Spectrum Update: 4.9 GHz, 5.9 GHz, 6 GHz, CBRS, 10 GHz 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. This panel will give you important updates about those spectrum proceedings.

Moderator & Speakers

Josh Luthman – Imagine Networks, President – josh@ohbroadband.com

Louis Peraertz - WISPA, Vice President of Policy - lperaertz@wispa.org

Steve Coran - Lerman Senter PLLC, Attorney -scoran@lermansenter.com

Richard Bernhardt - WISPA, Vice President, Spectrum & Industry - rbernhardt@wispa.org

Samual Curtis – AtLink, CEO - sam@atlink.net

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Outline: Today's Topics, but Feel Free to Ask us About Any Band

CBRS
3.1 - 3.45 GHz
4.9 GHz
10 GHz
12.2-12.7 GHz
12.7-13.25 GHz
42-42.5 GHz
37-37.6 GHz
5.9 GHz
6 GHz
57-71 GHz
70/80/90 GHz
BDC Fixed Technology Codes
NTIA National Spectrum Strategy
Secondary Markets

CBRS - Citizens Broadband Radio Service

Shared Spectrum - The Great Experiment
Tiered Operation
Protect Incumbents
Share between incumbents and GAA and PAL operators
Technology Neutral
Dozens of Vertical Markets
Secondary Market Potential
Opportunistic Use
Private Networks, Neutral Host, and more

CBRS (3550-3700 MHz) Today

As of this month…By the Numbers:

- **Category A/B CBSDs**: CBRS has over 300,000 CBSDs in the field.
- **CPIs Certified:** Over 4,500 CPIs have been certified and are authorized for CBSD registration
- **Approved Equipment**: More than 185 FCC approved devices are certified for operation in the CBRS ecosystem
- **Spent on PALs**: $4.6B spent at Auction 105 for PALs - PALs now deploying; Secondary market Available.
- **Flexible Deployments**: Technology and Air Interface Neutral

Who is using CBRS?

K-12, Higher Education

Hotels and Venues

Airports

Retail and Complexes

MTEs/MDUs

Residential

Business and Industry

Agriculture

IoT/IIoT

Private Networks

Neutral Hosts

More…

Licensed and Licensed by Rule 47 USC Part 96

CBRS is designated by the FCC as:

- **Priority Access Licensee (PAL)**: Licensed - BDC Category 71 (Frequencies: 3550-3650 MHz)
- **Generally Authorized Access (GAA)**: Licensed by Rule - BDC Category 72 (Frequencies: 3550-3700 with 3650-3700 exclusively GAA)

What is CBRS Release 2: Features, Functions and Capabilities - Beyond the Baseline Specifications

- Release 2 Compatible - Backwards compatible meaning any approved feature, function or capability in Release 2 must function completely with the baseline standards.
- Release 2 Features - Optional functions which are adopted by one or more Spectrum Access System operator and one or more CBSD manufacturer for use in the field.
- Release 2 Functionality is Voluntary: Manufacturers of CBSDs and SASs must agree to adopt and integrate Release 2 functions - Encourages new uses.

Examples of Release 1.5 and Release 2 Features, Functions and Capabilities

Grouping (Such as Single Frequency Group or SFG)

DAS (Distributed Access Systems) - Initially Passive DAS

Enhanced Antenna Pattern (Recognition)

Flexible Grants

2D/3D Antennas and New Antenna Formats

Some Possible Warnings about Release 2

Not every function is supported by a SAS or CBSD Manufacturer.

Changes in functions adoption might cause downtime.

Release 2 functionality could be subject to regulatory review.

May be complicated…

Present Day and Possible Future Challenges in CBRS

Adjacent Channel Bands (High Power) 3.450-3.550 GHz Band; 3.700-3.980 GHz Band - no guard bands between the bands and no co-existence or protection between the bands. Can impact ESCs. Can impact PAL and GAA operation especially in lower band.

Disruption Due to DPA, P-DPA and Inland DPAs, Quiet Zones, Borders, and Specially Protected Areas - and their neighborhoods.

SAS Downtime: SAS Gap - SAS is down due to internal processes or disruption between SAS and its cloud provider. Heartbeat response time cannot be maintained. Lack of spectrum due to lack of refresh of data at CPAS causes downtime, smaller grants, or restricted grants.

In-Band Interference: Perhaps due to noise-floor, clutter/terrain, or other factors.

New Benefits in the Band are Likely Coming

- Better understanding of impacts of DPA and PDPA
- Changes to the propagation modelling to accommodate more than one propagation model.
- Take into account clutter and terrain.
- Accommodate new approach with increased heartbeat response times possible
- Predictability, less protection needed, more

Operations possible

What can you do if you have interference or downtime or other problems?

Speak with your SAS. Consider your SAS options.

Coordinate.

Speak with the FCC - Rules are there for a reason.

Research issues of encumbrances and put them into your network plan.

Have fail-over or a back-up plan.

3.1-3.45 GHz Band

- Department of Defense (DoD) studied the possibility of sharing this 350 megahertz of spectrum with the private sector

- DoD's studies help determine whether this band should be licensed through auction or dynamically shared

- DoD found that sharing is feasible if certain advanced interference mitigation features and a coordination framework to facilitate spectrum sharing are put in place

- Additional studies to explore dynamic spectrum sharing and opportunities for private-sector access in the band, while ensuring DoD and other Federal mission capabilities are preserved.

3.1-3.45 GHz Band

- WISPA's goals
  - Preserve FCC discretion and do not mandate auction
  - Enable CBRS-like opportunistic sharing
- WISPA working with other stakeholders to influence legislative process

10.0-10.5 GHz Band

- PtP currently falls into two categories
  - Licensed Fixed Service (Part 101: 6, 11, 18, 23, 80 GHz)
    - Coordinated (using prior coordination notice, except on 80 GHz), heavily protected against interference
    - FDD paired channelization (ideal for telephone, not data)
    - LImited availability in some areas
    - Generally expensive, both to meet standards (large antennas) and coordination cost
  - Unlicensed (Part 15)
    - Unprotected from harmful interference
    - Shared with Wi-Fi (except 24 GHz) so noise often impairs backhaul
    - Inexpensive

10.0-10.5 GHz Band

- Background
  - FCC has allocated thousands of megahertz of spectrum for last-mile use over the past decade, but its allocation of point-to-point spectrum has not kept pace
  - The 10-10.5 GHz band is widely used by federal incumbents, and shared on a secondary basis by Amateurs licensed under Part 97

10.0-10.5 GHz Band

- In October 2022, the Coordinated Spectrum Coalition (WISPA, Cambium and New America) filed a petition for rulemaking to make 500 MHz of spectrum available for point-to-point
  - Subject to coordination by an AFC System (database driven)
  - Useful for backhaul, middle mile, and other specialized PTP purposes
  - Licensed
  - Secondary to Federal and Amateur Incumbents
  - Spectrum currently underutilized
  - Unmet demand for mid-band PTP

10.0-10.5 GHz Band

- Petition calls for new use governed by a new Part 101 subpart
- Single nationwide license with link registration (similar to 80 GHz)
- Protection of primary users via Automated Frequency Coordination (AFC) system, based on 6 GHz AFC
  - Secondary to both Federal and Amateur
- Fixed locations only, individual point-to-point links coordinated
  - The two directions could use different frequencies, based on availability
  - Users not protected against each other, but must behave cooperatively

10.0-10.5 GHz Band

- Goal: Roughly the same coverage as 5.8 GHz PtP but with minimal impact on incumbents, at lower cost than traditional licensed FS
- Power limit: 20 dBm conducted; 58 dBm EIRP; 45 dBm/MHz EIRP
  - Up to 160 MHz channel width
  - OOCE limits similar to what 6 GHz unlicensed use allows for up to 40 MHz bandwidth
  - OOBE limited to -27 dBm/MHz, like many U-NII bands
- Antenna *minimum* gain 27 dBm, maximum 3 dB beamwidth 5.5˚
  - Minimum size around 40 cm, with ~1m dish needed for maximum EIRP

10.0-10.5 GHz Band

- Beam-forming “virtual PtP” allowable but each link must be coordinated and antenna performance requirements must be met per link
  - Most likely useful for 30˚ or narrower “sectors” providing multiple backhaul or business links, not mass-market access
  - Like what the Radwin petition for 5 GHz, that WISPA supports, calls for
- Radios must have GPS/GNSS
  - No CPI required as the direction comes from the coordinates of the link
  - No spectrum sensing/DFS (AFC uses Informing Incumbent instead)
  - Daily check-in with AFC

10.0-10.5 GHz Band

- What's Next?
  - FCC assigns Petition an official docket number.
  - FCC seeks public input on the Petition.
  - Incumbents and associated agencies find merit and agree to consider allowing the use.
  - Grow the coalition with more qualified entities.
  - Spur interest and gain the FCC's approval, creation of a report and order and published rules.
  - Support the establishment of the band. Send letters and work with WISPA and the Coalition.

4.9 GHz Band

- 4940-4990 MHz band currently allocated for public safety, but underutilized
- FCC has been looking at expanding use of the band for more than 15 years
- January 2023 – FCC adopted 7th Report and Order and 9th Further Notice of Proposed Rulemaking

4.9 GHz Band

7th R&O, January 2023

- Unlicensed, non-Public Safety users will operate on a secondary, pre-emptible basis
- All use, including licensed, manually coordinated by a single nationwide Band Manager
- All existing links and base stations must go into ULS
- Band Manager to be selected (method discussed in FNPRM)
- No restrictions on technology
- Unchanged power limits, *except* licensed PtP cap raised to 85 dBm EIRP (for 17+ km links), same as Part 101
- Freeze on new licenses remains until Band Manager is in place

4.9 GHz Band

- 9th FNPRM January 2023
  - Leasing or dynamic spectrum access?
  - Who will be the band manager(s)?
  - What should interference criteria be?
    - FCC leaning towards Part 90 (land mobile) or FS model (extremely protective), at least to limit unlicensed users or lessees
    - FNPRM shows zero awareness that the predominant use of the band is based on Wi-Fi, which tolerates channel sharing

4.9 GHz Band

- WISPA Positions
  - Dynamic spectrum access model to enable non-public safety use on a secondary basis, supervised by band manager
    - NOT a leasing model, but an access model
  - Public safety would have right to preempt non-public safety use for emergency operations
  - Band manager should have authority to make unused spectrum available. What should interference criteria be?
  - Band manager selection committee should include non-public safety

4.9 GHz Band

- Current activity in docket focused on band manager
  - FirstNet and other public safety interests supporting centralized control and integration into FirstNet
  - Oher public safety interests favor local control
  - 4.9 GHz Coalition recommends designating four FCC-certified public safety members of Frequency Advisory Committee to serve as national band manager

12.2-12.7 and 12.7-13.25 GHz Bands

- In May 2023, FCC adopted Report and Order, Further Notice of Proposed Rulemaking for 12.2-12.7 GHz band and Notice of Proposed Rulemaking for 12.7-13.25 GHz band
  - More than 1000 MHz of spectrum
  - Consideration of both bands together likely intended to create “wins” for all – fixed, mobile, licensed, unlicensed
- Report and Order
  - “Not in the public interest to add a mobile allocation to permit two-way terrestrial 5G services . . . based on the current record.”
  - Significant concerns about interference to satellite operations

12.2-12.7 and 12.7-13.25 GHz Bands

- 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 and 12.7-13.25 GHz Bands

- FCC Proposals
  - 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 that enables expanded terrestrial use while protecting incumbents
    - Seeks comment on coordination requirements

12.2-12.7 and 12.7-13.25 GHz Bands

- FCC Proposals
  - 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 and 12.7-13.25 GHz Bands

- WISPA Positions
  - 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 and 12.7-13.25 GHz Bands

- WISPA Positions
  - 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 and 12.7-13.25 GHz Bands

- Decision expected soon
- DISH dispute with DBS continues
- Expect Tribal set-aside of 100 megahertz for 12.2-12.7 GHz licenses on Tribal lands

42-42.5 GHz Band

- In June 2023, FCC adopted Notice of Proposed Rulemaking proposing commercial use for this band
- No federal allocation and no incumbent operations, though radioastronomy service at 42.5-43.5 GHz

42-42.5 GHz Band

- WISPA positions
  - Nationwide, non-exclusive licensing similar to 70/80/90 GHz band, with device registration coordinated through AFC
  - Allow both point-to-point and point-to-multipoint operations
  - Exclude mobile operations
  - 12-month deployment period
  - 10-year license term
  - No defined channel sizes or geographic areas
  - Part 101, not Part 30

37.0-37.6 GHz Band

- Currently used by federal agencies
- In 2016, FCC adopted Notice of Proposed Rulemaking to allow sharing with commercial operators
- Overwhelming support for FCC's proposal to maintain 600 MHz of the licensed mmW spectrum for shared access between commercial users, and between commercial and federal users
- In 2017, the FCC made this 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 a band plan with six 100 megahertz channels and sought more comment on sharing proposals

37.0-37.6 GHz Band

- Cable operators are pushing to align sharing model with 42-42.5 GHz band
- WISPA collaborating with cable and public interest groups to work on consensus proposal
- WISPA asking NTIA to complete study of band so FCC can move forward with final sharing rules

5.9 GHz Order & 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 & FNPRM

- Indoor access point EIRP limited to 33 dBm/20 MHz and 36 dBm/40 MHz
- When combined with U-NII-3 band spectrum, indoor access point EIRP can scale to 36 dBm for 80 and 160 megahertz channels. Client devices limited to 27 and 30 dBM

5.9 GHz Order & 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 & 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 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

Adventures in the new 6 GHz
Where WISPA Members Can Use 6 GHz

6 GHz Indoor Low Power (Unlicensed)

6 GHz Standard Power Outdoor or SPO (Unlicensed/Shared)

6 GHz PTP (Incumbent - Licensed)

6 GHz Very Low Power or VLP (Unlicensed)

6 GHz License Exempt - 1200 MHz Low Power Indoor and 850 MHz Standard Power Outdoor

- Shared spectrum primarily with licensed 6 GHz PTP backhaul licensed operators
- Coordinated by an Automated Frequency Coordination System or AFC System (presently 13 FCC conditionally approved applicants) for SPO
- Power similar to 5.8 GHz Band
- AFC System provides spectrum inquiry on available frequency ranges and permitted operational power
- Can be extension of Wi-Fi but also other air-interfaces (Tech Neutra

6 GHz (Part 15) - Characteristics of Standard Power Outdoor Operation

Band: 5.925-7.125 GHz (Low Power Indoor and Standard Power Outdoor)

Part 15 (license Exempt) shared with incumbents 6 GHz licensed PTP (commercial backhaul) and fixed satellite services (FSS), and Broadcast Auxiliary Services

Extension of Wi-Fi Bands, but Air Interface Agnostic - Will be Widely Used

Channel Sizes up to 160 MHz

Coordinated by Automated Frequency Coordination System or AFC System

Incumbents record their use in the FCC Uniform Licensing System (ULS)

Use Characteristics of Standard Power Device (SPD) in 6 GHz - AFC Controlled

Power: Operates in U-NII-5 (5.925-6.425 GHz), U-NII-7 (6.525-6.875 GHz) -

Maximum EIRP 36 dBm and Maximum Power Spectral Density: 23 dBm/MHz in U-NII-5;

Maximum of 30 dBm and Maximum Power Spectral Density of 17 dBm/MHz in U-NII-7

AFC Systems - Operators and Functional Specifications - Requirements

- Report and Order Issued - Rules Published in Federal Register
- Public Notices on AFC Systems Issued
- Knowledge Database (KDB) Issued Clarifying Certain Aspects of 6 GHz Use
- FNPRN Outstanding - More questions by the FCC - More Possible Considerations
- Test and Certification of AFC Systems and Standard Power Devices

Why do I have to use an AFC System and will it cost me?

AFC Systems are designed to protect incumbent operators while providing guidance/coordination on available frequencies and power that can be used in the band.

No aggregate interference is calculated.

AFC Systems do not talk with one-another.

You choose from any authorized AFC operator.

Yes…there will likely be a charge to use an AFC System.

Standards and Industry Practices

- Wireless Innovation Forum, Wi-Fi Alliance and 6 GHz Multi-Stakeholder Group (MSG) have produced and published to the FCC:

- Baseline Functional Specifications for the AFC Systems, Standard Power Devices, and Proxies (TS-1014).

- Test Vectors and Approved Findings for Test and Certification of AFC Systems and Standard Power Devices.

- Security Compliance protocols for recognition of valid AFC Systems and compliant Standard Power Devices.

What the AFC System Functional Requirements Achieve

- Requirements for Registration of Standard Power Devices (SPDs) with AFC Systems.
- Requirements for Operation of AFC Systems in the 6 GHz Environment.
- Requirement for Protection of Incumbents from Harmful Interference.
- Requirements Needed for creation of Test and Certification Procedures for the Band Ecosystem.
- Create standards which comport to regulatory requirements provided by the FCC and the US Code of Federal Regulations.
- Create operating environment for industry and operators in the Band.

AFC System – Functional Requirements - Standards Required

- SPD Device Registration Information and Validation & AFC System Spectrum Inquiry
- AFC System Determination of Available Frequencies and Maximum Permissible Power as Communicated to the SPD Device Upon Registration and Request
- AFC System Storage of Information Requirements
- Enforcement of Instructions for Communications of the FCC
- Elements of AFC System Communications Security Requirements
- Role and Requirements of AFC Systems in Protecting FS Incumbents:
- Interference Protection Criteria and Evaluation Points
- Fixed Service (FS) Transceiver and Receiver Parameters (for Protection)
- Propagation Models Requirements
- Protection of Passive Sites
- Radio Astronomy Incumbent Protection Requirements
- International Border Protections

What must Happen Next to Move Things Along Towards Full Deployment of Standard Power Devices in 6 GHz Unlicensed?

- FCC must issue guidance and public notice on test and certifications procedures for AFC System operators.
- Similarly, FCC must offer guidance and public notice on test and certification procedures for Standard Power Devices.
- FCC must issue final direction for public trials and any further training/workshops it may require.
- FCC must give public notice of approval of AFC System operators and eventual opening of the band.

The Good News…It's Beginning

- FCC has issued a Public Notice allowing for the beginning of operations (no longer conditional) for seven AFC System Operators. Others are also in progress but not yet fully authorized.
- FCC has placed a new condition on AFC System Operators to have a interference mitigation reporting system.
- FCC has begun approving compatible Standard

Power outdoor ecosystem equipment.

What will be Required to Operate 6 GHz?

Approval of Standard Power Devices and any Proxies (Network Devices).

Approval and Certification of AFC Systems.

Registration of devices with authorized AFC Systems.

Possible registration in multiple countries.

Follow FCC Rules and industry standards.

57-71 GHz Band

- WISPA members have been increasing their deployment of services in the 60 GHz band because it allows them to deliver Gigabit download speeds

- In July 2021, the FCC adopted a Notice of Proposed Rulemaking to seek comment on expanding opportunities for radar sensors
  - Primarily aimed at 57-64 GHz range; less impact on 64-71 GHz
  - In-car field disturbance sensors (e.g., detect child left in car)
  - Amazon wants radar for delivery drones (<400 feet AGL)

57-71 GHz Band

- In response to comments in the record, WISPA asked the FCC to not require listen-before-talk or spectrum sensing in 60 GHz devices
  - This would disrupt existing deployments
  - Adding LBT and spectrum sensing would mean retrofitting equipment

In June 2023, FCC issued an Order that permits use of unlicensed field disturbance radars in 57-71 GHz. But FCC abandoned its effort to impose listen-before-talk or spectrum sensing requirement on devices in the band that are being used to provide fixed wireless broadband service.

The Order specifically noted WISPA's objection to this proposal.

70/80/90 GHz

- Now a coordinated, licensed point-to-point band
  - Easier licensing than lower Part 101 bands
  - Popular for high-speed services (up to 10 Gbps)
  - Some sharing with government managed through coordinators
  - Open questions to relax antenna standards, which WISPA supports
- Open questions about service to ships and aircraft
- Also used by satellites
  - Starlink wants to use this for its next generation satellites (thousands in low Earth orbit)
  - Open issues involve coordinating terrestrial, non-geostationary satellite, and geostationary satellite use

Broadband Data Collection

- A VERY IMPORTANT form, the Broadband Data Collection, is both required by all providers of fixed and mobile broadband Internet access as well as shows that WISPs are providing service to the FCC and the rest of the country. Thank you to those members who filed their data by March 1! The next filings are due September 1.

- Help us help you by helping everyone!

BDC Fixed Technology Specification Codes 70, 71, 72

- As part of its Broadband Data Collection (BDC) effort, in early 2022, the FCC published fixed technology codes. Initially, the FCC had two codes relevant to fixed wireless deployments
- Code 70 is for broadband deployments using unlicensed spectrum
- Code 71 is for broadband deployments using licensed spectrum. CBRS GAA spectrum, and other licensed-by-rule spectrum, was initially placed in Code 71
- Between March 2022 and January 2023, the FCC changed its mind several times about wher to put licensed-by-rule spectrum.
- First Code 70, then moving it to a new Code 72.

BDC Fixed Technology Specification Codes 70, 71, 72

- Whether CBRS GAA and other licensed-by-rule spectrum is categorized as unlicensed or licensed spectrum has huge implications for your business if your business is using licensed-by-rule spectrum.
- That is because in May 2022, NTIA issued its Notice of Funding Opportunity For the Broadband Equity Access and Deployment program (BEAD NOFO)
- In that BEAD NOFO, NTIA determined networks using entirely unlicensed spectrum to serve last mile locations were not “reliable broadband service.” It means BEAD funded networks can be used to overbuild such unlicensed spectrum networks.
- Networks using licensed spectrum are deemed reliable broadband service.

BDC Fixed Technology Specification Codes 70, 71, 72

- When in January 2023, FCC Broadband Data Task Force issued a new Code 72 for fixed wireless deployments using licensed-by-rule spectrum, WISPA was concerned that, for the purposes of the BEAD program NTIA will consider fixed wireless deployments using licensed-by-rule spectrum to not be reliable broadband service and will therefore consider locations using that spectrum to be unserved and subject to overbuilding using BEAD funds

BDC Fixed Technology Specification Codes 70, 71, 72

- In January 2023, WISPA met with NTIA officials to discuss implications of the new BDC fixed technology Code 72 for BEAD
- We asked NTIA officials to confirm that NTIA plans to treat broadband deployments using licensed-by-rule spectrum to serve last mile locations (Code 72) in the same manner as NTIA is treating deployments using spectrum allocated by individual held licenses (Code 71)
- Unfortunately, they could not confirm that is how NTIA would consider Code 72 deployments

BDC Fixed Technology Specification Codes 70, 71, 72

- In mid-February 2023, WISPA sent Assistant Secretary and NTIA Administrator Alan Davidson a letter that formally requests that NTIA treat broadband deployments using licensed-by-rule spectrum to serve last mile locations (Code 72) in the same manner as NTIA is treating deployments using spectrum allocated by individual held licenses (Code 71)

- WISPA 's letter details Congressional and FCC precedent that support a decision that licensed-by-rule spectrum should be treated the same as spectrum allocated by individual licenses

BDC Fixed Technology Specification Codes 70, 71, 72

- In November 2023, NTIA published a 5th Version of its Frequently Asked Questions document about the BEAD program.

- The November 2023 FAQ clarifies that fixed wireless deployments using CBRS GAA spectrum, or other licensed-by-rule spectrum will be considered reliable broadband service for the purpose of the BEAD program.

BDC Fixed Technology Specification Codes 70, 71, 72

- The NTIA November 2023 FAQ means if your networks are using licensed-by-rule spectrum to deploy 100/20 Mbps to last mile locations, those locations will **not** be eligible to be overbuilt by BEAD funded networks.

- It also means those networks have a better chance of winning BEAD funds if they apply for them through the relevant state broadband offices.

NTIA's National Spectrum Strategy

On November 13, 2023, NTIA released its National Spectrum Strategy (Strategy).

The Strategy identifies certain specific strategic objectives that fall into four broad pillars:

- Pillar One: A Spectrum Pipeline to Ensure U.S. Leadership in Advanced and Emerging Technologies
- Pillar Two: Collaborative Long-Term Planning to Support the Nation's Evolving Spectrum Needs

NTIA's National Spectrum Strategy

The Strategy identifies certain specific strategic objectives that fall into four broad pillars:

- Pillar Three: Unprecedented Spectrum Innovation, Access, and Management through Technology Development

- Pillar Four: Expanded Spectrum Expertise and Elevated National Awareness

NTIA's National Spectrum Strategy

- To meet those specific strategic objectives, the Strategy identifies five spectrum bands totaling 2,786 megahertz of spectrum for in-depth, near-term, study to determine suitability for potential repurposing to address the nation's ever-evolving wireless communication needs.

- 3.1-3.45 GHz
- 5.03-5.091 GHz
- 7.125-8.4 GHz,
- 18.1-18.6 GHz,
- 37.0-37.6 GHz bands.

NTIA's National Spectrum Strategy

- NTIA's strategy also noted the important progress that the FCC has been making in other bands to provide more spectrum for commercial wireless service needs. Those bands are

- 12.2-12.7 GHz
- 12.7-13.25 GHz
- 42.0-42.5 GHz
- 57-71 GHz

NTIA's National Spectrum Strategy

NTIA sought comment from the commercial wireless industry and other stakeholders on its strategy.

WISPA's Comments made the following key points

- The FCC should quickly resolve the issues pending in the 5.9 GHz proceeding

- The FCC should open 500 megahertz of licensed spectrum in the 10 GHz band for point-to-point secondary use on a shared basis with federal and amateur users

NTIA's National Spectrum Strategy

WISPA's Comments in response to the strategy made the following key points.

- NTIA should solicit public comment on initial draft plans for spectrum transition in bands identified for near term reallocation or enhanced use
- NTIA should hold multiple listening sessions with industry stakeholders
- NTIA should initiate a comprehensive spectrum occupancy audit covering both federal and non-federal users

NTIA's National Spectrum Strategy

WISPA's Comments in response to the strategy made the following key points.

- The FCC should establish methods to encourage flexible leasing, sale or disaggregation methodologies for licensed spectrum with light touch regulation for unserved and underserved geographic areas

- The FCC should allow opportunistic use of unused spectrum with appropriat protections

NTIA said next step of strategy is to develop an Implementation Plan

Questions From The Audience

Questions?

Please use the mic so we can hear you :)

Secondary Market Opportunities

- Traditional Methods
  - *De Facto* Spectrum Transfer Lease – more control with lessee (Form 608)
  - Spectrum Manager Lease – more control with licensee (Form 608)
  - Sublease – Lessee subleases all or a portion of its spectrum to another party
  - Partitioning – assignment of all licensed spectrum in defined geographic area within entire licensed area (Form 603)
  - Disaggregation – assignment of some defined portion of licensed spectrum throughout entire licensed area (Form 603)

ALL LEASES, SUBLEASES, PARTITIONING AND DISAGGREGATION ARRANGEMENTS MUST BE APPROVED IN ADVANCE BY FCC*

** Spectrum manager leases effective 21 days after notice to FCC*

Secondary Market Opportunities

- Restrictions
  - *De facto* spectrum transfer and spectrum manager leases need to include specific language to comply with FCC rules
  - FCC approvals of secondary market arrangements cannot exceed license term, but can be extended once license renewal application is on file with FCC
  - Traditional models do not apply to microwave licenses
  - Common carrier licenses are subject to foreign ownership restrictions

Secondary Market Opportunities

- Part 96 CBRS PALs
  - Traditional models are available for PALs and SAS should accommodate
  - Light-touch leasing
    - Lessee pre-certifies with FCC that it meets non-lease-specific eligibility and qualification criteria
    - PAL licensee notifies SAS of leasing arrangements with pre-certified lessee
    - SAS will confirm lessee is qualified
    - Upon SAS confirmation, leasing can begin
    - SAS provides daily reports to FCC

Secondary Market Opportunities

- Enhanced Competition Incentive Program (ECIP)
  - Program adopted in July 2022 to establish incentives for wireless licensees to make underutilized spectrum available to small carriers, Tribal Nations, and entities serving rural areas
  - Encourages licensees to partition, disaggregate, or lease spectrum to better match available spectrum resources with entities that seek to provide needed services to under-connected communities
  - Certain rules were effective October 2022, but program could not start until OMB approved new information collection requirements and made changes to Forms 603 and 608
  - **February 15, 2024, FCC announced that it would begin accepting ECIP applications**

Secondary Market Opportunities

- Tribal entities and common carriers
  - Licensees can assign or lease spectrum to unaffiliated tribal nations or small common carriers (those with 1,500 or fewer employees)
    - Applies anywhere
    - Licensee must assign or lease at least half of the applicable spectrum rights
    - Must cover at least 25% of the licensed area if that area is 30,000 square miles or less, or 10% of the licensed area if that area is more than 30,000 square miles
    - Does not include non=-common carriers due to statutory language

Secondary Market Opportunities

- Rural-focused transactions
  - Licensees can assign or lease spectrum to any unaffiliated entities, including WISPs
    - Applies only to rural areas
    - Licensee must assign or lease at least half of the applicable spectrum rights
    - Assignment or lease must be at least 300 contiguous square miles if the licensed area is 30,000 square miles or less
    - Minimum area is increased under a formula for licensed areas larger than 30,000 square miles

Secondary Market Opportunities

- Incentive rules – “carrots and sticks”
  - All parties receive a five-year extension of license term
  - All parties receive a one-year extension of interim and final performance requirements
  - Must construct and operate, or provide signal coverage and offer service to 100% of the subject geographic area for at least three years
  - ECIP assignee and lessee subject to five-year holding period
  - Penalties include loss of license and exclusion from ECIP

Secondary Market Opportunities

- Further Notice of Proposed Rulemaking
  - Whether the Commission should expand the small carrier/Tribal Nation prong to allow non-common carriers to be eligible for ECIP
  - Whether to adopt alternative construction requirements for services with less flexible metrics and on a “use or offer to share” safe harbor metric, both of which are independent of ECIP

Interactive Discussion With Samual Curtis About Secondary Market Strategies

THANK YOU