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**HEARING ON OVERSIGHT OF THE FEDERAL COMMUNICATIONS COMMISSION:
SPECTRUM AUCTIONS PROGRAM, PART 2**

**BEFORE THE
SUBCOMMITTEE ON FINANCIAL SERVICES AND GENERAL GOVERNMENT
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE**

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Chairman Kennedy, Ranking Member Coons, and Members of the Financial Services and General Government Subcommittee, thank you for the opportunity to discuss the Federal Communications Commission's spectrum auctions program.

Since Congress authorized the FCC to conduct spectrum auctions in the Budget Reconciliation Act of 1993, auctions have been one of the primary spectrum management tools of the Commission. While auctions may be the most visible of such tools, the Commission employs a broad array of mechanisms for making spectrum available and resolving mutual exclusivity in spectrum use as required by the Communications Act. Other examples of these mechanisms include unlicensed and license-by-rule frameworks that have made technologies like Wi-Fi pervasive and successful.

Auctions are an increasingly integral part of the Commission's core missions. In light of the Commission's diverse auctions portfolio, which goes beyond spectrum auctions for mobile wireless use, and because good auction design must be based on sound economics, the Auctions Division was moved from the Wireless Telecommunications Bureau to become a fundamental part of the new Office of Economics and Analytics (OEA). We appreciate the Appropriations Committee's grant of reorganization authority, without which the Commission would not have been able to establish OEA and bring economic and data analysis and auction design and execution under one roof.

OEA draws upon economic and data analytics expertise to ensure that the Commission is taking the most efficient and effective approach in all auctions and spectrum management more generally. In designing and holding spectrum auctions, the Commission adheres closely to the objectives established by Congress in 47 U.S.C. 309(j)(3), including "the development and rapid deployment of new technologies, products, and services for the benefit of the public." Consistent with Congress's mandate, the Commission balances the aforementioned objective with other statutory objectives such as ensuring the spectrum's efficient and intensive use, and providing parties with adequate time to consider and comment on auction procedures, develop business plans, and assess market conditions.¹

Once a spectrum band is identified for licensing and technical rules for the licenses are established, the Commission determines the most effective type of auction for that particular band. When

¹ 47 U.S.C. §§ 309(j)(3)(D), (E).

determining the type of auction to use, the Commission considers several factors, such as the number and size of the geographic areas and spectrum blocks that will be made available, the likely use cases for the licenses and any interference issues, the potential need to transition or accommodate existing incumbent users, and the number of potential bidders to ensure that the auction will be efficient and that bidding will not be prolonged unnecessarily. We then seek comment on proposed application and bidding procedures to allow potential bidders and other interested parties or experts the opportunity to provide feedback on our proposals.

After considering the public input, the Commission resolves any issues and establishes final auction procedures prior to opening a filing window, during which prospective bidders apply to participate in the auction. Commission staff then reviews bidder applications, working with potential bidders to ensure their applications are complete. Commission staff also reviews the upfront payments submitted by applicants with complete applications and announces the list of qualified bidders. Beginning with the application stage and proceeding up until the start of the auction, Commission staff provide seminars and other educational materials and field questions to ensure that bidders are familiar with application bidding systems and aware of their obligations.

Following the guideposts established by Congress in 309(j), the Commission has conducted 93 spectrum auctions and generated \$116.5 billion in revenue for the U.S. Treasury.

Innovative and modern spectrum management principles are essential, especially now that greenfield spectrum has become rarer. The decision of whether and how to license a particular spectrum band has become more complex and depends on the unique characteristics of the band in question. In each case, we must either find a way to accommodate those existing services and licensees in a different part of the radio spectrum or develop a set of rules and tools to share the spectrum without causing harmful interference. Where spectrum bands have incumbents, we must develop a plan to ensure that they and their customers are not harmed, while providing certainty and clarity to bidders as to what and when the spectrum will be available.

Several successful past auctions illustrate how we've been able to balance the needs of incumbents and prospective bidders. These examples illustrate how different each incumbent transition situation is—and how unique the solutions must be. In our first spectrum auction in 1993, personal communications service license winners were required to relocate the incumbent point-to-point microwave services to higher frequencies that Commission staff had determined were available.

The auction for Advanced Wireless Services–3 spectrum successfully transitioned federal users to other bands due in large part to Congress establishing a mechanism for federal users to recover relocation costs from a portion of the proceeds of the auction, which were transferred to the Spectrum Relocation Fund pursuant to the Commercial Spectrum Enhancement Act. The federal government also published the transition plan for its users to provide certainty to the auction bidders about when they would be able to use the spectrum. This involved an extensive effort by our partners at the National Telecommunications and Information Administration and other federal agencies.

To facilitate our efforts to free more spectrum for flexible wireless use, Congress provided the FCC with incentive auction authority in 2012. In 2017, the FCC concluded its first incentive auction, which provided payments to broadcast television stations that chose to relinquish their spectrum and repacked other stations so that they could maintain operations while using a narrower range of spectrum. That auction ended up making available 70 megahertz of licensed spectrum for mobile broadband use in the 600 MHz band. The entire process was one of the most complex engineering exercises the Commission had ever undertaken. Today we are far along in the repack of the TV stations, and wireless carriers are already offering service in the spectrum that was cleared, thanks in large part to the careful initial planning of the FCC.

We appreciate Congress's support of innovative techniques such as incentive auctions, and we are

continuing to use this authority constructively as we deal with spectrum already licensed and in use. The Commission recently adopted an incentive auction mechanism that will make available more spectrum than any auction in American history—3,400 megahertz of spectrum throughout the Upper 37 GHz, 39 GHz, and 47 GHz bands. While the broadcast incentive auction used separate forward and reverse auctions, for Auction 103 the Commission provided a reconfiguration process for incumbents that allowed them to relinquish their rights or accept modified licenses suitable for use with new technologies. As a result, the clock phase of Auction 103 will determine the prices paid to incumbents relinquishing their existing licenses, which may be applied to the value of any new licenses won at the auction. Bidding for these licenses in Auction 103 will begin on December 10th.

The Commission has also adopted a novel, innovative regulatory regime that allows for dynamic sharing in the 3.5 GHz band between federal incumbents and non-federal users and opens up mid-band spectrum for 5G and other commercial uses. The three-tiered, hierarchical framework prioritizes incumbent federal users. Second-tier Priority Access Licenses (PALs) in turn receive protections from third-tier General Authorized Access (GAA), which is license-by-rule. Automated frequency coordinators, known as Spectrum Access Systems (SAS), will coordinate operations, and Environmental Sensing Capability operators will detect the presence of federal incumbent radar transmissions and communicate with the SASs. On June 25, 2020, we will begin the auction for seven 10-megahertz channel PALs in every county across the country—a total of 22,631 licenses, which will be the most licenses ever offered in an FCC spectrum auction.

In sum, every spectrum band the Commission has auctioned required careful consideration of the band's circumstances and characteristics to determine how best to make it available. And because we are packing more services into a finite spectrum resource, each new band presents more complex challenges than the ones before.

The C-band at 3.7–4.2 GHz perhaps best illustrates this point. One of the three prongs of the Commission's strategy for Facilitating America's Superiority in 5G Technology—the 5G FAST Plan—is to make spectrum available in low-, mid-, and high-frequency bands. The 3.7–4.2 GHz band falls in that mid-band range and is particularly attractive for deployment of advanced wireless services because it offers a great balance of both coverage and bandwidth.

The primary user of the 3.7–4.2 GHz band is Fixed Satellite Service downlinks. These links provide connectivity for delivery of content to cable systems, broadcasters, and religious organizations. The satellite service is provided by several satellite licensees to more than 20,000 registered earth stations spread throughout the continental United States.

Unlike other bands that we have repurposed, where the incumbents had exclusive licenses, here eight different satellite operators have non-exclusive rights to use the C-Band to provide service to the continental United States. They deliver service via transponders that are mapped across the 500 megahertz and deliver the content to satellite earth station dishes that are aimed at satellites. In other words, the satellite systems are integrated in ways that were engineered by the licensees such that their cooperation is critical to the process of freeing up spectrum.

Chairman Pai has laid out four principles he has said would guide the agency in approaching the C-Band proceeding. *First*, we must make available a significant amount of spectrum for 5G. *Second*, we must make this spectrum available for 5G quickly. *Third*, we must generate revenue for the federal government. And *fourth*, we must ensure that the services currently using the C-Band will continue to be delivered to the American people. And Chairman Pai has previously announced that he would make a decision on how the FCC should proceed by this fall.

Earlier this week, Chairman Pai sent letters to Senators and members of the House of Representatives that had expressed an interest in the C-Band proceeding announcing his view that the FCC should proceed with a public auction of 280 megahertz of the C-Band conducted by Commission

staff. This approach best achieves the Chairman's four goals, which are consistent with Congress's 309(j) objectives. With a quarter-century track record of transparent and successful auctions, we are planning to conduct a public auction that will afford all parties a fair opportunity to compete for this 5G spectrum, while preserving the availability of the upper 200 megahertz of this band for the continued delivery of programming. And we are confident that we can commence this auction before the end of 2020.

Guiding the Chairman's decision was his view that the proposed private sale offered by the C-Band Alliance was unlikely to be fair and transparent. Small bidders were unlikely to participate in the C-Band Alliance's original planned auction that one commenter described as "fiendishly complex." And the Alliance's most recent pitch rejected industry-standard online bidding mechanisms, reducing the transparency of the auction and making it more likely to simply fail. Given that bidders across the board have repeatedly made clear that the rules and protections of an FCC-run auction were needed for this potentially multi-billion sale, the Chairman concluded that the tried-and-true method of a public auction was the fastest and best means to get this spectrum to market.

The Chairman has announced that he expects a Commission vote on the public auction early next year. In the coming weeks, we will continue to work toward resolutions that will create a fair, transparent, and swift process consistent with the Chairman's goals and Congress's objectives.

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Chairman Kennedy, Ranking Member Coons, and Members of the Subcommittee, thank you for this opportunity to testify. We would be pleased to answer your questions.