



CORNING

Meet OnGo

Citizens Broadband Radio Service (CBRS)

OnGo, or CBRS, is an innovative spectrum-sharing service in the United States that offers greater control, coverage, convenience, and cost savings for large enterprise owners. This technology enables private LTE networks for buildings or geographic areas, without subscribing to mobile operator services. Paired with Wi-Fi, CBRS is an outstanding option for meeting ever-increasing wireless demand, as part of your complete communications solution.

Centrally regulated and software controlled, CBRS continuously manages underutilized channels in ITU Band 48 to provide consistent, reliable wireless connectivity to businesses, as well as the incumbent users. Simply install CBRS-compatible hardware as part of your network and subscribe for access.

To **learn more** about OnGo/CBRS, visit corning.com/eran or contact your Corning representative.



What is OnGo?

In the same way that Wi-Fi is the market name for the IEEE 802.11 standard, OnGo is the market name for CBRS

The CBRS ecosystem is managed by:

- Federal Communications Commission
- Wireless Innovation Forum
- CBRS Alliance

What kinds of businesses can benefit from CBRS?

Large enterprises, where reliable wireless connectivity is mission critical, benefit most from CBRS.

A few examples are:

- Production facilities with machine-to-machine (M2M) communications needs
- Airport back-office and security operations requiring private networks.
- Oil refineries where installing network cables is cost prohibitive

What spectrum has been allocated to CBRS?

3.55-3.7 GHz, also identified as ITU Band 48.

Who manages the spectrum for the United States?

A cloud service called Spectrum Access System (SAS) manages requests and grants spectrum based on fifteen 10 MHz-wide channels. There are currently more than a half-dozen providers of SAS services for organizations to choose from, with more coming onboard.

What does SAS do?

SAS manages spectrum grants in the following priority order:

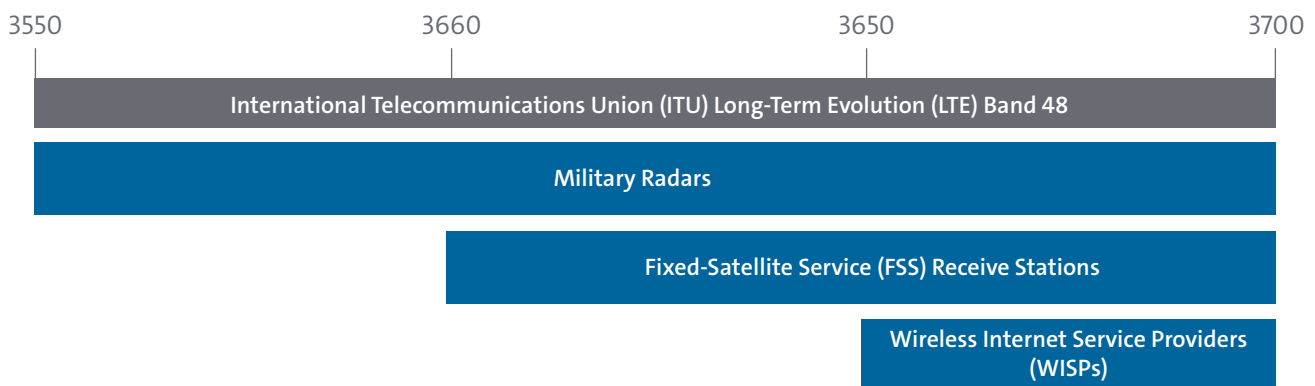
1. Incumbents: Naval radar and fixed satellite services.
2. Priority Access Licenses (PAL) that are guaranteed and reliable: 3.55-3.65 GHz, geographic license by county.
3. General Authorized Access (GAA), ad-hoc grants, like Wi-Fi: 3.55-3.7 GHz, any open channel that is not shared by nearby CBRS networks.

SAS channel grants take geographic location and infrastructure radio information into account so different CBRS networks can be assigned channels that won't interfere with each other. SAS has its own network for Environmental Sensing Capability (ESC) to detect incumbent traffic and protect it by dynamically shifting PAL/GAA traffic out of the way of the incumbents. For example, naval radar, when activated, is detected by SAS ESC and triggers affected CBRS networks to shift channels.

Can mobile operators use CBRS?

Yes, the CBRS band is open to all organizations and wireless/wired operators.

150 MHz of Underutilized Spectrum Band 48 Created for OnGo Technology



Can CBRS be used indoors and outdoors?

Yes, indoor systems have a 30 dBm (1 watt) EIRP and outdoor systems have a 47 dBm (50 watt) EIRP. EIRP is the maximum power at the antenna output.

How can my company access CBRS spectrum?

You don't need to do anything to gain GAA usage. If you currently have or are installing CBRS infrastructure equipment, it will automatically access GAA for you via the SAS.

CBRS will be mission critical for my organization.

Can I be assured of getting spectrum?

Yes. If you need guaranteed spectrum, you can acquire a PAL license from an FCC auction or sublease from an existing PAL license holder. The CBRS infrastructure must be provisioned with the PAL information before connecting to the SAS.

What is private LTE?

It's a closed LTE network that supports associated devices that can only attach to that network. A private LTE network has its own core network and SIMs that operate independent of mobile operators. Devices linked to the private network are invisible to mobile operators.

Why does private LTE infrastructure require Internet access?

The Citizens Broadband Radio Services Device (CBSD), a component of CBRS infrastructure, requests spectrum from and maintains a heartbeat connection to SAS via the internet. If CBRS infrastructure loses its connection to the internet and SAS, it will deactivate itself.

Which mobile devices support CBRS?

Today, many smartphones, dongles, IoT devices, and mobile Wi-Fi hotspots support CBRS. You can view a partial list at cbrsalliance.org/certification/.

What about 5G?

CBRS is a generation-neutral, spectrum-allocation strategy. It supports LTE today, however, SAS is expected to grant spectrum for the 5G-NR signal beginning in 2020.

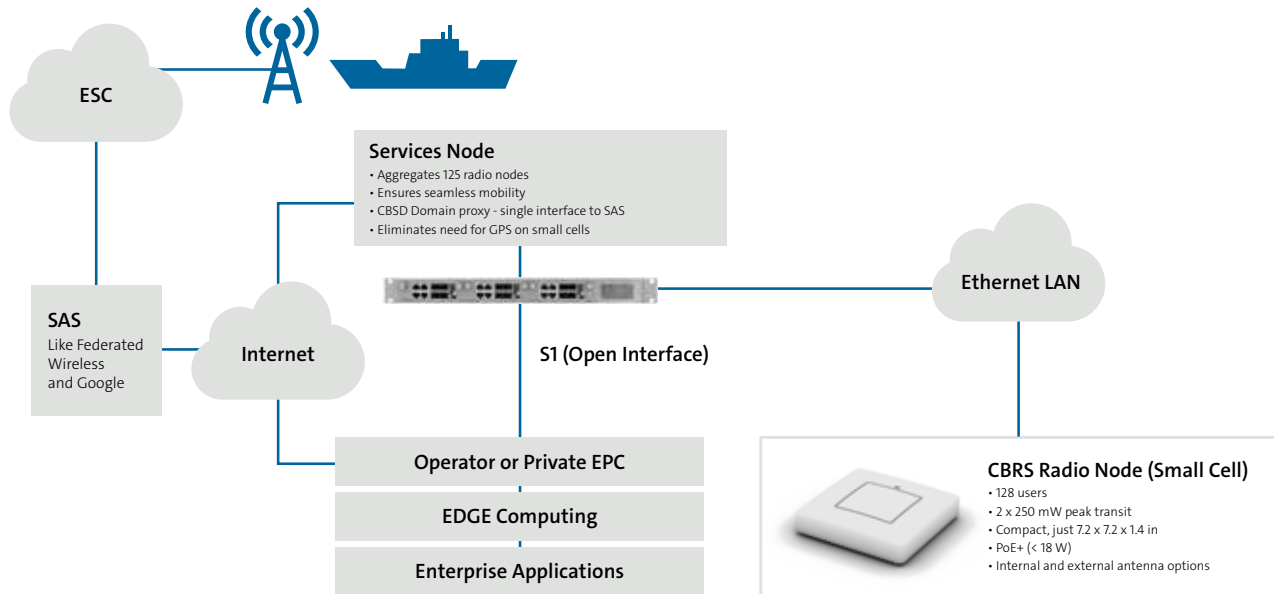
Will CBRS replace Wi-Fi?

No, LTE and Wi-Fi each have their own unique strengths, and both will continue to be present in enterprise networking.

Does Corning manufacture CBRS infrastructure?

Yes. The Enterprise RAN (E-RAN) product family supports CBRS for both service providers and private LTE.

The CBRS Ecosystem



Key CBRS Terms

CBSD

The Citizens Broadband Radio Services device (CBSD) is the component of CBRS infrastructure that requests spectrum from the SAS. It also responds to the SAS if the ESC decides it is potentially in conflict with an incumbent.

EDGE Computing

Part of cloud or local applications that interact with attached devices to reduce latency or large data flows.

Enterprise Applications

On-premise customer applications that are reached by an edge computing platform's local breakout function.

EPC

Evolved Packet Core (EPC) is the mobile operator or private LTE core network. It is composed of the EPC and other sub-systems at the heart of the cellular network.

E-RAN

Enterprise radio access network (E-RAN) is Corning's in-building small cell product family composed of a services node and managing up to 125 radio nodes.

ESC

Environmental sensing capability (ESC) is a national network that is part of the SAS. It detects incumbent traffic in the CBRS spectrum, like naval radar, and assures that no nearby CBRS infrastructure is conflicting with it.

Radio Node

Radio that supports CBRS spectrum and is managed by the services node.

S1

Encrypted LTE core connection from CBRS infrastructure to the operator or private LTE EPC.

SAS

Spectrum Access System (SAS) that manages spectrum available to CBRS infrastructure.

CORNING

Corning Optical Communications LLC • 4200 Corning Place • Charlotte, NC 28216 USA
800-743-2675 • FAX: 828-325-5060 • International: +1-828-901-5000 • www.corning.com/opcomm

Corning Optical Communications reserves the right to improve, enhance, and modify the features and specifications of Corning Optical Communications products without prior notification. A complete listing of the trademarks of Corning Optical Communications is available at www.corning.com/opcomm/trademarks. All other trademarks are the properties of their respective owners. Corning Optical Communications is ISO 9001 certified. © 2019, 2020 Corning Optical Communications. All rights reserved. LAN-2598-AEN / October 2020