

CBRS 2.0 Frequently Asked Questions

1) What's changed?

The areas of the country in which CBRS devices are susceptible to service interruption due to federal radar activity are greatly reduced in size.

2) What caused the change?

Based on more than four years of experience with coexistence between CBRS and federal incumbents in the band, three updates have been adopted: (1) for devices at or below 6 meters (about 20 ft) above ground level (AGL), propagation models now take into account the impact of clutter (i.e., buildings and foliage); (2) adoption of less conservative statistical assumptions regarding time-variable propagation losses; and (3) refined considerations about typical power output from CBRS devices that take into account the average activity factor of the signals, instead of always assuming maximum power output.

3) Who was responsible for making these changes?

The CBRS industry and federal partners, including DoD, NTIA, NIST, and others, worked closely together to study, agree to, and adopt these operational changes.

4) When will the changes go into effect?

We anticipate the changes will take effect before the end of summer.

The Spectrum Access System administrators have to demonstrate to FCC, NTIA, and DoD that their systems can properly implement the changes described above, through a self-test and certification process. The SAS administrators have completed those tests. Once the government has reviewed the test reports and the FCC has granted approval, SAS administrators will implement the changes immediately.

5) What will be the impact of these changes?

[According to NTIA](#), "SAS administrators that successfully implement these changes should be able to authorize service to approximately 72 million more people (for a total of approximately 240 million) nationwide without periodic service interruptions to protect federal operations, while also providing greater spectrum access within DPA neighborhoods due to fewer and less frequent grant suspensions."

The linked NTIA document also includes impacts for a sampling of specific states and cities.

The NTIA numbers are based on Category B¹ devices; improvements for Category A² availability are even larger. For example, the total population within areas in which Category A users below 6 m are subject to periodic service interruptions will be reduced from approximately 55 million to fewer than 10 million.

6) Do these improvements require changes to the FCC's CBRS rules?

No. These are changes to operational procedures agreed to among SAS Administrators, NTIA, and DoD. These procedures are in the CBRS standards maintained by the Wireless Innovation Forum, which have already been updated (please see [here](#) and [here](#)).

7) Are there other CBRS improvements in the works?

The CBRS industry collaborates with our federal partners on a regular basis to identify areas where spectrum efficiency and coexistence in the CBRS band can be improved.

8) What are DPAs?

Dynamic Protection Areas (DPAs) are defined geographic areas in which federal radars may operate in some or all of the CBRS band. See Figure 1 for an example of a DPA (the red area).

9) What are DPA neighborhoods?

DPA neighborhoods are defined areas surrounding DPAs in which all CBRS devices (CBSDs) must be included in aggregate interference calculations into the associated DPA. The size of a DPA neighborhood depends on the propagation model, combined with an assumed distribution of CBSDs and their maximum transmit power. A specific point in the U.S. (particularly near the coasts) may be inside one or more DPA neighborhoods. A CBSD inside one or more DPA neighborhoods may be subject to service interruptions if its contribution to interference to the DPA(s) is sufficiently large, and a federal radar is operating in the DPA on the same frequency being used by the CBSD.

Note that a DPA neighborhood is not an exclusion zone. It is an area in which a device *might* be subject to service interruptions depending on its computed contribution to potential interference. Conversely, devices outside of any DPA neighborhoods are entirely immune to service interruptions caused by federal radar operations.

See Figure 1 below for a graphical example of a DPA and its neighborhood.

¹ Category B devices are higher-power CBRS devices (up to 50 W EIRP per 10 MHz) with no restrictions on height, but may only be installed outdoors.

² Category A devices are lower-powered CBRS devices (maximum EIRP of 1 W per 10 MHz) that may be indoors (any height) or outdoors (below 6 m height above average terrain).

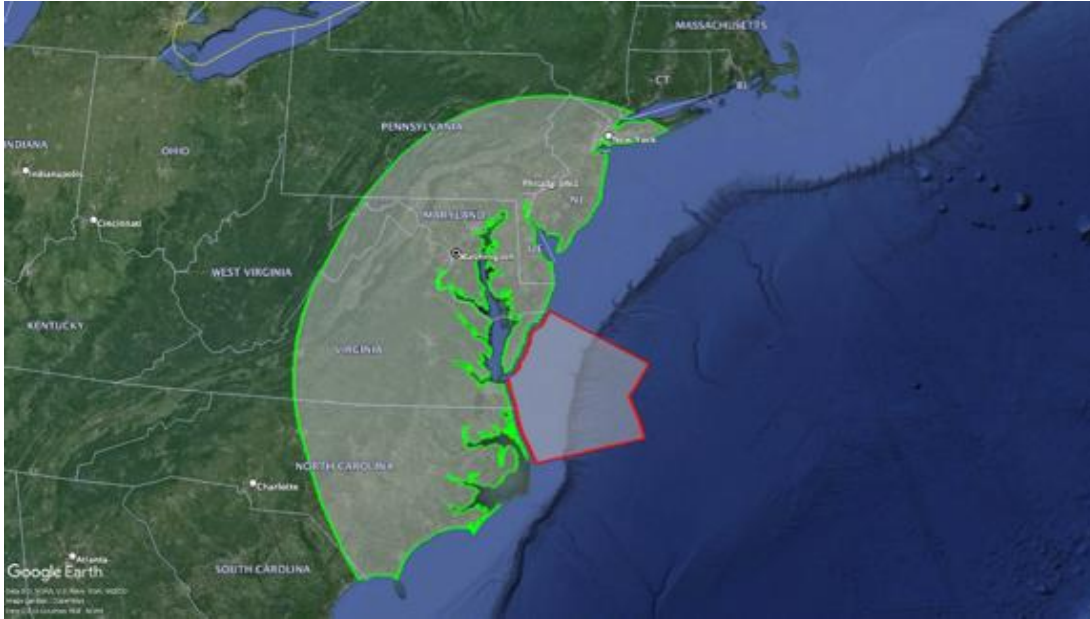


Figure 1: An example Dynamic Protection Area (red) in which federal shipborne radars may operate. The DPA's associated neighborhood for Category B CBSDs is shown in green. All CBSDs within the green neighborhood must be considered for their potential interference into the DPA. This example is based on the existing DPA neighborhood size (i.e., prior to the new developments described in this document). The coastal area of the contiguous U.S. is divided into approximately 50 different DPAs, each with its own associated neighborhood. Only one DPA ("DPA East 1") and its neighborhood are shown in this example.

10) Can you show some comparisons between the existing DPA neighborhoods and the new DPA neighborhoods?

Please see the following two figures.

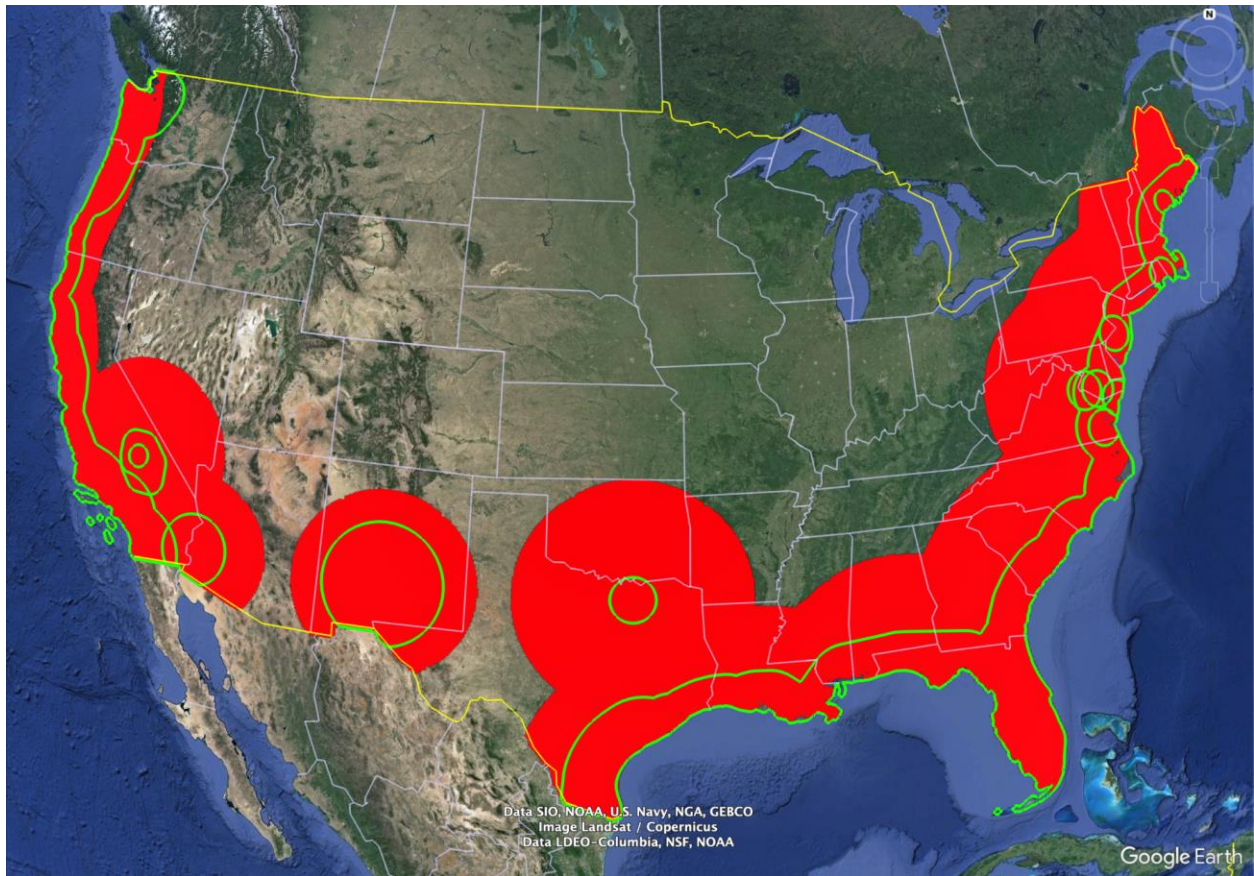


Figure 2: Comparison of existing DPA neighborhoods (solid red) with the new DPA neighborhoods (green outline), for Category B devices above 6 m height above ground level, showing substantial reduction in size. Category B devices are higher-power devices (up to 50 W EIRP per 10 MHz) with no restrictions on height, but may only be installed outdoors.

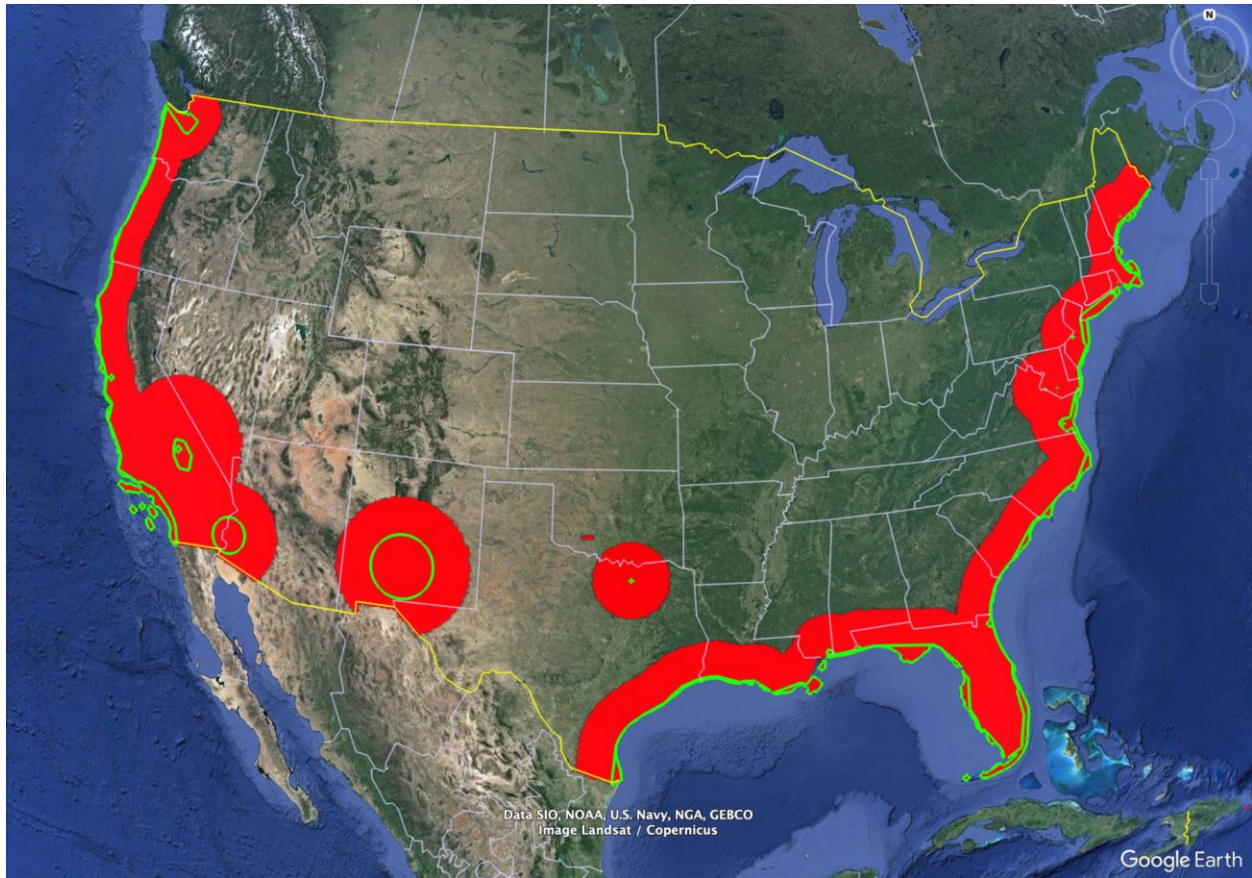


Figure 3: Comparison of existing DPA neighborhoods (solid red) with the new DPA neighborhoods (green outline), for indoor Category A devices below 6 m height above ground level. In coastal areas, the new neighborhoods generally extend just a few km inland from the coast. Category A devices are lower-powered devices (maximum EIRP of 1 W per 10 MHz) that may be indoors (any height) or outdoors (below 6 m height above average terrain).

11) Who can I contact for questions?

Please contact Andrew Clegg, aclegg@google.com.

June 18, 2024