

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
<i>Promoting Investment in the</i>	)	GN Docket No. 17-258
<i>3550-3700 MHz band</i>	)	
	)	
	)	
To: The Commission	)	

**REPLY COMMENTS OF  
  
OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA**

New America's Open Technology Institute  
740 15th Street, NW Suite 900  
Washington, DC 20005

December 5, 2024

## TABLE OF CONTENTS

<b>I. INTRODUCTION AND SUMMARY .....</b>	<b>3</b>
<b>II. MOST CBRS USERS OPPOSE INCREASING THE MAXIMUM POWER LEVELS FOR CITIZENS BROADBAND SERVICE DEVICES (CBSDs).....</b>	<b>6</b>
<b>III. RAISING IN-BAND OOB LEVELS WOULD DISRUPT THE MAJORITY OF PAL AND GAA USERS, UNDERMINING INNOVATION AND COMPETITION .....</b>	<b>14</b>
<b>IV. INCREASING SAS AND USER ACCESS TO CBSD INFORMATION WOULD PROMOTE COEXISTENCE AND MORE EFFICIENT USE OF THE BAND .....</b>	<b>15</b>
<b>V. CONCLUSION.....</b>	<b>22</b>

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
<i>Promoting Investment in the</i>	)	GN Docket No. 17-258
<i>3550-3700 MHz band</i>	)	
	)	
	)	
To: The Commission	)	

**REPLY COMMENTS OF  
OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA**

The Open Technology Institute at New America (“OTI”) hereby replies to certain of the initial Comments submitted in the response to the Notice of Proposed Rulemaking (“NPRM”) in the above-captioned proceeding.<sup>1</sup>

**I. INTRODUCTION AND SUMMARY**

The Commission must resist the push by some incumbents to remake the band into a traditional band customized for specific purposes like mobile carrier 5G. To do so would be to take a step backward to the old days of “command and control” by effectively limiting use to a single business model through technical rules rather than explicit regulation. Instead, the Commission should take this opportunity to adopt rules that enhance the qualities that make this band different and flexible. It should build on the qualities of this band that have enabled and encouraged hundreds of new users and use cases, not seek to customize the band for a handful of

---

<sup>1</sup> *Promoting Investment in the 3550-3700 MHz band*, Notice of Proposed Rulemaking and Declaratory Ruling, GN Docket No. 17-258 (rel. Aug. 16, 2024 (“NPRM”).

high-power licensees. Both diversity in spectrum access and more dynamic, intensive frameworks for sharing underutilized bands are crucial to the nation's wireless future.

The record is clear that while some mobile industry commenters seek to fundamentally change the purpose of CBRS by authorizing very high-power use tailored to their business model, the vast majority of CBRS users strongly oppose higher power limits. This opposition is particularly clear among smaller and local users that rely on GAA spectrum and who have, according to NTIA, deployed by far the vast majority of CBSDs in reliance on the Commission's 2018 rules. Opposition to substantially higher power and in-band OOB limits is also clear among the hundreds of wireless ISPs that bring connectivity and competition to the fixed wireless market in rural and less densely populated areas. Opposition is also clear among the largest cable companies that are among the largest buyers of priority access licenses (PALs) and leveraging small-cell connectivity to bring needed competition to the mobile broadband market by leveraging the small-cell, local access that have been foundational to CBRS. The same is true for school districts, libraries, airports, college campuses, hospitals and other local users helping to narrow the digital divide.

The vast majority of CBRS users also agree that substantially higher power levels and higher in-band OOB limits will induce a "tragedy of the commons" as more and more users turn up their power levels either to expand coverage or, more likely, to preemptively defend themselves against other GAA users who have increased their power or could be expected to do so in the future. The resulting interference and reduced channel availability will be further exacerbated since the Navy and DoD will have little choice but to reverse the expanded access and certainty achieved this year with CBRS 2.0, significantly increasing the size of the protection areas, the frequency of channel moves, and the resulting decrease in channel availability and

throughput for GAA users in particular. WISPs and other GAA users that invested in reliance on the rules will be coerced to replace existing, relatively new equipment and purchase expensive high-powered base stations such as those used by mobile carriers – if they can afford it.

Parties that represent a large share of the users and competition facilitated by CBRS also agree that the Commission should reject the proposal to relax the -25 dBm/MHz CBRS in-band emissions limit to -13 dBm/MHz. As we stated in our comments with the Public Interest Spectrum Coalition, it seems inevitable that this increase in-band will increase interference for CBRS operators that have deployed based on the existing technical rules.

Finally, concerning CBSD information and reporting, our groups believe that both SAS administrators and CBRS operators need additional information to enhance GAA coexistence and service quality. Much of this information is already available and should be transparent; the rest should be relatively easy to collect. The utility and efficiency of the band for GAA users could be increased enormously by allowing Spectrum Access Systems (SASs) to collect, use and share with operators—and regulators—three types of information that are currently either obscured or not provided.

First, there is strong support for allowing band users to know where nearby CBSDs are located, their technical characteristic, and what frequencies they have been granted to use (and, ideally, what channels they actually are using). Second, the SAS administrators should be allowed (and possibly required) to disclose the boundaries of PAL Protection Areas to facilitate GAA-PAL coexistence. And third, CBSDs should be required to report their actual channel use back to the SAS, as well as possibly other readily collected data about the interference environment.

## **II. MOST CBRS USERS OPPOSE INCREASING THE MAXIMUM POWER LEVELS FOR CITIZENS BROADBAND SERVICE DEVICES (CBSDs)**

The record is clear that while some mobile industry commenters seek to fundamentally change the purpose of CBRS by authorizing very high-power use tailored to their business model, a far larger number of very diverse stakeholders strongly oppose higher power limits. This opposition is particularly clear among smaller and local users that rely on GAA spectrum and who have, according to NTIA, deployed by far the vast majority of CBSDs in reliance on the Commission's 2018 rules.

While we understand that raising power levels to conform to adjacent mobile carrier bands would benefit one or two mobile carriers and generate a windfall increase in the value of Priority Access Licenses (PALs), it is equally clear that any such change would create a “tragedy of the spectrum commons” and undermine extensive and recent investment in the band by rural fixed wireless providers (WISPs), enterprise IoT, public sector users, and even the emerging mobile market competition led by cable companies that were among the largest buyers of PALs. While an increase in power to levels comparable to the adjacent mobile carrier bands would create some benefits for the one mobile carrier actually deployed in CBRS (Verizon), it would come at a far greater cost to spectrum re-use and to the rural WISPs, enterprise users and the diverse and increasing number of other users that have few if any other good options for very localized access to mid-band spectrum.

As we emphasized in our comments on behalf of the Public Interest Spectrum Coalition (PISC), CBRS is an innovation band premised on meeting a wide variety of very local use cases that can coexist with military systems—and with one another—based on a maximum level of

power between the higher power of exclusive licensing and the low-power of Part 15.<sup>2</sup> The three-tier license-by-rule framework has permitted an entirely new set of use cases and equipment innovation to flourish that had not previously been practical for the low-power, open nature of Part 15 or, conversely, economically attractive to the major carriers who focus their full power licenses on very wide-area coverage and mass-market services. CBRS is a world-leading innovation in direct, local spectrum access fueling purpose-built private LTE/5G networks for a wide variety of use cases—as well as an evolving model for how underutilized bands that cannot be cleared for reallocation can nevertheless serve important, productive needs.

In adopting its CBRS rules, the Commission carefully considered and rejected proposals for higher power limits, concluding that lower power limits would enable a more efficient use of this spectrum by (1) allowing greater spatial reuse of the band; (2) reducing coexistence challenges; and (3) increasing network capacity.<sup>3</sup> Today, with more than 400,000 base stations deployed by more than 1,000 operators for a wide variety of use cases, it would be fatally disruptive to accede to the demands of a small subset of users (and in reality only one significant current user of the band: Verizon) to raise power to a level that will inevitably increase interference and reduce channel availability for most other users, especially GAA users who have just recently built out the vast majority of CBSDs in reliance on the Commission’s rules.

As PISC’s comments argued, a second reason should reject proposals for substantially higher power levels and higher in-band OOB limits is that it will induce a “tragedy of the

---

<sup>2</sup> Comments of Public Interest Spectrum Coalition, *Promoting Investment in the 3550-3700 MHz band*, Notice of Proposed Rulemaking and Declaratory Ruling, GN Docket No. 17-258 (Nov. 6, 2024) (“PISC Comments”). Further references to Comments are to this docket and filed on November 6, 2024, unless otherwise indicated.

<sup>3</sup> *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order And Second Further Notice Of Proposed Rulemaking, GN Docket No. 12-354, at 3961 ¶ 214 (rel. April 21, 2015) (“2015 CBRS Order”).

commons” as more and more users turn up their power levels either to expand coverage or, more likely, to preemptively defend themselves against other GAA users who have increased their power or could be expected to do so in the future.<sup>4</sup> This will be further exacerbated since the Navy and DoD will have little choice but to reverse the expanded access and certainty achieved this year with CBRS 2.0, significantly increasing the size of the dynamic protection areas (DPAs), and thereby hugely reducing the geographic areas and number of channels where CBRS will be available with certainty for current and potential uses and users.

The record shows that the vast majority of CBRS operators and PAL holders—including both mobile and fixed broadband providers—oppose substantially raising the power limits or raising the in-band OOB limits. NCTA, whose two largest members are emerging competitors to the three big mobile carriers and are also among the four largest buyers of PALs, agrees that: “Higher CBRS base station power levels would fundamentally change the nature of the band, rendering it inhospitable to lower-power operations, including the small-cell networks that are the predominant technology being deployed in the band.”<sup>5</sup>

We further agree with NCTA that “higher base station power and increased in-band emissions would impair low-power small-cell networks,” and that “the current SAS framework is not equipped to mitigate harm from higher base station power levels and relaxed in-band emissions limits.”<sup>6</sup> Notably, the two largest cable operators have quickly acquired more than 16 million mobile broadband subscribers and are among the four largest buyers of PALs at auction.

---

<sup>4</sup> PISC Comments at 10-14.

<sup>5</sup> Comments of NCTA – The Internet & Television Association at 12.

<sup>6</sup> *Id.* at 18, 20.



The Commission should not undermine this emerging competition by changing the rules of the band to favor Verizon's high-power, wide-area business model.

Similarly, hundreds of local wireless ISPs (WISPs) have relied on the Commission's CBRS rules to invest in equipment sold by OEMs such as Cambium Networks and Tarana Wireless to extend and improve their fixed wireless broadband offerings in mostly rural and other less-densely-populated areas. We agree that "WISPA members should not be required to replace existing, relatively new equipment and purchase and deploy expensive high-powered base stations such as those used by mobile carriers in order to maintain their service areas."<sup>7</sup> WISPs self-coordinated shared use of the 3650-3700 MHz band for fixed wireless broadband for many years prior to CBRS and invested in retooling their networks to take advantage of the expanded band at current power levels, often combining PAL and GAA spectrum to improve service. Their reliance interests should not be sacrificed.

WISPs are also now competing head on with Verizon and T-Mobile in particular for fixed wireless customers. And so, perhaps unsurprisingly, Verizon's push to convert CBRS into a high-power mobile carrier band would also undermine competition in the rapidly expanding market for fixed wireless – in addition to the enormous windfall it would confer.

It is also notable that T-Mobile declines to support the immediate increase in maximum power levels sought by Verizon and EchoStar. T-Mobile urges the Commission to gather further data on the potential impacts, acknowledging that "the current configuration of the band plan, which interweaves PAL and GAA users, may need to be restructured to avoid interference between the services when some operations are conducted at a higher power."<sup>8</sup>

---

<sup>7</sup> Comments of WISPA – The Association for Broadband Without Boundaries at iii.

<sup>8</sup> Comments of T-Mobile USA, Inc. at 9.

As the Commission considers the potential “tragedy of the commons” that a substantial increase in maximum power levels and in-band OOB limits could inflict on GAA users, an appropriate starting point is the aggregate use data submitted by NTIA—and the next update, which will begin to show the impact of the CBRS 2.0 improvements adopted just months ago.<sup>9</sup> Importantly, NTIA reports that 41% of all counties used all 15 channels and that most used is GAA, including extensive use of GAA channels by PAL holders.<sup>10</sup> Since roughly two-thirds of the more than 400,000 CBSDs already in operation rely on GAA channels, coexistence will become an increasing challenge even at current maximum power and in-band OOB levels. Accordingly, we agree with former FCC chief technologist Monisha Ghosh and her fellow academics that “[a]dding a third category of devices that can transmit at higher power levels than currently authorized will exacerbate the secondary coexistence problem. . . . Low and medium power levels are better suited for operation in a shared environment such as CBRS.”<sup>11</sup>

The simulation study by CableLabs provides more specific data showing the substantial harm that the increased power levels proposed by mobile carriers interests could have on the majority of other users, particularly GAA users and operators that are not using 3GPP mobile base stations capable of TDD synchronization.<sup>12</sup> We agree with NCTA that: “Higher-power PAL operations would effectively crowd out GAA users, especially in urban and suburban areas

---

<sup>9</sup> Comments of the National Telecommunications and Information Administration at 2, note 5.

<sup>10</sup> Comments of NTIA at 3, summarizing and submitting the Technical Report prepared by NTIA’s Institute for Telecommunications Sciences (ITS). *See* D. Boulware and A. Romaniello, *An Analysis of Aggregate CBRS SAS Data from April 2021 to July 2024*, NTIA Report 25-575, U.S. Department of Commerce, NTIA, Institute for Telecommunication Sciences (Nov. 2024) (“NTIA Technical Report”).

<sup>11</sup> Comments of Monisha Ghosh, et al. at 2 (“Ghosh Comments”).

<sup>12</sup> Comments of NCTA, submitting to the record a study by CableLabs, “High Power CBRS: Simulating the Effect of High Base Station Power on the CBRS RF Environment” (November 2024) (“CableLabs Study”).

where mobile data demand is highest.”<sup>13</sup> The table summarizing the results of the CableLabs study is telling. It estimates that networks operating on channels adjacent to high-power CBSDs, and which are not TDD synced, would suffer a 10 to 22% increase in lost connections; and that UEs that are able to connect would suffer a 19% loss in downlink throughput and a 39% loss in uplink throughput.<sup>14</sup> We believe this is an unacceptable cost that greatly outweighs the benefits to a few mobile operators, particularly since this harmful impact would be compounded as other CBRS operators feel forced to turn up their power to overcome or preempt what other users are doing.

In its comments, based on the actual experience of hundreds of members that rely on CBRS to deliver fixed wireless services, WISPA likewise states that “raising the maximum power level would substantially increase mutual interference between GAA users and even between GAA and PAL users on different channels.”<sup>15</sup> Cambium Networks, one of the leading manufacturers of CBSDs for fixed wireless broadband, explains that WISPs “would face the Hobson’s Choice of either operating with their existing lower-power equipment or buying the new, higher-power equipment well before the existing equipment reaches its expected end of life.”<sup>16</sup>

Tarana Wireless, an innovative OEM selling very high-performance CBSDs to WISPs, enterprise and institutional users of CBRS, notes that its technology is designed specifically to take advantage of the current power levels and not higher-power mobile band limits. Both Tarana—and then its customers—would need to retool, rip and replace, if they could afford to do

---

<sup>13</sup> Comments of NCTA at 19-20.

<sup>14</sup> CableLabs Study at 19, Comments of NCTA at 48.

<sup>15</sup> Comments of WISPA at iii.

<sup>16</sup> Comments of Cambium Networks, LDT at 5.

so.<sup>17</sup> Similarly, Mediacom Communications argues that “adopting a new class of higher-power CBSDs would upset the investment-backed expectations of existing PAL licensees and CBRS users in the 3.5 GHz band.”<sup>18</sup>

Interference problems could be even more disruptive for private enterprise, public safety and public infrastructure networks that are increasingly deploying CBRS to augment Wi-Fi for critical IoT functions. For example, Florida’s Miami-Dade airport authority maintains that “[i]ncreased interference could disrupt real-time communication with baggage handling systems, leading to delays, lost baggage, and potential safety hazards. Higher power levels and emissions limits could also degrade video quality from surveillance cameras or interfere with access control systems, compromising airport security.”<sup>19</sup>

Similarly, the American Petroleum Institute (API) opposes a substantial increase in omnidirectional power limits, which is what mobile industry proponents desire to cover larger areas with less investment: “By increasing the EIRP in those unwanted directions, there will be an adverse impact to the interference levels and a resulting increase in the frequency re-use distance.”<sup>20</sup> Accordingly, API states that “the only way” it could support even “a UE power level increase from the current 23 dBm/10 MHz to 26 dB/10 MHz is if the added EIRP is employed

---

<sup>17</sup> Comments of Tarana Wireless at 20.

<sup>18</sup> Comments of Mediacom Communications Corporation at 4. Mediacom further asserts that “adopting a new class of higher-power CBSDs would result in a fundamental change in PALs that is prohibited by Section 316 of the Communications Act.” *Id.* at 6.

<sup>19</sup> Comments of Miami-Dade Aviation Department at 2. *Accord*, Comments of Imagine Wireless at 2, stating that “current class B (outdoor) power is sufficient for outdoor private enterprise campus environments as most of these networks are case-centric and purpose-built (with targeted deployment, as opposed to general deployment) to meet the needs of the enterprises.”

<sup>20</sup> Comments of American Petroleum Institute at 5 (“omnidirectional . . . antennas contribute to the noise level in directions both towards and away from their associated base station.”).

through antennas directionality/beamforming that is pointed back towards the SAS registered base station.”<sup>21</sup>

A third major downside to proposals to increase the maximum power and OOB limits is the disruption to “the delicate balance between federal incumbents and CBRS users, especially after the recent changes agreed to by the Commission, the Navy, DoD, NTIA and industry stakeholders.”<sup>22</sup> As Spectrum for the Future explained, it also would “threaten greater interference with existing operations in the band by the Department of Defense, such as missile defense, radar, and reconnaissance.”<sup>23</sup> Anywhere near the U.S. coastline—where the majority of Americans live—the dynamic protection areas (DPAs) and the frequency of intermittent loss of channel availability will almost certainly increase enormously as the Navy and NTIA demand more restrictions to account for high power. This is evident from NTIA’s new report on the geographic location and characteristics of the rapid increase in active deployments. NTIA reports that “there were more [CBSDs deployed] in DPA-impacted counties (46,583) than non-impacted counties (31,482).”<sup>24</sup> This further suggests that disruptive channel changes for both PAL and GAA operators sharing the 3550 – 3650 MHz portion of the band with the U.S. Navy would likely become more frequent than ever if maximum power levels increase.

In this regard, the Commission should move cautiously and only with the agreement of the Defense Department. We agree with Lockheed Martin that “to change these levels post hoc and absent buy-in from all concerned stakeholders would risk undermining confidence in CBRS and future spectrum discussions focused both on current allocations and the potential for

---

<sup>21</sup> *Ibid.*

<sup>22</sup> Comments of Spectrum for the Future at 2-3; Comments of WISPA at iii.

<sup>23</sup> Comments of Spectrum for the Future at 3.

<sup>24</sup> Comments of NTIA at 2.

spectrum sharing (*e.g.*, in the 3.1-3.45 GHz, 7/8 GHz).”<sup>25</sup> We further agree with Lockheed Martin that given the enormous potential to unlock unused capacity on vast swaths of spectrum with federal incumbencies, any unilateral effort by the FCC to force a change in CBRS as fundamental as the power limits could cause “other U.S. government agencies [to] lose confidence in the spectrum study and allocation process if the resultant spectrum environment is subject to future change after the bands have been studied and reallocation decisions have been made.”<sup>26</sup>

### **III. RAISING IN-BAND OOB LEVELS WOULD DISRUPT THE MAJORITY OF PAL AND GAA USERS, UNDERMINING INNOVATION AND COMPETITION**

Parties that represent a large share of the users and competition facilitated by CBRS agreed with our comments, on behalf of PISC, urging the Commission to reject the proposal to relax the -25 dBm/MHz CBRS in-band emissions limit to -13 dBm/MHz. The American Petroleum Institute expressed the view of most CBRS users, including WISPs, enterprise, public sector and other operators in stating the company opposes “changes to the OOB limits, as this band has many more users to consider and as such should be more stringent.”<sup>27</sup> As PISC stated: “It seems inevitable that such an increase in-band will increase interference for CBRS operators who have deployed based on the existing technical rules.”<sup>28</sup>

For example, OTI agrees with NCTA that the “[h]igher base station power and increased in-band emissions would impair low-power small-cell networks and curtail sharing where

---

<sup>25</sup> Comments of Lockheed Martin Corporation at 3.

<sup>26</sup> *Id.* at 4.

<sup>27</sup> Comments of American Petroleum Institute (API) at 5.

<sup>28</sup> PISC Comments at 22.

spectrum need is greatest, thereby reducing efficient spectrum use.”<sup>29</sup> Unlike OnGo Alliance, which put forth no data or even a rationale in support of a -13 dBm/MHz in-band OOB limit, NCTA pointed to the data from a simulation study it conducted to evaluate this issue in the context of a Samsung waiver request. That study “concluded that increased emissions within the CBRS band would substantially degrade the CBRS operating environment.”<sup>30</sup>

Likewise, WISPA “does not . . . support relaxing the current -25 dBm/MHz limit for CBSD out-of-channel emissions more than 10 megahertz from the authorized channel, or for End User Devices (“EUDs”) more than the assigned bandwidth in megahertz from the assigned contiguous frequency range.”<sup>31</sup> WISPA goes on to state that “[a]lthough some other mobile services, including the 3700-3980 MHz service, are allowed a -13 dBm/MHz limit, it is not appropriate for CBRS.”<sup>32</sup> OTI agrees.

#### **IV. INCREASING SAS AND USER ACCESS TO CBSD INFORMATION WOULD PROMOTE COEXISTENCE AND MORE EFFICIENT USE OF THE BAND**

The efficient use of a shared spectrum environment in which myriad diverse users and use cases can coexist and share spectrum most efficiently is intrinsically linked to the scope and quality of information about spectrum use and availability. In our comments with PISC we argued that “network planning and coexistence among GAA users can be enhanced by allowing operators to know where nearby CBSDs are located, their technical characteristic, and what

---

<sup>29</sup> NCTA Comments at 18. *See also* Comments of Imagine Wireless at 2.

<sup>30</sup> NCTA Comments at 15; *see also* NCTA, *Simulations on Multi-Band BS Waiver Impacts to CBRS* (Feb. 2024) (attached to Letter from Traci Biswese, Vice President & Associate General Counsel, NCTA, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 23-93 (Mar. 6, 2024) (NCTA March 2024 Letter)).

<sup>31</sup> Comments of WISPA at 7.

<sup>32</sup> *Id.* Cambium Networks similarly opposes relaxing the current -25 dBm/MHz limit for CBSD out-of-channel emissions limit. Comments of Cambium Networks at 3-4.

frequencies they have been granted to use (and, ideally, what channels they actually are using).”<sup>33</sup> We further suggested that both SAS administrators and CBRS operators would greatly benefit from the collection and distribution of some additional types of relevant information.

The record finds widespread agreement on the importance of a rich information environment to enable efficient spectral sharing. Indeed, T-Mobile argues that “a robust, public information-gathering process regarding the *actual current operations* in the band ... is vital to evaluate the benefits and challenges of proposed technical changes.”<sup>34</sup> Similarly, the American Petroleum Institute (API) supports making CBSD location and technical characteristics available to band users, reasoning that “mitigating interference and providing data on received power (whether it is the desired signal or noise) are analogous concepts.”<sup>35</sup> In furtherance of the goal of a useful information environment, in our previous comments we made three specific recommendations to the Commission, which we now reiterate here.

First, there is strong support in the record for our recommendation that the Commission allow all CBRS operators to query a SAS regarding the CBSD grants and locations in a given area, and that SAS administrators be authorized (and, ideally, required) to share the contact information of consenting GAA users to facilitate information sharing and coordination among willing participants. This would recreate an information-sharing scheme similar to what has long existed in many other shared, coordinated bands, including in 3650 – 3700 MHz band prior to CBRS.<sup>36</sup> There is a chorus of agreement among commentators on the importance and potential

---

<sup>33</sup> PISC Comments at 23.

<sup>34</sup> Comments of T-Mobile at 2 (emphasis added).

<sup>35</sup> Comments of API at 3.

<sup>36</sup> PISC Comments at 23-24.



benefits of such information sharing to facilitate coexistence, reduce interference and generally promote more productive and intense use of CBRS spectrum.

WISPA—whose members are the most prevalent users of CBRS, with a long history in this band—explains that:

“Planning networks and coexistence among GAA users is enhanced by allowing them to know where devices using specific frequencies are located. WISPA has no objection to making SAS listings open. The original pre-2018 rules permitted this but withheld the names of the actual operators. On many other bands, as in the former 3650-3700 MHz band, base stations are listed in ULS. Returning to the previous rules would thus help coexistence. In that case, the SAS operators should be encouraged to permit operators to contact each other via the SAS, if their identities cannot be disclosed to each other, as that helps them meet their obligations to minimize interference.”<sup>37</sup>

Others hail coordination and information sharing among users as integral to effective coexistence among users. API proposes that “the success of CBRS shared spectrum model requires providing prospective users with enough information to accurately assess the overall spectrum environment in an area to make investment and deployment decisions.”<sup>38</sup> Accordingly, API supports “modifying the disclosure rules to allow the SAS to share information on measured signal strength/SNR data at a registered CBSD,” and further notes that “modifying the disclosure rules to allow the SAS to share information on the site antenna type, orientation, tilt, and heights should be permitted.”<sup>39</sup> Commenting on the importance of Certified Professional Installers (CPIs), Deere points out that “the CBRS Certified Professional Installer Accreditation Technical

---

<sup>37</sup> Comments of WISPA at 19.

<sup>38</sup> Comments of API at 4.

<sup>39</sup> Comments of API at 4.

Specification developed by the Wireless Innovation Forum establish that a CPI “is personally responsible for the correctness of” CBRS data provided to the Spectrum Access System (“SAS”), and agrees with the Commission that “correct information provided to the SAS “is important both to protect incumbent services and to protect and enable every other user.””<sup>40</sup> And the Digital Progress Institute acknowledges the importance of collaboration among users and “urges the Commission to start by requiring good faith negotiations between operators in all three bands.”<sup>41</sup>

Second, we concur with WISPA that “[t]he SAS also should be permitted to disclose the boundaries of PAL Protection Areas to facilitate GAA-PAL coexistence.”<sup>42</sup> Indeed, our comments with PISC recommended that SAS administrators disclose the boundaries of PAL Protection Areas to make GAA users aware of the exact location of available spectrum.<sup>43</sup> For GAA users relegated to unused spectrum under the “use it or share it” regime, exact and timely knowledge of exactly which channels are in use, and which are available for assignment, is a necessary precursor for opportunistic use.

Third, we encouraged the Commission to require that CBSDs report their actual channel *use* back to its SAS, as well as other useful information about the interference environment, whereas today SASs’ knowledge is limited to spectral assignments.<sup>44</sup> A SAS armed with information about actual spectrum use would be better positioned to facilitate the efficient

---

<sup>40</sup> Comments of Deere & Company at 9-10.

<sup>41</sup> Comments of the Digital Progress Institute at 5.

<sup>42</sup> Comments of WISPA at 19.

<sup>43</sup> PISC Comments at 25.

<sup>44</sup> *Id.*

coexistence among GAA users. In addition to optimizing coexistence, better information about the interference environment and channel use would improve further studies on interference and help inform future policymaking.

Federated Wireless agrees that “signal level reporting by CBSDs to SASs will enhance coexistence algorithms” and “recommends that the FCC take steps to enforce its existing requirement for CBSDs to report received signal strength and interference metrics and that it permits SAS administrators to enhance coexistence algorithms and provide those users that do report this information with improved spectrum access.”<sup>45</sup>

The majority of users that rely on GAA (opportunistic) use of CBRS spectrum would particularly benefit from enhanced access to information about actual channel use and the interference environment. Professor Monisha Ghosh and her colleagues point out that current use of the CBRS band “presents a secondary coexistence problem, between GAA users, that is not well addressed by the current Environmental Sensing Capability (ESC) and Spectrum Access System (SAS) approach, since there is limited or no reporting by CBSDs of interference metrics as measured on the ground by CBSDs and/or User Equipment (UEs). Our recommendation is that such reporting can indeed improve secondary coexistence.”<sup>46</sup> Her comments go on to broadly promote the freer sharing of information, as “When spectrum is being shared among multiple different users deploying networks in different verticals, the more information that can be shared, the better the performance for all.”<sup>47</sup>

---

<sup>45</sup> Comments of Federated Wireless, Inc. at 51, 52.

<sup>46</sup> Comments of Monisha Ghosh et al. at 2.

<sup>47</sup> *Id.* at 2.

While the record shows that the vast majority of CBRS users support expanded CBSD information sharing, a few, including Verizon, opine that this would be an undue burden. Verizon’s comments argue that operators weigh the merits of the existing rules and spectrum environment when deciding to invest and deploy. Ironically, Verizon is claiming the importance of stable rules to avoid inconveniencing users who “put their trust” in the existing framework, while simultaneously encouraging an *ex post* overhaul of the technical rules on a matter as fundamental as maximum power and OOB limits!<sup>48</sup> Of course, most CBSD information is already known to the SAS. Moreover, any burden incurred by additional (and automated) reporting requirements is certainly a *de minimus* one compared to the after-the-fact changes that Verizon propose to impose on a majority of the band’s users with their high-power proposal, as described above. And as we pointed out in our previous comments, more granular data on the interference environment in a wide variety of locales can help NTIA and DoD to develop further improvements toward a CBRS 3.0 that maximizes usage for everyone involved.

Further, to the extent stakeholders express concerns about sharing allegedly “proprietary” information, API contends that much of the suggested information sharing is a matter of improved convenience rather than new exposure, as the information in question can often be “reverse engineered”—although at a far greater cost and with less accuracy. API explains that “RF information [on measured signal strength/SNR data] could alternately be obtained in a manual fashion by going to the location(s) and measuring it with the use of a

---

<sup>48</sup> Comments of Verizon at 25.

spectrum analyzer,” and that “registration information about the antenna type, orientation, tilt, and heights... can be “reverse engineered” by visiting a public CBSD site location.”<sup>49</sup>

Moreover, for many of the companies in question, CBRS plays a role in only a small role in their overall business plan, and even extensive knowledge of CBRS deployments (a risk that in any case can be mitigated by omission of the company’s name) does not entail extensive knowledge of a company’s entire footprint. We agree with API that:

It is important to realize that most large telecommunications carriers operate on multiple RF bands, with multiple antennas, and varying output powers. Therefore, CBRS performance offers them added capacity and does not define their system coverage footprint or overall network performance... [API] concludes that the collaborative public benefit of being able to openly obtain this information to proactively avoid interference issues and better make site decisions for CBRS outweighs what are information protection concerns that in today’s environment are of very little significance.”<sup>50</sup>

In short, many commentators agree with us on the importance of making enhanced information on CBSD and actual spectrum usage available to the SAS and federal agencies, at a minimum, and where feasible to all CBRS users. Many of concerns cited by companies can be mitigated by the anonymization of data—though willing participants should certainly be allowed to connect and coordinate with each other in greater detail. In any event, the benefits of enhanced information in a shared band pale in comparison to the supposed costs; and the importance of building an informational framework that actually allows users to coexist most effectively in a shared band both promotes coexistence today and sets the stage for future improvements down the line.

---

<sup>49</sup> Comments of API at 4.

<sup>50</sup> *Ibid.*

## V. CONCLUSION

As we noted in our initial comments with PISC, CBRS has empowered the creation and proliferation of myriad innovations, new use cases, and new users due to its unique regulatory and technical rules. In this sense, it directly fulfills the Commission's original intent in designing the band's novel sharing framework. Rather than seeking to further that, the substantial increase in power levels suggested now by the Commission is virtually guaranteed to undermine CBRS's intended diverse local, low-power use by severely limiting available spectrum and use for GAA.

We urge the Commission to reject that proposal and instead to prioritize conserving CBRS spectrum as a source of innovative use cases and diverse public-interest users such as schools, libraries, hospitals and WISPs bringing connectivity to rural communities. Furthermore, dramatically changing the technical rules this late in the game risks breaching the trust that has been built among users both government and public, and it disincentivizes future efforts to innovate on the band. Instead of enabling this, the Commission should turn its eye to the future and look to optimize information related to around the spectral environment, which could help enable more intensive use without sacrificing current users.

*Respectfully submitted,*

**OPEN TECHNOLOGY INSTITUTE AT NEW AMERICA**

**/s/ Michael Calabrese**

**/s/ Jessica Dine**

New America's Open Technology Institute  
740 15th Street, NW Suite 900  
Washington, DC 20005

December 5, 2024