



FCC Regulatory Update



Federal Communications Commission
United States of America

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Committee on Radio Frequencies
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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



Recent Commission Activities

- Sept 2024 –
 - **Freeing Up Spectrum to Support Satellite Broadband Service**
- Nov 2024 –
 - **C-V2X Auto Safety Spectrum rules**
- December 2024
 - **Expanding Unlicensed Use of the 6 GHz Band**
- Feb 2025
 - **Exploring New Uses for Mid-Band Spectrum in the Upper C-band**
- March 2025
 - **RE: DELETE, DELETE, DELETE**
 - **Exploring Alternatives to GPS**
- April 2025
 - **Modernizing Spectrum Sharing for Satellite Broadband**
 - **Utilizing the Lower 37 GHz Band**
- May 2025
 - **Opening Up Spectrum for Satellite Broadband**



Freeing Up Spectrum to Support Satellite Broadband Service

- Report and Order adopted on September 27, 2024
- Provides 1300 megahertz of spectrum in the 17 GHz band for non-geostationary satellite orbit (NGSO) space stations in the fixed-satellite service (FSS) while also protecting incumbent operations. The Order provides a more cohesive global framework for FSS operators and maximizes the efficient use of the 17 GHz band spectrum. (IB Docket No. 22-273)
- Specifically permit use of the 17.3-17.7 GHz band by NGSO space stations in FSS, space-to-Earth direction on a co-primary basis with incumbent services and on a shared, co-primary basis with GSO space stations.
- Also permits NGSO FSS downlink use of the 17.7-17.8 GHz band on a co-primary basis with GSO FSS operations and on an unprotected basis with respect to terrestrial fixed services.
- Earth Station in Motion (ESIMs) is allowed to receive from NGSO FSS on an unprotected basis.



C-V2X for Intelligent Transportation Systems

- Rules adopted November 2024: Codify final C-V2X technical and service rules
 - Generally consistent with parameters in existing waivers
 - Waiver recipients would not have to make changes to currently deployed systems
 - Channel Plan
 - Three 10-megahertz channels that can be used individually or combined to 20 megahertz or 30 megahertz channels
 - Power limits
 - RSU: 33 dBm
 - OBU (generally):
 - » Upper 20 megahertz: 33 dBm except 27 dBm EIRP within 5 degrees of horizontal
 - » Lower 10 megahertz: 23 dBm
 - Optional geofencing for OBUs
 - Permits higher power when operating outside federal radar protection zones – 33 dBm on all channels
 - Out-of-band emission limits
 - Message prioritization for safety of life communication
 - Two-year sunset period for existing DSRC systems



Unlicensed Use of the 6 GHz Band (5.925-7.125 GHz)

Third Report and Order adopted on December 11, 2024 (FCC 24-125, ET Docket No. 18-295) expands very low power devices into U-NII-6 (6.425-6.525 MHz) and U-NII-8 (6.875-7.125 MHz)

Device Class	Operating Bands	Maximum EIRP (based on 320 megahertz channel)	Maximum EIRP Power Spectral Density
Standard-Power Access Point (AFC Controlled)	U-NII-5 (5.925-6.425 GHz) U-NII-7 (6.525-6.875 GHz)	36 dBm	23 dBm/MHz
Client Connected to Standard-Power Access Point		30 dBm	17 dBm/MHz
Low-Power Access Point (indoor only)	U-NII-5 (5.925-6.425 GHz) U-NII-6 (6.425-6.525 GHz) U-NII-7 (6.525-6.875 GHz) U-NII-8 (6.875-7.125 GHz)	30 dBm	5 dBm/MHz
Client Connected to Low-Power Access Point		24 dBm	-1 dBm/MHz
Very Low Power (VLP)	U-NII-5 (5.925-6.425 GHz) U-NII-6 (6.425-6.525 GHz) U-NII-7 (6.525-6.875 GHz) U-NII-8 (6.875-7.125 GHz)	14 dBm	-5 dBm/MHz

- There are 8 automated frequency coordination (AFC) systems approved to manage standard-power devices.
- Waiver approved to permit AFC systems to assume 6 dB of building loss for composite low power indoor/standard-power access points; expanded coverage and/or increased data rates.
- Commission has proposed to permit very low power devices to increase power if used with a geofencing system that prevents operations in locations with increased harmful interference risk.
- Commission proposed to permit client devices to directly communicate.



Exploring New Uses for Mid-Band Spectrum in the Upper C-band

- Notice of Inquiry adopted on Feb. 28, 2025
- Explores whether, and if so how, we could free up additional mid-band spectrum for new services in the Upper C-band to meet projected spectrum demand, spur economic growth, and advance American security interests. (GN Docket No. 25-59)
- In 2020, the lower portion of the C-band (3.7-3.98 GHz) was auctioned for flexible wireless use and this NOI looks to build off those successes by inviting comment on new opportunities for robust connectivity in the upper C-band.
- This NOI broadly seeks comment whether the Commission should make some or all of the 3.98-4.2 GHz portion of the band (Upper C-band) available for more intensive use.



Re: Delete, Delete, Delete Proceeding

- FCC opened a new docket in which the agency seeks comment on every rule, regulation, or guidance document that the FCC should eliminate for the purposes of alleviating unnecessary regulatory burdens.
- Seeks public input on identifying FCC rules for the purpose of alleviating unnecessary regulatory burdens.
- Seeks comment on deregulatory initiatives that would facilitate and encourage American firms' investment in modernizing their networks, developing infrastructure, and offering innovative and advanced capabilities.



Exploring Alternatives to GPS

- Notice of Inquiry adopted on March 27, 2025
- Engages a wide range of stakeholders to build a record on specific actions it can take to help develop complements and alternatives to the Global Positioning System with the goal of ensuring robust and reliable Positioning, Navigation, and Timing technologies and solutions. (WT Docket No. 25-110)
- Goal of the NOI is to build a record on specific actions the Commission can take to incentivize and support industry efforts to develop complementary PNT technologies and solutions for civil use that may be used in conjunction with GPS to form a resilient and secure PNT system of systems.
- Seek comment on both complementary and alternative PNT technologies and solutions that may better achieve PNT resilience nationwide.



Modernizing Spectrum Sharing for Satellite Broadband

- Notice of Proposed Rulemaking adopted on April 28, 2025 (FCC 25-23; SB Docket 25-157) addressing GSO and NGSO satellite sharing of 10.7-12.2 GHz, 17.3-18.6, and 19.7-20.2 GHz bands; also seeks comment on other bands with ITU EPFD limits
- Under current rules GSO systems have priority in most bands. NGSO systems must meet EPFD limits adopted by ITU in 2000 to protect GSO satellites from interference.
 - EPFD is the PFD received at a receiver (either earth station or satellite) with specified reference antenna.
- NPRM proposes that FCC adopt short-term and long-term protection criteria to assess interference into modern, realistic, GSO reference links.
 - Tentatively concludes that a degraded throughput methodology is a better alternative to EPFD for GSO satellites using adaptive coding and modulation (ACM).
- NPRM asks many questions regarding sharing methodologies:
 - If a modern NGSO system meets current limits, what are effects on GSO satellite regarding loss of throughput or increase in unavailability? How does this compare to other interference sources?
 - What are representative reference links for modern GSO systems? (use of ACM or not, antenna patterns, rain and interference margins, noise temperature)
 - What methodology is appropriate to protect GSO links (whether they use ACM or not)?
 - How can aggregate interference from multiple NGSO networks be addressed?
 - If limits less restrictive, could NGSO systems offer higher capacity or better services?
 - How can the FCC assess compliance with any new NGSO-GSO sharing framework?



Utilizing the Lower 37 GHz Band

- Report and Order, Sixth Report and Order, and Further Notice of Proposed Rulemaking adopted on April 28, 2025 (FCC 25-24, WT Docket No. 24-243; GN Docket No. 14-177)
- Lower 37 GHz band (37-37.6 GHz) is shared between Federal and non-Federal users
- Non-Federal licensing is two-step process: 1) nation-wide non-exclusive license 2) site-based registration
- Two-phase coordination process for site-based registration:
 - Generate interference contour of -110 dBm/100 MHz for site based on Irregular Terrain Model and compare with contours of previously registered sites. No overlap of interference contours = success
 - If overlap, then direct coordination with existing site operator to determine if feasible to deploy
- Military systems will have priority in 37-37.2 GHz portion of band. Non-Federal operators must modify or cease operations that conflict with subsequent military operations.
- Further Notice seeks comment on adopting more stringent emission limits into adjacent 36-37 MHz band and potential improvements in Phase One coordination, as well as development of Dynamic Spectrum Management System (DSMS).



Opening Up Spectrum for Satellite Broadband

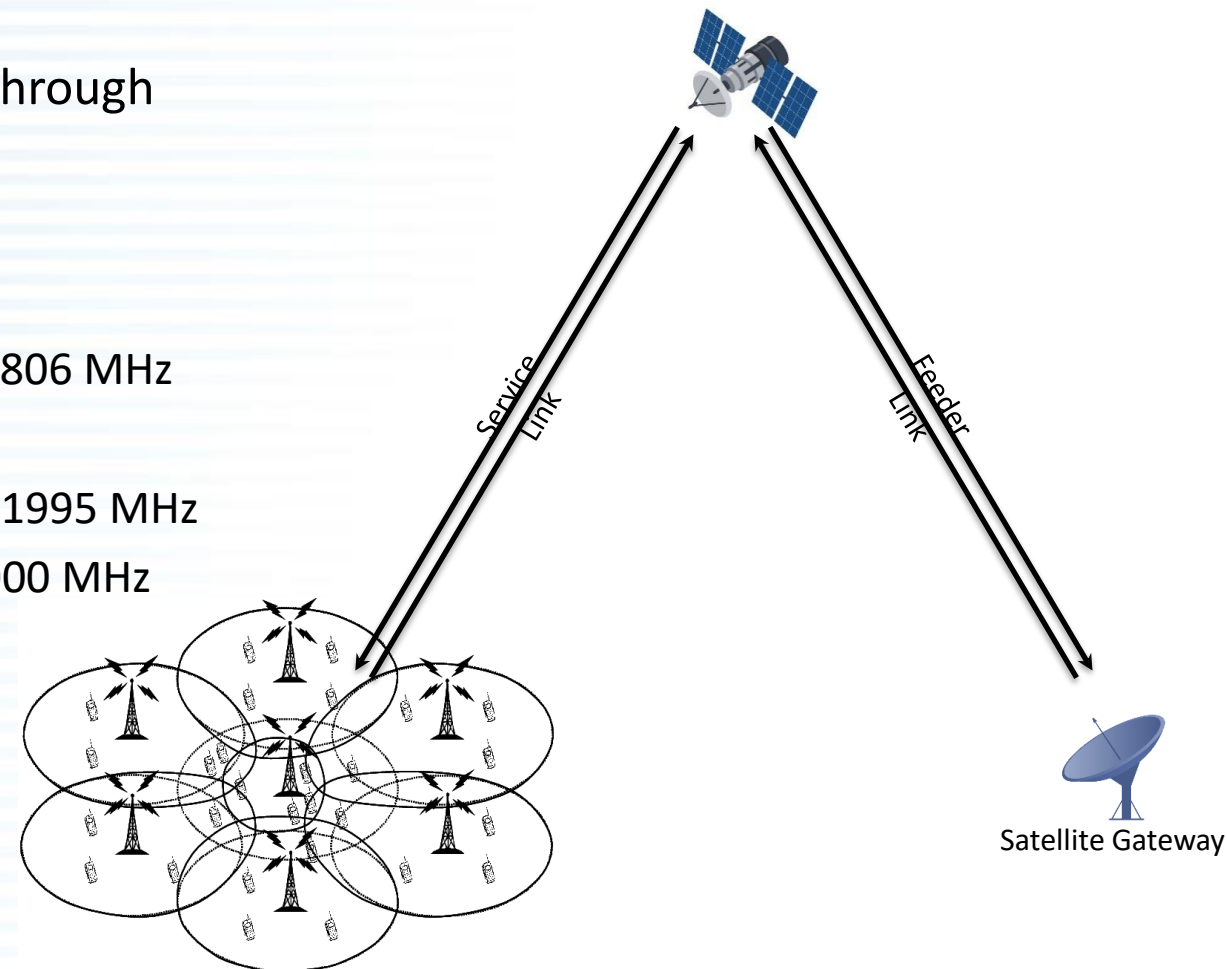
- The Commission will consider a Further Notice of Proposed Rulemaking during the May 22nd Commission Meeting
- Explores ways that the 12.7-13.25 GHz and 42-42.5 GHz bands could be used more intensively by satellite communications, as an alternative or a complement to the previous proposals for terrestrial wireless communications in these bands. (GN Docket No. 22-352, WT Docket No. 23-158, GN Docket No. 14-177)
- Examine ways to eliminate regulatory restrictions that prevent intensive satellite use of the 12.7 GHz band, both by geostationary orbit (GSO) and non-geostationary orbit (NGSO) systems.
- Invites comment on creating an allocation for fixed-satellite service (FSS) in the “greenfield” 42 GHz band.
- Explores expanding the use of the 12.7 GHz band by Earth Stations in Motion (ESIM) and blanket-licensed earth stations.
- Consider the feasibility of allowing satellite communications in the 12.7 GHz and 42 GHz bands in both the Earth-to-space and space-to-Earth directions.
- Seek comment on ways to protect incumbent spectrum users in the 12.7 GHz band, as well as ways to protect spectrum users, particularly Federal operators, in adjacent bands.



Supplemental Coverage From Space

Rules adopted March 2024

- Terrestrial licensees can expand coverage through collaboration with satellite operator
- Mobile Satellite Allocation added:
 - 600 MHz: 614-652 MHz and 663-698 MHz
 - 700 MHz: 698-769 MHz, 775-799, and 805-806 MHz
 - 800 MHz: 824-849 MHz and 869-894 MHz
 - Broadband PCS: 1850-1915 MHz and 1930-1995 MHz
 - AWS H-Block: 1915-1920 MHz and 1995-2000 MHz
- No modifications to mobile phones
- Limited to licensees holding all licenses within a geographic independent area
- Ongoing work to ensure radio astronomy sites are protected
- Experimental licenses issued for testing in Australia, New Zealand, Japan, Canada
- SpaceX petition for reconsideration and waiver request to relax OOB limits (waiver was granted on March 7, 2025)
- T-Mobile and SpaceX waiver request on the Part 25 device certification rules (April 9, 2025)





Advanced Air Mobility

- Notice of Proposed Rulemaking adopted January 2025
- Advanced Air Mobility (AAM) is rapidly evolving and includes novel kinds of propulsion and flight controls and which are expected to rely increasingly on automated technologies for either crewed or uncrewed platforms
- Proposes:
 - For the spectrum currently used for commercial aviation air-ground service (650 kilohertz), to add a primary Aeronautical Mobile (Route) Service ((AM(R)S)) allocation in the 450 MHz band for UAS control and non-payload communications (CNPC) operations
 - Modify licensing from site-based to nationwide license
 - Currently only a single licensee holds all site-based licenses in the band
 - To modify band plan from 12 frequency pairs to a single block each for uplink and downlink
 - Performance metrics – reliable coverage at
 - High altitude – 25,000 feet – generally for aircraft
 - Low altitude – 400 feet – generally for UAS
 - Expand operations in 24.45–24.65 GHz band for operations secondary to airborne or ground-based detect and avoid systems to provide more flexibility for ground-based UAS detection systems
 - Examine power levels for commercial aviation air-ground service to facilitate delivery of broadband services



5030-5091 MHz – Uncrewed Aircraft Systems (UAS)

Report and Order adopted August 2024

- Initial phase – non-networked access (NNA); i.e., line-of-sight UAS
 - Only control-and-non-payload communications (CNPC) links permitted
- New Part 88 for UAS frequency assignments and service rules in 5 GHz band
- Definition (consistent with FAA): UAS is a UA and its associated elements (including an uncrewed aircraft station, communication links, and the components not on board the UA that control the UA) that are required for the safe and efficient operation of the UA in U.S. airspace
- Access controlled by database – Dynamic Frequency Management System (DFMS)
 - Must have nationwide capability
 - Must have capability for assigning use across entire 5030-5091 MHz range
- 10-megahertz block at 5040-5050 MHz designated for NNA UAS; interim placement pending additional study
 - Away from edges protects adjacent band services
 - 20-megahertz at 5040-5060 MHz permitted for use until DFMS are certified; interim access mechanism
 - Simple registration process
- Technical requirements
 - RTCA DO-362A standard's equipment and operational performance requirements
 - Power, bandwidth, TDD, out-of-band emission limits
 - Time division duplexing required

- Networked operations for beyond LOS operations to be considered in a future Order



Space Launch Updates

- Launch Communications Act adopted September 26, 2024
 - Requires allocation of 2025-2110 MHz, 2200-2290 MHz, and 2360-2395 MHz on secondary basis for commercial launches and reentries within 90 days
 - Adopt service rules for commercial launches & reentries within 90 days
 - Adopt rules to streamline process of granting access for commercial space launch operations within 180 days
- In December 2024, FCC adds secondary allocation for 2360-2395 MHz for space operations (FCC 24-132)
 - Allocations for 2025-2110 MHz and 2200-2290 MHz previously adopted
 - 3 frequencies in 2360-2395 MHz were previously available for telemetry & telecommand of space launch vehicles
- In December 2024 also expanded Part 26 service rules that were previously adopted for 2025-2110 MHz & 2200-2290 MHz to the 2360-2395 MHz band
 - Launch operators receive nationwide 10-year license. Must coordinate each launch.
- March 2025, WTB PN on coordination procedures (DA 25-270)
 - Details on coordination request, coordination process for each band.
- March 2025 WTB PN on selecting frequency coordinator (DA 25-269)



Update on Part 15 Waivers

- 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. Requires waivers of Commissions rules related to measurement and spurious emissions to transmit across 10-40 GHz range (Granted January 16, 2025).
- Kontur, AS's (Open ET Docket 24-209) Seeks waivers of rules related to measurements, and UWB operations (15.31(c), 15.503(d), 15.521(d)) for a ground penetrating radar (GPR) device. Requires waivers of the Commissions UWB rules for GPR operations with stepped frequency CW modulation between 30-6000 MHz. (Granted January 16, 2025).
- Zebra Technologies (Open ET Docket 20-17) Seeks modification of our October 19, 2021, Order that granted Zebra a limited waiver of the Commission's part 15 rules. Requires waivers of the Commissions UWB rules (15.503 and 15.519) to use the 7125-7900 MHz band to track persons, assets, or equipment over a range of 100 meters (Granted December 5, 2024).



Update on Part 15 Waivers

- Extreme Networks (Open ET Docket 23-282) Seeks a waiver of definitional requirements Section 15.403 that establishes the bounding provisions for low power indoor (LPI) access points. Requires a waiver of the Commission's U-NII rules for operations of transmitters in the 6 GHz band (5.925-7.125 GHz) in certain indoor locations and stadium environments (Granted December 5, 2024).
- Axon Enterprise (Open ET Docket 24-40) Seeks waivers of rules related to operations in the 5725-5850 MHz band (15.247(a) and 15.247(d)). Requires waivers of the Commission's rules to permit its analog-modulated devices to operate at the same transmit power permitted for digitally modulated frequency hopping devices and at slight exceedance of the OOB limits (Granted December 5, 2024).
- Continental (Open ET Docket 22-382) Seeks modification of our December 19, 2023, Order that granted Continental a limited waiver of the Commission's part 15 rules. Requires a waiver of the Commission's rules for periodic operation of intentional radiators above 70 MHz (15.231(e)) to certify its TPMS operating in the 315 MHz and 433 MHz band (Granted October 11, 2024).



Thank You!