SPECTRUM FOR THE FUTURE

Mid-Band Spectrum Sharing Innovation – CBRS 2.0

Introduction to Spectrum Sharing in the Citizens Broadband Radio Service

Spectrum is a finite resource. Technologies like Wi-Fi and Bluetooth and commercial services like mobile phone service and satellite communications all rely on spectrum bands to carry data – as do critical government and national defense systems like radars, radio altimeters for airplanes, weather data systems, and much more.

Meeting the increasing demand for spectrum requires moving away from last century's cumbersome spectrum allocation and assignment policies built around exclusive, high-power assignments of radio frequencies. These exclusive, high-powered "silos" leave large swaths of our finite national spectrum resources unused or underutilized, while limiting the number of users.

Fortunately, spectrum sharing has emerged as a new path forward to maximize our spectrum resources and make bandwidth available to more potential users and applications. For example, the Citizens Broadband Radio Service (CBRS) has proven that commercial and government users, including the U.S. Navy, can successfully coexist and share the same spectrum while minimizing interference and maximizing the efficient use of available frequencies.

CBRS Today:

400K CBRS base station devices deployed

98% of U.S. states and territories with at least one active CBRS base station

278 CBRS base station models certified by the FCC

841 different end-user devices certified by the FCC

But sharing technologies – like all technology – continue to evolve and improve over time with their use, experience, and investment. Spectrum standards need to evolve in parallel to keep up – and the recently introduced CBRS 2.0 framework is an important step forward.

The modern, innovative CBRS approach – smaller license areas, low barriers to entry, and databases that tell an end device what frequencies to utilize – has been an unmitigated success, helping consumers and a wide range of operators get the wireless connectivity they need while preserving critical national security operations in these bands. CBRS 2.0 builds on this success by establishing new operating criteria that further enhance the use of CBRS spectrum for commercial use while protecting national security systems.

As CBRS and CBRS 2.0 make clear, in a world of increasingly limited spectrum availability, sharing and coexistence technologies – not the exclusive high-powered technologies of the past 40 years – are the future of American spectrum policy.

> "In just four years, more than 1,000 CBRS operators have deployed nearly 400,000 broadband access points nationwide. A very diverse range of local users—from factory complexes and rural internet providers, to airports, utilities, sporting arenas, ports, schools and libraries—are expanding use of the band."
>
> ▸ New America

CBRS Success Stories

The advent of **CBRS 2.0 – a significant update to the original CBRS framework** – showcases how these technologies continue to improve year after year.

Enhancements to make CBRS more efficient and accessible are paving the way for **even broader adoption and more innovative uses of shared spectrum technology** across an ever-growing array of industries.

Airports

Newark Liberty Intl. Airport and Minneapolis-Saint Paul Intl. Airport

Enhancing operations, ensuring fast connectivity for employees and travelers, improving monitoring of critical infrastructure, and tracking airside maintenance

Manufacturing

Ericsson's USA 5G Smart Factory in Lewisville, Texas

Enabling the operation of automatic guided vehicles and robotics, connecting a data center, lab space, factory stations, and more

U.S. Armed Forces

Marine Corps. Logistics Base in Albany, GA

Enabling real-time control of robotics, helping personnel manage critical assets and inventory, and enabling authorities to utilize smart security cameras to authenticate personnel and track vehicles

Higher Education

Howard University in Washington, D.C.

Spurring enhanced broadband connectivity across Howard University's 256-acre campus for thousands of students, faculty, and visitors' wireless needs

CBRS 2.0 WILL EXTEND THE BENEFITS OF SHARED SPECTRUM TO

72 MILLION MORE CONSUMERS

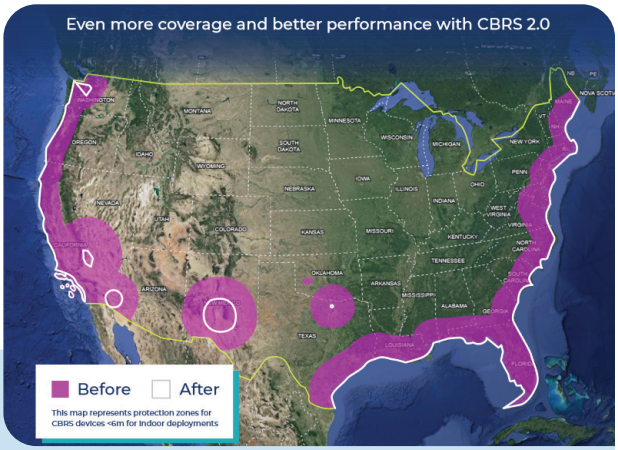
CBRS 2.0 and What's Changed

The CBRS industry collaborates regularly with federal partners to identify areas where spectrum efficiency and coexistence in the CBRS band can be improved.

Based on that ongoing work, stakeholders have agreed to adopt three significant updates:

- Smaller zones subject to restrictions
- Up to 24 hours of operation between sharing check-ins
- Enhanced sharing mechanism for General Authorized Access operators

Before these updates, **only 49%** of the population was outside of the protection zone. With CBRS 2.0, this figure jumps to **91% - drastically expanding opportunities for CBRS deployments.**



Credit: OnGo Alliance

The Impact of CBRS 2.0 and Looking Ahead

- These updates will limit the size of areas subject to special rules, expanding uninterrupted service to **72 million more people**, for a total of **240 million people nationwide.**
- Updates also provide greater spectrum access within neighborhoods where special rules are in place to protect military radar.
- This action showcases how these technologies continue to improve – delivering new and better options for consumers.
- This technical evolution is a positive sign of the potential for even more intensive future sharing of the federal government-occupied spectrum.
- **Moving forward, the U.S. Navy can continue using the CBRS band for critical radar operations, while thousands of local CBRS operators can expand their use of the mid-band spectrum.**

"The Department of the Navy is committed to developing a Dynamic Spectrum Sharing capability with our industry partners to appropriately balance national economic and defense priorities. Agile spectrum access is critical to preserving the DON's maritime warfighting competitive advantage and we are actively pursuing the development of innovative wireless solutions that will increase the quality life for Sailors and Marines."

- Jane Overslaugh Rathbun, Department of the Navy Chief Information Officer