



# Spectrum Proceedings & Part 15 Waivers

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October 25, 2023

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# 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)

- Three Reports and Orders adopted in 2015, 2016 and 2018
- Sharing 150 MHz in 3550-3700 MHz for flexible use between new Broadband Services, incumbent DoD Radar, and Commercial FSS.
- **Recent Developments of the band:**
  - The Commission approved RED SAS for full-scale commercial deployment in the 3.5 GHz band.



# 3.7-4.2 GHz Band (C-Band)

GN Docket No. 18-122

- Report and Order adopted February 28, 2020
- Repurposed lower 280 megahertz, plus a 20-megahertz guard band from fixed satellite service and fixed service to flexible use for mobile broadband
- **Recent Developments:**
  - Several Orders regarding Phase II certification of Accelerated Relocation Orders have been released which validate the phase II certification of Eutelsat, Embratel, Telesat, SES Americom. (DA-23-674, DA 23-568, DA 23-569, DA -23-567).



# 12 GHz Band

WT Docket No. 20-443, GN Docket 22-352

- The R&O, FNPRM, NPRM, and Order was adopted May 18, 2023.
- Addresses 500 megahertz of midband spectrum between 12.2-12.7 GHz and 550 megahertz of spectrum between 12.7-13.25 GHz.
  - 12.2-12.7 GHz band is Currently licensed to two DBS operators, but NGSO and MVDDS services can operate on a non-harmful interference basis.
  - 12.7-13.25 GHz band is Currently allocated on a primary basis for non-Federal use to the Fixed Services, the Fixed Satellite Service (earth-to-space), and Mobile Service.
- **Summary of R&O WT Docket 20-443 (May 19, 2023):**
  - Declined to add a mobile allocation to permit a two-way mobile broadband service in the 12.2 GHz band.
  - Directs WTB to determine whether MVDDS construction filings meet the safer harbor standard and if so to accept each of the pending filings.
  - Further directs WTB to reconsider denials of 2016 request to extend buildout deadlines for 22 MVDDS licenses, and to extend build out deadlines for 18 months from the items effective date.



# 12 GHz Band

## WT Docket No. 20-443, GN Docket 22-352

- **Further Notice of Proposed Rulemaking WT Docket 20-443**
  - Seeks comment on the potential to expand terrestrial fixed use of the 12.2 GHz band.
  - Also seeks comment on the possibility of allowing two-way point-to-multipoint fixed link service in the 12.2 GHz Band and if so, what technical parameters would be appropriate for such use.
  - Also seeks comment on whether there are opportunities to take advantage of technological advancements to accommodate expanded terrestrial capabilities in the band.
  - Explores and seeks comment on other methods to expand unlicensed use.
  - Specifically seeks comment on the use of Automated Frequency Coordination systems, which was adopted for unlicensed outdoor deployments in the 6 GHz band.
- **Notice of Proposed Rulemaking in GN Docket 22-352**
  - Makes several proposals for repurposing some or all of the 12.7 GHz band for mobile broadband and other expanded uses while conserving existing satellite systems and seeks comment on sharing methods to accomplish these proposals and the economic benefits of doing so
  - Proposes to repack mobile BAS/CARS incumbents to a discrete portion of the band and seeks comment.
  - Makes several proposals to revise rules regarding licensing which include dismissing New Space and earth station license applications, and new or major modifications to microwave, fixed, or mobile BAS and CARS stations with few exceptions



# 12 GHz Band

## WT Docket No. 20-443, GN Docket 22-352

- **Notice of Proposed Rulemaking in GN Docket 22-352 (Cont.)**
  - Sets out proposals to transition incumbent operations within the 12.7 GHz band and whether there are Cost-Sharing approaches to accomplish this goal.
  - Proposes to provide new technologically neutral licensing under the flexible-use part 27 rules and seeks comments on the appropriate block size for licenses with a preferred 100 MHz block size.
  - Proposes and seeks comment on other appropriate licensing requirements such as the Geographic license area sizes, Open Eligibility, Mutually Exclusive Applications, Mobile Spectrum Holding Policies.
  - Proposes several technical rules including adopting EIRP limits of +75dBm/ MHz for base stations, 43 dBm for mobile stations, and 55 dBm for transportable stations.
  - Proposes a PFD limit of -77 dBm/m<sup>2</sup> / MHz, measured at 1.5 meters above ground, at market boundaries
  - Seeks comment on the establishment of coordination zones to protect federal operations in the band and adjacent bands.
- **Order in GN Docket 22-352**
  - Seeks to gather detailed technical information about the nature of the current use of the band by incumbents.
  - BAS and CARS licensees under part 74 and 78 are directed to certify the accuracy of the information on their licenses.
  - Also seek information from incumbent licenses operating in the adjacent bands such as DBS, NGSO FSS, MVDDS, active spaceborne sensors, and ARNS.



# Allocation of Spectrum for Non-Federal Space Launch Operations

ET Docket No. 13-115

- **Second Report and Order and Second Further Notice of Proposed Rulemaking adopted on September 21, 2023 Commission meeting**
- **Summary of Report and Order**
  - Adopts a secondary non-Federal allocation for commercial space launch operations in the 2025-2110 MHz band and adds a non-Federal secondary mobile allocation to the 2200-2290 MHz band.
  - Removes the restriction on use of the 2200-2290 MHz secondary non-Federal space launch operation allocation to four specific sub-channels to make the entire 2200-2290 MHz band available.
  - Add a non-Federal secondary mobile allocation to the 2200-2290 MHz band. Adopts licensing and technical rules for commercial space launch operations in the 2025-2110 MHz and 2200-2290 MHz bands.
  - Revises US319 of the U.S. Table of Allocations to permit Federal space stations to operate in the 399.9-400.05 MHz band and directs OET to establish a new docket to explore other ways to expand Federal earth station access to non-Federal satellites.
- **Summary of Second FNPRM**
  - Seeks comment on:
  - Three additional frequency allocations requested by NTIA for emergency communications, communications between non-Federal space stations and the International Space Station, and suborbital operations.
  - On the use of the 2360-2395 MHz band and other bands for commercial space launch operations.



# 6 GHz Unlicensed

ET Docket 18-295

- **2<sup>nd</sup> R&O and 2<sup>nd</sup> FNPRM and MO&O (October 18, 2023) expanded unlicensed device rules in 850 megahertz of spectrum:**
  - In the 5.925-6.425 GHz and 6.525-6.875 GHz bands, very low power devices may operate at any location and are not subject to using the AFC.
  - VLP devices must meet the following requirements:
    - Restricted to maximum -5 dBm/MHz PSD.
    - Maximum EIRP limited to 14 dBm.
    - OOB limit to -27 dBm/MHz
    - VLP devices must employ Transmit Power Control, must not be deployed as part of a fixed outdoor infrastructure, and are required to prioritize operations above 6105 MHz prior to operating on the other available channels.
- **Proposed to permit a new class of geofenced very low power operation (indoors and outdoors) across entire 6 GHz Band:**
  - Geofenced VLP devices would use a frequency coordination system and would be permitted to operate at higher powers than currently permitted for VLP devices.
  - Also proposes VLP devices to operate in the U-NII-6 (6.424-6.525 GHz) and U-NII-8 (6.875-7.125 GHz) bands without the need for a geofencing system.





# 6 GHz Unlicensed (cont.)

## ET Docket 18-295

- Addresses a remand and finds unsubstantiated claims of interference from devices in the 2.4 GHz band do not warrant changes to the 6 GHz rules.
- **Public Notice**
  - DA 23-759 ET Docket No. 21-352: Formally announces commencement of Testing of the 6 GHz Band Automated Frequency Coordination System.
  - AFC Operator applicants currently under Public Trial testing include Broadcom, Qualcomm, Comscope, Sony, Federated Wireless.
  - Public Trial Testing for the AFC Operator applicants that will be completed by October 26, 2023



# 60 GHz Short-Range Radars NPRM

ET Docket No. 21-264

- R&O adopted May 2023
- R&O revised section 15.255 to permit unlicensed field disturbance sensor (FDS) devices to operate in the 57-71 GHz (60 GHz band)
- **Adopted changes include:**
  - Allows both mobile and fixed FDS / radars operation in the entire 60 GHz band
  - Clarifies the relationship between radars and FDS applications and modifies the rules to expand mobile FDS operations within the 60 GHz band.
  - Permits various EIRP levels along with duty cycles restrictions related to specific segments of the band.
  - Permits FDS operation for on-board unmanned aircraft (UA).



# 5.9 GHz Band

## ET Docket No. 19-138

- **5.9 GHz band (5.850-5.925 GHz) formerly reserved for Intelligent Transportation Systems**
- **Waiver Orders adopted regarding immediate deployment of CV2X operations (DA 23-586, DA 23-343, DOC-396083)**
  - Waives Commission rules applicable to ITS operations in the upper 30-megahertz portion of the band.
  - Waives current Dedicated Short-Range Communication (DSRC) rules to allow the use of Cellular Vehicle-to-Everything (C-V2X) in the upper 30-megahertz portion prior to the adoption of C-V2X rules.
  - C-V2X equipment operating under the provisions of the waiver orders would operate in the 5905-5925 MHz band using a single 20-megahertz channel.
  - Operations are limited to 33 dBm EIRP, 27 dBm EIRP within 5 degrees of the horizontal for OBUs, and 33 dBm EIRP for RSUs.
  - Operating entities permitted under these waiver orders are limited to certain operators such as State, local, and municipal transportation authorities, and specified equipment manufacturers.



# Recent OET Waiver Grants and Waiver Filings

- Information about waiver filings and decisional documents may be found on the Commission's website
  - The OET website includes headline links related to all Office activities : [www.fcc.gov/engineering-technology](http://www.fcc.gov/engineering-technology)
  - Commission and OET-level decisions may be found in the EDOCS system: [www.fcc.gov/edocs](http://www.fcc.gov/edocs)
  - Petitions and related comment may be found in the ECFS system: [www.fcc.gov/ecfs](http://www.fcc.gov/ecfs)
  - Decisions are references by FCC/DA #; Most proceedings may be found by Docket No.; Text/title search also available
- Recent waiver requests have reflected a variety of emerging technologies. Some examples include...



# Ground Penetrating Radar (GPR), mapping, measuring & industrial uses

- **Schlage Lock Company LLC DA 23-442/ ET Docket 22-248)** door lock device in the 6-10 GHz range for secure entry in residential environments. Waiver of Section 15.519(a) (Rule requires device to be handheld while operating) and 15.519(a)(2) Rule prohibits use of antenna mounted on outdoor infrastructure (Granted May 24, 2023)
- **DA 23-442 Waiver Conditions Include**
  - UWB sessions shall only proceed until either the system identifies the user's intent to open the door or the user leaves the area by exiting the perimeter.
  - The UWB session shall not activate until a Bluetooth Low Energy connection has been made and the user's access credential has been identified.
  - The ranging cycle occurs no more frequently than once every 100 milliseconds;
  - UWB operations shall be confined to the 6-10 GHz frequency range with an antenna that has its main beam in the azimuthal plane.
  - Schlage shall submit, annually for the first three years after the date of grant of this waiver, a report that identifies any known interference complaints and their resolution.
  - Schlage shall sell no more than 100,000 units per year.



# Ground Penetrating Radar (GPR), mapping, measuring & industrial uses

- **Geophysical Survey Systems, Inc. DA 23-650/ ET Docket 22-458)**  
GPR handheld analyzer device in the 30- 6000 MHz range. Waiver of the measurement procedures in sections 15.503(d), 15.31(c), and 15.521(d) of the Commission's UWB rules to permit the certification and marketing (Granted July 31, 2023).
- **DA 23-650 Waiver Conditions Include**
  - The GSSI GPR device shall operate with stepped frequency CW modulation in 1-40 megahertz steps between 30-6000 MHz.
  - The GSSI GPR device dwell time on any one frequency shall not exceed 2 microseconds.
  - The dwell time during any step of the GSSI GPR shall not exceed 0.04 percent of the devices minimum scan/cycle rate
  - For certification testing, the measurement of emissions from the GSSI GPR device shall be conducted with the stepping function active for all possible frequency step sizes.
  - The entities permitted to operate the GSSI GPR device are limited to those specified in Section 15.509(b) of the Commission's rules.
  - Sales of the GSSI GPR device authorized under this waiver are subject to an annual limit of 5,000 devices for each of the first two years and 10,000 devices each year thereafter.



# Other Waiver Requests

- **Liberty Defense (Open ET Docket 23-245)** seeks waivers of rules related to measurements, and restricted band operations (15.31(c), 15.35(b), 15.205(a)) for its HD-AIT weapons/threat detection system.
- **Continental (Open ET Docket 22-382)** Requires a waiver of the Commissions rules for periodic operation of intentional radiators above 70 MHz to certify its new tire pressure monitoring system operating in the 315 MHz and 433 MHz band. Seeks a waiver of the periodic timing requirement of Section 15.231(e) that establishes provisions for the timing of and the duration of each transmission.
- **Extreme Networks (Open ET Docket 23-282)** Requires a waiver of the Commissions U-NII rules for operations of transmitters in certain indoor locations and stadium environments. Seeks a waiver of definitional requirements Section 15.403 that establishes the bounding provisions for indoor access points.



# Other Waiver Requests

- **BlueWind Medical (Open ET Docket 23-27)** filed a waiver of Commission Section 15.223 rules to obtain a certification grant to permit its implantable medical device, operating on the center frequency of 6.78 MHz, to exceed the 1.705-10 MHz band emissions limits.





Questions ?

Thank you!