

# CBRS Committee Summary

Wireless Innovation Forum

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Reston, VA

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# CBRS Fact Sheet - Old Stuff

- 150 MHz (3550-3700 MHz)
- Shared in Three Tiers
  - Tier 1 is Primarily Defense Systems, Primarily Shipborne Radar
  - Tier 2 is Sharing users, with right of protection from lower tier users (gained by auction)
  - Tier 3 is general access, and can use all of the band & power so long as not predicted to interfere with Tier 1 or 2
- Interference Avoidance Managed by Competitive SAS's
  - Aggregate all emissions to determine maximum power on a device by device basis
  - Exchange all grant data overnight to perform aggregation and balance power allocations
  - Tier 1 Incumbents identified by coastal sensors, databases, and portal declarations

**Multiple Tiers, Aggregation (vs. Single Exposure) Limits, and Multiple SAS Suppliers is a Complex Problem, but Solved for Several Years**

# CBRS Where We Are Now!

- Number Devices;  $\cong$  400,000
- Core Use Cases: Wireless ISPs, Mobile Broadband Offload, Indoor Networks, IIoT, Anchor Institution Outreach (Libraries, Schools,...)
- PAL Auction Entrants: 271
- PAL License Holders: 228
- Total Operators: >1,000
- Technologies in Use: 3GPP 4G, 5G, Transverted WiFi, Multiple Proprietary

**CBRS Has Created a Band that is Unique in the Range of Use Cases, Operators, Technologies, and Participants in Auctions**

# WinnForum Role

- FCC Multi-stakeholder Organization, representing the range of potential users and the Government and non-Government Incumbents
  - Satellite and DoD Incumbents
  - WISPs, Mobile Operators, Multiple System Operators, SAS Operators
- Developed and Maintain the Spectrum Sharing Standards and Tests
  - Basis for FCC Certification of SASs and Devices
- Develop and Manage Program to Certify “*Professional Installers*”
  - Ensure that providers of registration data is valid, and has non-repudiation
- Develop and Maintain Certificate Authorities Structure Authenticating SASs, Devices, and Installers

**WinnForum has a Unique Role in Establishing the Spectrum Sharing in CBRS Ecosystem**

# CBRS: What are We Doing?

- Three Main Thrusts:
  - Continue to Improve the CBRS Standards and Resolve Issues
  - Maintain the Infrastructure (CAs, Installers, key Tables, ...)
  - Look to Achieve Improvements in the Sharing Framework
- Improving the CBRS Sharing Framework
- Now have 3 Years of experience
  - Some Use Cases “Took Off”
  - Others “Underperformed” and had apparent “Blockers”
  - Other Issues have become more/less significant than anticipated

# CBRS: What Have We Learned!

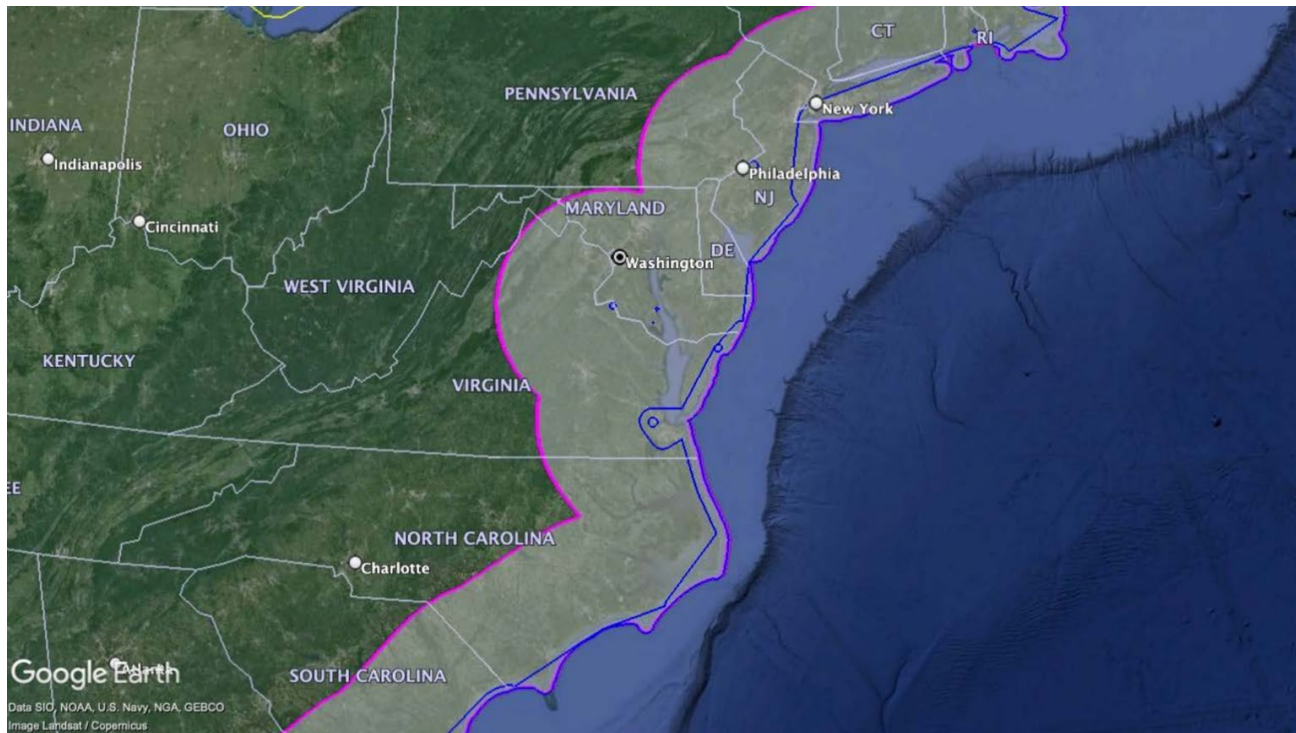
- Spectrum Sensing is Very Consumptive of Spectrum Capacity
  - Establishing “Whisper Zones” Precludes Operation “In Front” of Sensors
  - Somewhat manageable for CBRS (if sensors on coast), but impractical if Internal incumbent sources are involved
- Declarative Solutions Create Own Challenges
  - May protect more area than required
  - Create Questions: “*Are You Really Using it?/All of it?/All of the time?*”
- Tolerance of Interruption Highly Variable
  - Offload Operators (typically outdoor) Somewhat Tolerant, as they have fallback
  - Indoor Operators Less tolerant, as typically has unique mission
  - Clear Understanding of whether risk of interruption exists

# CBRS: One Solution-- CBRS 2.0

- Late Last Year, we Engaged broadly with Administration about High Level Support to Resolve some of the “Blockers” in CBRS Rules
- Created Session to Learn & Address these with Government
  - Government: White House, DoD, Navy, and NTIA
  - Operators: Wide Range of Operators expressing what worked/not worked
- Ended Three day Session with a Joint “Work List”
  - Focus on Changes in Prop Models, particular clutter
  - Create Unique Maps for Each Propagation Case (Went from 2 □ 5 maps)
  - More “fine grained” designation of one major protected area
  - Synergy with already in progress changes

## CBRS 2.0 Example: < 6m high, Indoor

- Red Line is original region subject to possible interruption
- Blue Line is the new region subject to possible interruption
- Other deployment cases less dramatic, but all have major reductions in area and POP subject to interruption





# CBRS 2.0: How Accomplished

- WinnForum has treated DoD as a Partner, not an Opponent?
- WinnForum Standards went beyond the “Trust” required by the CBRS rules, with strong security features, mandatory training and certification of installers, ...
- Ongoing dialog with NTIA, DoD, and Navy operators
- Been Patient -- Could justify the need for, and technical basis of requested improvement in the models
- Best Example: [18 June, 2024 New America Event Video](#)
  - One News report cited as a “*Love In*”

**Years of Building Trust Paid off for Both DoD and CBRS Users**

# CBRS Committee: Further Activity

- Improving Internal (non-regulatory) Standards for CBRS
  - WinnForum Website has much of the Process Successes
  - Still have numerous non-regulatory impacting changes in process
- Need to continue with CBRS 2.0 momentum
  - Propose Changes to both Federal Incumbent protection (NTIA) and CBRS regulations (FCC)
- FCC Chair has indicated a set of FCC Proposals and Questions may be Imminent
- For Info: OnGo Alliance Web Site has many of the Deployer Success Stories

**We Will have new CBRS Experience with Implementation of CBRS 2.0 and other Changes that will Need to be Assessed and Possibly Acted on**