



# CBRS: REDEFINING COMMUNICATIONS

We've entered a data-driven reality – where data has become a “fourth utility” for many businesses; a resource considered as vital as power, water and heating / cooling.<sup>1</sup>

Today, the demand for data is limitless. And organizations want access to their data faster and more securely.

In response to these demands, the U.S. Federal Communications Commission (FCC) has approved the use of Band 48 – also known as CBRS. But what exactly is CBRS and what does it mean for your organization?







## WHAT IS CBRS?

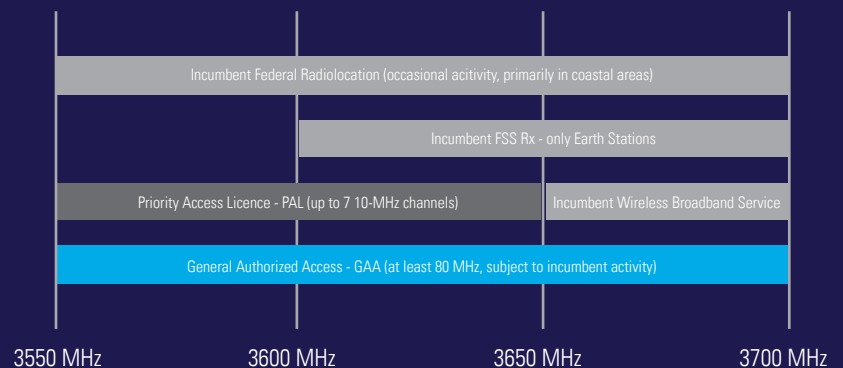
CBRS, or the Citizens Broadband Radio Service, is 150 MHz of spectrum in the 3.5 GHz band. Ranging from 3550 – 3700 Mhz, this band has historically been used sparingly by U.S. federal government radar systems, a few fixed satellite receivers and wireless internet service providers. When looking for additional spectrum to manage the influx of new mobile users, the FCC identified the sparsely-used band for broader use to free spectrum for shared wireless.

In order to ensure access for commercial purposes, CBRS is designed with a three-tiered spectrum sharing framework. At the top is the Incumbent Access tier. This is specifically allocated to existing users of the band, including Department of Defense personnel and U.S. Naval Radar, who will receive permanent priority and site-specific protection. A Priority Access tier is available to organizations that pay a fee for a Priority Access License (PAL). These licenses can

be purchased at auction with limited renewal rights. The final tier is General Authorized Access (GAA), which covers the remainder of the spectrum and is available for general use. This three-tiered framework is managed through a Spectrum Access System (SAS) that works to protect higher-tier users from interference from lower-tier users, while optimizing the efficient use of available spectrum for all users.

## CBRS SPECTRUM

CBRS is a band that will enable private LTE broadband for commercial enterprises – allowing better coverage and capacity.





## HOW WILL CBRS CHANGE COMMERCIAL COMMUNICATIONS?

### INCREASED ACCESSIBILITY

CBRS and its increased accessibility is a game-changer for business enterprises. Currently, there is no publicly available broadband spectrum for use by private businesses. As a result, some organizations looking for private broadband coverage are required to lease through carriers – often requiring a multi-million dollar system.

Other businesses turn to public LTE or WiFi to address their business data needs. While this has enabled workers to accomplish tasks on their mobile devices that previously required a computer or their physical presence on the job, network congestion, weak signals in certain locations and security remain critical issues.

CBRS introduces publicly available broadband spectrum for the first time – significantly lowering the barrier to entry for business enterprises. And unlike previous systems, it does not require an organization to purchase spectrum making it a much more cost-competitive option for broadband coverage. Organizations are able to design their own coverage, customizing the network to meet their unique needs. The system can easily be expanded or downsized to evolve with their business.

### MORE EFFICIENCY

The economics of CBRS technology are more efficient than those of distributed antenna systems – networks of antenna nodes that provide wireless service within a geographic area or structure. In addition, the speed and consistency of service are considered potentially “more reliable than Wi-Fi” with the potential to “make Wi-Fi outmoded.”<sup>2</sup> While WiFi has revolutionized wireless networking, it does have its drawbacks. WiFi coverage and capacity can be limited, access points can be finicky and sign-on processes can be tedious. Ultimately, WiFi wasn’t designed for complex commercial operations.

CBRS overcomes these limitations and provides a more efficient option for large commercial enterprises like airports and factories – providing comprehensive on-site coverage that can blanket every corner of your operation.

### GROUND-BREAKING ADVANCEMENT

But perhaps the most ground-breaking advancement of this newly introduced access to private broadband spectrum is the ability to employ highly-reliable LTE networks that support the growing number of IoT devices. These devices, including smart meters, real-time surveillance systems and worker safety monitoring sensors, are increasingly becoming critical parts of business operations and they require constant, reliable broadband access. CBRS provides this, enabling organizations to embrace the potential of IoT.

Ultimately, CBRS makes it possible to create an affordable, private data network at a lower cost and without the reliance on a wireless carrier. Looking forward, CBRS and the infinite capabilities it will unlock will help to drive automation, workforce productivity, efficiency and safety – all critical concerns for today’s forward-looking organizations.

**IS YOUR  
ORGANIZATION  
PREPARED?**





## CBRS ALLIANCE

The CBRS Alliance is a group of more than 120 member companies who are dedicated to promoting LTE-based technology – branded as “OnGo” – as well as use cases and business opportunities. The Alliance has developed detailed specifications and an OnGo certification program to enable the commercialization of OnGo architecture and ensure seamless interoperability across vendors.







## FOUR MYTHS ABOUT CBRS

### MYTH: CBRS is 5G

#### FACT: CBRS will support 5G technology

5G is the fifth generation of cellular technology – offering faster speeds and increased network versatility. CBRS, on the other hand, is a specific spectrum of broadcast band and is a critical building block that helps to support 5G. 5G requires vast amounts of spectrum to operate, and CBRS can help to enable the growing demands for broadband and future 5G technologies.

### MYTH: Spectrum access will be difficult

#### FACT: Spectrum access will be open and easy

CBRS will be governed by a three-tiered spectrum authorization framework. An Incumbent Access tier is limited to authorized federal and grandfathered Fixed Satellite Service users currently operating under the band. The Priority Access tier consists of Priority Access Licenses (PAL) that can be purchased at auction with limited renewal rights. It is important to note that there is no right to exclude others from the Priority Access tier. The final is a General Authorized Access (GAA) tier. This tier is open to any user, carrier, non-carrier, enterprise, residence or private citizen. GAA can utilize up to 150 MHz of the spectrum, and is guaranteed at least 80 MHz.

### MYTH: Carriers will use up the CBRS spectrum

#### FACT: Three tiers of spectrum will ensure CBRS access

The push for 5G and the need to augment capacity may drive major telecoms carriers to turn to CBRS. However, the three-tiered system will help ensure access. The second level – Priority Access – will be auctioned to the highest bidders across the country and will likely include these telecom organizations. This still leaves the GAA tier for use. In addition, if a company purchases a priority tier and doesn't use it, the spectrum becomes free for others to use – preventing companies from hoarding spectrum.

### MYTH: Incumbents will impact effective usage

#### FACT: Designated spectrum will safeguard open access

There is some concern that military and satellite incumbents who are currently using a portion of the 3.5 GHz band will create interference or block out new users of the band. However, these military incumbents utilize the band within range of the U.S. coasts on a very infrequent basis. In addition, utilizing modern directional RF antenna technology allows new systems to be designed with very little chance of interfering with the incumbents. As the military incumbents only use the lower 100 MHz of spectrum an additional 50 MHz of spectrum is always available for other users.

For information about our CBRS products, please visit: [motorolasolutions.com/Nitro](https://motorolasolutions.com/Nitro)



<sup>1</sup>Why OnGo? <https://www.cbrsalliance.org/why-ongo/>

<sup>2</sup>A World Without Wi-Fi Looks Possible as Unlimited Plans Rise. <https://www.bloomberg.com/news/articles/2017-03-09/a-world-without-wi-fi-looks-possible-as-unlimited-plans-catch-on>