2025

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BROADBAND WITHOUT BOUNDARIES

Spectrum Update: CBRS (3.550-3.750 GHz), 5.9 GHz, 6 GHz, 12 GHz, 37 GHz, Important NTIA Decisions and Proceedings, And More

Access to spectrum is vital to our industry's growth. There are a number of rulemaking proceedings at the FCC that will determine what spectrum you will be able to use in the future. There are also some important decisions from NTIA you need to know. This Spectrum Update panel will give you important updates about those spectrum allocation and management topics that can help you deploy fixed wireless broadband.

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Before We Get Started…

- Please mute your devices.

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  - You are strongly encouraged to consult with your attorney(s), consultant(s), or financial advisor(s) if you have specific questions.
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WISPA Started Meeting With FCC Chairman Carr's Staff and Staff Of Other FCC Commissioners About Our Spectrum Goals

- Between November 2024 and March 6, 2025 the WISPA spectrum policy team (Louis, Richard, Steve Coran and Fred Goldstein) developed spectrum policy goals to ask the FCC to adopt in 2025.
- Much of today's presentation will focus on those spectrum policy goals.
- On February 20, Louis, Richard, and Steve met with the Senior Spectrum Counsel to FCC Chairman Brendan Carr to discuss our spectrum policy goals for 2025.
- Between March 2 and March 6, Louis, Richard, and Steve met with the key spectrum advisors to FCC Commissioners Geoffrey Starks, Nathan Simington, and Anna Gomez.
- All of those meetings went well, none of the spectrum policy advisors for FCC Chairman Carr or the other FCC Commissioners showed any disagreement with our major spectrum policy goals.

Fundamental Changes to CBRS – CBRS 2.0 and FCC CBRS NPRM

- CBRS 2.0 – Opening Up CBRS and Providing Stability, especially in Coastal Areas.
- Relax Heartbeat Transmission Requirement and Transmit Expiring Requirements to cover “SAS Gaps” and afford more flexible continuing transmission.
- Provide more stable “move list” and “power change” guidance for any CBSD in DPA zone.
- Reduce use and coverage of Portal DPA areas.
- Make CBRS more predictable, up-to-date, and efficient.

CBRS NPRM – 50 Ways to Update CBRS

- https://docs.fcc.gov/public/attachments/FCC-24-86A1.pdf
- Issued August 24th, 2024, Initial comments and reply periods have passed; and now await any next actions by the FCC. WISPA has filed both initial comments (November 7, 2024) https://www.fcc.gov/ecfs/search/search-filings/filing/110677568043; and reply comments (December 6, 2024) https://www.fcc.gov/ecfs/search/search-filings/filing/12052300123805
- Ex-Parte meetings with the FCC are permitted and WISPA has provided such further input independently; and with industry coalitions such as with the Spectrum for the Future coalition; specific industry partners and more.
- FCC could take steps to advance one-or-more of the topics raised in the Proposed Rulemaking (NPRM) or let it lie.
- FCC may respond to NTIA (on changes it is suggesting which may impact incumbents; and may respond to the President and or Congress in actions they may take.

Areas of the FCC NPRM on CBRS that May be Useful/Positive for WISPs and FWA

- **Federal Protection**: Updating the Part 96 rules to make it current with the DPA and P-DPA approaches to protection. Zones were never used and DPA should be the Part 96 rules.

- **CBSD Information**: Presently, because of AT&T ostensibly, information about use and operation of CBSDs is essentially confidential and not available to the public or other operators. This was for competitive reasons. However, the way it was made in the rules makes it impossible to rapidly coordinate privately with other operators or have the SAS do so because of such restrictions. Changes in information availability may be beneficial to operators' ability to coordinate.

Areas of the FCC NPRM on CBRS that May be Useful/Positive for WISPs and FWA

- **Out of Band Emission Limits**: The OOBE limits for CBRS are inconsistent with neighboring bands and very incumbent protective based. If they could be reasonably lowered, it would assist in the deployment of CBSDs.

- **FSS Protection**: FSS protection is long overdue for a revision. Presently and because of former band operators (like WISPs in Part 90) require vast areas of protection for FSS. However, much of the ULS data on FSS deployments is inaccurate and not up to date. The protections of FSS stations are greatly over-protective. Revisions would likely be good for WISPs.

- **Relax Information Sharing Ability**: FCC seeks comment on whether more information should be made available about registered users to allow for items such as co-existence and cooperation.

Areas which may have neutral impact on WISPs and FWA Industry in the CBRS NPRM

- **Formally Sunsetting the Grandfathered Wireless Broadband Licensees**: This would sunset the Part 90 rules relevant to 3650 to 3700 GHz. While this might harmfully affect a very small number of operators (WISP), it likely will have no effect as any operator should be using CBRS now.

- **Changes to CPI requirements could be good or bad or have no effect.** Depends on the changes. If the location is accurate, SASs cannot do their jobs. So far, the CPI process works, not sure why there is a need to change except perhaps for indoor deployments. If the location in the Z axis can be assured (altitude) then GPS or other means can be used without a CPI for Cat A deployments. Geolocation has been an issue especially in multi-floor deployments.

- **Adding Language Promoting Private Networks and Low Power Indoor Facilities**: This could go either way. Not likely to have a huge impact on WISPs or FWA community.

Higher Likelihood of Impact on WISPs and FWA Community, Perhaps Harmful or Negative

- **Introduction of Higher Power CBSDs & Categories**: Base Station (and client) and EUD power levels: Category "C" would require extensive and increased protection zones and would by its nature likely heavily impact GAA use. PALs may benefit and so might operators seeking to lessen the number of Category B devices they need to deploy outdoors, but the ability to regulate variable powers in different zones and protect incumbents while still allowing for diverse technologies and uses would be much more restrictive. This would potentially be very impactful on WISP operation.

- **SAS Connectivity and/or Outages**: SASs go down. So, the ability to utilize other SASs or have connectivity would both be positive and negative. This would no doubt require more SAS interaction and thus may drive up costs.

Higher Likelihood of Impact on WISPs and FWA Community, Perhaps Harmful or Negative

- **Adding Mandatory In-Band (CBRS) TDD Synch-Timing**: This may have very negative effects on WISP CBSDs if required. Different uses and different distances between CBSDs require different TDD timing settings. Short throws require different than longer distances. Distinct uses such as security and surveillance can have different requirements for timing. Imposing TDD Synch can be beneficial for some, such as mobile users and those heavily using 3GPP standard air interfaces but can be detrimental for proprietary uses.
- **Requiring Mandatory SAS Controlled GAA Co-Existence**: While the concept of co-ex is good, there are few ways to do this without causing a snowball effect of consequences which likely will exclude operators. GAA is supposed to be like a "sandbox" where you all play nice. Because of the current restrictions on data sharing and ownership and contacts for CBSDs, coordination has been limited and SASs have little power to do Co-Ex. This could be useful for WISPs but only if many rule changes are made. Just making it mandatory and placing the burden on SASs or operators would likely be very negative.

Next Steps with the NTIA/Operator/FCC CBRS 2.0 andFCC NPRM

- CBRS 2.0 could:

1. **Consider Reduction in FSS Protections Where Not Needed**: Address protection areas around Fixed Satellite Systems (FSS) and reduce protections where over-protection is present and/or no or limited use is present by the FCC operators. Presently, large fixed areas of protection can exclude CBRS use.
2. **Consider Ways to Match Appropriate Protections for CBSDs (Especially Category B outdoors) for Above 6M Height Above Ground.**
3. **Consider Ways to Isolate Indoor Use of CBSDs so signal can be isolated coming outdoors from indoors. And review indoor use in light of Building Entry Loss (BEL).**

Next Steps with the CBRS FCC NPRM – Modernizing 3.5 GHz Citizens Broadband Radio Service Rules

- WISPA seeks to keep CBRS advancing by cleaning up Part 96 to reflect current use and use with CBRS 2.0
- Maintaining flexible use and technology-neutral stand in the band
- Defending FWA/WISP uses that promote both PAL and GAA uses and co-existence
- Protect against noise and harmful interference in the band
- Expand uses to diversity the use of CBRS.

5.9 GHz Order And FNPRM

- In November 2020, FCC adopted an Order that grants U-NII-4 devices immediate access to indoor use of 45-megahertz of unlicensed spectrum in 5.850-5.895 GHz band. Need to apply for Special Temporary Authority or waiver for outdoor use.

- Adopts power levels and rules to ensure indoor use protects Federal Radiolocation Services & Intelligent Transportation Services (ITS)

5.9 GHz Order And FNPRM

- Between 2021 and 2022, 5.9 GHz FNPRM proceeding was delayed in part by litigation in the U.S. Court of Appeals for the D.C. Circuit

- The Intelligent Transportation Society of America, and others, argued that the FCC Order failed to (1) adequately explain that 30 megahertz of spectrum was sufficient for intelligent transportation systems in the future; and (2) consider the possibility that unlicensed devices in the lower 45 megahertz would interfere with communications in the upper 30 megahertz

- In August 2022, the D.C. Circuit affirmed the 2020 Order and FNPRM

5.9 GHz Order And FNPRM

- Until the FCC issues a second order allowing outdoor unlicensed use of 5.9 GHz and, in order to use this spectrum for outdoor operations, WISPs must apply for a Special Temporary Authority or a waiver
- The 2020 FNPRM seeks comment on technical proposals related to unlicensed outdoor use
- FNPRM asks technical questions related to operation of ITS using Cellular to Vehicle Everything (C-V2X) technology
- In 2024, WISPA asked the FCC staff about timing of an order resolving issues in the FNPRM. FCC Staff could not provide a specific time frame
- We asked FCC Chairman Carr's Senior Spectrum Counsel to please tell us if there are any reservations to issuing a final Order that would allow outdoor operations of unlicensed use of this 45-megahertz of spectrum. We are still waiting for a response.

Looking Forward at 6 GHz Unlicensed Band and Protection of 6 GHz PTP Licensed

- 6 GHz Band (Unlicensed) now open for business for 850 MHz of Standard Power Outdoor with AFC System Coordination, 1200 MHz of Low Power Indoor (LPI) with no AFC System Coordination Indoor; and Very Low Power (Indoor and Outdoor with no AFC System) (VLP).
- FCC still considering whether there should be greater protections of critical use PTP 6 GHz licensed even with LPI and VLP – might include AFC Systems, Geofencing, and Other.
- World Implications: Other countries are approaching the use of this 1200 MHz band as partially for Wi-Fi and partially for IMT/Mobile (either mixed or exclusive use). Large controversies as deployed around the world. Wi-Fi is the major direction.

Adding 10-10.5 GHz PTP Band for Backhaul and Middle Mile Use –WISPA and Coordinated Coalition FCC Petition

- WISPA and Coordinated Coalition: Submitted petition for use of 10-10.5 GHz to the FCC for review and public comment.
- WISPA and CC seek to use the band for Backhaul/Middle Mile and PTP needs which are severely over-subscribed in the 5 GHz, 6 GHz (licensed), and 11 GHz bands. More backhaul is needed.
- WISPA provided a detailed approach allowing the FCC to see how the band can be compatible with Federal, Amateur and Satellite Uses.

12.2-12.7 GHz and 12.7-13.25 GHz

- 12.2-12.7 GHz band
  - One-way communications
  - Lower power to protect existing DBS
  - MVDDS licensed incumbents, but very little commercial deployment
  - DISH holds about 80% of licenses
  - Also DBS receiver dishes
- 12.7-13.25 GHz band
  - Used for mobile Broadcast Auxiliary Services, fixed microwave service and CARS
  - Federal use by NASA at Goldstone, CA

12.2-12.7 GHz and 12.7-13.25 GHz

- FCC Proposals for 12.2-12.7 GHz Band
  - Seeks comment on expanded terrestrial use
    - One-way, two-way, point-to-point, point-to-multipoint
  - Seeks comment on appropriate power level to enable expanded terrestrial use while protecting incumbents
  - Seeks comment on coordination requirements
- FCC Proposals for 12.7-13.25 GHz Band
  - Proposes mobile operations, but seeks comment on an alternative option for sharing the band through the “implementation of certain sharing methodologies among incumbents and new entrants”
  - Proposes exclusive licenses
  - Re-location of incumbents?

12.2-12.7 GHz and 12.7-13.25 GHz

- WISPA Positions on 12.2-12.7 GHz Band
  - Allow fixed terrestrial use on a secondary, shared basis
  - Nationwide, non-exclusive licenses with registration of point-to-point and point-to-multipoint operations
  - Coordination through registration with Automated Frequency Control (AFC) system modeled on 6 GHz AFC to protect incumbent MVDDS and DBS operations
  - Periodic re-check of database for changed incumbent operations
  - If licensed, then county-based licenses with cap of 40% of spectrum
  - Opportunistic use when and where licensed services are not in use

12.2-12.7 GHz and 12.7-13.25 GHz

- WISPA Positions on 12.7-13.25 GHz Band
  - Allow fixed terrestrial use on a secondary, shared basis
  - Nationwide, non-exclusive licenses with registration of point-to-point and point-to-multipoint operations
  - Coordination through registration with Automated Frequency Control (AFC) system modeled on 6 GHz AFC to protect incumbent MVDDS and DBS operations
  - Periodic re-check of database for changed incumbent operations
  - Modest increase in power

12.2-12.7 GHz and 12.7-13.25 GHz

- Expect Tribal set-aside of 100 megahertz for 12.2-12.7 GHz licenses on Tribal lands
- Possible that 12.7-13.25 GHz band may be allocated for satellite
- Administration change may have altered political and policy landscape

37 GHz And 42 GHz Bands

- In 2017, the FCC made the 37.0-37.6 GHz band available for coordinated co-primary sharing between Federal and non-Federal users and sought comment on the proper band plan and best regime to share the band with federal operations
- In 2018, FCC adopted an order reaffirming that commercial use of the 37.0-37.6 GHz band would be on a non-exclusive licensing basis, with six 100 megahertz channels.
- FNPRM sought more comment on proposals of how commercial operators could share the spectrum with federal uses

37 GHz And 42 GHz Bands

- FCC's August 9, 2024 Public Notice sought comment on many issues
  - Potential uses of the band (fixed wireless, IoT,), proper coordination framework, adjacent band protection, licensing (nationwide non-exclusive license)

- FCC Public Notice proposed a model close to 70/80/90 GHz but with PtMP as well as PtP use
  - Coordination between and among federal and non-federal users
  - Nationwide non-exclusive license for commercial operators
  - Federal priority on lower 200 MHz
  - Protection criteria based on PtP (Part 101) norms
  - 100 MHz per user per channel per site

37 GHz And 42 GHz Bands

- In response to the August 9 Public Notice, WISPA, Charter Communications, Federated, Open Technology Institute, Starry and Qualcomm arrived at a consensus on various issues
  - Issues we did not agree on were not addressed
- CBRS validates automated sharing and coordination
  - Use a Dynamic Spectrum Management System (DSMS), which will also cover 42 GHz band
  - Request a preliminary grant, build out in a timely manner, receive grant
  - Allow more than 100 MHz at a time, but subject to rollback if congested
  - DSMS will help mediate coexistence, but we don’t expect many problems given the shorter ranges and higher directionality on this band
  - Technology neutral

37 GHz And 42 GHz Bands

WISPA recommends the following other technical rules for these bands

- Set appropriate power limits separately for base stations (fixed or mobile), fixed clients, mobile clients, and PtP systems
  - Base stations and some clients likely to use beam steering
- Do not strictly follow Part 30 UMFUS rules, which are MNO-oriented and do not address fixed clients
- 42.0-42.5 GHz band may be primarily fixed, not mobile, and have lower power limits
  - Both bands are near passive bands and OOBE is a major area of contention
- Common DSMS mediation of the two bands, ideal if one radio can serve both with flexible channel selection

Possible Changes To BEAD To Help Our Members

- The November 2021 Infrastructure and Investment Jobs Act (IIJA) allocated $42.5 billion to NTIA to implement the Broadband Equity Access and Deployment (BEAD) Program
- Although the IIJA did not require NTIA to make the following decisions, NTIA's May 2022 Notice of Funding Opportunity determined that (1) a priority broadband project was a fiber optic network and (2) that reliable broadband services did not include networks using entirely unlicensed spectrum
- Both decisions are not technology neutral and therefore violate the spirit of the IIJA

Possible Changes To BEAD To Help Our Members

- The 2022 NTIA BEAD NOFO decision that reliable broadband services do not include networks using entirely unlicensed spectrum is particularly harmful to WISPA's ISP members since so many of our members started their businesses by using entirely unlicensed spectrum networks

- This 2022 decision could lead to many of those WISPA members being overbuilt by BEAD funded networks

- The decision is also against contrary to FCC and public interest as the FCC and NTIA have both spent so many resources encouraging the deployment of evolving and faster unlicensed spectrum networks especially in the areas of 57-71 GHz and 6 GHz networks

Possible Changes To BEAD To Help Our Members

- Since 2022, many Republican Congressional offices have criticized NTIA's non-technology neutral BEAD NOFO
- After the general election results in November 2024, WISPA developed a policy strategy and public relations campaign to persuade the new Trump Administration and the Republican controlled House of Representatives and Senate to change the BEAD program so that it is technology neutral and prevents overbuilding of networks that use entirely unlicensed spectrum
- WISPA President and CEO David Zumwalt authored this article that shows how NTIA can save BEAD billions and become more technology neutral by including networks using entirely unlicensed spectrum in the definition of reliable broadband service
  - https://www.rcrwireless.com/20241211/policy/how-to-save-bead

Looking Forward with the NTIA's National Spectrum Strategy

National Spectrum Strategy: https://www.ntia.gov/programs-and-initiatives/national-spectrum-strategy (Subject to Change with Changes in the Administration and United States Department of Commerce/NTIA)

Pillars of the NSS: https://www.ntia.gov/issues/national-spectrum-strategy/spectrum-strategy-pillars

Spectrum Bands Currently Under Review and Consideration for Sharing between the US Government and Commercial Uses:

- **3.1-3.45 GHz Band**: – Reviewed by the US Congress; DoD/DoD-CIO as PATH-SS 1 and now PATH-SS 2 (EMBRES Report); NTIA and National Spectrum Consortium (NSC) Multi-Stakeholder Group and NTIA TIGs. Study if for repurposing, sharing, moving, partitioning, and compatible uses. Issues: Many Federal uses include classified, radar, and others including ground-to-ground, air-to-ground and ground-to-air and ground-to-space and space-to-ground.

- **5030-5091 MHz Band:** This band is also under consideration for potential repurposing including possible drone use.

Looking Forward with the NTIA's National Spectrum Strategy

Spectrum Bands Currently Under Review and Consideration for Sharing between the US Government and Commercial Uses:

- **7/8 GHz Band (7.125-8.4 GHz):** - Being reviewed by US Congress, NTIA and National Spectrum Consortium (NSC) Multi-Stakeholder Group and NTIA TIGs. Repurposing, partitioning, movement, efficiencies and sharing.

- **18 GHz Band (18.1-18.6 GHz):** - Studied for repurposing.

- **37.0-37.6 GHz Band:** Being considered for shared Federal and commercial uses (currently no Federal uses in play and only experimental commercial uses). Considered for tandem review with the 42 GHz band. NTIA has completed its review of the lower 37 GHz Band. This band is being studied for a co-equal, shared-use framework allowing Federal and non-federal uses to deploy operations.

What's Next for NSS and Other Possible Bands for Sharing and Changes in Use or Operation?

- Changes to the Bands studied or mandates around use/changes.
- Advance flexible/shared use in bands where commercial use can be applied (advancing tech neutral)
- Or…cancellation of programs and study of specific bands and fundamental changes to the NSS, perhaps mandatory auctions (with FCC Auction Authority), and/or other changes…

NextNav Proposal On 902-928 MHz

- NextNav, successor to Prodigy LMS, has licenses to provide multilateration services on 902-928 MHz
  - Very little buildout since auction over 20 years ago
  - Main purpose: Alternative to GPS with better vertical accuracy
  - Existing rule requires field testing of licensed devices to ensure no unacceptable interference to unlicensed devices
- NextNav claims band is under-utilized
  - Relatively light use by WISPs, mainly because it's so noisy already
  - Utility meters/SCADA, LoRaWAN, wireless mics, billions of RFID chips, and various other unlicensed uses
  - Also licensed Amateur use, mainly on top and bottom 1 MHz sections

NextNav Proposal On 902-928 MHz

- In its petition for rulemaking, NextNav wants to build out a nationwide 5G network with its PNT (Positioning, Navigation, Timing) service sharing a small portion of the downlink
  - 5G would be leased to national carriers as a way to pay for nationwide PNT
  - 902-907 MHz for uplink, 918-928 MHz for downlink
- NextNav wants the safe harbor removed and for unlicensed and Amateur users to be required to protect them from interference
  - This may make half the 902 MHz band unusable in areas NextNav builds out, even if equipment can work through the interference

NextNav Proposal On 902-928 MHz

- Thousands of comments filed against NextNav's petition; virtually no one supports them
  - But this does not by itself guarantee its rejection
  - NextNav recently submitted technical report purporting to show lack of interference to unlicensed devices
- 902-928 MHz is widely used by WISPs and is an "innovation band"
  - Many new unlicensed devices being introduced
  - Important to IoT
  - Some consumer devices
- FCC will be adopting a Notice of Inquiry (NOI) on PNT as complement or alternative to GPS
  - The draft NOI takes no position on NextNav's petition


THANK YOU