

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

In the Matter of)
)
Further Streamlining Part 25 Rules Governing) IB Docket No. 18-314
Satellite Services)

REPORT AND ORDER

Adopted: November 18, 2020

Released: November 19, 2020

By the Commission: Chairman Pai issuing a statement.

I. INTRODUCTION

1. In this Report and Order, we streamline the Commission’s rules governing satellite services by creating an optional framework for authorizing both the blanket-licensed earth stations and space stations of a satellite system through a unified license. The licensing framework we adopt today will align the build-out requirements for earth stations and space stations and eliminate unnecessary reporting rules. These changes will reduce regulatory burdens, simplify the Commission’s licensing of satellite systems, and provide additional operational flexibility.

II. BACKGROUND

2. The Commission currently issues separate licenses for earth stations and space stations in a satellite system based on the different application requirements in part 25 of the Commission’s rules that govern satellites services.¹ The goal of these decades-old dual licensing paths is to provide for interference-free operation of both the ground component and space component of the satellite system.² Given this, there are numerous technical requirements and showings required by both the earth station and space station applicants. There are also other licensing and service rules for earth stations and space stations to ensure initial applications are substantially complete, licensees implement their systems in a timely manner, and the Commission and other interested parties may effectively assess the potential for interference from any changes to a licensed system. Periodically reviewing our licensing process and service rules in light of past experience and technological advances helps us identify those rules that may no longer be necessary.

3. *Overview of space station and earth station licensing process.* Space station operators are typically responsible for the planning and coordination of their entire satellite system, including both space and ground components.³ When they seek either an FCC license or market access for the space stations within their system, they complete an FCC Form 312, Main Form and Schedule S, with attached

¹ See 47 CFR §§ 25.114 (space station application requirements), 25.115 (earth station application requirements).

² *Further Streamlining Part 25 Rules Governing Satellite Services*, Notice of Proposed Rulemaking, 33 FCC Rcd 11502, 11503, para. 4. (2018) (*Notice*).

³ *Id.* at 11503, para. 4.

exhibits required by section 25.114(d).⁴ System operators must include detailed technical and operational characteristics of the proposed satellite including, among other things, transmit power, transmit beam contours, receiver sensitivity, and orbital parameters.⁵ And space station operators must have reasonable certainty, while developing their satellite systems, that suitable locations will be available for the siting of gateway earth stations that will connect and route user traffic.⁶

4. The earth stations that transmit from the United States to FCC-authorized space stations are licensed⁷ on either an individual or blanket-license basis.⁸ Individually licensed earth stations require site coordination with other operators to avoid harmful interference.⁹ Blanket licensing allows earth stations to be deployed anywhere within the geographic area specified in the license without site-specific coordination.¹⁰ An application for transmitting earth station authority must also be filed on FCC Form 312, Main Form and include a Schedule B.¹¹ A completed Schedule B provides a technical and operational description of the proposed earth station(s), with the quantity and size of antennas to be deployed,¹² antenna gain,¹³ power and transmission characteristics,¹⁴ and any frequency coordination¹⁵ and siting information.¹⁶ It may also include the antenna model and manufacturer.¹⁷ Earth station applicants must include any certifications, showings, or other information required by section 25.115.¹⁸ For example, applicants seeking to operate in a frequency band shared with terrestrial services on a co-equal basis must provide a frequency coordination analysis, along with any other information required by

⁴ See 47 CFR § 25.114. The Schedule S is used to collect technical and operational data associated with the satellite. For non-U.S.-licensed space station operators seeking U.S. market access, a completed Schedule S is required whether the operator requests market access through a petition for declaratory ruling or by being added as a point of communication to a specific earth station license. See generally 47 CFR § 25.137(b).

⁵ See 47 CFR § 25.114(c)(4), (5), (6).

⁶ See, e.g., Notice, 33 FCC Rcd at 11506, para. 15.

⁷ See 47 CFR §§ 25.102(a), 25.115(a)(1); see also 47 CFR § 25.109. Earth stations that will only receive transmissions from space stations need not be licensed to operate without protection from interference. See generally 47 CFR § 25.115(b)(9)(ii). Receive-only earth stations may be registered for protection from interference by terrestrial stations operating in the same frequency bands on a co-equal basis. See 47 CFR § 25.115(b).

⁸ Under certain conditions, the Commission also permits the authorization of multiple fixed-satellite service (FSS) earth station antennas at specified locations under a single license that is not a blanket license. See 47 CFR § 25.115(a)(10), (c)(2).

⁹ See, e.g., 47 CFR §§ 25.115(e), (f)(3), 25.136 (application provisions for individually licensed earth stations).

¹⁰ See 47 CFR § 25.103 (definition of blanket license); see also, e.g., 47 CFR § 25.115(c)(1), (c)(3), (d), (f)(2), (i) (application provisions for blanket-licensed earth stations).

¹¹ 47 CFR § 25.115(a)(1). Space station and earth station applicants must pay the appropriate fee prescribed in section 1.1107 when filing the FCC Form 312. See 47 CFR § 25.110(f).

¹² FCC Form 312 Schedule B, Items E29 and E32.

¹³ FCC Form 312 Schedule B, Items E41-42.

¹⁴ FCC Form 312 Schedule B, Items E38, E40, E43-44 and E46-E49.

¹⁵ FCC Form 312 Schedule B, Items E54-60.

¹⁶ FCC Form 312 Schedule B, Items E11-E14, E35-37 and E39.

¹⁷ FCC Form 312 Schedule B, Items E30-31.

¹⁸ See 47 CFR § 25.115(a)(1). Among these requirements, applicants for blanket-licensed FSS earth station networks that plan to use a contention protocol must certify that the contention protocol usage will be reasonable. 47 CFR § 25.115(i). Earth station applicants must also address human safety and environmental requirements found in other Commission rule parts. See 47 CFR §§ 25.115(p), (j), 25.271(g).

section 25.203.¹⁹

5. Particular service rules also apply to both earth station and space station applications in certain frequency bands. The most common type of earth station application under part 25 is for authority to operate an FSS earth station or network of FSS earth stations with geostationary-satellite orbit (GSO) space stations in frequency bands subject to the Commission's "two-degree spacing" rules.²⁰ The Commission has adopted power limits on uplink and downlink transmissions to ensure compatibility of GSO FSS space stations at two-degree spacing intervals.²¹ A GSO FSS earth station applicant wishing to be licensed under standard equivalent isotropically radiated power (EIRP) density power limits must provide a technical demonstration of compliance with these limits.²² A satellite applicant, however, need only certify compliance with the same limits (without submitting a technical demonstration).²³ If higher power levels are subsequently coordinated with other space station operators, then the earth station operator must apply to modify its license before operating at the higher coordinated levels.²⁴ The satellite operator, however, may operate at the higher levels as soon as it enters into the coordination agreement.²⁵

6. Both earth and space station applications filed under part 25 are subject to the acceptability standards in section 25.112 of the Commission's rules.²⁶ An application will be returned to the applicant if it is defective with respect to completeness of answers to questions, informational showings, internal inconsistencies, execution, or other matters of a formal character, or if the application does not substantially comply with the Commission's rules and requirements.²⁷ License applications that are found acceptable for filing are placed on public notice.²⁸ After consideration of any petitions or comments filed on an application, the Commission will grant the application if doing so will serve the public interest, convenience, and necessity.²⁹ An earth station or network of blanket-licensed earth stations must be brought into operation within 12 months after initial licensing, unless a different build-out period is determined by the Commission.³⁰ In contrast, the deployment milestones for the GSO or non-geostationary orbit (NGSO) space stations the earth station may be communicating with, have a five-

¹⁹ 47 CFR § 25.115(a)(6)(i).

²⁰ "Two-degree spacing" refers to angular separation in the GSO arc between adjacent co-frequency space stations.

²¹ See 47 CFR §§ 25.115(a)(2)(iii), (c)(1)(i), (2), (3)(i)(A)-(B), (g), (e), (l)(1), (m)(1), (n)(1), 25.140(a)(3)(i)-(iv), 25.211(d), 25.212(c)-(f), 25.218.

²² 47 CFR § 25.115(g)(1).

²³ 47 CFR § 25.140(a)(3)(i)-(iv).

²⁴ 47 CFR § 25.220(d).

²⁵ 47 CFR § 25.140(a)(3)(i)-(iv) (requiring a space station applicant to certify it will comply with standard power limits "unless the non-routine uplink and/or downlink operation is coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees").

²⁶ 47 CFR § 25.112.

²⁷ 47 CFR § 25.112(a)(1)-(2).

²⁸ See 47 CFR § 25.151. The Commission has adopted a "deemed granted" licensing procedure and FCC Form 312EZ for certain earth station applications proposing operations with GSO FSS space stations in the 5925-6425 MHz, 14-14.5 GHz, 28.35-28.6 GHz, or 29.5-30 GHz bands. See 47 CFR § 25.115(a)(2), (3). In addition, conditional or provisional authorizations are available prior to the completion of the 30-day public notice period for certain GSO FSS earth station operations in the 3700-4200 MHz and 5925-6425 MHz bands and temporary fixed GSO FSS earth station operations in the 11.7-12.2 GHz and 14-14.5 GHz bands. See 47 CFR §§ 25.115(c)(2)(vi), 25.151(e)(1).

²⁹ See 47 CFR § 25.156(a).

³⁰ See 47 CFR § 25.133(a).

year or six-year (initial) milestone requirement, respectively.³¹

7. An earth station licensee may make certain minor changes to its operations without prior authorization, provided it notifies the Commission within 30 days of the modification. These permissible changes include any modifications that do not involve: (i) an increase in EIRP or EIRP density (either main lobe or off-axis); (ii) additional operating frequencies; (iii) a change in polarization; (iv) an increase in antenna height; (v) antenna repointing beyond any coordinated range; or (vi) a change from the originally authorized coordinates of more than 1 second of latitude or longitude for stations operating in frequency bands shared with terrestrial systems, or more than 10 seconds of latitude or longitude for stations operating in frequency bands not shared with terrestrial systems.³²

8. *Out-of-Band Emissions.* Default out-of-band emissions limits in section 25.202(f) apply to all stations licensed under part 25 if not superseded by limits adopted for particular services in particular frequency bands.³³ These default limits require that the mean power of emissions be attenuated below the mean output power of the transmitter in accordance with the following schedule: (i) in any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50% up to and including 100% of the authorized bandwidth: 25 dB; (ii) in any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100% up to and including 250% of the authorized bandwidth: 35 dB; and (iii) in any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250% of the authorized bandwidth: an amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts.³⁴

9. *Annual Reporting Requirements for Satellite Operators.* Section 25.170 requires space station operators to annually report any authorized satellites or frequencies unavailable for service, a contact point for the resolution of interference, and the construction progress of any authorized replacement satellites.³⁵ Part 4 of the Commission's rules also contains outage reporting requirements that apply to satellite operators.³⁶

10. *Previous Commission Streamlining Efforts.* The Commission has continually refined its licensing procedures for space stations and earth stations in light of technological innovations in the satellite industry. In 2013 and 2015 for example, the Commission comprehensively reviewed the part 25 licensing requirements and modified over 150 rule provisions to better reflect evolving technology.³⁷

11. Most recently, the Commission updated and simplified its licensing procedures for specific satellite applications and services. In 2017, the Commission revised its licensing rules and

³¹ See 47 CFR § 25.164.

³² See 47 CFR § 25.118(a).

³³ See 47 CFR § 25.202(f).

³⁴ 47 CFR § 25.202(f)(1)-(3).

³⁵ See 47 CFR § 25.170.

³⁶ See 47 CFR § 4.9(c).

³⁷ See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, 28 FCC Rcd 12403 (2013), (eliminating unnecessary filing requirements and technical restrictions, reorganizing and clarifying existing requirements, and codifying existing policies to improve transparency); *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Second Report and Order, 30 FCC Rcd 14713 (2015) (*Part 25 Second Report and Order*), (expanding the Commission's 2013 comprehensive review of part 25 and among other things, eliminating all space station construction milestones except the final milestone to launch and operate, revising and extending two-degree spacing power limits and allowing space station applicants to certify compliance with them, and increasing the options for simplified earth station licensing).

spectrum sharing procedures for NGSO systems operating in the FSS.³⁸ The Commission also extended the requirement for complete deployment of an authorized NGSO system from six years to nine years.³⁹ We also recently adopted consolidated and streamlined rules for earth stations in motion (ESIMs).⁴⁰ These rule changes include additional frequency bands in which ESIMs may be authorized to operate with GSO space stations and the new availability of ESIM licensing with NGSO space stations. The Commission has similarly responded to growing interest in lower-cost, innovative NGSO constellations making use of “small satellites” by adopting an optional, streamlined licensing process with a lower application fee and a shorter timeline for review than previously existed for NGSO satellite applicants.⁴¹

12. *Procedural History.* In 2016, the Commission invited comment on whether any of its rules governing satellite services should be modified or repealed as part of its biennial review under section 11 of the Communications Act of 1934, as amended.⁴²

13. In a subsequent Notice of Proposed Rulemaking, the Commission invited comment on suggestions made on the *2016 Public Notice*, and also laid out its own proposals and points of inquiry.⁴³ The Commission proposed to create an optional, unified space station and earth station license that would extend to the earth station authorization process the streamlining benefits that have been adopted for space station license applications.⁴⁴ The Commission also sought comment on whether to allow earth station applicants to certify that they will comply with the terms and conditions of the authorization of any space station with which they communicate, in lieu of providing redundant technical demonstrations.⁴⁵ In addition, the *Notice* proposed to align the one-year build-out requirement for earth stations in bands shared with terrestrial services and subject to section 25.136 with the five-year or six-year milestone requirements for the GSO or NGSO satellites, respectively, with which they will communicate.⁴⁶ The *Notice* also proposed to eliminate most annual reporting requirements for satellite

³⁸ See *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 7809 (2017).

³⁹ *Id.*, 32 FCC Rcd at 7830-31, para. 67.

⁴⁰ See *Amendment of Parts 2 and 25 of the Commission’s Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed-Satellite Service*, Report and Order and Further Notice of Proposed Rulemaking, 33 FCC Rcd 9327 (2018); *Amendment of Parts 2 and 25 of the Commission’s Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service and Facilitating the Communications of Earth Stations in Motion with Non-Geostationary Orbit Space Stations*, Second Report and Order in IB Docket No. 17-95 and Report and Order in IB Docket No. 18-315 and Further Notice of Proposed Rulemaking, 35 FCC Rcd 5137 (2020) (*NGSO ESIM Report and Order*).

⁴¹ See *Streamlining Licensing Procedures for Small Satellites*, Report and Order, 34 FCC Rcd 13077 (2019).

⁴² *Commission Seeks Public Comment in 2016 Biennial Review of Telecommunications Regulations*, Public Notice, 31 FCC Rcd 12166 (2016) (*2016 Public Notice*); see also 47 U.S.C. § 161. Section 11 directs the Commission to review, every two years, its regulations that apply to the operations or activities of telecommunications service providers, and to repeal or modify any such regulations that are no longer in the public interest. The Commission has also used these opportunities to streamline regulations that do not apply to telecommunications service providers. See, e.g., *2006 Biennial Regulatory Review – Revision of Part 25*, Notice of Proposed Rulemaking, 25 FCC Rcd 1551, 1552, para. 3 (2010).

⁴³ *Further Streamlining Part 25 Rules Governing Satellite Services*, Notice of Proposed Rulemaking, 33 FCC Rcd 11502 (2018) (*Notice*).

⁴⁴ *Id.*, 33 FCC Rcd at 11503-06, paras. 4-14.

⁴⁵ *Id.*, 33 FCC Rcd at 11505, para. 11.

⁴⁶ *Id.*, 33 FCC Rcd at 11506-07, paras. 15-16.

operators and to eliminate reporting requirements for minor earth station modifications.⁴⁷ Finally, the *Notice* proposed to update the default out-of-band emissions standard for stations licensed under part 25 and sought comment on potential revisions to the Commission's application acceptability standards.⁴⁸

III. DISCUSSION

14. We believe that more closely aligning the licensing processes for space stations and earth stations will avoid unnecessary filings, reduce burdens, expedite processing, and serve the public interest. It will also better reflect the reality of satellite communications. Accordingly, we harmonize space station and earth station licensing requirements by creating a unified licensing option for the space station(s) and blanket-licensed earth stations in a satellite system. Under our approach, earth station applicants may certify compliance with relevant satellite licenses in lieu of providing duplicative or unnecessary technical demonstrations. Our rule changes will align the build-out periods for earth stations and the space stations with which they will communicate. We also eliminate certain reporting requirements for space station licensees and earth station licensees that have proven unnecessary. However, we decide not to change the default out-of-band-emissions rule for satellite services at this time or to revise our acceptability standards for part 25 applications.

A. Unified License for Space Station and Blanket-Licensed Earth Station Operations

15. The *Notice* proposed a simple framework for an optional unified license.⁴⁹ The unified license would authorize operations of the satellite network, i.e., the space station and the earth stations operating with that space station.⁵⁰ The unified license would be held by the satellite operator. To receive a unified license, the satellite operator would have to file an application with the normally required space station application information, plus certain certifications and information regarding earth station operations. It would not have to provide detailed earth station information that would otherwise be required, but which is rendered duplicative or unnecessary by what was already submitted for the space station.⁵¹ Accordingly, the unified license would offer a more efficient means to authorize the earth stations in a satellite network, and one that better reflects the flexibility satellite operators exercise over the parameters of their satellite networks.

16. *Scope.* For the initial implementation of a unified licensing framework, the Commission proposed to limit the eligible types of operation to GSO FSS satellite networks licensed in frequency bands subject to "two-degree spacing" power limits in section 25.140(a)(3)(i)-(iv), excluding frequencies under 10 GHz.⁵² The Commission proposed this limitation because of the developed and familiar regulatory framework for these operations. The Commission also sought comment on expanding the unified licensing framework to additional frequency bands and types of operation, as well as to requests for U.S. market access by non-U.S.-licensed satellite operators.⁵³

⁴⁷ *Id.*, 33 FCC Rcd at 11507, para. 17, 11508, paras. 22-23.

⁴⁸ *Id.*, 33 FCC Rcd at 11507-08, paras. 18-21.

⁴⁹ *Id.*, 33 FCC Rcd at 11504-05, paras. 8, 10.

⁵⁰ A satellite network is made up of only one artificial earth satellite and the cooperating earth stations employing space radiocommunication for specific purposes. *See* 47 CFR § 2.1. A satellite system may include multiple satellites, for example an NGSO satellite constellation, and the cooperating earth stations. *See id.*

⁵¹ For example, earth station EIRP information under section 25.132 would not be required for GSO FSS networks subject to "two-degree spacing" rules in section 25.140(a)(3)(i)-(iv). Indeed, the earth station Form 312 Schedule B would not be required at all as part of a unified license application. Rather, non-duplicative earth station information could be submitted more flexibly as part of the narrative statement for the unified license application.

⁵² *See Notice*, 33 FCC Rcd at 11504, para. 9.

⁵³ *Id.*

17. Most commenters embrace the Commission’s proposed unified licensing framework and urge us to expand it broadly to include all GSO networks in all authorized frequency bands (FSS and other services),⁵⁴ NGSO satellite systems,⁵⁵ and non-U.S.-licensed systems.⁵⁶ Verizon and CTIA oppose the adoption of a unified licensing framework in those bands shared with or adjacent to the Upper Microwave Flexible Use Service (UMFUS), including for ESIMs, but do not address the extension of a unified licensing framework to other kinds of networks and frequency bands.⁵⁷ Verizon argues that UMFUS operators must be able to review the current level of detail provided in earth station applications and have the opportunity to comment on each earth station application, rather than comment on a streamlined unified license application, even with respect to adjacent-band, ubiquitously deployed earth stations that are not coordinated with UMFUS operations.⁵⁸ Indeed, Verizon argues that UMFUS providers must know the “latitude and longitude” coordinates of such adjacent-band earth station operations, notwithstanding Commission rules permitting their blanket licensing.⁵⁹ Verizon further opposes including in the unified licensing framework ESIMs operating in the 28.35-28.6 GHz band due to concerns that out-of-band emissions from “fixed earth stations, temporary earth stations—including very small aperture terminals (‘VSATs’)—and ESIMs all could present interference risks for adjacent band UMFUS operations” in the 27.5-28.35 GHz band.⁶⁰ CTIA also argues that for any earth stations operating under a unified license in frequency bands not subject to coordination, including those which may be blanket licensed, we should now require “registration or notification” of the earth stations “should the band be shared or coordinated with additional operations in the future.”⁶¹ CTIA and Verizon propose to delay the effectiveness of the unified license framework until after the International Bureau releases guidance on what information is considered duplicative or unnecessary in specific applications.⁶² And, CTIA argues that applicants should be required to identify any information being omitted and cross-reference where that information can be found.⁶³

⁵⁴ EchoStar Comments at 3-4; *see also* Intelsat Comments at 5 (supporting inclusion of all FSS bands); SES Comments at 2 (supporting inclusion of additional FSS bands); ViaSat Comments at 4-6 (supporting inclusion of additional FSS bands).

⁵⁵ OneWeb Comments at 3-5; SES Comments at 2; Maxar Technology Comments at 4-5; Kymeta Reply at 4-5.

⁵⁶ Eutelsat Comments at 2; ViaSat Comments at 4-6. One commenter also asks us to clarify that ESIMs may be included in a unified license. Kymeta Reply at 4-5.

⁵⁷ *See* Letter from Daudeline Meme, Vice President & Associate General Counsel, Federal Regulatory & Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, IB Docket No 18-314, at 3-5 (filed July 27, 2020) (Verizon July 27 *ex parte*); Letter from Daudeline Meme, Vice President & Associate General Counsel, Federal Regulatory & Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, IB Docket No 18-314, at 4-5 (filed Oct. 2, 2020) (Verizon Oct. 2 *ex parte*); Letter from Jennifer Oberhausen, Director, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, IB Docket No 18-314, at 4-5 (filed Aug. 13, 2020) (CTIA Aug. 13 *ex parte*); Letter from Jennifer Oberhausen, Director, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, IB Docket No 18-314, at 4-7 (filed Nov. 11, 2020) (CTIA Nov. 11 *ex parte*); Letter from Daudeline Meme, Vice President & Associate General Counsel, Federal Regulatory & Legal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, IB Docket No 18-314, at 4-8 (filed Nov. 12, 2020) (Verizon Nov. 12 *ex parte*).

⁵⁸ *See* Verizon July 27 *ex parte* at 4-5.

⁵⁹ *See id.* at 5-6; *see, e.g.*, 47 CFR § 25.115(a)(2)(i) (streamlined FCC Form 312EZ available for blanket-licensed earth station networks planned to operate in the 28.35-28.6 GHz band adjacent to the 27.5-28.35 GHz band shared with UMFUS).

⁶⁰ Verizon Nov. 12 *ex parte* at 5 (quoting Comments of Verizon and U.S. Cellular, IB Docket Nos. 17-95 and 18-315, at 7 (filed Aug. 24, 2020)).

⁶¹ CTIA Aug. 13 *ex parte* at 5; *see also* CTIA Nov. 11 *ex parte* at 4-5.

⁶² CTIA Nov. 11 *ex parte* at 5-6; Verizon Nov. 12 *ex parte* at 6-8.

⁶³ *Id.* at 6; *see also* Verizon Nov. 12 *ex parte* at 6-8.

18. After review of the information submitted in the record, we conclude that the streamlining benefits of a unified authorization could apply to a variety of satellite and earth station licensees, and that we need not limit its application initially to certain regulatory frameworks. Accordingly, we will broadly make available a unified licensing option to all types of satellite and blanket-licensed earth station operations in the frequency bands listed below, including ESIM operations in these bands.⁶⁴ We will also permit non-U.S.-licensed satellite operators to receive a single grant with U.S. market access and blanket-licensed earth station operating authority. As proposed, the unified license will be held by the satellite operator, including authority for the blanket-licensed earth stations.⁶⁵ We make the unified licensing framework available to operators in the following frequency bands:

Non-Voice, Non-Geostationary Mobile-Satellite Service (MSS): 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, and 400.15-401 MHz;

1.5/1.6 GHz MSS: 1525-1559 MHz and 1626.5-1660.5 MHz;

1.6/2.4 GHz MSS: 1610-1626.5 MHz and 2483.5-2500 MHz;

2 GHz MSS: 2000-2020 MHz and 2180-2200 MHz;

GSO FSS: 10.7-12.2 GHz, 14-14.5 GHz, 18.3-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz, 29.25-30 GHz, 40-42 GHz, and 48.2-50.2 GHz;

NGSO FSS: 10.7-12.7 GHz, 14-14.5 GHz, 17.8-18.6 GHz, 18.8-19.4 GHz, 19.6-20.2 GHz, 28.35-29.1 GHz, 29.5-30 GHz, 40-42 GHz, and 48.2-50.2 GHz; and

GSO and NGSO MSS: 19.7-20.2 GHz and 29.5-30 GHz.

19. As proposed in the *Notice*, we will exclude from unified licensing any FSS operations under 10 GHz in light of ongoing Commission rulemakings and the unique, transitional status of some FSS operations in these bands.⁶⁶ In addition, we will allow only blanket-licensed earth station operations to be included in a unified license. Thus, unified licensing will not be available in any frequency band shared with UMFUS. But in bands adjacent to UMFUS operations, FSS operations are authorized on a blanket-licensed basis today without any coordination with UMFUS.⁶⁷ We reject any suggestion by Verizon to revisit blanket FSS licensing in such bands. Similarly, we find no basis in the record to exclude from eligibility ESIM operations in the 28.35-28.6 GHz band adjacent to the 27.5-28.35 GHz band shared with UMFUS. The out-of-band emissions concerns raised by Verizon are currently being

⁶⁴ We disagree with CTIA that including ESIM operations in the unified licensing framework raises APA concerns. CTIA Nov. 11 *ex parte* at 6-7. Applying the unified license framework to ESIM operations is a logical outgrowth of the scope of issues on which we sought comment in the *Notice*. See *Notice*, 33 FCC Rcd at 11504, para. 9 (“We invite comment . . . on expanding such a [unified] licensing structure to other bands and services [in addition to bands above 10 GHz allocated to GSO FSS], in particular bands subject to Section 25.136 in which the Commission has already adopted detailed sharing rules between the FSS and other services.”). Indeed, GSO ESIMs are subject to the same two-degree spacing requirements that the Commission specifically targeted in the *Notice*. See *Notice*, 33 FCC Rcd at 11504-05, para. 9-10; 47 CFR § 25.115(m)(1), (m)(2), (n)(1), (n)(2). Including NGSO ESIMs in a unified license is consistent with our decision to include other NGSO FSS blanket-licensed earth stations.

⁶⁵ See 47 CFR § 25.290.

⁶⁶ *Notice*, 33 FCC Rcd at 11504, para. 9; see *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order and Order of Proposed Modification, 35 FCC Rcd 2343 (2020). These are the 3600-4200 MHz, 4500-4800 MHz, and 5850-7075 MHz FSS bands. Accordingly, maritime ESIM operations in the 5925-6425 MHz band subject to section 25.115(l) will not be eligible for inclusion in a unified license. See CTIA Aug. 13 *ex parte* at 5. The same characteristics generally are not applicable to non-FSS satellite operations under 10 GHz, such as blanket-licensed MSS operations.

⁶⁷ See, e.g., 47 CFR § 25.115(c)(3)(i).

explored in a separate rulemaking⁶⁸ and are not affected by the licensing posture of an ESIM in a separate earth station authorization or a unified license. In either case, ESIMs will have to comply with any revised out-of-band emissions requirement adopted in that rulemaking.

20. We similarly disagree with CTIA that we should increase burdens on blanket-licensed earth station deployment pursued through a unified license, as opposed to through existing blanket-licensing options, by requiring registration or notification of the ubiquitously deployed stations. Any such information-gathering for blanket-licensed earth station operations, if appropriate, would be more efficiently pursued with regard to specific rulemakings and frequency bands.⁶⁹ Regarding the information omitted from a unified license application because it is duplicative or unnecessary, we note that the application will constitute a complete proposal for the satellite system, including the blanket-licensed earth station operations. If, after review of the complete application, a party has outstanding technical concerns, it may address them during the comment period.

21. In addition, we disagree with Verizon that the earth station technical showings currently required by sections 25.115(g)(1) and 25.132 are necessary for terrestrial operators to review and should not be replaced with a certification requirement. These showings are intended to confirm compliance with two-degree spacing limits for GSO FSS satellites.⁷⁰ Given that satellite operators are currently allowed to certify compliance with two-degree spacing limits instead of providing technical showings,⁷¹ and the experience of satellite commenters that such technical demonstrations are unnecessary to confirm the earth station's compliance with two-degree limits,⁷² we do not believe that the burden of providing these demonstrations is justified by their purpose. In any event, adjacent-band terrestrial operators will have an opportunity to comment on any unified license application including ESIM or other blanket-licensed earth station authority, and they may request additional information regarding the earth station operations.⁷³ If an UMFUS operator experienced interference due to adjacent-band operations of a unified licensee, it could address its concerns to the licensee directly or to the Commission.⁷⁴

22. The unified license will not be a separate license that a satellite operator has to obtain in addition to its existing satellite license. Rather, it will constitute a space station license that also includes authority for the operation of earth stations with that particular GSO space station or those NGSO space

⁶⁸ See *NGSO ESIM Report and Order*, 35 FCC Rcd 5137, para. 1.

⁶⁹ Regarding certain cross-references sought by CTIA, we note that the substance of section 25.115(i) is included in the requirements of the new unified license rule, section 25.124, and that section 25.115, which appropriately contains the application requirements for blanket-licensed earth stations, is cross-referenced in the new section 25.124. See CTIA Aug. 13 *ex parte* at 5.

⁷⁰ See 47 CFR §§ 25.115(g)(1), 25.132(b)(1).

⁷¹ See 47 CFR § 25.140(a)(3)(i)-(iv).

⁷² See, e.g., SES Comments at 2; Intelsat Comments at 5.

⁷³ See, e.g., Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, EchoStar Satellite Services LLC and Hughes Network Systems, LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket No 18-314, at 2 (filed Aug. 7, 2020) (EchoStar Aug. 7 *ex parte*) (“[T]he Commission’s issuance of public notice of a unified network license application would provide adjacent-band UMFU licensees with sufficient notice and opportunity to comment on any planned earth station operations.”) and Letter from Tom Stroup, President, Satellite Industry Association, to Marlene Dortch, Secretary, FCC, IB Docket No 18-314, at 4 (filed Sept. 29, 2020) (SIA Sept. 29 *ex parte*). Thus, because interested parties will have the opportunity to comment on any unified license application, the unified licensing approach we adopt here is consistent with our recent statement that “should parties have concerns about specific applications for ESIMs use, they can be addressed as part of the public comment review process for each ESIM application filed before the Commission.” See Verizon July 27 *ex parte* at 4-5 (citing *NGSO ESIM Report and Order*, 35 FCC Rcd at 5147-48, para. 30).

⁷⁴ See Verizon July 27 *ex parte* at 5.

stations.⁷⁵ Whether a satellite operator chooses to include such earth station authority or not, the space station authority will remain as it is today. The earth station authorization may include some or all of the frequency bands authorized for the associated space station(s).

23. In response to Intelsat's requests for clarification, we affirm that requests for modification or renewal, special temporary authority, and application amendments related to space station operations, earth station operations, or both, can be made in the narrative portion of an application in the unified license file.⁷⁶ While a unified license contains authority for both space station and earth station operations, we consider such a license to be an extension of the satellite licensing process, to be held by the satellite operator and applied for in the International Bureau Filing System (IBFS) using the general satellite licensing procedures. Accordingly, for any renewal applications, we will apply the deadlines and procedures for renewal of the space station authority to the entire unified license, and not consider any potentially conflicting requirements for renewal of the earth station authority.⁷⁷ In addition, Intelsat inquires as to the consequences if a part of a network licensed under the unified licensing approach becomes unusable, for example due to the loss of a satellite.⁷⁸ Since there are no Commission licenses for multiple GSO-satellite systems, if a GSO satellite under a unified license became inoperable at the assigned orbital location (e.g., due to an in-orbit failure or end-of-life deorbiting), the unified license would cease, including all earth station authority to communicate with that satellite. The earth stations that formerly operated with that retired satellite could operate under a separate unified license authorizing communication with a replacement satellite, under a unified license for a non-replacement satellite, or under a separate earth station license. Only the earth stations' authority to operate with the retired satellite would cease. For an NGSO system license, which are typically a type of blanket license for space stations, the loss of a single space station would not usually terminate the license.

24. We also direct the International Bureau to consider and release, as appropriate, further guidance regarding the implementation of a unified licensing framework in an explanatory public notice consistent with the intent of this rulemaking to simplify and streamline, to the maximum extent practicable, the authorization of space stations and earth stations through a unified license. We decline to postpone the effectiveness of the unified license framework until after an explanatory public notice is released as we expect that the practical experience the International Bureau would gain in implementing the new framework will prove valuable and important in developing further guidance.

25. *Non-U.S.-licensed satellites.* There are currently two procedures by which a non-U.S.-licensed satellite operator may obtain U.S. market access.⁷⁹ First, it may file a petition for declaratory ruling seeking access to the U.S. market. Such a declaratory ruling does not, itself, authorize any transmissions from earth stations located in the United States to the non-U.S.-licensed satellite. Instead, the declaratory ruling serves as a basis for including the non-U.S.-licensed satellite as a point of communication for an earth station otherwise licensed by the Commission. Second, market access can be granted in an individual earth station application seeking to add that non-U.S.-licensed satellite as a point of communication. In this case, the scope of the market access is limited to the particular earth station license.

26. In addition to these options, we will allow non-U.S.-licensed satellite operators to obtain market access through a unified authorization. Structurally, the unified authorization will consist of an earth station license and a grant of market access for the space station. This same formal licensing

⁷⁵ We discuss below application of the unified licensing framework to non-U.S.-licensed space stations granted U.S. market access.

⁷⁶ See Intelsat Comments at 5.

⁷⁷ See, e.g., 47 CFR § 25.121(e) (earth station license renewal requirements).

⁷⁸ See Intelsat Comments at 5.

⁷⁹ See generally 47 CFR § 25.137 (requirements for U.S. market access through non-U.S.-licensed space stations).

structure is possible today when a satellite operator files its own earth station license application and seeks satellite market access through the earth station application. In contrast with this current option, the unified authorization may only be held by a satellite operator, will exclude individually coordinated earth stations, and will be processed in IBFS using the filing options and procedures available to space station applications rather than earth station applications.

27. *Blanket-licensed earth stations.* The Commission proposed to include in the unified license all authority necessary for blanket-licensed earth stations.⁸⁰ Satellite commenters generally support this element of the proposal.⁸¹ Including blanket-licensed earth stations within a unified license would streamline the authorization of these earth stations without raising potential site-specific concerns, because the Commission has already determined that such earth stations may be deployed ubiquitously, without other operators knowing their precise locations. The unified license will merely capture this existing authority in a different type of license, without allowing any earth station operations that would be prohibited under the existing method of a blanket earth station license. Therefore, no other services will be affected by permitting such operations under a blanket license. Accordingly, we will allow any type of earth station operation eligible for blanket licensing to be included in a unified license.⁸²

28. *Individually coordinated earth stations.* Although the Commission proposed to include in the unified license conditional authority for earth stations that must be individually coordinated and are not eligible for blanket licensing,⁸³ we decline to adopt this proposal. *For one*, we find that many of the benefits of such a proposal (such as linking the deployment of those earth stations to the deployment of the associated satellite, and thereby allowing the satellite operator to secure its gateway earth station locations several years earlier than the current licensing process⁸⁴) are better addressed more directly (for example, by modifying earth station build out requirements). *For another*, we find that adding such earth stations to a unified license would create more complexity than its streamlining benefit. Whether included in a unified license or not, a separate earth station filing would be required to provide the necessary site-specific information. *Further*, under the earth station certification proposal we adopt below, an earth station license applicant could similarly take advantage of the information provided in a corresponding space station application to omit any data that is duplicative. Therefore, it could be that the filings for individually coordinated earth stations—whether as part of a unified license or separately licensed using the certification procedure—would be similar in terms of the information provided, if not identical. At the same time, creating a new category of earth station filings would impose burdens on Commission resources. Therefore, in light of the possible complication that separate earth station filings would bring to a unified license framework, and the potentially marginal reduction in application burdens, we decline to adopt the proposal for individually coordinated earth stations.

29. In short, unified licensing will not be available in any frequency bands in which blanket earth station licensing is not permitted. In such bands, earth stations will continue to be licensed separately from space stations.⁸⁵

30. *Application Requirements.* To add blanket-licensed earth station authority to a space station license or market access grant, the satellite operator would need to provide only the additional

⁸⁰ Notice, 33 FCC Rcd at 11504, para. 8. We address above the comments of Verizon and CTIA regarding blanket-licensed earth station operations in bands adjacent to UMFUS operations.

⁸¹ See generally, e.g., Intelsat Comments at 3; Kymeta Reply at 4.

⁸² As a type of earth station currently eligible for blanket licensing, ESIMs will also be included in this framework. See generally Eutelsat Comments at 2-3; Intelsat Comments at 3; Kymeta Reply at 4-5.

⁸³ Notice, 33 FCC Rcd at 11505-06, para. 13.

⁸⁴ See, e.g., EchoStar Comments at 3-6; ViaSat Comments at 6-7.

⁸⁵ All earth stations that must be individually licensed are individually coordinated.

information required in an equivalent earth station application, but which is not already covered by what was filed for the space station. This includes, for example, any certification under section 25.115(i) that the use of a contention protocol in an earth station network will be reasonable, because that certification is not covered by the information provided in a space station license application. Submission of an earth station Form 312 Schedule B would not be required. As stated in the *Notice*,⁸⁶ in applications where the satellite operator certified compliance with the two-degree spacing power limits under section 25.140(a)(3)(i)-(iv), for example, the applicant would not need to provide any additional information on earth station antenna performance or verified performance currently required by sections 25.115(g)(1) or 25.132 because the certification already attests to compliance with the power limits involved in those additional showings.⁸⁷ Further instances of redundancy will necessarily be reviewed by Commission staff on a case-by-case basis initially, given that, at the urging of commenters, we are making the unified license option widely available across several different services and types of operation, each with distinct earth station and space station information requirements. The goal of this review will be to streamline, as far as possible within current rules, the earth station information required.

31. *Control of Earth Stations.* The Commission also sought comment on the issue of control of earth station operations under a unified license held by the satellite operator and whether any changes would be necessary to the control rules.⁸⁸ No commenter proposes any such modifications.

32. Verizon nonetheless raises practical concerns as to where terrestrial operators would turn for technical information and the resolution of any interference, and whether the earth station operator would be considered a Commission licensee.⁸⁹ Terrestrial operators may address questions or concerns to the satellite operator directly, as holder of the unified license, or to the Commission. Today, many satellite licensees are already held responsible for compliance with earth station power limits for their satellite networks.⁹⁰ Further, it is common practice in satellite service contracts for the satellite operator to specify and require third party earth station operators to adhere to technical parameters consistent with its license, coordination agreements and the efficient technical use of its network. We continue to believe that contractual provisions are sufficient to hold the unified licensee as the responsible entity. Therefore, we do not find any basis in the record to modify our rules regarding the control of earth stations.

33. *Fees.* The *Notice* also invited comment on the appropriate fees to assess for unified license applications.⁹¹ As an initial matter, we note that there is an ongoing, comprehensive Commission rulemaking involving updates and additions to the application fee schedules.⁹² The interim fee decisions taken in this Order will be considered in the larger application fee rulemaking, and may change significantly based on the analyses conducted there. In adopting a unified license framework, however, we must determine an initial treatment with respect to our application-fee requirements.

⁸⁶ *Notice*, 33 FCC Rcd at 11504-05, para. 10.

⁸⁷ A unified license may equally be granted in the absence of default power limits, based on the technical showings provided. Nothing about the unified license would change the application of section 25.140(d) to space stations authorized in, or outside of, a unified license. *See* Eutelsat Reply at 2-3.

⁸⁸ *See Notice*, 33 FCC Rcd at 11504, para. 7, 11505, para. 11. Section 25.271 contains requirements for the appropriate control of transmitting radio stations.

⁸⁹ *See* Verizon July 27 *ex parte* at 5; *see also* Verizon Oct. 2 *ex parte* at 5. *But see* EchoStar Aug. 7 *ex parte* at 3; Letter from Jennifer A. Manner, Senior Vice President Regulatory Affairs, EchoStar Satellite Services LLC and Hughes Network Systems, to Marlene H. Dortch, Secretary, FCC, IB Docket 18-314, Attach. 1 at 1 (filed Aug. 21, 2020) (EchoStar Aug. 21 *ex parte*).

⁹⁰ *See, e.g.*, 47 CFR § 25.140(a)(3)(i)-(iv).

⁹¹ *Notice*, 33 FCC Rcd at 11505, para. 12.

⁹² *Amendment of the Schedule of Application Fees Set Forth in Sections 1.1102 through 1.1109 of the Commission's Rules*, Notice of Proposed Rulemaking, FCC 20-116, paras. 207-209 (Aug. 26, 2020) (*Application Fee NPRM*).

34. A unified license application will contain all the information necessary to assess the proposed operation of the space station(s) and blanket-licensed earth stations in the satellite system, consistent with our rules. Commission staff will review both the space and ground components of the satellite system, and commenters may raise issues regarding either component to be resolved in the licensing decision. Because we anticipate that processing a unified license application will involve similar Commission resources to the processing of individual space station applications and earth station applications making use of the new certification option we adopt below, we will assess a fee for unified license applications that is equal to the combined fees of the relevant space station license application and earth station blanket-license application. This treatment is intended to provide a simple, clear solution until the comprehensive Commission application fee rulemaking is completed. Because there are currently no fee codes in IBFS for such combined fees, unified license applicants will need to pay the application fee manually.⁹³

35. In the case of a non-U.S.-licensed space station operator seeking a U.S. earth station license in combination with its petition for market access, we will—for now—assess the earth station application fee schedule to such requests. This provides equal treatment with the similar, existing procedure of market access through an earth station application.⁹⁴ However, we note the inconsistency and potential unfairness of assessing substantially lower fees to such market access requests than to U.S. licensees,⁹⁵ and intend to fully consider this and all application fee matters in the rulemaking dedicated to revising the Commission’s application fees broadly.⁹⁶

36. In addition to application fees, the Commission also charges annual regulatory fees. These fees are based on licenses held at the end of the relevant fiscal year. The Commission recently concluded its fiscal year 2019 regulatory fee rulemaking, and sought comment on additional changes for future years.⁹⁷ We note that the fiscal year 2019 report and order for the first time assessed the same regulatory fees against non-U.S.-licensed satellite operators granted U.S. market access as the Commission assesses to satellite operators holding a Commission space station license.⁹⁸ We defer to a future regulatory fee proceeding the question of how to assess such fees to the new category of unified licenses.

B. Earth Station Certifications

37. As an alternative or addition to the unified license proposal in the *Notice*, the Commission also asked whether it should permit applicants for GSO FSS earth station licenses to submit certifications of compliance with the terms and conditions of the communicating space station network as a substitute for filing the technical information required by Form 312, Schedule B.⁹⁹ Such certifications

⁹³ Applicants should go directly to the Fee Filer, create a row for each fee (space station application fee and blanket-licensed earth station application fee), and make one payment. The payment should be associated with the IB Submission ID of the unified license application as FCC Code 2 on each line, so the fee will be appropriately credited.

⁹⁴ See Eutelsat Comments at 7-8.

⁹⁵ See Intelsat Comments at 6.

⁹⁶ See *Application Fee NPRM*, FCC 20-116 at paras. 186, 192 (proposing to adopt equivalent fees for satellite license applications and satellite market access petitions), para. 207 (seeking comment on fees for unified license applications).

⁹⁷ *Assessment and Collection of Regulatory Fees for Fiscal Year 2020, Assessment and Collection of Regulatory Fees for Fiscal Year 2019*, Report and Order and Notice of Proposed Rulemaking, 35 FCC Rcd 4976 (2020); see also *Assessment and Collection of Regulatory Fees for Fiscal Year 2020*, Report and Order and Notice of Proposed Rulemaking, FCC 20-64 (Aug. 31, 2020).

⁹⁸ *Id.* at para. 10.

⁹⁹ *Notice*, 33 FCC Rcd at 11505, para. 11.

would allow independent earth station operators to benefit from streamlined information requirements in a similar way as earth stations authorized through a unified license held by the satellite operator, while remaining responsible for compliance with its certification.

38. Several commenters support the Commission's earth station certification proposal.¹⁰⁰ CTIA and Verizon oppose allowing earth station certifications for operation in frequency bands shared with UMFUS under section 25.136.¹⁰¹ They argue that UMFUS licensees require the ability to confirm the operating information provided during coordination and identify sources of interference.¹⁰² At a minimum, CTIA and Verizon urge the Commission to delay the effectiveness of any new earth station certification rule until after the International Bureau releases guidance on what information is considered duplicative or unnecessary in specific applications.¹⁰³ They further argue that earth station applicants should be required to identify any information being omitted and cross-reference where that information can be found.¹⁰⁴ In addition, Verizon opposes streamlined earth station certifications for ESIM operations in the 28.35-28.6 GHz band adjacent to UMFUS or for FSS in bands below 10 GHz.¹⁰⁵ Verizon also asks that we list all frequency bands in which the earth station certification option would apply and that further guidance be provided regarding the information that may be omitted.¹⁰⁶

39. We believe that there is no general need for GSO FSS earth station applicants to submit technical information that is duplicative (or unnecessary) due to the information already provided for the satellite with which they will communicate. Furthermore, and consistent with our decision above to expand the streamlining benefits of the unified license to additional services and types of operation, we see no general need to require such duplicative or unnecessary information for any earth station in any service when an appropriate certification of compliance with the satellite authorization is made.

40. With respect to the specific frequency bands raised by terrestrial commenters, however, we take an approach consistent with our decisions above regarding the unified license framework. Consistent treatment is appropriate because the same types of duplicative or unnecessary information may be omitted either through an earth station certification of compliance with the relevant satellite authorization or through a unified license application. Accordingly, we will exclude from the earth station certification option FSS operations under 10 GHz and operations subject to section 25.136. We will include ESIM operations in the 28.35-28.6 GHz band because doing so will have no impact on the applicable out-of-band emissions limits that affect UMFUS operations in the adjacent 27.5-28.35 GHz band.

41. Therefore, to conserve applicant and Commission resources while ensuring the necessary information remains on file with the Commission, we conclude it will serve the public interest to adopt a general provision for earth station licensing that an earth station applicant certifying that it will comply with the applicable terms and conditions of any space station's authorization with which it communicates need not provide technical demonstrations or other information made duplicative or unnecessary by the

¹⁰⁰ See Intelsat Comments at 5, SES Comments at 3-4, Kymeta Reply at 3 (supporting the Commission's proposal).

¹⁰¹ CTIA Nov. 11 *ex parte* at 6; Verizon Nov. 12 *ex parte* at 9.

¹⁰² See CTIA Nov. 11 *ex parte* at 6; Verizon Nov. 12 *ex parte* at 9.

¹⁰³ See CTIA Nov. 11 *ex parte* at 6; Verizon Nov. 12 *ex parte* at 9-10.

¹⁰⁴ See CTIA Nov. 11 *ex parte* at 6; Verizon Nov. 12 *ex parte* at 10.

¹⁰⁵ See Verizon Nov. 12 *ex parte* at 12.

¹⁰⁶ See *id.* at 9-10.

certification, with the exceptions just noted.¹⁰⁷ This necessarily applies to many frequency bands because the requirement to submit technical data in Schedule B, specifically identified as a source of potentially unnecessary information in the NPRM,¹⁰⁸ is applicable by default to all applications for transmitting earth stations.¹⁰⁹

42. Applicants taking advantage of the certification option need not identify the information that is duplicative or unnecessary at this time. Given that we are excluding FSS bands below 10 GHz and bands shared with UMFUS, and that the vast majority of earth station applications are non-controversial and unopposed, such a requirement would lessen the streamlining benefits of the certification option without providing a compensating benefit. As under the unified license approach above, parties may raise questions on specific applications during the comment period. Finally, we believe that guidance the International Bureau may provide on the new earth station certifications, like on the unified license applications, would benefit from practical experience implementing the rules. We therefore decline to delay the effectiveness of the new rule.

C. Earth Station Build-Out Requirements

43. In the *Notice*, the Commission identified a regulatory disconnect between the five-year deployment requirement for a GSO space station authorized in frequency bands subject to section 25.136 and the one-year deployment requirement for earth stations communicating with such a satellite.¹¹⁰ The Commission proposed to align these build-out requirements. As proposed, an earth station authorized through section 25.136 would have a build-out term defined as either the date the associated satellite becomes operational or one year, whichever is longer.

44. All satellite commenters on this issue support the Commission's proposal.¹¹¹ Indeed, several commenters urge the Commission to further allow an additional year for build-out after deployment of the satellite,¹¹² to include earth stations communicating with NGSO satellites,¹¹³ and to include all FSS frequency bands where earth stations are individually licensed and all earth stations authorized under a unified license.¹¹⁴ Other commenters caution that extending the build-out period for earth stations could create additional warehousing concerns if the earth stations are not ultimately deployed.¹¹⁵ Space Exploration Technologies Corp. (SpaceX) argues that the warehousing potential for NGSO FSS systems is greater than for GSO FSS networks because NGSO systems typically require more

¹⁰⁷ For example, an earth station applicant would still have to provide separate certifications under section 25.115(i), regarding use of a contention protocol, and section 25.218(d)(4), (f)(4), (h)(4), or (i)(5), regarding aggregate off-axis EIRP density, because these certifications are not covered by the information provided in a space station license application.

¹⁰⁸ *Notice*, 33 FCC Rcd at 11505, para. 11 (“We also seek comment on whether, as an alternative or addition to the unified license proposal herein, we should maintain separate licenses for earth stations communicating with GSO FSS space stations, but permit such earth station applicants to certify that they will comply with the terms and conditions of the space station network with which the earth station will communicate as a substitute for filing the technical information about the proposed earth station operations currently required to be submitted by earth station applicants under Schedule B to the earth station application.”).

¹⁰⁹ 47 CFR § 25.115(a)(1).

¹¹⁰ *Notice*, 33 FCC Rcd at 11506-07, paras. 15-16.

¹¹¹ See, e.g., SES Comments at 4-5; EchoStar Comments at 5-6; ViaSat Comments at 7-8; Letter from Amy R. Mehlman, Vice President, US Government Affairs and Policy, ViaSat, Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314, at 5-6 (filed Oct. 20, 2020).

¹¹² ViaSat Comments at 7-8.

¹¹³ OneWeb Comments at 1-3.

¹¹⁴ EchoStar Comments at 5-6.

¹¹⁵ See Intelsat Comments at 4-5; Eutelsat Reply at 3-5.

gateway sites to support a consumer service.¹¹⁶ SpaceX proposes that the Commission consider this issue in a further notice of proposed rulemaking or, alternatively, rely on grants of individual waivers or limit the number of eligible earth stations.¹¹⁷ Verizon and CTIA oppose lengthening the build-out requirement for earth stations authorized through section 25.136.¹¹⁸ Verizon argues that earth station operators should not be allowed to “freeze” UMFUS providers’ deployment plans for years if the earth station is not ultimately deployed.¹¹⁹ CTIA argues that extending the build-out period for earth stations subject to section 25.136 would significantly change the balance struck between UMFUS and FSS and remove rights granted via competitive bidding to UMFUS licensees.¹²⁰

45. Should the Commission adopt an extended build-out period for earth stations subject to section 25.136, Verizon requests that earth station operators re-coordinate with UMFUS licensees “within one year of actually constructing the earth station” to account for changes to the earth station configuration in the intervening years, as well as any geographic and demographic changes.¹²¹ Several satellite operators oppose such re-coordination.¹²² EchoStar argues that additional coordination for major earth station modifications is already required under part 101,¹²³ and that the Commission should not require re-coordination for minor modifications that do not impact the interference environment.¹²⁴ EchoStar also argues that geographic and demographic changes are beyond the control of the earth station licensee, may continue to impact the interference environment after construction of the earth station, and do not currently require additional coordination under part 101.¹²⁵ Satellite operators contend that re-coordination would create an unnecessary burden because the siting restrictions in section 25.136 already require earth stations to be located in areas where UMFUS deployment is unlikely.¹²⁶ Satellite operators argue that, if adopted, a re-coordination requirement would significantly undermine the benefits of the extended build-out periods in bands shared with UMFUS.¹²⁷ In place of a re-coordination requirement, some satellite operators suggest that an earth station licensee notify UMFUS licensees of any changes that

¹¹⁶ Letter from David Goldman, Director of Satellite Policy, Space Exploration Technologies Corp., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314 (filed Nov. 12, 2020) (SpaceX *ex parte*).

¹¹⁷ *Id.*; *see also* Letter from Daudeline Meme, Vice President & Associate General Counsel, Federal Regulatory & Legal Affairs, Verizon, IB Docket No. 18-314 (filed Nov. 13, 2020).

¹¹⁸ Verizon July 27 *ex parte* at 6; Verizon Oct. 2 *ex parte* at 5-6; CTIA Aug. 13 *ex parte* at 5-7.

¹¹⁹ Verizon July 27 *ex parte* at 6.

¹²⁰ CTIA Aug. 13 *ex parte* at 6.

¹²¹ Verizon July 27 *ex parte* at 6; *see also* Verizon Nov. 12 *ex parte*, Attach. at 1-4.

¹²² EchoStar Aug. 7 *ex parte* at 4; EchoStar Aug. 21 *ex parte*, Attach. at 2, SIA Sept. 29 *ex parte* at 4; Letter from Tom Stroup, President, Satellite Industry Association, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314, Attach. (filed Nov. 10, 2020) (SIA Nov. 10 *ex parte*); Letter from Will Lewis, Corporate Counsel, Project Kuiper, Kuiper Systems LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314 (filed Nov. 6, 2020) (Kuiper *ex parte*); Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, Hughes Network Systems LLC, Amy R. Mehlman, Vice President, US Government Affairs and Policy, ViaSat, Inc., and Brennan Price, Director, Regulatory Affairs, Inmarsat Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314, at 1 (filed Nov. 10, 2020) (Hughes/ViaSat/Inmarsat *ex parte*); *see also* Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, Hughes Network Systems, LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314 (filed Nov. 13, 2020); Letter from Amy R. Mehlman, Vice President, US Government Affairs and Policy, ViaSat, Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 18-314, at 2-3 (filed Nov. 12, 2020).

¹²³ 47 CFR § 101.103(d).

¹²⁴ EchoStar Aug. 7 *ex parte* at 4.

¹²⁵ *Id.*

¹²⁶ *See* SIA Nov. 10 *ex parte*, Attach.; Kuiper *ex parte* at 2.

¹²⁷ *See* SIA Nov. 10 *ex parte*, Attach.; Kuiper *ex parte* at 1-2; Hughes/ViaSat/Inmarsat *ex parte* at 1.

took place over the extended build-out period.¹²⁸

46. *Scope.* Considering the benefits of streamlining, regulatory certainty, and parity among different types of earth station licensees, we agree with EchoStar¹²⁹ to expand on the build-out term proposal in the *Notice* for earth stations licensed under section 25.136 to include all blanket-licensed earth station operations eligible to be included in a unified license (i.e., other than FSS below 10 GHz), and further to allow the same treatment for blanket earth station licenses and individual earth station licenses, which are not part of a unified license, with the same exception for FSS below 10 GHz where new earth station deployments have been significantly limited pursuant to the Commission's decisions to significantly increase development of terrestrial services in some of these bands.¹³⁰ Although we excluded from the unified licensing option earth station operations that must be individually coordinated, these operations will benefit the most from extended build-out periods to ensure that the necessary siting locations remain available once the satellite is ultimately launched.

47. *Bands Shared with UMFUS.* Applying an extended build-out period to earth station licenses subject to section 25.136 will provide greater regulatory certainty to satellite operators planning newer-generation GSO or NGSO satellites with narrow spot-beams and therefore more limited earth station siting options. We disagree with CTIA that doing so will fundamentally alter the sharing regime with UMFUS or the rights of UMFUS operators. However, we concur with Verizon that the earth station coordination reached with UMFUS licensees should be brought up to date once the earth station is actually constructed and operating.¹³¹ This will ensure that the UMFUS licensees have accurate information on the earth station operations notwithstanding the substantially longer earth station build-out period we are allowing. Providing UMFUS licensees with the certainty of an updated coordination will counterbalance the potential chilling of some UMFUS developments that might result from the extended earth station build-out periods. As such, the re-coordination requirement serves as an important check on potential warehousing. Requiring earth station operators to simply notify changes to UMFUS licensees would instead place the burden of those changes, and the risk of non-deployment of the earth station, on UMFUS operators. We decline to shift this risk onto UMFUS operators, given that the one-year build-out requirement provided underlying support for the earth station siting rules adopted in section 25.136.¹³² We believe that a re-coordination requirement for earth station licensees deploying in UMFUS bands is a reasonable tradeoff for the added flexibility longer build-out period provide these licensees. Nonetheless, we note that earth station applicants in shared UMFUS bands will have several options. They may: (1) construct and bring the earth station into operation within one year of licensing; (2) re-coordinate; or (3) deploy the earth station on an unprotected basis.

48. We find no basis for treating NGSO FSS earth stations differently than GSO FSS or other earth stations included in the scope of our proposal. Moreover, as SpaceX itself notes, "the record is not fully developed for the Commission to decide" whether it would serve the public interest to establish a limit on the eligible number of NGSO FSS earth stations or rely solely on the waiver process.¹³³ We will consider the need for a future rulemaking on the issue of extended build-out periods after monitoring their implementation.

¹²⁸ See *Kuiper ex parte* at 2-3; *Hughes/ViaSat/Inmarsat ex parte* at 2.

¹²⁹ *EchoStar Comments* at 5-6.

¹³⁰ See *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order and Order of Proposed Modification, 35 FCC Rcd 2343 (2020).

¹³¹ *Verizon July 27 ex parte* at 6; *Verizon Oct. 2 ex parte* at 5-6.

¹³² See *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8037, para. 57, 8089, para. 209 (2016).

¹³³ *SpaceX ex parte* at 2.

49. Accordingly, we will require earth station operators that take advantage of the extended build-out period associated with deployment of a communicating satellite to re-coordinate with the UMFUS licensees within one year before actually operating the earth station. Such re-coordination should account for changes to the earth station equipment or configuration in the intervening years, as well as to geographic and demographic changes in the surrounding area. In order to ensure that the required re-coordination has taken place, notice of the completed re-coordination must be filed in IBFS prior to commencement of earth station operations. For earth stations that are constructed and brought into operation within one year of licensing, as currently required, such re-coordination will not be necessary.

50. *Build-out Period.* We also acknowledge that it may be difficult to complete construction of all licensed earth stations and operate them on the first day that the satellite is certified as brought into operation, as proposed in the *Notice*. In addition, the next generation of high-throughput satellites may deploy large numbers of gateway earth stations that are not all needed to operate upon the initial deployment of the satellite, given the likely period of ramp-up in traffic over the satellite system.¹³⁴ To address the practical realities of potentially testing all earth stations in a satellite system in a single day, and to allow some flexibility during the initial period of increase in satellite traffic, we will extend the earth station construction requirement to be six months after the associated space station is certified as brought into operation.

51. *Warehousing Concerns and a Performance Bond.* We recognize that lengthening the build-out period for earth stations could lead to concerns of warehousing spectrum rights, notably in bands shared with terrestrial services. Intelsat for example, suggests a bond requirement as one means to address warehousing concerns—either as a separate bond on the individually licensed earth stations, or by extending the bond obligation associated with the satellite deployment to include the earth station build-out requirements as well.¹³⁵ Viasat and Echostar argue that Intelsat’s concerns are unfounded and that the Commission should reject Intelsat’s bond proposal.¹³⁶ Verizon opposes extending the build-out period for earth stations subject to section 25.136 principally due to warehousing concerns.¹³⁷

52. We note that individually licensed earth stations will operate in frequency bands already included in a space station license. The space station license requires posting of an escalating \$3 million bond for GSO networks or an escalating \$5 million bond for NGSO systems.¹³⁸ The bond is payable if the satellite system is not deployed within the required milestones included in the license.¹³⁹ This existing bond requirement acts as a deterrent to satellite operators without a firm intent to deploy their licensed systems in the particular frequency bands. Further, each individual earth station license application carries a separate application fee. With these existing disincentives to warehousing, the scant record on a bond alternative, and the potential burdens associated with administering and enforcing a bond for many individually licensed earth stations that could communicate with a number of space stations, we decline to adopt an earth station bond at this time.

53. Nonetheless, we intend to closely follow this issue in the future and to pursue measures, including possible earth stations bonds, based on further experience. In particular, we do not expect many

¹³⁴ ViaSat Comments at 8.

¹³⁵ Intelsat Comments at 4-5.

¹³⁶ See ViaSat Reply at 4; Letter from Jennifer A. Manner, Senior Vice President Regulatory Affairs, Echostar Satellite Services LLC, to Marlene H. Dortch, Secretary, FCC, IB Docket 18-314 (filed Jan. 30, 2020); EchoStar Aug. 7 *ex parte* at 3; see also EchoStar Aug. 21 *ex parte*, Attach. at 1.

¹³⁷ Verizon July 27 *ex parte* at 6.

¹³⁸ 47 CFR § 25.165.

¹³⁹ 47 CFR § 25.164.

cases in which a single operator files, under section 25.136, for more than one earth station license within a given county or PEA, or for an earth station that covers the maximum permitted aggregate population within the relevant UMFUS licensing area. Such filings may encourage further rulemaking on the issue of anti-warehousing measures. While we defer the question of addressing warehousing incentives until we develop more experience with the implementation of extended earth-station build-out periods, we will consider in addressing the need for any such measures whether to apply them to previously granted earth station licenses with extended build-out periods.

D. Annual Reporting Requirements for Satellite Operators

54. Section 25.170 requires satellite operators to annually report any authorized satellites or frequencies unavailable for service, a contact point for the resolution of interference, and the construction progress of any authorized replacement satellites. This rule is separate from the outage reporting requirements in part 4, which also apply to satellite operators.¹⁴⁰ In the *Notice*, the Commission acknowledged that these section 25.170 reports were not regularly used by Commission staff and proposed to repeal the majority of these requirements. The Commission proposed to retain only the requirement for an annual confirmation of the accuracy of the contact information on file and to move this requirement to section 25.171.

55. All commenters who filed comments on this issue support the repeal of the majority of section 25.170 as proposed by the Commission.¹⁴¹ Commenters disagree as to whether operators should annually confirm their accurate point of contact information.¹⁴² Some parties argue this requirement is unnecessary in light of section 25.171's requirement for operators to update their point of contact information within 10 days of it changing.¹⁴³ Others argue that an annual confirmation is helpful to avoid important points of contact falling out of date.¹⁴⁴

56. We adopt the proposal in the *Notice*. The majority of the annual reporting requirements in section 25.170 have proven unnecessary for the typical work of Commission staff particular to satellite licenses.¹⁴⁵ In contrast, failures in internal communication or other issues can cause updates in point of contact information not to be reported to the Commission in compliance with section 25.171. In these cases, including the up-to-date contact information has proven important to ensure such information does not remain inaccurate indefinitely. We also update the cross-reference in section 25.172(a)(1) to reflect this change.

E. Out-of-Band Emissions

57. The *Notice* observed that the Commission's default out-of-band emissions rule in section 25.202(f) dates from the 1970s, and that its wording has created confusion among some operators. The Commission proposed to replace this rule with a requirement to comply with an international out-of-band

¹⁴⁰ 47 CFR §§ 4.3(d), 4.9(c).

¹⁴¹ See, e.g., Intelsat Comments at 2; Iridium Comments at 3-4; Maxar Comments at 2-3; CSSMA Comments at 2; SES Comments at 5.

¹⁴² Compare Intelsat Comments at 2; Iridium Comments at 3-4; Maxar Comments at 2-3; CSSMA Comments at 2; SES Comments at 5 (supporting Commission proposal), with EchoStar Comments at 6; Eutelsat Comments at 3 (urging deletion of the point of contact certification as well).

¹⁴³ See EchoStar Comments at 6; Eutelsat Comments at 3.

¹⁴⁴ See Intelsat Comments at 2; Iridium Comments at 3-4; Maxar Technology (Maxar) Comments at 2-3; SES Comments at 5; CSSMA Comments at 2.

¹⁴⁵ We note that particular information requests may still be made pursuant to section 25.112(a). 47 CFR § 25.112(a). In addition, separate from annual reporting requirements, we may in the future consider revised reporting requirements particular to NGSO operators to ensure that the Commission has accurate, cumulative information regarding the state of constellation deployment.

emissions standard, ITU-R SM.1541-6, “Unwanted emissions in the out-of-band domain,” August 2015.¹⁴⁶

58. All satellite commenters support the Commission’s proposal.¹⁴⁷ Verizon, in an *ex parte*, opposes adopting the ITU Recommendation.¹⁴⁸ Verizon argues that the ITU Recommendation is more lenient than section 25.202(f) concerning emissions immediately at the band edge, and therefore could lead to greater out-of-band emissions into terrestrial services in adjacent bands.¹⁴⁹ Verizon, and CTIA in an *ex parte*, also note that the limits in the ITU Recommendation vary based upon the “necessary bandwidth,” which is chosen by the satellite operator, and so do not provide the same certainty to terrestrial operators as the limits in section 25.202(f).¹⁵⁰ In addition, the National Science Foundation’s Committee on Radio Frequencies (CORF) comments that higher out-of-band emission requirements may be necessary in some frequency bands to protect passive radiosensors and suggests that the Commission adopt such limits.¹⁵¹ CORF also urges the Commission to retain a provision explicitly allowing the Commission to condition a license with stricter out-of-band emissions requirements than provided for by default, and to separate treatment of out-of-band emissions from emissions in the spurious domain.

59. Given the importance of out-of-band-emission limits for the protection of adjacent services and the implementation of Commission band segmentation decisions, and the concerns expressed on the record, we decline to modify section 25.202(f). We recognize that replacing section 25.202(f) with the limits contained in the ITU Recommendation would relax some out-of-band emission requirements immediately at the band edge. The current record has not considered the specific impact of this relaxation on adjacent terrestrial services. We are therefore not in a position to conclude terrestrial services would be unaffected, or that the relaxation would otherwise serve the public interest. However, we may seek in the future to develop a full record on this issue and reconsider adoption of an internationally standardized, default out-of-band emissions limit for satellite services.

F. Dismissal of Applications

60. The *Notice* invited comment on whether to modify the acceptability standard for applications under part 25 to explicitly state that an applicant may correct any errors or omissions within 60 days of a Commission request, and that applications will be accepted for filing automatically within 30 days of filing, unless the Commission determines otherwise.¹⁵² Commenters were split as to whether such explicit policies would provide helpful certainty to applicants, could undermine the Commission’s first-come, first-served processing, or are unnecessary in light of the existing flexibility and practice of addressing minor deficiencies on an individual basis.¹⁵³

61. After review of the split record and consideration of long-standing staff practices, we are not convinced that an explicit, one-sized-fits-all acceptability approach is desirable across the variety of

¹⁴⁶ *Notice*, 33 FCC Rcd at 11507-08, para 19.

¹⁴⁷ See, e.g., EchoStar Comments at 6-7; EchoStar Aug. 7 *ex parte* at 5-6; EchoStar Aug. 21 *ex parte*, Attach. at 2; Eutelsat Comments at 3; Intelsat Comments at 2; OneWeb Comments at 6; SIA Sept. 29 *ex parte* at 4; SIA Nov. 10 *ex parte*, Attach.; Letter from Maureen C. McLaughlin, Vice President, Public Policy, Iridium Communications Inc. to Marlene H. Dortch, Secretary, FCC, IB Docket 18-314, at 3-4 (filed Sept. 3, 2020) (Iridium *ex parte*).

¹⁴⁸ Verizon July 27 *ex parte* at 2; see also Verizon Oct. 2 *ex parte* at 2.

¹⁴⁹ *Id.*; see also CTIA Aug. 13 *ex parte* at 2.

¹⁵⁰ Verizon July 27 *ex parte* at 2; CTIA Aug. 13 *ex parte* at 2-3.

¹⁵¹ National Science Foundation Comments at 8-13.

¹⁵² *Notice*, 33 FCC Rcd at 11508, paras. 20-21.

¹⁵³ Compare, e.g., EchoStar Comments at 7, EchoStar Aug. 7 *ex parte* at 4-5, and Iridium Comments at 4-5 (supporting 60-day cure period) with Intelsat Comments at 6-7, SES Comments at 6-8, Eutelsat Reply at 5-6 (opposing cure period); see also Verizon July 27 *ex parte* at 6; Verizon Oct. 2 *ex parte* at 6.

satellite and earth station applications presented under part 25. Rather, we believe that the current framework has proven flexible to enable Commission staff to address errors without undue disruptions to applicants or other operators. We therefore decline to modify the acceptability for filing rules.

G. Notification of Minor Earth Station Modifications

62. The *Notice* proposed to reduce filing burdens on some earth station licensees by repealing the requirement to notify the Commission of the types of minor changes to authorized earth stations listed in section 25.118(a)(4)—i.e., those that the Commission does not expect to worsen the interference environment for other operators.¹⁵⁴ This proposal was uniformly supported by satellite operators.¹⁵⁵ Verizon and CTIA, however, oppose this proposal.¹⁵⁶ Verizon and CTIA argue that terrestrial operators rely on the earth station information currently provided when planning their networks and assessing any interference. Verizon and CTIA further contend that some changes permitted under section 25.118(a)(4) may in fact alter the interference environment for terrestrial operators, such as a reduction in antenna height or a change in antenna pattern, and therefore terrestrial operators should continue to be informed when such changes occur.

63. We adopt the proposed streamlining measure by moving the enumerated types of modifications from section 25.118(a)(4) to section 25.118(b), which lists earth station modifications that do not require notification and include two additional modifications that require Commission notification. Namely, decreases in antenna height and any change that increases or decreases the earth station's power flux-density (PFD) contour. The PFD contour is an essential part of the initial application under section 25.136 in bands shared with UMFUS and any modification such as to antenna height, power, orientation, etc. that changes the PFD contour will trigger the notification requirement. We also clarify that the addition of new transceiver and antenna combinations to an existing blanket earth station license does not require prior Commission notification when they meet the requirements currently listed in section 25.118(a)(4).¹⁵⁷

64. Contrary to Verizon's claim, a change in earth station antenna pattern under section 25.118(a)(4)(i) will not negatively impact terrestrial operators because it must not, in accordance with the rule, exceed the previously filed EIRP or EIRP density envelope.¹⁵⁸ As such, we do not believe these notices are necessary for operators in other services because the "worst case" interference scenario will not be affected. We also disagree with CTIA that an earth station operating in a band shared with UMFUS at a power level below its maximum authorized power level should be required to notify the Commission of its lower operating power level.¹⁵⁹ No such requirement currently exists—earth stations may be operated at different power levels based on varying requirements and conditions, provided they do not exceed their authorized power envelopes—and we find no basis in the CTIA Aug. 13 *ex parte* to adopt such a new reporting requirement.

65. However, we agree with Verizon and CTIA that the Commission should require earth station operators to provide notice of a decrease in antenna height pursuant to this provision. Although in many cases a decrease in earth station antenna height would improve, not worsen, the interference

¹⁵⁴ 47 CFR § 25.118(a)(4).

¹⁵⁵ See, e.g., Maxar Comments at 3; OneWeb Comments at 7; CSSMA Comments at 4; SES Comments at 8-9; EchoStar Aug. 7 *ex parte* at 6-7; EchoStar Aug. 21 *ex parte*, Attach. at 3; SIA Sept. 29 *ex parte* at 5; Iridium *ex parte* at 2-3.

¹⁵⁶ Verizon July 27 *ex parte* at 3; Verizon Oct. 2 *ex parte* at 3; CTIA Aug. 13 *ex parte* at 7-8 (opposing changes in bands shared with UMFUS).

¹⁵⁷ See Iridium Comments at 2-3.

¹⁵⁸ The protection of the earth station is defined by section 25.209. 47 CFR § 25.209(c).

¹⁵⁹ CTIA Aug. 13 *ex parte* at 8.

environment for terrestrial operators as ground clutter would play a larger role in suppressing emissions in unwanted directions, that is not always the case. For example, a lowered antenna may be more likely to radiate higher side lobes into an UMFUS station or may bring the antenna closer to some local metallic object, creating induced spurious effects on the resultant radiation pattern that create higher interference levels in certain directions. And a decrease in antenna height may result in decreased PFD contours which provide an UMFUS operator the opportunity to serve an area that was previously excluded, but now no longer is. Therefore, we will require notification of decreases in antenna height.

H. Additional Proposals in Comments

66. In addition to the proposals and questions in the *Notice*, some additional proposals were made in the comments of this proceeding to streamline other aspects of the Commission's satellite licensing rules.¹⁶⁰ SES additionally reiterated one issue contained in its Petition for Reconsideration of a 2015 satellite streamlining order, which will be addressed in that rulemaking.¹⁶¹ We have reviewed these proposals and conclude that, while they are outside the scope of the *Notice*, we may revisit some of these proposals in the future.

IV. PROCEDURAL MATTERS

67. *Regulatory Flexibility Act.* Pursuant to the Regulatory Flexibility Act of 1980, as amended, 5 U.S.C. § 601 *et seq.* (RFA), the Commission's Final Regulatory Flexibility Analysis in this Report and Order is attached as Appendix B. The Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this Report and Order including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).

68. *Paperwork Reduction Act.* This document contains new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies will be invited to comment on the new or modified information collection requirements contained in this proceeding. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

69. In this present document, we have assessed the effects of requiring some earth station licensees to re-coordinate with UMFUS licensees under section 25.136, and find that it may increase coordination costs for some businesses with fewer than 25 employees.

70. *Congressional Review Act.* The Commission has determined, and the Administrator of the Office of Information and Regulatory Affairs, Office of Management and Budget, concurs that this rule is "non-major" under the Congressional Review Act, 5 U.S.C. § 804(2). The Commission will send a copy of this Report & Order to Congress and the Government Accountability Office pursuant to 5 U.S.C. §801(a)(1)(A).

V. CONCLUSION AND ORDERING CLAUSES

71. IT IS ORDERED, pursuant to Sections 4(i), 7(a), 10, 303, 308(b), and 316 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 157(a), 160, 303, 308(b), 316, that this Report and Order IS ADOPTED, the policies, rules, and requirements discussed herein ARE ADOPTED, and part 25 of the Commission's rules IS AMENDED as set forth in Appendix A.

¹⁶⁰ Intelsat Comments at 7-9.

¹⁶¹ SES Comments at 9 and Letter from Karis A. Hastings, Counsel for SES Americom, Inc. and New Skies Satellites B.V., to Marlene H. Dortch, Secretary, FCC, IB Docket 18-314 (filed November 7, 2017); *Part 25 Second Report and Order*, 30 FCC Rcd at 14754-55, paras. 112, 115.

72. IT IS FURTHER ORDERED that the rule amendments in this Report and Order WILL BECOME EFFECTIVE 30 days from the date of publication in the Federal Register, except for those amendments which contain new or modified information collection requirements that require approval by the Office of Management and Budget under the Paperwork Reduction Act which WILL BECOME EFFECTIVE after the Commission publishes a notice in the Federal Register announcing such approval and the relevant effective date.

73. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Analyses, to the Chief Counsel for Advocacy of the Small Business Administration.

74. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of this Report and Order in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A).

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A

Final Rule

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR part 25 as follows:

PART 25 – SATELLITE COMMUNICATIONS

1. The authority citation for part 25 continues to read as follows:

Authority: 47 U.S.C. 154, 301, 302, 303, 307, 309, 310, 319, 332, 605, and 721, unless otherwise noted.

2. In § 25.115, revise paragraph (a)(1) to read as follows:

§ 25.115 Applications for earth station authorizations.

(a)(1)(i) *Transmitting earth stations.* Commission authorization must be obtained for authority to operate a transmitting earth station. Applications must be filed electronically on FCC Form 312, Main Form and Schedule B, and include the information specified in this section, except as set forth in paragraphs (a)(1)(ii) and (a)(2) of this section.

(ii) *Certification of compliance with space station authorization.* An earth station applicant certifying that it will comply with the applicable terms and conditions of the authorization of any space station with which it communicates need not provide technical demonstrations or other information that is duplicative or unnecessary due to the certification. This provision does not apply to FSS operation in bands below 10 GHz or in bands subject to § 25.136.

* * * * *

3. In § 25.118, revise paragraphs (a)(4) and (b) to read as follows:

§ 25.118 Modifications not requiring prior authorization.

(a) * * *

(4) An earth station licensee may additionally:

(i) Decrease antenna height; or

(ii) Increase or decrease the earth station's PFD contour, provided the modification does not involve a change listed in paragraph (b)(2) of this section.

(b) *Earth station modifications, notification not required.* Notwithstanding paragraph (a) of this section:

(1) Equipment in an authorized earth station may be replaced without prior authorization and without notifying the Commission if the new equipment is electrically identical to the existing equipment.

(2) Licensees may make other changes to their authorized earth stations, including the addition of new transceiver/antenna combinations, without notifying the Commission, provided the modification does not involve:

(i) An increase in EIRP or EIRP density (either main lobe or off-axis);

(ii) Additional operating frequencies;

(iii) A change in polarization;

(iv) An increase in antenna height;

- (v) Antenna repointing beyond any coordinated range; or
- (vi) A change from the originally authorized coordinates of more than 1 second of latitude or longitude for stations operating in frequency bands shared with terrestrial systems or more than 10 seconds of latitude or longitude for stations operating in frequency bands not shared with terrestrial systems.

* * * * *

- 4. Add § 25.124 to read as follows:

§ 25.124 Unified space station and earth station authorization.

(a) A single authorization may be issued for the operations of a GSO space station or NGSO space station(s) and the blanket-licensed earth stations that will operate within that satellite system, excluding GSO FSS and NGSO FSS satellite systems operating in bands below 10 GHz and bands subject to § 25.136. The available frequency bands are:

Non-Voice, Non-Geostationary MSS: 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, and 400.15-401 MHz;

1.5/1.6 GHz MSS: 1525-1559 MHz and 1626.5-1660.5 MHz;

1.6/2.4 GHz MSS: 1610-1626.5 MHz and 2483.5-2500 MHz;

2 GHz MSS: 2000-2020 MHz and 2180-2200 MHz;

GSO FSS: 10.7-12.2 GHz, 14-14.5 GHz, 18.3-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz, 29.25-30 GHz, 40-42 GHz, and 48.2-50.2 GHz;

NGSO FSS: 10.7-12.7 GHz, 14-14.5 GHz, 17.8-18.6 GHz, 18.8-19.4 GHz, 19.6-20.2 GHz, 28.35-29.1 GHz, 29.5-30 GHz, 40-42 GHz, and 48.2-50.2 GHz; and

GSO and NGSO MSS: 19.7-20.2 GHz and 29.5-30 GHz.

(b) An application for a satellite system license described in paragraph (a) must contain:

- (1) The information required by § 25.114 or, for a non-U.S.-licensed space station, § 25.137;
- (2) A certification that earth station operations under the satellite system license will comply with part 1, subpart I and part 17 of this chapter; and
- (3) Any additional information required under this part, including under § 25.115, for operation of the blanket-licensed earth stations that is not duplicative or unnecessary due to the information provided for the space station operation.

- 5. In § 25.133, revise paragraph (a) to read as follows:

§ 25.133 Period of construction; certification of commencement of operation.

(a) An earth station, or network of blanket-licensed earth stations, must be brought into operation within the longest of the time periods below, unless the Commission determines otherwise:

(1) For an earth station authorized to communicate with a GSO FSS space station in the 3600-4200 MHz band (space-to-Earth) operating outside of CONUS, or in the 5850-6725 MHz band (Earth-to-space), within one year from the date of the license grant;

(2) For any other earth station or network of earth stations, within one year from the date of the license grant or six months after the bringing into operation of a GSO space station, or NGSO system under § 25.164(b)(1), with which the earth station or earth station network was authorized to communicate when it was licensed, as notified under § 25.173(b).

* * * * *

6. In § 25.136, add paragraph (h) to read as follows:

§ 25.136 Earth Stations in the 24.75-25.25 GHz, 27.5-28.35 GHz, 37.5-40 GHz, 47.2-48.2, GHz and 50.4-51.4 GHz bands.

* * * * *

(h) *Re-coordination.* An earth station licensed under this section that is brought into operation later than one year after the date of the license grant must be re-coordinated with UMFUS stations using the applicable processes in §101.103(d) of this chapter. The earth station licensee must complete re-coordination within one year before its commencement of operation. The re-coordination should account for any demographic or geographic changes as well as changes to the earth station equipment or configuration. A re-coordination notice must be filed in IBFS before commencement of earth station operations.

§ 25.170 [Removed]

7. Remove § 25.170.

8. Revise § 25.171 to read as follows:

§ 25.171 Space station point of contact reporting requirements.

(a) *Annual report.* On June 30 of each year, a space station licensee or market access recipient must provide a current listing of the names, titles, addresses, email addresses, and telephone numbers of the points of contact for resolution of interference problems and for emergency response. Contact personnel should include those responsible for resolution of short-term, immediate interference problems at the system control center, and those responsible for long-term engineering and technical design issues.

(b) *Updated information.* If a space station licensee or market access recipient point of contact information changes, the space station licensee or market access recipient must file the updated information within 10 days of the change.

(c) *Electronic filing.* Filings under paragraphs (a) or (b) of this section must be made electronically in the Commission's International Bureau Filing System (IBFS) in the "Other Filings" tab of the station's current authorization file.

9. Revise § 25.172(a)(1) to read as follows:

§ 25.172 Requirements for reporting space station control arrangements.

(a) * * *

(1) The information required by § 25.171(a).

* * * * *

APPENDIX B**Final Regulatory Flexibility Analysis**

As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in *Further Streamlining Part 25 Rules Governing Satellite Services*, Notice of Proposed Rulemaking.² The Commission sought written public comment on the proposals in the Notice, including comment on the IRFA. No comments were received on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.³

A. Need for, and Objectives of, the Order

The Order creates a new, streamlined license for both space stations and earth stations and adopts other streamlining measures for the authorization of earth stations. It also removes the annual reporting requirements for satellite operators and makes other corrections in 47 CFR Part 25.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

There were no comments filed that specifically addressed the rules and policies proposed in the IRFA.

C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration

Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.⁴ The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

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

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 rules adopted herein.⁵ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”⁶ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁷ A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any

¹ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. §§ 601-12, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996, Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² *Further Streamlining Part 25 Rules Governing Satellite Services*, Notice of Proposed Rulemaking, 31 FCC Rcd 11503, 11514-15, Appx. B (2018).

³ See 5 U.S.C. § 604.

⁴ 5 U.S.C. § 604(a)(3).

⁵ *Id.*

⁶ 5 U.S.C. § 601(6).

⁷ 5 U.S.C. § 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.”

additional criteria established by the Small Business Administration (SBA).⁸ Below, we describe and estimate the number of small entities that may be affected by adoption of the final rules.

Satellite Telecommunications

This category 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.”⁹ Satellite telecommunications service providers include satellite and earth station operators. The category has a small business size standard of \$35 million or less in average annual receipts, under SBA rules.¹⁰ For this category, U.S. Census Bureau data for 2012 show that there were a total of 333 firms that operated for the entire year.¹¹ Of this total, 299 firms had annual receipts of less than \$25 million.¹² Consequently, we estimate that the majority of satellite telecommunications providers are small entities.

E. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements for Small Entities

The Order adopts several rule changes that would affect compliance requirements for space station and earth station operators. For example, the Order creates a new, optional, streamlined licensing procedure for both space stations and earth stations in a satellite system. It also eliminates some reporting requirements for space station and earth station licensees. In total, the actions in this Order are designed to achieve the Commission’s mandate to regulate in the public interest while imposing the lowest necessary burden on all affected parties, including small entities.

F. Steps Taken to Minimize the Significant Economic Impact on Small Entities and Significant Alternatives Considered

The RFA requires an agency to describe any significant alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): “(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.”¹³

In this Order, the Commission creates a new, optional, streamlined licensing procedure for both space stations and earth stations in a satellite system specifically designed to eliminate redundancies and reduce regulatory burdens. The Commission also adopts a certification option for earth station applicants to eliminate duplicative or unnecessary information filed with the Commission. In addition, the Commission repeals certain other requirements with the aim of streamlining its requirements. Overall, the actions in this document will reduce burdens on the affected licensees, including small entities.

⁸ 15 U.S.C. § 632.

⁹ See U.S. Census Bureau, *2017 NAICS Definition, “517410 Satellite Telecommunications”*, <https://www.census.gov/cgi-bin/sssd/naics/naicsrch?input=517410&search=2017+NAICS+Search&search=2017>.

¹⁰ See 13 CFR § 121.201, NAICS Code 517410.

¹¹ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ4, *Information: Subject Series - Estab and Firm Size: Receipts Size of Firms for the U.S.: 2012*, NAICS Code 517410, <https://data.census.gov/cedsci/table?text=EC1251SSSZ4&n=517410&tid=ECNSIZE2012.EC1251SSSZ4&hidePreview=false&vintage=2012>.

¹² *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.

¹³ 5 U.S.C. § 603(c)(1)-(4).

Report to Congress: The Commission will send a copy of the *Report and Order*, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.¹⁴ In addition, the Commission will send a copy of the *Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Report and Order* and FRFA (or summaries thereof) will also be published in the Federal Register.¹⁵

¹⁴ 5 U.S.C. § 801(a)(1)(A).

¹⁵ See 5 U.S.C. § 604(b).

APPENDIX C
List of Commenters

Comments

Commercial Smallsat Spectrum Management Association
Echostar Satellite Operating Corporation and Hughes Network Systems LLC
Eutelsat S.A.
Intelsat License LLC
Iridium Communications Inc.
Maxar Technologies Inc.
National Academy of Sciences Committee on Radio Frequencies
SES Americom, Inc. and O3b Limited
Viasat, Inc.
WorldVu Satellites Limited

Reply Comments

Echostar Satellite Operating Corporation and Hughes Network Systems LLC
Eutelsat S.A.
Iridium Communications Inc.
Kymeta Corporation
SES Americom, Inc. and O3b Limited
Viasat, Inc.

Ex Parte Filings

CTIA
Hughes Network Systems, LLC
Hughes Network Systems, LLC, Inmarsat, Inc., Viasat, Inc. (collectively “GSO Operators”)
Kuiper Systems LLC
Satellite Industry Association
Space Exploration Technologies Corp.
Verizon
Viasat, Inc.

**STATEMENT OF
CHAIRMAN AJIT PAI**

Re: *Further Streamlining Part 25 Rules Governing Satellite Services*, IB Docket No. 18-314.

This past Sunday, a SpaceX Falcon 9 rocket blasted into the evening sky, carrying the Crew Dragon spacecraft into the heavens and a four-member crew to the International Space Station. It was the first operational mission of the spacecraft—and it marked a major milestone in public-private partnerships to help advance American leadership in space.

We are in the midst of a New Space Age. And while today’s celestial exploration captures our attention, the communications-related innovation happening in space is fascinating too. This FCC has made it a point to encourage American leadership in this New Space Age when it comes to communications. We acted early to authorize spectrum bands for use in large non-geostationary satellite orbit constellations. These NGSOs, like SpaceX, OneWeb, Kuiper, and others, are poised to provide high-speed Internet access virtually anywhere in the United States, helping to close the digital divide and increase competition.

We also created a new regulatory framework for small satellites in order to encourage space-based startups to innovate here at home. As I said then, “There is no reason why a satellite the size of a shoebox, with the life expectancy of a guinea pig, should be regulated the same way as a satellite the size of a school bus that will stay in orbit for centuries.” Our reforms got results. Take these words from the head of Lynk Global, a small-sat startup, who wrote afterward: “While some government leaders create barriers that slow down innovation, other nations adopt leap-frog strategies to help their domestic industries capture world leadership. The leadership of the U.S. Federal Communications Commission (FCC) recently made a decision that will ensure America stays on the leading edge of the next technological revolution.”¹

We have also made major reforms to advance connectivity by means of “earth stations in motion.” These reforms facilitate deployment of satellite-based communications services to ships, airplanes, and vehicles. This may allow these services to be delivered to those who are often on the go, like students on long school bus trips, shippers on waterways, passengers and crew on airplanes, and motorists and truckers on the nation’s highways and byways.

And while we seek to facilitate the deployment of satellite technologies, we also recognize the need to protect against the potential hazards posed by the increasingly populated low-Earth orbit environment. That’s why earlier this year, the Commission adopted robust rules to mitigate orbital debris and sought comment on additional ways to ensure that we are being responsible stewards of the extraterrestrial environment.

This FCC’s priority on promoting space-based innovation continues to this very day. Today, we continue our efforts to streamline our part 25 rules by harmonizing the licensing process for many classes of satellite space stations and earth stations. These changes will end the need to make unnecessary or duplicative filings with the Commission and will reduce burdens placed on applicants, which will expedite our processing of applications and eliminate regulatory red tape standing in the way of the deployment of satellite-based services.

¹ Charles Miller, “Streamlined FCC licensing a big deal for smallsats,” *SpaceNews* (Mar. 2, 2020), <https://spacenews.com/op-ed-streamlined-fcc-licensing-a-big-deal-for-smallsats/>.

We adopt a voluntary, unified licensing process for most space stations and blanket-licensed earth stations in satellite systems operating above 10 GHz. Instead of having separate licenses for space stations and earth stations, these satellite systems will have the choice of operating pursuant to a single license from the Commission covering both types of stations.

We also align the build-out requirements for earth stations with the build-out periods for their associated space stations and reduce some of the filing and paperwork burden for satellite operators by eliminating requirements to report information that the Commission doesn't regularly use. Finally, we get rid of the requirement that earth station licensees notify the Commission of minor changes that are unlikely to lead to increased interference with other operators' systems.

We don't explore space ourselves. We don't build rockets. And we don't build and launch satellites. But make no mistake: The FCC has a key role in space. As my friend and former Chairman Newt Minow aptly put it: "communications satellites will be much more important than sending a man into space, because they will send ideas into space. Ideas last longer than men." This FCC has met that challenge, and because we have, the United States will continue to lead in the New Space Age.

For their work on this Order—yet another step in promoting U.S. leadership—I'd like to thank, from the International Bureau: Jose Albuquerque, Paul Blais, Clay DeCell, Jennifer Gilson, Karl Kensinger, Ron Marcelo, Tom Sullivan, Troy Tanner, Merissa Velez, and Cheryl Williams; from the Enforcement Bureau: Eric Ehrenreich, JoAnn Lucanik, Jason Koslofsky, and Paul Noone; from the Office of Communications Business Opportunities: Maura McGowan; from the Office of Economics and Analytics: Virginia Metallo and Emily Talaga; from the Office of Engineering and Technology: Michael Ha, Ira Keltz, Nick Oros, and Jamison Prime; from the Office of the General Counsel: David Konczal and Bill Richardson; and from the Wireless Telecommunications Bureau: Steve Buenzow, Tim Hilfiger, John Schauble, Blaise Scinto, and Joel Taubenblatt.