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For Immediate Release

**FCC OPENS 100 MEGAHERTZ OF MID-BAND SPECTRUM
FOR 5G**

New 3.45 GHz Band Rules Put FCC on Track for 5G Auction This Year

WASHINGTON, March 17, 2021—The Federal Communications Commission today took action to make valuable mid-band spectrum in the 3.45-3.55 GHz band available for auction to facilitate 5G deployment across the contiguous United States.

Last year's Consolidated Appropriations Act required the Commission to commence a system of competitive bidding for licenses in the 3.45-3.55 GHz band by the end of this year. The action taken today positions the agency to meet this obligation, and it marks progress towards fulfilling Congress's directive in the MOBILE NOW Act for the FCC to work with NTIA to evaluate the feasibility of allowing commercial use in the 3.1-3.55 GHz band.

The rules adopted today reallocate 100 megahertz of spectrum in the 3.45 GHz band for flexible use wireless services. This Second Report and Order also establishes a framework for the 3.45 GHz band that will enable robust commercial use by an array of service providers, while also ensuring that federal incumbents are still protected from harmful interference where and when they require continued access to the band.

Collectively, the 3.45 GHz band and the neighboring 3.5 GHz and 3.7 GHz bands represent 530 megahertz of contiguous mid-band spectrum for 5G, the next generation of wireless services. 5G networks will kickstart the next big digital transformation and connect more people and more things in more places.

Action by the Commission March 17, 2021 by Second Report and Order (FCC 21-32). Acting Chairwoman Rosenworcel and Commissioner Starks approving. Commissioners Carr and Simington approving in part and concurring in part. Acting Chairwoman Rosenworcel, Commissioners Carr and Simington issuing separate statements.

WT Docket No. 19-348

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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See MCI v. FCC, 515 F.2d 385 (D.C. Cir. 1974).

**STATEMENT OF
ACTING CHAIRWOMAN JESSICA ROSENWORCEL**

Re: *Facilitating Shared Use in the 3100-3550 MHz Band, WT Docket No. 19-348;*
Auction of Flexible-Use Service Licenses in the 3.45-3.55 GHz Band

As the Acting Chairwoman of the Federal Communications Commission, I know firsthand that our nation's economic recovery and security in a post-pandemic world depends on our ability to lead in fifth-generation wireless technologies, or 5G.

Every day I see this technology advancing and the innovation it can deliver growing. And every day I am reminded that we have more work to do before the benefits of this service can reach everyone, everywhere.

That might sound like a lofty goal, but I am an optimist. While we may disagree on some details from time to time, I know that each one of my colleagues at the Federal Communications Commission is equally committed to ensuring that the United States leads in 5G. I welcome their ideas, their resolve, and their partnership, and I look forward to building this future for the benefit of the American people.

Back to the here and now. Most of the country has yet to experience the benefits of a true 5G network. The out-there innovations it can deliver are still a ways off because so many of them are not about connectivity delivered via phones. Plus, for so many consumers, the present is confusing, with carriers providing different versions of 5G, which can sometimes feel a lot like the 4G they already have. In part, this is due to the fact that carriers don't always have the airwaves they need to provide consistent and widespread coverage at this time.

Today we take action to change that. We take action that will move us closer to 5G service that is fast, secure, resilient, and—most importantly—available everywhere in the country. We accomplish that by adopting rules and auction procedures that will make available 100 megahertz of prime mid-band spectrum in the 3.45-3.55 GHz band available for 5G this year. This offers real opportunity because during the past few years the United States was slow, relative to other countries, to recognize the importance of mid-band spectrum for 5G. This meant we were late to bring these airwaves to market. So mid-band spectrum has been the critical component that is missing and our action here helps fix that.

Of course, our actions today are about much more than just spectrum. They're also about how we advance new network technology to build a better future. So rather than just extending the same-old, same-old policies of the past, we are doing some things differently.

First, today's decision includes the most aggressive build-out obligations of any spectrum auctioned for 5G to date. As a result, we insist on getting infrastructure built *twice as fast* as what the agency has required in other recent 5G bands.

Second, today's decision commits to the idea that successful auctions have many bidders. To understand why this is important, take the FCC's recent C-Band auction. More than 90 percent of the 5,684 licenses that were available in that auction were won by the top two bidders. So here we take steps to increase the range of actors willing to participate in our auctions. We do this by adopting a pre-auction spectrum aggregation limit that will expand opportunity for service providers in every market in the United States. In addition, thanks to the leadership of my colleague, Commissioner Starks, we will auction this spectrum in smaller blocks in order to encourage broader participation from smaller providers and create more opportunities to win licenses.

Third, today's decision thinks about this band in a coordinated way, so we don't end up increasing interference and decreasing the utility of the limited mid-band resources we have available to us. We do that by adopting rules that will ensure that the higher power uses in the 3.45 GHz band do not undermine the considerable investments that have been made in the adjacent CBRS band. And while in the past different parts of our government have pulled in different directions when it comes to spectrum policy, here we have worked closely with our federal partners at the National Telecommunications and Information Administration and the Department of Defense to ensure a whole-of-government approach.

Most importantly, the path we lay out today is the one that ensures that we will meet the requirement from Congress in last year's appropriations law that we work with our federal partners to bring the 3.45 GHz band to auction by the end of this year. It is also the path required to meet as our obligations under the Commercial Spectrum Enhancement Act that our auction recover 110 percent of the Congressionally-approved relocation costs for this band—which stand at roughly \$15 billion.

So think of today's decision as a spectrum stimulus for 5G. It will boost the economy and encourage investment in our 5G future.

That's progress we can be proud of. But we are not slowing down here. I have begun to work with our federal partners to look at the next tranche of mid-band spectrum in the 3.1-3.45 GHz band. And while the law compelled certain outcomes in our decision today, it is my hope that our future efforts to find more spectrum for 5G will enjoy the flexibility to explore every option available to us, including the opportunity to pursue more innovative spectrum sharing policies like we have in the CBRS band. I also have instructed the Wireless Telecommunications Bureau to consider opportunities to rationalize the entire 3 GHz band to increase efficiency while also being mindful of the importance of unlicensed use.

Thank you to those at the agency who worked on these items. There are too many of you to name, but it includes staff from the Wireless Telecommunications Bureau, the Office of Economics and Analytics, the Office of Engineering and Technology, the Enforcement Bureau, the Office of General Counsel, the Office of the Managing Director, and last but not least, the Office of Communications Business Opportunities.

**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.

**STATEMENT OF
COMMISSIONER GEOFFREY STARKS**

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

In the age of the smartphone, demand for wireless service continues to grow at an exponential pace. 5G and the applications stemming from it are changing the way we work, protecting our health and safety, and creating new opportunities for communication, education, and entertainment. While consumer demand for mobile wireless service has played a central role in that growth, there are other factors driving growth as well—like the city installing routers on its buses to provide free Wi-Fi to passengers, the business placing sensors throughout its facilities to track its inventory, or the rural school district tapping into unused spectrum so that its students can learn remotely.

Mid-band spectrum is critical to that future, and I'm pleased that today's Report & Order will make another 100 megahertz of this spectrum available for 5G and other advanced wireless services. Unrestricted access to the 3.45 GHz band will both accelerate U.S. leadership in next-generation wireless networks and harmonize the U.S. band with international 5G use. Robust, full-power 5G deployment using mid-band spectrum can also help address internet inequality problems by providing high-quality connections to people who live outside the most densely populated urban centers.

The results of the recent C-Band auction demonstrate the ample demand for this spectrum. That auction raised over \$80 billion and affirmed my insistence that the proceeds go to the American taxpayer, rather than foreign satellite operators. I'm happy about the C-Band auction's financial success. I'm hopeful that the 3.45 GHz auction will both raise substantial funds and generate a significantly diverse group of winners. Thus, I appreciate that my colleagues agreed with my request to reduce the size of the spectrum blocks in the band to 10 megahertz. This change – coupled with the 40 megahertz spectrum aggregation limit – should increase competition, encourage more efficient bidding, and create opportunities for smaller bidders, particularly the rural and regional carriers that are critical to bringing advanced services to our hardest-to-reach communities.

I'm also grateful that the Report & Order includes measures to protect other licensees from harmful interference. For example, the item's out-of-band emissions limits and good-faith negotiation requirement for TDD synchronization should protect operations in the adjacent CBRS band. I will be observing those negotiations closely, as well as the cooperation efforts between commercial licensees and the Department of Defense contractors who currently operate in this band under part 5 experimental licenses.

Overall, the draft strikes a reasonable balance given the statutory language in the Beat CHINA for 5G Act, which requires that we commence this auction before the end of the year and affirms the existing requirement that we must raise 110 percent of the federal government's relocation or sharing costs. Without those restrictions, I would have given greater consideration to opportunistic use in the band, which could have amplified and reinforced the innovative benefits of the 3.45 GHz band. As we have seen in the CBRS band, opportunistic use facilitates more intensive spectrum use by allowing smaller entities to benefit from unused spectrum in a quick and cost-effective manner, particularly in rural areas that are often the last to see licensed deployments. Nevertheless, I'm pleased that my colleagues agreed to include language highlighting the benefits of opportunistic use, and I hope to see consideration of this approach in future spectrum proceedings.

I recognize that Commission staff faced difficult restrictions in drafting this Report & Order, and I want to acknowledge and applaud their hard work on this proceeding. I will vote to approve this item

and its companion Public Notice, and look forward to building on its efforts to provide opportunities for small and rural licensees in the 3 GHz band and elsewhere.

Thank you to the staff in the Wireless Telecommunications Bureau and the Office of Engineering and Technology for their work on this item.

**STATEMENT OF
COMMISSIONER NATHAN SIMINGTON
APPROVING IN PART, CONCURRING IN PART**

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

Today's Order begins the critical and expeditious implementation of the Beat CHINA for 5G Act of 2020, which requires the Commission to start a 3.45 GHz band auction by December 31, 2021. In addition to putting into place rules that will enable the Commission to beat that deadline, we also advance the ultimate goal of the legislation: to free more spectrum for U.S. deployment of advanced services. Under the leadership of Acting Chairwoman Rosenworcel, we continue to ensure that America remains a leader in the deployment of advanced networks and that it is poised to harness next generation technologies. With thanks to the invaluable coordination of the NTIA and our other Executive Branch partners, the Commission's actions today will enable industry to exploit an additional 100 megahertz of valuable mid-band spectrum for innovative uses.

The Commission strikes a good balance among competing industry objectives to allow for a numerous and diverse set of potential 3.45 GHz auction participants. This Order preserves the model of high-power exclusive flexible use. However, it also protects existing licensees in the neighboring CBRS band and federal incumbents who require relocation. Finally, it provides the opportunity for numerous smaller providers to participate in the auction and to innovate and flourish in the mobile marketplace.

While I support the item overall, I would be remiss to not acknowledge some reservations about portions of our decision today. I admire the care, diligence, and cooperation of the FCC, NTIA and industry that went into crafting the two-step out-of-band emissions (OOBE) limit. However, I am concerned that, though presently necessary to protect critical federal operations in the band considering present band engineering, this requirement, together with the expedited deployment timelines and a reserve price of over \$14 billion, could dampen potential investment and threaten the auction's success. Potential auction participants have expressed concerns that costs and delays associated with the development of the 3.45 GHz-specific radios required to accommodate the two-step limit could deter participation. The development of new radios for this band will also likely slow deployment for providers who become licensees. Further, the two-step out-of-band emissions approach creates a standard unique only to the 3.45 to 3.55 GHz portion of the band, making it more difficult to achieve holistic international harmonization of the 3 GHz band, which is critical to U.S. 5G competitiveness. While accepting present band engineering as a necessary compromise to timely bring this band to market, I would encourage the Commission to revisit the OOBE limit in the future.

I also fear that our decision to provide relocation reimbursement to secondary radiolocation licensees could have unintended and unwelcome consequences. While the licensees at issue no doubt operate valuable radar systems, the Commission may be unable to make distinctions about future secondary licensees who request the same treatment, but at a much higher price tag. This threatens to further raise the price of relocation in future auctions.

Despite these concerns, I approve in part and concur in part. I also express tremendous gratitude to Commission staff who diligently worked on this item.