arrangement between the military and the private sector,⁴ or a lease by DoD of National Telecommunications and Information Administration ("NTIA")-assigned spectrum to commercial entities, is the wrong approach and fails to account for the statutory framework governing the assignment of spectrum for commercial use and the stunning success of that market-driven approach. The United States leads the world in wireless due largely to a spectrum assignment framework focused on clearing spectrum resources, auctioning exclusive-use spectrum licenses, and enabling wireless service providers to invest and innovate in a robustly competitive wireless market, putting spectrum to its highest and best use for American consumers, businesses, and government entities as well.

The RFI contemplates a dramatic departure from this approach with DoD inserting itself into this thriving commercial sector. This would be a mistake. A DoD-managed arrangement that shares or leases DoD-assigned spectrum to the private sector, or otherwise makes available DoD 5G network capacity for commercial use, would undercut the market-driven spectrum

³ Department of Defense, Release, *DOD Announces \$600 Million for 5G Experimentation and Testing at Five Installations* (Oct. 8, 2020) ("DoD 5G Testing Announcement"), available at <https://www.defense.gov/Newsroom/Releases/Release/Article/2376743/dod-announces-600-million-for-5g-experimentation-and-testing-at-five-installati/>.

⁴ The term "spectrum sharing" can take on many meanings and can include geographic sharing, temporal sharing (either predictable or unpredictable), coordinated sharing, or uncoordinated rule-based sharing. See Coleman Bazelon and Giulia McHenry, the Brattle Group, *Spectrum Sharing: Taxonomy and Economics*, at 8-10 (2014). This White Paper explains the economic and policy flaws, as well as the legal infirmities, inherent in any form of so-called "sharing" in which DoD retains oversight or control of spectrum that is ostensibly allocated for commercial purposes.

assignment framework and undermine the investment and innovation at the heart of the American wireless ecosystem. This is all the more important in the mid-band spectrum context given that the United States is lagging other nations in making this vital spectrum available for 5G.⁵ Further, any such DoD-managed initiative would contravene multiple statutes that restrict federal agencies' intervention in the allocation of spectrum for commercial purposes and prohibit federal agencies from entering into an arrangement in exchange for compensation from, or providing compensation to, private actors absent Congressional authority. Finally, there are serious questions whether an approach in which DoD owns and operates or manages a 5G network would best serve the interests of DoD and the United States.

CTIA and its member companies welcome the opportunity to explore ways to repurpose additional government spectrum for exclusive-use, flexible-rights wireless licenses and to provide DoD with the 5G capabilities at the heart of the RFI. We applaud DoD's expedited review and decision to enable commercial 5G operations in the 3.45-3.55 GHz band and its support for an Federal Communications Commission ("FCC") auction of the 100 megahertz swath of mid-band spectrum next year.⁶ The 3.45-3.55 GHz process can be the blueprint for future consideration of the remainder of the lower 3 GHz band. CTIA also supports the development of 5G technologies for DoD to leverage commercial solutions to meet mission-

⁵ See CTIA, *Study of 5G Spectrum Availability Shows Importance of U.S. Action to Expand Pipeline and License Lower 3 GHz Band*, (June 30, 2020) (highlighting a report finding that the U.S. faces a large deficit at 3.3-3.6 GHz, a key range prioritized by other countries), *available at* <https://www.ctia.org/news/release-study-of-5g-spectrum-availability-shows-importance-of-u-s-action-to-expand-pipeline-and-license-lower-3-ghz-band>.

⁶ See Department of Defense, *White House and DOD Announce Additional Mid-Band Spectrum Available for 5G by the end of the Summer* (Aug. 10, 2020), *available at* <https://www.defense.gov/Newsroom/Releases/Release/Article/2307275/white-house-and-dod-announce-additional-mid-band-spectrum-available-for-5g-by-t/>.

critical needs, including use of virtualized networking to deliver 5G capabilities that meet DoD's 5G performance and security requirements over commercial solutions. At CTIA, we stand ready to collaborate and advance these critical priorities. But placing DoD in charge of commercial spectrum allocations will significantly discourage the private-sector innovation and investment necessary to maximize 5G capabilities for the benefit of both DoD and the general public.

For these reasons, CTIA respectfully asks DoD to reject experimental spectrum-sharing schemes and recommit to the model that has made the U.S. wireless ecosystem the envy of the world.

II. POLICYMAKERS SHOULD NOT ENDANGER U.S. LEADERSHIP IN 5G BY DISMISSING THE TRIED-AND-TRUE ROUTE TO WIRELESS INVESTMENT AND INNOVATION: REPURPOSING SPECTRUM, AUCTIONING LICENSES, AND ALLOWING COMPETITION TO FLOURISH (RESPONSE TO QUESTION 3.B.).

The RFI seeks input on delivering 5G capabilities for DoD, but it is premised on DoD intervention in the U.S. commercial wireless market. It contemplates a regime under which commercial services would be dependent on a DoD-managed network, through some form of sharing or leasing arrangement. On that front, a fundamental question is whether federal policymakers should diverge from decades of successful American spectrum policy based on private investment and competition in favor of a top-down, command-and-control model in which DoD inserts itself into commercial spectrum decisions and the future of commercial 5G deployment across the United States. The answer to this question is a resounding and definitive “no.”

As the RFI explores whether DoD should place itself at the center of the commercial spectrum allocation framework for 5G, it is essential to recognize and account for the government's existing spectrum licensing framework and the success it has delivered. American leadership in the wireless ecosystem has been founded on an approach in which policymakers

identify spectrum for commercial use, clear that spectrum (or, if that is not possible, find ways to effectively share), conduct an auction to award exclusive-use licenses, and allow licensees to determine the highest and best use for the spectrum they hold. Congress, the White House, NTIA, DoD, and other federal agencies have on many occasions identified federal spectrum to be repurposed, while protecting vital federal missions. Under the authority set forth by Congress in the Communications Act, the FCC has conducted auctions to put the repurposed spectrum into the marketplace in an open, competitive manner. This market-driven approach has led to astounding investment and innovation in the U.S. marketplace from which DoD itself benefits; DoD should not, and under the law cannot, bypass this approach. Doing so would jeopardize American leadership in 5G and beyond, depriving the public and DoD of the great benefits associated with that leadership.

A. America Has Led the World in 4G with Its Market-Driven Spectrum Framework and Has Reaped Numerous Benefits.

The “clear-and-license” strategy for commercial spectrum use—as exemplified by the repurposing and auctioning of AWS-1 and AWS-3 spectrum⁷—enabled the United States to lead the world in 4G and is helping to lead the world in 5G as well. The global 4G rollout began in 2010. By 2014, the United States had multiple distinct nationwide 4G wireless networks, providing expansive coverage. And as 4G offerings matured, America continued to innovate and invest in 4G technology, services, and applications. Capital investment in the wireless industry increased by 43% during the 4G decade (i.e., the 2010s) in comparison to the prior decade.⁸

⁷ See *infra* Part IV.

⁸ CTIA and Recon Analytics, *The 4G Decade: Quantifying the Benefits* at 8 (Jul. 29, 2020), <https://api.ctia.org/wp-content/uploads/2020/07/The-4G-Decade.pdf> (“4G Decade”).

These investments paid tremendous dividends for the American public. For example, during the 4G decade, wireless download speeds for consumers increased by *31 times*.⁹ Likewise, whereas Americans consumed a total of 388 billion MBs in 2010, that figure ballooned almost *100-fold*, to 37.1 trillion MBs, by 2019.¹⁰ During this period, the wireless price index fell by 24%, while the overall consumer price index *climbed* by more than 17%.¹¹ U.S. wireless providers lead the world in the value they provide to consumers.¹²

America's market-based, clear-and-license approach drives network upgrades and developments—for example, spectral efficiency gains in the 4G decade were astounding. As the number of wireless subscribers has grown, and each subscriber has consumed more data, providers have had to innovate to handle hockey stick growth in capacity demands. In 2010, U.S. wireless providers carried 948 million MBs per megahertz. By 2018, they provisioned 39.9 billion MBs per megahertz – about *forty-two* times as many megabits per megahertz than just eight years earlier.¹³

Economic data of course paint only a partial picture regarding the benefits of American wireless leadership, but that partial picture is stunning. The wireless ecosystem contributed a

⁹ *Id.* at 10.

¹⁰ *Id.* at 11.

¹¹ *Id.* at 13.

¹² See CTIA, *U.S. Wireless Consumers Get the Most Value for their Money: Americans May Save Up to \$10 Billion Per Year*, (Feb. 2020), <https://api.ctia.org/wp-content/uploads/2020/02/Wireless-Value.pdf> (reporting findings by NERA Economic Consulting).

¹³ See CTIA, *Smarter and More Efficient: How America's Wireless Industry Maximizes Its Spectrum*, at 3 (July 2019), https://api.ctia.org/wp-content/uploads/2019/07/Spectrum_Efficiency.pdf.

staggering \$690.5 billion to U.S. GDP last year.¹⁴ In all, nearly 10% of the total GDP increase during the past decade was due to the wireless industry.¹⁵ Wireless accounted for more than one-third of U.S. job growth between 2011 and 2019.¹⁶ By 2019, fully one in six U.S. jobs depended on the wireless industry.¹⁷

America's leadership in 4G did not occur by happenstance. Rather, it resulted from a policy framework that favors spectrum clearing, exclusive-use spectrum licenses, flexible rights, private sector investment, and competition.¹⁸ And this framework has been proven to bring spectrum into use faster (often *much* faster) than spectrum sharing. For example, the three-tiered sharing framework imposed on 3.5 GHz/CBRS took ten years from NTIA's 2010 identification of the spectrum for federal/commercial sharing to the 2020 auction. In contrast, the timeline from identification to clearing/relocating took eight years for AWS-1 (1998-2006), seven years for the 600 MHz band (2010-2017), and four years for the C-band (2017-2021). It is expected to take just four years for federal spectrum in the 3.45-3.55 GHz band (2018-2022). Policymakers should think long and hard before upending this tried-and-true approach.

¹⁴ 4G Decade at 4.

¹⁵ *Id.* at 5.

¹⁶ *Id.* at 7.

¹⁷ *Id.* at 6.

¹⁸ See, e.g., CTIA, *A National Spectrum Strategy to Lead in 5G*, (Aug. 2019) <https://api.ctia.org/wp-content/uploads/2019/04/A-National-Spectrum-Strategy-to-Lead-in-5G.pdf>.

B. America is Again Leading on 5G and Can Continue to Do So By Embracing This Market-Driven, Private Sector-Led Approach, Especially in the 3 GHz Band.

The United States has been leading in 5G, just as it led in 4G. The U.S. currently enjoys the fastest 5G speeds available anywhere. Thanks to more than \$100 billion in private capital invested over the past few years alone, the U.S. boasts three nationwide 5G networks that already cover 200 million Americans.¹⁹ One operator has already committed to soon serve over 90% of rural Americans with 5G wireless. And in the race to 5G, the first U.S. 5G deployments were completed 13 months before China's. The U.S. wireless industry invested three times more per capita on 5G in 2019 than China has. Over next 15 years, the U.S. will invest over 4 times more per capita than China in 5G.

If the U.S. continues to lead the world in 5G deployment, the country will again reap the massive benefits of such leadership: more investment, more innovation, more jobs, more growth, and more international competitiveness. But this will only happen if we pursue the appropriate policy framework. The roadmap we applied to 4G applies as well to 5G. Continued success will result from private-sector investment and competition, fueled by exclusive-use licenses, distributed via auctions that put spectrum resources to their highest and best use.

The 3 GHz band is of particular importance in the development of 5G. Nations across the globe are assigning large portions of 3 GHz spectrum for exclusive-use 5G licensing. CTIA commends the FCC for its actions this year to promote commercial licensing in 3 GHz spectrum. The C-Band auction that launches in December of this year will unleash 280 megahertz of

¹⁹ CTIA, *The U.S. Hits a Major Milestone: Three Nationwide 5G Networks* (Oct. 14, 2020), available at <https://www.ctia.org/news/the-u-s-hits-a-major-5g-milestone-three-nationwide-5g-networks>.

exclusive-use spectrum (3.7-3.98 GHz) for 5G deployments. And the CBRS auction that closed last month will deliver 70 megahertz of licensed 3.5 GHz spectrum across the nation – though that spectrum will, of course, be subject to substantial limitations.²⁰

CTIA likewise applauds the Administration’s action to open up the 3.45-3.55 GHz band for commercial use and for the FCC’s recent proposal for service and technical rules that will enable full-power 5G services in the band while maintaining incumbent federal operations. This band encompasses an important 100 megahertz of spectrum for 5G use, and CTIA looks forward to the auction of this spectrum in 2021 as approved by DoD and now formally proposed by the FCC.

The U.S. Government should further advance 5G by opening up more of the lower 3 GHz band for the auction of additional exclusive-use, flexible-rights licenses.

But we risk imperiling America’s continued leadership in 5G if the U.S. government pursues speculative and imprudent policy experiments that put government, rather than the private sector, in control of commercially-allocated spectrum, particularly a spectrum input (the 3 GHz band) that is recognized world-wide as vital to 5G deployments. U.S.-specific experiments splinter our nation’s wireless networks from the global ecosystem, increasing costs of deployment and services, whereas the U.S. wireless industry and U.S. consumers, businesses, and government users benefit from global economies of scale when products do not have to be customized for the U.S. market. America’s competitors are not considering such experimentation in the mid-band or for 5G more broadly. To the contrary, they are following the model of exclusive-use licensing that made the United States the world’s wireless leader.

²⁰ For example, this spectrum will be encumbered by shared access requirements and low power limits that will limit its utility.

III. FEDERAL LAW ESTABLISHES SEVERAL BARRIERS TO THE TYPES OF ARRANGEMENTS CONTEMPLATED BY THE RFI (RESPONSE TO QUESTIONS 3.G. & M.).

A DoD initiative that shares or leases spectrum to the private sector or otherwise makes available DoD 5G network capacity for commercial use would face several severe legal hurdles.

A. DoD Intervention in Assigning Spectrum Usage Rights for Commercial Purposes Would Upend Longstanding U.S. Spectrum Policy.

Long ago, Congress created bifurcated authorities to manage spectrum use across the United States: the FCC handles commercial (and state and local public safety) spectrum, and NTIA is responsible for managing federal agency use, including use by DoD. In the Communications Act of 1934, Congress established that the FCC is the federal agency to assign spectrum usage rights to commercial entities – not NTIA, and not the Department of Defense.

In 1997, Congress mandated that the FCC assign commercial wireless licenses by auction, except in limited circumstances.²¹ Yet the RFI contemplates that DoD would bypass the FCC's statutory role and itself become the arbiter of commercial spectrum allocations via the sharing of DoD frequency assignments. The notion that DoD would insert itself into commercial spectrum rights management, introducing shared spectrum assignments and hand-picking a commercial partner to offer commercial service, puts a heavy government thumb on the scale of competition, undercuts the benefits that competitive bidding and private-sector innovation have delivered to the American public, and would violate Congress's carefully constructed framework.

²¹ See generally 47 U.S.C. § 309(j).

There is no basis for departing from this longstanding, bipartisan approach to spectrum management, and any proposal that would create a shared DoD-commercial 5G network using federal spectrum faces significant legal hurdles.

B. The NTIA Organization Act Precludes DoD from Conferring a Right to Commercial Operation on Federal Spectrum without FCC Authorization.

As a statutory matter, NTIA and DoD lack authority to dictate commercial use of federal spectrum without the commercial entity first obtaining an FCC license. The NTIA Organization Act only authorizes NTIA to “assign frequencies to radio stations or classes of radio stations belonging . . . to the United States,” and to “amend, modify, or revoke such assignments.”²² That Act specifically provides that “no person or entity (other than an agency or instrumentality of the United States) shall be permitted” to “operate” or “utilize” a radio station “utilizing a frequency that is authorized for the use of government stations . . . for any non-government application unless such person or entity has submitted to the NTIA proof, in a form prescribed by [the Manual of Regulations and Procedures for Federal Radio Frequency Management (Redbook)], that such person or entity has obtained a license [for such use] from the [FCC].”²³

The NTIA Organization Act permits the Secretary of Commerce to “allow frequencies allocated on a primary basis for Federal Government use to be used by non-Federal licensees on a mixed-use basis for the purpose of facilitating the prompt implementation of new technologies or services and for other purposes,” but only in a manner “consistent with section 903(e) of this

²² *Id.* § 902(b)(2)(A).

²³ *Id.* § 903(e)(1)(A) (“operate”), (B) (“utilize”). *See also* Manual of Regulations and Procedures for Federal Radio Frequency Management (Redbook) § 2.3.12 (reiterating mandate regarding proof of license).

title.”²⁴ That provision specifically states that “*the Commission* [i.e., the FCC] shall make any allocation and licensing decisions with respect to such frequencies in a timely manner.”²⁵

Likewise, Section 903(e) also expressly requires that any non-federal entity seeking to “operate”²⁶ or “utilize”²⁷ federal spectrum first provide proof to NTIA that it has obtained a license for such use from the FCC. In other words, a federal entity *cannot* permit commercial use under its federal spectrum assignment (be it through lease or network use) unless the commercial entity holds an FCC license for such use.

This bar has precluded federal agencies from permitting commercial use of their spectrum resources in the past, in circumstances virtually identical to those here. For example, in 2012 the FCC considered a circumstance in which the Federal Aviation Administration (“FAA”) had contracted with ITT Corp to build and own nearly 800 ground stations to provide the FAA with service using federal spectrum. NTIA deemed this federal use to fall within its jurisdiction. The FCC observed, however, that the contract would permit ITT to “use the ... system’s excess capacity to sell ‘value-added services’ to commercial customers (subject to revenue sharing with the FAA),” and that this use had been “identified as ‘an essential element of the business model for the contractor.’” As such, the FCC concluded that neither NTIA nor the FAA had the necessary authority to move forward with the proposed arrangement, noting that “under [Section

²⁴ 47 U.S.C. § 927(b)(1).

²⁵ *Id.* § 927(b)(2) (emphasis added).

²⁶ *Id.* § 903(e)(1)(A).

²⁷ *Id.* § 903(e)(1)(B).

903(e)], ITT would need to obtain a license from the Commission before providing these value-added services,” notwithstanding NTIA’s wish to move forward.²⁸

Like ITT, a commercial entity seeking to make use of a DoD assignment of spectrum would, pursuant to Section 903, need an FCC license for such use. ITT sought to “operate” the station, and thus was subject to Section 903(e)(1)(A), but even if it had simply sought to “utilize” the station, it would have been subject to FCC approval under Section 903(e)(1)(B). In short, a commercial entity that seeks an entitlement to operate *or* utilize federal spectrum would face the very same barrier that precluded ITT’s use of the FAA’s spectrum. Accordingly, DoD cannot confer a right to permit commercial operation by a commercial entity (either as a lessee or as a network user), and NTIA lacks power to amend the assignment to include the grant of such rights.

C. The Communications Act Dictates that a License for Commercial, Flexible-Use Rights be Assigned by Auction, Not by a DoD Selection Process.

These issues cannot be cured by having the FCC issue a license to DoD’s hand-picked commercial entity for use of the federal spectrum. Any commercial spectrum usage rights in the lower 3 GHz band would be attractive to multiple providers. In such circumstances, section 309(j) of the Communications Act mandates that any license or permit be granted “through a system of competitive bidding”—*i.e.*, at auction—absent circumstances that do not apply here.²⁹

And while the FCC’s rules contemplate circumstances in which a non-federal entity might use federal frequencies in spectrum bands above 25 MHz, those circumstances are

²⁸ *Amendment of Parts 1, 2, 15, 74, 78, 87, 90, and 97 of the Commission’s Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2007) (WRC-07), Other Allocation Issues, and Related Rule Updates*, 27 FCC Rcd 14598, 14620-21 ¶ 51 (2012).

²⁹ 47 U.S.C. § 309(j)(1).

inapplicable here. The rule at issue—Section 2.102(c)—permits non-federal use *only if* the FCC, in consultation with the relevant federal actors, concludes that such use is “necessary for coordination of Federal and non-Federal activities” and the federal agency (here, DoD) certifies that the non-federal use is “necessary.” Neither of these conditions applies: Even if DoD were to conclude that a scheme involving buildout by a commercial actor in exchange for rights to or use of a block of the spectrum were useful, or advanced federal purposes, it could not plausibly contend that such use was “necessary for coordination of Federal and non-Federal activities.” After all, there would be *no* non-federal activities but for the very plan under consideration. Nor could DoD determine that the non-federal use is necessary, particularly given that the spectrum has been allocated for federal, not other, use.

D. Other Federal Statutes Also Bar DoD from Contracting with a Commercial Entity Here.

Other provisions of federal law proscribe DoD’s ability to take compensation from and provide benefits to private parties absent express statutory authorization, starkly limiting DoD’s ability to enter into arrangements to lease the spectrum it uses to a commercial entity or otherwise provide commercial access to a DoD 5G network.

First, DoD may not take compensation (monetary or otherwise) from a private party absent express statutory permission, which it lacks here, meaning that a commercial entity cannot compensate DoD for spectrum use or commercial access to a DoD 5G network. The Miscellaneous Receipts Act (“MRA”) requires that “an official or agent of the Government receiving money for the Government from any source shall deposit the money in the Treasury as soon as practicable without deduction for any charge or claim.”³⁰

³⁰ 31 U.S.C. § 3302(b).

The MRA’s ban applies not only if an agency actually takes in cash but also if it effectively redirects money that should have been deposited into the Treasury. The key question is “whether *money not received* by a government agency nevertheless constitutes money owed to the government for its use that must be deposited into the Treasury.”³¹ Put another way, “[a]n agency cannot avoid the [MRA] miscellaneous receipts statute *simply by changing the form of the contractual arrangement to avoid having money owed to it.*”³² Thus, for example, when the Securities and Exchange Commission (“SEC”) had a lessee of subleased space pay the landlord directly, such that the SEC itself then reduced its rent payments to the landlord by a like amount, the Comptroller General found this arrangement to be a violation of the MRA because it had the same effect as if the SEC had received the payments and credited them to its appropriation rather than depositing them in the Treasury.³³

Here, any benefit that DoD would receive from a commercial actor in exchange for access to spectrum or use of a DoD 5G network (either by a direct payment or by lowering the fee for building out a DoD 5G network or the provision of service to DoD over the federal spectrum) would be prohibited. To the extent the government provides a benefit to the

³¹ Letter from Anthony H. Gamboa, General Counsel, Government Accountability Office, to Senator Frank R. Lautenberg, *Whether the Federal Communications Commission’s Order on Improving Public Safety Communications in the 800 MHz Band Violates the Antideficiency Act or the Miscellaneous Receipts Statute*, B-303413, at 13-14 (Nov. 8, 2004) (“GAO MRA Letter”) (emphasis added), <https://www.gao.gov/assets/380/372565.pdf>.

³² *Id.* at 2 (emphasis added).

³³ Comptroller General of the United States, *Securities and Exchange Commission—Reduction of Obligation of Appropriated Funds Due to a Sublease*, Decision [B-265727](https://www.gao.gov/assets/330/326345.pdf) (July 19, 1996), <https://www.gao.gov/assets/330/326345.pdf>.

commercial entity, compensation for that benefit must be directed to the Treasury, not to the agency itself.³⁴

Second, DoD also is barred from *providing* benefit to a private entity in exchange for consideration absent explicit authorization, which, again, is lacking here. The Anti-Deficiency Act (“ADA”) provides that “an officer or employee of the United States Government . . . may not – (A) make or authorize an expenditure or obligation exceeding an amount available in an appropriation or fund for the expenditure or obligation; [or] (B) involve ...[the] government in a contract or obligation for the payment of money before an appropriation is made unless authorized by law.”³⁵ Like the MRA, the ADA applies equally to non-monetary consideration provided by an agency. In the words of current Attorney General Bill Barr, when he was General Counsel of Verizon: “[T]he ADA is a law of broad reach that extends to *any contrivance* that in substance converts a federal resource to support activity that the agency is not authorized to fund.”³⁶

Thus, DoD may not provide benefits to a private actor in exchange for network buildout or services unless Congress has expressly authorized it to do so. Congress has not done so here. Rather, Congress directed *NTIA* to assign frequencies to federal agencies, including DoD, to enable those agencies to fulfill their missions. It has *not* authorized DoD to take spectrum it uses

³⁴ Such an arrangement would also amount to an end-run around the carefully calibrated budget process as approved and directed by congressional appropriators and overseen by the Office of Management and Budget.

³⁵ 31 U.S.C. § 1341(a)(1)(A), (B).

³⁶ Letter from William P. Barr, Executive Vice President and General Counsel, Verizon, to Michael K. Powell, Chairman, FCC, WT Docket No. 02-55, at 4 (filed June 28, 2004) (emphasis added). *See also* GAO MRA Letter at 10 (“We agree with those who would assert that the substance, and not just the form, of a transaction must be considered.”).

and make it available for commercial purposes in exchange for a 5G network buildout or some other benefit to DoD. The FirstNet experience here is instructive: There, when Congress wished to deviate from the traditional mode governing the allocation and use of spectrum to establish a public/private partnership, it did so by adopting legislation that superseded the default framework.³⁷ The absence of legislative authority in this instance is fatal to the seeming intent of the RFI.

IV. A DOD OWNED-AND-OPERATED 5G NETWORK OR A SHARED NETWORK AS CONTEMPLATED BY THE RFI RAISES A NUMBER OF RISKS (RESPONSE TO QUESTION 3.A. & H.).

In addition to the problems discussed above, a network owned-and-operated by DoD or shared with commercial entities as the RFI seems to suggest poses a number of risks and limitations.

First, there is a long track record of built-for-and-owned-by government networks that fail to keep up with technology innovations and upgrades that commercial networks incorporate routinely—and at great expense—in response to the robustly competitive market.³⁸ The public

³⁷ In the Middle Class Tax Relief and Job Creation Act of 2012, Congress directed the FCC to allocate spectrum in the 700 MHz band for a new nationwide public safety network, created the entity (FirstNet) that would hold that spectrum “as an independent entity within the NTIA,” and directed that entity to build and operate that network and allow for commercial use. Pub. L. No. 112-96 § 6204(a) (2012). The FCC did not take this action on its own, but acted pursuant to and bounded by Congressional authority. Among other things, the legislation directed the FCC to grant a license to FirstNet for the use of the 700 MHz D block spectrum, authorized FirstNet to: “make contracts” with third parties; “accept, hold, administer, and utilize gifts, donations, and bequests of property, both real and personal, for the purposes of aiding or facilitating the work of” FirstNet; “spend funds” to construct and operate the public safety network; and allowed FirstNet to enter into a leasing agreement with a third party and “collect[] lease fees related to network equipment and infrastructure.” *Id.* §§ 6206(a)(3)-(5), 6208(a)(3).

³⁸ A 2018 survey found that government networks “are delivering a poor experience – for both end users and IT teams – and prevent new technologies from enabling agency missions.” See Chris Thomas, Government wireless networks desperately need an upgrade, GCN (Sep. 17, 201), <https://gcn.com/articles/2018/09/17/wireless-network-upgrades.aspx>. Asked to evaluate their

interest demands that DoD not attempt to replicate an approach that has consistently failed to serve its essential purpose so many times before. At the same time, DoD management of a complex sharing arrangement would divert attention away from the department's core mission, which is national defense. DoD is not set up to oversee commercial wireless networks, and should not be distracted by the responsibility of managing a commercial 5G network or taking the actions necessary to enable such an arrangement.

Second, to the extent DoD is entertaining leasing spectrum to commercial providers, and to the extent DoD could overcome the legal hurdles of leasing as identified above, there remains the question of why leasing would be a preferred solution for DoD. Given DoD's capital-budgeting needs for systems development, DoD would be ill-served by a regime in which it would be dependent upon leasing payments associated with commercial use of its spectrum versus today's system of large lump sum payments to upgrade communications systems when spectrum is repurposed and auctioned, as discussed in Section V. below.

And third, many varieties of Dynamic Spectrum Sharing ("DSS") can be extremely limiting and would not be suitable for use here. The new 3.5 GHz CBRS band uses a form of

agency's wireless or Wi-Fi networks, fifty percent of government workers rated their work network "poor" or "very poor," while nearly two-thirds (63 percent) said that their experience with their work network was inferior to what they experienced elsewhere. About half said that these network limitations impaired their productivity. Newer network technologies and services could cure these problems, but budgetary and political constraints prevent needed upgrades. *Id.* Nationalized wholesale networks fare no better. Around the globe, countries that have experimented with such networks have lived to regret it. Russia gave spectrum to a would-be national wholesale provider in 2011, only to see that company give up after building out to barely a quarter of the country. Mexico, similarly, ordered the construction of a nationwide wholesale 4G network in 2013, but now, seven years later, the network serves less than one percent of the nation's wireless subscribers. GSMA has reported that single wholesale networks generally fail to reach rural areas, to reduce prices, to promote competition, or to advance innovation. See GSMA, *Single Wholesale Networks Lessons From Existing and Earlier Projects* (Dec. 2019), <https://www.gsma.com/spectrum/wp-content/uploads/2019/12/Single-Wholesale-Networks-Lessons-Learned.pdf>.

DSS for three-tiered sharing among incumbent government users, priority access licensees, and general authorized access users – a complex notification and sensing arrangement that has taken a decade to materialize. NTIA has noted that the lower 3 GHz band is subject to substantial incumbent government encumbrances, and given the existing users in this band, a CBRS-like solution would take years to develop or, in other words, cause years of delay before DoD gains access to the 5G capabilities at the heart of the RFI. DSS could also involve spectrum sharing among multiple, separate commercial 5G networks – an upside-down concept that would simultaneously depend on, yet discourage, investment in multiple networks, each with restricted access to the same spectrum. The provision of such partial spectrum usage rights is highly unlikely to justify the costs of building multiple networks.

There is no reason to rush into a DoD owned-and-operated 5G system or some unproven spectrum-sharing plan, particularly when all parties could benefit more from an approach that cleared and auctioned certain spectrum resources for commercial use.

V. THERE ARE MULTIPLE PATHS FORWARD FOR COLLABORATION ON REPURPOSING FEDERAL SPECTRUM FOR COMMERCIAL USE AND FOR USING COMMERCIAL SOLUTIONS TO ADVANCE 5G FOR THE DOD MISSION (RESPONSE TO QUESTION 3.I.).

Collaboration between government and in particular between DoD and the wireless industry has worked before, it is at work now, and it can continue to work going forward. CTIA and its members are committed to partnering with DoD to find win/win solutions that meet military needs and consumer needs alike.

Our national experience with the AWS-1 and AWS-3 spectrum bands during the 4G era illustrates the far-reaching benefits of a strategy of clearing spectrum, auctioning it, and using auction proceeds to relocate and upgrade affected federal systems. Under the current framework, the U.S. government repurposes federal or shared federal/non-federal spectrum

allocations for exclusive-use, flexible-rights licensing by relocating or updating incumbent government use, and using auction proceeds under the Spectrum Relocation Fund (“SRF”) to fund such upgrades. In 2006, the FCC auctioned AWS-1 spectrum, which included government-held spectrum in the 1710-1755 MHz band, and in total generated some \$13.7 billion in auction revenues. The SRF funded all \$1.55 billion in costs to relocate and upgrade federal systems in that band, including the transition from legacy analog systems to digital and IP-based technologies. And, of course, the Treasury netted some \$12.5 billion.³⁹

The AWS-3 experience was even more impressive. In 2014-2015, the FCC auctioned two federal spectrum bands along with an existing non-federal band. The auction generated \$41.3 billion. Relocation of federal users was complex: It involved about 16 federal agencies and more than 100 federal wireless systems. Nevertheless, industry and government worked together to develop a plan, relied on discrete protection zones and online databases that facilitated coordination, and developed other mechanisms to make a meaningful transition possible. In all, the SRF funded \$5.1 billion in relocation costs.⁴⁰ In short, spectrum clearing, auction, and relocation, upgrade, and coordination of incumbent government operations can open wide swaths of spectrum for use in serving the public while generating substantial revenues for the government—including funding that can be used to advance DoD’s critical objectives.

Defense experts have long recognized the benefits to DoD of the repurposing and auctioning.⁴¹

³⁹ See generally CTIA, *Repurposing Government Spectrum for Licensed Commercial Use: A Win-Win for Wireless Providers and Federal Agencies* at 4-5 (Aug. 2020), available at https://api.ctia.org/wp-content/uploads/2020/08/Win-win_8-06.pdf.

⁴⁰ *Id.* at 5-7.

⁴¹ See James Lewis, CSIS, *Spectrum Management for Economic Growth and National Security*, (April 2017), at i available at https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/170404_Lewis_SpectrumManagement_Web_Rev.pdf (quoting Maj. Gen.

And in 2020, the White House and DoD established America's Mid-Band Initiative Team ("AMBIT") to do just that in the 3.45-3.55 GHz band. Within months of AMBIT's launch, DoD announced a plan that will enable commercial 5G networks to operate across the 3.45-3.55 GHz band at full power. The FCC is seeking comment on service and technical rules to accommodate ongoing federal operations and plans to auction the band in 2021; we anticipate commercial deployment in 2022. DoD Chief Information Office Dana Deasy noted:

Through the hard work of the AMBIT, we expect these rules to be similar to AWS-3, where for the most part the spectrum will be available for commercial use without limits, while simultaneously minimizing impact to DoD operations. DoD is preparing a Spectrum Relocation Fund Transition Plan to allow for implementation of the sharing plan while minimizing risks to DoD operations. DoD is proud of the success of the AMBIT and is committed to working closely with industry after the FCC auction to ensure timely access to the band while protecting national security.⁴²

CTIA commends DoD for how quickly it moved to open this 100 megahertz of spectrum to commercial use.

The federal-commercial collaboration in the 3.45-3.55 GHz band is a model for partnership with respect to the spectrum immediately below the band from 3.1-3.45 GHz. While there are challenges to freeing up this spectrum for commercial use, CTIA and the wireless

Robert E. Wheeler (USAF Ret.): "Continued collaboration between industry and DoD is the key to enabling both our economy and our armed forces to make optimal use of this scarce resource.").

⁴² Hon. Dana Deasy, Chief Information Officer, Department of Defense, *Department of Defense Statement on Mid-Band Spectrum* (Aug. 10, 2020), <https://www.defense.gov/Newsroom/Speeches/Speech/Article/2307288/departments-of-defense-statement-on-mid-band-spectrum/>.

industry are eager to engage with DoD to pursue repurposing, subject to limitations needed to protect federal uses.

Further, DoD can be an important source of innovation, and wireless providers have helped to support research and development to support DoD's mission. As noted above, DoD just announced \$600 million in awards for 5G testing at five U.S. military sites.⁴³ Projects will include piloting 5G-enabled augmented/virtual reality for mission planning and training, testing 5G-enabled Smart Warehouses, and evaluating 5G technologies to enhance distributed command and control. As DoD Under Secretary for Research and Engineering Michael Kratsios observed, "[t]hrough these test sites, the Department is leveraging its unique authorities to pursue bold innovation at a scale and scope unmatched anywhere else in the world. Importantly, today's announcement demonstrates the Department's commitment to exploring the vast potential applications and dual-use opportunities that can be built upon next-generation networks."⁴⁴ Government/industry collaboration like this will identify how 5G capabilities can advance the DoD mission.

And finally, appropriate forms of technology can be a tool to allow commercial 5G networks to deliver on DoD's 5G needs. Network slicing can deliver the 5G capabilities and experience that a particular user group—like DoD—demands, while avoiding the expense and all-too-often calcified nature of dedicated networks. Network slicing allows a commercial provider to build and invest in a single next-generation physical network and deliver customized offerings tailored to different user groups' needs. Thus, a commercial provider could provide 5G services to DoD that meet DoD-specified performance characteristics (e.g., security,

⁴³ DoD 5G Testing Announcement.

⁴⁴ *Id.*

prioritization, latency) while simultaneously providing enterprise-grade services to commercial customers with different needs over the same physical network. DoD would be well served to encourage private sector investment and innovation from which it too can benefit, as opposed to squelching that investment and innovation via top-down, command-and-control government mandates.

By sticking to the successful approach pursued with respect to AWS-1, AWS-3, and now the 3.45-3.55 GHz band, and by extending network virtualization to 5G capabilities delivered on commercial networks, DoD can best fulfill its own needs while also ensuring that spectrum resources are put to use for the American public. CTIA looks forward to working with DoD and others to bring this possibility to fruition.

VI. CONCLUSION

For the reasons stated herein, CTIA urges DoD to reject any approach that would shift the United States away from the market-driven, private sector-led approach that has been responsible for America's wireless success and promises to ensure continued American leadership. The benefits of continued American preeminence in 5G are too substantial and too important for the kinds of experimentation contemplated by the RFI where traditional spectrum policy management can serve DoD's 5G needs. Instead, DoD should pursue the clearing/auction/relocation approach that has worked so well in the past, ensuring that 5G meets the needs of our military as well as the needs of American consumers, and that America maintains its 5G leadership.

Respectfully submitted,

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