

Testimony of

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on

Defending America's Wireless Leadership

before the U.S. House

Committee on Energy & Commerce

Subcommittee on Communications and Technology

March 10, 2023



Chairman Latta, Ranking Member Matsui, members of the Subcommittee, on behalf of CTIA and the wireless industry, thank you for the opportunity to testify today.

CTIA thanks this Subcommittee for its bipartisan commitment to crafting sound spectrum policy for our nation's future. I especially want to recognize your recent legislative efforts to address the FCC's auction authority, and your clear focus on identifying and repurposing spectrum for 5G. The United States leads the world in wireless—both licensed and unlicensed—thanks to your longstanding focus on spectrum matters.

And we need your leadership again, now more than ever. We have the opportunity to secure our leadership in next-generation 5G and the industries of the future through a clear national commitment to spectrum policy built on mid-band spectrum with a focus on future full-power licensed access. Ensuring a leading role will promote both our global competitiveness – particularly against China – as well as our national security.

This morning I want to address three key policy issues:

1. We need to ensure the FCC has spectrum auction authority to secure U.S. international spectrum leadership.
2. We should create a schedule of future spectrum auctions. Right now we have no planned spectrum auctions in the queue to help us meet the significant demand for mobile and fixed wireless services.
3. We should empower the nation's spectrum experts—the FCC and NTIA—to enhance government-wide coordination and make interagency spectrum decisions in the best interests of our nation.

But first, let's recap the extraordinary benefits that 5G is delivering.

5G's Positive Impact on the Broadband Marketplace and Our Nation.

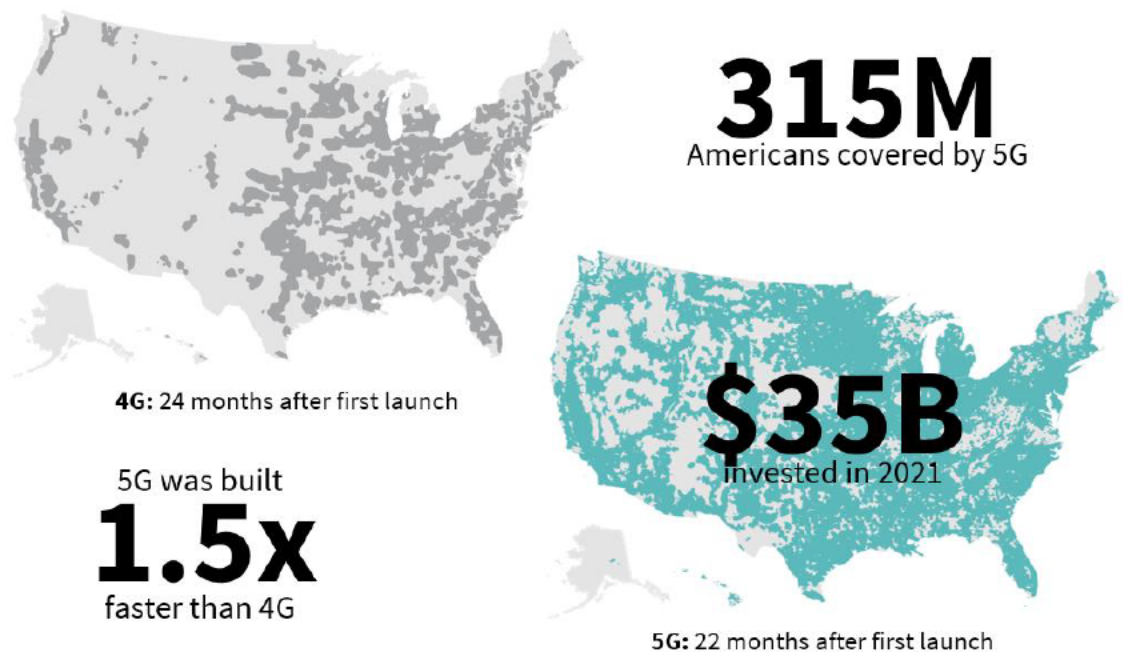
I testified before this Subcommittee in 2018 about what 5G could be. I'm pleased to be back to talk about what 5G is today thanks to your leadership.

5G is the most powerful and secure wireless technology, and we are already seeing average speeds of over 128 Mbps, over six times faster than speeds available in 2016. Enhanced latency and advanced security measures promise the reliable and secure connections families and businesses need to unlock new innovations in health care, agriculture, transportation, manufacturing, and so much more.

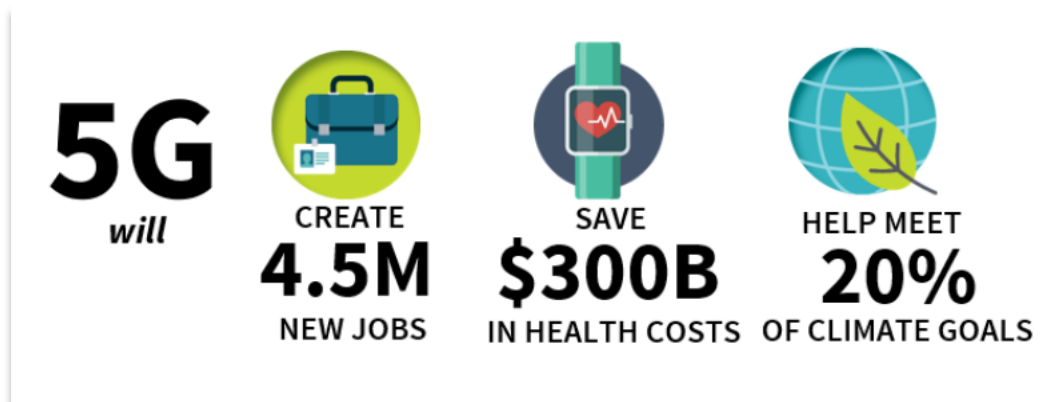
5G today already covers 315 million Americans, and we're deploying this new technology across the country nearly twice as fast as 4G. The wide availability of 5G is the result of record-breaking investment. Wireless providers invested more than \$35 billion to build out 5G in 2021 alone. In this, we lead the world: U.S. wireless investment accounted for 19% of the world's total mobile capital expenditures even though the U.S. has just 4% of the world's population.

U.S. 4G global leadership helped drive a generation of cutting edge innovation around the app and sharing economy. Thanks to the remarkable private investment in our nation's infrastructure from AT&T, T-Mobile, UScellular, Verizon and dozens more operators, we are poised to see similar opportunities happen here for 5G as well.

America Leads The Globe In 5G Availability



Boston Consulting Group projects 5G will be a powerful engine for our nation's future economic growth by adding \$1.5 trillion to our economy and 4.5 million new American jobs this decade. The benefits are more than economic. Deloitte projected over \$300B in health savings annually thanks to 5G innovation. Accenture similarly found that 5G-related innovation will help achieve 20 percent of the nation's carbon reduction targets—that's the equivalent of taking 72 million cars off the road for a year.



Thanks to this historic investment, we are now seeing the first wave of 5G innovators and entrepreneurs leveraging this platform to help solve problems facing our nation:

Transportation. Anad Nandakumar started Halo in Nevada to deliver an all-electric driverless car powered by 5G. The key for his business' growth is more 5G deployment.

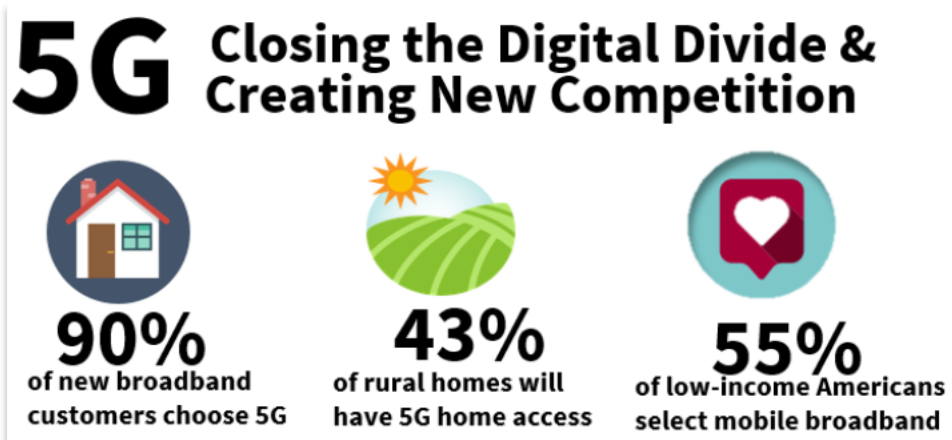
Education. Kai Frazier is a Title I teacher in Oakland, and she started Kai XR to provide an immersive virtual reality experience built from 5G for kids without resources for field trips to see the world.

Agriculture. Liz Buchen started Trellis in Georgia to deploy advanced sensors to help family farmers increase their yield and better manage irrigation resources all supported by 5G.

Public Safety. Sonia Kastner founded Pano AI in California. She is using 5G and AI to provide early wildfire detection tools to help firefighters and communities.

We also see companies like Ericsson and Samsung investing in 5G-powered manufacturing that promises to help support new manufacturing jobs across the nation. The government through the Department of Veterans Affairs is investing in 5G solutions to help improve health outcomes for our veterans. The Defense Department is also partnering with wireless companies to deploy 5G solutions for planning, training, and operations, as well as managing smart warehouses, and command and control operations. Excitingly, each day we see more companies and organizations finding innovation ways to use 5G to help Americans.

One of the most exciting 5G developments is bringing competition to the home broadband market. “5G Home” leverages the advanced capabilities of 5G to deliver fixed broadband solutions to homes and small businesses in rural, suburban, and urban areas. Accenture projects 5G Home will reach 43 percent of rural households. Both national and regional operators are providing this new competitive choice and helping close the digital divide today. In fact, 90 percent of new broadband customers in 2022 selected a 5G fixed wireless solution. As a result, the two fastest growing broadband companies today are wireless companies. We are bringing the competitive spirit of the mobile market to this new arena, and this service will only get more powerful with access to more spectrum.



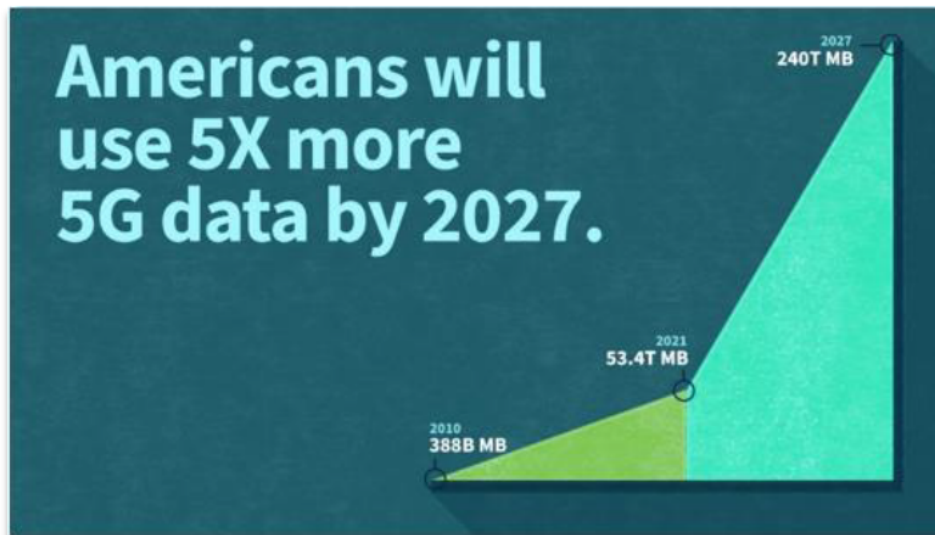
We see great opportunities to serve more Americans with affordable and high speed 5G services. We recognize there is much work to be done to ensure all residents from Ohio to California, and from Washington state to New Jersey, have access to both robust mobile and fixed solutions. Over 55 percent of Americans under the Affordability Connectivity Program are staying connected thanks to mobile service today, and we support congressional efforts to ensure that program is available for years to come. We also support congressional efforts to ensure the technologically neutral approach enshrined in the Infrastructure Act is reflected when states start to distribute their Broadband Equity Access and Deployment funding. We will need all technologies to close the digital divide as quickly as we can, and 5G Home is a scalable, cost-effective solution that can help extend the reach of finite federal dollars.

Of course, all of the benefits that 5G is delivering in the U.S.—expanding digital inclusion, economic growth, job creation, smart cities, and improvements in public safety, health care, and our environment—are predicated on the availability of spectrum.

And there is more to do on that front with your help.

America's Growing Demand for Wireless and the Need for More Licensed Mid-Band Spectrum.

New 5G uses cases—as well as America's ever increasing use of smartphones and other wireless devices—are driving extraordinary traffic growth on wireless networks. America's wireless networks carried over 53 trillion MBs in 2021, and the year-over-year growth was almost double that compared to 2020. Wireless usage is projected to increase fivefold by 2027 as 5G evolves and improves.



To meet this demand and keep up with the 5G needs of American consumers, the wireless industry will continue to invest tens of billions of dollars in more efficient technologies, and build denser networks in more communities with a mix of traditional cell towers and new small cell technologies. We will also need Congress's help to make available additional spectrum to meet the moment.

Wireless networks rely on licensed spectrum sold at auction to deliver the reliable and secure services Americans demand. Since Congress first authorized the FCC to conduct spectrum auctions back in 1993—the first-ever spectrum auctions anywhere—the United States has led the world in spectrum policy. Auctions have proven to be the most successful means to assign the interference-protected, exclusive-use, flexible rights spectrum licenses that are the bedrock of 5G and mobile wireless communications.

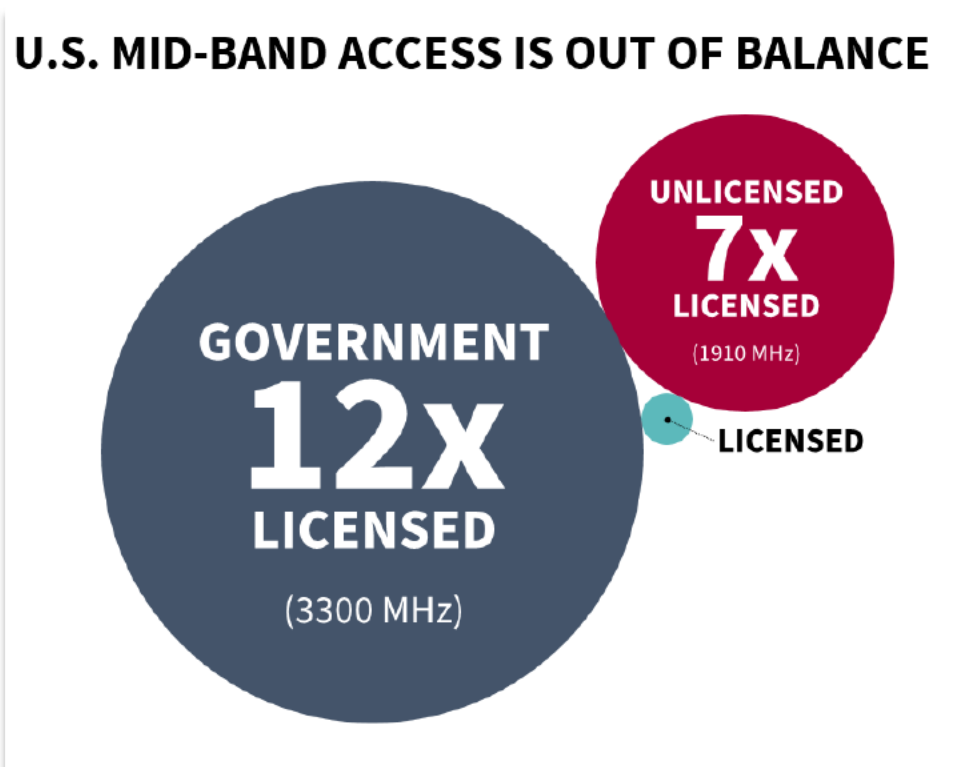
The key spectrum being used for 5G around the world is mid-band spectrum. FCC Chairwoman Jessica Rosenworcel has long championed the need for more U.S. mid-band access because it is the “ideal blend of capacity and coverage ... key to delivering on the promise of 5G services and ... reach[ing] as many people as possible.”

Congress took significant steps in 2018 and 2021 to jump start commercial access to mid-band spectrum resulting in the C-Band and 3.45 GHz auctions. Together, these two auctions raised over \$100 billion in winning bids from national and regional providers as well as new entrants. This reflects the extraordinary demand for mid-band spectrum. These spectrum

bands will be the backbone of wireless investment over the next few years. We are already seeing jumps in speed and capabilities as these bands are made available.

The challenge we face today is there are no additional auctions planned. Our ability to deliver better 5G each and every year is dependent upon a reliable and known pipeline of new spectrum.

Roughly two-thirds of key mid-band spectrum in the U.S. right now is controlled by the federal government. In all, government agencies today have 12 times more spectrum than 5G. Together, we can find a better balance that enables government agencies to meet their missions—including national defense—while enhancing and expanding commercial access. Similarly, unlicensed spectrum has 7 times more mid-band spectrum than does the wireless industry, underscoring the need for an immediate focus on licensed access.



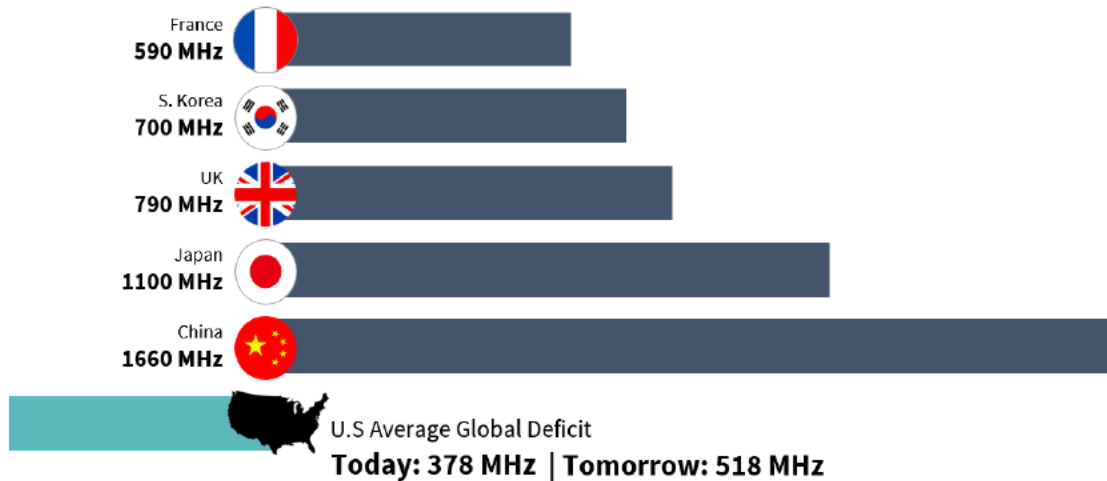
In contrast, our global rivals are acting now to get ahead of skyrocketing wireless use by freeing up more spectrum. Today, we have a global deficit of over 370 megahertz of mid-band spectrum compared to our key rivals, which is roughly the size of the 3.45 GHz and C-Band auctions combined. Japan today has over 1100 megahertz assigned, and the United Kingdom almost 800 megahertz.

This global dynamic is further complicated by our rivals' plan for even greater access by 2027. China is a good example. Chinese wireless operators already have greater access to mid-band today than the U.S., and they are looking to aggressively expand access by 2027. They may soon have over 4 times the commercial licensed mid-band as the U.S. Overall, we

project a global deficit of over 500 megahertz in four years, which would jeopardize our global leadership in future innovation. China is also seeking to build new wireless ecosystems around the globe in Africa, Asia, and elsewhere in bands currently unavailable in the U.S. This risks a divide in terms of our global influence over future technologies, and the benefit of scaled internationalized harmonized solutions. This Committee is best positioned to address this deficit now, and help ensure continued U.S. leadership.

Global Rivals Extending Their Mid-Band Advantage

U.S. Deficit Could be Over 500 MHz by 2027



Three Recommendations to Empower U.S. Wireless Leadership and Enable Cutting Edge Wireless Services to All Americans.

We thank this Committee for its ongoing commitment to advancing U.S. wireless interests, and we need your continued leadership now more than ever.

We have three recommendations for Congress: maintain the FCC's auction authority; replenish the 5G spectrum pipeline; and revitalize interagency coordination. With these actions, Congress will help ensure the U.S.'s continued global leadership in wireless.

Empowering the FCC. Reauthorization of the FCC's auction authority is key to maintaining America's wireless leadership. The lessons of the 1997, 2006, and 2012 auction authority extensions demonstrate the critical role of Congress in spectrum policy through packaging extensions of authority with designated future FCC auctions. In each of those instances, Congress mandated specific auctions along with extending the FCC's authority. The last extension directed the FCC to hold the then-record breaking AWS-3 auction, the 600 MHz broadcast incentive auction, and the H Block auction. Depriving the FCC of auction authority runs the risk of stunting 5G growth, impeding U.S. investment and innovation, and sending our international rivals the wrong message about U.S. wireless leadership.

Overall, spectrum auctions have resulted in over \$200 billion in revenue for the U.S. taxpayers, and tens of billions of auction proceeds have been used to modernize systems for the Department of Defense and other agencies that have repurposed spectrum for commercial use. We thank Chair Rodgers and Ranking Member Pallone for leading the efforts to address the FCC's auction authority in a manner that provides all stakeholders the time to contribute towards the development a new spectrum pipeline that can be combined with a longer-term auction authority extension.

Replenishing the Spectrum Pipeline. It is in our nation's economic and national security interest to identify a pipeline of bands to be auctioned, particularly now that there is no more 5G spectrum set to be made available. The Committee is uniquely situated to address this shortfall, and this effort should focus on our mid-band deficit in a manner that ensures key government spectrum-based services are preserved, if not enhanced, with new more efficient state-of-the-art technologies and systems. The Department of Defense and other agencies are important users of spectrum, and must continue to have access to sufficient spectrum to deliver mission critical services. We are confident with this Subcommittee's direction, we can identify opportunities for win-win scenarios benefiting both commercial and government spectrum users.

1

Extend FCC Auction Authority

2

Enact a Future Pipeline of Spectrum

3

Enhance Agency Coordination

Specifically, Accenture has identified three federal bands that should be central to that review: the lower 3 GHz, 4 GHz, and 7/8 GHz bands. We also support FCC Chairwoman Rosenworcel’s call to investigate the 7-15 GHz range for future commercial access.

KEY FUTURE SPECTRUM BANDS



Lower 3 GHz Band. The lower 3 GHz band (3.1-3.45 GHz) is a 350 megahertz block of spectrum, immediately adjacent to other full-power licensed commercial spectrum (3.45 GHz band). The band today is used by the federal government, predominantly the Department of Defense. It is a great fit to provide large channels and faster throughput, and the top portion of this band is already used in China and around the globe for 5G services. Congress has also already identified this band for study, and this Committee’s focus on the band has helped jumpstart both industry and government review of how to best utilize the band going forward. The successful 3.45 GHz auction in 2021 provides all stakeholders with a roadmap for success that is driven by a system-by-system review of government systems. That auction resulted in DoD receiving \$14 billion to upgrade and move some of their systems. We encourage Congress to ensure that the Department of Defense’s ongoing review of this band is similarly comprehensive and considers all options, including retuning equipment, repacking existing use into other frequencies, and relocating specific systems.

4 GHz Band. The 4 GHz band (4.4-4.9 GHz) is a band used by multiple federal agencies that also warrants greater government review for future commercial access. China and others are using the 4.8-4.99 GHz band for 5G services today, and we expect other countries to follow suit. Here too, we do not expect a one-size-fits-all approach to different government systems and uses, and believe detailed study is warranted to identify the best portion of the band for future commercial use.

7/8 GHz Band. The 7/8 GHz band (7.125–8.4 GHz) is another prime government-held mid-band resource that NTIA has already identified as underutilized. Like the 4 GHz band, this large block of spectrum is ripe for detailed congressional review to identify the best opportunities for future commercial access to meet America’s need for more wireless data and preserve key government services.

As Congress considers future commercial access, it is important to keep at the forefront the need to ensure 5G can reach rural and exurban communities and deliver the security and reliability 5G applications will require. We urge Congress to seek solutions that provide full power commercial access without the risk of federal preemption over commercial use. That is why traditional FCC auctions are the best approach and the Committee should be wary of calls to prematurely expand the CBRS spectrum experiment at 3.5 GHz to new bands. That complex sharing system has not yet worked as envisioned and its low power design means

operators need to build as many as seven times more towers in rural areas to reach the same community, increasing the cost to serving rural Americans. That experimental system also requires all commercial use to stop if federal users seek to use the band, undermining its ability to serve as the backbone for key new services that demand greater reliability, security, and quality of service.

Revitalizing a Unified Government Voice on Spectrum Issues. We applaud the Committee's focus on enhancing interagency coordination and avoiding future spectrum disputes. We need to empower the FCC and NTIA to adjudicate spectrum matters and leverage their expertise to address spectrum interference concerns. We need to avoid other stakeholders from re-litigating decisions after spectrum auctions conclude or trying to unilaterally set the terms of future commercial spectrum access. NTIA must speak on the Executive Branch's behalf and with a single unified voice, and Congress can send all stakeholders a clear signal about NTIA's critical role by elevating the Administrator's position to the Under Secretary level within the Department of Commerce. We also support each agency's deeply talented and committed spectrum experts and welcome efforts to further enhance the resources available to them to navigate disputes. I'm hopeful with Congressional direction we can forge a more collaborative approach going forward and avoid disputes that have not benefited any stakeholders.

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Thank you again for this opportunity to testify, and I look forward to your questions.