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HEARING ON "OUR WIRELESS FUTURE: BUILDING A COMPREHENSIVE APPROACH TO SPECTRUM POLICY"

COMMITTEE ON ENERGY AND COMMERCE

U.S. HOUSE OF REPRESENTATIVES

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Chairman Pallone and Subcommittee Chairman Doyle and Members of the Committee:

Thank you for this opportunity to testify today on the activities of the Department of Commerce's National Telecommunications and Information Administration (NTIA) regarding spectrum management and spectrum policy.

NTIA is responsible for advising the President on telecommunications and information policy. NTIA's programs and policymaking focus on a broad range of issues that include spectrum management and availability, broadband connectivity, and the growth and stability of the Internet and the Internet-enabled economy. NTIA supports the Administration and the Secretary of Commerce, Wilbur Ross, by assisting the Nation's telecommunications and information industries in creating more job opportunities, enhancing U.S. competitiveness in the global economy, and ensuring that all Americans benefit from the Digital Age.

NTIA manages the use of the radio frequency spectrum by the U.S. government, accommodating the diverse and compelling spectrum requirements of Federal programs, while at the same time seeking opportunities to expand spectrum access for private sector and other non-Federal Government users. Our national priorities to ensure U.S. leadership in 5G wireless networks, space commerce, artificial intelligence, autonomous vehicles, and other technologies of the future all have spectrum implications. NTIA also is responsible for ensuring the U.S. government has the spectrum it needs to maintain our global military superiority, protect the safety of our national airspace, and forecast the all-too-frequent weather events that have devastating impacts on our communities. Our spectrum management and policy decisions must take into account and appropriately balance all of these critical interests.

National Spectrum Strategy

President Trump has made clear that a sustainable approach to managing our Nation's spectrum resources will be critical for our national and economic security in the years to come.

Last October, the President issued a Presidential Memorandum (PM), Developing a Sustainable Spectrum Strategy for America's Future, that directed Secretary Ross, working through NTIA, to develop and implement a comprehensive, balanced and forward-looking National Spectrum Strategy. The Department is on track to deliver this strategy to the President in the coming weeks.

The President specifically instructed that the National Spectrum Strategy should include policy recommendations that, among other things, will:

- improve the global competitiveness of United States terrestrial and space-related industries and augment the mission capabilities of Federal entities through spectrum policies, domestic regulations, and leadership in international forums;
- increase spectrum access for all users, including on a shared basis, through transparency of spectrum use and improved cooperation and collaboration between Federal and non-Federal spectrum stakeholders; create flexible models for spectrum management, including standards, incentives, and enforcement mechanisms that promote efficient and

effective spectrum use, including flexible-use spectrum licenses, while accounting for critical safety and security concerns;
- build a secure, automated capability to facilitate assessments of spectrum use and expedite coordination of shared access among Federal and non-Federal spectrum stakeholders; and
- use ongoing research, development, testing, and evaluation to develop advanced technologies, innovative spectrum utilization methods, and spectrum sharing tools and techniques that increase spectrum access, efficiency, and effectiveness.

In addition to collaborating across the Federal Government, NTIA received more than 50 comment filings from stakeholders in response to our request for feedback from the public.

The President in the PM directed executive branch departments and agencies to estimate their current and future spectrum requirements. NTIA has now received their future requirements reports and initiated the process for collecting the current usage data. These contributions will inform the National Spectrum Strategy, but even more so its subsequent implementation.

Meanwhile two reports released by the White House's Office of Science of Technology Policy (OSTP) pursuant to the PM also will help inform non-Federal considerations in the National Spectrum Strategy, including the expansion of 5G. Specifically, these are "Emerging Technologies and Their Expected Impact on Non-Federal Spectrum Demand" and "Research and Development Priorities for American Leadership in Wireless Communications."

While working to craft the National Spectrum Strategy, NTIA also continues related efforts to respond to the President's Space Policy Directives. These Directives seek, among other priorities, to ensure that spectrum requirements and challenges for space operators, including potential interference, are part of the Administration's efforts to advance U.S. leadership in space. The Department is directly aligned with the President on this front as the priorities included in these directives reflect the Department's Strategic Objective 1.1: Expand Commercial Space Activities.

The President made clear that the Nation needs to refresh our approach to managing spectrum to create and sustain an environment that will increase access to spectrum, thereby facilitating innovation and economic growth, as well as augmentation of critical government and scientific missions. The National Spectrum Strategy will be framed by U.S. long-term national security, technological leadership, international competitiveness, and economic prosperity considerations.

A key goal of the National Spectrum Strategy will be to move beyond the narrow piecemeal, band-by-band actions that have defined U.S. spectrum policy to make spectrum management decisions more holistically and strategically and to more effectively manage our Nation's use of this crucial and finite resource.

Advancing 5G

The Nation's telecommunications infrastructure is critical to nearly every aspect of the American economy, national security, and our continued leadership of the information age. The United States is the global leader in 4G LTE wireless networks and applications. To keep America's edge, we must accelerate our development and deployment of 5G—the next-generation wireless network that can move massive amounts of data at exponentially faster speeds than existing 4G LTE networks. These networks also must be the most secure and reliable in the world.

NTIA and the Department more broadly are taking many actions in support of the President's directive for the United States to win the 5G race. This includes important efforts to secure 5G equipment and supply chains used in this country, engaging with our allies around the world on these concerns, supporting U.S. industry in global standards development and conducting and coordinating targeted research activities. However, my focus today, of course, is on our efforts to identify additional spectrum that can support 5G.

NTIA, working closely with Federal agencies that rely on spectrum to perform their missions, continues to coordinate with the Federal Communications Commission (Commission), with the support and direction of Congress, to significantly increase commercial access to scores of frequencies across low, mid and high frequency spectrum bands. The efforts to date to allocate spectrum domestically for terrestrial 5G systems have been a tremendous success. The U.S. currently leads the world in spectrum that potentially could be used for 5G, with a total of over 5.8 gigahertz for licensed, exclusive use. More than 3 gigahertz of additional spectrum is under active study for licensed use. As a result, we could soon have over 9 gigahertz available. This is exciting, notwithstanding that we have additional work to do, especially with respect to the additional mid-band spectrum that industry seeks. In recent years, the commercial wireless industry has sought access to high-band spectrum to respond to the particular demands of 5G, especially in "hot zones" of use where high throughput and increased capacity are paramount. The Federal Government's response has been to make available by auction and unlicensed allocations access a number of the millimeter wave bands in the Commission's *Spectrum Frontiers* proceeding.

One of the spectrum bands being made available is 37 GHz (37-38.6 GHz). This band offers a significant amount of spectrum (1,600 megahertz) and is relatively unencumbered. The Commission expects to include licenses for the upper 1000 megahertz (37.6-38.6 GHz) in a major auction later this year. I want to highlight the lower portion of the band (37-37.6 GHz) because of the nature of the anticipated continued shared Federal and non-Federal co-equal access to these frequencies. It is NTIA's expectation that Federal agencies, DOD in particular, will be eager to test and deploy, in cooperation with commercial entities, new and emerging flexible solutions to address existing and emerging use cases important to their mission.

At the same time, wireless network coverage needs persist as well, so NTIA is continuing to work to identify and make available additional mid-band and low-band spectrum, where appropriate.

NTIA is working on other key spectrum fronts. The Federal Government, in cooperation with industry, has hit a number of important milestones as we look toward the launch of the Citizens Broadband Radio Service (CBRS) in shared Federal and non-Federal spectrum in the mid-band of 3550-3700 MHz (3.5 GHz). Testing and certification work involving the Commission, NTIA, and the Department of Defense (DOD) for the Spectrum Access Systems (SAS) and associated Environmental Sensing Capabilities (ESC) is nearing final stages.

The ESC will work with the SAS to enable Dynamic Protection Areas, instead of static exclusion zones to protect incumbents including military radars, to make far more efficient use of this CBRS band. NTIA's Institute for Telecommunication Science is finalizing SAS testing and validation, which will enable the FCC to finalize those certifications. We look forward to initial commercial deployments of CBRS systems in the coming months and the flurry of innovative uses that are expected to proliferate in that band.

In addition, NTIA and DOD are studying the feasibility of shared access by commercial systems to the neighboring 3450-3550 MHz band. The Commission, of course, has its own proceedings open to look at other mid-band spectrum opportunities. Collectively we are positioned to ensure highly sought-after mid-band spectrum access for 5G and other new services.

We have a wireless industry that has invested billions of dollars and is working towards the development of new, powerful 5G networks. We have an Administration committed to spurring additional investment and balancing the needs of the Nation's spectrum users. We also have a Nation full of technologists and entrepreneurs who are going to use this next-generation of connectivity to build products and services that will drastically change our lives.

The technology is evolving to make these solutions and approaches much easier to implement and more likely to succeed. Our spectrum management approach and technology developments are clearly enabling full strategic use of our Nation's spectrum assets today. Nevertheless, we maintain our eye on the future.

Supporting the U.S. Space Economy

NTIA and the Department have been active in evaluating how current and future spectrum allocations will help drive the trillion-dollar space economy. At the direction of the President in 2018, the Department, through NTIA, issued a report providing 13 recommendations to improve the global competitiveness of the U.S. space sector through spectrum policies. These recommendations recognized that a healthy satellite industry, equipped with sufficient access to radio frequency spectrum, is essential to the global competitiveness of the United States space sector.

Among the recommendations made in the report is support of appropriate policies that can help speed the delivery of satellite broadband solutions to global markets in both served and underserved areas. This ties in well with the U.S. 5G push as satellite technologies will support, and integrate with, 5G networks, including helping to bring these services to rural and other remote areas where the economic challenges in serving these markets persist.

International Spectrum Strategy

NTIA also plays a key role in international spectrum policy, working with other federal agencies to prepare for key spectrum negotiations and standards-setting activities. This includes intergovernmental participation in the International Telecommunication Union (ITU), which will hold the World Radiocommunication Conference (WRC) later this year in Sharm el-Sheikh, Egypt.

WRC-19 will tee up important agenda items, including one addressing harmonization of spectrum in the millimeter wave bands for what the ITU calls "International Mobile Telecommunication (IMT)," which we know as advanced mobile broadband, including 5G. These bands are also of great value for communications satellite services that can serve rural and less developed areas of the world, often beyond the reach of traditional terrestrial infrastructure. Our approach will be to advocate for space and terrestrial services that most effectively meet the needs of consumers, wherever they may be.

WRC-19 will be vital in facilitating the global ecosystem for 5G services, development and roll-out, and NTIA is working now to promote outcomes that support U.S. industry's 5G development plans, on the ground and in space, as well as evolving global federal missions. WRC-19 also will review the operation of unlicensed radio local area networks (or RLANs)—principally Wi-Fi, which play an important role in the ecosystem—in the 5 GHz band.

Conclusion

NTIA, on behalf of the Administration, takes a comprehensive approach with its spectrum management and policy responsibilities. In addition to our ongoing efforts to ensure and enable sufficient spectrum access for all users, NTIA is implementing the President's vision for establishing a sustainable framework for the future of U.S. spectrum management. With our federal partners, and working closely with our world leading technology industries, we intend to ensure that the U.S. leads the world in effectively and efficiently putting to use this critical, limited resource that drives our economic activity and helps protect the safety and security of all Americans.