



# FCC Update

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United States of America

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Note: The views expressed in this presentation are those of the author and may not necessarily represent the views of the Federal Communications Commission



# 2023 And Beyond

FCC continues to focus on:

Making more spectrum available

and

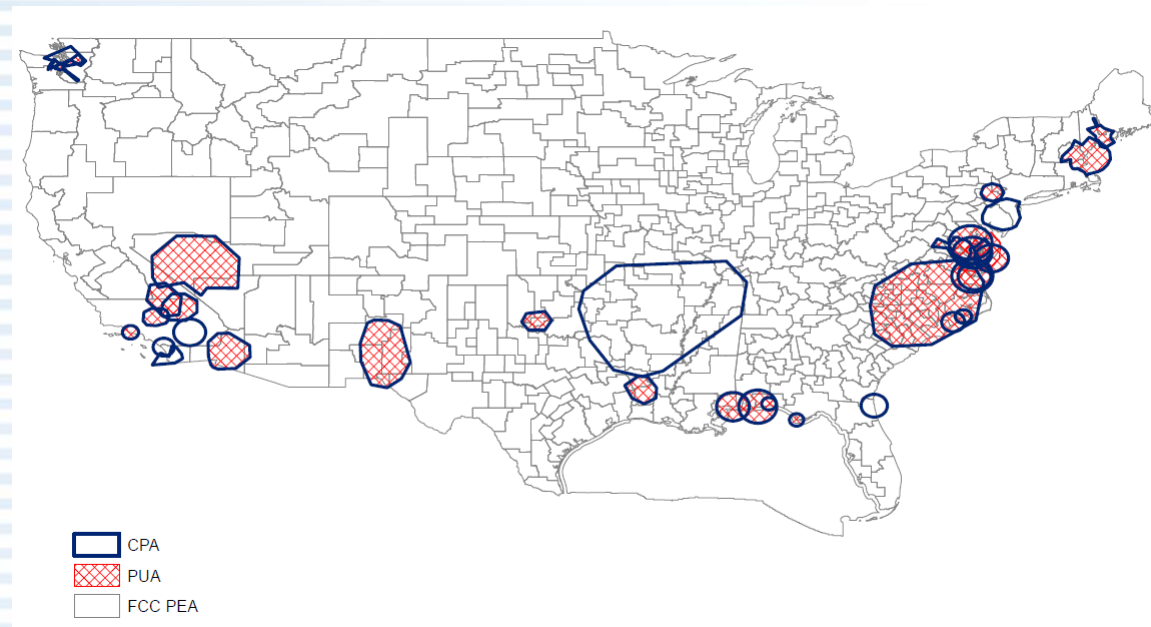
Making spectrum use more efficient



# 3.45-3.55 GHz Band

GN Docket No. 19-348

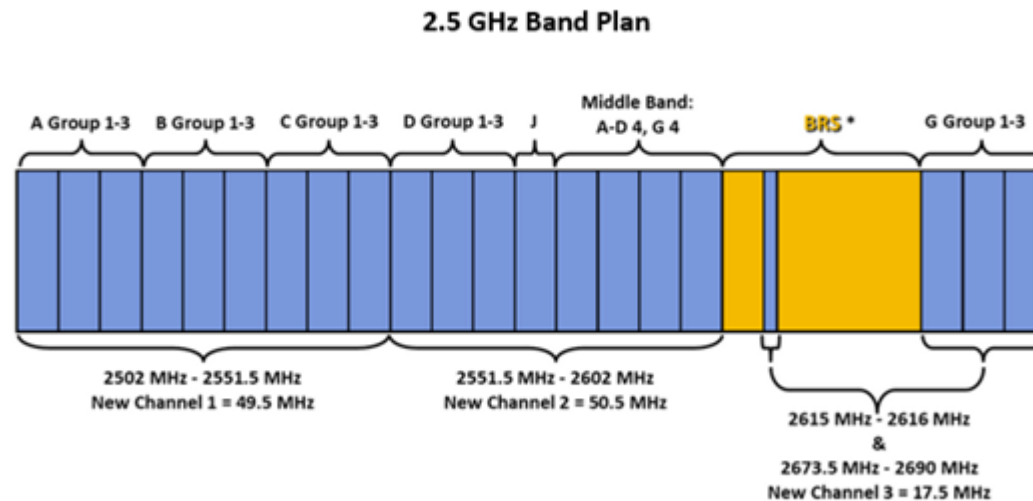
- **Auction competed November 2021 - \$21.9 Billion in winning bids**
  - Over 4,000 licenses issued for 5G deployments
    - More than half of companies granted licenses are small businesses and rural carriers
  - Formal coordination for non-federal use in cooperative planning areas and periodic use areas is underway
  - Ongoing testing with deployment anticipated soon





# 2.5 GHz Band

- **Auction competed November 2022 - \$428 million in winning bids**
  - Over 7,800 licenses sold for flexible use geographic (by county) overlay
  - Most of available spectrum was in rural areas
    - vital spectrum resources to support wireless services in rural communities
  - First licenses issued December 1, 2022
    - Ongoing work to issue additional licenses



\* BRS is the Broadband Radio Service; spectrum shown in yellow is not available as part of this window.



## 3.1-3.45 GHz Band

- Partnering to Advance Trusted and Holistic Spectrum Solutions (PATHSS) Task Group
  - Forum for industry and the Defense Department to exchange information on current and projected military and commercial requirements in these bands
  - The group will identify and develop use cases based on a shared understanding of federal and commercial needs
  - Considerations include database type approaches and technical approaches

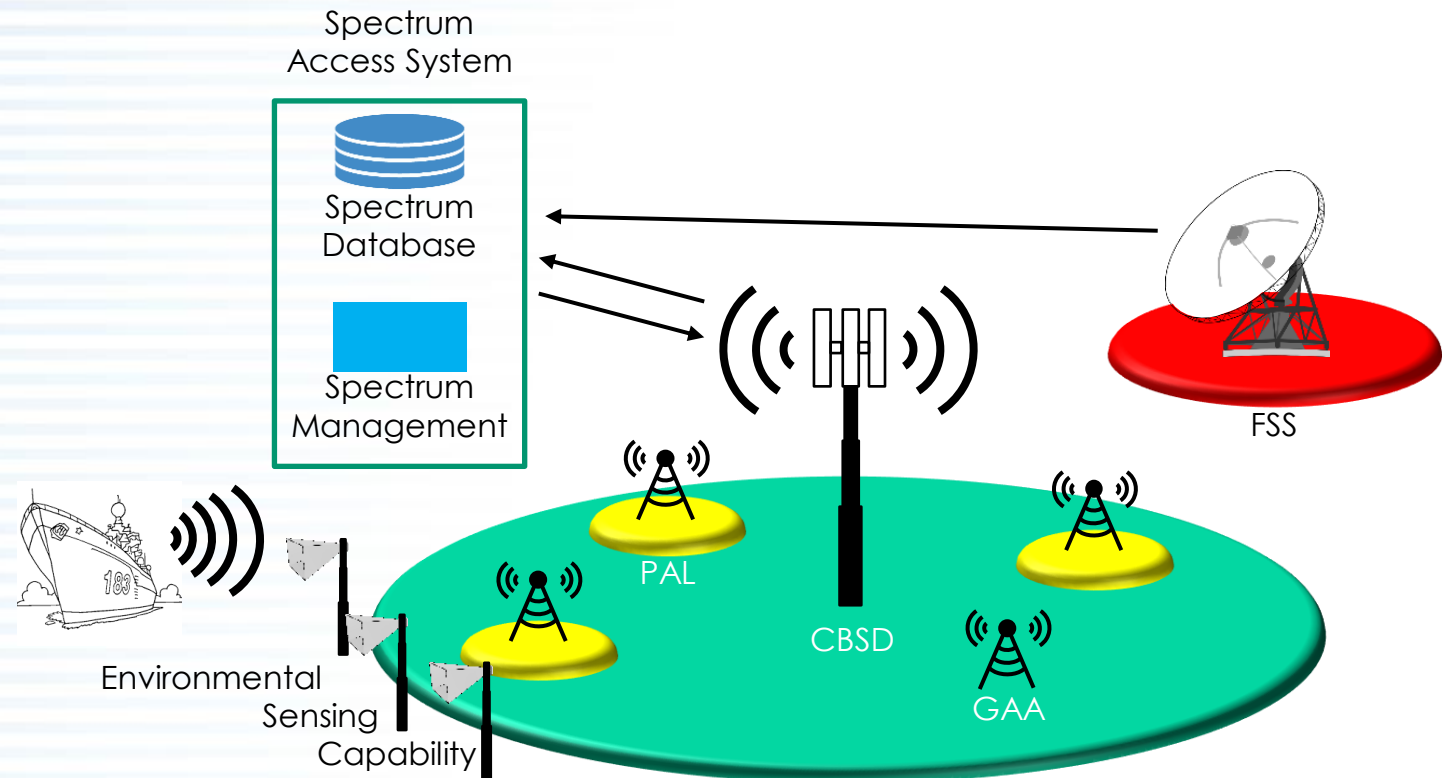
Early collaboration among potentially affected parties to reach consensus on the best way to provide commercial access to the spectrum



# 3.55-3.7 GHz Band (CBRS Band)

GN Docket No. 12-354 (3.5 GHz), 15-319 (SAS/ESC), Docket 17-258 (October 2018 R&O)

- **Sharing 150 MHz in 3550-3700 MHz for flexible use between mobile broadband, incumbent DoD Radar, and Commercial FSS.**
- 5 approved SAS administrators
  - 2 additional entities in final testing stages
- 3 ESC operators
- 280,000 deployed CBSDs
- Almost 200 device models from over 45 different manufacturers have been approved
- New innovative spectrum use models emerging (e.g., private networks, IoT, wireless offload, etc.)

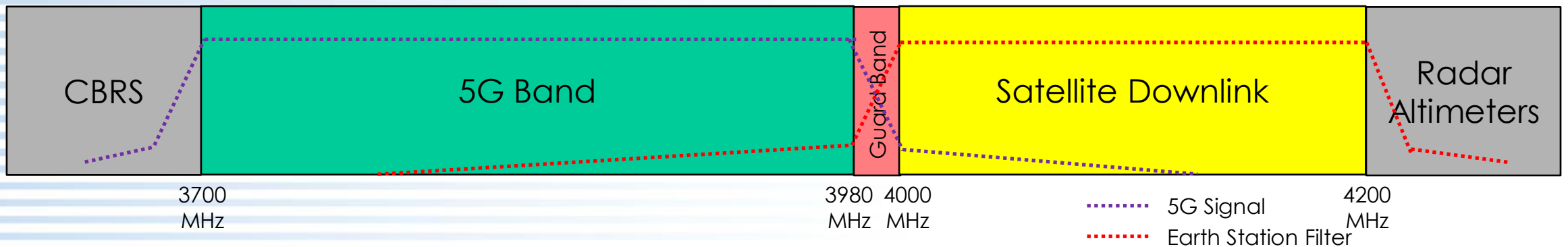




# 3.7-4.2 GHz C-Band

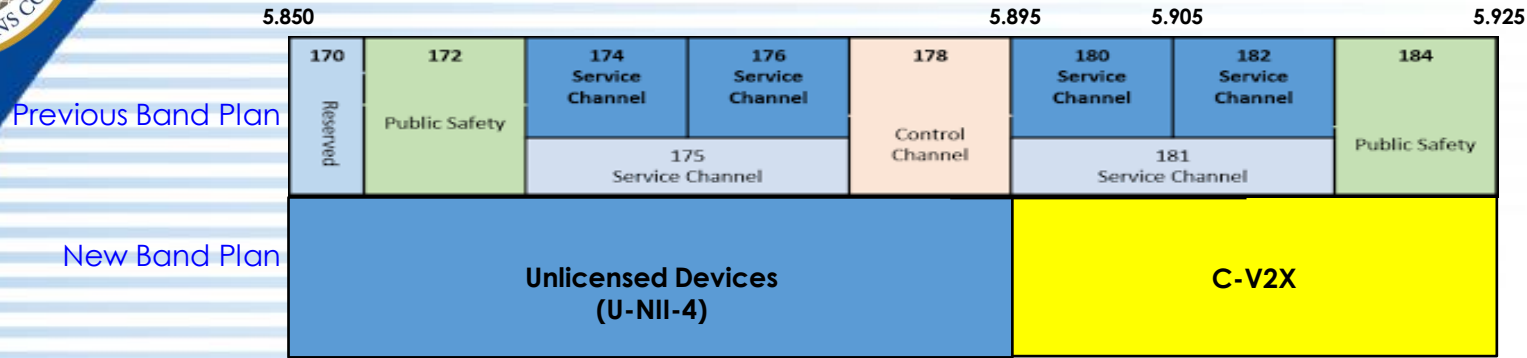


- Continued deployment in 3700-3800 MHz
  - Expanding beyond 46 PEAs designated for Phase 1
- Activities for Phase 2 on target
- FCC and licensees continue to work with FAA to deploy networks while ensuring safe flight operations

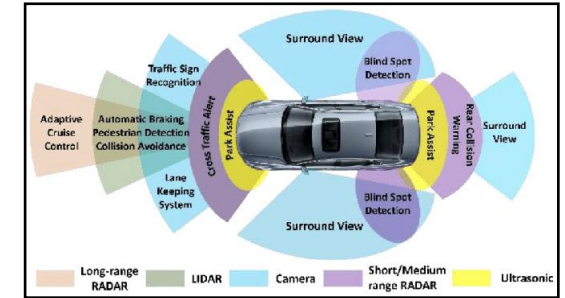




# Unlicensed devices in 5.9 GHz



Sensors & Comm. Equipment on Cars Today



- Indoor operation currently permitted; outdoor operation pending FNPRM
  - Technical rules and transition timeline for C-V2X
  - How to protect incumbent federal radiolocation sites
- DSRC systems out of lower portion of the band as of July 5, 2022
- Waivers for early transition to C-V2X pending
  - Joint Waiver Parties Request nationwide use of upper portion of the band for C-V2X
    - Open issues – power level, OOB, protection of federal sites
    - Actively being worked on; decision expected soon
    - Additional waivers pending would be expected to follow soon after

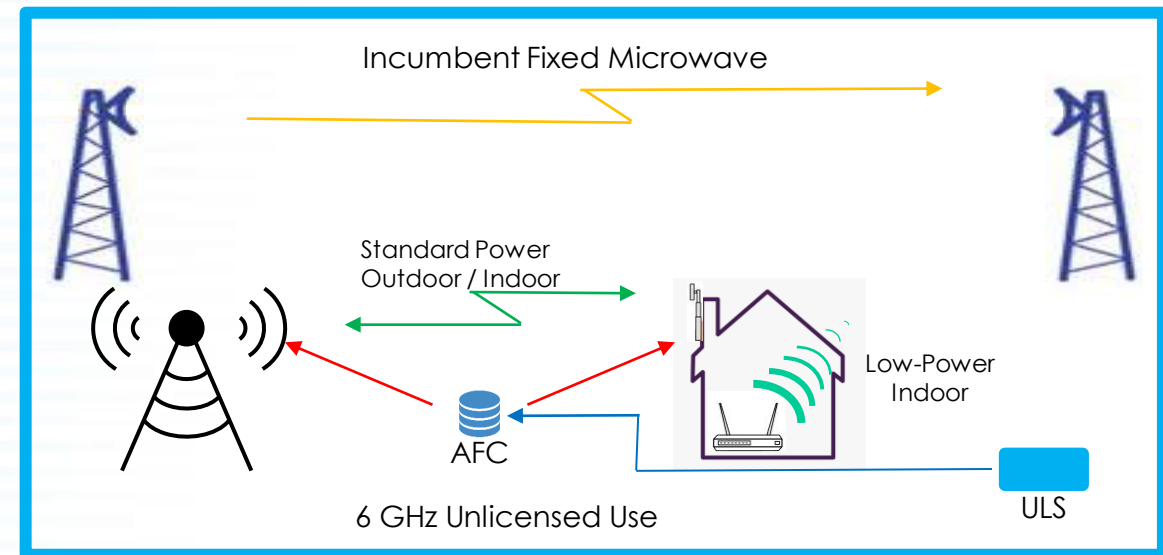
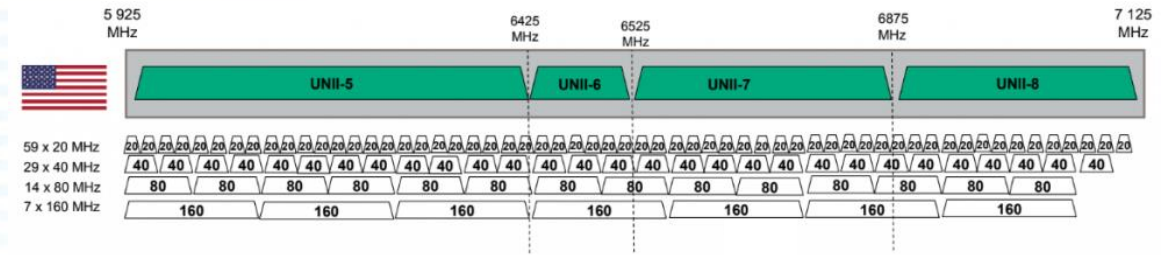




# 6 GHz

## Unlicensed Sharing with Fixed Microwave Links

- Low-power indoor use continues to expand
- AFC Approvals
  - Conditional approval for 13 entities
  - Certain test labs pre-approved for conducting AFC testing
  - Lab testing parameters still in development
  - Public testing process still in development
- Further Notice of Proposed Rulemaking
  - Permitting VLP operation
  - Increased LPI power
  - Mobile AFC
- Court remand – NAB issue re relying on contention based protocol
- Petitions for reconsideration
- Petition for rulemaking and stay
  - Revise LPI rules
  - Reimburse incumbents for interference monitoring and mitigation
  - Conduct field testing
  - Cease equipment certification
- Public Notice on client-to-client communications





## 4.9 GHz Band

- Order on Reconsideration rescinded state-by-state leasing rules
  - Remove risk of fragmenting the band
- 8<sup>th</sup> Further Notice of Proposed Rulemaking seeks comment on:
  - A framework to protect public safety users from harmful interference
  - Collecting more granular operational data and using with a formal coordination structure
  - Establishing interoperability requirements; over entire band or on certain channels
  - Implementing public safety priority and preemption should non-public safety users gain access to the band
    - Can excess capacity leasing or a dynamic spectrum sharing enable public safety and non-public safety use
  - Establishing a nationwide band manager
  - providing incentives to use the latest commercially available technologies
  - Expanding use of the band to non-public safety users
    - Shared Access Models
      - Excess capacity leasing
      - Database enabled sharing
      - Sharing through technical requirements
    - Licensing – exclusive vs non-exclusive
    - Unlicensed access



# 12 GHz Band

WT Docket No. 20-443

- **12 GHz band is 500 megahertz of mid-band spectrum between 12.2-12.7**
- **Currently licensed to DBS, NGSO, and MVDDS services**
  - NGSO and MVDDS must protect DBS operations
- **NPRM adopted January 15, 2021**
  - Extensive record, including technical studies show conflicting views regarding feasibility of permitting two-way mobile operations
    - DBS licensees have opposing views
    - MVDDS licensees are mixed
    - NGSO licensees are opposed
      - ESIMs permitted on unprotected, non-harmful interference basis
  - Commission continues to study the issue



# 12.7-13.25 GHz NOI

(GN Docket No. 22-352)

- Notice of Inquiry adopted October 27, 2022
  - Comments due December 12, 2022
  - Reply comments due January 10, 2023
- Broadly seeks information on:
  - current use
  - How the Commission can encourage more efficient and intensive use
  - Examine whether the band is suitable for mobile broadband or other expanded use
- Options for expanding use
  - Band sharing – static, dynamic, combination of the two
  - Relocate incumbent users
- How should new users be licensed?
- Adjacent band considerations



# Receiver Notice of Inquiry

- Adopted April 21, 2022
  - Comments due June 27; Reply comments due July 27
- Takes a fresh look at the role of receiver performance in the Commission's spectrum management responsibilities
- No proposals, but seeks:
  - Information to assist the Commission's as it considers steps it could take to promote more efficient spectrum use through improved receiver performance
  - Information on:
    - Receiver performance parameters
    - Managing the RF environment and how to accommodate changes
  - Comment on approaches for promoting increased receiver immunity performance
    - Industry led voluntary approaches
    - Commission and policy guidance
    - Receiver performance mandates
  - Comment on the current state of receiver technology and what advances are anticipated
  - Comment on how to address the installed base of receivers if changes are warranted



# Equipment Authorization

## Protecting Against National Security Threats

- Report and Order adopted November 11, 2022
- Prohibits authorizing all telecommunications and video surveillance equipment produced by Huawei and ZTE (and their subsidiaries and affiliates)
- Prohibits authorizing telecommunications equipment and video surveillance equipment produced by Hytera, Hikvision, and Dahua (and their subsidiaries and affiliates)
  - Prohibition continues until the Commission approves entities' measures to ensure equipment will not be marketed and sold for "the purpose of public safety, security of government facilities, physical surveillance of critical infrastructure, or other national security purpose"
- Entities on covered list must obtain equipment certification (SDoC is no longer permitted)
- Entities must attest that equipment is not covered equipment
- All entities seeking equipment certification must designate a U.S. based agent for service of process
- Freeze on equipment approvals for entities on the covered list until rules become effective
- Further Notice of Proposed Rulemaking
  - How to handle component parts
  - Should existing authorizations be revoked?
  - Should a U.S. based responsible party be required?
  - Possible revisions to competitive bidding program



# Offshore Spectrum Use NOI

(WT Docket No. 22-204)

- NOI adopted June 8, 2022
  - Comments were due July 27, 2022; Replies were due August 26 2022
- How to facilitate offshore commercial and private network development and support U.S. industrial and scientific needs
  - Gather information on offshore operation use cases / demand
  - The type of offshore uses that require spectrum
  - The appropriate spectrum bands for offshore uses
  - How to assign spectrum rights
    - Licensing / license-lite / unlicensed



# National Science Foundation Spectrum Innovation Initiative

- FCC / NTIA / NSF MOA to support the SII
- Goal is to promote dynamic and agile spectrum utilization, while ensuring innovation and security for all users
  - Involves: basic research, infrastructure development, new collaborations, public outreach, education and workforce development
- Funding for:
  - National Radio Dynamic Zones (NRDZ)
    - Establishing new pilot test ranges allowing dynamic spectrum sharing research and development for passive and active users
  - National Center for Spectrum Innovation and Workforce Development
    - Connecting spectrum researchers with the nationwide challenges and growing the spectrum workforce in support of industries of the future
  - Spectrum Research Activities
    - Promoting and developing the means for increased and more effective use of the spectrum for passive and active applications, especially activities of a cross-disciplinary nature
  - Education and Workforce Development
    - Encouraging the development of a skilled and diverse workforce through education and training programs.





# Other Ongoing Initiatives

- 60 GHz band rulemaking
- 70/80/90 GHz band rulemaking
- WRC preparation
- Updating equipment authorization standards
- Broadband mapping
- Direct satellite to mobile phone communications



**Questions ?**

**Thank you!**