

**REMARKS OF FCC CHAIRMAN AJIT PAI
TO THE BALTIC SEA REGION 5G FORUM**

NOVEMBER 11, 2020

What a pleasure it is to appear virtually with friends from the Baltic Sea region! I would much rather be with you in Riga, Copenhagen, Berlin, Warsaw, Vilnius, Tallinn, Helsinki, or Stockholm, but I'm afraid that this corner in my home office will have to serve as my backup plan.

This forum has attracted participants from across Europe and around the world because we all understand 5G's transformative potential to unlock innovation and economic growth. I've been asked to talk to you about what we are doing in the United States to seize the opportunities of 5G. So let's get to it.

At the FCC, we call our strategy to promote the development and deployment of next-generation wireless technology our 5G FAST (Facilitating America's Superiority in 5G Technology) plan. This plan has had three parts: freeing up spectrum, promoting wireless infrastructure, and modernizing our regulations to encourage more fiber deployment.

On spectrum, we've been taking an aggressive, all-of-the-above approach. We're freeing up high-, mid-, and low-band spectrum for 5G.

High-band spectrum enables ultra-high-speed, gigabit-plus wireless connectivity. Last year, the FCC successfully concluded our nation's first two auctions of millimeter-wave spectrum for 5G services, in the 28 GHz and 24 GHz bands, respectively. Earlier this year, we completed an auction of the upper 37 GHz, 39 GHz, and 47 GHz spectrum bands. This was the largest spectrum auction in American history, releasing 3,400 megahertz into the commercial marketplace.

All told, we've made available almost five gigahertz of high-band spectrum for commercial use through these auctions. To put that in perspective, that is more spectrum than previously was used for terrestrial mobile broadband by all wireless service providers in the United States combined.

With respect to low-band, we've finished repurposing spectrum in the 600 MHz band for mobile broadband. This spectrum was long used for broadcast television, and was transitioned to wireless use thanks to our ground-breaking broadcast incentive auction. To clear the 600 MHz band spectrum for wireless use, roughly half of our nation's broadcast TV stations—nearly 1,000 in total—had to change their transmission frequencies. This summer, we completed this enormous three-year undertaking—known as the “repack.” Now, all of the valuable low-band airwaves sold in the incentive auction are available for wireless broadband service. This spectrum is already being used to provide 5G service to areas where over 200 million Americans live.

But for all of our progress on high-band and low-band spectrum, since we first rolled out the 5G FAST plan, I'd say we've made the most headway on mid-band spectrum.

Mid-band spectrum is appealing for 5G largely because of physics: it combines good geographic coverage with good capacity.

Under my direction, the FCC has systematically identified mid-band airwaves that were being underused and set plans to put these airwaves to work for the American people.

In July 2019, for example, the Commission adopted flexible new rules for the 2.5 GHz band. This is the United States' single largest band of contiguous spectrum below 3 GHz, and it's well-suited for 5G deployment. We recently concluded a Tribal Priority Window to enable Native American Tribes to get early access to 2.5 GHz spectrum and intend to auction any remaining spectrum shortly after we finish processing applications filed during that window.

We also made bold changes in order to bring the 3.5 GHz band into commercial use. Thanks to those changes, this past August, the FCC successfully completed an auction of 70 megahertz of licensed spectrum in the 3.5 GHz band—our first-ever auction of mid-band spectrum for 5G. And we've completed the necessary technical work so that the band's entire 150 megahertz is now available for commercial use. The impacts of our decision are already being felt. An article this past week in *The Wall Street Journal* referenced our 3.5 GHz band work and put it simply in the headlines: "Private 5G Networks Are Bringing Bandwidth Where Carriers Aren't. Impatient for faster connectivity for everything from smart factories to rural broadband, companies are rolling out their own networks."

Exciting stuff. But the Commission's biggest move to free up mid-band spectrum for 5G is coming up soon. On December 8, we'll begin an auction involving the 3.7 GHz to 4.2 GHz band—commonly called the C-band. This spectrum is now mostly used by fixed-satellite companies to beam content to video and audio broadcasters, cable systems, and other content distributors. With advances in technology, however, these companies can now provide the same services using alternative technologies or considerably less spectrum.

That's why, this past February, the FCC voted to clear the lower 300 megahertz of the C-band and make 280 megahertz of this spectrum available for 5G through a public auction. All eligible space station operators currently using this spectrum have committed to an accelerated relocation to the upper 200 megahertz of the C-band—meaning that the lower 280 megahertz will become available for 5G two to four years earlier than otherwise would have been the case. As I mentioned, this auction will begin on December 8, and we're excited to get it underway.

This September, the Commission proposed to make the 3.45-3.55 GHz band available for commercial use, including 5G, while accommodating limited remaining operations by federal government incumbents. This action follows through on the White House and the Defense Department's August announcement that this 100 megahertz of contiguous mid-band spectrum should be made available for 5G as quickly as possible. I am optimistic that we will be able to auction the 3.45 GHz band next year.

The bottom line of all these mid-band efforts is this: With the aforementioned auctions of the C-band, the 3.5 GHz band, and a 2021 auction of the 3.45 GHz band, we are on a path to have a contiguous 530-megahertz swath—from 3.45 to 3.98 GHz—of mid-band spectrum available for 5G.

Before moving away from spectrum, a quick note on unlicensed spectrum. Next week, the FCC will be voting on making available 45 megahertz of spectrum in the 5.9 GHz band for unlicensed operations. And earlier this year, we made the entire 6 GHz band—a massive 1,200 megahertz test bed for innovators and innovation—available for unlicensed use. By doing this, we are effectively increasing the amount of mid-band spectrum available for Wi-Fi by almost a factor of five. Some suggest that Wi-Fi and cellular spectrum are rivals. But I believe freeing so much spectrum for unlicensed use will advance U.S. leadership in 5G technologies. For instance, Cisco projects that 59% of mobile data traffic will be offloaded to Wi-Fi by 2022. And cellular operators can improve their 5G mobile broadband services by using the 6 GHz band; 3GPP Release 16 will include a 5G New Radio specification for unlicensed spectrum, called 5G NR-U. So, to me, cellular and Wi-Fi spectrum are powerful complements, not rivals.

Overall, by any measure, this has been the most productive and most aggressive FCC in history when it comes to spectrum. We have done the hard work. We have focused on the engineering, the economics, and the law. We've prioritized policy, not politics. And because of all that, we have gotten results.

But remember, spectrum is just one of the three planks of our 5G FAST plan. We've been similarly productive on the other two: promoting wireless infrastructure and modernizing our regulations to encourage more fiber deployment, which is essential for wireless backhaul.

When it comes to 5G, we all understand that infrastructure will be essential. 5G's more densified networks will require that we install hundreds of thousands of small cells—an exponential increase in the number of antenna locations for our current networks.

At the FCC, we've taken many actions to streamline our rules and make it easier to build, maintain, and expand America's wireless networks.

To make it easier to install wireless infrastructure like small cells, we set a reasonable deadline for cities to rule on siting applications. We also set reasonable limits on siting fees—limits that still allow localities to cover their costs.

We also clarified the Commission's rules for when wireless infrastructure companies want to upgrade the equipment on existing structures, such as replacing antennas on a macro tower or adding antennas to a building. These clarifications will accelerate the build-out of 5G infrastructure by avoiding misunderstandings and reducing the number of disputes between local governments and wireless infrastructure builders—disputes that lead to delays and lawsuits.

To make it quicker and cheaper to enable new attachments to poles, we adopted our “one-touch make-ready” policy. Instead of having multiple parties sequentially prepare poles for a new attacher, as was the practice, a single construction crew now can do all the make-ready work at once. This not only speeds up network buildout, it also opens the door to new entrants who can increase broadband competition. And by promoting fiber network buildout, we're supporting the expansion of wireless intermediate networks, too.

We've also modernized rules to make it easier for carriers to transition from maintaining yesterday's copper networks to building tomorrow's fiber networks. And we scrapped utility-style broadband regulation inspired by rules from the 1930s.

These reforms have helped to spur record-breaking capital investments in infrastructure essential for 5G, including fiber-optic cables and small cells. In 2018, and then again in 2019, the United States set records for annual fiber deployment. And the number of new cell sites in the United States has skyrocketed. For example, in the four years before I became FCC Chairman, the number of cell sites in the United States increased by fewer than 7,000. But in my three years in this role, the United States has gained over 87,000 cell sites—with over 46,000 added last year alone.

On top of all these efforts to promote the development and deployment of ultra-fast, high-capacity 5G networks, the FCC is committed to making sure those networks are secure. When 5G is embedded in almost every aspect of our society and economy—from businesses to homes, hospitals to transportation networks, manufacturing to the power grid—securing our networks will become much more important and much more difficult. At the FCC, we've focused on the integrity of the communications supply chain—that is, the process by which products and services are manufactured, distributed, sold, and ultimately integrated into our communications networks.

For years, U.S. government officials have expressed concern about the national security threats posed by certain foreign communications equipment providers. To counter this risk, the FCC has prohibited the use of money from our Universal Service Fund to purchase or obtain any equipment or services produced or provided by companies posing a national security threat, including the world's largest global 5G supplier—Huawei.

We also implemented a process to identify and catalog insecure equipment used in USF-funded communications networks, so we can work to implement a program to remove and replace it. It could cost nearly \$2 billion to remove this equipment from U.S. carriers' networks and replace it, and we are working with the U.S. Congress to secure the necessary funding to do just that.

Fortunately, technological innovation has the potential to address some of these security concerns. Open Radio Access Networks, or Open RANs, could transform 5G network architecture, costs,

and security. This fall, the FCC held a forum on open, interoperable, standards-based, and virtualized radio access networks. It featured top experts from the United States and around the world. A consensus emerged from the forum that Open RAN technologies are already showing great promise in the United States and around the world, and that the public and private sectors should continue to encourage development and deployment of these systems, which can enable a diversity in suppliers, improve network security, and lower costs.

When it comes to 5G, we cannot afford to make risky choices and just hope for the best. We must see clearly the threats to the security of our networks and act to address them. And the more that the nations represented at this conference can work together and make security decisions based on shared principles, the safer that our 5G networks will be.

Thank you once again to our hosts for convening this conference. The United States stands ready and willing to work with all of you in the Baltic Sea region and beyond to build a brighter 5G future.