

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Unlicensed Use of the 6 GHz Band)	ET Docket No. 18-295
)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz)	GN Docket No. 17-183
)	

PETITION FOR PARTIAL RECONSIDERATION

CTIA respectfully submits this petition for partial reconsideration of the Report and Order (“*Order*”) adopted by the Federal Communications Commission’s (“FCC” or “Commission”) in the above-captioned proceedings, which introduces unlicensed operations across 1,200 megahertz of spectrum in the 5.925-7.125 GHz (“6 GHz”) band.¹

INTRODUCTION AND SUMMARY

Throughout this proceeding, CTIA has supported more intensive use of the 6 GHz band—with part of the band made available for flexible-use licensing and the other part subject to sharing with new unlicensed operations under a robust interference protection regime to protect critical incumbent Fixed Service (“FS”) links in the band. To better meet the Nation’s spectrum needs, CTIA seeks reconsideration of two aspects of the *Order*.

First, the Commission should consider opportunities to clear and license a portion of the 6 GHz band. Although the Commission has made significant strides in freeing up new licensed spectrum for 5G, the United States faces a growing mid-band deficit, even accounting for the

¹ *Unlicensed Use of the 6 GHz Band; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 3852 (rel. Apr. 24, 2020) (“*Order*”). All comments and letters cited herein were filed in ET Docket No. 18-295 and GN Docket No. 17-183 unless otherwise specified.

350 megahertz in the 3.5 GHz and 3.7 GHz bands to be auctioned this year. The Commission recognizes that there is an urgent need for additional licensed mid-band spectrum,² yet inexplicably decided to give to unlicensed the full 1,200 megahertz in the 6 GHz band. The Commission could make a significant amount of spectrum available for licensed use and still more than *double* the amount of mid-band spectrum available for unlicensed use today under Part 15 of the Commission’s rules.

Second, the Commission should reconsider the *Order*’s power limits for access points operating under Automated Frequency Coordination (“AFC”). Although the Commission places incumbent licensees at risk by authorizing Low Power Indoor (“LPI”) devices with no AFC control, it takes an overly conservative approach by limiting power levels in standard power operations subject to an AFC. The decision to unnecessarily limit the power for access points operating under AFC will constrain wider-area deployments. The Commission should permit power levels greater than 36 dBm for AFC-controlled unlicensed devices so long as they are subject to an AFC system capable of protecting incumbent FS users.

By taking these steps, the Commission can ensure that spectrum is made available as quickly as possible in the 6 GHz band for both unlicensed *and* licensed uses, and in a manner that promotes competition and helps meet increasing consumer demand, without increasing the risk of interference to incumbents.

² See, e.g., *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order and Order of Proposed Modification, 35 FCC Rcd 2343, ¶ 3 (2020).

DISCUSSION

I. THE COMMISSION SHOULD CONSIDER FLEXIBLE-USE LICENSING IN PART OF THE BAND INSTEAD OF GIVING AWAY ALL 1,200 MEGAHERTZ TO UNLICENSED PROPONENTS.

The Commission recognizes an urgent need for additional licensed mid-band spectrum and is working diligently to deliver 350 megahertz of licensed mid-band airwaves in the 3.5 GHz and 3.7 GHz bands. Yet inexplicably—with no defined path to make additional licensed mid-band spectrum available despite America’s deficit as compared to other competitive nations—the Commission failed to seriously consider a prime opportunity to make a portion of the 6 GHz band available for licensed use.³ Indeed, a decision to commit half of the 1,200 megahertz of 6 GHz spectrum to licensed use would still more than *double* the amount of mid-band spectrum available for unlicensed use under Part 15 of the Commission’s rules.⁴

CTIA and others have repeatedly highlighted that closing this licensed mid-band deficit will be a key element of America’s 5G success.⁵ A recent Analysys Mason study found that the United States is “far behind” thirteen other benchmark nations in terms of licensed mid-band spectrum currently available, and five leading countries are on track to have 300 megahertz more

³ See *Motor Vehicle Mfrs. Ass’n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (stating that agency action is arbitrary and capricious if the agency “entirely failed to consider an important aspect of the problem” or “offered an explanation for its decision that runs counter to the evidence before the agency”).

⁴ There is currently 580 megahertz of unlicensed mid-band spectrum available today under Part 15: 5150-5250 (U-NII-1)—100 megahertz; 5250-5350 (U-NII-2A)—100 megahertz; 5470-5725 (U-NII-2C)—255 megahertz; and 5725-5850 (U-NII-3)—125 megahertz. See 47 C.F.R. § 15.407.

⁵ See, e.g., Comments of CTIA (filed Feb. 15, 2019) (“CTIA Comments”); Reply Comments of CTIA (filed Mar. 18, 2019); Comments of Ericsson (filed Feb. 15, 2019); Reply Comments of United States Cellular Corporation (filed Mar. 18, 2019); Reply Comments of Nokia (filed Mar. 18, 2019); Letter from T-Mobile to FCC at 2 (filed Jan. 9, 2020); Reply Comments of Verizon (filed Mar. 18, 2019).

licensed mid-band spectrum than the U.S. will have by 2022, even accounting for the 350 megahertz the Commission will auction this year in the 3.5 GHz and 3.7 GHz bands.⁶

With the *Order*'s decision, the United States stands alone in the world in making all 1,200 megahertz of 6 GHz spectrum available for unlicensed use. Although some countries are considering whether to make the lower portion of the 6 GHz band available for unlicensed use,⁷ the United States is the only country introducing unlicensed operations into the entirety of this valuable spectrum band. Meanwhile, international trends clearly demonstrate that the United States' approach is far from the norm. Another recent report shows that nearly all spectrum repurposed from 2017 to 2020 by benchmark countries has been made available via exclusive-use licensing.⁸ And looking forward, the International Telecommunication Union ("ITU") will study the 6425-7025 MHz band for potential International Mobile Telecommunications ("IMT") identification at the 2023 World Radiocommunication Conference in Region 1, covering Europe, Africa, the Middle East, and Russia, and will study the 7025-7125 MHz for potential IMT identification on a global basis.⁹ The *Order* gave unreasonably short shrift to these domestic needs and global developments.

⁶ See Janette Stewart, Chris Nikerson, & Tamlyn Lewis, *5G Mid-Band Spectrum Global Update*, ANALYSYS MASON, at 1 (Mar. 2020), <https://api.ctia.org/wp-content/uploads/2020/03/5G-mid-band-spectrum-global-update-march-2020.pdf>.

⁷ See, e.g., *Improving spectrum access for Wi-Fi: Spectrum use in the 5 and 6 GHz bands*, Consultation, Ofcom (Jan. 17, 2020), https://www.ofcom.org.uk/_data/assets/pdf_file/0038/189848/consultation-spectrum-access-wifi.pdf.

⁸ See David Abecassis, Janette Stewart, and Chris Nickerson, *International Comparison: Licensed, Unlicensed, and Shared Spectrum, 2017-2020*, ANALYSYS MASON (Jan. 2020), <https://api.ctia.org/wp-content/uploads/2020/02/report-International-Comparison-Licensed-Unlicensed-and-Shared-Spectrum-2017-2020.pdf.pdf>.

⁹ See Agenda for the 2023 World Radiocommunication Conference, Annex 1, Resolution 811, https://www.fcc.gov/sites/default/files/wrc-23_agenda.pdf.

Moreover, the *Order* ignored reasonable record evidence demonstrating a path forward for licensing the upper 6 GHz band.¹⁰ In particular, the *Order* did not address the detailed Comsearch Report that CTIA submitted, which concluded that large-scale relocation of 6 GHz assignments into the 7/8 GHz band, to operate along with the approximately 9,000 federal assignments, as well as the 11 GHz and 18 GHz bands, appears feasible.¹¹ Nor did the *Order* address that NTIA is actively studying federal agency use of the 7/8 GHz band under President Trump’s October 2018 Presidential Memorandum,¹² which specifically will inform the possibilities around relocating non-federal links into sub-bands already used for federal Fixed Service operations. Comsearch projected that the relocation cost to the new licensees would be \$2.8 billion¹³—a small fraction of the potential auction value of the band, which Wells Fargo has estimated to be “north of \$22 Billion.”¹⁴ And while the *Order* stated that a relocation process could “take years”¹⁵—seemingly assuming that fact would be prohibitive if true—the information in the Comsearch Report instead suggests that meaningful licensed wireless coverage could be deployed quickly, and before completion of the entire relocation process,

¹⁰ *Order* ¶ 205.

¹¹ See *Analysis for 6 GHz Relocation (6525 – 7125 MHz)*, COMSEARCH, at 32 (Feb. 11, 2020) (“Comsearch Report”), attached to Letter from CTIA to FCC (filed Feb. 24, 2020); see also Letter from CTIA to FCC (filed Mar. 25, 2020) (attaching presentation on Comsearch Report (“Comsearch Presentation”)).

¹² See NTIA, Memorandum to Executive Branch Agencies and Departments, Review of Current Frequency Assignments and Quantification of Spectrum Usage (Aug. 1, 2019), https://www.ntia.gov/files/ntia/publications/guidance_to_agencies_on_current_spectrum_usage_final_08-01-2019.pdf; Memorandum for the Heads of Executive Departments and Agencies, Developing a Sustainable Spectrum Strategy for America’s Future (rel. Oct. 25, 2018), published at 83 Fed. Reg. 54513 (Oct. 30, 2018).

¹³ See Comsearch Report at 56; Comsearch Presentation at 27.

¹⁴ See Jennifer M. Fritzsche, et al., *Life After C-Band . . . A Spectrum Desert Or Oasis?*, WELLS FARGO SECURITIES (Dec. 20, 2019) (projecting that auction of the 6.525-7.125 GHz band could be valued at “north of \$22 B”).

¹⁵ *Order* ¶ 205.

through a well-coordinated relocation that prioritizes transitioning a small subset of FS links at the outset of the transition.¹⁶

And notably, in light of all of these circumstances unique to the 6 GHz band, the *Order* fails to make a reasoned case for dedicating all 1,200 megahertz to unlicensed operations at this time, and fails to explain why making a sizeable subset of the band available for unlicensed operations would somehow be insufficient in the short term. In fact, the unlicensed proponents rely on a study to support access to the full 1,200 megahertz that the Commission itself concedes is “purely a simulation study based on a handful of deployment scenarios” and it is “used to motivate the need for additional spectrum and is not in any way related to actual usage.”¹⁷ Given all these circumstances, the failure to consider making a portion of the 6 GHz band available for licensed use is arbitrary and capricious.¹⁸

II. THE COMMISSION CAN INCREASE POWER LIMITS FOR UNLICENSED OPERATIONS IF SUBJECT TO ROBUST AFC CONTROL, WITHOUT CREATING ADDITIONAL INTERFERENCE RISK TO FS LICENSEES.

Although the decision to allow untethered, AFC-free LPI devices puts incumbent licensees at significant risk of harmful interference, the Commission takes an unnecessarily conservative approach in limiting power levels for standard-power operations to 36 dBm EIRP (PSD of 23 dBm/MHz EIRP) subject to an AFC.¹⁹ The Commission should reconsider its decision and allow power levels greater than 36 dBm for unlicensed operations that are under the control of an AFC system. An effective AFC mechanism can protect incumbent FS links and

¹⁶ Comsearch Report at 10 (describing the areal breakdown of Fixed Service links); Comsearch Presentation at 24 (proposing that the relocation process would “[i]dentify most critical links and potential impact by new service” and “[p]rioritize links or systems for relocation”).

¹⁷ *Order* ¶ 121.

¹⁸ *See* 5 U.S.C. § 706(2)(A).

¹⁹ *Order* ¶ 22, ¶ 188.

allow standard-power access points to operate at higher power levels, which will enable wider-area coverage.

As CTIA previously explained, an AFC system allows for higher power unlicensed operations in the 6 GHz band “[b]ecause of the AFC’s capabilities to control unlicensed operating parameters specific to maintaining interference protection for each individual incumbent licensee’s operations, along with the sophistication of directional antennas that may be deployed.”²⁰ The Commission has adopted an AFC framework for standard-power access points that will identify non-interfering frequencies for operation taking into account the location and specific operating parameters of the licensed operations to be protected, along with the location of the standard-power access point at issue. With a robust AFC system in place, there is “no need to restrict access points to extremely low power levels to avoid the threat of interference to other users (either licensed or unlicensed) in a shared band.”²¹

The *Order*, however, declined to permit higher power limits for unlicensed operations under the control of an AFC system under the theory that higher power levels would make AFC implementation more complex.²² These concerns do not present a barrier to the operation of higher power unlicensed devices—instead, they make the case for a robust AFC system. The Commission also observed that permitting higher power levels would “increase[] the range at which harmful interference to incumbent users in the band could potentially occur,”²³ but that is no reason to forgo such operations where such exclusion zones can be successfully implemented.

²⁰ CTIA Comments at 20.

²¹ Comments of Verizon at 10 (filed Feb. 15, 2019) (“Verizon Comments”).

²² *Order* ¶ 188.

²³ *Id.*

Indeed, a higher power level would have significant benefits for wide-area deployments—as Verizon stated, with AFC the Commission can “allow higher EIRPs for longer effective ranges needed for applications such as fixed wireless and broadband access.”²⁴

Accordingly, the Commission should permit higher power levels for AFC-controlled unlicensed devices so long as the AFC system is capable of protecting incumbent users. Consistent with the *Order*, the AFC system should implement an interference protection criterion of -6 dB I/N.²⁵ The Commission also adopted a multi-stage review process for AFC operators similar to the one it used for designating White Space database and 3.5 GHz Spectrum Access System Administrators. Where higher power unlicensed devices can be deployed, the benefits will be significant for the deployment of broadband and 5G services.

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²⁴ Verizon Comments at 10.

²⁵ *Order* ¶ 71.

CONCLUSION

Consistent with the foregoing, the Commission should revisit certain decisions in the 6 GHz *Order* by launching an effort to make a portion of the band available for exclusive, licensed use to help address the mid-band spectrum deficit in the United States, and by increasing the power limits for unlicensed operations under AFC control.

Respectfully submitted,

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