ITIF | INFORMATION TECHNOLOGY & INNOVATION FOUNDATION

700 K Street NW Suite 600
Washington, DC 20001

COMMENTS OF ITIF

Before the

Federal Communications Commission

Washington, D.C.

In the Matter of: Promoting Investment in the 3550–3700 MHz Band	))))))	GN Docket No. 17-258

November 6, 2024

INTRODUCTION AND SUMMARY

The Information Technology and Innovation Foundation (ITIF) appreciates the opportunity to comment on promoting investment in the 3.55–3.7 GHz Citizens Broadband Radio Service band (the "3.5 GHz" or "CBRS" band).[1] The Commission should foster the innovative and productive potential of this band by increasing maximum power limits and harmonizing out-of-band-emission (OOBE) limits on the upper part of the band with those in the adjacent C band. While being guided by the technological capabilities of the sharing systems in this band, the Commission should recognize that the success of an innovative, dynamic spectrum sharing regime depends on its ability to evolve and adapt to enable greater, more flexible spectrum use rather than on assumptions that the status quo is the best that dynamic spectrum sharing can achieve.

THE COMMISSION SHOULD INCREASE POWER LEVELS OF BASE STATIONS AND END USER DEVICES TO THE MAXIMUM LEVEL THAT MAINTAINS THE RIGHTS OF ALL CBRS USERS

The Commission should be guided by technical realities in this band, but it also should not leave productive capacity on the table. Today, higher-power uses are not allowed even if they would not create harmful interference to any federal incumbent or other CBRS user. Other recent updates to CBRS rules have successfully increased the productivity of the band while leaning on the Spectrum Access System (SAS) to ensure parties receive the required interference protection in the new environment.[2] Maximum power levels are another piece of the CBRS framework worthy of reevaluation to ensure that limits are set based on up-to-date technical capabilities, not artificially restricted by regulations.

Inflexible Limitations Need Stronger Justification Than Liberalization to More Flexible Use

A higher upper power limit enables more possible uses than a lower one. Since a higher maximum power limit would legally permit all lower-power uses plus some additional uses not allowed under current law, increasing the maximum power limit strictly increases the flexibility of this band and liberalizes the rights of its users. Additional flexibility and liberalization should be the rule, not the exception. Any alternative privileges the status quo and puts the Commission in the position of a command-and-control regulator, picking winners and losers, rather than allowing the market to drive resources toward ends that are in the public interest. In

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[1] Founded in 2006, ITIF is an independent 501(c)(3) nonprofit, nonpartisan research and educational institute recognized as the leading think tank for science and technology policy. Its mission is to formulate, evaluate, and promote policy solutions that accelerate innovation and boost productivity to spur growth, opportunity, and progress. ITIF's goal is to provide policymakers around the world with high-quality information, analysis, and recommendations they can trust. To that end, ITIF adheres to a high standard of research integrity with an internal code of ethics grounded in analytical rigor, policy pragmatism, and independence from external direction or bias. For more information, see: https://itif.org/about;

"Promoting Investment in the 3500-3700 MHz Band," Federal Communications Commission, Notice of Proposed Rulemaking (GN Docket No. 17-258, August 2024), https://docs.fcc.gov/public/attachments/FCC-24-86A1.pdf. ("NPRM").

[2] Federal Communications Commission, "Wireless Telecommunications Bureau And Office Of Engineering And Technology Announce Modified Aggregate Interference Model Used By Spectrum Access System Administrators," Public Notice, GN Docket No. 17-258 issued on June 12, 2024, https://docs.fcc.gov/public/attachments/DA-24-553A1.pdf.

short, the Commission should require a good reason to restrict productive uses, not a good reason to allow them.

Higher Power Is Consistent With the Legal and Technical Structure of CBRS

The Commission should not, of course, assume theoretical, technical perfection of devices and allow imperfect real-world transmitters and receivers to run roughshod over rights that have already been assigned according to Commission rules. However, a higher maximum power limit is possible without harming any existing rights. A higher maximum power limit does nothing to change the protection criteria that have so far successfully protected federal incumbents and Priority Access License (PAL) users. The SAS would only need to apply those same criteria with the possibility of a higher permissible power level when all protection requirements are met.

The Commission should not accept spurious objections to higher power based on assumptions that existing deployments would experience harmful interference if directly subjected to that power at close range. A higher power *limit* does not necessarily mean that users will operate at higher power. Even at current limits, PAL licensees cannot always and everywhere operate up to maximum power limits if doing so would infringe the rights of, for example, an adjacent PAL or federal incumbent. But even beyond this technical level, there may still be good reasons for PAL licensees and GAA users to operate at lower power. For example, a PAL licensee may prefer to create some excess capacity it can lease for profit or to site their base stations closer to potential federal incumbent users. These low-power options remain available regardless of whether users legally *could* increase their power. And, if they truly are the most productive use of a PAL license, they will still occur even if higher-power uses are legal.

The increased maximum power limits would benefit General Authorized Access (GAA) as well. If GAA supports innovation, GAA with less-restrictive power limits increases the number and diversity of possible innovations. It is true that GAA users are not entitled to interference protection from PALs or each other, but that is also true in the status quo. The same lack of protection would affect GAA users if there were more intensive use of the band at current lower power levels. In short, with higher maximum power limits GAA users would gain new opportunities to innovate and lose nothing to which they were legally entitled. Moreover, GAA users who find interference to be a problem for their business model are free to purchase interference protection in the form of a PAL bought in whole or in part on the secondary market. The Commission can enable the most productive outcome by maximizing the flexibility of its rules, having confidence in the technical capabilities of the systems it has authorized, and then letting PAL and GAA users exercise their rights according to what consumers demand.

The Commission should also be more precise about how it considers the number of users of this band. For example, the Notice asks about distance between base stations and whether "increased distance potentially limit[s] the number of simultaneous users in the band, making it less efficient in terms of number of users per megahertz?"[3] Wisely chosen siting is one way to maximize productivity while mitigating the risk of harmful interference, but it's important not to define "efficiency" simply in terms of the number of unique owners of

[3] FCC, "Promoting Investment in the 3550-3700 MHz band, Notice Of Proposed Rulemaking And Declaratory Ruling," released August 16, 2024, para. 53, https://docs.fcc.gov/public/attachments/FCC-24-86A1.pdf.

base stations. Whether members of one industry or another deploy radio equipment in the band is neutral, from a policy perspective, until we know how consumers benefit from that use relative to other potential uses. If a single higher-power use could serve orders of magnitude more consumers than many low-power ones, that may be in the public interest. Even if the Commission is inclined to treat "number of users per megahertz" as a proxy for productivity, the type of entity directly deploying in the band is the wrong level of generality for that metric. It is nonsensical to treat every instance of a private network in a factory as the same number of "users" as, for example, a 5G network. The individual customers of a mobile network are the comparable "users" in comparison to one company's factory floor.

The Commission Should Take Advantage of SAS Capabilities

In addition to all the current statutory protection rules that will remain in place regardless of possible maximum power levels, the SAS can and should offer additional tools to manage them so that no one experiences harmful interference from which they are entitled to be protected.

The FCC should also work to increase the technical capabilities of the SAS and encourage or require CBRS users to take advantage of the capabilities that exist. Some relatively minor reforms could assuage many concerns. For example, the Commission should encourage CBRS users work with the SAS to, by default, group together users operating under similar and cohesive protocols (so that they can behave as good neighbors) and separate potentially conflicting users. These kinds of optimizations could reduce the potential for harmful adjacent channel interference and increase the overall productivity of the band. In many cases, the SAS may already have the capabilities necessary to optimize if only CBRS users are willing to cooperate. In any case, the Commission should take a hard look at today's SAS capabilities and change its rules to require best practices under existing statutory requirements and push the frontier of coexistence even further.

In short, the Commission should lean into the technical capabilities of the SAS and seek to grow them rather than retreat from them. To mistrust the SAS so completely as to assume the CBRS band will be destroyed by allowing it to optimize with a higher maximum power limit is essentially an admission that dynamic spectrum sharing technology is brittle and not ready for prime time in this or other bands.

ITIF takes no position on the precise value of the new maximum power limit. We simply encourage the Commission to set it at the maximum level that the SAS, operating at the peak of its capabilities, can administer without compromising the rights of existing users.

THE COMMISSION SHOULD ALIGN CBRS AND C BAND OUT OF BAND EMISSION LIMITS

The OOBE emission limits for CBRS were established when the adjacent bands were very different than they are now. At their inception, these OOBE limits had to protect legacy satellite receivers in the 3.7–3.98 GHz band (C band) prior to their moving out of that portion of the band or getting new filters as part of the C-band proceeding.[4] Therefore, the reason for a reduced OOBE limit at the upper portion of the CBRS band no longer exists.

[4] FCC, "Expanding Flexible Use of the 3.7 to 4.2 GHz Band," Report And Order And Order Of Proposed Modification, GN Docket No. 18-122, released March 3, 2020, https://docs.fcc.gov/public/attachments/FCC-20-22A1.pdf.

Harmonizing OOBE limits across bands would enable parties who are licensees in both bands to incur fewer costs to deploy separate radios to comply with separate regulatory requirements, and these cost savings will enable those licensees to provide more competitive services with both bands to the benefit of consumers. Allowing CBRS and C-Band licensees to hang one box on a tower instead of two also leaves more space on towers, which benefits both tower owners and other potential attachers and would increase the overall efficiency of infrastructure use.

In short, aligning the CBRS upper OOBE limit with that of the C band would benefit many parties, including consumers, without harming anyone. Indeed, since the proposed change would increase OOBE for CBRS into the C band, the only potential interference would be with C-band devices which are already equipped to operate in a relatively noisier environment.

CONCLUSION

The sharing framework for the 3.5 GHz band was always meant to be iterative to improve it over time.[5] The Commission should build on the existing foundation toward a more productive future rather than stopping after the first iteration of a promising spectrum sharing framework. This proceeding is an opportunity for the Commission to work with technical experts to push the limits for dynamic spectrum sharing and take advantage of innovative technologies to increase spectrum productivity. Indeed, if the Commission believes dynamic spectrum sharing is worthy of more investment and wider application, it must push the frontier, not keep the training wheels on forever.

Joe Kane
Director of Broadband and Spectrum Policy

Ellis Scherer
Research Assistant, Broadband and Spectrum Policy

[5] *See e.g.,* FCC Technological Advisory Council, *"Recommendations to the Federal Communications Commission Based on Lessons Learned from CBRS," Federal Communications Commission*, December 2022, https://www.fcc.gov/sites/default/files/recommendations_to_the_federal_communications_commission_based_on_lessons_learned_from_cbrs.pdf.