Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Satellite Spectrum Abundance	)	SB Docket No. 25-180
	)	
Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use	)	GN Docket No. 22-352
	)	
Shared Use of the 42-42.5 GHz Band	)	WT Docket No. 23-158
	)	
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services	)	GN Docket No. 14-177

FURTHER NOTICE OF PROPOSED RULEMAKING AND NOTICE OF PROPOSED RULEMAKING

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By the Commission: Chairman Carr and Commissioner Starks issuing separate statements.

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I. INTRODUCTION

1. The satellite industry is delivering a new wave of innovation and investment as demand for high-speed connectivity skyrockets thanks to streaming, cloud services, global connectivity initiatives, and emerging AI applications. With major investment in the ecosystem and next-generation satellite systems promising faster, more reliable, and lower-latency service, having abundant satellite spectrum is more critical than ever. To ensure U.S. leadership in this rapidly evolving sector and to keep pace with

global developments, the Commission is committed to achieving spectrum abundance for the growing competitive ecosystem of existing and emerging satellite services. We initiate these proceedings to explore opportunities to make over 20,000 megahertz of spectrum available for satellite use across four bands.[1]

2. In the *Further Notice of Proposed Rulemaking (FNPRM)*, we seek further comment on ways to use the 12.7-13.25 GHz band (12.7 GHz band) and the 42.0-42.5 GHz band (42 GHz band) more efficiently and intensively, in order to promote technological innovation, the growth of the nation's economy, and greater connectivity for the American public. Previously, the Commission has sought comment on ways that the 12.7 GHz band and 42 GHz band could be used more intensively by terrestrial wireless communications to achieve these goals.[2] This *FNPRM* seeks comment on ways that these 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.

3. We are interested in opening the 12.7 GHz band to a wider range of satellite operations by eliminating regulatory restrictions that prevent intensive satellite use of the band. Geostationary orbit (GSO) operations in the 12.75-13.25 GHz band are currently limited to communications between domestic and international points. Meanwhile, non-geostationary satellite orbit (NGSO) fixed-satellite service (FSS) operations in this band are limited to uplink communications with individually licensed earth stations.[3] We are also interested in exploring more intensive use of the greenfield 42 GHz band by seeking comment on an allocation for fixed-satellite service. In both instances, we seek comment on ways to protect any incumbent spectrum users in the bands, as well as ways to protect spectrum users, particularly Federal operators, in adjacent bands.

4. In the accompanying *Notice of Proposed Rulemaking*, we seek comment on proposals to make additional spectrum resources available for satellite communications, particularly satellite broadband, in two bands the Commission has not previously considered. First, we invite comment on proposals to open up spectrum for satellite communications in the 51.4-52.4 GHz band (52 GHz band). Next, we seek comment on certain "W-band" frequencies (92.0-94.0 GHz, 94.1-100 GHz, 102.0-109.5 GHz, and 111.8-114.25 GHz).[4] Both bands represent large swathes of spectrum that are largely unused for non-Federal services today. They are also the subject of considerable interest by stakeholders for commercial satellite use. Allocations for satellite services in these bands could facilitate the growth and innovation of next-generation satellite services and present a "first-mover" advantage for U.S. licensed operators.

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[1] Portions of the *FNPRM* for the 12.7 GHz band relate to GN Docket Nos. 22-352. Portions of the *FNPRM* for the 42 GHz band relate to WT Docket No. 23-158 and GN Docket No. 14-177. The *Notice of Proposed Rulemaking* for the 52 GHz band and the W-band relates to SB Docket No. 25-180.

[2] *Expanding Flexible Use of the 12.2-12.7 GHz Band; Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, Report and Order and Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking and Order, 38 FCC Rcd 5283 (2023) (*12.7 GHz Band NPRM*, particularly when referring solely to the Notice of Proposed Rulemaking in the 12.7-13.25 GHz band); *Shared Use of the 42.0-42.5 GHz Band; Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, 38 FCC Rcd 6362 (2023) (*42 GHz Band NPRM*).

[3] FSS is defined as "a radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the Fixed-Satellite Service may also include feeder links of other space radiocommunication services." 47 CFR § 25.103.

[4] We will refer to the *FNPMs* and *Notice of Proposed Rulemaking* collectively in this document as "*Notice*" for sake of simplicity.

II. FURTHER NOTICE OF PROPOSED RULEMAKING

A. Background

1. 12.7 GHz Band

5. The 12.7 GHz band is currently shared by a mixture of terrestrial wireless and satellite uses, with limited Federal operations in the band.[5] In the United States, the U.S. Table of Frequency Allocations (Table of Allocations) allocates the 12.7 GHz band on a primary basis for non-Federal use to fixed service (FS), FSS (Earth-to-space), and the mobile service (MS).[6] The band is shared among fixed microwave services (FS—part 101), fixed and mobile Broadcast Auxiliary Service (BAS) (part 74), fixed and mobile Cable Relay Service (CARS) (part 78), and FSS (FSS—part 25).[7] Although the 12.7-12.75 GHz portion of the 12.7 GHz band has the same primary allocations for FSS, FS, and MS as the 12.75-13.25 GHz portion, there are no part 25 service rules cross-referenced in Table of Allocations in the 12.7-12.75 GHz band.[8]

6. The international allocations for the 12.75-13.25 GHz band are similar to the Table of Allocations in most respects.[9] However, FSS (space-to-Earth) transmissions are permitted at 12.7-12.75 GHz in International Telecommunications Union (ITU) Regions 1 and 3 but not in Region 2. Domestically, Footnote NG52 of the Table of Allocations precludes most FSS systems using satellites in geostationary orbit from using the 12.75-13.25 GHz band for domestic services, which limits the deployment of FSS earth stations in the band.[10] In addition, Footnote NG57 limits the use of the 12.75-13.25 GHz band by FSS systems using satellites in non-geostationary orbit to communications with individually licensed earth stations.[11]

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[5] The United States Table of Frequency Allocations (United States Table) is subdivided into the Federal Table of Frequency Allocations (Federal Table, column 4 of § 2.106) and the non-Federal Table of Frequency Allocations (non-Federal Table, column 5 of § 2.106). The Federal Table is administered by NTIA and the non-Federal Table is administered by the Commission. *See* 47 CFR § 2.105(a). Stations belonging to and operated by the United States are Federal stations. 47 U.S.C. § 305.

[6] 47 CFR § 2.106(a).

[7] *See* 47 CFR pt. 25 (§§ 25.101-25.702), pt. 74 (§§ 74.600-74.690), pt. 78 (§§ 78.1-78.115), pt. 101 (§§ 101.1-101.1527).

[8] *See* 47 CFR § 2.106(a). If a frequency or frequency band has been allocated to a radiocommunication service in the non-Federal Table, then a cross reference may be added to the pertinent FCC Rule part (column 6 of § 2.106(a)) or, where greater specificity would be useful, to the pertinent subpart. *See* 47 CFR § 2.105(e). The FCC Rule parts in this column are not allocations, may apply to only a portion of a band, and are provided for informational purposes only. *See id.*

[9] 47 CFR § 2.106(a), International Table of Frequency Allocations. The International Table is subdivided into the Region 1 Table (column 1), the Region 2 Table (column 2), and the Region 3 Table (column 3). *See* 47 CFR §2.104(a). The Regions are set forth pursuant to Radio Regulations of the International Telecommunication Union (ITU). *See* 47 CFR §2.104(b). The United States is a Member State of the ITU. 47 CFR § 2.100. The legal framework of the ITU includes the Radio Regulations. *See id.* The continental United States is located within ITU Region 2. *See* 47 CFR § 2.104(b)(2). The International Table is provided in the Table of Allocations for informational purposes only. 47 CFR § 2.104(a).

[10] 47 CFR § 2.106 (d)(52). A GSO satellite is "[a] geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator and which thus remains fixed relative to the Earth; by extension, a geosynchronous satellite which remains approximately fixed relative to the Earth." 47 CFR § 25.103. A geosynchronous satellite is "[a]n Earth satellite whose period of revolution is equal to the period of rotation of the Earth about its axis." 47 CFR § 2.1(c).

[11] *Id.* § 2.106(d)(57).

7. The lower adjacent 12.2-12.7 GHz band is allocated on a primary basis for non-Federal use for Broadcasting Satellite Service (BSS) (referred to domestically as Direct Broadcast Satellite (DBS)), NGSO FSS (space-to-Earth), and FS.[12] While the three services are co-primary, NGSO FSS and FS are allocated on a non-harmful interference basis to DBS.[13] Currently there are three services operating in the band: DBS providers operating under the primary BSS allocation, NGSO FSS licensees operating under the co-primary NGSO FSS allocation, and Multi-Channel Video and Data Distribution Service (MVDDS) licensees operating under the co-primary FS allocation.[14]

8. The 12.75-13.25 GHz portion of the 12.7 GHz band has an allocation for a single Federal user – the National Aeronautics and Space Administration (NASA), which operates a receive-only earth station for its Deep Space Network (DSN) at Goldstone, California, that is authorized to receive transmissions across the entire 12.75-13.25 GHz band.[15]

9. In the adjacent 13.25-13.4 GHz band, there is a primary allocation for non-Federal use in the Aeronautical Radionavigation service, and there are secondary allocations for non-Federal use for the Earth exploration-satellite (active) and space research (active) services.[16] There are also primary allocations for Federal use of all three of these services in this band.[17] Although there are no allocations for the radio astronomy service (RAS) in the 12.7-13.25 GHz band, opportunistic observations made by the Green Bank Telescope in West Virginia are carried out throughout this band, making use of the unique regulatory and electromagnetic environment provided by the National Radio Quiet Zone

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[12] *See* 47 CFR § 2.106, United States Table of Frequency Allocations, non-Federal Table for the band 12.2-12.7 GHz. NGSO FSS (space-to-Earth) operations are authorized pursuant to international Footnote 5.487A, which provides additional allocations including in Region 2 as follows:

> [The 12.2-12.7 GHz band is] allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of [ITU Radio Regulations] No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the [ITU Radiocommunication] Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and [international Footnote] No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the [12.2-12.7 GHz band] shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated.

47 CFR § 2.106(b)(487)(i). When an international footnote is applicable without modification to non-Federal operations, the Commission places the footnote in the non-Federal Table and the international footnote is binding on non-Federal licensees. *See* 47 CFR § 2.105(d)(5).

[13] *See* 47 CFR § 2.106(b)(490). "In Region 2, in the band 12.2-12.7 GHz, existing and future terrestrial radiocommunication services shall not cause harmful interference to the space services operating in conformity with the broadcasting satellite Plan for Region 2 contained in Appendix 30." *Id.* "Harmful Interference" is defined under the Commission's rules as "[i]nterference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with the ITU Radio Regulations." 47 CFR § 2.1(c) (brackets omitted); *see* also Annex to the Constitution of the ITU, 1003 (defining harmful interference).

[14] 47 CFR § 101.147(a) n.31.

[15] *See* 47 CFR § 2.106(c)(251). Internationally, there is a secondary allocation for space research (deep space) (space-to-Earth) in all ITU regions in the 12.75-13.25 GHz band. *Id.* § 2.106(a), International Table.

[16] 47 CFR § 2.106(a).

[17] *Id*.

(NRQZ).[18] Additionally, certain other radio astronomy sites, located in remote locations, may carry out opportunistic observations in this band, or in nearby frequency bands allocated to the radio astronomy service

10. In October 2022, the Commission released its *12.7 GHz Notice of Inquiry* (*12.7 GHz NOI*) to broadly seek information on the current use of the 12.7 GHz band, how the Commission could encourage more efficient and intensive use of the band, and whether the band is suitable for mobile broadband or other expanded use.[19] As part of the *12.7 GHz NOI*, the Commission extended a temporary freeze on 12.7 GHz band applications pending the outcome of GN Docket No. 22-352.[20] This temporary freeze applied to the filing of new or modified applications for licenses in the 12.7 GHz band, in order to preserve the landscape of authorized operations in the band pending the Commission's consideration of actions that might encourage the larger and more effective use of radio in the public interest.[21]

11. In May 2023, the Commission released a Notice of Proposed Rulemaking in GN Docket No. 22-352 (*12.7 GHz Band NPRM*) that proposed to repurpose some or all of the 550 megahertz of the 12.7 GHz band spectrum for mobile terrestrial broadband or other expanded use.[22] It also sought comment on various proposals for transitioning some or all of the 12.7 GHz band to mobile broadband and other expanded use, as well as on alternatives that could promote use of the band on a shared basis.[23]

12. Under the proposals of the *12.7 GHz NPRM* to repurpose the 12.7 GHz band, incumbent point-to-point fixed licenses licensed under parts 74, 78, and 101 of the Commission's rules would be relocated from the band or, alternatively, would become secondary (i.e. operate on an unprotected, non-interference basis) to new licensed mobile broadband or expanded use operations on a sunset date, consistent with the Commission's Emerging Technologies principles.[24] Incumbent mobile BAS/CARS licensees would be "repacked" into a portion of the 12.7 GHz band that would be designated for mobile

[18] *See* 47 CFR § 1.924 (setting forth quiet zones requirements to restrict radiation so as to minimize possible impact on the operations of radio astronomy or other facilities that are highly sensitive to interference). The National Radio Quiet Zone (NRQZ) was set aside by the federal government to provide a geographical region to protect sensitive instrumentation from radio frequency interference. *See* Greenbank Observatory, National Radio Quiet Zone, https://greenbankobservatory.org/about/national-radio-quiet-zone/.

[19] *Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, GN Docket No. 22-352, Notice of Inquiry and Order, 37 FCC Rcd 13427, 13428, para. 2 (2022) (*12.7 GHz NOI*).

[20] *Id.* at 13445, para. 44.

[21] *Id.*, citing *180-Day Freeze On Applications for New Or Modified Authorizations for the 12.7-13.25 GHz Band*, Public Notice, DA 22-974 (IB, PSHSB, MB, and WTB Sept. 19, 2022) (*Freeze Public Notice*).

[22] *12.7 GHz Band NPRM*, 38 FCC Rcd at 5285, para. 3.

[23] *Id.* In addition, the Commission also ordered fixed and mobile BAS and CARS licensees that use the 12.7 GHz band to certify the accuracy of the information reflected on their licenses. *Id.*

[24] *12.7 GHz Band NPRM*, 38 FCC Rcd at 5323-24, para. 71. The *Emerging Technologies* procedures represent a broad set of tools that the Commission uses, revises, and updates to aid the process of making spectrum available for new uses. Pursuant to these procedures, the Commission will set a "sunset date" for the incumbents in a band—a date after which these licensees may not cause harmful interference to new band entrants. Prior to the sunset date, the new entrants may not cause harmful interference to incumbents but will be allowed to enter into mandatory negotiations with these incumbents to gain early entry into the band and, if necessary, may relocate these incumbents to comparable facilities. Because new entrants may have to relocate some of these incumbents from a larger frequency range or greater geographic area than where the new entrants will operate, the Commission may establish a companion set of cost-sharing procedures. *See id*. at 5322, para. 68. The application of specific relocation and cost-sharing processes under the framework varies for each frequency band and is based on the types of incumbent licensees and the particular characteristics of the band.

BAS/CARS operations.[25] FSS incumbent space and earth stations that were authorized to serve or operate in the United Sates based on applications filed before September 19, 2022 would not be relocated or be subject to sunsetting.[26] Although incumbent earth stations in the 12.75-13.25 GHz band operating in the Earth-to-space direction would be grandfathered, the Commission proposed that no additional earth stations would be authorized in the 12.7 GHz band.[27]

13. At the same time, the Commission declined to authorize two-way, high-powered terrestrial mobile services in the adjacent 12.2-12.7 GHz band, finding that they would impose significant risk of harmful interference to existing and emergent services in the band, including satellite services.[28] The Commission sought comment, however, on the potential to expand terrestrial fixed use or to permit unlicensed use in the 12.2-12.7 GHz band.[29] In response to the *12.7 GHz Band NPRM*, the National Telecommunications and Information Administration (NTIA) provided analyses and recommendations in support of maintaining federal applications and missions.[30]

2. 42-42.5 GHz Band

14. The 42 GHz band is not currently used for any existing services in the United States. It is allocated to non-Federal FS and MS on a primary basis.[31] Although the Commission sought comment previously on proposed service rules for this band among other bands above 24 GHz,[32] none are currently in place, and the band has no incumbent licensees. Accordingly, the 42 GHz band represents "greenfield" spectrum that gives greater flexibility in designing a licensing scheme that may be optimized for future use and that can take advantage of new technological developments more easily than a band with existing deployments.[33]

15. There is no allocation for satellite services in the 42 GHz band. The Commission has previously twice declined to add an FSS (space-to-Earth) allocation in the 42 GHz band.[34] The lower adjacent 40-42 GHz band has been designated for satellite use, with allocations on a primary basis for FSS (space-to-Earth) and Broadcasting-Satellite.[35] Similarly, there is no Federal allocation in the 42 GHz

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[25] *12.7 GHz Band NPRM*, 38 FCC Rcd at 5324, para. 72. The Commission proposed to retain 25 megahertz for mobile BAS/CARS operation. *Id* at 5325, para. 75.

[26] *Id.* at 5327, para. 79. The definition of incumbent space and earth stations also would apply to petitions for U.S. market access filed before September 19, 2022. *Id.*

[27] *Id.* at 5328, para. 82.

[28] *12.7 GHz Band NPRM,* 38 FCC Rcd at 5284, para. 2. The Commission found that such interference could undermine investments made by incumbent licensees and jeopardize their potential to provide new service to underserved communities, including rural communities. *Id.*

[29] *Id.*

[30] *See, e.g.,* Comments of the National Telecommunications and Information Administration, GN Docket No, 22-352 (rec. Aug. 9, 2023) (NTIA 12.7 GHz Comments).

[31] 47 CFR § 2.106(a).

[32] *See Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Third Report and Order, Memorandum Opinion and Order, and Third Notice of Proposed Rulemaking, 33 FCC Rcd 5576, 5595-5600, paras. 47-57 (2018) (*Third V-band MO&O*); *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8153-55, paras. 400-407 (2017) (*First V-band R&O*).

[33] *42 GHz NPRM,* 38 FCC Rcd at 6365, para. 8.

[34] *See First V-band R&O*, 31 FCC Rcd at 8144, para. 368 (declining to allocate the 42 GHz band for FSS downlink operations), recon. denied, *Third V-band MO&O*, 33 FCC Rcd. at 5595-96, paras. 45-46 (declining to reconsider the decision not to allocate the 42 GHz band for FSS use).

[35] *See Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5*

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band,[36] but the upper adjacent 42.5-43.5 GHz band is allocated to the radio astronomy service on a primary basis for Federal and non-Federal use and to the Federal FS, FSS (Earth-to-space), and MS—except aeronautical mobile—services on a primary basis.[37]

16. In June 2023, the Commission released a Notice of Proposed Rulemaking in WT Docket No. 23-158 and GN Docket No. 14-177 (*42 GHz NPRM*), which sought comment on proposals to provide increased access to the 42 GHz band, particularly by smaller wireless service providers, to support efficient, intensive use of the band.[38] Specifically, the Commission sought comment on a variety of potential approaches to licensing the 42 GHz band for flexible use by FS and MS operations on a shared basis, as well as on any alternatives that might better promote the Commission's goals of more efficient spectrum use and lower barriers to spectrum access compared with traditional exclusive-use licensing in this band.[39] The Commission proposed to authorize flexible MS and FS operations in the 42 GHz band, provided that RAS could be protected in the adjacent 42.5-43.5 GHz band, and it proposed to require licensees in the 42 GHz band to limit emissions into the 42.35-43.5 GHz band in order to protect RAS at observatory locations.[40]

B. Discussion

17. We seek to supplement the record in the 12.7 GHz band and 42 GHz band proceedings by seeking comment on alternative proposals for increasing the use of these two bands by satellite communications. Although the Commission has previously sought comment on proposals to provide increased access to both bands for terrestrial wireless services, including mobile broadband or other expanded uses, we now seek to further develop the record on whether increasing access by satellite communications might better encourage a more efficient and intensive use of these bands on a more expedited basis than the previous proposals. We also seek comment on whether increasing the use of these bands by satellite communications may be more harmonious with existing users of the bands, both domestically and internationally, and with spectrum users in adjacent bands, particularly Federal operations.

18. We also seek comment on whether there are cross-border coordination mechanisms in either the 12.7 GHz band or the 42 GHz band that we should review or seek to remove to ensure efficient and adequate transitions, and sufficient protection from harmful interference, at the borders?[41] Commenters should provide detailed information on any potential cross-border interference concerns and other international considerations as well as possible actions to address them.

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GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, Second Report and Order, 18 FCC Rcd 25428, 25434, para. 14 (2003) (*Second V-Band R&O*).

[36] The Commission has sought comment on proposals to add Federal FS and MS allocations to the 42 GHz band and a framework under which both Federal and non-Federal FS and MS operations could share the 42 GHz band on a co-primary basis. *See Third V-band MO&O*, 33 FCC Rcd at 5598, para. 53, *citing First V-band R&O*, 31 FCC Rcd at 8155, para. 407.

[37] 47 CFR § 2.106(a). Footnote US211 urges applicants for airborne or space stations assignments in the 40.5-42.5 GHz band to take all practicable steps to protect radio astronomy observations in the 42.5-43.5 GHz band from harmful interference. 47 CFR § 2.106(c)(211).

[38] *Shared Use of the 42-42.5 GHz Band; Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, 38 FCC Rcd 6362 (2023) (*42 GHz NPRM*).

[39] *Id.* at 6365, para. 12.

[40] *Id.* at 6371-73, paras. 34-39 (proposing to protect RAS bands through geographic separation and emission limits).

[41] *See e.g.,* Federal Communications Commission, International Agreements, https://www.fcc.gov/general/international-agreements.

1. 12.7 GHz Band

a. Expanding Use of 12.7 GHz Band by Satellite Communications

19. We seek further comment on whether expanding the use of the 12.7 GHz band by satellite communications might better encourage a more efficient and intensive use of the band than previous proposals to repurpose this band for mobile broadband or other expanded uses. Comments from satellite operators in response to the *12.7 GHz NOI* and *12.7 GHz NPRM* state that there is an increasing demand for satellite services, particularly broadband services, and a growing need for sufficient spectrum to enable such services.[42] They assert that, although the 12.7 GHz band is not currently heavily used by satellite communications in the United States, this is due to regulatory restrictions on the use of this band, rather than to the lack of utility of the band for satellite communications or the desire of satellite operators to make use of this band.[43] They assert that the quickest way to make more intensive use of the 12.7 GHz band is to lift these regulatory restrictions.[44] Satellite operators also state that lifting these regulatory restrictions and expanding the use of the 12.7 GHz band by satellite communications could harmonize the use of the 12.7 GHz band in the United States with global spectrum allocations and could better protect incumbent users in adjacent bands from harmful interference than previous proposals.[45] We seek further comment on these assertions and statements.

20. We seek further comment on the demand and need for the 12.7 GHz band to support satellite communication services, particularly any changes that have occurred in the time since the *12.7 GHz NPRM* was adopted in 2023. How would expanding access by satellite communications to the 12.7 GHz band enable more efficient and intensive use of this band? What should be the metric for such a determination? Should it be based on total throughput over all users of the band? Which specific types of communications would be enabled or enhanced by expanding the use of the 12.7 GHz band by satellite communications? What would be the expected timeframe for achieving the benefits from expanding the use of the band by satellite communications and how does this timeframe compare to that expected under previous proposals to repurpose the 12.7 GHz band for mobile broadband or other expanded uses? We seek comment on these questions.

21. We seek further comment on whether a more efficient and intensive use of the 12.7 GHz band can be achieved by eliminating existing regulatory restrictions on the use of the band by satellite communications. Footnote NG52 limits GSO FSS in 12.75-13.25 GHz band (Earth-to-space) to international systems, that is, other than domestic systems.[46] This limitation was designed to protect

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[42] *See* Joint Comments of the Satellite Operators, WT Docket No. 20-443 and GN Docket No. 22-352, at 1-2 (rec. Aug. 9, 2023) (Satellite Operators Joint NPRM Comments).

[43] Satellite Operators Joint NPRM Comments at 2-3, 5; Comments of Hispasat S.A. in Response to Notice of Inquiry, GN Docket No. 22-352, at 11 (rec. Dec. 12, 2022) (Hispasat NOI Comments) (arguing that regulatory restrictions on use of 12.75-13.25 GHz band in the United States "impede[] more intensive FSS use of this valuable band"); Letter from Tom Hopkins, Chief Operating Officer, Ovzon, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 22-352, at 2 (rec. Dec. 9, 2022) (Ovzon NOI *Ex Parte*); Comments of Intelsat License LLC and SES Americom, Inc., GN Docket No. 22-352, at 11 (rec. Dec. 12, 2022) (Intelsat/SES NOI Comments) ("SES and Intelsat would be interested in making greater use of [the 12.75-13.25 GHz] band in the United States, if the Commission's rules were to be relaxed to allow it.").

[44] Satellite Operators Joint NPRM Comments at 2, 9-11; Hispasat NOI Comments at 11. We note that calls to remove regulatory restrictions on the use of the 12.7 GHz band by satellite communications were filed in the Commission's "Delete, Delete, Delete" proceeding, GN Docket No, 25-133. *See, e.g.,* Comments of Intelsat License LLC (rec. Apr. 11, 2025), Comments of Ovzon LLC (rec. Apr. 11, 2025).

[45] Satellite Operators Joint NPRM Comments at 2-3; Hispasat NOI Comments at 12-13; Intelsat/SES NOI Comments at 13-14.

[46] 47 CFR § 2.106(d)(52). (stating that, except as provided in Footnote NG527A of the U.S. Table of Frequency Allocations, "the use of the bands 10.7-11.7 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by

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incumbent BAS, CARS, and fixed microwave operations from a large number of satellite earth station deployments.[47] Satellite operators claim that Footnote NG52 artificially limits FSS deployments in the 12.7 GHz band and is no longer needed if the Commission determines that the growth of incumbent BAS, CARS, and fixed microwave use is no longer considered as important as it might have been in 2000.[48] We seek further comment on whether Footnote NG52 is still needed to protect incumbent BAS, CAS, and fixed microwave operations in the 12.7 GHz band, or whether there are means other than Footnote NG52 to protect incumbent FS and MS operations in the band that would not restrict satellite access to the band unnecessarily.

22. We seek comment on whether to eliminate the regulatory restriction of Footnote NG52 that limits the use of the 12.7 GHz band by GSO satellite communications to international systems. Would increasing access to the 12.75-13.25 GHz portion of the 12.7 GHz band by satellite communications be most efficiently and expeditiously achieved by amending the text of Footnote NG52 to remove its applicability to the 12.75-13.25 GHz band, as proposed by commenters?[49] Are any additional changes to Footnote NG52 or other footnotes needed to eliminate regulatory restrictions that limit the use of the 12.7 GHz band by satellite communications? Are any other changes to our part 25 rules or other rule parts necessary to remove regulatory restrictions on the use of the 12.75-13.25 GHz band by satellite communications?

23. We also seek comment on whether the more efficient and intensive use of the 12.7 GHz band can be achieved by expanding the use of the band by Earth Stations in Motion (ESIMs).[50] The Commission has already authorized ESIMs operations with NGSO FSS systems in the adjacent 12.2-12.7 GHz band in the space-to-Earth direction.[51] Would the 12.7 GHz band be more efficiently and intensively used, and would the American public have better connectivity, if the band were also available for ESIMs operations? We seek comment on this question.

24. As a result of agenda item 1.15 at the 2023 World Radio Conference (WRC), international Footnote 5.496A was adopted for all three ITU regions.[52] Footnote 5.496A provides that the

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geostationary satellites in the fixed-satellite service (FSS) shall be limited to international systems, i.e. other than domestic systems").

[47] *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range et al.*, First Report and Order and Further Notice of Proposed Rule Making, 16 FCC Rcd 4096, 4146, para. 122 (2000) (declining to amend then-existing Footnote NG104 to the Table of Allocations to remove the requirement that GSO FSS operations be limited to international systems so as not inhibit the growth of incumbent services). Footnote NG104 was subsequently consolidated into Footnote NG52 in 2012. *Revisions to Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands; Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service*, Notice of Proposed Rulemaking and Report and Order, 27 FCC Rcd 16510, 16520-21. para. 21 (2012).

[48] Satellite Operators Joint NPRM Comments at 6.

[49] *Id.* at 2.

[50] ESIM is a term that collectively designates earth stations operating aboard aircraft, vessels, and vehicles that receive from and transmits to FSS space stations. 47 CFR § 25.103 (definitions of ESIM, Earth Station Aboard Aircraft (ESAA), Earth Station on Vessel (ESV), and Vehicle-Mounted Earth Station (VMES)).

[51] *12.7 GHz Band NPRM*, 38 FCC Rcd at 5287-88, para. 7 & n.23.

[52] Agenda item 1.15, *Use of the frequency band 12.75-13.25 GHz by earth stations in motion on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service*, World Radiocommunications
(continued….)

12.75-13.25 GHz band can be used by ESIMs on aircraft and vessels communicating with GSO FSS space stations.[53] Such use is also subject to Resolution 121 (WRC-23), which addresses the use of the 12.75-13.25 GHz band by ESIMS on aircraft and vessels.[54] Although the Commission has not incorporated Footnote 5.496A into the international table of the Table of Allocations, wide-spread adoption of this footnote into national frequency allocations could harmonize the use of the 12.75-13.25 GHz band globally by satellite communications for ESIMs operations in the Earth-to-space direction.[55]

25. We seek comment on whether we should build upon the decisions of WRC-23, particularly Footnote 5.496A, by amending the text of Footnote NG527A to permit authorization of ESIMs, as an application of the FSS, to communicate with GSO and NGSO FSS space stations.[56] Specifically, should we amend paragraph (ii) of Footnote NG527A to add "12.75-13.25 GHz (Earth-to-space)" as a band in which ESIMs may be authorized to communicate with geostationary satellites on a primary basis?[57] In addition, should we amend paragraph (iii) of Footnote NG527A to add "12.75-13.25 GHz (Earth-to-space)" as a band in which ESIMs may be authorized to communicate with NGSO space stations, subject to the condition that NGSO systems may not cause unacceptable interference to, nor claim protection from, GSO networks?[58] We seek comment on these questions, as well as on any other changes to the text of Footnote NG527A, or other footnotes, that could facilitate expanding the use of the 12.75-13.25 GHz band by ESIMs operations, including authorizing ESIMs to communicate with NGSO FSS systems.

26. We also seek comment on whether to delete or amend Footnote NG57 to the Table of Allocations in order to expand the use of the 12.7 GHz band by satellite communications. Footnote NG57 limits use of the 12.75-13.25 GHz band by NGSO FSS systems to communications with individually licensed earth stations, such as gateway earth stations.[59] As a result, Footnote NG57 prohibits the authorization of earth stations through blanket earth station licenses that permit the operation of numerous technically-identical earth stations, often user terminals or ESIMs.[60] We seek comment on

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Conference 2023 (WRC-23), Final Acts, International Telecommunication Union (2023) (WRC-23 Final Acts), https://www.itu.int/pub/R-ACT-WRC.16-2024.

[53] WRC-23 Final Acts at 35-36.

[54] *Id.* at 305-331, Resolution 121 (WRC-23), *Earth Stations in Motion on aircraft and vessels communicating with Geostationary space stations in the Fixed-satellite service in the 12.75-13.25 GHz band*.

[55] We note that the European Conference of Postal and Telecommunications Administrations (CEPT) has adopted a decision to allow both GSO and NGSO systems to operate ESIMs in the 12.75-13.25 GHz band. *See* ECC Decision (19)04, *The harmonised use of spectrum, fee circulation and use of earth stations on-board aircraft operating with GSO FSS networks and NGSO FSS systems in the frequency bands 12.75-13.25 GHz (Earth-to-space) and 10.7-12.75 GHz (space-to-Earth)* (approved Mar. 6, 2020, editorial update May 28, 2021), https://docdb.cept.org/download/3427.

[56] 47 CFR § 2.106(d)(527).

[57] *Id.* § 2.106((d)(527)(ii)("In the bands 11.7-12.2 GHz (space-to-Earth), 14.0-14.5 GHz (Earth-to-space), 18.3-18.8 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 28.35-28.6 GHz (Earth-to-space), and 29.25-30.0 GHz (Earth-to-space), ESIMs may be authorized to communicate with geostationary satellites on a primary basis.").

[58] *Id.* § 2.106(d)(527)(iii) ("In the bands 11.7-12.2 GHz (space-to-Earth), 14.0-14.5 GHz (Earth-to-space), 18.3-18.6 GHz (space-to-Earth), 19.7-20.2 GHz (space-to-Earth), 28.4-28.6 GHz (Earth-to-space), and 29.5-30.0 GHz (Earth-to-space), ESIMs may be authorized to communicate with non-geostationary satellites, subject to the condition that non-geostationary-satellite systems may not cause unacceptable interference to, or claim protection from, geostationary-satellite networks.").

[59] *Id.* § 2.106(d)(57).

whether the restriction of Footnote NG57 is still necessary, particularly in light of the proposal above to amend Footnote NG527A to permit authorization of ESIMs to communicate with NGSO FSS space stations. If it is no longer necessary, should Footnote NG57 be deleted from the Table of Allocations, or should it be retained with amended text?[61]

27. We also seek comment on whether to make any other changes to the Table of Allocations and our part 25 rules to expand the use of the 12.7-12.75 GHz band by satellite communications. Should the existing allocations on a primary basis for FSS (Earth-to-space), FS, and MS in the 12.7-12.75 GHz band be maintained? Could the 12.7-12.75 GHz band be more intensively used by satellite communications if a primary allocation for FSS (space-to-Earth) were added to the existing primary allocation for FSS (Earth-to-space)?[62] Are there any changes that need to be made to our part 25 rules for FSS operations in the 12.7-12.75 GHz band, and should "Satellite Communications (part 25)" be added to the FCC Rule Part(s) column of the Table of Allocations in the 12.7-12.75 GHz band? If changes are made to part 25, what changes are necessary to address any increased operations by satellite communications in the 12.7-12.75 GHz band? Are the existing licensing and operating provisions of section 25.146 that govern NGSO FSS operations in the 10.7-30 GHz frequency range sufficient, including any applicable equivalent power-flux density (EPFD) levels?[63] Similarly, are any part 25 rule changes needed to address increased access by satellite communications in the 12.75-13.25 GHz band? We seek comment on these questions.

28. We seek comment on whether the more efficient and intensive use of the 12.7 GHz band can be achieved by expanding ESIMs operations in the 12.7-12.75 GHz band. Currently, the Commission has authorized ESIMs operating on U.S.-registered aircraft and vessels outside the United States in the 12.7-12.75 GHz band in the space-to-Earth direction.[64] Should the Commission authorize ESIMs in the 12.7-12.75 GHz band, either inside or outside the United States, in a similar manner to ESIMs in the 12.75-13.25 GHz band, that is by amending the text of Footnote NG527A to permit authorization of ESIMs, using frequency bands allocated for FSS, to communicate with GSO and NGSO space stations in the 12.7-12.75 GHz band? We observe that Footnote NG527A is not currently included as a footnote to either the 12.7-12.75 GHz band or the 12.75-13.25 GHz band; rather, the applicability of Footnote NG527A to the 12.75-13.25 GHz band is through an exception contained within Footnote NG52, and Footnote NG52 does not currently apply to the 12.7-12.75 GHz band. If more efficient and intensive use of the 12.7 GHz band by satellite communications would be achieved by expanding ESIMs operations in the 12.7-12.75 GHz band, should we add Footnote NG527A to the non-Federal allocation for the 12.7-12.75 GHz band and amend the text of sections (d)(ii) and (ii) of Footnote 527A to include "12.7-12.75

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[60] Blanket earth station licenses are licenses for multiple earth stations in the FSS or mobile-satellite service, or Satellite Digital Audio Radio Service terrestrial repeaters that may be operated anywhere within a geographic area specified in the license. 47 CFR § 25.103.

[61] We note that Footnote NG57 applies solely to the 12.75-13.25 GHz band. 47 CFR § 2.106(d)(57).

[62] We note that the international table in the 12.5-12.75 GHz band has a primary allocation for FSS (space-to-Earth) (Earth-to-space) in ITU Region 1 and has a primary allocation for FSS (space-to-Earth) in ITU Region 3. 47 CFR § 2.106(a).

[63] 47 CFR § 25.146 (Licensing and operating provisions for NGSO FSS space stations). These provisions address proposed NGSO FSS operations in the 10.7-30 GHz frequency range and coordination requirements between NGSO FSS systems and GSO FSS earth stations in the 10.7-12.75 GHz band. In particular, NGSO FSS operations in the 10.7-30 GHz range must certify compliance with any applicable PFD levels in Article 21, Section V, and any applicable EPFD levels in Article 22, Section II, and Resolution 76 of the ITU Radio Regulations. *Id.* § 25.146(a)(1)-(2).

[64] *See* Satellite Operators Joint NPRM Comments at 7, n.22 (listing citations to blanket licenses issued from 2020 through 2022 for ESIMs receiving the 12.7-12.75 GHz band outside the United States).

GHz (Earth-to-space)"? [65] We seek comment on these questions and observations.

29. We seek comment on whether the 12.7 GHz band could be used for FSS (space-to-Earth) operations in addition to, or as an alternative to, the existing allocation for FSS (Earth-to-space) operations. Could the 12.7 GHz band be more intensively used by satellite communications if satellite downlinks were permitted, either throughout the 12.7 GHz band, or in either the 12.7-12.75 GHz or the 12.75-13.25 GHz band? NGSO FSS downlink operations are authorized in the adjacent 12.2-12.7 GHz band pursuant to international Footnote 5.487A,[66] and allowing downlinks in the 12.7 GHz band, particularly to blanket-licensed user terminals, could provide additional contiguous spectrum for use by high-speed services. Are there specific technical, economic, or legal reasons to prohibit use of the 12.7 GHz band, in whole or in part, for satellite downlink communications? Is it feasible for both satellite uplinks and downlinks to operate in the 12.7 GHz band, perhaps through geographic separation or some other means of coordination? What changes to the Table of Allocations or our part 25 rules would be necessary to allow use of the 12.7 GHz band, in whole or in part, for FSS (space-to-Earth) operations?

30. We also seek comment on whether the expanded use of the 12.7 GHz band by satellite communications in the Earth-to-space direction could impose a risk harmful interference to satellite communications, as well as other co-primary users, in the adjacent 12.2-12.7 GHz band. Would limiting FSS (Earth-to-space) to individually licensed earth stations in the 12.7-12.75 GHz band be a desirable means to mitigate such a risk? Are there other means, such as out-of-band emission limits on FSS (Earth-to-space) operations in the 12.7-12.75 GHz band, that could equally or more effectively mitigate the risk of harmful interference between satellite communications in the 12.7 GHz band and co-primary spectrum users in the 12.2-12.7 GHz band to allow the use of ESIMs operations in the 12.7 GHz band? If so, what are the appropriate technical parameters for these other means to mitigate risks of harmful interference to co-primary spectrum users in the 12.2-12.7 GHz band? Could interference to satellite communications and other co-primary users in the 12.2-12.7 GHz band be mitigated by limiting satellite communications in the 12.7-12.75 GHz band to ESIMs operations in the space-to-Earth direction outside of the United States, essentially creating a 50 megahertz buffer between the 12.2-12.7 GHz band and 12.75-13.25 GHz band in the United States? Would a 50 megahertz buffer sufficiently protect the primary satellite receivers in the 12.2-12.7 GHz band from out of band emissions of the earth stations in the 12.75-13.25 GHz band? Would there be blocking issues for the primary satellite receivers in the 12.2-12.7 GHz band due to high power transmissions from the nearby earth stations in the 12.75-13.25 GHz band? How would the interference environment change if satellite downlinks were permitted in the 12.7 GHz band, either in addition to satellite uplinks or as an alternative to satellite uplinks? We seek comment on these questions.

31. We also seek comment on lifting the existing freeze on space and earth station applications in the 12.7 GHz band, if it is determined that use of the 12.7 GHz band by satellite communications would better encourage a more efficient and intensive use of the band than previous proposals to repurpose this band for mobile broadband or other expanded uses. Would the most efficient means of lifting the freeze be the release of a public notice announcing a date on which applications for new space stations and earth stations could be filed? We also seek comment on the timing of any public notice lifting the freeze on new space and earth station filings in the 12.7 GHz band.[67]

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[65] 47 CFR § 2.106(d)(527)(d)(ii)-(iii).

[66] *Id.* § 2.106(b)(487)(i).

[67] *See* Letter from Tom Stroup, President, Satellite Industry Association, to Marlene H. Dortch, Secretary. FCC (filed May 14, 2025) (requesting immediate lifting of the existing freeze on space and earth stations in the 12.7 GHz band); Letter from Michael Mullinix, Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC (filed May 15, 2025) (arguing that Commission should lift freeze only after concluding how to proceed in the 12.7 GHz band).

32. We seek comment on whether to process any new applications for GSO FSS space stations using the existing "first-come, first-served" procedures for GSO-like satellite operations.[68] Although the 12.75-13.25 GHz band constitutes a "planned band" subject to Appendix 30B of the ITU Radio Regulations,[69] the Commission has adopted use of "first-come, first-served" procedures for space station applications in planned bands.[70] The Commission has also extended availability of the optional two-step process to allow applicants to file a draft ITU Coordination Request to establish a position in the "first-come, first-served" queue, and then to file a complete license application within two years of submission of the Coordination Request materials.[71] In addition, the Commission applied the "first-come, first-served" procedure to requests to access the U.S. market by non-U.S. licensed space stations, with the exception of the two-step process.[72] We seek comment on this proposal for licensing any new GSO FSS space stations in the 12.7-13.25 GHz band on a "first-come, first-served" basis, as well as on any other procedures necessary to implement this proposal, considering the particularities of planned band spectrum.

33. We seek comment on whether to license new NGSO FSS space stations in the 12.7-13.25 GHz band pursuant to our part 25 procedures for "NGSO-like" satellite operations.[73] Processing rounds for NGSO-like satellite applications that included the 12.75-13.25 GHz band were begun in 2017 and 2020.[74] We seek comment on whether existing procedures under our part 25 rules are sufficient to authorize new NGSO FSS operations in the 12.75-13.25 GHz band or whether any changes to our rules

[68] 47 CFR § 25.158. "GSO-like" satellite operation" means operation of a GSO satellite to communicate with earth stations with directional antennas, including operation of GSO satellites to provide MSS feeder links. *Id.* § 25.158(a)(1).

[69] *See* ITU Radio Regulations, Appendix 30B, *Provisions and associated Plan for the fixed-satellite service in the frequency bands 4500-4800 MHz, 6725-7025 MHz, 10.70-10.95 GHz, 11.20-11.45 GHz, and 12.75-13.25 GHz*. Unlike the majority of spectrum used for satellite communications, which is unplanned – that is, available based on a "first in time" priority system – certain frequency bands are subject to international plans, under which each country is allotted frequencies at certain orbital locations in the geostationary arc, which can then be converted into assignments for its licensed systems. *Id.* The stated objective of the planned bands is to guarantee access for all countries to certain GSO FSS frequency bands. *Id.* at Art. 1.1.

[70] *See Amendment of the Commission's Policies and Rules for Processing Applications in the Direct Broadcast Satellite Service*, Report and Order, 34 FCC Rcd 9014, 9016, paras. 7-8 (2019) (*2019 DBS Report and Order*) (adopting first-come, first-served licensing procedures for DBS space stations in the 12.2-12.7 GHz band subject to Appendix 30).

[71] *Id.* at para. 17. In addition, an application must perfect its position in the queue by posting a $500,000 bond, which is forfeited if the applicant does not file a complete license application within the required two-year period. *Id.*

[72] *Id.* at para. 21. The Commission has noted that the optional two-step application process is limited to situations where the United States submits filings with the ITU and is not available in situations where market access is required for a non-U.S. licensed space station using ITU filings submitted by other administrations. *Id.* at para. 21 n.61.

[73] *See* 47 CFR § 25.157. An "NGSO-like" satellite operation means the operation of any NGSO satellite system, or operation of a GSO MSS satellite to communicate with earth stations with non-directional antennas. *Id.* § 25.157(a).

[74] Satellite Policy Branch Information, *Applications Accepted for Filing, Cut-Off Established for Additional NGSO FSS Applications or Petitions for Operations in the 10.7-12.7 GHz, 12.75-13.25 GHz, 13.8-14.5 GHz, 17.7-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz Bands*, Public Notice, 35 FCC Rcd 2881, DA 20-325, Report No. SPB-279 (IB 2020); Satellite Policy Branch Information: *Applications Accepted for Filing*, *Cut-Off Established for Additional NGSO-like Satellite Applications or Petitions for Operations in the 12.75-13.25 GHz, 13.85-14.0 GHz, 18.6-18.8 GHz, 19.2-20.2 GHz, and 29.1-29.5 GHz Bands*, Public Notice, 32 FCC Rcd 4180, DA 17-524, Report No. SPB-271 (IB 2017). Subsequently, authorizations were granted for NGSO FSS operations in the 12.75-13.25 GHz band, but operations were restricted to individually licensed earth stations. *See, e.g.,* Theia Holdings A, Inc., Memorandum Opinion, Order and Authorization, FCC 19-42, 34 FCC Rcd 3526, 3534, 3545-46, paras. 18, 55(g) (2019).

are needed.

b. Sharing with Existing Non-Federal Users

34. We seek comment on whether expanded use of the 12.7 GHz band by satellite communications necessitates any changes to the spectrum sharing obligations between FSS (Earth-to-space) operations and non-Federal terrestrial operations, particularly fixed point-to-point and mobile BAS and CARS. Should the existing primary allocations for FS and MS in the 12.7 GHz band be maintained? If they are maintained, are they compatible with the a more intensive use of the 12.7 GHz band by satellite communications? Alternatively, should the existing allocations for FS and MS in the 12.7 GHz band be changed from a primary to a secondary allocation in the United States, in either the 12.7-12.75 GHz band or the 12.75-13.25 GHz band, in order to reflect any more intensive use of the band by FSS?

35. We observe that previous proposals in these proceedings to repurpose some or all of the 12.7 GHz band for terrestrial mobile broadband or other expanded uses envisioned the sunsetting of protections from interference for incumbent FS and MS operations, or repacking these operations into a smaller segment of the 12.7 GHz band.[75] We seek comment on whether increasing the use of the 12.7 GHz band by satellite communications requires similar sunsetting or repacking of non-Federal terrestrial operations in the 12.7 GHz band, or whether increased use of the band by FSS (Earth-to-space) can be accomplished under existing spectrum sharing obligations without repacking? If repacking of mobile BAS/CARS is required, would repacking be most effectively accomplished by moving mobile BAS/CARS operations to a 25-megahertz segment within the 12.75-13.25 GHz band or by concentrating them in two segments – at the top and bottom of the 12.7-13.25 GHz band, respectively, as suggested in previous proposals for expanded use of the 12.7 GHz band,[76] or by concentrating mobile BAS/CARS operations within the 50 megahertz of the 12.7-12.75 GHz band? How might such repacking of BAS/CARS to the 12.7-12.75 GHz band impact operations of primary spectrum users in the adjacent 12.2-12.7 GHz band? If there is a repacking of mobile BAS/CARS operations to facilitate the expanded use of the 12.7 GHz band by satellite communications, which entities should bear the costs arising from the repacking? We seek comment on these questions, including comments on the potential costs and benefits associated with different repacking alternatives.

36. We also seek comment on whether the expanded use of the 12.75-13.25 GHz band by satellite communications would be facilitated or accelerated by the deletion or sunsetting of Footnote NG53 to the Table of Allocations.[77] Footnote NG53 reserves sub-bands in the range of 13.15 GHz to 13.2125 GHz for television pick up (TVPU) and CARS inside a 50 kilometer radius of the top 100 television markets and prohibits NGSO FSS gateway stations from operating in these locations in these sub-bands.[78] Outside these areas, NGSO FSS gateway stations operate on a co-primary basis with terrestrial operations in these sub-bands.[79] The provisions of Footnote NG53 do not apply to GSO FSS operations in the 12.75-13.25 GHz band. Do the provisions of Footnote NG53 unnecessarily restrict the use of the 12.7 GHz band by satellite communications, particularly by NGSO FSS and by ESIMs on aircraft and vessels, and if so, would the restriction be more efficiently removed by deleting or sunsetting Footnote NG53, or through our previously discussed proposal of repacking mobile BAS/CARS to either the top and/or bottom of the bands? If sunsetting would be a more efficient means of removing the restriction, what should be the period of any sunsetting of the protections of Footnote NG53? Are there less restrictive alternatives to Footnote NG53 as means to protect incumbent terrestrial operations in the 12.7 GHz band from potential harmful interference from increased FSS operations in the band, such as

[75] *12.7 GHz NPRM*, 38 FCC Rcd at 5321-23, para. 68.

[76] *Id.*at 5325, para.75.

[77] 47 CFR § 2.106(d)(53).

[78] *Id.* § 2.106(d)(53)(i)-(ii).

[79] *Id.*

power flux density (PFD) limits or more narrowly-tailored geographic separation requirements for blanket-licensed or ESIM earth stations? What would be the costs to providers and users of incumbent services were they to be sunset, and how do these compare to the costs of protecting incumbents using PFD limits or other means? We seek comment on these questions. Similarly, we seek comment on whether the current freeze on FS, BAS, and CARS applications should be lifted, extended, or made permanent if use of the 12.7 GHz band by satellite communications is expanded, as well as the procedures for doing so.

37. We also seek comment on how to avoid causing harmful interference to other incumbent co-primary operations in the 12.7-12.75 GHz band if we expand use of the 12.7 GHz band by satellite communications, particularly if we adopt blanket licensing of earth stations, including ESIMs. Currently, Footnote NG53 applies to the 12.75-13.25 GHz band, but not to the 12.7-12.75 GHz band. Would amending the text of Footnote NG53 to apply its protections to all or part of the 12.7-12.75 GHz band accomplish this goal? Should it be added to the 12.7-12.75 GHz band, particularly if BAS and CARS operations relocate to that band in order to make the 12.75-13.25 GHz band more accessible for satellite communications? Are there alternatives to Footnote NG53 that may be effective in allowing satellite communications and other incumbent co-primary operations to co-exist in the 12.7 GHz band, such as emission limitations or other restrictions on blanket licensed earth stations and ESIMs operations (such as limiting ESIMs operations to aircraft above a certain altitude or to vessels a certain distance from the coastline)? If BAS and CARS are repacked to a portion of the band, should blanket licensed and ESIMs be prohibited in the portion of the band where BAS and CARS operate to prevent interference from occurring? How would the interference environment change if satellite downlinks were permitted in the 12.7 GHz band, either in addition to satellite uplinks or as an alternative to satellite uplinks? We seek comment on these questions.

c. Protection of Federal Operations in 12.75-13.25 GHz Band

38. We seek comment on how to continue to protect Federal space research (deep space) operations if we adopt expanded use by satellite communications in the 12.75-13.25 GHz band. Footnote US251 of the Table of Allocations states that the 12.75-13.25 GHz band is allocated to the space research (deep space) (space-to-Earth) service for reception at Goldstone, California.[80] Currently, individually-licensed FSS (Earth-to-space) earth stations are able to avoid interference to NASA's Deep Space facility at Goldstone by means of geographic separation between the FSS earth station and the NASA facility.

39. We also seek comment on whether there are measures that could protect Federal space research (deep space) facilities in the 12.75-13.25 GHz band from potential harmful interference from blanket licensed FSS (Earth-to-space) operations, particularly ESIMs. Is geographic separation a viable means of interference protection from blanket licensed FSS earth stations? Would adopting coordination requirements or aggregate emissions limitations for FSS blanket licensed earth stations be a more effective means of providing interference protection to the NASA Deep Space facility at Goldstone? In this regard, we have previously sought comment on a coordination process to protect the Goldstone facility from possible interference that might be caused by mobile broadband or other expanded use in the 12.7 GHz band.[81] Could such a coordination process also be used to provide protection from possible

[80] 47 CFR § 2.106(c)(251).

[81] *12.7 GHz Band NPRM*, 38 FCC Rcd at 5348-49, para. 137. In particular, the Commission sought comment on how to define such a coordination zone and on what interference protection levels should apply at the edge of the coordination zone. *Id.* at 5349, para. 137. It asked whether protection levels similar to those contained in section 30.205 of the Commission's rules should apply, which define two coordination zones that correspond to 60 dBm/100 MHz equivalent isotropically radiated power (EIRP) and 75 dBm/100 MHz EIRP respectively. *Id.* Under section 30.205, all licensees in the 37-38 GHz band located within the zone defined by the 60 dBm/100 MHz EIRP coordinates must coordinate all operations with Federal space research service (space-to-Earth) users of the band via NTIA. *Id.* Licensees operating within the area between the zones defined by the 60 dBm/100 MHz and 75 dBM/100 MHz EIRP coordinates must coordinate all operations if their base station EIRP is greater than 60

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interference from blanket-licensed FSS earth stations, including ESIMs, transmitting in the 12.7 GHz band? Alternatively, would a coordination process, such as that which is used to protect NASA receiving earth stations from ESIMs in the 14.0-14.2 GHz (Earth-to-space) band,[82] be considered adequate once tailored for this sharing scenario? Are there other means of protecting Federal operations at fixed locations that would not require coordination, such as the incorporation of global positioning technology in blanket-licensed earth stations to prevent transmissions within a geographic area? How would the interference environment change if satellite downlinks were permitted in the 12.7 GHz band, either in addition to satellite uplinks or as an alternative to satellite uplinks? Are there additional methods to ensure protection of deep space receivers located at Goldstone, California, noting the potential differences in number of systems and received power levels, if FSS downlinks are permitted in the 12.7 GHz band? We observe that radio astronomy operations within the NRQZ could be affected by changes in satellite allocations in the 12.7 GHz band, particularly the introduction of FSS space-to-Earth downlinks. In light of the technical analyses and recommendations received from NTIA in response to the *12.7 GHz Band NPRM*, we seek comment on maintaining federal operations of radio astronomy observatories located in remote sites, including within the NRQZ, operating in the 12.7 GHz band. We seek comment on these questions.

d. Protection of Federal Operations in Adjacent Bands

40. We seek comment on ways to protect Federal operations in primary allocations for the Earth exploration satellite service (EESS) (active), aeronautical radionavigation (ARNS), and space research (active) in the adjacent 13.25-13.4 GHz band from the risk of harmful interference that may result from increased access by satellite communications in the 12.7 GHz band. We similarly seek comment on ways to protect Federal operations in the 13.4-13.75 GHz band, which is allocated on a primary basis for federal EESS (active), aeronautical radionavigation, and space research (active), and is allocated on a secondary basis for standard frequency and time signal-satellite (Earth-to-space).[83]

41. NTIA has articulated several concerns related to the protection of Federal operations in the bands that are adjacent to the 12.7 GHz band.[84] NTIA notes that the 13.25-13.4 GHz band is used by the Department of Defense (DoD) and the Federal Aviation Administration (FAA) to operate airborne Doppler navigation radar systems used to determine ground speed and drift angle of aircraft with respect to the ground.[85] It also observes that future unmanned aircraft detect-and-avoid safety systems are being developed in the 13.25-13.4 GHz band.[86] NTIA notes that the 13.4-13.75 GHz band is used for the DoD's operation of shipborne radars, for the National Oceanic and Atmospheric Administration's (NOAA) satellite operations in the Joint Satellite Oceanography Network (JASON) mission, for NASA's active remote sensing (including the future Surface Water and Ocean Topography (SWOT) mission), Global Precipitation Measurement (GPM) mission, and Tracking and Data Relay Satellite (TRDS) operations, as well as for the National Science Foundation's continuum and spectral-line radio astronomy research (including as a calibration aid for the radionavigation satellite service) operations.[87] In the context of previous proposals to repurpose the 12.7 GHz band for mobile broadband and other expanded

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dBm/100 MHz or if their antenna height exceeds 100 meters above ground level. *Id.* Licensees operating outside the zone defined by the 75 dBm/100 MHz EIRP coordinates are not required to coordinate their operations with NTIA. *Id.*

[82] *See* 47 CFR § 25.228(j)(1).

[83] 47 CFR § 2.106(a).

[84] *12.7 GHz Band NPRM*, 38 FCC Rcd at 5349, para.139.

[85] *Id.*

[86] *Id.*

[87] *Id.* at 5349-50, para. 140.

uses, NTIA expresses concern that aggregate interference from mobile base stations and ubiquitous mobile devices may cause interference to NASA and NOAA satellite systems, as well as to DoD radar systems.[88]

42. We seek comment on how NTIA's concerns related to protection of Federal operations in the bands adjacent to, or nearby, the 12.7 GHz band may differ in the context of expanded use of the 12.7 GHz band by satellite communications. Do individually licensed FSS (Earth-to-space) earth stations present the same potential risk of harmful interference to federal operations in the adjacent 13.25-13.75 GHz bands as that presented by mobile broadband or other expanded uses of the 12.7 GHz band? Would expanded use of the 12.7 GHz band by blanket-licensed FSS (Earth-to-space) earth stations, including ESIMs, present a risk of harmful interference similar to that presented by potential mobile broadband operations in the band? Would relocation or compression of existing non-Federal and Federal systems impact the use of nearby bands? We seek comment on why such expanded use would, or would not, present a risk of harmful interference in a manner similar to potential mobile broadband operations. How would the interference environment change if satellite downlinks were permitted in the 12.7 GHz band, either in addition to satellite uplinks or as an alternative to satellite uplinks?

43. We seek comment on specific ways to mitigate the potential risk of harmful interference to federal operations in the adjacent 13.25-13.75 GHz band from any increased use of the 12.7 GHz band by satellite communications. The Commission has previously noted that NTIA has set up a Technical Interchange Group (TIG) as a tool for implementation of electromagnetic compatibility (EMC) studies between federal systems and mobile broadband or other expanded use in the 12.7-13.25 GHz band.[89] Could the TIG also be a tool for implementing EMC studies between federal systems and satellite communications in the 12.7-13.25 GHz band? Alternatively, would out-of-band emission (OOBE) limits on FSS (Earth-to-space) operations in the 12.75-13.25 GHz band be appropriate to address NTIA's concerns related to protection of federal operations in the bands adjacent to the 12.7 GHz band? If so, could the OOBE limit of -13 dBm/1 MHz that was proposed in the *12.7 GHz NPRM* for mobile broadband licensees be adequate to protect Federal operations in the adjacent 13.25-13.75 GHz band?[90] Would such OOBE limits need to be adjusted to address NTIA's concerns about aggregate interference from mobile or ubiquitously deployed non-Federal operations in the 12.75-13.25 GHz band? Are there other existing protection criteria that could be used to mitigate the risk of harmful interference to Federal operations in the adjacent band? For example, NTIA observes that Recommendation ITU-R M.2008-1 (February 2014), "Characteristics and protection criteria for radars operating in the aeronautical radionavigation service in the frequency band 13.25-13.40 GHz," provides characteristics and protection criteria for Federal airborne Doppler radars.[91] NTIA states, however, that this Recommendation may need to be updated to reflect the characteristics for current and future airborne Doppler navigation radars.[92] Should OOBE limits be based on I/N interference threshold?[93] We seek comment on these statements, questions, and observations.

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[88] *Id.*

[89] *Id.* at 5350, para. 141.

[90] *Id.*

[91] Comments of the National Telecommunications and Information Administration, GN Docket No. 22-352, at 4 (rec. Dec. 12, 2022) (NTIA NOI Comments); International Telecommunication Union, Characteristics and protection criteria for radars operating in the aeronautical radionavigation service in the frequency band, 13.25-13.40 GHz, Recommendation ITU-R M.2008-1 (2014) ("Rec. ITU-R M.2008-1"). The protection level for the aeronautical radionavigation radars is expressed as a ratio of the interfering signal power to radar receiver noise power level (I/N) and ITU-R M.2008 sets this I/N criterion at −10 dB, which represents the aggregate protection level if multiple interferers are present. *See* Rec. ITU-R M.2008-1 at 2.

[92] NTIA NOI Comments at 4.

44. We also seek comment on whether there are other potential means to ensure that non-Federal operations at upper edge of the 12.7 GHz band are able to protect Federal operations in the adjacent 13.25-13.75 GHz band. The Commission previously sought comment on whether interference concerns could be alleviated by the creation of a buffer between potential non-Federal base/mobile operations in the 12.7 GHz band and Federal operations in the 13.25-13.75 GHz band?[94] It sought comment on whether relocation of the mobile BAS/CARS operations into the upper portion of the 12.7 GHz band could alleviate some of the Federal concerns about interference.[95] In response to the *12.7 GHz NPRM*, NTIA performed a preliminary compatibility analysis using a typical military aeronautical radionavigation system in the 13.25-13.4 GHz band and a mobile base station with assumed characteristics in the 12.7 GHz band, which NTIA says indicated that a 25-megahertz frequency offset of mobile BAS/CARS operations would help alleviate some of the adjacent band interference concerns.[96] We seek comment on whether buffers or offsets at the upper edge of the 12.7 GHz band are more or less necessary to protect Federal operations in the adjacent bands if the 12.7 GHz band were made available for increased use by satellite communications, compared to previous proposals to repurpose the 12.7 GHz band for mobile broadband or other expanded uses.

45. NTIA also presented an adjacent band compatibility analysis as an attachment to its comments in response to the *12.7 GHz NPRM*, and stated that its analysis could be used as a starting point for further compatibility studies between potential mobile broadband networks in the 12.7 GHz band and Federal aeronautical radionavigation operations in the adjacent band.[97] We seek comment on this analysis and its applicability to potential harmful interference from increased satellite communications in the 12.7 GHz band, particularly from blanket-licensed earth stations, including ESIMs.

2. 42 GHz

a. Access to 42-42.5 GHz by Satellite Communications

46. We seek further comment on whether granting access to the 42 GHz band by satellite communications might better ensure that this high-band spectrum is used more efficiently and intensively.[98] The comments of a satellite operator in response to the *42 GHz NPRM* state that high-band spectrum has become increasingly important for use by NGSO FSS operators, and that 20 NGSO FSS operators have sought authority to use high-band spectrum.[99] They contend that although consumer demand for satellite connectivity is growing, satellite operators are constrained by the amount of spectrum allocated for NGSO FSS use, which impacts the quality and availability of broadband services to consumers.[100] They state that the Commission has contemplated FSS use of the 42 GHz band as far back as 2010, when it considered adding a primary allocation for FSS (space-to-Earth) to conform with the

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[93] *See, e.g., Single Network Future: Supplemental Coverage from Space*, Report and Order, FCC 24-28, 39 FCC Rcd 2622, 2712, para. 205 (2024).

[94] *12.7 GHz NPRM*, 38 FCC Rcd at 5350, para. 141.

[95] *Id.*

[96] NTIA 12.7 GHz Band Comments at 6-7.

[97] *Id.* at 7; *id.* at Attachment C.

[98] High-band spectrum is generally defined as above 24 GHz. *See* GAO Report, 5G Deployment: FCC Needs Comprehensive Strategic Planning to Guide Its Efforts, GAO 20-468, at 4 (2020), https://www.gao.gov/products/gao-20-468.

[99] Comments of Kuiper Systems LLC, WT Docket No. 23-158 and GN Docket No. 14-177, at 1 (rec. Aug. 30, 2023) (Kuiper 42 GHz Comments).

[100] *Id.* at 1-2.

existing primary allocation for FSS in the international table.[101] In 2016, however, the Commission declined to adopt a primary FSS allocation, determining that there was potentially greater value at that time to reserving the spectrum for Upper Microwave Flexible Use Service (UMFUS) and that exclusive use of the 42.0-42.5 GHz band for terrestrial use was balanced by previous decisions to provide exclusive access for FSS in other high-band spectrum.[102] The Commission affirmed that decision, without additional reasoning, in 2018.[103] The same satellite operator states that since 2016, making more high-band spectrum available for FSS has become even more crucial, because the 37.5-40.0 GHz frequency range desired for FSS downlinks to gateway stations has been limited due to siting restrictions designed to protect UMFUS operations.[104] They contend that opening the 42 GHz band for satellite communications, particularly NGSO FSS operations, would be timely and sensible.[105] We seek further comment on these statements and contentions.

47. We seek comment on whether developments, particularly since 2018, support a revisiting of prior Commission determinations that high-band spectrum, including the 42 GHz band, has potentially greater value for UMFUS or other terrestrial uses than for satellite communications. Do deployments since 2016 by satellite and terrestrial operators in other high-band spectrum bands justify a fresh look at the potential use of the 42 GHz band? Does the shorter propagation range of radio transmissions in the high-band frequency ranges limit or increase the economic viability of the 42 GHz band for terrestrial uses?[106] How does the shorter propagation range similarly impact the viability of the band for satellite communications?[107] Would the shorter propagation range increase the potential for unused or underused spectrum if the band were allocated for terrestrial operations, particularly in remote and less densely populated areas, and is the potential for unused or underused spectrum similar for satellite communications, if such use were allocated in the band? We seek comment on these questions.

48. We seek comment on whether granting access to the 42 GHz band by satellite communications would allow for most efficient spectrum use through adding an allocation for FSS (space-to-Earth) on a secondary basis, as proposed by the comments of a satellite operator,[108] or through an allocation for FSS (space-to-Earth) on a primary basis. Would a secondary allocation for FSS (space-to-Earth) in the 42 GHz band in conjunction with a non-exclusive shared licensing approach for terrestrial licensees, as proposed in the *42 GHz NPRM*, maximize the use of the band for both satellite and terrestrial services, while also protecting Federal radioastronomy operations in the adjacent 42.5-43.5 GHz band?[109]

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[101] *Id.* at 2, n.4 (citing *Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands*, Third Notice of Proposed Rulemaking, 25 FCC Rcd 15663, 15670, para. 17 (2010) (*V-band Third NPRM*)).

[102] *Id.* at 3, n.7 (citing *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8144, 8154, paras. 368, 403 (2016)).

[103] *See Third V-band MO&O*, 33 FCC Rcd at 5594, para. 45.

[104] Kuiper 42 GHz Comments at 3-4.

[105] *Id.* at 4.

[106] For example, could the shorter propagation characteristics of millimeter wave transmissions be used indoors by terrestrial flexible use systems while still permitting intensive use of the 42 GHz band by satellite communications?

[107] *See 42 GHz NPRM*, 38 FCC Rcd at 63643, para. 7 ("Millimeter wave transmissions have a shorter propagation range than lower-frequency spectrum and are blocked by walls and other obstacles, making it easier to reuse the same band or channel within a smaller geographic area.") (footnotes omitted); *see also* Kuiper 42 GHz Comments at 6.

[108] Kuiper 42 GHz Comments at 4.

[109] *42 GHz Band NPRM*, 38 FCC Rcd at 6365-69, paras. 12-24 (seeking comment on shared licensing approaches). The Commission specifically sought comment on whether it could enable secondary operations in the 42 GHz band, while still ensuring primary licensees protection from interference. *Id.* at 6369, para. 24.

Would a secondary allocation for FSS (space-to-Earth) maximize the use of the band without risking harmful interference to or from potential non-Federal FS and mobile services in the band? Alternatively, would a primary allocation for FSS (space-to-Earth) be appropriate, if granting access to the 42 GHz band by satellite communications would be more efficient and effective than previous shared licensing approaches? Would there be benefits from aligning a primary allocation for FSS (space-to-Earth) in the Table of Allocations with the primary allocation for FSS (space-to-Earth) in the international table?[110] Would there be additional benefits from aligning a primary allocation for FSS (space-to-Earth) in the 42 GHz band with the primary allocation for FSS (space-to-Earth) in the adjacent 40-42 GHz bands? We seek comment on these questions.

49. We also seek comment on whether the 42 GHz band could be used for FSS (Earth-to-space) in addition to, or as an alternative to, the existing allocation for FSS (space-to-Earth). Could the 42 GHz band be more intensively used by satellite communications if satellite uplinks were permitted? Are there specific technical, economic, or legal reasons to prohibit use of the 42 GHz band, in whole or in part, for satellite uplink communications? Is it feasible for both satellite uplinks and downlinks to operate in the 42 GHz band, perhaps through geographic separation or some other means of coordination? What changes to the Table of Allocations or our part 25 rules would be necessary to allow use of the 42 GHz band, in whole or in part, for FSS (Earth-to-space) operations?

50. We seek comment on whether to maintain the existing primary allocations for FS and MS in the 42 GHz band, if it is determined that this high-band spectrum could be used more efficiently and intensively by satellite communications. Would maintaining primary allocations for FS and MS in the 42 GHz band complement or inhibit use of the band for satellite communications? Would changing the allocation for FS and MS in the 42 GHz band to a secondary basis, or removing the allocations altogether, be necessary to ensure that this high-band spectrum is used more efficiently and intensively by satellite communications? How would such an allocations make the Table of Allocations more or less consistent with global allocations, and how would global consistency make use of the 42 GHz band by satellite operations more or less efficient and intensive?[111]

51. We observe that we are not proposing any new FSS allocation in one direction in the 42 GHz band be paired with any existing or proposed companion allocation for FSS in the opposite direction. For example, an allocation of 500 megahertz for FSS downlink operations would not be symmetrical with any equivalent spectrum for FSS uplinks. We seek comment on this asymmetry and what impact, if any, it may have on the efficient and effective use of the 42 GHz band by satellite communications. Could such asymmetry have positive effects, such as providing needed capacity for one-way communications, or could the asymmetry be offset, for example through aggregation of the 42 GHz with other downlink bands to pair with aggregated FSS uplink bands? Are there bands that are allocated for FSS uplinks internationally, but not domestically, that could be paired with an allocation for FSS downlinks in the 42 GHz band? We seek comment on these questions.

52. We seek comment on whether to license any FSS space stations or earth stations in the 42 GHz band using our existing part 25 licensing procedures and technical rules. We also seek comment on whether any changes to our part 25 rules would be needed to accommodate use of the 42 GHz band by both GSO and NGSO space stations. Because millimeter wave transmissions in space-to-Earth direction are best suited for earth stations with large high-gain antennas rather than smaller blanket-licensed user terminals, and in order to limit the number of receiving earth stations that need to be coordinated with

[110] *See* Letter from Milo Medin, Chief Executive Officer, Logos Space Services, Inc., to Marlene H. Dortch, Secretary, FCC (filed May 15, 2025) (*Logos May 16 Ex Parte*) (stating that efforts to harmonize the 42 GHz band with international allocations will promote more efficient and intensive spectrum use by NGSO FSS systems, which operate on a global basis).

[111] Internationally, the 41-42.5 GHz band has a primary allocation for FS and FSS (space-to-Earth), but a secondary allocation for mobile services. *See* 47 CFR § 2.106(a), International Table.

adjacent Federal spectrum users, we seek comment on whether to limit earth station operations in the 42 GHz band to individually licensed GSO and NGSO FSS gateway stations, or whether ESIMs or other blanket-licensed, non-gateway earth stations could be licensed in the 42 GHz band.

b. Protection of and Coexistence with Federal Operations in Adjacent Bands

53. There are no existing Federal allocations in the 42 GHz band, but there are primary allocations for Federal and non-Federal radioastronomy operations in the adjacent 42.5-43.5 GHz band, and primary allocations for Federal operations in the FS, FSS (Earth-to-space), and MS (except aeronautical mobile) in the 42.5-43.5 GHz band. Footnotes US211 and US342 apply to the 42 GHz band and the 42.5-43.5 GHz bands, respectively, and seek to protect radio astronomy in the 42.5-43.5 GHz band.[112] We seek comment on how to protect these primary allocations in the adjacent 42.5-43.5 GHz band from the risk of harmful interference if we were to allow the use of the 42 GHz band by satellite communications. How would the interference environment change if satellite uplinks were permitted in the 42 GHz band, either in addition to satellite downlinks or as an alternative to satellite downlinks?

54. We observe that the 42 GHz band is already allocated and used for FSS (space-to-Earth) on a primary basis outside of the United States, and that such FSS operations are already required to protect radio astronomy operations through the limits on PFD and equivalent PFD emitted by FSS space stations through the provisions of ITU Footnote 5.551H and 5.551I, as well as ITU Resolution 743 (WRC-03), Protection of single-dish radio astronomy stations in Region 2 in the 42.5-43.5 GHz band (2003).[113] We seek comment on whether these provisions, which have been in place for over twenty years, would be sufficient to protect radio astronomy in the 42.5-43.5 GHz band from the risk of harmful interference from FSS (space-to-Earth) operations in the 42 GHz band in the United States. If FSS (space-to-Earth) operations in the 42 GHz band are limited to individually licensed gateway earth stations, would geographic separation be an additional, or alternative, method to protect radio astronomy observations in the 42.5-43.5 GHz band? Are there other international Radio Regulation provisions or interference mitigation techniques that could facilitate the more intensive use of the 42 GHz band by non-Federal FSS (space-to-Earth) operations? For example, CORF supports the use of parameters established by ITU-R.RA 769 to be used as the criteria for protecting radio astronomy sites from interference, if specific methodology for protecting radio astronomy facilities is agreed upon.[114] In addition, SIA suggests that the tighter "per 500 kHz" components of the EPFD and PFD limits in Footnote 5.551H and 5.551I of the ITU Radio Regulations and associated ITU Resolution 743 should apply only in the band

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[112] 47 CFR § 2.106(c)(211) ("In the bands … 40.5-42.5 GHz …applicants for airborne or space station assignments are urged to take all practicable steps to protect radio astronomy observations in adjacent bands from harmful interference… ."); 47 CFR § 2.106(c)(342) ("In making assignments to stations of other services to which the bands: [42.5-43.5 GHz] are allocated (*indicates radio astronomy use for spectral line observations), all practicable steps shall be taken to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (*see* ITU Radio Regulations at Nos. 4.5 and 4.6 and Article 29).").

[113] Int'l Telecomm. Union, ITU Radio Regulations [ITU-RR], Footnote 5.551H and Footnote 5.551I; ITU Res. 743 (WRC-03), *Protection of single-dish radio astronomy stations in Region 2 in the 42.5-43.5 GHz band* (2003).

[114] Comments of the National Academy of Sciences' Committee on Radio Frequencies, WT Docket No. 23-158 and GN Docket No. 14-177, at 2-3 (rec. Aug. 1, 2023) (CORF 42 GHz Comments). CORF supports a proposal to include a new footnote to the Table of Allocations that provides a table of RAS observatories in the 42 GHz band that would require coordination to achieve protection consistent with ITU-R RA.769. *Id.* at 4. CORF proposes that this table also include maximum coordination distances corresponding to maximum line-of-site distances from the observatories to any surrounding terrain. *Id.* at 4-6.

42.7-43.5 GHz in the United States, where RAS observations are most sensitive.[115] We seek comment on these observations, suggestions, and questions.

55. We also seek comment on the ability of non-Federal FSS (space-to-Earth) operations in the 42 GHz band to coexist with Federal FSS (Earth-to-space) operations in the adjacent 42.5-43.5 GHz band. Similarly, we seek comment on the ability of non-Federal FSS (space-to-Earth) operations in the 42 GHz band to coexist with Federal MS (except aeronautical mobile) users in the adjacent 42.5-43.5 GHz band. We observe that such Federal FSS (Earth-to-space) and MS operations must already limit their operations to protect Federal and non-Federal radio astronomy operations in the 42.5-43.5 GHz band. Given the need to protect radio astronomy sites within the same frequency band, would such protections also facilitate the ability of non-Federal FSS (space-to-Earth) operations in the adjacent 42 GHz band? We seek comment on these questions and observations.

III. NOTICE OF PROPOSED RULEMAKING

56. Satellite operators have requested that the Commission examine making two other spectrum bands available for satellite communications, in addition to the 12.7 GHz and 42 GHz bands.[116] We seek comment on our proposals concerning each of these requests below.

A. Access to the 51.4-52.4 GHz Band for Satellite Communications

57. We propose to make the 51.4-52.4 GHz band more available for use by satellite communications, as requested by a satellite operator.[117] The 51.4-52.4 GHz band is currently allocated domestically as a shared Federal/non-Federal band for fixed and mobile services.[118] Internationally, the band is allocated to terrestrial fixed and mobile services and GSO FSS networks in the Earth-to-space direction on a co-primary basis.[119] The ITU began studying this band for FSS use after the 2015 World Radiocommunication Conference ("WRC-15")'s approval of Resolution 162, which directed ITU-R to study the FSS spectrum needs and a possible FSS allocation in the 51.4-52.4 GHz band.[120] These studies, which were completed shortly before WRC-19, concluded that "the additional allocation to FSS being considered is beneficial to make broadband connections more accessible to communities regardless of their geographical location and with more affordable costs as achieved by HTS (High Throughput Satellite) systems" and recommended adding an FSS allocation in the 51.4-52.4 GHz band for GSO networks, along with limits of unwanted emission power to ensure GSO compatibility with EESS

[115] Comments of the Satellite Industry Association, IB Docket No. 97-95, at 7 (rec. Jan. 6, 2011). We also note the recently-published information in an ITU report on this matter. International Telecommunications Union, Report ITU-R RA.2552-0, Methodology for the coordination of International Mobile Telecommunications systems and stations of the radio astronomy service operating in the frequency band 42.5-43.5 GHz (March 2025), https://www.itu.int/pub/R-REP-RA.2552-2025.

[116] Letter from Catherine Kuersten, Senior Corporate Counsel, Kuiper Systems LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 22-352, 14-177, WT Docket No. 23-158 (filed May 13, 2025) (*Kuiper May 13 Ex Parte*); Letter from Jameson Dempsey, Director, Space Policy, Space Exploration Technologies Corp., to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 22-352, 14-177, WT Docket No. 23-158 (filed May 12, 2025) (*SpaceX May 12 Ex Parte*); *Logos May 15 Ex Parte* at 1; Letter from Jameson Dempsey, Director, Satellite Policy, to Marlene H. Dortch, Secretary, FCC (filed May 16, 2025); Letter from Dave Cavossa, President, Commercial Space Federation, to Marlene H. Dortch, Secretary, FCC (filed May 16, 2025).

[117] *See generally Kuiper May 13 Ex Parte*; *SpaceX May 12 Ex Parte* at 2-3.

[118] 47 CFR § 2.106.

[119] *Id.* § 2.106 & n.5.555C (limiting the use of the 51.4-52.4 GHz band to GSO FSS networks).

[120] *See* International Radio Regulations, Resolution 162 (WRC-15), *Studies relating to spectrum needs and possible allocation of the frequency band 51.4-52.4 GHz to the fixed-satellite service (Earth-to-space)*, at 159-60 (2016).

(passive) operations in the 52.6-54.25 GHz band.[121] WRC-19 adopted these limits and added an FSS allocation limited to GSO networks in the band.[122]

58. Both before and after the adoption of Res. 750 (WRC-19), interested satellite parties have filed Petitions for Rulemaking to gain access to the band. In 2016, Boeing filed a Petition for Rulemaking to add a FSS Earth-to-space allocation and in 2020, the Satellite Industry Association submitted a Petition for Rulemaking asking the Commission to (1) adopt domestically the WRC-19 GSO FSS allocation in the 51.4-52.4 GHz band; and (2) expand this new allocation by making it available to NGSO FSS systems.[123] The Commission has not acted on either of these requests.

59. We observe that a robust record supporting use of this band for satellite communications has accumulated over the past 10 years. We seek comment on whether our proposal to grant access to the 51.4-52.4 GHz band by satellite operators would advance our goal for more efficient and intensive use of the band in the Earth-to-space direction. We invite comment on creating a domestic FSS allocation in the band and whether use of the allocation should be limited to NGSO systems. Commenters should address current Federal and non-Federal uses of the band, opportunities for NGSO FSS deployment, and efficient coexistence measures to best protect incumbent or potential future services in these, adjacent bands, and the nearby 52.6-54.6 GHz band covered by Footnote US246 and international Footnote 5.340, including terrestrial and satellite operations and passive services. For example, we seek comment on whether limits on unwanted power emissions could ensure NGSO compatibility with ESS (passive) and space research (passive) operations in the 52.6-54.25 GHz band. We also seek comment on any changes to our part 25 rules that are needed to permit access to this band by satellite communications. Although global harmonization is not a prerequisite to Commission spectrum allocations or service rules, we seek comment on any tradeoffs of adopting service rules for this band in the absence of an international allocation for satellite communications.[124]

B. Access to the "W-Band" for Satellite Communications

60. We also propose to make the following frequency ranges in the so-called "W-band" available for use by satellite communications: 92.0-94.0 GHz, 94.1-100 GHz, 102.0-109.5 GHz, and

[121] Report ITU-R S.2461-0, *Spectrum needs for the fixed-satellite service in the 51.4-52.4 GHz band*, 16 (July 2019).

[122] *See* World Radiocommunication Conference, Final Acts of WRC-19, at Article 5, Footnote 5.555C, Article 21, Appendix 7 and Resolution 750 (rev. WRC-19) (2019). The limits to protect adjacent passive operations were based on FSS deployments with GSO gateways using 2.4 meter or larger antennas.

[123] *See* The Boeing Company, Allocation and Authorization of Additional Spectrum for the Fixed-Satellite Service in the 50.4-51.4 GHz and 51.4-52.4 GHz Bands, Petition for Rulemaking, RM-11773 (filed June 22, 2016); *see also Consumer and Government Affairs Bureau Reference Information Center Petition for Rulemakings Filed*, Public Notice, Report No. 3166 (rel. Jan. 7, 2021); Satellite Industry Association, Adoption of World Radiocommunication Conference 2019 Allocation for Fixed-Satellite Service in the Earth-to-space Direction in the 51.4-52.4 GHz Band, Petition for Rulemaking, RM-11871 (filed Nov. 16, 2020); Comments of Kuiper Systems LLC, RM-11871 (filed Feb. 8, 2021) (recommending NGSO FSS access to the band); Reply Comments of Kuiper Systems LLC, RM-11871 (filed Feb. 23, 2021) (same).

[124] We note that the Commission no longer dismisses space station applications if they contain a request for authority to operate in a frequency band that is not allocated internationally for such operations. *See Expediting Initial Processing of Satellite and Earth Station Applications*, Report and Order and Further Notice of Proposed Rulemaking, FCC 23-73, paras. 25-26 (rel. Sept. 22, 2023). Any such request, however, would need to take into account Article 4.4 of the ITU Radio Regulations, which states that Administrations shall not assign frequencies in derogation of the international table of frequency allocations, except on the express condition that use of the frequencies shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the ITU Radio Regulations. *Id.* at para. 27.

111.8-114.25 GHz, as requested by a satellite operator.[125] The satellite operator argues that these frequency bands are well suited for satellite backhaul communications because they combine large bandwidth with high-gain, narrow "pencil beam" transmissions, allowing high-capacity backhaul while effectively allowing sharing of the spectrum with other users.[126] It also argues that a proposal to add NGSO FSS uplink allocations in these bands would facilitate the future growth and innovation of next-generation satellite services and present a "first-mover advantage" for U.S.-licensed operators while encouraging other administrations to seek similar allocations for satellite communications in these bands.[127]

- These W-band frequency ranges have unified allocations for Federal and non-Federal operations: [128]
- The 92.0-94.0 GHz band has primary allocations for terrestrial fixed and mobile services, as well as radio astronomy and radiolocation services;
- The 94.1-95.0 GHz band has primary allocations for terrestrial fixed and mobile services, as well as radio astronomy and radiolocation services;
- The 95-100 GHz band is allocated on a primary basis to fixed, mobile, radio astronomy, radiolocation, radionavigation, and radionavigation satellite services;
- The 102-105 GHz band is allocated on a primary basis to fixed, mobile, and radio astronomy;
- The 105.0-109.5 GHz band has primary allocations for the fixed, mobile, radio astronomy, and space research (passive) services; and
- The 111.8-114.25 GHz band is allocated on a primary basis for the fixed, mobile, radio astronomy, and space research (passive) services.

61. All these bands are subject to Footnote US342, which states that all practicable steps must be taken to protect the radio astronomy service from harmful interference, and that emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service.[129]

62. The 92-94 GHz and 94.1-95 GHz bands are also subject to Footnote US161, which requires allocated services within specified distances to be coordinated with specified radio astronomy observatories.[130] The 95-100 GHz band is subject to international Footnote 5.554 that authorizes satellite links connecting land stations at specified fixed points, when used in conjunction with the mobile-satellite service or the radionavigation-satellite service.[131] The 102-105 GHz, 105.0-109.5 GHz, and 111.8-114.25 GHz bands are subject to international Footnote 5.341, which notes that passive research is being

[125] *SpaceX May 12 Ex Parte* at 2, n.2. The Commission has previously examined use of spectrum above 95 GHz for unlicensed, experimental, and point-to-point links. *See Spectrum Horizons*, First Report and Order. 34 FCC Rcd 1605 (2019); *Spectrum Horizons*, Notice of Proposed Rulemaking, 33 FCC Rcd 2438 (2018).

[126] *SpaceX May 12 Ex Parte* at 2-3.

[127] *Id.* at 3 (observing that several NGSO operators have already applied to utilize these W-band frequencies for next-generation satellite services).

[128] 47 CFR § 2.106.

[129] *Id*. § 2.106 (c)(342).

[130] *Id*. § 2.106 (c)(161).

[131] *Id.* § 2.106(b)(554).

conducted by some countries for the search for intentional emissions of extraterrestrial origin.[132]

63. We seek comment on making changes to the U.S. Table of Allocations to provide allocations for FSS in any or all of these frequency bands, as well as any changes to our part 25 rules to effectuate such changes. We seek comment on whether granting access to these W-band frequencies by satellite operators would advance our goal for more efficient and intensive use of spectrum. We invite comment whether use of the allocation should be limited individually licensed gateway stations in the Earth-to-space direction, and whether to limit use of these spectrum ranges to NGSO systems. Commenters should also address current Federal and non-Federal uses of the band, opportunities for NGSO FSS deployment, and potential coexistence measures to efficiently protect incumbent services or potential future services in these, or adjacent, bands, particularly Federal operations. We are unaware of any technical studies that have been conducted to determine any limits of unwanted emission power to ensure protection of EESS (passive) and RAS operations in the 86-92 GHz, 100-102 GHz, 109.5-111.8 GHz, and 114.25-116 GHz bands (covered by Footnote US246 and international Footnote 5.340) or EESS (active) operations in the 94-94.1 GHz band. We expect that any coexistence analysis would consider specific information about anticipated NGSO FSS gateway station operating parameters including deployment densities, earth station elevation angles, antenna characteristics (e.g., antenna polarization, antenna pattern mask), station Equivalent Isotropically Radiated Power (EIRP), and operating bandwidths (including out-of-band performance). We seek specific comment on these operating parameters. We also seek general comment on information or methodologies that may best inform the likelihood of harmful interference.[133] Furthermore, we seek comment on whether we could extend the self-coordinated and data-assisted "light-licensing" framework for the 70/80/90 GHz band to these W-band frequencies.[134] As we observe above for the 51.4-52.4 GHz band, although global harmonization is not a prerequisite to Commission spectrum allocations or service rules, we seek comment on the tradeoffs, if any, of adopting service rules for this band in the absence of an international allocation for satellite communications.

IV. PROCEDURAL MATTERS

64. Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS).

- *Electronic Filers*: Comments may be filed electronically using the Internet by accessing the ECFS: https://www.fcc.gov/ecfs.
- *Paper Filers*: Parties who choose to file by paper must file an original and one copy of each filing.
    - Filings can be sent by hand or messenger delivery, by commercial courier, or by the U.S. Postal Service. All filings must be addressed to the Secretary, Federal Communications Commission.
    - Hand-delivered or messenger-delivered paper filings for the Commission's Secretary are accepted between 8:00 a.m. and 4:00 p.m. by the FCC's mailing contractor at 9050 Junction Drive, Annapolis Junction, MD 20701. All hand deliveries must be held

[132] *Id.* § 2.106(b)(341).

[133] *See* International Radio Regulations, Resolution 712 (WRC-23), studies regarding the protection of the Earth exploration-satellite service (passive) and the radio astronomy service in certain frequency bands above 76 GHz from unwanted emissions of active services.

[134] *See SpaceX May 12 Ex Parte* at 3, n.3; *see also Modernizing and Expanding Access to the 70/80/90 GHz Bands*, WT Docket No. 20-133, Report and Order and Further Notice of Proposed Rulemaking, FCC 24-16 (rel. Jan. 26, 2024).

together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.

- Commercial courier deliveries (any deliveries not by the U.S. Postal Service) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- Filings sent by U.S. Postal Service First-Class Mail, Priority Mail, and Priority Mail Express must be sent to 45 L Street NE, Washington, DC 20554.

- *People with Disabilities*: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530.

65. This proceeding shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.[135] Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

66. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),[136] requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."[137] Accordingly, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) concerning the potential rule and policy changes contained in this *Further Notice of Proposed Rulemaking* and *Notice of Proposed Rulemaking*. The IRFA is set forth in Appendix A. The Commission invites the general public, in particular small businesses, to comment on the IRFA. Comments must be filed by the deadlines for comments on the *Notice* indicated on the first page of this document and must have a separate and distinct heading designating them as responses to the IRFA.

67. *Paperwork Reduction Act*. This *Notice* may contain proposed new or modified information collection(s) subject to the Paperwork Reduction Act of 1995 (PRA).[138] If the Commission adopts any new or modified information collection requirements, they will be submitted to the Office of Management and Budget (OMB) for review under section 3507(d) of the PRA. OMB, the general public,

[135] 47 CFR §§ 1.1200 *et seq.*

[136] *See* 5 U.S.C. § 601 *et seq.,* as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[137] *Id.* § 605(b).

[138] Pub. L. No. 104-13.

and other federal agencies are invited to comment on the new or modified information collection requirements contained in these proceedings. In addition, pursuant to the Small Business Paperwork Relief Act of 2002,[139] we seek specific comment on how we might "further reduce the information collection burden for small business concerns with fewer than 25 employees."[140]

68. *Providing Accountability Through Transparency Act:* Consistent with the Providing Accountability Through Transparency Act, Public Law 118□9, a summary of this document will be available on https://www.fcc.gov/proposed□rulemakings.

69. *Further Information*. For further information on this proceeding, contact Stephen Duall of the Space Bureau, at 202-418-1103, or Stephen.Duall@fcc.gov.

V. ORDERING CLAUSES

70. Accordingly, IT IS ORDERED, pursuant to sections 1, 2, 4, 301, 302, 303, 304, 307, 309, and 310 of the Communications Act of 1934, 47 U.S.C. §§ 151, 152, 154, 301, 302a, 303, 304, 307, and section 1.411 of the Commission's rules, 47 CFR § 1.411, that this *Further Notice of Proposed Rulemaking* and *Notice of Proposed Rulemaking* ARE HEREBY ADOPTED.

71. IT IS FURTHER ORDERED that the Commission's Office of the Secretary, SHALL SEND a copy of this *Further Notice of Proposed Rulemaking* and *Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

[139] Pub. L. No. 107-198.

[140] 44 U.S.C. § 3506(c)(4).

APPENDIX A

Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[1] the Federal Communications Commission (Commission) has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the policies and rules proposed in the *Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking* (*Notice*) assessing the possible significant economic impact on a substantial number of small entities. The Commission requests written public comments on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments specified on the first page of the *Notice*. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *Notice* and IRFA (or summaries thereof) will be published in the Federal Register.[3]

A. Need for, and Objectives of, the Proposed Rules

2. The Commission sought comment in two prior notice of proposed rulemakings on ways the 12.7-13.25 GHz band (12.7 GHz band), and the 42.0-42.5 GHz band (42 GHz band) could be used more efficiently and intensively by terrestrial wireless communications for innovation, economic growth, and to increase connectivity in the United States.[4] A mixture of terrestrial wireless and satellite uses currently operate in the 12.7 GHz band as well as limited Federal operations.[5] The 42 GHz band which is not currently used for any existing services in the United States, is allocated to non-Federal fixed service (FS) and mobile service (MS) on a primary basis,[6] but not allocated to any satellite services. In addition, in *ex parte* filings within the proceeding, commenters suggested the Commission also make available for more intensive satellite use the 51.4-52.4 GHz band (52 GHz band) as well as the 92.0-94.0 GHz, 94.1-100 GHz, 102.0-109.5 GHz, and 111.8-114.25 GHz bands (W-band).[7] Internationally, the 52 GHz band is allocated to terrestrial fixed and mobile services and GSO FSS networks in the Earth-to-space direction on a co-primary basis, but there does not yet exist an allocation for satellite operations in the United

[1] 5 U.S.C. §§ 601 *et seq*., as amended by the Small Business Regulatory Enforcement and Fairness Act (SBREFA), Pub. L. No. 104-121, 110 Stat. 847 (1996).

[2] *Id.* § 603(a).

[3] *Id*.

[4] *Expanding Flexible Use of the 12.2-12.7 GHz Band; Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, Report and Order and Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking and Order, 38 FCC Rcd 5283 (2023) (*12.7 GHz Band NPRM*, particularly when referring solely to the Notice of Proposed Rulemaking in the 12.7-13.25 GHz band); *Shared Use of the 42.0-42.5 GHz Band; Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Notice of Proposed Rulemaking, 38 FCC Rcd 6362 (2023) (*42 GHz Band NPRM*).

[5] The United States Table of Frequency Allocations (United States Table) is subdivided into the Federal Table of Frequency Allocations (Federal Table, column 4 of § 2.106) and the non-Federal Table of Frequency Allocations (non-Federal Table, column 5 of § 2.106). The Federal Table is administered by NTIA and the non-Federal Table is administered by the Commission. *See* 47 CFR § 2.105(a). Stations belonging to and operated by the United States are Federal stations. 47 U.S.C. § 305.

[6] 47 CFR § 2.106(a).

[7] *See* Letter from Catherine Kuersten, Senior Corporate Counsel, Kuiper Systems LLC, to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 22-352, 14-177, WT Docket No. 23-158 (filed May 13, 2025) (*Kuiper May 13 Ex Parte*); Letter from Jameson Dempsey, Director, Space Policy, Space Exploration Technologies Corp., to Marlene H. Dortch, Secretary, FCC, GN Docket Nos. 22-352, 14-177, WT Docket No. 23-158 (filed May 12, 2025) (*SpaceX May 12 Ex Parte*).

States.[8] The W-band ranges have varied but unified allocations for Federal and non-Federal operations,[9] with large bandwidth with high-gain, narrow "pencil beam" transmissions, that could allow high-capacity satellite backhaul communications.

3. In today's *Notice* the Commission continues its efforts to promote technological innovation, to grow the nation's economy, and to facilitate increased connectivity for all Americans. The *Notice* seeks further comment on ways to use the 12.7 GHz band, the 42 GHz band, the 52 GHz band, and the W-band more efficiently and intensively. The *Notice* also seeks comment on using these bands more intensively for satellite communications, including as an alternative, or a complement to the previous proposals for terrestrial wireless communications in the band.

4. To achieve more intensive use of the 12.7 GHz band by satellite communications, the *FNPRM* requests comment on removing existing regulatory restrictions, and opening the band to a wider range of satellite operations. For more intensive use of the 42 GHz band, the *Notice* requests comment on adding for the first time, an allocation for satellite communications in the fixed-satellite service (FSS).[10] In addition, in the *Notice*, the Commission proposes creating a creating a domestic FSS allocation in the 52 GHz band and the W-band for more intensive use of those bands. While the Commission seeks to more efficiently and intensively expand use of these bands, we are also mindful of the continued need to protect incumbent spectrum users from the risk of harmful interference, and seek comment on ways to protect incumbent spectrum users in the band, as well as ways to protect spectrum users, particularly Federal operators, in adjacent bands.

B. Legal Basis

5. The proposed action is authorized pursuant to sections 1, 2, 4, 301, 302, 303, 304, 307, 309, and 310 of the Communications Act of 1934, 47 U.S.C. §§ 151, 152, 154, 301, 302a, 303, 304, 307, and section 1.411 of the Commission's rules, 47 CFR § 1.411.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

6. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[11] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[12] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act."[13] A "small business

[8] *Id.* § 2.106 & n.5.555C (limiting the use of the 51.4-52.4 GHz band to GSO FSS networks).

[9] 47 CFR § 2.106.

[10] FSS is defined as "a radiocommunication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to-satellite links, which may also be operated in the inter-satellite service; the Fixed-Satellite Service may also include feeder links of other space radiocommunication services." 47 CFR § 25.103.

[11] 5 U.S.C § 603(b)(3).

[12] *Id.* § 601(6).

[13] *Id*. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[14]

7. *Small Businesses, Small Organizations, Small Governmental Jurisdictions*. Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe, at the outset, three broad groups of small entities that could be directly affected herein.[15] First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration's (SBA) Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.[16] These types of small businesses represent 99.9% of all businesses in the United States, which translates to 34.75 million businesses.[17]

8. Next, the type of small entity described as a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[18] The Internal Revenue Service (IRS) uses a revenue benchmark of $50,000 or less to delineate its annual electronic filing requirements for small exempt organizations.[19] Nationwide, for tax year 2022, there were approximately 530,109 small exempt organizations in the U.S. reporting revenues of $50,000 or less according to the registration and tax data for exempt organizations available from the IRS.[20]

9. Finally, the small entity described as a "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."[21] U.S. Census Bureau data from the 2022 Census of Governments indicate there were 90,837 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.[22] Of this number, there were 36,845

[14] 15 U.S.C. § 632.

[15] 5 U.S.C. § 601(3)-(6).

[16] *See* SBA, Office of Advocacy, *Frequently Asked Questions About Small Business* 1 (July 23, 2024), https://advocacy.sba.gov/wp-content/uploads/2024/12/Frequently-Asked-Questions-About-Small-Business_2024-508.pdf.

[17] *Id*.

[18] 5 U.S.C. § 601(4).

[19] The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C § 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number of small organizations in this small entity description. S*ee* Annual Electronic Filing Requirement for Small Exempt Organizations – Form 990-N (e-Postcard), "Who must file," https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard. We note that the IRS data does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

[20] *See* Exempt Organizations Business Master File Extract (EO BMF), "CSV Files by Region," https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-eo-bmf. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description was extracted from the IRS EO BMF data for businesses for the tax year 2022 with revenue less than or equal to $50,000 for Region 1-Northeast Area (71,897), Region 2-Mid-Atlantic and Great Lakes Areas (197,296), and Region 3-Gulf Coast and Pacific Coast Areas (260,447) that includes the continental U.S., Alaska, and Hawaii. This data includes information for Puerto Rico (469).

[21] 5 U.S.C. § 601(5).

[22] *See* U.S. Census Bureau, 2022 Census of Governments – Organization Table 2. Local Governments by Type and State: 2022 [CG2200ORG02], https://www.census.gov/data/tables/2022/econ/gus/2022-governments.html. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township)

(continued….)

general purpose governments (county,[23] municipal, and town or township[24]) with populations of less than 50,000 and 11,879 special purpose governments (independent school districts[25]) with enrollment populations of less than 50,000.[26] Accordingly, based on the 2022 U.S. Census of Governments data, we estimate that at least 48,724 entities fall into the category of "small governmental jurisdictions."[27]

10. *Radio Frequency Equipment Manufacturers (RF Manufacturers)*. There are several analogous industries with an SBA small business size standard that are applicable to RF Manufacturers. These industries are Fixed Microwave Services, Other Communications Equipment Manufacturing, Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. A description of these industries and the SBA small business size standards are detailed below.

11. Fixed Microwave Services. Fixed microwave services include common carrier,[28] private-operational fixed,[29] and broadcast auxiliary radio services.[30] They also include the Upper Microwave Flexible Use Service (UMFUS),[31] Millimeter Wave Service (70/80/90 GHz),[32] Local Multipoint Distribution Service (LMDS),[33] the Digital Electronic Message Service (DEMS),[34] 24 GHz Service,[35]

(Continued from previous page)
and special purpose governments (special districts and independent school districts). *See also* tbl.2. CG2200ORG02 Table Notes_Local Governments by Type and State_2022.

[23] *See id.* at tbl.5. County Governments by Population-Size Group and State: 2022 [CG2200ORG05], https://www.census.gov/data/tables/2022/econ/gus/2022-governments.html. There were 2,097 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

[24] *See id.* at tbl.6. Subcounty General-Purpose Governments by Population-Size Group and State: 2022 [CG2200ORG06], https://www.census.gov/data/tables/2022/econ/gus/2022-governments.html. There were 18,693 municipal and 16,055 town and township governments with populations less than 50,000.

[25] *See id.* at tbl.10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2022 [CG2200ORG10], https://www.census.gov/data/tables/2022/econ/gus/2022-governments.html. There were 11,879 independent school districts with enrollment populations less than 50,000. *See also* tbl.4. Special-Purpose Local Governments by State Census Years 1942 to 2022 [CG2200ORG04], CG2200ORG04 Table Notes_Special Purpose Local Governments by State_Census Years 1942 to 2022.

[26] While the special purpose governments category also includes local special district governments, the 2022 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category.

[27] This total is derived from the sum of the number of general purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,845) and the number of special purpose governments - independent school districts with enrollment populations of less than 50,000 (11,879), from the 2022 Census of Governments - Organizations tbls. 5, 6 & 10.

[28] *See* 47 CFR Part 101, Subparts C and I.

[29] *See id*. Subparts C and H.

[30] Auxiliary Microwave Service is governed by Part 74 of Title 47 of the Commission's Rules. *See* 47 CFR Part 74. Available to licensees of broadcast stations and to broadcast and cable network entities, broadcast auxiliary microwave stations are used for relaying broadcast television signals from the studio to the transmitter, or between two points such as a main studio and an auxiliary studio. The service also includes mobile TV pickups, which relay signals from a remote location back to the studio.

[31] *See* 47 CFR Part 30.

[32] *See* 47 CFR Part 101, Subpart Q.

[33] *See id*. Subpart L.

[34] *See id*. Subpart G.

Multiple Address Systems (MAS),[36] and Multichannel Video Distribution and Data Service (MVDDS),[37] where in some bands licensees can choose between common carrier and non-common carrier status.[38] Wireless Telecommunications Carriers (*except* Satellite)[39] is the closest industry with an SBA small business size standard applicable to these services. The SBA small size standard for this industry classifies a business as small if it has 1,500 or fewer employees.[40] U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.[41] Of this number, 2,837 firms employed fewer than 250 employees.[42] Thus, under the SBA size standard, the Commission estimates that a majority of fixed microwave service licensees can be considered small.

12. The Commission's small business size standards with respect to fixed microwave services involve eligibility for bidding credits and installment payments in the auction of licenses for the various frequency bands included in fixed microwave services. When bidding credits are adopted for the auction of licenses in fixed microwave services frequency bands, such credits may be available to several types of small businesses based average gross revenues (small, very small and entrepreneur) pursuant to the competitive bidding rules adopted in conjunction with the requirements for the auction and/or as identified in Part 101 of the Commission's rules for the specific fixed microwave services frequency bands.

13. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

14. Other Communications Equipment Manufacturing. This industry comprises establishments primarily engaged in manufacturing communications equipment (except telephone apparatus, and radio and television broadcast, and wireless communications equipment).[43] Examples of such manufacturing include fire detection and alarm systems manufacturing, Intercom systems and equipment manufacturing, and signals (e.g., highway, pedestrian, railway, traffic) manufacturing.[44] The

(Continued from previous page)

[35] *See id*.

[36] *See id.* Subpart O.

[37] *See id*. Subpart P.

[38] *See* 47 CFR §§ 101.533, 101.1017.

[39] *See* U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers* (*except Satellite*)," https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[40] *See* 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

[41] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Employment Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEEMPFIRM, NAICS Code 517312, https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

[42] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[43] *See* U.S. Census Bureau, *2017 NAICS Definitions, "334290 Other Communications Equipment Manufacturing,"* https://www.census.gov/naics/?input=334290&year=2017&details=334290.

[44] *Id.*

SBA small business size standard for this industry classifies firms having 750 or fewer employees as small.[45] For this industry, U.S. Census Bureau data for 2017 shows that 321 firms operated for the entire year.[46] Of that number, 310 firms operated with fewer than 250 employees.[47] Based on this data, we conclude that the majority of Other Communications Equipment Manufacturers are small.

15. Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing. This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.[48] Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.[49] The SBA small business size standard for this industry classifies firms having 1,250 employees or less as small.[50] U.S. Census Bureau data for 2017 show that there were 656 firms in this industry that operated for the entire year.[51] Of this number, 624 had fewer than 250 employees.[52] Based on this data, we conclude that a majority of manufacturers in this industry are small.

16. *Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) Licensees (TV Stations).* Only licensees of broadcast stations, broadcast networks, and cable networks can hold RPU licenses. BAS involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit to the studio or from the studio to the transmitter). The Commission nor the SBA has developed a small business size standard for Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) licensees. Television Broadcasting[53] is the closest industry with a SBA small business size standard for Remote pickup BAS when used by a TV station. The SBA small business size standard for this industry classifies a business as small if it has $47 million or less in annual receipts.[54] 2017 U.S. Census Bureau indicates that 744 firms in this industry operated for the entire year.[55] Of that number, 657 firms had revenue of

[45] *See* 13 CFR 121.201, NAICS Code 334290.

[46] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Selected Sectors: Employment Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEEMPFIRM, NAICS Code 334290, https://data.census.gov/cedsci/table?y=2017&n=334290&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

[47] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[48] *See* U.S. Census Bureau, *2017 NAICS Definition*, "*334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing,*" https://www.census.gov/naics/?input=334220&year=2017&details=334220.

[49] *Id.*

[50] *See* 13 CFR § 121.201, NAICS Code 334220.

[51] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Employment Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEEMPFIRM, NAICS Code 334220, https://data.census.gov/cedsci/table?y=2017&n=334220&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

[52] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[53] *See* U.S. Census Bureau, *2017 NAICS Definition, "515120 Television Broadcasting,*" https://www.census.gov/naics/?input=515120&year=2017&details=515120.

[54] *See* 13 CFR § 121.201, NAICS Code 515120 (as of 10/1/22 NAICS Code 516120).

[55] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEREVFIRM, NAICS Code 515120,

(continued….)

less than $25,000,000.[56] Based on this data we estimate that the majority of firms are small entities under the SBA size standard.

17. *Wireless Telecommunications Carriers (except Satellite).* This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves.[57] Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless Internet access, and wireless video services.[58] The SBA size standard for this industry classifies a business as small if it has 1,500 or fewer employees.[59] U.S. Census Bureau data for 2017 show that there were 2,893 firms in this industry that operated for the entire year.[60] Of that number, 2,837 firms employed fewer than 250 employees.[61] Additionally, based on Commission data in the 2022 Universal Service Monitoring Report, as of December 31, 2021, there were 594 providers that reported they were engaged in the provision of wireless services.[62] Of these providers, the Commission estimates that 511 providers have 1,500 or fewer employees.[63] Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

18. ***Satellite Telecommunications.*** This industry comprises firms "primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications."[64] Satellite telecommunications service providers include satellite and earth station operators. The SBA small business size standard for this industry classifies a business with $44 million or less in annual receipts as small.[65] U.S. Census Bureau data for 2017 show that 275 firms in this industry operated for the entire year.[66] Of this number, 242 firms had revenue of less than

(Continued from previous page)
https://data.census.gov/cedsci/table?y=2017&n=515120&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

[56] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, *see* https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

[57] *See* U.S. Census Bureau, *2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (except Satellite),"* https://www.census.gov/naics/?input=517312&year=2017&details=517312.

[58] *Id.*

[59] *See* 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

[60] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Employment Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEEMPFIRM, NAICS Code 517312, https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

[61] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

[62] Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2022), https://docs.fcc.gov/public/attachments/DOC-391070A1.pdf.

[63] *Id.*

[64] *See* U.S. Census Bureau, *2017 NAICS Definition, "517410 Satellite Telecommunications,"* https://www.census.gov/naics/?input=517410&year=2017&details=517410.

[65] *See* 13 CFR § 121.201, NAICS Code 517410.

[66] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEREVFIRM, NAICS Code 517410, https://data.census.gov/cedsci/table?y=2017&n=517410&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

$25 million.[67] Consequently, using the SBA's small business size standard most satellite telecommunications service providers can be considered small entities. The Commission notes however, that the SBA's revenue small business size standard is applicable to a broad scope of satellite telecommunications providers included in the U.S. Census Bureau's Satellite Telecommunications industry definition. Additionally, the Commission neither requests nor collects annual revenue information from satellite telecommunications providers, and is therefore unable to more accurately estimate the number of satellite telecommunications providers that would be classified as a small business under the SBA size standard.

19. *All Other Telecommunications.* This industry is comprised of establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation.[68] This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.[69] Providers of Internet services (e.g. dial-up ISPs) or Voice over Internet Protocol (VoIP) services, via client-supplied telecommunications connections are also included in this industry.[70] The SBA small business size standard for this industry classifies firms with annual receipts of $40 million or less as small.[71] U.S. Census Bureau data for 2017 show that there were 1,079 firms in this industry that operated for the entire year.[72] Of those firms, 1,039 had revenue of less than $25 million.[73] Based on this data, the Commission estimates that the majority of "All Other Telecommunications" firms can be considered small.

D. Description of Economic Impact and Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

20. The RFA directs agencies to describe the economic impact of proposed rules on small entities, as well as projected reporting, recordkeeping and other compliance requirements, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record. [74]

1. 12.7 GHz Band

21. *Elimination of Existing Regulatory Restrictions and Expanded Use of the 12.7 GHz Band.* Opening and expanding use of the 12.7 GHz band by satellite communications by eliminating or amending the restrictions of existing Footnotes NG52 and NG57 to the U.S. Table of Frequency

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[67] *Id*. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, *see* https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

[68] *See* U.S. Census Bureau, *2017 NAICS Definition*, "*517919 All Other Telecommunications,*" https://www.census.gov/naics/?input=517919&year=2017&details=517919.

[69] *Id.*

[70] *Id*.

[71] *See* 13 CFR § 121.201, NAICS Code 517919 (as of 10/1/22, NAICS Code 517810).

[72] *See* U.S. Census Bureau, *2017 Economic Census of the United States*, *Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017,* Table ID: EC1700SIZEREVFIRM, NAICS Code 517919, https://data.census.gov/cedsci/table?y=2017&n=517919&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false. At this time, the 2022 Economic Census data is not available.

[73] *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, *see* https://www.census.gov/glossary/#term_ReceiptsRevenueServices.

[74] 5 U.S.C. § 603(b)(4).

Allocations (Table of Allocations);[75] and expanding use of the band by Earth Stations in Motion (ESIMs) via amendment or expanded application of existing Footnote NG527A, and utilizing for satellite communications downlink (space-to-Earth direction) operations in addition to, or as an alternative to, the existing allocation for satellite communications uplink (Earth-to-space) operations restrictions should not impose any reporting, recordkeeping, or other compliance requirements on small and other entities in the satellite communications industry. Instead, the potential deregulation could have a positive economic impact on small entities in the satellite communications industry.

22. *Changes to Part 25 Rules and Table of Allocations to Expand the Use of the 12.7 GHz Band.* Part 25 rule changes, and changes to the Table of Allocations to expand the use of the 12.7 GHz Band by satellite communications which the Commission seeks comment on include, lifting the existing freeze on space and earth station applications in the 12.7 GHz band; changes to the Table of Allocations and its part 25 rules to expand the use of the 12.7 GHz band by satellite communications such as adding "Satellite Communications (part 25)" to the FCC Rule Part(s) column of the Table of Allocations in the 12.7 GHz band; and examining whether the existing licensing and operating provisions of section 25.146 of the Commission's rules,[76] which govern non-geostationary satellite orbit operations in the 10.7-30 GHz frequency range, including any applicable equivalent power-flux density levels, are sufficient to address an increased operations by satellite communications in the 12.7 GHz band. In addition, the Commission seeks comment on whether to use the Commission's existing licensing procedures under part 25 of the Commission's rules to process any new applications for geostationary or non-geostationary satellite orbit space stations to operate in the 12.7 GHz band, or whether any changes to the Commission's part 25 rules are needed for processing new applications.[77] If adopted, there could be an economic impact for small and other satellite communications entities who would be required to comply with the licensing, reporting, and recordkeeping requirements of part 25, either in their existing form or as changed in this rulemaking.

23. *Sharing the 12.7 GHz Band with Existing Non-Federal Users*. Sharing the 12.7 GHz band with existing non-Federal users could likewise have an economic impact for small and other satellite communications entities. The *Notice* probes sharing the 12.7 GHz band with existing Non-Federal users inquiring whether expanded use of the 12.7 GHz band by satellite communications necessitates any changes to the spectrum sharing obligations between satellite communications operations and non-Federal terrestrial operations, particularly fixed point-to-point and mobile Broadcast Auxiliary Service (BAS) and Cable Relay Service (CARS). The Commission asks whether the existing primary allocations for fixed and mobile services in the 12.7 GHz band should be maintained, or whether they should be changed from a primary to a secondary allocation in the United States, in either the 12.7-12.75 GHz band or the 12.75-13.25 GHz band, in order to reflect any more intensive use of the band by satellite communications.

24. The Commission also asks whether increasing the use of the 12.7 GHz band by satellite communications requires sunsetting or repacking of existing non-Federal terrestrial operations in the 12.7 GHz band, or whether increased use of the band by satellite communications can be accomplished under existing spectrum sharing obligations without sunsetting or repacking. Specifically, we ask how might such repacking of BAS/CARS be accomplished, and how repacking might impact operations of primary spectrum users in the adjacent 12.2-12.7 GHz band. Additionally, the *Notice* seeks comment on whether the expanded use of the 12.7GHz band by satellite communications would be facilitated or accelerated by the deletion or sunsetting of Footnote NG53 to the Table of Allocations, which reserves sub-bands in the range of 13.15 GHz to 13.2125 GHz for television pick up and CARS inside a 50 kilometer radius of the

[75] 47 CFR §§ 2.106 (d)(52) & (d)(57).

[76] *Id.* § 25.146.

[77] *Id.* § 25.101 *et seq.*

top 100 television markets and prohibits non-geostationary satellite orbit fixed-satellite service gateway stations from operating in these locations in these sub-bands.[78]

25. If repacking of existing non-Federal terrestrial operations in the 12.7 GHz is adopted, there could likewise be an economic impact on small and other satellite communications entities. Certain expenses will be placed on incumbent terrestrial operators, and the Commission may establish cost-sharing procedures between incumbent terrestrial operators and satellite communications operators. This process may require small entities that are incumbent terrestrial operators in the band to relocate their operations to different spectrum bands, potentially requiring reconfiguration or replacement of existing facilities, and to participate in negotiations to reassign their spectrum access rights, which would involve additional attendant costs for both terrestrial and satellite communications operators.

26. *Protection of Federal Operations.* The *Notice* explores how to continue to protect Federal space research (deep space) operations in the 12.7 GHz band, and Federal operations in primary allocations for the Earth exploration satellite service (EESS) (active), aeronautical radionavigation (ARNS), and space research (active) in the adjacent 13.25-13.4 GHz band from the risk of harmful interference that may result from increased access by satellite communications in the 12.7 GHz band. Specifically, the Commission seeks comment on a range of ways to protect Federal operations from interference, including geographic separation of satellite communications facilities from Federal facilities, the adoption of coordination requirements on blanket licensed satellite earth stations, or aggregate emissions limitations for blanket licensed satellite earth stations.

27. The Commission also seeks comment on whether the Technical Interchange Group (TIG) set up by the National Telecommunications and Information Administration (NTIA) could be a tool for exchanging electromagnetic compatibility studies between Federal systems and satellite communications in the 12.7 GHz band. Additionally, the Commission seeks comment on whether out-of-band emission (OOBE) limits on satellite communications or a buffer between satellite communications and Federal operations in adjacent bands could ensure that satellite communications protect Federal operations. If adopted, the above measures to protect Federal operations could impose reporting, recordkeeping, and other compliance costs on small and other satellite communications entities.

2. 42 GHz Band

28. *Access to the 42 GHz Band By Satellite Communications*. To inform the Commission's assessment of whether more efficient and intensive use of this high-band spectrum can be facilitated by allowing access to the 42 GHz band by satellite communications; and whether revisiting prior Commission determinations that high-band spectrum, including the 42 GHz band, has potentially greater value for Upper Microwave Flexible Use Service, or other terrestrial uses, than for satellite communications, are among the issues the Commission seeks comment on in the *Notice*. Specifically, the Commission seeks comment on whether granting access to the 42 GHz band by satellite communications would allow for most efficient spectrum use by adding an allocation for satellite communications downlinks (space-to-Earth) on a primary or secondary basis; and whether the 42 GHz band could be used for satellite communications uplinks (Earth-to-space) in addition to, or as an alternative to, satellite communications downlinks (space-to-Earth).

29. Small and other satellite communications entities could be required to comply with the licensing, reporting, and recordkeeping requirements of part 25, either in their existing form, or as changed as a result of this rulemaking. The *Notice* requests input on whether to license any space stations or earth stations in the 42 GHz band using its existing part 25 licensing procedures and technical rules; if any changes to the part 25 rules would be needed to accommodate use of the 42 GHz band by both geostationary and non-geostationary satellite orbit space stations; and limiting earth station operations in

[78] *Id.* § 2.106(d)(53).

the 42 GHz band to individually licensed gateway stations, or whether Earth Stations in Motion (ESIMs), or other blanket-licensed, non-gateway earth stations could be licensed in the 42 GHz band.

30. *Protection of and Coexistence with Federal Operations in Adjacent Bands*. There are no existing Federal allocations in the 42 GHz band, but there are primary allocations for Federal and non-Federal radioastronomy operations in the adjacent 42.5-43.5 GHz band, primary allocations for Federal operations in the fixed-satellite service (Earth-to-space), and mobile service (except aeronautical mobile) in the 42.5-43.5 GHz band that could be at risk of harmful interference if the Commission grants satellite communications use of the 42 GHz band. The *Notice* explores protective measures such as limits on the power flux density of emissions of satellite communications or geographic separation of satellite communication earth stations from Federal facilities to prevent harmful interference for primary allocations in the adjacent 42.5-43.5 GHz band. The *Notice* also explores the 42 GHz band to coexist with Federal satellite communications uplink (Earth-to-space) operations in the adjacent 42.5-43.5 GHz band. If adopted, measures to protect Federal operations from the risk of harmful interference could impose reporting, recordkeeping, and other compliance costs on small and other satellite communications.

3. 52 GHz Band

31. *Access to the 52 GHz Band By Satellite Communications*. To inform the Commission's assessment of whether more efficient and intensive use of this high-band spectrum can be facilitated by allowing access to the 52 GHz band by satellite communications, the *Notice* proposes adding an NGSO FSS allocation in the United States. There is not an existing domestic satellite allocation, but there is an international allocation for GSO FSS operations. The *Notice* seeks comment on whether use of the proposed allocation should be limited to NGSO systems. It also seeks comment on how to account for ITU rules for international satellite operations and on the tradeoffs, if any, of adopting service rules for this band in the absence of an international allocation for satellite operations. Small and other satellite communications entities could be required to comply with the licensing, reporting, and recordkeeping requirements of part 25, either in their existing form, or as changed as a result of this rulemaking.

32. *Protection of and Coexistence with Operations in the Same and Adjacent Bands*. The 52 GHz band is currently allocated domestically as a shared Federal/non-Federal band for fixed and mobile services. The *Notice* asks commenters to address current Federal and non-Federal uses of the band, opportunities for NGSO FSS deployment, and efficient coexistence measures to best protect incumbent or potential future services in these, adjacent bands, and the nearby 52.6-54.6 GHz band. If adopted, measures to protect other operators or services from the risk of harmful interference could impose reporting, recordkeeping, and other compliance costs on small and other satellite communications.

4. W-Band

33. *Access to the W-Band By Satellite Communications*. To inform the Commission's assessment of whether more efficient and intensive use of this high-band spectrum can be facilitated by allowing access to the W-band by satellite communications, the *Notice* proposes adding an NGSO FSS allocation in the United States. It seeks comment on making changes to the U.S. Table of Allocations to provide allocations for FSS in any or all of these frequency bands, as well as any changes to our part 25 rules to effectuate such changes. It further invites comment on whether use of the allocation should be limited individually licensed gateway stations in the Earth-to-space direction, and on whether to limit use of these spectrum ranges to NGSO systems. It also seeks comment on how to account for ITU rules for international satellite operations and on the tradeoffs, if any, of adopting service rules for this band in the absence of an international allocation for satellite operations. Small and other satellite communications entities could be required to comply with the licensing, reporting, and recordkeeping requirements of part 25, either in their existing form, or as changed as a result of this rulemaking.

34. *Protection of and Coexistence with Operations in the Same and Adjacent Bands*. The W-band frequency ranges have both Federal and non-Federal allocations. All these bands are subject to Footnote US342 and RR Article 29, which states that all practicable steps must be taken to protect the radio astronomy service from harmful interference, and that emissions from spaceborne or airborne

stations can be particularly serious sources of interference to the radio astronomy service. In addition, some are subject to Footnote US161, which requires allocated services within specified distances to be coordinated with specified radio astronomy observatories. The *Notice* seeks comment on mechanisms and protection criteria that would prevent harmful interference to the radio astronomy service. It likewise asks commenters to address current Federal and non-Federal uses of the band, opportunities for NGSO FSS deployment, and potential coexistence measures to efficiently protect incumbent services or potential future services in these, or adjacent, bands, particularly Federal operations. The *Notice* also seeks comment on the parameters of a coexistence analysis and methodologies that may best inform the likelihood of harmful interference. If adopted, measures to protect other operators or services from the risk of harmful interference could impose reporting, recordkeeping, and other compliance costs on small and other satellite communications

35. Compliance with any rule changes applicable to the 12.7 GHz, 42 GHz, and 52 GHz bands and W-band that may result in this proceeding may require small entities to hire attorneys, engineers, consultants, or other professionals. In particular, for small entities that are not existing operators, and do not have existing staffing dedicated to regulatory compliance, engineering and legal matters, hiring professional experts may be necessary to make the requisite filings, and to demonstrate compliance. Although the Commission cannot quantify the cost of compliance with any potential rule changes at this time, the majority of the changes upon which comment is sought in the *Notice* involves removing restrictions on satellite communications in the 12.7 GHz band, potentially licensing satellite communications in the 42 GHz band, and interference avoidance techniques that have been established for satellite communications in other bands. Small entities with existing licenses in other bands may already be familiar with such policies and requirements, and have the processes and procedures in place to facilitate compliance resulting in minimal incremental costs to comply if similar requirements are adopted for this band. Consequently, for both bands, the Commission does not anticipate small and other satellite communications entities will incur any additional reporting, recording, or other compliance costs for such rule changes, if adopted. The Commission expects that the information it receives in comments and through cost-benefit analyses will help it identify and evaluate all relevant matters including compliance costs and other burdens on small entities.

E. Discussion of Significant Alternatives Considered That Minimize the Significant Economic Impact on Small Entities

36. The RFA directs agencies to provide a description of any significant alternatives to the proposed rules that would accomplish the stated objectives of applicable statutes, and minimize any significant economic impact on small entities.[79] The discussion is required to include alternatives such as: "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities."[80]

37. As part of its assessment of whether a more efficient and intensive use of the 12. GHz band can be accomplished by eliminating certain regulatory restrictions on the use of the band for satellite communications, the Commission is considering if there is a continued need for Footnote NG52 limits on GSO FSS in the 12.7 GHz band (Earth-to-space) for international systems. .[81] This limitation was

[79] 5 U.S.C. § 603(c).

[80] *Id.* § 603(c)(1)-(4).

[81] 47 CFR § 2.106(d)(52). (stating that, except as provided in Footnote NG527A of the U.S. Table of Frequency Allocations, "the use of the bands 10.7-11.7 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary satellites in the fixed-satellite service (FSS) shall be limited to international systems, i.e., other than domestic systems").

designed to protect incumbent BAS, CARS, and fixed microwave operations from a large number of satellite earth station deployments.[82] The *Notice* requests further comment on whether Footnote NG52 which satellite operators argue artificially limits FSS deployments in the 12.7 GHz band,[83] is still needed to protect incumbent BAS, CARS, and fixed microwave operations in the 12.7 GHz band, or alternatively, if other means can be implemented to protect incumbent FS and MS operations in the band that would not unnecessarily restrict access to the band and realization of the associated economic opportunities small and other satellite operators could achieve with access to the band. As proposed by commentors, the *Notice* specifically considers, and seeks feedback on amending the text of Footnote NG52 to remove its applicability to the 12.7 GHz band in order to efficiently and expeditiously increase access to the 12.7 GHz portion by satellite communications.[84] Other alternatives, the Commission considers in the *Notice* that could minimize the economic impact for small satellite communications entities is whether other changes to Footnote NG52, other footnotes, or to the part 25 rules or other Commission rule parts, are needed to eliminate regulatory restrictions that limit the use of the 12.7 GHz band by satellite communications.

38. Economic impacts from the increased use of the 12.7 GHz band by satellite communications are most likely to arise from any sunsetting or repacking of existing terrestrial non-Federal users. Although the Commission considers and seeks comment on sunsetting or repacking of existing non-Federal terrestrial operations in the 12.7 GHz band, the Commission also seeks comment on whether increased use of the band by satellite communications can be accomplished under existing spectrum sharing obligations without sunsetting or repacking, an alternative which could avoid, or minimize, economic impacts on small and other BAS and CARS licensees.

39. In the *Notice*, the Commission's request for comment on the expansion of access to, and use of, the 12.7 GHz, 42 GHz, and 52 GHz bands and W-band to include satellite communications considers the feasibility of applying the existing part 25 application and licensing procedures, and technical rules, or alternatively, whether making rule modifications – removing or adding rules – are necessary. For example, the Commission seeks comment on limiting earth station operations in the 42 GHz band to individually licensed GSO and NGSO FSS gateway stations, or alternatively, whether ESIMs or other blanket-licensed, non-gateway earth stations can be licensed in the 42 GHz band. As discussed in section D of this IRFA, the economic benefit for small and other satellite communications entities of using existing part 25 rules and processes, is the likelihood that they will incur minimal incremental costs since these entities may already have the processes and procedures in place to facilitate compliance. Further, if the application of certain part 25 are eliminated, small and other satellite communications entities stand to incur less administrative and potentially other compliance costs.

40. To assist with the Commission's evaluation of the economic impact on small entities that may result from the actions and alternatives that have been discussed in this proceeding, the *Notice* seeks alternative proposals, and requests information on the potential costs of such alternatives to small and

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[82] *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range et al.*, First Report and Order and Further Notice of Proposed Rule Making, 16 FCC Rcd 4096, 4146, para. 122 (2000) (declining to amend then-existing Footnote NG104 to the Table of Allocations to remove the requirement that GSO FSS operations be limited to international systems so as not inhibit the growth of incumbent services). Footnote NG104 was subsequently consolidated into Footnote NG52 in 2012. *Revisions to Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands; Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service*, Notice of Proposed Rulemaking and Report and Order, 27 FCC Rcd 16510, 16520-21. para. 21 (2012).

[83] Satellite operators Joint NPRM Comments at 6.

[84] *Id.* at 2.

other licensees. The Commission expects to consider more fully the economic impact on small entities following its review of comments filed in response to the *Notice,* including costs and benefits information. Alternative proposals and approaches from commenters could also help the Commission further minimize the economic impact on small entities. The Commission's evaluation of the comments filed in this proceeding will shape the final conclusions it reaches, the final alternatives it considers, and the actions it ultimately takes in this proceeding to minimize any significant economic impact that may occur on small entities from the final rules that are ultimately adopted.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

41. None.

STATEMENT OF
CHAIRMAN BRENDAN CARR

Re: *Satellite Spectrum Abundance*, SB Docket No. 25-180; *Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, GN Docket No. 22-352; *Shared Use of the 42-42.5 GHz Band*, WT Docket No. 23-158; *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-177, Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking (May 22, 2025).

Earlier this year, I outlined a *Final Frontiers* agenda for the FCC. This particular effort is all about boosting America's space economy and ensuring that our businesses are able to dominate in orbit. To achieve this, we will focus on a few key guidestars. They are speed, simplicity, security, and satellite spectrum abundance.

On all of these fronts, I am pleased with the progress that we're already making. On *speed*, we're clearing out application backlogs and reducing processing times at a record pace. On *simplicity*, we're working to eliminate unnecessary rules that throttle the satellite industry, such as obsolete power limits and cumbersome siting restrictions. On *security*, we launched a proceeding that looks at bolstering and safeguarding the services provided by our GPS system.

And today, our decision proposes a pathway for *satellite spectrum abundance*. Specifically, we're opening a rulemaking that could free up more than 20,000 megahertz of satellite broadband spectrum. Let me put that number in context: 20,000 megahertz is more than the sum total of spectrum available for satellite systems today.

To be clear, abundant spectrum for satellite operations is not just nice to have. It is necessary for American leadership. Every megahertz matters. When our satellite systems have abundant spectrum, America leads. Our economy grows. Our national security strengthens. And millions of Americans gain affordable broadband options. Our global competitors are not waiting. China is rapidly expanding its space capabilities. We are not going to let America fall behind.

And that is why we are taking action across multiple spectrum bands today. I want to say a few words about why each band is a potential gamechanger.

First up, we have what's known as the Upper 12 GHz band (12.7-13.25 GHz). This band is in a satellite spectrum neighborhood called the Ku-band, which has been a workhorse for LEO systems. But despite its location in this coveted neighborhood, the Upper 12 GHz band remains underused due to restrictions on satellite services. We studied the band for terrestrial wireless a couple years ago, but there was no consensus on the best path forward. So, now is the time to take a fresh look at the band for broader satellite use.

We are also revisiting the 42 GHz band (42.0-42.5 GHz). It offers 500 megahertz of truly greenfield spectrum. We have been studying this band for terrestrial wireless since 2016, again with no real consensus. The 42 GHz band is also in the sweet spot for satellite operations—it lives in a popular satellite spectrum neighborhood known as the V-band.

Next, we're looking at the 52 GHz band (51.4-52.4 GHz). This is 1,000 megahertz of lightly used spectrum. It was designated internationally for satellite operations back in 2019. And since then, the satellite industry has encouraged the FCC to take additional action on this band.

Finally, we have about 18,000 megahertz of empty spectrum in the W-band (92.0-94.0 GHz, 94.1-100 GHz, 102.0-109.5 GHz, and 111.8-114.25 GHz). This is the one where we are hopeful that American innovation will truly shine. The W-band's very high frequencies—between 90 GHz and 120 GHz—offer unprecedented bandwidth that could revolutionize space-based connectivity. Constellations in the W-band will operate at the cutting edge of physics.

In this rulemaking, we're sending a clear signal: America is committed to space leadership through a policy of satellite spectrum abundance. Abundance positions us to lead international discussions, not follow frameworks established by others. It protects America's technological leadership for decades to come. And it helps American companies—not foreign competitors—develop the patents and set the standards that will govern global communications.

My thanks to the FCC staff that worked hard on this item, including Stephen Duall and Jay Schwarz at the Space Bureau; Michael Ha, Serey Thai, and Nicholas Oros at the Office of Engineering and Technology; and Jessica Greffenius and Blaise Scinto at the Wireless Bureau.

STATEMENT OF
COMMISSIONER GEOFFREY STARKS

Re: *Satellite Spectrum Abundance*, SB Docket No. 25-180; *Expanding Use of the 12.7-13.25 GHz Band for Mobile Broadband or Other Expanded Use*, GN Docket No. 22-352; *Shared Use of the 42-42.5 GHz Band*, WT Docket No. 23-158; *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, GN Docket No. 14-177, Further Notice of Proposed Rulemaking and Notice of Proposed Rulemaking (May 22, 2025).

As I've consistently observed, we live in a golden era of commercial space. The pace of innovation is accelerating and consumers are reaping the benefits. Satellite broadband systems promise more choice and better performance for many Americans, including those who live, work, and travel in some of the toughest-to-serve places. They can even improve the reach of terrestrial broadband networks, through satellite backhaul. For the commercial space sector to reach its full potential, we must provide the spectrum it needs to continue growing. That's why this item is so important. It will help ensure that we're meeting the moment and providing the spectrum needed for the satellite ecosystem to thrive. I'm glad we've expanded the scope of this item beyond the initial upper 12 and 42 GHz bands. It shows we're serious about keeping the United States the leader in commercial space innovation.

I'd like to thank the staff of the Space Bureau who worked on this item. It has my full support.