

**STATEMENT OF
COMMISSIONER BRENDAN CARR
APPROVING IN PART AND CONCURRING IN PART**

Re: *Facilitating Shared Use in the 3100-3550 MHz Band*, WT Docket No. 19-348

Securing U.S. leadership in 5G is one of the great success stories of the past four years. Now in hindsight, this may seem like a forgone conclusion. Of course America would lead the way. Yet back in 2016, we were at serious risk of ceding U.S. leadership in 5G to our overseas competitors. We were in jeopardy of losing the good-paying jobs and the economic growth that come with a first mover advantage.

Back then, the experts and analysts were not painting a rosy picture of America's 5G future, to put it mildly. And the facts on the ground certainly supported their predictions. On the spectrum side, the U.S. ranked far behind China, the U.K., South Korea, Japan, Germany, and many other nations in spectrum availability.

So we went to work and put a plan in place to turn things around.

We knew that 5G would be delivered over every spectrum band. So we pursued an all-of-the-above strategy that emphasized low, mid, and high band spectrum. On mid-band in particular, the U.S. had very clearly fallen behind. In 2017, when leadership changed at the FCC, the agency had no mid-band spectrum for 5G at a point in time when other countries had 300 MHz or more. And we had none in the pipeline either. So we put in the legwork to correct this mistake, and that effort paid off.

We held the first auction of mid-band spectrum in 2020 with 70 MHz worth of spectrum in the 3.5 GHz band. At 2.5 GHz, we transformed the rules governing nearly 200 MHz worth of this mid-band spectrum to support 5G builds and teed up over 100 MHz for auction. At 4.9 GHz, we modernized the regulation of a 50 MHz swath of spectrum. In the L Band, we authorized 30 MHz of spectrum for 5G and IoT. At 5.9 GHz, we opened up 45 megahertz for unlicensed. Plus, we pushed out an additional 1,200 MHz for unlicensed in the 6 GHz band. And let's not forget the C Band, where we cleared 280 MHz of sought-after mid-band spectrum.

All told, our spectrum efforts over the past four years opened up more than six gigahertz of spectrum for licensed 5G services in addition to thousands of megahertz of unlicensed spectrum.

These were not all walks in the park. In many cases, these were spectrum bands that prior FCCs took a pass on. Not because the bands were unsuited for next-gen wireless services, but because moving forward meant taking political heat for doing the right thing. Thankfully, the FCC took these fights head on over the past few years, and we freed up the spectrum needed to power 5G. As a result, the U.S. now has the strongest 5G platform in the world.

That brings me to today's Order and this additional, 100 MHz of prime, mid-band spectrum in the 3.45 GHz band. In 2018, we worked closely with NTIA and studied the opportunities for freeing up additional spectrum in the lower 3 GHz band. Those efforts enabled us to identify this large swath of spectrum as the most suitable for 5G on an expedited basis. Flash forward to 2019, and we launched the rulemaking that paved the way for today's vote and an auction this year—making this by far the fastest effort ever to identify and auction federal spectrum for commercial use.

I was pleased that Acting Chairwoman Rosenworcel included a number of important policy cuts in the draft decision that she circulated last month. For instance, by moving forward with full power operations, we align our approach with the successful auction of C Band spectrum. This will not only

create efficiencies between operations in the two bands, it will ensure robust 5G coverage, which is particularly helpful for accelerated builds in rural communities.

In addition to the power levels, there is a lot we get right today, including our decision to license spectrum over geographic areas that line up with our approach in C Band and that are well-suited for macro operations. So I want to thank the Chair and her team for their work on today's decision.

At the same time, I would have preferred for our Order to take a different approach in at least two areas.

First, I think we should have maximized participation in the auction, rather than adopting an upfront spectrum aggregation limit of 40 MHz. Studies of bidding restrictions imposed by regulators around the world show that these efforts routinely fail to achieve those governments' goals of determining winners and losers of spectrum auctions—and they often impose severe costs along the way in the form of reduced auction revenues, fallow spectrum, and delayed builds. The FCC itself does not have a great track record when it comes to predicting who will show up at an auction and how much they will bid. To be sure, industry may want the government to limit competition and divvy up the market through these types of mechanisms, but particularly given the aggregate reserve price of over \$14 billion for this auction, I think we should have refrained from doing so and instead maximized the chances for a successful auction.

Second, I would have preferred for the FCC to avoid imposing the costs associated with the bespoke out of band emissions mask we adopt for this 3.45 GHz band. We didn't impose this type of two-step limit in the C Band or the adjacent 3.55 GHz band, and the approach taken here will undoubtedly increase the costs of obtaining equipment and building out this spectrum. It also puts the U.S. on an island, since other countries have not taken this approach. So we're losing the efficiencies that come with international harmonization. On top of that, the Order's reasoning for imposing this obligation is thin, to say the least. That said, I am pleased that the Chair's office worked with my team to add language ensuring that the FCC will continue to engage industry and government stakeholders on this issue, and that we are not locking in a precedent for double masks in other parts of the lower 3 GHz band.

Given the good-faith progress we made to find common ground on this item and improve the outcome, I am concurring on these two issues while approving of the rest of today's decision.

Of course, our work does not end with this vote today. With all the effort we've put in over the past four years, we now have a lot of spectrum in the pipeline. The key is to make sure we get those airwaves out into the commercial marketplace as quickly as possible. So earlier this week, I offered up a spectrum calendar to make sure we stay on track and, hopefully, provide stakeholders with the information they need to plan for the agencies' future spectrum auctions. Here is what I proposed:

In 2021, we should take the following actions:

- 3.45 GHz
 - Hold Auction 110 for the 100 MHz of spectrum in the 3.45 GHz band as required by Congress at power levels that will support 5G builds. The good news is that today's decision does just that.
- 2.5 GHz
 - Hold Auction 108 for the 100+ MHz of spectrum in the 2.5 GHz band. This is prime, mid-band spectrum that needs to get to market ASAP using the FCC's tried and true mechanisms. We've already put the legwork in to get this across the finish line later this year by releasing the comment Public Notice in January.

- 6 GHz
 - We should adopt an order this year that permits very low power (VLP) devices to operate in the 6 GHz band at 14 dBm. I have talked about this as a key step to promoting 5G in this country because it would help power the AR/VR and other applications that will drive consumer demand for 5G devices. We have a pending Further Notice that would allow us to go right to an order on this and doing so would align the U.S. with the approach taken in this band abroad, including in Brazil.
 - We should also allow client-to-client device communications in this band, which we sought comment on in a January 2021 Public Notice and would increase efficiency and enable even more innovative uses of this spectrum.
- 3.5 GHz
 - We should seek comment this year on increasing the power levels for CBRS operations in the 3.5 GHz band. Upping the power levels here would help align the U.S. band plan with international standards and create efficiencies for mid-band 5G builds in the U.S. that could span the 3.45 GHz to C Band spectrum ranges. We should take the real-world experiences we're gaining with CBRS builds and coordinate with federal users as we look at increasing the power levels here. Getting this done will help extend the reach of 5G services to even more Americans.
- U-NII-2C (5470-5725 MHz)
 - Okay, this one may seem like it is coming from left field. So stay with me. We should start a proceeding to look at updating the rules that apply to the U-NII-2C band (5470-5725 MHz). This band contains a large, 255 megahertz-wide swath of unlicensed spectrum that is vastly underutilized today—indeed, equipment manufacturers don't even bother to include the band in many 5 GHz Wi-Fi devices. This is because we have costly and cumbersome technical restraints on the band that are designed to protect federal operations. We should examine whether advances in technology would allow us to continue to protect federal through a more efficient mechanism, thus creating more opportunities for unlicensed use of this band.
- FCC's Auction authority
 - Finally, we should work with Congress this year to ensure that it reauthorizes the FCC's spectrum auction authority, which expires for most bands at the end of fiscal year 2022.

We can and should get all of that done in 2021 and doing so would match the pace we've been moving on spectrum over the past few years.

Then, in 2022, here's what should be at the top of our list:

- 1300-1350 MHz.
 - Hold an auction for the 50 MHz of spectrum between 1300-1350 MHz. This spectrum was first identified as a target for clearing all the way back in 2015. And last year, the FCC began working with NTIA on a plan that would enable

the current federal incumbents to vacate the band for auction as soon as next year.

- Millimeter wave
 - Hold another auction of millimeter wave spectrum. And the 42 GHz band looks to be one of the prime candidates for action next year.

After 2022, there will be more spectrum bands that we can get across the finish line.

- Lower 3 GHz
 - The FCC has been working with federal stakeholders to create additional opportunities for commercial providers below the 3.45 GHz band. The FCC has already relocated most of the secondary non-federal users out of the band to facilitate this move. And momentum is building towards making more 5G available in this band sooner rather than later thanks to lessons learned during the AMBIT initiative. There are challenges that remain given the presence of some high-power systems, but we are well positioned to work through those issues this year and move forward with an auction of Lower 3 GHz spectrum after 2022.
- 4.8 GHz
 - We should also auction spectrum in the 4.8 GHz band after 2022. This is a particularly important band from an international perspective because a number of countries have moved ahead of us by licensing this spectrum exclusively for 5G. While there are many federal point-to-point links in this band, we have the time to open this band up for 5G in the next couple of years.
- 7.125-8.4 GHz
 - Following a 2018 directive, federal agencies have been collecting information about their operations in this band with a report due back to NTIA. With some additional legwork this year and next, we will be well positioned to reallocate portions of this band for commercial 5G operations.
- Above 95 GHz
 - We took initial steps towards opening up the spectrum horizons above 95 GHz back in 2019. And the terahertz bands in that range could prove useful over time for short-range applications, including potential 6G applications. So we should look to take additional steps in those bands in the coming years.

So the good news is that we have plenty in the spectrum pipeline. It's on us at the FCC to make sure we stick to this schedule and get it into the market. Of course, we will need to pair those airwaves with more action on the infrastructure front. This includes finishing targeted broadband maps this fall, not next year, so that we can unlock funding through RDOF II and the 5G Fund that is needed to close the digital divide.

Speaking of sticking to an aggressive schedule, I would like to thank the staff in the Wireless Telecommunications Bureau, Office of Economics and Analytics, and Office of Engineering and Technology for their tireless efforts to keep this proceeding moving. I approve in part and concur in part.