

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

In the Matter of)
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Spectrum Requirements for the Internet of) ET Docket No. 21-353
Things)
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COMMENTS OF THE DYNAMIC SPECTRUM ALLIANCE

The Dynamic Spectrum Alliance (“DSA”)¹ hereby submits these comments in response to the Federal Communications Commission’s (“FCC” or “the Commission”) Notice of Inquiry (“NOI”) seeking comment on the current and future spectrum needs “to enable better connectivity relating to the Internet of Things [(IoT)].”² DSA welcomes the opportunity to discuss the spectrum needs of IoT devices and operators, as well as the use of automated shared spectrum technology to enable more efficient use of radio frequencies for a variety of innovative use cases, including IoT.

¹ The Dynamic Spectrum Alliance is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The membership spans multinational companies, small- and medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike. A full list of the DSA members is available on the DSA’s website at www.dynamicspectrumalliance.org/members/.

² See Spectrum Requirements for the Internet of Things, Notice of Inquiry, ET Docket No. 21-353 (released Sept. 30, 2021) (“NOI”).

DSA supports the Commission’s efforts to provide a variety of spectrum access options and its adoption of flexible-use rules. We encourage the Commission to continue its balanced approach among licensed, unlicensed, and lightly licensed (license-by-rule) spectrum allocations. An unbalanced approach could have the unintended consequence of creating an artificial scarcity, which could, in turn, increase the cost of access. Licensed, unlicensed, and lightly licensed spectrum bands all play important and complementary roles in the delivery of not only advanced 5G services, but also a wide variety of innovative IoT use cases.

DSA commends the Commission for its leadership in adopting spectrum sharing frameworks, such as those implemented for TV White Space, CBRS, and 6 GHz, which have led to the more efficient utilization of spectrum and have fostered innovation and affordable connectivity. Automated frequency coordination lowers transaction costs, uses spectrum more efficiently, speeds time-to-market for new services, protects incumbents from interference with greater certainty, and generally expands the supply of wireless connectivity that is fast becoming, like electricity, a critical input for other industries and economic activity. Increasing spectrum access by a wide range of new users, including vertical sectors, leads to more rapid deployment of new networks and services. DSA believes that the introduction of new licensing options supported by automated dynamic spectrum sharing technology is the best path to support such deployments.

I. THE CBRS FRAMEWORK SHOULD BE REPLICATED IN OTHER BANDS TO SUPPORT A WIDE VARIETY OF INNOVATIVE USE CASES, INCLUDING IOT

In the NOI, the Commission asks what rules could facilitate greater spectrum access for IoT deployments.³ DSA strongly supports the Commission’s CBRS rules, which permit both licensed (Priority Access License [“PAL”]) and lightly licensed (General Authorized Access [“GAA”]) access options on a shared basis, managed by a Spectrum Access System (“SAS”). Through this automation of shared spectrum, a whole host of private wireless network and IoT opportunities, from smart energy to smart city, have emerged. From business to leisure, hundreds of smart office, airport and stadium private networks have been deployed using CBRS as the result of having access to spectrum without the need for an individual license. In fact, only twenty months after receiving authorization for commercial operations, over 180,000 CBRS cell sites have been deployed across the United States with the vast majority of them using the GAA tier. Examples of such deployments include:

1) Retail

The American Dream Entertainment and Retail Complex in New Jersey has implemented CBRS to cover the entire 3 million square foot venue, servicing over 40 million annual visitors and more than 450 stores. Beyond the mall itself, CBRS has also been used for traffic and parking management, assessing approximately 33,000 parking spaces.

³ NOI

Equipping security cameras, digital signage and other systems for both internal and external mall operations, CBRS has proved essential for supporting and enabling interesting such new use cases. This type of infrastructure deployment has proven to be faster and more economic than traditional fixed infrastructure, offering reliable and simple, yet effective means of connectivity.

2) Airport

In Dallas, CBRS has transformed airport communication systems, bringing airport staff and management connections onto the CBRS spectrum. Such deterministic spectrum access is critical in emergency scenarios to cater to higher power requirements and improve coverage. This network supports critical airport communications and co-exists with a robust Wi-Fi network.

3) Sport stadium

Angel Stadium in Anaheim, California has adopted CBRS capabilities to support its internal communications, lightening the load on the Wi-Fi system, similar to what Dallas airport has achieved. Since the full commercial deployment of CBRS, they have also been working as a neutral host provider, offering Mobile Network Operators (MNOs) support in managing signal traffic for customers attending events. By not only supporting internal connectivity for both staff and customers but extending this service for the reinforcement of existing MNOs, CBRS has presented the opportunity to

eliminate barriers and limitations, providing full, flexible coverage whenever it is needed
– even when roaming.

DSA also commends the Commission for its adopted of streamlined secondary market processes and the “use-it-or-share-it” rules for the CBRS band and encourages the Commission to extend these policies to other bands. Together, these policies drive innovation, foster the deployment of new technologies, and support various sectors, such as enterprise networks and industrial uses. Opportunistic access under the CBRS framework reduces spectrum warehousing in areas where the economics are least attractive for large service providers. It has already increased access for operators that are interested in deploying, but who lack needed spectrum access in that local area. We also anticipate that, once the Commission authorizes the SAS administrators to implement the CBRS streamlined leasing capability, opportunistic access will encourage secondary market transactions by facilitating price discovery on both the supply and demand side. For licensees, it will both identify users interested in a potential lease or partition and provide information on the potential value (i.e., how much is my spectrum worth?). For users, opportunistic use is an opportunity to test the local market and to determine the value of a more secure, longer-term lease or partition agreement (i.e., how much am I willing to pay for spectrum?). Finally, opportunistic access in the CBRS band is lowering barriers to entry for innovative new use cases by parties that at least initially either cannot afford or do not believe they need to pay for exclusive use and interference protection. The option to deploy, at least

initially, without committing to the cost of a long-term lease or license is proving to be useful for small providers and industries.

It is clear that the CBRS framework has revolutionized the ways in which spectrum is utilized to improve connectivity across a diverse number of vertical sectors.⁴ DSA believes that adopting a similar spectrum sharing model in other bands, such as in the lower 3 GHz band, will enable more users, including verticals, to access scarce and valuable spectrum resources, leading to lower-costs, lower barriers to entry, and most effective allocation for innovative businesses. This, in turn, enables and encourages competition and innovation by existing service providers as well as new entrants.

II. UNLICENSED SHARED ACCESS WILL ALSO SUPPORT IOT CONNECTIVITY NEEDS

The Commission's rules for the 6 GHz band are another example of a successful sharing framework that will support a wide range of innovative use cases, including IoT.

As the Commission is aware, existing Wi-Fi spectrum is already overburdened in many locations and a significant expansion in the amount of available unlicensed spectrum is needed to keep

⁴ Other examples of CBRS deployments can be found here: >https://www.lightreading.com/5g/charter-to-start-first-cbrs-market-buildout-in-2021/d/d-id/769456?itc=lrnewsletter_cabledaily<; ><https://www.telecompetitor.com/wisps-get-cbrs-range-as-great-as-six-miles-at-100-mbps-speeds/><; ><https://ongoalliance.org/news/watch-communications-and-bec-technologies-partner-to-expand-rural-internet-access/><; ><https://www.fiercewireless.com/wireless/wispa-cbrs-a-good-guide-for-3-45-3-55-ghz><; <https://enterpriseiotinsights.com/20210714/channels/news/las-vegas-deploys-largest-private-municipal-lte-network-in-45-days>.

pace with existing technologies to support the new and innovative uses that will maintain U.S. technological leadership.

DSA applauds the Commission’s recognition of the importance of unlicensed spectrum and the adoption of rules that permit both low-power indoor (“LPI”) as well as standard power (“SP”) and outdoor unlicensed operations. Both will play important roles in the provision of IoT services. In the NOI, the Commission asks whether additional power for Part 15 devices would facilitate IoT services and what the impact might be on unlicensed device design and/or on other services. DSA believes that automated dynamic spectrum access, such as an automated frequency coordination (“AFC”), can maximize efficient use of not only the 6 GHz band, but other shared bands in the future.

Permitting unlicensed users greater operational flexibility will increase economic and consumer value of the nation’s spectrum resources by allowing innovators to realize a given band’s full potential, while also ensuring protection of incumbent services.

III. CONCLUSION

DSA appreciates the opportunity to comment on the Commission’s NOI on the spectrum needs for IoT devices and operations. Given the success of the CBRS, TV White Spaces and 6 GHz bands, we encourage the Commission to continue its balanced approach among licensed, unlicensed, and lightly licensed spectrum allocations.

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DSA and its members stand ready to assist the Commission in bringing the benefits of these sharing frameworks to other bands to support the ongoing needs of innovative use cases, including IoT.

Respectfully submitted,



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