

**REMARKS OF FCC CHAIRMAN AJIT PAI
AT THE WIRELESS BROADBAND ALLIANCE'S WIRELESS GLOBAL CONGRESS**

AJIT'S HOME OFFICE

JUNE 17, 2020

Good morning! Thank you to Tiago Rodrigues and the Wireless Broadband Alliance for hosting this forum and inviting me to participate.

It's great to be with you. And in the case of the previous speaker, Edgar Figueroa, I should say it's great to be with you *again*. Two weeks ago, I joined Edgar for a virtual meeting of the Wi-Fi Alliance. In fact, this is the fourth webinar during the pandemic in which I've been invited to speak about the Commission's 6 GHz initiative. I'm guessing there's some overlap in these audiences, so my apologies to those of you who have already heard my 6 GHz stump speech. But here's how I'm thinking about my remarks this morning. No matter how many times you see U2 live, you always want to hear "I Still Haven't Found What I'm Looking For." That's why I'm going to focus my remarks on our 6 GHz work—especially because here, we actually found it! But I also plan to throw in some other greatest hits from the FCC's rich catalog of efforts to promote a brighter unlicensed future.

If you're on this videoconference, you probably already know that on April 23, the FCC voted unanimously to make the entire 6 GHz band available for unlicensed use. By doing this, we are creating a massive 1,200 megahertz testbed for innovators and innovation. This is a big deal; we are effectively increasing the amount of mid-band spectrum available for Wi-Fi by almost a factor of five. All 1,200 megahertz of this spectrum will be available for indoor-only low power use without the added complexity of database coordination. We are also making the two largest sub-band segments, totaling 850 megahertz, available for use indoors and outdoors at a higher standard power. We'll use an automated frequency coordination system to prevent interference with incumbent services.

Going big means allowing unprecedented 160- and 320-megahertz channels for Wi-Fi. This will dramatically ease spectrum capacity as a constraint on innovation and open the door to new high-bandwidth applications.

And we're doing all of this while protecting from harmful interference important incumbent services in the 6 GHz band, including the operations of utilities, public safety entities, broadcasters, and wireless backhaul. Our automated frequency coordination systems will *only* allow new standard-power operations in areas that won't cause harmful interference to incumbents.

Why does all this matter? It's partly because Wi-Fi has come to resemble—in a good way—the Matrix, as described in the iconic first movie. As Morpheus might have put it, Wi-Fi "is everywhere. It is all around us. Even now, in this very room. You can see it when you look out your window or when you turn on your television." Today, Wi-Fi carries more than half of the Internet's overall traffic, and offloading mobile data traffic to Wi-Fi is vital to keeping our cellular networks from being overwhelmed. In fact, Cisco projects that 59% of mobile data traffic will be offloaded to Wi-Fi by 2022, which is not that far away.

Moreover, the coronavirus pandemic has amplified how indispensable Wi-Fi has become in our lives. Our homes have turned into our offices and our classrooms, testing the limits of our Wi-Fi networks like never before. If you have a family like mine, you've got two parents who may be on a connected device, two kids on a connected device, and maybe even some Wi-Fi connected appliances. That's a lot of data being transmitted over unlicensed airwaves.

Making 1,200 megahertz available for unlicensed use is a once-in-a-generation step to meet this growing demand for Wi-Fi capacity. Just think for a moment about what this will mean for innovation.

A big subject of this webinar is how Wi-Fi 6 has already started rolling out. This next generation of Wi-Fi will be over two-and-a-half times faster than the current standard, and it will offer better performance for connected devices. And I expect entrepreneurs to use the 6 GHz band to push the boundaries of what consumers think is possible with applications and services through Wi-Fi 6.

Speaking of consumers, another reason to celebrate is that they will actually see the benefits in the not-too-distant future. This is not a case in which a year-one decision may yield results in a decade. The consumer-facing pop for Wi-Fi 6 is going to be relatively short term—perhaps even in time for the upcoming holiday season.

By taking the extra time to work with all key stakeholders, we can say to everybody involved that this is a true win-win. By assuring incumbents that we would protect them from harmful interference, we didn't have to require automated frequency coordination systems for low-power devices indoors. This will mean a huge savings in terms of time. Companies won't have to create a more complicated system indoors. It also saves a lot in terms of cost from the end-user perspective. There were some estimates that requiring that kind of system could add as much as \$100 to the cost of some of the routers. Both in terms of time and costs, consumers are going to see the benefits of this sooner rather than later.

The last point I would emphasize on 6 GHz is that we aren't done yet. In addition to our Order, the Commission voted to explore possibilities for very-low-power devices in the 6 GHz band. Very-low-power devices could enable a new and innovative generation of personal area network technologies with low latency, high capacity, and all-day battery life. These very-low-power devices could include accessibility technology for Americans with disabilities, virtual reality gaming, augmented reality glasses, in-vehicle systems, and other emerging technologies. We don't really know what this would lead to. And that's kind of the point with unlicensed innovation. We want to set the building blocks in place so that engineers and technologists out there can figure out what it could mean for American consumers.

But enough about the 6 GHz band. Now, I'd like to move on to its next-door neighbor on the spectrum chart—the 5.9 GHz band.

Back in 1999, the FCC allocated 75 megahertz of spectrum in the 5.9 GHz band for a service called Dedicated Short-Range Communications. Commonly known as DSRC, this technology was intended to enable ubiquitous transportation and vehicle-related communications.

But the performance has not lived up to the promise. Over twenty years later, most of this spectrum is not being used. It's not widely deployed. To say that DSRC has evolved slowly is an understatement. And in the meantime, a wave of new transportation communication technologies has emerged.

As a result, a lot of people have asked whether this valuable spectrum—a public resource—is really being put to its best use.

In my view, it clearly is not. After 20 years of seeing these prime airwaves largely lie fallow, I decided that the time had come for the FCC to take a fresh look at the 5.9 GHz band. So last December, the Commission launched a proceeding to end the uncertainty around the 5.9 GHz band and set a path for the deployment of new services.

Specifically, we've proposed to make available the lower 45 megahertz of the band for unlicensed uses like Wi-Fi, dedicating the upper 20 megahertz of spectrum for a new vehicle communications technology called C-V2X, and asking whether the remaining 10 megahertz should be allocated to C-V2X or DSRC.

Thanks to its neighbor, this spectrum in the lower 45 megahertz of the 5.9 GHz band would punch above its weight. The adjacent 5.725-to-5.850 GHz band is currently available for unlicensed operations, making this 45 megahertz sub-band ideally suited for unlicensed use. Having more contiguous spectrum here is essential for the larger channels needed to support innovative use cases.

And we've recently seen tantalizing glimpses of the punch this spectrum could pack for consumers—specifically, how the lower 45 megahertz of this band can be used to solve problems right now, like improving rural broadband access. In response to the COVID-19 pandemic, the Commission has granted Special Temporary Authority to over 150 Internet service providers to use the lower 45 megahertz of the 5.9 GHz band. We've allowed them to use this spectrum to meet the connectivity challenges posed by this national emergency, especially in rural areas.

The results are impressive. Let me give you just a few examples. Amplex, based in Luckey, Ohio, saw a 30% increase in demand because of the pandemic, but using the 5.9 GHz band has allowed it to increase its network's bandwidth by 50%. Netlink, in Hudson Oaks, Texas, is using this spectrum to reduce interference and upgrade speeds for over 2,000 subscribers. Skynet360 in Florida City, Florida, has been able to extend broadband access to over 100 homes in a rural area of the Everglades. And Intermax Networks in Coeur d'Alene, Idaho has seen dramatically reduced noise floors and an up to 75% increase in throughput in its network.

And these few examples typify the many. They show the promise of the 5.9 GHz band for unlicensed use. And they reinforce my belief that the best course is to dedicate the lower 45 megahertz of the band exclusively for unlicensed operations like Wi-Fi.

This approach rejects the false choice that we have to pick between automotive safety and Wi-Fi. Given the track record of the last 21 years, by providing dedicated spectrum for intelligent transportation and for unlicensed use, what we're proposing would do far more for both automotive safety *and* Wi-Fi than the status quo.

Today, I've primarily focused my remarks on mid-band spectrum, which is critical to unlicensed innovation. But before I close, I want to look into the future, and for that, we need to look higher. A lot higher. Last year, in our *Spectrum Horizons* proceeding, we made over 21 gigahertz of spectrum above 95 GHz available for unlicensed use. To be clear, that's 21 gigahertz, not megahertz, so we are talking about oceans of airwaves. While some may think that these spectrum bands are too high to be practical, I'd note that the same was said of the 2.4 GHz band 30 years ago. We've set up a big sandbox for engineers and technologists to work with — and we'll see what America's innovators come up with. And I'm optimistic that when the Wireless Broadband Alliance meets in 2050, speakers will be discussing the tremendous innovation that has occurred in the 116, 174.8, 185, and 244 GHz bands.

Speaking of, I think some of those innovators are probably in the audience. So I'd like to just stop there and turn it over to Tiago for some questions. Thanks again for having me and for allowing me to be a part of this important discussion.