



Rapid Rise of CBRS in the USA:

HOT TOPIC

August 2020

GSA

Hot Topic: the rapid rise of CBRS in the USA

Introduction

With bidding well underway in the USA's CBRS auction, the 271 bidders for the spectrum on offer will be pleased to know there is a strong and expanding pool of devices for them and their customers to choose from. There has been rapidly growing interest and momentum behind the CBRS-shared-spectrum approach in the USA and, now that public and private network operators will very soon be able to launch services using their priority spectrum, GSA has identified nearly 200 devices that they can make available.

This paper is the latest in a series of papers from GSA monitoring the rise of CBRS and we will continue to monitor this important market.

Please contact research@gsacom.com if you have additional information. GSA makes no guarantees that the information is complete, but reasonable efforts have been made to be comprehensive and accurate.

Technology context

CBRS (Citizens Broadband Radio Service) was devised by the FCC in the USA in April 2016 to use the 3.5 GHz band (3550–3700 MHz) as a space where a variety of users

could share bandwidth for use in their LTE and later, 5G networks. Access to the spectrum is prioritised for government/military users and after them, for Priority Access Licensed (PAL) users (organisations that acquire one of the many regional licences in spectrum auctions currently underway) with everyone else (General Authorized Access users) able to request access dynamically to use the spectrum via approved SAS (spectrum access server) operators.



Interoperability

The CBRS Alliance is working on the technical aspects of making CBRS work in the USA, including interoperability and coexistence specifications and has developed the OnGo brand to accompany its CBRS certification process. Working with 3GPP and the Wireless Innovation Forum, the CBRS Alliance completed specifications to enable the use of CBRS alongside 5G (Release 15), with future releases expected to ensure compatibility with 5G Releases 16 and 17.

Spectrum Auctions

The 3.5 GHz band can be used alongside a licensed anchor band as part of an LAA deployment. In addition, 3GPP Release 16 introduced support for use of CBRS Band 48 as the anchor band for unlicensed spectrum (using Band 46) for NR-U deployments.

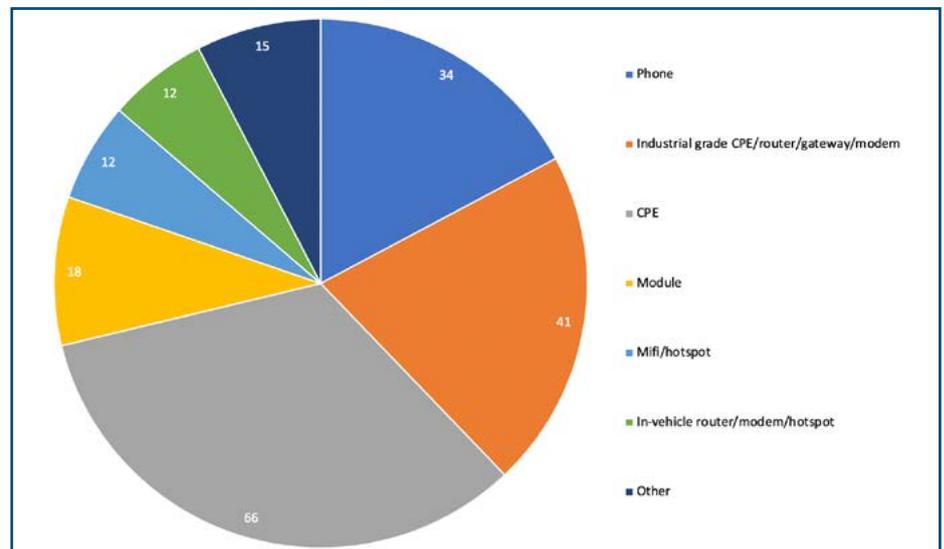
In January 2020, the FCC certified four Spectrum Access System (SAS) administrators, with five-year authorisations to make their SAS systems available for commercial use and also authorised commercial use of CBRS spectrum (for General Authorization Access only until completion of the auction of Priority Access CBRS spectrum at 3.5 GHz).

Auction 105 began on 23 July 2020, with 271 qualified bidders. The auction includes 22,631 Priority Access Licences (7 PALs in each of 3233 county areas), with each PAL giving access to 10 MHz of unpaired spectrum within the 3550–3650 band (meaning a maximum of 70 MHz within the 3550-3650 MHz range is available for PAL holders in each county). Spectrum from 3650 to 3700 MHz is not included in the auction; it is reserved firstly for incumbent uses and, after that, General Authorized Access.

Bidders can win up to four lots in each geographic area, but unusually, are not assigned specific spectrum. Spectrum is assigned dynamically by Spectrum Access System (SAS) operators, so that the needs of incumbent users can be accommodated first. Specific channels or frequency ranges can be requested, though, and the SAS will attempt to assign geographically contiguous PALs to the same channels and try to ensure multiple PALs within the same area are contiguous.

At the time of writing (mid-August), bidding in Auction 105 had exceeded \$4.2 billion, after 47 completed rounds.

Figure 1: CBRS devices by type



Conclusion

There is intense interest in the USA in the use of CBRS. Prior to the start of the auction GSA, was aware of 19 public network operators that had been investing in CBRS in the forms of trials, or in some cases, deployments. In addition, dozens of companies had expressed interest in using CBRS for private network deployments. Following the conclusion of the spectrum auction, we can expect to see rapid investment in CBRS networks for public and private networking.

GSA will continue to track this important market.

Devices for CBRS

GSA has identified 198 devices that can support CBRS Band 48 (up 35% in less than six months) from 53 vendors. (This figure includes devices marketed as supporting CBRS or Band 48, or authorised to operate in Band 48 by the US Federal Communications Commission). The majority of these are CPE or industrial grade CPE/router/modem devices, with phones and modules being the next largest categories.

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