

**REMARKS OF FCC CHAIRMAN AJIT PAI
TO THE INTERNATIONAL TELECOMMUNICATION UNION WEBINAR**

**“RADIO SPECTRUM FOR IMT-2020 AND BEYOND:
FOSTERING COMMERCIAL AND INNOVATIVE USE”**

DECEMBER 8, 2020

Good morning, everybody! I know it’s the end of the day for many of you, but I can’t bring myself to say, “good afternoon,” before my morning coffee kicks in. Thank you to my friend Minister Alswaha, and everyone at CITC, for hosting today’s event. It was a pleasure to be in Riyadh with you last year, and it’s an honor to be with you virtually today.

Thank you to Secretary General Zhao and everybody at the ITU for their work organizing today’s discussion and for inviting me to participate. Special thanks to ITU-R Director Mario Maniewicz for warming up the audience for me in the previous session. More important, thanks to Mario for your outstanding work helping to engineer a successful WRC-19. You’ve set the bar so high for WRC-23 that we’re meeting three years in advance to talk about how to clear it.

One of the benefits of giving the first keynote on the first day of a three-day spectrum conference is that I get to talk about 5G before everybody else does.

Of course, everybody is talking about 5G because of its potential to grow our economies and dramatically improve people’s lives. Soon, these next-generation wireless networks will affect almost every aspect of our society and economy—from businesses to homes, hospitals to transportation networks, manufacturing to the power grid.

To capture these benefits, in 2018, we outlined a comprehensive strategy to promote the development and deployment of 5G technologies in the United States. We called it the 5G FAST plan. This strategy has had three parts: freeing up spectrum for commercial use, promoting wireless infrastructure, and modernizing our regulations to encourage deployment of fiber, which is needed to carry wireless data into the core of the network. Ever since 2018, the FCC has aggressively executed on each of these parts.

For example, on spectrum, we’ve been the most aggressive and successful FCC in history. With three high-band auctions, we’ve made available more spectrum for commercial use than was previously used by all mobile broadband providers in the United States combined. We’ve already finished repurposing low-band spectrum in the 600 MHz band for mobile broadband, which is now being used to provide 5G service coverage to more than 250 million Americans.

And over the past couple of years, we’ve been primarily focused on mid-band spectrum. These airwaves are particularly appealing for 5G because they combine good geographic coverage with good capacity.

I know many of you share this view. The European Commission has issued a directive that 3.4-3.8 GHz will be the first primary band for 5G in the European Union. Japan has awarded licenses in the 3.6-4.1 GHz band for 5G. And Australia has initiated a plan for fixed and mobile broadband use in the 3.7-4.2 GHz band.

So what has the FCC been doing on mid-band spectrum? Get comfortable, because this could take a while.

In July 2019, 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 finished a Rural Tribal Priority Window to enable Native American Tribes to

get early access to 2.5 GHz spectrum in rural areas. We intend to auction overlay licenses for any remaining spectrum shortly after we finish processing applications filed during that window.

We also made bold changes 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 the private sector. Companies are already exploring novel solutions like private LTE networks using this spectrum.

This August, the White House and the U.S. Department of Defense announced that the 3.45-3.55 GHz band should be made available for 5G as quickly as possible. The FCC immediately followed up on that announcement in September. We proposed to make this 100 megahertz of contiguous mid-band spectrum available for 5G, while accommodating the limited remaining operations of federal government incumbents. I'm optimistic that we will be able to auction the 3.45 GHz band next year.

But the Commission's biggest auction of mid-band spectrum for 5G actually starts today—just a couple of hours from now, in fact. We are beginning an auction as part of our reorganization of 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. But with advances in technology, the satellite companies currently operating in the C-band 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 (3.7-3.98 GHz) available for 5G through a public auction. All eligible space station operators currently using this spectrum have committed to quicker 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.

Now, to be clear, while we are repacking the C-band for 5G, this FCC has been a big proponent of new satellite services and applications. We approved a new generation of low-earth orbit satellites—satellites that have the potential to beam Internet access back to Earth at a speed and price point comparable to a terrestrial provider. We've explored new sharing paradigms for satellite service in the millimeter-wave bands, while preserving their primary use of the 48.2-50.2 GHz and 40-42 GHz bands. We've also facilitated the deployment of new Earth Stations in Motion. By eliminating regulatory burdens and adding frequencies where these receivers can operate, we expect this fast-growing segment of the satellite industry to innovate and invest in new technologies.

But just as we are committed to promoting investment and innovation in space, we want to make sure that we are using valuable mid-band airwaves as efficiently as possible. That's what we're aiming to do with the C-band auction. As I mentioned, this auction begins today, and we're excited to get it started.

Add all these efforts up, and 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.

I am confident that the actions I've mentioned today will help to spur the deployment of next-generation wireless technologies in the United States. But these efforts to make more spectrum available for 5G will have an even greater impact if we can create more opportunities for harmonization. Of course, international spectrum harmonization is the gold standard. But as we have seen at recent WRCs, reaching that standard isn't easy.

That's why it's not too early to look ahead and work toward identifying new opportunities for harmonization at WRC-23. There's already an agenda item—number 1.2, to be specific—which will consider the possibility of making some bands between 3.3 and 10.5 GHz available for International

Mobile Telecommunications, either on a regional or global basis. We should seize this opportunity and others.

I recognize that these discussions will be challenging and that just getting agreement on the wording of this agenda item was difficult. Nonetheless, with the spirit of cooperation and understanding that has gotten us this far with mid-band spectrum, I am confident we will be able to identify additional spectrum at WRC-23.

Before moving away from spectrum, a quick note on unlicensed spectrum. Earlier this year, the FCC made the entire 6 GHz band—a massive 1,200 megahertz test bed for innovators and innovation—available for unlicensed use. And this past month, the FCC voted to make available 45 megahertz of spectrum in the 5.9 GHz band for unlicensed operations. With these actions, we have effectively increased 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.

Now, as I mentioned, spectrum is just one of the three planks of our 5G FAST plan. We have also gotten major results 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. And we will need more fiber to connect to more cell sites and carry more data to the core of the network.

At the FCC, we've done a lot to streamline our rules and make it easier to build, maintain, and expand America's wireless and wireline 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 required localities to set nondiscriminatory fees for small cells and prohibited them from charging more than their reasonable costs. 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 attach, as was previously the practice, a single construction crew now can do all the make-ready work at once.

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 ended 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. During 2018 and 2019, we added more than 72,000 new wireless cell sites in the United States, 10 times more than the deployments from 2013 through 2016 combined.

Bottom line: We have put in place a regulatory framework to enable the United States to deliver 5G—fast.

But we recognize that it's not enough to have strong 5G networks. The FCC is also committed to making sure those networks are secure.

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 money from our Universal Service Fund from being spent on any equipment or services produced or provided by companies posing a national security threat, including the world's largest global 5G supplier—Huawei.

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. 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 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.

Speaking of international cooperation, and in closing, I would like to acknowledge that this will be my last time addressing the ITU as FCC Chairman. I recently announced that I will be leaving the Commission on January 20, 2021. Serving as the FCC Chairman has been the greatest professional honor of my life. It has given me the opportunity to travel across the country and around the world, meeting new people and forming new relationships as well as strengthening existing ones. I am so grateful to have had the chance to work with many of you over the past several years, including at the Plenipotentiary in 2018 and the WRC in 2019. And I am proud of the progress we have made together. Thank you for your friendship and your partnership. And here's to an even brighter digital future.

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