

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Modernization of Section 25.117 of the
Commission's Rules for Modifications of NGSO
FSS Systems in the New Space Age

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To: FCC Secretary

PETITION FOR RULEMAKING

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PETITION FOR RULEMAKING

I. INTRODUCTION AND SUMMARY.

Pursuant to Section 1.401 of the Commission’s rules, Kuiper Systems LLC, a wholly owned subsidiary of Amazon.com Services LLC (collectively, “Amazon”), hereby petitions the Federal Communications Commission (“FCC” or “Commission”) to revise Section 25.117 of its rules to codify and modernize the types of non-geostationary satellite orbit (“NGSO”) fixed-satellite service (“FSS”) space station license modifications that would presumptively be considered as part of a subsequent processing round.

The dawn of the New Space Age brings with it the promise of newfound connectivity and innovation previously unimaginable. The satellite industry’s dynamic growth potential is evident in the recent applications to launch and operate NGSO FSS constellations, as well as applications to revise previous authorizations. The standard used to evaluate whether a proposed NGSO FSS space station modification satisfies the public interest is not current with the present-day NGSO industry; this incongruence undermines the certainty and fairness the Commission envisioned for NGSO FSS operators when it established its processing round and spectrum sharing rules and procedures. Accordingly, Amazon hereby requests that the Commission initiate a rulemaking to revisit Section 25.117 in the context of NGSO FSS modifications.

II. BACKGROUND.

Modifications to authorized NGSO FSS space stations are governed by Section 25.117 of the Commission's rules.¹ That rule permits the Commission to grant a space station modification request unless one (or more) of five disqualifying "circumstances" is met. One such circumstance is that granting the modification request would not serve the public interest, convenience and/or necessity.²

This public interest standard is broad and permits the Commission's consideration of a variety of factors, including those identified by Amazon herein as potential revisions to Section 25.117.³ Historically, however, public interest determinations for NGSO satellite systems under Section 25.117 have been guided by the International Bureau's *Teledesic LLC* decision, which was issued more than two decades ago.⁴ In *Teledesic*, the International Bureau determined that if a proposed modification does not present any significant interference problems and is otherwise

¹ 47 C.F.R. § 25.117.

² 47 C.F.R. § 25.117(d)(2)(ii); *see also id.* §§ 25.117(d)(2)(i), (iii)-(v) (also identifying unqualified applicants, GSO-like applications without queue priority, certain increases in authorized bandwidth, and specific 17/24 GHz conditions).

³ Moreover, the Commission could consider whether a proposed modification, in combination with any modification previously granted, constitutes a wholesale change to the constellation that was authorized when later-round entrants submitted their applications. If so, the Commission could determine that considering the latest proposed modification in a subsequent processing round would be most appropriate in recognition that later-round applicants relied on the originally-authorized constellation when designing their systems and submitting their applications.

⁴ *Teledesic LLC*, Order and Authorization, 14 FCC Rcd 2261 (IB 1999) ("*Teledesic*"). *Teledesic* did not announce a new policy. Indeed, in *Teledesic*, the International Bureau cited earlier bureau-level decisions that also relied on interference considerations to determine whether a proposed modification was in the public interest. *See, e.g., American Satellite Company*, Order and Authorization, 5 FCC Rcd 1186, para. 5 (Com. Car. Bur. 1990) ("Given the two to three year construction period for a satellite, the Commission often receives requests from licensees to modify the technical design of their satellites while they are being built. If the proposed modification does not present any significant interference problems and is otherwise consistent with Commission policies, it is generally granted."). References to "*Teledesic*" herein are shorthand for a decades-old line of precedent relying on interference to determine whether a proposed modification to a space station authorization is in the public interest.

consistent with Commission policies, “it is generally granted.”⁵ Unlike when *Teledesic* was decided decades ago, modifications of NGSO satellite authorizations today also impact the application of the Commission’s NGSO FSS processing round regime and spectrum sharing rules and procedures under Section 25.261 of the Commission’s rules.⁶ As such, the FCC should codify and modernize the standard for when an NGSO FSS modification application would be considered as part of a subsequent processing round as well as establish criteria for modifications that presumptively warrant updated spectrum sharing.

III. MODERNIZING SECTION 25.117 IS NECESSARY TO KEEP PACE WITH THE NEW SPACE AGE AND PROMOTE CERTAINTY AND FAIRNESS.

As the environment in space continues to change and evolve, the world has entered a new era characterized by the launch of an increasing number of satellites and the deployment of new satellite technologies.⁷ The dawn of the New Space Age is readily apparent in what the Commission acknowledged is an “unprecedented number” of NGSO applications submitted in recent years.⁸ Indeed, in the NGSO processing round initiated March 24, 2020, nine entities submitted applications, for a total of roughly 84,000 satellites.⁹ Earlier processing rounds also drew significant interest: for example, twelve applicants participated in the Ku/Ka-band NGSO

⁵ *Id.* at para. 5. Notably, the International Bureau decided not to apply a test distinguishing between “major” and “minor” modifications (with the former losing its status in any ongoing processing round) akin to that applied for amendments to satellite applications. *Id.* at para. 12; *see also* 47 C.F.R. § 25.116.

⁶ 47 C.F.R. § 25.261; *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, Report & Order, 32 FCC Rcd 7809 (2017) (“*Update R&O*”).

⁷ *See Orbital Debris in the New Space Age*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd 4156, para. 1 (2020) (“*Orbital Debris R&O*”).

⁸ *Id.* at para. 3.

⁹ *See, e.g.*, Space Exploration Holdings, LLC, Application for Approval for Orbital Deployment and Operating Authority, File No. SAT-LOA-20200526-00055 (filed May 26, 2020); Mangata Networks LLC Petition for Declaratory Ruling, File No. SAT-PDR-20200526-00054 (filed May 26, 2020); WorldVu Satellites Limited, Debtor-in-Possession, Application for Modification, File No. SAT-MPL-20200526-00062 (filed May 26, 2020) (“*OneWeb Modification*”).

processing round that closed on November 15, 2016, and eight applicants participated in the V-band NGSO processing round that closed on March 15, 2017.¹⁰ Almost all of those earlier-round systems have now been licensed.

The Commission continues to rely on precedent from 1999 for evaluating modifications to NGSO FSS space station authorizations despite increased planning and deployment of innovative NGSO FSS systems and recent vast leaps forward in satellite technology. Although appropriate for its time, that precedent—forged on the norms and technological and operational requirements of a previous era—does not align with current fast-paced innovations and new NGSO FSS applications. Thus, continued reliance on today’s Section 25.117 and outdated precedent results in uncertain, unbalanced and arbitrary outcomes.

A. The Commission Correctly Recognizes the Need to Update its Rules to Reflect the New Space Age.

The Commission has recognized elsewhere that old rubrics may not be appropriate for new technology. Recently, for example, the Commission updated its rules regarding orbital debris mitigation, which were originally adopted in 2004. The Commission stated that the update was necessary to help “ensure that Commission decisions are consistent with the public interest in space remaining viable for future satellites and systems and the many services that those systems provide to the public.”¹¹ Likewise in a 2016 proceeding, the Commission eliminated its

¹⁰ See *OneWeb Petition Accepted for Filing; Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 10.7-12.7 GHz, 14.0-14.5 GHz, 17.8-18.6 GHz, 18.8-19.3 GHz, 27.5-28.35 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz Bands*, Public Notice, 31 FCC Rcd 7666 (2016); *Policy Branch Information, Satellite Space Applications Accepted for Filing*, Public Notice, Rep. No. SAT-01245 (June 16, 2017); *Policy Branch Information, Satellite Space Applications Accepted for Filing*, Public Notice, Rep. No. SAT-01259 (Aug. 11, 2017); *Policy Branch Information, Satellite Space Applications Accepted for Filing*, Public Notice, Rep. No. SAT-01262 (Aug. 25, 2017).

¹¹ *Orbital Debris R&O* at para. 1.

presumption that the “sufficient number of licensees in the frequency band” is three.¹² The Commission found the “three-licensee presumption” to be “overly restrictive” and not reflective of the current NGSO FSS industry in which “licensees in different bands compete with each other in the provision of satellite-based services in broader markets.”¹³ Consistent with its ongoing work to evaluate and update outdated rules and policies, it is now time for the Commission to update Section 25.117 to better reflect current realities.

B. Updating Section 25.117 Would Promote Certainty and Fairness.

The Commission established the NGSO FSS space station spectrum sharing and processing round regime “to provide a measure of certainty in lieu of adopting an open-ended requirement to accommodate all future applicants” while also “considering both the need to protect existing expectations and investments and provide for additional entry.”¹⁴ Modifications of NGSO FSS space stations are intertwined with, and directly impact, that regime and its goals. However, the manner in which the public interest prong of Section 25.117 has been applied historically—reliant on *Teledesic*—undermines these goals. Updating and modernizing Section 25.117 as proposed by Amazon, including to clarify the types of modifications that would be considered as part of a subsequent processing round, would better provide all parties increased transparency as well as promote fairness and competition.¹⁵

¹² *In re Amendment of the Commission’s Space Station Licensing Rules and Policies*, Second Order on Reconsideration, 31 FCC Rcd 9398, at paras. 9-10 (2016).

¹³ *Id.* at para. 10. Other government agencies regulating space also have recognized the need to update and revise outdated policy to benefit industry innovation. *See, e.g., Licensing of Private Remote Sensing*, 85 Fed. Reg. 30790, 30791 (May 20, 2020) (“Unlike in 2006, foreign space-based capabilities are significant and constantly increasing, requiring the U.S. Government to adapt regardless of how it regulates U.S. systems. Commerce’s approach recognizes this new reality and gives U.S. industry the best chance to continue to innovate and to lead this global market.”).

¹⁴ *Update R&O* at para. 61.

¹⁵ As noted above, the public interest prong of Section 25.117 currently allows the Commission to consider the factors Amazon proposes be codified in the Annex to this petition.

Section 25.117 provides little guidance to NGSO FSS space station licensees, market access participants, and applicants as to when modifications will require consideration as part of a subsequent processing round or impact spectrum sharing under Section 25.261. In contrast, Section 25.116 of the Commission’s rules, which governs amendments to NGSO FSS space station applications, articulates the circumstances under which an amendment will be considered “major” and result in the application being re-classified as newly filed.¹⁶ The lack of similar, clearly defined standards in Section 25.117 creates uncertainty and requires existing licensees and new entrants alike to justify (or object to) proposed modifications on the basis of a murky and imprecise interference standard. Moreover, the lack of clearly defined standards and reliance on an outdated *Teledesic* interference-based standard could result in changes that adversely impact the NGSO FSS operating environment, including space safety, for both existing and new systems.

Section 25.117 has been applied in a manner that, when combined with the current processing round and spectrum sharing regime,¹⁷ grants some existing licensees or market access holders advantages over other, same-round applicants and newer entrants in perpetuity. Under the Commission’s current regulatory regime, applications in later processing rounds are treated on a “case-by-case” basis “based on the situation at the time” vis-à-vis earlier round applicants.¹⁸ Applying Section 25.117 to allow an NGSO FSS space station licensee to make far-reaching changes while maintaining its processing round status means that the “situation at the time” against

¹⁶ 47 C.F.R. § 25.116. The Commission could also initiate a rulemaking to consider whether to update Section 25.116, setting the standards for agency action on amendments to pending NGSO FSS applications, including to bring it into better alignment with Section 25.117.

¹⁷ In comments and reply comments submitted in response to a petition for rulemaking on Section 25.261, Amazon urged the Commission to modernize its spectrum sharing rules, including by clarifying that ongoing information sharing is necessary to comply with the good-faith coordination requirement. *See* Comments of Kuiper Systems LLC, RM-11855, at 4 (filed June 15, 2020); Reply Comments of Kuiper Systems LLC, RM-11855, at 3-4 (filed June 30, 2020).

¹⁸ *Update R&O* at para. 61.

which a later-round applicant is evaluated is constantly changing. Recently, the FCC has permitted extensive changes, without a change in spectrum sharing rights or consideration as part of a new processing round.¹⁹ Extensive, iterative changes can result in a system that is fundamentally different than that described in the initial application.²⁰ This, in turn, renders entry and competition more difficult because the operating environment for new (and would-be new) applicants repeatedly changes in light of the modifications proposed by earlier-round systems.

The manner in which Section 25.117 has historically been applied could also lead to perverse results. The FCC has signaled that a modification seeking to *increase* the number of satellites may trigger a change in spectrum sharing rights or consideration as part of a new processing round.²¹ To avoid that result, an applicant could file speculative applications for satellites it has no intention of launching and operating so as always to be able to justify a requested modification—and retain existing spectrum sharing rights and processing round status—by then *decreasing* the total number of satellites in its constellation. Moreover, Section 25.117, as currently applied, misses an opportunity to incentivize operators to submit applications for well-planned systems. Because Section 25.117 allows an operator to make extensive changes to its licensed system while maintaining its processing round status, the operator has little incentive to

¹⁹ See, e.g., *Space Exploration Holdings, LLC*, Order and Authorization, 34 FCC Rcd 2526 (2019) (granting SpaceX's First Modification); *Space Exploration Holdings, LLC*, Order and Authorization, 34 FCC Rcd 12307 (2019) (granting SpaceX's Second Modification).

²⁰ See *Space Exploration Holdings, LLC Application for Modification of Authorization for the SpaceX NGSO Satellite System*, File No. SAT-MOD-20200417-00037 (filed Apr. 17, 2020) (requesting a third modification to its constellation of authorized Ku- and Ka-band satellites). Additionally, the majority of applications filed in the March 2020 processing round sought to modify previously authorized systems. See, e.g., *OneWeb Modification*.

²¹ See *Cut-Off Established for Additional NGSO FSS Applications or Petitions for Operations in the 10.7-12.7 GHz, 12.75-13.25 GHz, 13.8-14.5 GHz, 17.7-18.6 GHz, 18.8-20.2 GHz, and 27.5-30 GHz Bands*, Public Notice, 35 FCC Rcd 2881(2020) (initiating new processing round and provisionally including OneWeb modification to add satellites).

thoughtfully design its system before submitting its initial application. Providing clarity on the types of changes that would presumably result in a modification being considered in a subsequent processing round would encourage operators to refine their system design prior to filing an initial application.

C. Considerations Broader Than Those Articulated in *Teledesic* Should Be Codified to Evaluate NGSO FSS Modifications.

Historically, the Commission has been guided in its Section 25.117 public interest analysis by the standard articulated in *Teledesic*. There, Teledesic proposed to modify its licensed Ka-band NGSO FSS system, including by decreasing the number of satellites, increasing the altitude range, and decreasing the orbital planes and the number of satellites in each orbital plane.²² The proposed modification was novel at the time. Indeed, the precedent the International Bureau cited for authority to grant Teledesic’s proposed modification was itself nearly a decade old and involved considerably more minor modifications, specifically: a 7-watt power increase on one transponder, a 13.5-watt power increase on two transponders, and a 6-watt power increase on two satellites.²³

In granting Teledesic’s proposed modifications, the International Bureau stated that it has “repeatedly recognized” that “[g]iven the fairly lengthy time period required to construct a satellite, licensees often file requests to modify the technical design of their satellites as they are being built. If the proposed modification does not present any significant interference problems and is otherwise consistent with Commission policies, it is generally granted.”²⁴ The International Bureau’s reliance on interference was appropriate in *Teledesic* given the characteristics of the limited NGSO FSS environment that existed at the time. Now, two decades and innumerable

²² *Teledesic* at para. 3.

²³ *GTE Spacenet Corp.*, 5 FCC Rcd 4112, para. 3 (Com. Car. Bur.1990); *American Satellite Company*, 5 FCC Rcd 1186, para. 3 (Com. Car. Bur. 1990); *Hughes Communications Galaxy, Inc.*, 5 FCC Rcd 1653, para. 1 (Com. Car. Bur. 1990).

²⁴ *Teledesic* at para. 5.

technological advances later, there is considerably more interest in spectrum access for NGSO FSS systems. Thus, seeking to modify entire NGSO FSS constellations today has the potential to impact significantly more operators than did Teledesic's proposed modification when it was granted. Relying on an interference analysis that does not consider the broader regulatory environment for NGSO FSS systems fails to recognize that changes to licensed systems can significantly affect the planning and subsequent operation of other operators as they design, develop, and deploy their own systems.

Further, the public interest requires a standard that includes pending applications in the consideration of how the modification is processed by the Commission. Despite *Teledesic's* guidance that a proposed modification be evaluated with reference to interference and consistency with Commission policies, available precedent suggests that the FCC's analysis primarily focuses on interference. Thus, although it would certainly be appropriate for the International Bureau to consider the NGSO FSS spectrum sharing and processing round regime as one set of policies against which a proposed modification will be evaluated, it has concentrated almost exclusively on interference. The dawn of the New Space Age makes clear that the Commission's public interest evaluation of NGSO FSS modifications must be broader than a nod toward maintaining a stable interference environment.

IV. PROPOSED MODIFICATION TO SECTION 25.117.

To modernize the Commission's review of modification requests for authorized NGSO FSS systems²⁵ subject to processing rounds, Section 25.117 should be revised to establish a

²⁵ Section 25.117 applies to both U.S. licensees and foreign licensees seeking to modify market access grants. *See* 47 CFR § 25.137(f) ("A non-U.S.-licensed space station operator that has been granted access to the United States market pursuant to a declaratory ruling may modify its U.S. operations under the procedures set forth in §§ 25.117(d) and (h) and 25.118(e)."). *See also, e.g., O3b Ltd.*, Memorandum Opinion and Order, 35 FCC Rcd 1631, para. 7 n.29 ("[W]e note that O3b

presumption that the following types of changes from an initial authorization would be considered as part of a subsequent processing round:

1. changes in apogee or perigee by 10 km in altitude, to include the accuracy with which the apogee and perigee will be maintained before and after the modification;
2. changes in orbital inclination of more than 2 degrees, to include the accuracy with which the inclination will be maintained before and after the modification;
3. changes that materially increase the number or duration of in-line interference events with NGSO FSS space station licensees, market access participants, and applicants;
4. changes that materially increase the received interference power density to other co-frequency NGSO FSS space station licensees, market access participants, and applicants.

Section 25.117 should also be revised to clarify that the Commission will consider the cumulative effects of multiple modifications when determining whether to consider a modification as part of a subsequent processing round. As system modifications accrue over time, the cumulative effect of multiple changes can degrade the operating environment to a much greater degree than would be the case with any individual modification. Revising Section 25.117 to require consideration of the cumulative impact of a proposed modification (using the initial application as the baseline) would avoid semantic differences over what actions constitute “major” or “minor” changes and instead focus on the practical reality of whether or not the proposed changes, individually or collectively, alter the operating environment enough to warrant consideration as part of a subsequent processing round. Proposed revisions to Section 25.117 are reflected in the Annex.

V. CONCLUSION.

Amazon respectfully requests that the Commission initiate a rulemaking proceeding to

must request Commission approval to modify the terms of its market access grant. 47 CFR § 25.117.”).

amend Section 25.117 as proposed herein to better reflect the New Space Age.

Respectfully submitted,

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July 9, 2020

ANNEX

The following bold underlined text represents potential revisions to the existing text of Section 25.117 to reflect the ideas presented in the foregoing petition for rulemaking.

§ 25.117 Modification of station license.

(a) Except as provided for in § 25.118 (Modifications not requiring prior authorization), no modification of a radio station governed by this part which affects the parameters or terms and conditions of the station authorization shall be made except upon application to and grant of such application by the Commission.

(b) Both earth station and space station modification applications must be filed electronically through the International Bureau Filing System (IBFS) in accordance with the applicable provisions of part 1, subpart Y of this chapter.

(c) Applications for modification of earth station authorizations must be submitted on FCC Form 312, Main Form and Schedule B. Applications for modification of space station authorizations must be submitted on FCC Form 312, Main Form and Schedule S. Only those items that change need to be specified, provided that the applicant certifies that the remaining information has not changed.

(d)

(1) Except as set forth in § 25.118(e), applications for modifications of space station authorizations shall be filed in accordance with § 25.114, but only those items of information listed in § 25.114 that change need to be submitted, provided the applicant certifies that the remaining information has not changed.

(2) Applications for modifications of space station authorizations will be granted except under the following circumstances:

(i) Granting the modification would make the applicant unqualified to operate a space station under the Commission's rules.

(ii) Granting the modification request would not serve the public interest, convenience, and necessity.

(iii) Except as set forth in paragraph (d)(2)(iv) of this section, applications for modifications of GSO-like space station authorizations granted pursuant to the procedure set forth in § 25.158, which seek to relocate a GSO satellite or add a frequency band to the authorization, will be placed in a queue pursuant to § 25.158 and considered only after previously filed space station license applications or space station modification applications have been considered.

(iv) Applications for modifications of space station authorizations to increase the authorized bandwidth will not be considered in cases in which the original space station authorization was granted pursuant to the procedures set forth in § 25.157(e) or § 25.158(c)(4).

(v) Any 17/24 GHz BSS space station operator whose license is conditioned to operate at less than the power level otherwise permitted by § 25.208(c) and/or (w) of this part, and is conditioned to accept interference from a neighboring 17/24 GHz BSS space station, may file

a modification application to remove those two conditions in the event that the license for that neighboring space station is cancelled or surrendered. In the event that two or more such modification applications are filed, and those applications are mutually exclusive, the modification applications will be considered on a first-come, first-served basis pursuant to the procedure set forth in § 25.158 of this part.

(vi) Applications for modification of NGSO FSS space station authorizations proposing one or more of the following changes will be considered as part of a subsequent processing round:

- (A) **changes in apogee or perigee by 10 km in altitude, to include the accuracy with which the apogee and perigee will be maintained before and after the modification;**
- (B) **changes in orbital inclination of more than 2 degrees, to include the accuracy with which the inclination will be maintained before and after the modification;**
- (C) **changes that materially increase the number or duration of in-line interference events with NGSO FSS space station licensees, market access participants, and applicants; or**
- (D) **changes that materially increase the received interference power density to other co-frequency NGSO FSS space station licensees, market access participants, and applicants.**

(3) In the event that a space station licensee provides notification of a planned license modification pursuant to § 25.118(e), and the Commission finds that the proposed modification does not meet the requirements of § 25.118(e), the Commission will issue a public notice announcing that the proposed license modification will be considered pursuant to the procedure specified in paragraphs (d)(1) and (d)(2) of this section.

(4) The Commission's consideration of an application for modification of space station authorization shall take into account any previous application for modification of space station authorization filed by the applicant and the cumulative effect(s) thereof. If the Commission determines that the cumulative effect(s) of the previously filed and current applications will adversely impact the NGSO FSS operating environment, the current application shall be considered as part of a subsequent processing round.

(e) Any application for modification of authorization to extend a required date of completion, as set forth in § 25.133 for earth station authorizations or § 25.164 for space stations, or included as a condition of any earth station or space station authorization, must include a verified statement from the applicant:

- (1) That states that the additional time is required due to unforeseeable circumstances beyond the applicant's control, describes these circumstances with specificity, and justifies the precise extension period requested; or
- (2) That states there are unique and overriding public interest concerns that justify an extension, identifies these interests and justifies a precise extension period.

(f) An application for modification of a space station license to add an ancillary terrestrial component to an eligible satellite network will be treated as a request for a minor modification if the particulars of operations provided by the applicant comply with the criteria specified in § 25.149. Notwithstanding the treatment of such an application as a minor modification, the Commission shall place any initial application for the modification of a space station license to add an ancillary terrestrial component on notice for public comment. Except as provided for in § 25.149(f), no application for authority to add an ancillary terrestrial component to an eligible satellite network shall be granted until the applicant has demonstrated actual compliance with the criteria specified in § 25.149(b).

(g) The licensee and grantees shall ensure compliance with the Commission's radio frequency exposure requirements in §§ 1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. An Environmental Assessment may be required if RF radiation from the proposed facilities would, in combination with radiation from other sources, cause RF power density or field strength in an accessible area to exceed the applicable limits specified in § 1.1310 of this chapter. *See* § 1.1307(b)(5)(iii).

(h) Unless otherwise ordered by the Commission, an application for any of the following kinds of modification of the operation of a GSO space station will be deemed granted 35 days after the date of the public notice that the application has been accepted for filing, provided no objection is filed during the 30-day notice period and the application does not propose a change that would be inconsistent with a Commission rule or require modification of the BSS plan in Appendix 30 or the associated feeder-link Plan in Appendix 30A of the ITU Radio Regulations (both incorporated by reference, *see* § 25.108).

(1) Relocation of a DBS or GSO FSS space station by no more than 0.15° from the initially authorized orbital location, provided the application includes a signed certification that:

(i) The space station operator has assessed and limited the probability of the satellite becoming a source of debris as a result of collisions with large debris or other operational satellites at the new orbital location; and

(ii) The proposed station-keeping volume of the satellite following relocation will not overlap a station-keeping volume reasonably expected to be occupied by any other satellite, including those authorized by the Commission, applied for and pending before the Commission, or otherwise the subject of an ITU filing and either in orbit or progressing towards launch.

(2) Repositioning one or more antenna beams by no more than 0.3 angular degrees from a line between the space station and the initially authorized boresight location(s).