Testimony of

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on

"Reauthorization of NTIA"

before the

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Subcommittee on Communications and Technology

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Chairman Blackburn, Ranking Member Doyle, and members of the Subcommittee, thank you for inviting me to share CTIA's perspective on the reauthorization of the National Telecommunications and Information Administration ("NTIA"). I was fortunate enough to be at NTIA for nearly five years, and I can say, without a doubt, that it was a wonderful place to work. NTIA has undertaken some critical jobs, including the DTV transition, and they continue to do outstanding work with a small staff. I'm proud to have spent time there. And I'm happy to provide the Committee with some thoughts on how to empower NTIA to continue doing its great work.

First, CTIA appreciates the Committee's leadership on wireless issues and your continued engagement in making additional spectrum available to fuel the robust and growing American wireless market. We are on the cusp of a revolutionary breakthrough in the next generation of wireless technology, known as "5G" or "Fifth Generation." These networks will be 10 times faster and five times more responsive than today's networks. They will be able to support 100 times more devices, beacons, and wearables. This will unlock powerful benefits in communities of all sizes, but these exciting new developments in wireless networks cannot be achieved without additional spectrum resources. Because of NTIA's role in spectrum management, it is appropriate that the Subcommittee carefully consider, as part of the reauthorization process, how it can empower the NTIA to even more effectively partner with federal agencies and with the wireless industry to make additional capacity available for our Nation's networks. Additionally, the Subcommittee should consider how it can encourage NTIA to leverage tools it already has to best manage spectrum use.

NTIA has done, and continues to do, outstanding work in the spectrum space with a small and dedicated staff. CTIA appreciates that in addition to NTIA's spectrum management function, NTIA plays a significant role in a wide variety of other issues of importance to the American economy and the wireless industry,

including broadband deployment siting, online privacy, copyright protection, cybersecurity, international spectrum collaboration, and telecommunications research and engineering. The goal should be to ensure that NTIA can continue to serve its critical role in the future to benefit all Americans.

The Need for Spectrum. Spectrum is a vital national resource. It is the lifeblood of the wireless communications ecosystem, which in turn is a critical driver of our Nation's economy. In the three years ending in December 2015, U.S. wireless carriers invested on average over $32 billion *per year* in their networks.[1/] Spectrum licensed to U.S. wireless carriers generates more than $400 billion annually in economic activity,[2/] and this is without taking into account the other sectors of the American economy that the wireless ecosystem enables. According to one recent survey, 9 out of 10 small businesses in the U.S. today are reliant on wireless. In fact, wireless spectrum is an economic force-multiplier. Every 10 megahertz of spectrum made available adds $3 billion to the U.S. Gross Domestic Product and supports approximately 202,000 new jobs.[3/] Further, future deployment of 5G wireless networks is projected to produce an additional $500 billion of economic growth and create $160 billion in benefits and savings through smart city solutions.[4/] Wireless operators will invest an estimated $275 billion over the next decade to deploy 5G across America, and that investment is projected to create 3 million new jobs – almost one new job for every 100

1/ *See Americans' Data Usage More Than Doubled in 2015*, CTIA (May 23, 2016) , http://www.ctia.org/resource-library/press-releases/archive/americans-data-usage-more-than-doubled-in-2015.

2/ *See* Coleman Bazelon and Giulia McHenry, *Mobile Broadband Spectrum: A Vital Resource for the U.S. Economy*, THE BRATTLE GROUP, 2 (May 11, 2015) ("Brattle Group Report"), http://www.ctia.org/docs/default-source/default-document-library/brattle_spectrum_051115.pdf.

3/ *See Wireless Quick Facts,* CTIA, http://www.ctialatest.org/industry-data/wireless-quick-facts (last accessed Jan. 27, 2017).

4/ *Smart Cities: How 5G Can Help Municipalities Become Vibrant Smart Cities*, ACCENTURE STRATEGY, at 1 (2017), https://newsroom.accenture.com/content/1101/files/Accenture_5G-Municipalities-Become-Smart-Cities.pdf.

Americans.[5/] As more industries embrace digital and wireless technologies, increases in productivity are expected to add $2.7 trillion to the U.S. economy by 2030. In short, spectrum availability has a direct and substantial impact on consumers and the American economy.

That is why it is so important that as a country we continue to ensure that there is sufficient spectrum available to meet the well-documented growing consumer and business demands for wireless capacity. The growth is staggering. In fact, Americans used 25 times more mobile data in 2015 than they did in 2010. And by 2020, it is projected that number will be six times higher than the 2015 record levels. By any measure, the demand for wireless services is exploding and to keep up with the demand, increased spectrum is necessary.

The migration to 5G networks makes the spectrum conversation even more critical. Build out of 5G networks, which will depend on the deployment of tens of thousands of small wireless facilities – such as small cells and Distributed Antenna Systems – in order to increase coverage, densify networks, and boost capacity, will require more spectrum. These new systems will facilitate very high speed and low latency services and will support high capacity networks, touching every sector of our economy. They will enable increased machine-to-machine communications, an even wider variety of consumer devices, and Internet of Things applications including wearables, fitness and healthcare devices, self-driving cars, and home and office automation. In local communities, increased 5G connectivity will mean officials can more effectively spot and respond to crime, emergencies or natural disasters. It will make roads and public transit systems safer. Smarter energy solutions will lower utility costs for businesses and families. Mobile healthcare solutions will instantly connect urgently ill patients with doctors, regardless of where they live.

5/ *Id*.

NTIA's Critical Role. But, spectrum is a limited and finite natural resource. Some spectrum is available for commercial use, and this is the spectrum that wireless carriers, broadcasters, satellite TV providers and Wi-Fi devices employ. That spectrum is managed by the FCC. Other spectrum is available for federal agencies to fulfill their critical missions and is managed by NTIA. The FCC continues to review ways that the spectrum over which it has authority can be repurposed to meet the skyrocketing demand for capacity. And, industry has continued to upgrade its networks to make more intense use of the spectrum available to it. Recently some of the so-called high-band spectrum that will be used for 5G networks was previously underutilized, if not unused, and recently designated by the FCC for mobile terrestrial use. And now, with Congress' help, the FCC will convert 70 megahertz of TV spectrum for wireless broadband use through the broadcast Incentive Auction, providing the wireless industry more spectrum than the AWS-3 auction did two years ago. It is rare for a single auction to include this much spectrum. By all accounts, the Incentive Auction will be a success and pay great dividends in our nation's effort to lead the world in 5G services

However, there are limited additional opportunities for the FCC to make more spectrum available on its own. That is why NTIA's role is so important – more so than ever before. Because NTIA is in charge of federal agencies' use of spectrum it can use that role to determine whether spectrum can be more efficiently used, freeing up additional bands for commercial use.

In light of the extraordinary value of spectrum to private and public entities, NTIA must have the prominence and resources to perform its critical tasks. It would therefore make sense to elevate the NTIA Administrator's title from what is now an Assistant Secretary position, to an Undersecretary level position. This would also be consistent with the Undersecretary title of NTIA's sister agency, the head of National Institute of Standards and Technology. We need to ensure that

federal agencies have the sufficient spectrum for their critical needs, and that the commercial market has access to the spectrum assets necessary to meet consumer demands. A stronger NTIA Administrator will be a more successful arbiter of these private and public spectrum needs.

There are many cases where federal agencies can make more efficient use of spectrum by upgrading technology, combining with other federal communications systems, or even using commercial services. This is a process that has worked very successfully. For instance, in the AWS-3 auction, NTIA made 40 megahertz of what was in large part Department of Defense spectrum available for commercial use. Due to continued coordination between NTIA, the FCC, industry, and federal agencies like the Department of Defense, that spectrum is being put to productive use by wireless carriers today, meeting consumer and business demands and growing our economy, all at no loss to the federal systems' operations. Indeed, the process of making federal spectrum available to commercial users has been a win-win for both parties. I should also note the critical role this Committee has played to facilitate reallocations and "win-win" results for commercial and government users.

Additionally, through the congressionally-created Spectrum Relocation Fund, federal agencies are able to upgrade their systems when they relocate to other spectrum and, based on a recent amendment to the Fund, are able to conduct research and planning to increase their spectrum efficiency. The Spectrum Relocation Fund provides positive incentives for federal agencies to invest in new and innovative technologies needed to support efficient spectrum use and potential reallocation, and this Committee can take steps to further enhance this system.

Congress Can Infuse more Transparency into NTIA Process. Because spectrum is such a valuable resource, there is great interest from Congress, federal agencies, and private industry into the actions of NTIA. NTIA would benefit from

greater transparency tools to better hold agencies accountable for their spectrum use and needs as well as simplify this Committee's important oversight role. For instance, NTIA released a report in November 2016 evaluating several spectrum bands now used by federal agencies that hold significant potential for commercial use. This "Quantitative Analysis" was a useful process that required evaluation of federal spectrum use. Congress can further direct NTIA to issue similar reports in the future on a more regular basis, and create mechanisms to provide greater awareness into the timing and status of key spectrum priorities. This kind of transparency will help all spectrum-using entities to better understand the interagency spectrum review process and provide more certainty for future planning. ***Congress Should Encourage NTIA to Leverage Tools Already Available to Best Manage Federal Spectrum Use.*** Congress can also encourage NTIA to make greater use of the tools NTIA already possesses to make additional spectrum available. For instance, NTIA has the Institute for Telecommunication Sciences – known as ITS – NTIA's lab in Boulder, Colorado. The ITS engages in in important studies to determine the most effective means of making federal spectrum available for commercial use. In the context of sharing AWS-1 and AWS-3 spectrum, for example, the ITS helped determine the level of protection required for incumbent licensees, which facilitated greater access to federal spectrum by commercial users while protecting critical government uses.

From an industry perspective, it is helpful to have an independent, unbiased lab with a deep knowledge base and expertise to examine highly technical issues. Congress should encourage NTIA to find new ways to use the ITS and determine if there are other tools that would be helpful in the exercise of examining new federal bands of spectrum for commercial use.

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The wireless industry is ready to invest in what's next. As a new Administration and a new Congress begin their work, we have a simple ask: help us invest. Help us create jobs. Through NTIA's reauthorization, Congress has an opportunity to recognize the critical role NTIA plays in making additional, much needed spectrum available for commercial wireless use. Help empower NTIA to serve the critical role it must to benefit all Americans' future communication needs. And help us ensure that America remains the global leader in wireless innovation. We look forward to working with each of you as you consider actions to encourage investment and innovation in the wireless ecosystem, strengthen the Nation's economy, and maintain America's position as a wireless leader. Thank you for the opportunity to be a part of today's hearing.