Negative Impacts of High Power in the CBRS Band

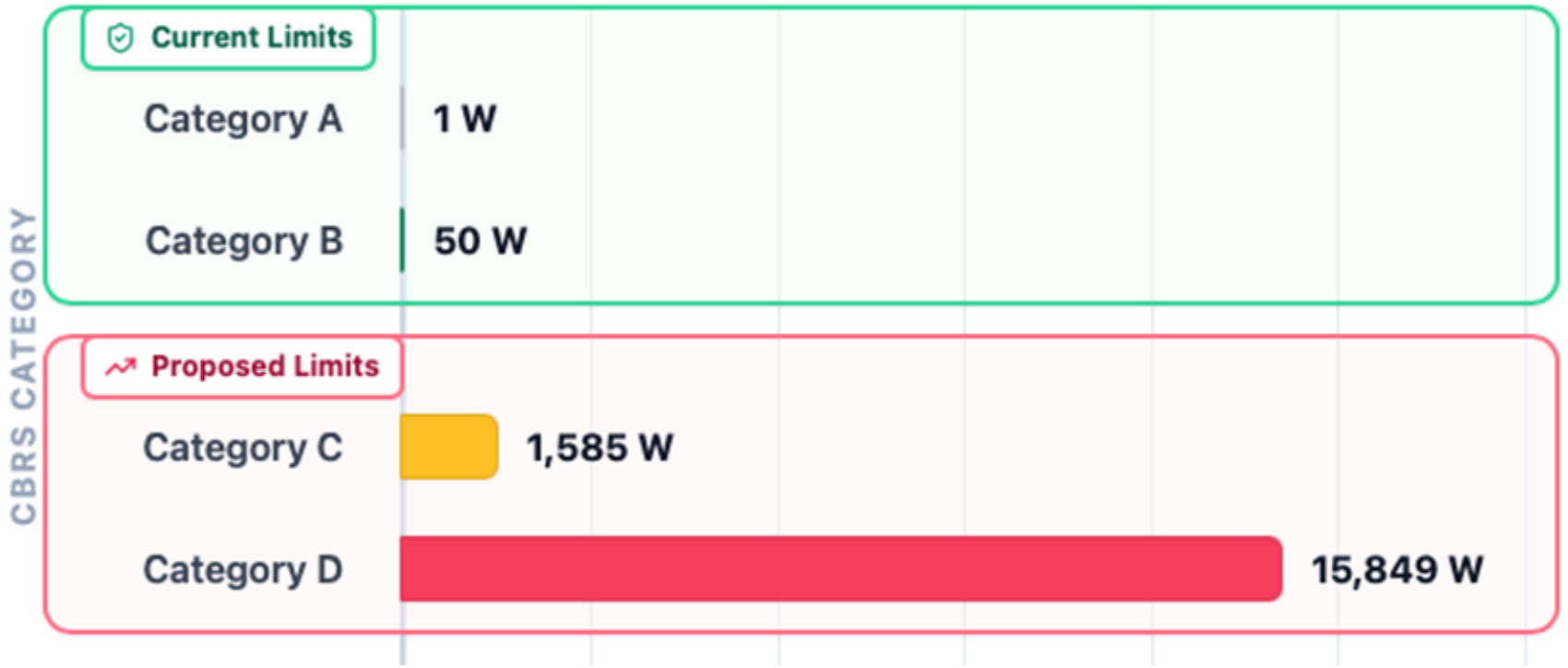
Andrew Clegg

Valo Analytica

May 6th, 2026

Private 5G Networks at Risk webinar

From Whispers to Shouts: Comparing Current vs. Proposed CBRS Power Limits

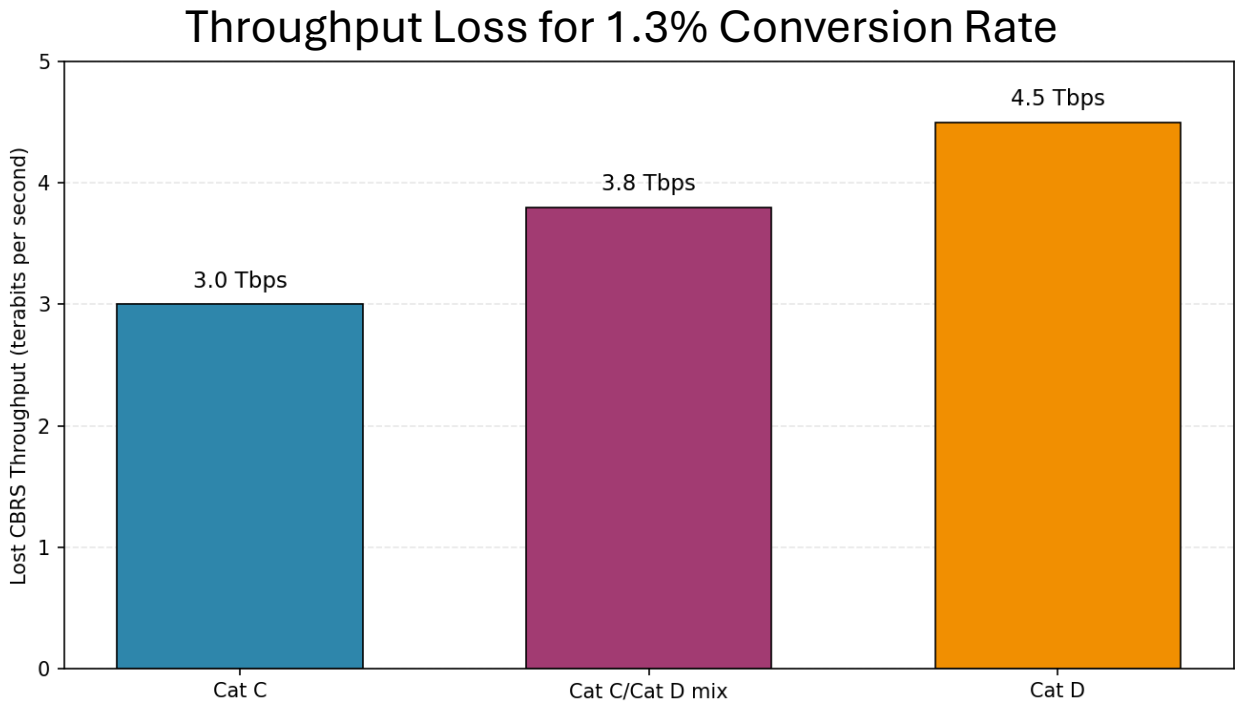


Shadow SAS Analysis

- On behalf of Spectrum for the Future, Valo Analytica conducted a study to determine what would happen to existing CBRS operations if high power base stations were allowed
  - Over 1,000 different operators currently using the band
  - Over 430,000 CBRS base stations (CBSDs) already in use
- We also calculated the impact on three specific CBRS use cases
- The study was conducted by Andrew Clegg and Mark Gibson, two CBRS industry veterans
  - Each helped build and operate their prior companies' respective Spectrum Access Systems, managing hundred of thousands of CBRS base stations combined
  - For the study, we performed an analysis based on a fully rules- and standards-compliant SAS implementation ("shadow SAS")
  - The analysis was run against actual CBRS deployment data by partnering with SAS Administrator Key Bridge Wireless

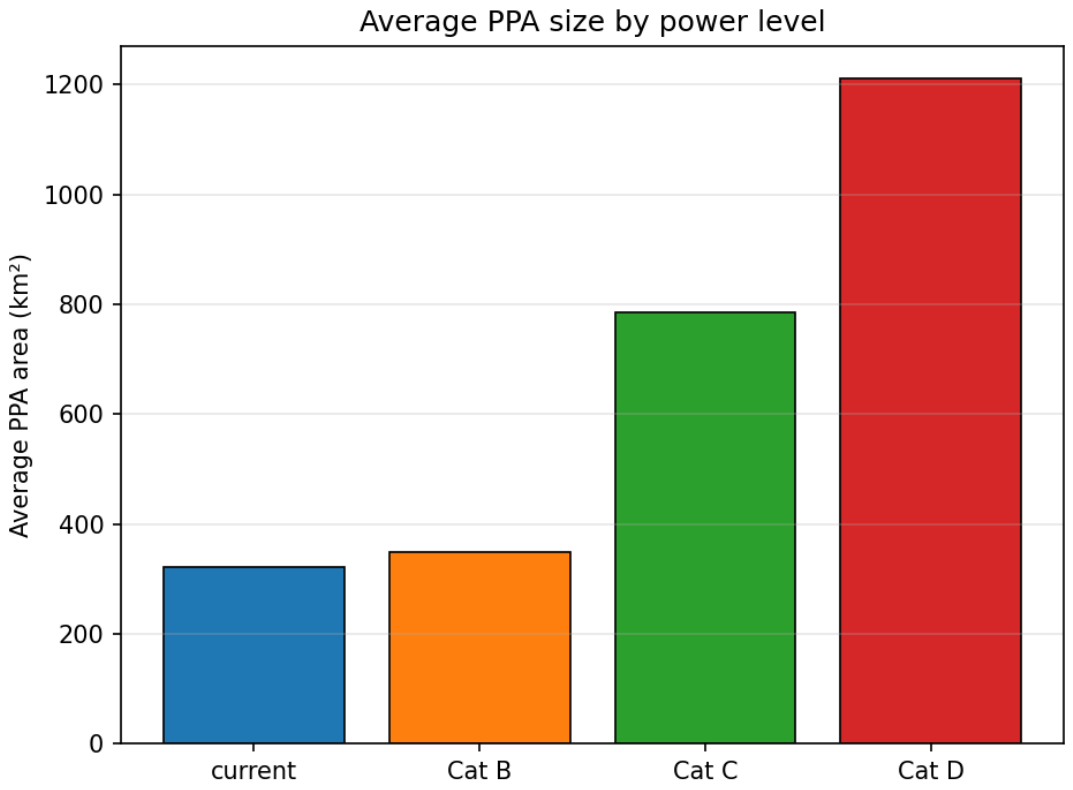
Key Results of Shadow SAS Analysis (1/3)

- If as few as 1.3% of current CBSDs convert to high power, the result is a permanent massive loss of data throughput across the CBRS ecosystem:
  - 3+ terabits per second lost
  - Equivalent to 180,000 simultaneous 4K Ultra-HD video streams, or 45,000 high-speed Internet connections



Key Results of Shadow SAS Analysis (2/3)

- Each high-power device deployed in the band would dramatically and disproportionately preempt shared use across as much as thousands of square kilometers, undermining the availability of GAA spectrum upon which 96% of existing CBRS operations rely.

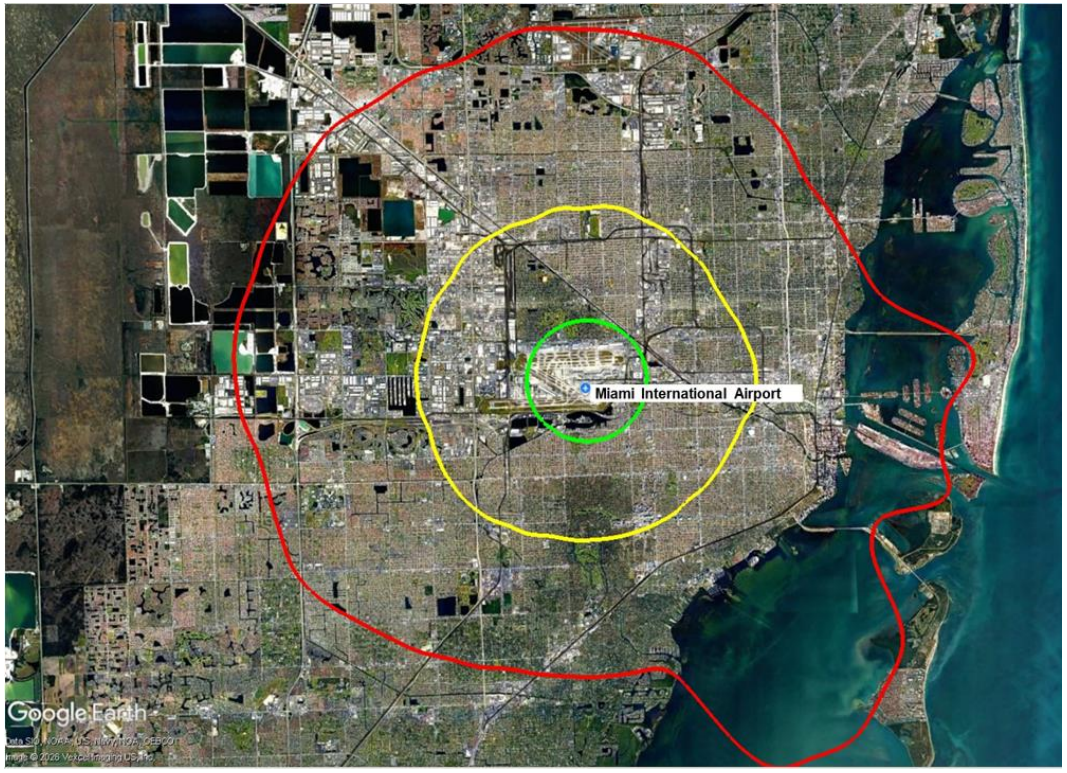


Key Results of Shadow SAS Analysis (3/3)

- If deployed, higher power levels will overwhelm existing operations in a manner that neither the existing technology (e.g., SAS) nor current FCC rules are equipped to manage.
- As a result, CBRS license holders will face catastrophic service degradation on the channels they paid to secure at auction.
- The negative impacts would be felt all across the CBRS networks used by so many, including those used in Education, Academic Research, Agriculture, Communications, Healthcare, Hospitality, Manufacturing and Transportation.

Use Case: Aviation

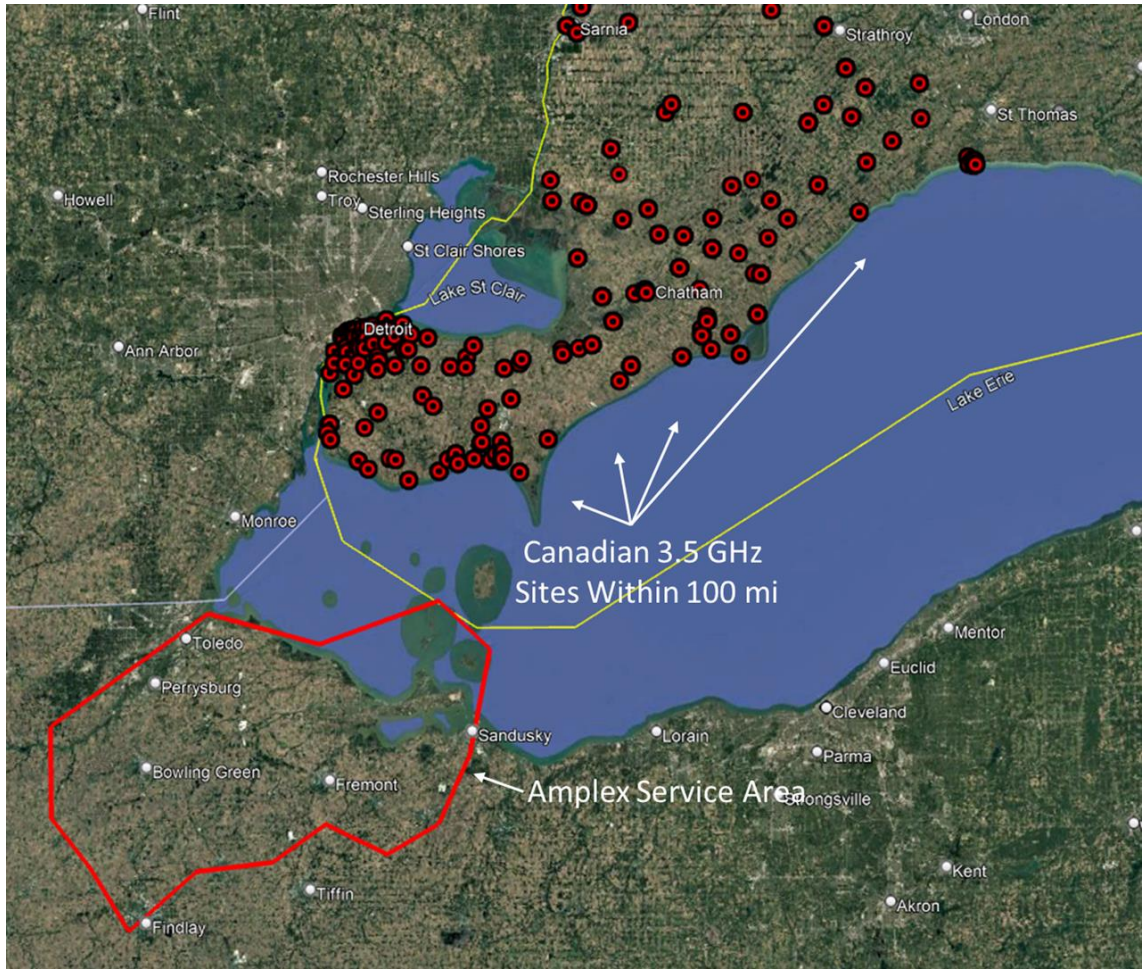
- Miami International Airport would lose nearly 1/3 of its network capacity if Category C or D was deployed almost anywhere in the Miami metro area
- Immediate negative impacts to MIA operations:
  - CBRS neutral host network
  - Video surveillance
  - Baggage handling
  - FOD detection
  - FirstNET public safety offload
  - CBP passenger screening
  - IoT for elevators and conveyors
  - Smart restrooms
  - Autonomous lawn mowers
  - Digital signage



A single Cat C (yellow) or Cat D (red) CBSD deployment in the indicated areas could cause a loss of nearly 1/3 of MIA's CBRS network throughput

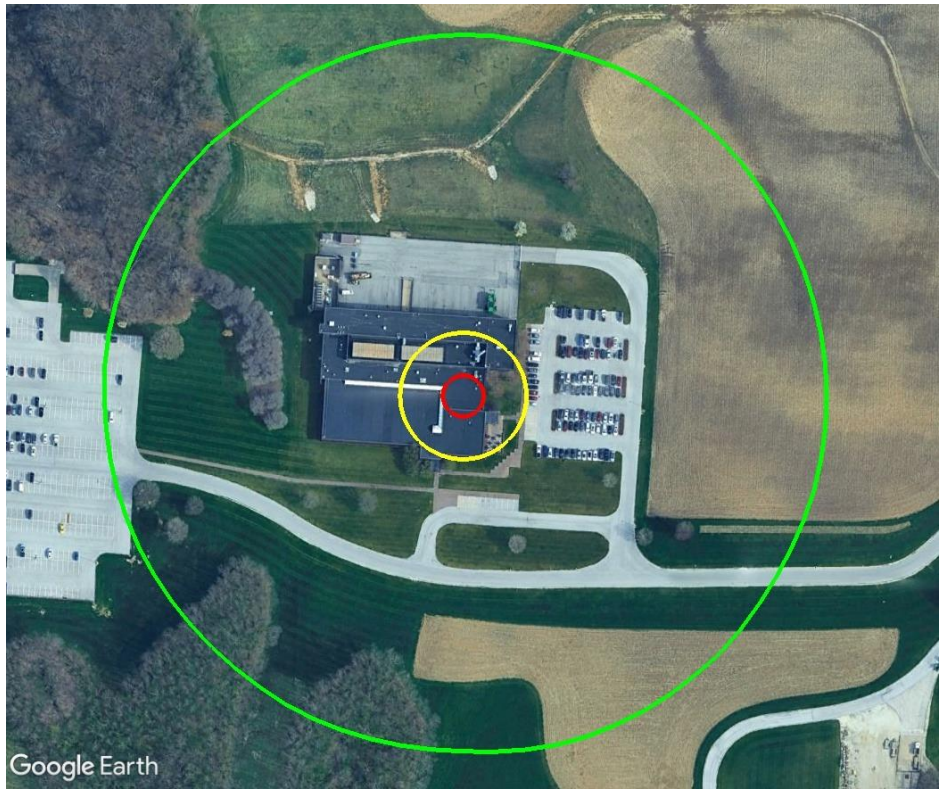
Use Case: Wireless Internet Service

- Amplex provides wireless Internet service to businesses and homes in the northern Ohio area
- The CBRS frequency range is used for high-power operations in Canada, across the border from Amplex's Ohio CBRS deployment
- Amplex is already seeing interference over ranges of 58-220 km, causing loss of Internet service for as many as half of their customers on certain CBSDs
- Amplex is a "canary in a coal mine" regarding the potential impacts of high-power CBRS operation in the U.S.



Use Case: Manufacturing

- John Deere uses CBRS extensively for its manufacturing and office operations in Illinois and Iowa
  - Computer vision & machine learning
  - Autonomous Mobile Robots
  - Conveyance systems/fork trucks/etc.
  - Wired infrastructure replacement
- A single co-channel Category C or D CBSD almost anywhere within the populated area surrounding Deere's facilities could cause a 1000x reduction in throughput and 1000x increase in latency
- Based on actual deployments, conversion of some devices in the area would create interference so strong it would reduce co-channel coverage to less than that of a set of Bluetooth ear buds, and could even know Deere's PAL operations off the air due to adjacent-channel interference



- Green: Current coverage of Deere office complex and parking area
- Yellow: Coverage with a nearby co-channel MNO converted to Cat C
- Red: Coverage with a nearby co-channel MNO converted to Cat D

Summary

- We've gone beyond conjecture to demonstrate the impact of high-power CBRS operations on CBRS deployments, using an accurate SAS implementation run against actual CBRS deployment data
- The results are striking and unequivocal: massive negative impact to existing CBRS operations
- A macro-cellular tower is like a megaphone in a crowded restaurant – while one person can be heard very clearly, everyone else must stop talking because the background noise becomes overwhelming
- Shifting to high-power would transform a band that supports a thousand diverse operators into a band that can only support a few dominant players, essentially ending the experiment in spectrum democracy that CBRS represents

< All Posts

Valo Analytica Studies the Impact of High Power CBRS

March 26, 2026

My CBSD Goes to 11:
Why Turning Up the Volume Could Silence the CBRS Innovation Band

The Citizens Broadband Radio Service (CBRS) has been hailed as the "innovation band," a landmark three-tiered spectrum sharing framework that allows over 1,000 different operators to coexist seamlessly. However, a new technical analysis by Valo Analytica,

Download the study here:

https://valoanalytica.ai/blog/f/valo-high-power-cbrs-report