

Testimony of  
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on

The Race to 5G: Exploring Spectrum Needs to Maintain U.S. Global Leadership

before the  
U.S. Senate Committee on Commerce, Science & Transportation

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Chairman Thune, Ranking Member Nelson, and members of the Committee, on behalf of CTIA and the U.S. wireless industry, thank you for the opportunity to testify today.

CTIA applauds this Committee's commitment to advancing U.S. spectrum policy, and securing U.S. global leadership in the mobile marketplace. Today's hearing on the race to 5G comes at a critical time. The wireless industry needs your help to realize 5G's tremendous potential to create jobs, grow the economy, and ensure future innovation happens first here in the United States. With your leadership and the important legislative agenda you have before you, I'm confident the U.S. can win the 5G race.

### **Winning the Race to 5G**

5G is the next generation of wireless, and our new networks will offer speeds up to 100 times faster than today's services, enable 100 times the number of devices, and be five times more responsive than today's. I'm excited by 5G's promise to drive transformational improvements in health care, education, transportation, and nearly every other industry. 5G will help create the smart industries and opportunities of the future, including smart communities, precision agriculture, and the Internet of Things.

The United States is not alone in identifying the global competitiveness at stake in the potential of 5G services. Other countries, from Asia to Europe, are moving aggressively to lead the world. The United States currently ranks third in

overall 5G readiness, behind China and South Korea, according to an Analysys Mason report released earlier this year.<sup>1</sup>

China's position is due primarily to its government's aggressive steps to provide access to significant new spectrum bands for 5G. That commitment includes the Chinese regulatory authority's decision to release at least 100 megahertz of mid-band spectrum (with a focus on 3.4-3.6 GHz) and two gigahertz of high-band spectrum (above 24 GHz) to each wireless provider. In South Korea, the government just completed an auction for 3.5 GHz and 28 GHz band spectrum. And the siting of wireless facilities in China and South Korea is dramatically easier, faster, and less costly than in the U.S.

It's clear: the global race to 5G is on, and the stakes are high. The nation that leads on 5G will capture millions of new jobs and billions in economic growth.

Under your leadership, the United States has led the world in 4G services. According to a study by Recon Analytics, the launch of 4G nearly doubled the number of U.S. wireless-related jobs in just three years, and 4G leadership helped drive nearly \$100 billion GDP growth.<sup>2</sup> 4G also helped create the world-leading app and sharing economies in America. Conversely, losing wireless leadership in the transition from 2G to 3G and 3G to 4G had significant, long-term, negative effects on the European and Japanese telecommunications sectors. The rest of the world has seen what 4G wireless leadership has meant to our economy and now seeks to leverage 5G and seize those benefits for themselves.

The good news is that while there's work to do to catch up to China and South Korea and fend off other countries on 5G, the United States is well positioned to win the race if we act fast and put the right policies in place.

For our part, U.S. wireless providers will invest some \$275 billion in 5G-related networks—creating three million new jobs and adding \$500 billion to our economy according to Accenture. All the national providers have announced aggressive deployment schedules with the launch of services as early as this Fall, years ahead of schedule. American network and technology companies are investing aggressively to ensure that equipment, handsets, and devices are ready for American innovators and consumers to leverage the power of the new 5G platform.

But our industry cannot win the race to 5G alone. We need your help to capture global leadership. Today's hearing is focused on spectrum, one of the two critical areas where we need your help to modernize our nation's approach. The second is modernizing siting rules for tomorrow's networks.

### **Defining A 5G Spectrum Policy**

Other countries are releasing hundreds of megahertz of new spectrum to promote 5G because they recognize sufficient spectrum is key to winning the 5G race and unlocking the corresponding economic and societal benefits. To fully realize the connected life and Internet of Things breakthroughs we are talking about this morning, we need more spectrum, and we need it now.

CTIA commends this Committee, the Federal Communications Commission (FCC), and the Administration for the ongoing work in identifying and repurposing spectrum for 5G. With your support, the wireless industry has invested hundreds of billions of dollars in private capital in acquiring and building out spectrum. But the need for additional spectrum remains pressing. A predictable pipeline of spectrum will do much to advance U.S. 5G interests, and help us match the aggressive efforts foreign governments are taking to allocate spectrum for 5G services. Encouragingly, the Committee has identified all the right bands. Now it is only a matter of us finishing the job fast.

*MOBILE NOW.* Congress has already made an important "down payment" with the MOBILE NOW Act, bipartisan legislation championed by Chairman Thune and Ranking Member Nelson. CTIA thanks this Committee for its leadership in enacting this legislation earlier this year. Among other things, the MOBILE NOW Act directs the FCC and the National Telecommunications and Information Administration (NTIA) to identify at least 255 megahertz of federal and non-federal spectrum for licensed and unlicensed wireless broadband use by December 31, 2022. With this direction from Congress, the FCC and NTIA are working to advance 5G here in the United States. MOBILE NOW also helped jump-start our nation's focus on mid- and high-band spectrum, leading to important steps taken by the FCC to make available new spectrum. The Bipartisan Budget Act of 2015 also directed the Administration to provide access

to important low-band spectrum, which is a key component of our nation's future spectrum planning as well.

*AIRWAVES*. From that foundation, CTIA strongly supports the Advancing Innovation and Reinvigorating Widespread Access to Viable Electromagnetic Spectrum (“*AIRWAVES*”) Act, which establishes a much-needed schedule of future spectrum auctions critical to U.S. global leadership in 5G.

CTIA thanks Senators Gardner and Hassan for introducing the *AIRWAVES* Act, and Committee cosponsors Tester, Young, Cortez Masto, and Johnson for their support. This bill enjoys broad bipartisan backing in both the Senate and the House. It also boasts bipartisan support from Chairman Pai and the FCC Commissioners, and has attracted widespread praise from a broad and diverse array of organizations, including the Consumer Technology Association, Connected Nation, the African American Mayors Association, and Public Knowledge (as represented in a letter attached hereto).<sup>3</sup>

The *AIRWAVES* Act sets a timeline for auctioning a series of key low-, mid-, and high-band frequencies over the next five years. By recognizing that we need different types of spectrum to unlock the full complement of 5G services, Senators Gardner and Hassan have identified a core challenge we face in the U.S., the lack of access to sufficient mid-band spectrum. To achieve our 5G goals, we are going to need different types of spectrum, and mid-band is key as it can offer both capacity and coverage. Unfortunately, the U.S. ranks sixth globally in terms of mid-band spectrum availability. *AIRWAVES* remedies that

by providing access to the same spectrum bands being made available throughout Asia and Europe.

Congressional deadlines, like those in AIRWAVES, have always been an essential tool to enable U.S. spectrum leadership by ensuring timely access to new spectrum. This auction schedule will allow wireless providers to plan and build their 5G networks to maximize efficiency and robustness. And knowing when and what spectrum will be auctioned creates a 5G pathway for industry “verticals” such as telemedicine, smart agricultural systems, and connected vehicles.

CTIA urges the Committee, and the Congress, to move this legislation forward expeditiously. Passage of the AIRWAVES Act is the most important step the Committee can take to ensure that our nation has the spectrum resources it needs to compete and win the 5G race.

*Other Key Initiatives.* We also support the Supplementing the Pipeline for Efficient Control of The Resources for Users Making New Opportunities for Wireless (“SPECTRUM NOW”) Act, introduced by Senators Wicker, Schatz, Udall, and Moran. This bipartisan legislation would help government agencies more efficiently and effectively manage spectrum resources. The Act allows use of approximately \$8 billion in existing Spectrum Relocation Fund monies to support research into the feasibility of federal spectrum users either relocating or sharing spectrum with non-federal users.

*Key Administration and FCC Roles.* In addition to legislative action, Congress should continue to encourage work at the FCC and NTIA to promote the development of a 5G spectrum agenda. CTIA commends Chairman Pai and the FCC for their commitment to winning the 5G race and the significant steps taken this year to address our nation's lack of access to mid- and high-band spectrum.

High-band spectrum will be critical to high-capacity future wireless services and applications. Yet at the start of 2018, there were no planned auctions for these spectrum bands. To the FCC's credit, and as envisioned by MOBILE NOW and AIRWAVES, Chairman Pai has announced the auctioning of five separate bands of high-band spectrum by the end of next year, starting this Fall. The FCC's decisiveness here should be commended.

Similarly, the FCC also has seized on the need for additional mid-band spectrum and is working to optimize rules for the 3.5 GHz band for mobile broadband, and the FCC launched a new proceeding to evaluate repurposing up to 500 MHz of mid-band spectrum between 3.7 and 4.2 GHz just this month. At the same time, the Administration has initiated its important review of the 3.45 GHz band under Administrator Redl's leadership at NTIA. These are important steps, and we urge the FCC and the Administration to commit to a clear auction schedule as soon as practicable for these three critical mid-band spectrum opportunities. Congressional support and encouragement for these



initiatives would be beneficial, and would be strongly bolstered by timely passage of the AIRWAVES Act.

### **Promoting Small Cell Deployment**

While not the focus of today's hearing, the other key set of reforms needed to secure 5G leadership is modernizing siting rules to allow the accelerated deployment of new wireless networks and small cells. Small cells are about the size of a backpack and are typically installed on utility poles, streetlights, and the sides of buildings. They complement existing cell towers by densifying wireless infrastructure and provide the capabilities needed for next-generation networks.

*Building Tomorrow's Networks.* To handle growing mobile data demands and unlock new 5G applications, wireless providers will need to install hundreds of thousands of small cells in the next few years. Recent estimates have projected we will need over 800,000 small cells by 2026. To put that into perspective, our industry has a little over 150,000 cell towers in operation today, built over 30 years. If we do not update our approach and greatly accelerate the approval and deployment process, we will not be able to construct the networks we need fast enough to win the 5G race.

The good news is that a small cell often can be installed in about an hour. The challenge we face is that governmental approval processes can take more than a year, and the application and fee structures are often mismatched with the smaller footprint of tomorrow's networks. Indeed, many rules, regulations,

and fees for wireless infrastructure applications are outdated, designed for a world in which 200-foot cell towers were the norm and the necessity. Globally, the process for siting small cells and other wireless infrastructure is often simpler and more streamlined, while our 20-plus-year-old approach hampers the ability of U.S. operators to compete. Our new networks need new rules to keep pace, and we need to start our 5G buildout this year.

While we applaud the efforts of many cities and 20 states to update their approaches to facilitate small cell deployment, we risk falling further behind in the 5G race absent a clearly articulated national framework. As Congress has done before, America needs a modernized, national policy framework for small cell deployment that accommodates state and local interests while advancing our national interest in 5G leadership.

*A Bipartisan National Framework.* Congress should expeditiously adopt the bipartisan Streamlining The Rapid Evolution And Modernization of Leading-edge Infrastructure Necessary to Enhance Small Cell Deployment Act ("STREAMLINE Small Cell Deployment Act"). We applaud and thank Chairman Thune and Senator Schatz for proposing such a common sense framework.

The STREAMLINE Small Cell Deployment Act addresses the central barriers to deployment of 5G infrastructure, while maintaining localities' prerogatives with regard to safety and neighborhood aesthetics. CTIA strongly supports the STREAMLINE Small Cell Deployment Act and urges its passage.

*Other Key Reforms.* Additional measures that would make great strides toward modernizing siting processes include Senators Wicker and Cortez Masto's SPEED Act and Senator Moran's RAPID Act, which modernizes the federal siting approval process, and Senators Heller and Manchin's work on the Rural Broadband Deployment Streamlining Act, which builds on federal reforms in MOBILE NOW and injects much-needed deadlines and reforms for siting requests on federal lands.

*The FCC's Important Role.* Here again, under this Committee's watch, the FCC has similarly focused its attention on the need for infrastructure reform to promote small cell deployment. Led by Chairman Pai and Commissioner Carr, the FCC has taken a holistic approach to modernizing its rules with a clear focus on winning the 5G race. Earlier this year, the FCC updated historic preservation and environmental rules to reflect the differences between 200-foot towers and small cells. The Commission is now focused on equally important reforms updating the FCC's national guidelines and guardrails for local communities' small cell approval procedures. We urge Congress to encourage the FCC's excellent work in this area.

*Need for Urgent Action.* Just as with spectrum policy, we have bipartisan support for critical 5G infrastructure initiatives that will help us close the gap with China and South Korea. A report prepared by Accenture last week found that accelerating infrastructure deployment by just one year would also result in an

additional \$100 billion to our economy.<sup>4</sup> These benefits are within reach – but only if we act swiftly.

### **Delivering Mobile Broadband to More Americans**

I'm proud of our industry's commitment to building mobile service across America, driven by over \$226 billion investment in our networks since 2010 alone, and over \$25 billion just last year. In the past five years, we were able to connect for the first time 1.5 million additional rural consumers. Nevertheless, there are communities across the country that still do not have access to the benefits of wireless, and we need Congress's and the FCC's help to ensure these under- and unserved areas get connected.

The AIRWAVES Act would provide key new low-band spectrum that offers great coverage and propagation characteristics that can help reach hard-to-serve areas. Further, the recently auctioned 600 MHz spectrum is rapidly being deployed as broadcasters vacate that spectrum. Both steps will help extend mobile coverage. Similarly, the STREAMLINE Small Cell Deployment Act and other siting reforms can help reduce the cost and complexity of deploying in rural America and on adjacent federal lands, particularly in the West. And lower siting fees will free capital for more deployment.

One of the most promising proposals for reaching more Americans is in Senators Gardner and Hassan's AIRWAVES Act. AIRWAVES not only provides us a roadmap to win the 5G race but will also help us shrink the digital divide through its "rural dividend" provision. That provision sets aside 10 percent of the

proceeds from new spectrum auctions for deployment of wireless networks in rural America. If this provision had been in place during the last two spectrum auctions, the rural dividend would have made available an additional \$6 billion to build out wireless in rural America and unserved communities. CTIA urges Congress to expeditiously pass this legislation and implement this program, which would drive greater rural investment without the need for taxpayer funding.

This Committee has also placed renewed focus on the key role the FCC and Administration can play in expanding access to broadband services. The FCC's Mobility Fund will provide nearly \$500 million in annual support, which will provide much-needed universal service funding dedicated to wireless coverage. And ensuring that broadband mapping is accurate will help better inform broadband infrastructure planning.

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Thank you for the opportunity to testify today. Just as winning the race to 4G required smart government policies, winning the race to 5G will require swift action on repurposing spectrum as well as modernizing small cell siting rules. CTIA looks forward to working with you to win the 5G race and urges swift adoption of the core 5G legislative proposals discussed this morning to make that a reality.

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<sup>1</sup> Analysys Mason, *Global Race to 5G—Spectrum and Infrastructure Plans and Priorities*, (Apr. 2018), [https://api.ctia.org/wp-content/uploads/2018/04/Analysys-Mason-Global-Race-To-5G\\_2018.pdf](https://api.ctia.org/wp-content/uploads/2018/04/Analysys-Mason-Global-Race-To-5G_2018.pdf).

<sup>2</sup> Roger Entner, *How America's 4G Leadership Propelled the U.S. Economy*, Recon Analytics (Apr. 16, 2018), <http://reconanalytics.com/2018/04/how-americas-4g-leadership-propelled-the-u-s-economy/>.

<sup>3</sup> Letter from CTIA et al. to Senators Cory Gardner and Maggie Hassan (June 11, 2018), available at <https://api.ctia.org/wp-content/uploads/2018/06/AIRWAVES-Senate-Support-Letter-004.pdf>.

<sup>4</sup> Accenture Strategy, *Accelerating Future Economic Value from the Wireless Industry*, available at <https://api.ctia.org/wp-content/uploads/2018/07/Accenture-Strategy-Wireless-5G-Accelerating-Economic-Value-POV-July-2018.pdf>.