

WAIVER REQUESTS

As a part of its iterative approach to satellite design and development, SpaceX continues to seek innovative and more efficient uses of spectrum to achieve its mission to ensure that everyone can access high-quality broadband service and ubiquitous mobile connectivity wherever they live, work, or travel. To that end, as a part of its request to modify the authorization for its second-generation (“Gen2”) system, SpaceX requests limited waivers of the Commission’s rules to enable the upgraded Gen2 system to deliver gigabit-speed, low-latency broadband to all Americans and to help close the digital divide for people around the world who still lack adequate broadband, all while protecting incumbent operators from harmful or unacceptable interference.

Pursuant to Section 1.3 of the Commission’s rules, the Commission may waive its rules for good cause shown.¹ “Waiver is appropriate if special circumstances warrant a deviation from the general rule and such deviation would better serve the public interest than would strict adherence to the general rule,” including “more effective implementation of overall policy.”² In determining whether waiver is appropriate, the Commission should take into account “considerations of hardship, equity, or more effective implementation of overall policy.”³ As shown below, there is good cause for the Commission to grant a waiver, to the extent necessary, of various limitations in the Commission’s Schedule S, and to grant a waiver of Section 2.106 and various portions of Part 25 of the Commission’s rules.

¹ 47 C.F.R. § 1.3; *see also* *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969); *Ne. Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990).

² *GE American Communications, Inc.*, 16 FCC Rcd. 11038, ¶ 9 (IB 2001) (quoting *WAIT Radio*, 418 F.2d at 1159).

³ *WAIT Radio*, 418 F.2d at 1159.

1. Waiver of Section 2.106—Table of Frequency Allocations

To ensure that Americans have access to fiber-like, low-latency broadband wherever they live, work or travel, and to maintain American competitiveness in a rapidly evolving global satellite market, SpaceX requests, as necessary, a waiver of Section 2.106 of the Commission’s rules to use specific frequency bands to the extent those uses do not conform to either the U.S. Table of Frequency Allocations or the International Table of Frequency Allocations.

The Commission has recognized that “there may be benefits associated with operations not consistent with the current International Table of Frequency Allocations in certain circumstances.”⁴ Waivers of such allocations are generally granted “when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.”⁵ The Commission has permitted non-conforming uses where the operator agrees to comply with established technical limits known to protect other authorized services.⁶ Finally, the Commission has found that a waiver of the Table of Frequency Allocations is appropriate when an operator seeking the waiver has undertaken efforts to update the table.

Waiving the Table of Frequency Allocations to permit non-conforming use of frequency ranges in the Ku- and V-band would promote the public interest by dramatically enhancing the quality, coverage, and reliability of next-generation satellite service for consumers in the United States and abroad without causing harmful interference to other authorized services. Importantly,

⁴ *Expediting Initial Processing of Satellite and Earth Station Applications*, 38 FCC Rcd. 8838, ¶ 26 (2023).

⁵ *The Boeing Company*, 16 FCC Rcd. 5864, ¶ 9 & n.20 (IB & OET 2001) (“*Boeing Authorization*”) (citations omitted) (quoting *Fugro-Chance, Inc.*, 10 FCC Rcd. 2860, ¶ 2 (IB 1995)); *Letter from Jose P. Albuquerque & Mark Settle to Suzanne Malloy*, 30 FCC Rcd. 4841, 4842 (IB & OET 2015).

⁶ *See, e.g., ContactMEO Communications, LLC*, 21 FCC Rcd. 4035, ¶¶ 1, 26-27, 39 (IB 2006) (permitting NGSO FSS downlinks, from three or four satellites, in a GSO FSS band, conditioned on compliance with Article 22’s EPFD limit); *Northrop Grumman Space & Mission Systems Corporation*, Order and Authorization, 24 FCC Rcd. 2330, ¶¶ 71, 76, 90 (IB 2009) (same).

SpaceX has focused its requests primarily on finding innovative ways to enhance the downlink capabilities of the Gen2 system across the Ku- and V-bands to promote the delivery of high-quality content and real-time services, most pressingly in areas that lack access to robust and reliable terrestrial fiber networks. Doing so will not only support bandwidth-intensive applications for consumers but will also ensure that American industries can access dedicated, fiber-like capacity even in the most remote corners of the country.

Until such time that the Commission or ITU updates the service allocations in these frequency bands to permit the satellite services requested herein, SpaceX will operate in these bands on a non-interference, non-protected basis with respect to authorized services in these bands, and designed its upgraded system to efficiently share the spectrum with other satellite providers that may seek to use the bands. For avoidance of doubt, in situations where the Table of Frequency Allocations *has* allocated a frequency band for Fixed-Satellite Service (“FSS”) or Mobile-Satellite Service (“MSS”) in some regions but not others—e.g., internationally but not in the United States, or in Region 2 but not Regions 1 or 3—the Gen2 Modification requests access to those frequency bands consistent with their primary and/or secondary frequency allocations. SpaceX thus limits its waiver request below to the extent that operating a satellite system in a frequency band does not conform to the U.S. or International Table of Frequency Allocations, as applicable.

A. Ku-Band Frequencies

12.70-12.75 GHz. The Gen2 Modification requests authority for Gen2 space stations to transmit in the 12.70-12.75 GHz band, which is allocated for FSS downlink in Regions 1 and 3 on a co-primary basis. The Commission is currently considering a proposal for such an allocation in the United States as well.⁷ Because the Commission has not yet allocated the band to the FSS

⁷ *Satellite Spectrum Abundance*, 40 FCC Rcd. 3794, ¶ 29 (2025) (“*Spectrum Abundance NPRM*”).

downlink, SpaceX requests a waiver of the U.S. Table of Frequency Allocations, as necessary, to transmit in the 12.70 –12.75 GHz band in the United States as well. This underutilized spectrum is particularly suitable for next-generation satellite service, as it lies immediately adjacent to the 10.7-12.7 GHz downlink band that SpaceX deployed in its phased array terminals for millions of consumers around the world. The Commission unanimously reaffirmed the crucial role that the adjacent 10.7-12.7 GHz downlink band plays in delivering high-speed, low-latency satellite broadband to Americans across the country.⁸ The 10.7-12.7 GHz downlink band also increasingly supports critical American industries such as maritime, aviation, agriculture, and telecommunications, as well as federal, state, and local government users, from community anchor institutions to first responders. Outside the United States, the 10.7-12.7 GHz band has allowed U.S.-licensed satellite companies to maintain America’s pole position as a wireless leader—indeed, SpaceX’s satellite network alone serves people in over 160 markets using this spectrum today.

Enabling additional contiguous spectrum to support advanced services, such as high-speed broadband access, is a Commission priority.⁹ To that end, the Commission proposed to increase flexibility in the 12.70-12.75 GHz band by adding an FSS downlink allocation.¹⁰ From a technical perspective, granting a waiver to operate in adjacent or near-adjacent spectrum would allow SpaceX to efficiently upgrade its existing hardware to make productive use of underused bands for consumers. Authorizing additional Ku-band spectrum thus would allow SpaceX to efficiently

⁸ *Modernizing Spectrum Sharing for Satellite Broadband*, FCC 26-26, ¶¶ 11-12 (rel. May 1, 2026).

⁹ *See Spectrum Abundance NPRM* ¶¶ 24, 26; *Amendment of Parts 2 and 25 of the Commission's Rules to Enable NGSO Fixed-Satellite Service (Space-to-Earth) Operations in the 17.3-17.8 GHz Band*, 39 FCC Rcd. 11196, ¶ 1 (2024) (“17 GHz Order”) (“Our action today provides a contiguous 1300 MHz of spectrum for NGSO FSS downlink operations, allowing for technologically innovative and enhanced satellite services to the benefit of American consumers.”).

¹⁰ *Spectrum Abundance NPRM* ¶ 27.

increase aggregate system capacity, improve service continuity in areas where other bands are congested or constrained, and enhance the ability of its Gen2 system to deliver low-latency, high-speed connectivity to consumers, enterprises, public-sector users, and unserved or underserved communities. Flexible use of spectrum facilitates efficient and intensive use benefiting the millions of Americans who rely on satellite broadband services.¹¹

12.75-13.25 GHz. SpaceX proposes to use the 12.75-13.25 GHz band for downlink FSS transmissions and seeks a waiver of the U.S. and International Tables of Frequency Allocation as necessary. Like the 12.70-12.75 GHz frequency range, the Commission recently sought comment on whether it should adopt a downlink allocation for the adjacent 12.75-13.25 GHz band.¹² The record reflects industry and public interest support for opening the entire 12.70-13.25 GHz band for downlink operations to complement the 10.7-12.7 GHz band.¹³ In the *Spectrum Abundance NPRM* the Commission stated that the 12.75-13.25 GHz band has been allocated globally for FSS (uplink) on a co-primary basis, but remains lightly used in part because it lies immediately adjacent to heavily used downlink operations, providing no duplex gap for reliable frequency-division duplex (FDD) operations. However, as stakeholders have demonstrated, these restrictions artificially limit FSS deployments in the band and unduly limit the benefit that this spectrum could have for American consumers.¹⁴ Accordingly, the Commission should grant SpaceX’s requested

¹¹ See *Spectrum Abundance NPRM* ¶ 29. See also *17 GHz Order* ¶ 1 (“Our action today provides a contiguous 1300 MHz of spectrum for NGSO FSS downlink operations, allowing for technologically innovative and enhanced satellite services to the benefit of American consumers.”).

¹² See *Spectrum Abundance NPRM*, ¶¶ 19-22.

¹³ See, e.g., Letter from New America’s Open Technology Institute and the International Center for Law and Economics, to Marlene H. Dortch, Secretary, FCC, SB Docket Nos. 25-180, 25-157, 25-306 (filed Feb. 13, 2026); Reply Comments of the Commercial Space Federation, SB Docket No. 25-180 (Aug. 26, 2025).

¹⁴ See, e.g., Comments of Open Technology Institute at New America and Public Knowledge, SB Docket No. 25 - 180, at 6-7 (July 28, 2025); Comments of Kuiper Systems LLC, SB Docket No. 25-180, at 3-7 (July 28, 2025) (“Amazon Comments”); Comments of Logos Space Services, Inc., SB Docket No. 25 -180, at 3-7 (July 28, 2025) (“Logos Comments”); Letter from Dave Cavossa, Commercial Space Federation, to Marlene H. Dortch, Secretary, FCC, SB Docket No. 25-180, at 2-4 (Aug. 26, 2025).

waiver to operate downlinks across the full 12.7-13.25 GHz range so that it can swiftly expand the quality and capacity of the Gen2 System for American consumers and for people around the world.

B. V-Band Frequencies

42.0-42.5 GHz. SpaceX seeks a waiver of the U.S. Table of Frequency Allocations to permit NGSO FSS downlink operations in the 42.0-42.5 GHz band in the United States, which would unlock additional spectrum to connect more individual, enterprise, industrial, and government users—including first responders—to higher-quality broadband service without causing harmful interference to any other users.

In its *Spectrum Abundance* proceeding, the Commission unanimously proposed authorizing downlink FSS in this greenfield spectrum because of advances in satellite technology and explosive growth in broadband demand.¹⁵ The Commission recognizes that FSS service in the 42.0-42.5 GHz band would meaningfully extend the existing 37.5-42.0 GHz FSS downlink allocation to support a range of use cases, including individually licensed earth stations for next-generation satellite backhaul. The record in the proceeding demonstrates strong support for adding an FSS allocation to this band.¹⁶ Moreover, the Commission has since granted several operators' space station licenses to use this spectrum for downlink operations both domestically and internationally.¹⁷

SpaceX can readily coexist with other in-band and adjacent-band users of the 42.0-42.5 GHz band. Free space path loss, atmospheric attenuation, and limited penetration work together to significantly limit the risk of interference, enabling terrestrial links and satellite earth stations to

¹⁵ See *Spectrum Abundance NPRM* ¶¶ 3, 46.

¹⁶ See Amazon Comments at 3-5; Logos Comments at 5-7; Comments of the Computer & Communications Industry Association (CCIA), SB Docket No. 25-180, at 2-4 (July 28, 2025).

¹⁷ See *Space Bureau Opens Processing Rounds*, Public Notice, DA 26-552, at 2-4 (rel. June 5, 2026) (discussing authorizations).

operate in close proximity, even within tens of meters. For downlink operations in the 42.0-42.5 GHz band, SpaceX's satellite systems have many tools at their disposal to mitigate interference risk into both active and passive services on the ground. For example, SpaceX entered into a coordination agreement with the National Science Foundation, under which the parties developed a cutting-edge boresight avoidance technique that enables efficient use of spectrum without causing interference to radio astronomy observatories.¹⁸

2. Waiver of Section 25.114(a)(1): Limitations in Schedule S

As required by the Commission's rules,¹⁹ SpaceX submitted with this application a completed Schedule S, which contains certain technical information in a prescribed form. But SpaceX has found that it cannot accurately describe its system in certain respects due to limitations in Schedule S itself. Below SpaceX discusses four aspects of the amended Gen2 system that fall into this category. To the extent necessary, SpaceX requests that the Commission waive these aspects of Schedule S in light of these limitations.

First, as with the currently licensed Gen2 system, beams used by SpaceX satellites will be divided into small channels that, depending on utilization and other factors, may be bonded into larger channels. In addition, at the time of submission, the electronic Schedule S does not allow a channel plan to be provided. Because it is only possible to submit a single channel plan on Schedule S, and impracticable to include every possible permutation of channel bandwidths in the attached technical database, SpaceX has provided a representative channel plan that reflects the widest possible channel widths for each beam.

¹⁸ See Starlink, *Protecting Radio Astronomy Through Real-time Coordination*, SpaceX (Aug. 4, 2024), https://www.starlink.com/public-files/Telescope_Boresight_Avoidance.pdf.

¹⁹ See 47 C.F.R. § 25.114(a)(1).

Second, SpaceX intends to operate at twelve different orbital altitudes with a range of antenna gains,²⁰ resulting in many possible combinations of transmit and receive antenna gain contours. Rather than provide all possible contours for a representative satellite at all altitudes as contemplated by Section 25.114(c)(4)(vi)(B), SpaceX provided the contours for satellites at the lowest and highest relevant operating altitudes along with the lowest and highest antenna gains. Given that there is relatively little difference among the plots, this approach should illustrate the full range of values without requiring submission of contours for the very large number of possible combinations. SpaceX can supply the remaining contours to the Commission upon request.

Third, technical characteristics for the beams described in Schedule S were generated for the lowest (and therefore highest PFD) altitude requested. Certain parameters may very slightly vary for satellites at different altitudes.

²⁰ The Gen2 Upgrade Order authorizes SpaceX to operate at 525 km, 530 km, and 535 km while it conducts maneuvers to lower these satellites. *Space Exploration Holdings, LLC*, DA 26-36, ¶ 1 n.5 (2026).