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

In the Matter of

Comprehensive Review of Licensing and Operating Rules for Satellite Services

IB Docket No. 12-267

JOINT REPLY COMMENTS OF SES AMERICOM, INC., NEW SKIES SATELLITES B.V. AND O3B LIMITED

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Dated:  February 13, 2013
SUMMARY

SES Americom, Inc. and New Skies Satellites B.V. (together, “SES”) and O3b Limited (“O3b”) strongly support the Commission’s efforts to update, streamline, and rationalize the Part 25 rules for space and earth station operations. As members of the Satellite Industry Association (“SIA”), we endorse the comprehensive SIA pleadings in this proceeding and write separately here to address certain key issues raised in the Notice or by other commenters.

SES and O3b concur with a number of the proposed enhancements of the Part 25 rules suggested by other parties. For example, we agree that it is appropriate to expand the Permitted Space Station List to include all geostationary orbit (“GSO”) satellites licensed by the Commission or authorized to serve the U.S. in any Fixed-Satellite Service (“FSS”) bands, including the extended C- and Ku-bands, and we advocate creation of a corresponding list for nongeostationary (“NGSO”) networks. We support revision of the orbital debris mitigation rules to expressly refer to the Commission’s policy of international comity for foreign-licensed satellites. Further, we strongly agree that Schedule S needs to be overhauled to remove unnecessary elements and make the software more user-friendly.

In addition, SES and O3b urge the Commission to clarify and limit the application of Section 25.209(a) and (b) to earth stations communicating with NGSO spacecraft. We support autogrant eligibility for Ka-band earth stations communicating with GSO or NGSO FSS satellites in primary spectrum, including in the 29.25-29.5 GHz band. We also endorse grant of limited additional flexibility for certain changes in NGSO fleet configurations and rationalization of the bond and milestone policies for NGSO replacement satellites to match those for GSO replacements. SES and O3b recommend that the Commission periodically refresh the record on
the types of services that should be subject to the Automatic Transmitter Identification System (“ATIS”) and allow for incorporation of updated industry standards in the ATIS rule.

In contrast, certain rule changes proposed by EchoStar and Intelsat would undermine the Commission’s ability to prevent harmful interference and should therefore be rejected. EchoStar’s request for a change in the starting angles for the C- and Ku-band off-axis antenna gain masks in Sections 25.209(a)(1) and (a)(2) and the off-axis EIRP density masks in the direction of the GSO arc in Section 25.218 is unsupported by technical data and conflicts with settled Commission policy. SES and O3b disagree with Intelsat’s claim that the detailed interference analysis required by Section 25.140(b)(2) is no longer needed to ensure a new proposed satellite can operate compatibly with its neighbors in a two-degree spacing environment. We also oppose Intelsat’s request for elimination of the requirement in Section 25.202(g) to conduct telemetry, tracking and command at the band edges and object to Intelsat’s proposed expansion of fleet management to include offset locations.

Finally, SES and O3b urge the Commission to summarily dismiss the request by Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (“EIBASS”) for re-examination of earth station licensing policies permitting flexible spectrum use and a range of pointing angles. The Commission has previously conducted a proceeding devoted to this issue, and there was overwhelming opposition to any curtailment of this essential flexibility, including from the broadcasters EIBASS purports to represent. The Commission concluded that any change was unwarranted, citing the lack of evidence that co-primary terrestrial operations were being harmed. EIBASS presents no new information to justify revisiting this determination.
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JOINT REPLY COMMENTS OF SES AMERICOM, INC.,
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SES Americom, Inc. (“SES Americom”), New Skies Satellites B.V. (“New Skies,” and together with SES Americom, “SES”) and O3b Limited (“O3b”) hereby submit this joint reply to the comments of other parties in response to the Notice of Proposed Rulemaking in the above-captioned proceeding.1 SES and O3b commend the Commission for undertaking this thorough and much-needed comprehensive review of the Part 25 rules for operation of satellite space and earth stations. We have participated actively in the development of the Satellite Industry Association (“SIA”) comments and reply comments in this proceeding, and we fully endorse the suggestions made therein for improving on the Commission’s proposals for Part 25 reform.2 SES and O3b write separately here to highlight our positions on certain key issues and address several matters raised by the Notice and other commenters.

I.    BACKGROUND

SES is a world-leading satellite operator, providing reliable and secure satellite communications solutions to broadcast, telecommunications, corporate and government


customers worldwide. SES Americom, New Skies and their affiliates operate a fleet of 52 geostationary satellites that are complemented by a network of teleports and offices located around the globe. This far-reaching infrastructure enables SES customers to reach 99% of the world’s population. Over two dozen SES geostationary orbit (“GSO”) Fixed-Satellite Service (“FSS”) spacecraft serve U.S. customers pursuant to Commission authority, providing capacity for broadcast and cable video distribution, VSAT data networks, remote communications, and service to government agencies. Virtually every U.S. cable and Direct Broadcast Satellite (“DBS”) household receives some of its programming via the SES fleet. SES also has one of the largest satellite “neighborhoods” for the U.S. radio programming industry.

O3b Limited is a global non-geostationary (“NGSO”) satellite system in medium Earth orbit that will launch in 2013 to provide customers with access to fast, flexible and affordable connectivity in locations unserved or underserved by other infrastructure. As part of its network, O3b has built a major gateway earth station in Hawaii (call sign E100088) and has submitted an application for an additional earth station in Texas (call sign E130021). O3b’s system will begin service with eight satellites operating in the 20/30 GHz band in the fourth quarter of 2013. SES holds a strategic minority investment in O3b.

SES and O3b urge the Commission to act expeditiously to enact the revised regulatory framework for satellite services put forth in the Notice, with the changes discussed herein and in the SIA pleadings. By overhauling Part 25, the Commission will streamline the licensing process, reducing administrative burdens on Commission staff and applicants alike, and speeding the deployment of an evolving and expanding range of vital satellite services.
II. THE COMMISSION SHOULD IMPLEMENT CHANGES TO PART 25 TO ENHANCE THE CLARITY AND EFFICACY OF THE RULES

SIA and other commenters have made a number of recommendations for revisions that will improve the comprehensive update of Part 25 proposed in the Notice. SES and O3b focus here on several of these proposals that we believe are particularly important for the Commission to consider.

A. The Permitted Space Station List Should Be Expanded

First, SES and O3b support SIA’s proposal to redefine the Permitted Space Station List to include Ka-band satellites, but we agree with EchoStar that the SIA suggestions do not go far enough. SES and O3b urge the Commission to: (1) expand the Permitted List to identify all U.S.- and foreign-licensed GSO satellites authorized to provide FSS in any band to earth stations located in the U.S. and (2) establish a separate list of non-geostationary satellite orbit (“NGSO”) systems licensed by the Commission or approved to serve the United States in any FSS band.

Expanded GSO Permitted List. The expanded GSO Permitted List would combine the conventional C- and Ku-band satellites on the list today with the Ka-band satellites currently found on a separate list. The list would also add geostationary spacecraft payloads in any other FSS bands (such as the extended C- and Ku-bands) that have been licensed or approved for U.S. market access, whether such approval was granted through a space station license, a declaratory ruling, a letter of intent or an earth station license. By assembling in a single location information relevant to purchasers of space station capacity that is currently

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3 SIA Comments at 5-6.

scattered in multiple places within the Commission’s International Bureau Filing System ("IBFS") database, a unified Permitted List for GSO FSS spacecraft will reduce confusion and decrease administrative burdens for both satellite service customers and Commission staff.

This proposed change would not alter the band-specific requirements that apply to earth stations using foreign-licensed spacecraft, such as coordination obligations. EchoStar observes that an expanded list:

would provide a one-stop venue that would specify the frequencies that a particular foreign-licensed satellite is authorized to use to serve the United States, and identify any conditions imposed on the grant of U.S. market access for that satellite. The Commission would retain its ability to review individual earth station applications for compliance with band-specific rules.6

With such an expanded GSO Permitted List, earth station applicants proposing operations in any FSS frequency band will be able to designate the Permitted List as a point of communications, and such requests would be granted provided that the applicant has satisfied any band-specific coordination or other technical requirements in the rules or the terms of space station license or market access grant. This approach would significantly streamline processing of earth station applications for authority to communicate with both U.S.-licensed and foreign-licensed satellites in FSS spectrum other than the conventional C- and Ku-bands. It would also relieve service providers and the Commission from having to modify earth station licenses when a satellite licensed by or authorized to serve the United States in a non-conventional FSS band is relocated to another approved slot or replaces an existing satellite.

5 Specifically, the language granting a petition to add a foreign-licensed satellite’s conventional C- and/or Ku-band frequencies to the Permitted List may or may not explicitly mention other FSS payloads on the spacecraft. In some cases, U.S. market access for these other FSS bands may be addressed only in action on an earth station application. Consolidating information from these various sources would be beneficial for all parties.

6 Id. at 5.
The expanded GSO Permitted List would be similar to the list maintained by Industry Canada on its website. Specifically, Industry Canada has posted a table identifying the name, orbital location and frequency bands of FSS satellites authorized to communicate with Canadian earth stations. Notes at the bottom of the page set forth the limitations for operations in specific frequencies under Canadian regulations. It would be a simple matter to add hyperlinks from the List to the terms of individual licenses and grants of market access. Thus, the Canadian version of the Permitted List represents an example of a foreign regulatory approach that should be considered for inclusion in the U.S. framework, consistent with the Commission’s invitation in the Notice.

List of Approved NGSO FSS Systems. SES and O3b also urge the Commission to establish a separate list of approved nongeostationary satellite systems in the FSS that are Commission-licensed or have been granted U.S. market access (again, whether by space station license, declaratory ruling, letter of intent or earth station license). As with the expanded GSO Permitted List, this NGSO list would serve as a convenient, consolidated reference point for NGSO FSS systems authorized to provide service in the United States, with simple hyperlinks through to the document granting the license or market access authority.

An NGSO list separate from the GSO Permitted List is necessary, however, because of the differences in NGSO orbital planes and system architectures and the differences between NGSO and GSO earth stations. It would be impractical and likely of little value to authorize GSO earth stations with a Permitted List designation to communicate with co-frequency NGSO systems (or vice versa). By the same token, and unlike the GSO Permitted

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8 Notice at ¶ 155.
List, the separate NGSO list would not provide earth station licensing flexibility for NGSO earth stations to communicate with all co-frequency NGSO systems. There is very wide variation in orbits and system architectures among NGSO systems, so an NGSO earth station designed to operate with one system would not necessarily be capable of operating with another. For these reasons, a consolidated GSO and NGSO Permitted List would not be practical.

In sum, an expanded Permitted List of geostationary FSS spacecraft along with a separate list of approved NGSO systems would serve the objectives of the Notice to streamline procedures and reduce the “time spent on applications by applicants, licensees, and the Commission.”

SES and O3b accordingly request that the Commission expand the definition of Permitted Space Station List for GSO FSS spacecraft and define and create a new NGSO Permitted List.

B. The Commission Should Codify its International Comity Policy on Mitigation of Orbital Debris

SES and O3b also support EchoStar’s request for codification in Section 25.114(d)(14) of the Commission’s policy with respect to the required orbital debris mitigation showing for foreign-licensed satellites. As EchoStar points out, the Orbital Debris Mitigation Order made clear that a demonstration by a foreign licensee that its national licensing authority exercises “direct and effective regulatory oversight” of the licensee’s orbital debris mitigation plan is sufficient to satisfy the Commission’s disclosure requirements. However,

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9 Id. at ¶ 3.

10 EchoStar Comments at 7-8.

11 Mitigation of Orbital Debris, Second Report and Order, 19 FCC Rcd 11567, 11606 ¶ 95 (2004). For example, the Commission stated that the licensee could make the required showing by submitting an English language copy of the debris mitigation rules or regulations and providing information regarding the status of review of the licensee’s plans. See id. The
the current Commission rule does not refer to this alternative means of making the necessary orbital debris showing. This omission should be rectified by adding new Section 25.114(d)(14)(v) as proposed by EchoStar.\textsuperscript{12}

\textbf{C. Schedule S Should Be Substantially Revised}

SES and O3b share the frustrations with the Commission’s required Schedule S database that have been expressed by commenters.\textsuperscript{13} In many cases Schedule S requires submission of information that in our view is excessive or unnecessary, and there are a number of “glitches” in the software that make working with it unduly difficult. Specifically, our personnel have experienced a number of problems with preparing, reviewing and submitting Schedule S, including the inability to modify or delete information once entered in certain fields, the inability to view .gxt files and link budgets uploaded to Schedule S in order to confirm they are correct, and the lack of a straightforward way to print out a draft Schedule S for review by personnel who may not have the Schedule S software.

SES and O3b strongly support the proposals in the Notice to remove redundant and unnecessary requirements from Section 25.114(c), which specifies the information that must be provided in Schedule S.\textsuperscript{14} Many of the revisions discussed in the Notice are on the “wish lists” of SES and O3b staff members regarding needed improvements in Schedule S. For example, the Commission proposes to amend Section 25.114(c)(4)(i) to eliminate the need for Commission approved such a showing in \textit{Globalstar Licensee LLC}, Order, 26 FCC Rcd 3948, 3961-62 (IB 2011).

\textsuperscript{12} EchoStar Comments, Rules Appendix at 1.

\textsuperscript{13} \textit{See} EchoStar Comments at 7 (Schedule S needs to be updated “and could benefit from improvements to make the software more transparent and easier to use”); Comments of Intelsat License LLC, IB Docket No. 12-267 (filed Jan. 14, 2013) (“Intelsat Comments”) at 10-11 (proposing that use of Schedule S be discontinued).

\textsuperscript{14} \textit{See} Notice at ¶¶ 50-63.
specifying frequency characteristics on a transponder-by-transponder basis. These changes appear to make the transponder tab on Schedule S largely obsolete, and SES and O3b staff strongly support elimination of that tab. Instead, a transponder plan could much more logically be provided (and interpreted) in a standard table format. Similarly, we concur with the Commission’s proposals to delete other information submission requirements, including provisions relating to emission designators, identification of switchable beam connections, and spacecraft physical characteristics and power budgets.

In addition to eliminating unnecessary parts of Schedule S, the Commission should take steps to make Schedule S easier and more straightforward to use. In particular, SES and O3b suggest that the Commission terminate the requirement to embed .gxt files and link budgets in Schedule S. It is important to continue to require submission of .gxt files and link budgets as part of the application, but the limitations of the Schedule S software suggest that they need not be embedded. As discussed above, SES and O3b personnel are often unable to view these files once they have been uploaded. We propose that the Commission simply require that these files be included in the technical narrative (in the case of link budgets) or submitted via e-mail or separately attached to the space station application, rather than embedded in the Schedule S database. SES and O3b request that the Commission also modify the software to simplify the deletion or modification of data that has been entered into Schedule S and to provide an option for printing the Schedule S to make reviewing the materials easier.

15 See id. at ¶ 50.
16 See id. at ¶ 51 (proposed revisions to Section 25.114(c)(4)(ii)).
17 See id. at ¶ 52 (proposed revisions to Section 25.114(c)(4)(iii)).
18 See id. at ¶ 60 (proposed revisions to Section 25.114(c)(10)).
To ensure that the needed overhaul of Schedule S is comprehensive, SES and O3b suggest that once the Commission has adopted rules in this proceeding, it should schedule one or more public roundtables to invite input on Schedule S. The Commission has previously taken this approach to invite input from interested parties in the context of updates to IBFS and reforms of the space and earth station licensing frameworks. SES and O3b believe that a dialogue with users of Schedule S would significantly enhance the Commission’s ability to make the software more workable and efficient.

D. The Commission Should Clarify the Scope of Section 25.209

SES and O3b concur with EchoStar’s suggestion that the Commission be more explicit regarding the applicability of Section 25.209(a) and (b) to earth stations communicating with NGSO satellite networks in the 20/30 GHz band. The current language of the rule does not refer to NGSO earth stations, and thus it is unclear whether or not such facilities are subject to the antenna pattern requirements set forth in the rule.

EchoStar argues that in order to limit the potential for harmful interference to GSO FSS operations, earth stations communicating with NGSO networks using spectrum that is shared on a co-primary basis with GSO FSS systems in the 20/30 GHz band should be subject to the Section 25.209(a) and (b) limits, at least in the direction of the geostationary arc. EchoStar emphasizes that these limits should be applied only in co-primary spectrum, and not to NGSO earth stations using spectrum on a sole primary or secondary basis.

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19 EchoStar Comments at 15.

20 *Id.* Specifically, EchoStar points to the shared use of the 29.25-29.5 GHz band by blanket-licensed GSO FSS terminals and NGSO MSS feeder links. *Id.* at 15 n.25.

21 See *id.* at 15 n.26 (“These precautions are unnecessary for NGSO FSS earth stations that operate either on a primary basis (as in the 28.6-29.1 GHz band) or on a secondary basis subject to EPFD limits (as they would in the 29.5-30 GHz band).”). SES and O3b note that in addition
SES and O3b agree with EchoStar that only this small subset of NGSO earth station operations should be subject to Section 25.209(a) and (b). Accordingly, we request that the Commission revise Section 25.209 to make clear that subsections (a) and (b) apply to NGSO earth stations solely when they are operating in spectrum in which GSO FSS earth stations are co-primary.

E. Autogrant Eligibility Should Be Expanded to Ka-Band NGSO and GSO Networks in Primary Spectrum

A number of commenters urge the Commission to extend the autogrant procedure available for certain earth station applications in the conventional C- and Ku-bands to other spectrum.\footnote{See, e.g., SIA Comments at 17-18 (supporting availability of autogrant procedures for blanket license applications in the 14.0-14.5 GHz, 28.35-28.6 GHz, and 29.5-30.0 GHz bands); EchoStar Comments at 5-6 (20/30 GHz GSO FSS and DBS Feeder link applications should be included in the autogrant rules).} Iridium, however, cautions that the Commission must limit autogrant eligibility to applications that are truly routine, and should therefore exclude applications for earth stations operating on a secondary or non-conforming use basis.\footnote{Comments of Iridium Satellite LLC, IB Docket No. 12-267 (filed Jan. 14, 2013) (“Iridium Comments”) at 4 (“Secondary and non-conforming operations must be evaluated on a case-by-case basis to determine whether harmful interference will be caused or received” and therefore are “inherently non-routine”).}

SES and O3b support the proposed expansion of autogrant procedures, but urge the Commission to make Ka-band NGSO networks, as well as GSO networks, eligible for this streamlined treatment. The same reasons that support making autogrant available for new categories of GSO FSS and DBS applications – most importantly, reduced administrative burdens on both applicants and Commission staff – apply in the case of NGSO systems as well.

Finally, SES and O3b agree that autogrant procedures should apply only to the 29.5-30 GHz band, NGSO FSS earth stations have a secondary allocation and are subject to EPFD limits in the 28.35-28.6 GHz band.
applications in spectrum where the applicant’s service has primary status. Thus, an applicant for a GSO earth station should be eligible for autogrant only in GSO-primary spectrum, and an applicant for an NGSO earth station should be eligible for autogrant only in NGSO-primary spectrum. This limitation is needed to give primary services a reasonable opportunity to evaluate the potential for interference from secondary or non-conforming services.  

SES and O3b disagree, however, with Iridium’s claim that autogrant eligibility should be denied in the 29.25-29.5 GHz band, in which Iridium feeder links share with GSO FSS earth stations on a co-primary basis. Iridium argues that GSO FSS earth stations in this band are subject to “special requirements” involving a demonstration of compatibility or successful coordination with existing co-frequency operations. According to Iridium, as a result of these added requirements, GSO FSS earth stations applications seeking to use the 29.25-29.5 GHz band are “not routine” and therefore should be deemed ineligible for autogrant procedures. Iridium ignores the fact that the extra requirements applicable to GSO FSS earth stations in spectrum shared with Iridium are substantially the same as the prior coordination obligations that apply in the C-band, where GSO FSS operations share on a co-primary basis with terrestrial fixed microwave networks. The Commission has made clear that routine C-band earth station applications are eligible for autogrant, and the same treatment is appropriate for GSO FSS earth station applications in the 29.25-29.5 GHz band.

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24 See id.
25 Id. at 2-3.
26 Id. at 3.
27 Id.
28 See Notice at ¶ 32.
F. Limited Additional Flexibility Is Appropriate for NGSO Fleets

SES and O3b join SIA in supporting limited additional flexibility for NGSO network operators to reposition satellites in their fleets.\(^{29}\) Specifically, we agree that such changes should be permitted without prior Commission consent provided that the change neither increases the risk of harmful interference nor will require a higher level of protection from other systems. Fleet changes that involve either a permanent or temporary increase in the number of operating satellites or departure from a satellite’s authorized altitude or orbital plane should continue to be subject to the requirement for Commission approval, either through a license modification or request for special temporary authority.

G. The Commission Should Revise and Clarify its Bond and Milestone Policies for NGSO Replacement or Replenishment Satellites

SES and O3b also support ORBCOMM’s request that the Commission revisit its policies relating to submission of a bond and imposing a standard milestone schedule for new NGSO satellites that will replace or replenish spacecraft in an existing fleet.\(^{30}\) As ORBCOMM observes, the Commission’s bond and milestone rules are intended to address the possibility of warehousing of spectrum, and that concern does not arise when a constellation is already in orbit.\(^{31}\) The Commission has recognized that warehousing is not an issue in its policies regarding replacement GSO satellites, and the Commission should take the same approach to NGSO replacement or replenishment satellites.


\(^{31}\) See id.
The Commission’s bond rule, Section 25.165, contains an express exemption for replacement satellites, but this exemption appears to have been written only with GSO satellites in mind. Specifically, a replacement satellite is defined for purposes of the exemption as one that is authorized “to be operated at the same orbit location” as an existing satellite. SES and O3b support modifying this provision to explicitly refer to NGSO spacecraft as well.

In contrast, there is no exemption for replacement satellites in the Commission’s milestone rule, Section 25.164. However, the rule expressly gives the Commission discretion to impose a milestone schedule that is different from the default milestones for GSO and NGSO systems outlined in the rule. For GSO satellites replacing an in-orbit spacecraft, the Commission’s practice is to include only a single milestone specifying that the new satellite must be launched and begin operations prior to the retirement of the current satellite. The same treatment is appropriate for grants of applications to replace NGSO constellation spacecraft.

**H. The Commission Should Consider Evolving Industry Standards and Experience in Imposing ATIS Requirements**

SES and O3b also support the SIA position with respect to revisions to the rule relating to the Automatic Transmitter Identification System (“ATIS”). In particular, we agree that the Commission should act now to apply ATIS requirements to digital video transmitted

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32 47 C.F.R. § 25.165(e)(1).

33 See, e.g., 47 C.F.R. § 25.164(b) (NGSO satellite systems are required to comply with the default milestones specified “unless a different schedule is established” by statute or Commission or staff order).

34 See, e.g., SES Americom, Inc., Call Sign S2826, File No. SAT-RPL-20110429-00082, grant-stamped Sept. 1, 2011, Attachment to Grant, ¶ 4 (specifying that the SES-2 replacement satellite must begin providing C- and Ku-band service at the 87° W.L. orbital location before the satellite it is replacing discontinues service).

35 See SIA Comments at 63-65.
from satellite news gathering vehicles and other similar temporary fixed installations because these facilities “are a well-known source of interference.”

However, the interference environment is not static, and satellite news gathering vehicles are not the only sources of interference. SES and O3b accordingly urge the Commission to periodically seek additional evidence on the most common interference problems being experienced by satellite operators, and the state of carrier identification technology, in order to determine whether the scope of the ATIS requirements can and should be expanded in the future.

The Commission must also avoid codifying a particular set of ATIS technical parameters, given the evolving nature of industry standards on carrier identification technology. In this regard, the SIA comments contain a common sense proposal to simply reference the “latest” version of the industry standard.

III. SES AND O3b OPPOSE CERTAIN RULE CHANGES PROPOSED BY ECHOSTAR, INTELSAT, AND IRIDIUM

In contrast to the changes discussed above, certain proposals for rule revisions put forth in the EchoStar and Intelsat comments go too far, suggesting elimination or modification of rule elements that are important to the prevention of harmful interference. Accordingly, SES and O3b oppose the EchoStar and Intelsat requests relating to Sections 25.209, 25.218, 25.140(b)(2), 25.118(e)(1), and 25.202(g). We also urge the Commission to reject Iridium’s arguments regarding eligibility for autogrant of GSO FSS earth station applications in the 29.25-29.5 GHz band.

36 See id. at 63.
37 See id. at 64.
A. The Starting Angles for the Off-Axis Gain Masks in Section 25.209(a)(1) and (a)(2) and the EIRP Density Masks in Section 25.218 Should Remain 1.5 Degrees in Frequency Bands Not Covered by Section 25.138

EchoStar suggests that the Commission “harmonize” the starting angles for the off-axis antenna gain masks in Section 25.209(a)(1) and (a)(2), and the off-axis EIRP density masks in the direction of the geostationary arc in Sections 25.218 and 25.138, at 2 degrees. EchoStar’s proposal is not supported by any technical showing as to why 2 degrees is a more appropriate starting angle than 1.5 degrees for off-axis gain or EIRP density masks in any band covered by Sections 25.209 or 25.218. Instead, EchoStar observes that the starting angle is 2 degrees for the 20/30 GHz band off-axis EIRP density mask and simply asserts that all other bands should be conformed to that value.

There is certainly a discrepancy in starting angles as between Section 25.138 on the one hand, and Sections 25.209 and 25.218 on the other as it relates to the 20/30 GHz band frequencies. SES and O3b agree that the Commission should resolve this discrepancy in favor of the 2-degree starting angle in Section 25.138, but only for the 20/30 GHz band frequencies covered by Section 25.138. In all other frequency bands, the starting angle should remain 1.5 degrees.

In SES and O3b’s view, this is consistent with the Commission’s intent in the Sixth Report and Order in 2005. In that decision, the Commission adopted a 1.5 degree starting angle for the off-axis gain masks in the C- and Ku-bands after examining detailed technical data regarding the operational characteristics of antennas in those bands submitted by

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38 EchoStar Comments at 12-13 & 16.

various parties. However, in the same order, the Commission rejected Telesat’s call for the Ka-band off-axis masks to also begin at 1.5 degrees. The Commission decided instead that Ka-band “earth station antennas are already adequately regulated by the off-axis EIRP envelope in Section 25.138,” which has a starting angle of 2 degrees. The Commission had another opportunity to change the starting angles in the *Eighth Report and Order*, but decided instead to carry forward the 1.5-degree starting angle for the C-band, Ku-band and extended Ku-band off-axis EIRP density masks it adopted.

EchoStar has submitted no evidence that would warrant a departure from the Commission’s previous decisions on this issue. Accordingly, SES and O3b urge the Commission to retain the 1.5-degree starting angles in the off-axis masks contained in Sections 25.209 and 25.218 for all bands other than those covered by Section 25.138.

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40 *See id.* at 5605-06 & n.82.

41 Reply Comments of Telesat Canada, IB Docket No. 00-248 (filed Apr. 8, 2003) at 2.

42 *Sixth Report* at 5605-06.


44 The only support that EchoStar provides is its assertion that several million Ku-band terminals operate “without reported difficulties” under the Section 25.220 process for non-compliant antennas, which requires affidavits from adjacent satellite operators. EchoStar Comments at 13. But the fact that non-compliant antennas can operate without interference when they have been successfully coordinated with adjacent satellites only proves that the coordination process is effective. It does not, as EchoStar implies, suggest that the coordination process for these antennas is unnecessary.
B. Section 25.140(b)(2) Should Be Retained

SES and O3b also disagree with the claim made by Intelsat that Section 25.140(b)(2) is unnecessary and should be eliminated.\textsuperscript{45} That rule requires a satellite applicant to analyze the compatibility of its proposed network with adjacent satellites, consistent with the Commission’s framework for operation in a two-degree spacing environment.\textsuperscript{46}

Intelsat states that preparation and review of the required interference analysis is time-consuming for both the applicant and the Commission staff.\textsuperscript{47} Furthermore, Intelsat suggests that continued collection of this information is not needed because the Commission can assume that the applicant will have already considered the feasibility of operations compliant with the two-degree spacing rules and will have determined that it can either successfully operate within those rules or coordinate operations in excess of the limits prescribed in the rules.\textsuperscript{48}

Clearly, however, the Commission continues to view the information required by this rule section as important to its evaluation of satellite applications. The Commission has issued two separate public notices to clarify the scope and requirements of Section 25.140(b)(2), and each of these notices has emphasized that applications without this information are incomplete and subject to dismissal.\textsuperscript{49}

\textsuperscript{45} See Intelsat Comments at 13-14.

\textsuperscript{46} 47 C.F.R. §25.140(b)(2).

\textsuperscript{47} Intelsat Comments at 14.

\textsuperscript{48} Id. at 13-14.

Intelsat’s proposal could have some merit in those bands where the Commission has established uplink off-axis and downlink EIRP density or power flux density ("pfd") limits that fully define the “default” two-degree spacing environment, as it has in the conventional Ku-band\(^{50}\) and the Ka-band.\(^{51}\) But the two-degree spacing environment is not fully defined in other frequency bands. In the C-band and extended Ku-band frequencies, for example, there are uplink power and/or off-axis EIRP density masks but no downlink limits.\(^{52}\) In the extended C-band frequencies, there are neither uplink nor downlink power limits. Furthermore, it is not uncommon for satellite applicants to request authority to operate at an offset from an “integer” orbital position such that the closest satellite neighbor is actually closer than two degrees away. This situation requires a more careful analysis, even if the satellite is only using frequency bands in which the two-degree spacing environment is fully defined.

For these reasons, SES and O3b urge the Commission to retain Section 25.140(b)(2).

C. **Section 25.202(g) Should Be Revised, Not Eliminated**

SES and O3b support SIA’s proposal to retain Section 25.202(g), which requires that telemetry, tracking and command ("TT&C") functions be conducted at the band edges.\(^{53}\)

We agree with SIA that the rule continues to serve an important purpose by reducing the

\(^{50}\) See 47 C.F.R. § 25.218(e) & (f) (establishing uplink off-axis EIRP density masks for the conventional Ku-band frequencies) and § 25.212(c) (establishing a maximum satellite EIRP density of 17 dBW/4kHz for analog Ku-band carriers and 10 dBW/4kHz for digital Ku-band carriers).

\(^{51}\) See 47 C.F.R. § 25.138(a)(1) (establishing uplink off-axis EIRP density masks for the Ka-band) and § 25.138(a)(6) (establishing a maximum pfd level at the earth’s surface).

\(^{52}\) See 47 C.F.R. § 25.218(c) & (d) (establishing uplink off-axis EIRP density masks for the conventional C-band) and §§ 25.204(f) & 25.218(g) & (h) (establishing uplink EIRP, EIRP density and off-axis EIRP density limits for the extended Ku-band).

\(^{53}\) See SIA Comments at 52-53.
likelihood that high-power or sensitive TT&C channels will fall in the middle of an adjacent satellite’s transponder.\footnote{See id. at 53.} Furthermore, the current practice of granting waivers of the rule in order to accommodate certain foreign-licensed spacecraft and legacy designs works well, allowing evaluation of proposed departures from the rule on a case-by-case basis.\footnote{See id. at 52-53.}

Intelsat advocates eliminating the rule entirely, but the reasons it cites are not persuasive. Intelsat claims that because of the narrow bandwidth of TT&C channels, they “would not necessarily adversely impact communication frequencies.”\footnote{Intelsat Comments at 15.} This language implicitly acknowledges that mid-band TT&C channels could create an adverse impact, though, and if Intelsat’s request to eliminate Section 25.202(g) were granted, there would be no relief available to a satellite operator harmed as a result of interference from mid-band TT&C. Intelsat also claims that the requirement to place TT&C carriers at the band-edge can cause compatibility issues with an adjacent satellite if the two spacecraft have overlapping TT&C frequencies.\footnote{Id.} In many instances, however, satellites are designed with the capability to perform TT&C functions on more than one frequency so that such overlaps can be avoided.

Under these circumstances, SES and O3b support retaining Section 25.202(g) with the continued availability of rule waivers when there is a reason to place TT&C channels in mid-band and such operations can be successfully coordinated with adjacent operations.

\footnote{See id. at 53.}
D. Eligibility for Fleet Management Should Not Be Expanded

SES and O3b also object to Intelsat’s proposed expansion of the fleet management rule to allow an operator to relocate a spacecraft to a “nominal” orbital location licensed to the operator without the need for prior Commission approval.\(^{58}\) Intelsat suggests that placement of a satellite at an offset from the nominal position will have a negligible effect on the interference environment.\(^{59}\) Intelsat argues that if the offset does significantly change the interference potential, the applicant will not be able to make the certification that it will comply with applicable coordination agreements that is required under Section 25.118(e).\(^{60}\)

SES and O3b agree that it is appropriate to streamline the process for relocating a spacecraft to a position offset from the nominal orbital location, but the Intelsat proposal goes too far. As a threshold matter, Intelsat does not propose definitions for the term “nominal” orbital position or the term “offset,” so it is unclear how far a spacecraft could be placed from the licensee’s assigned orbital location under Intelsat’s proposed rewrite of the fleet management rule. Furthermore, the requirement for the licensee to certify that it will operate consistently with coordination agreements will not constrain the licensee’s flexibility in all cases. For example, there are often situations where there is no coordination agreement in effect between adjacent operators. In such a case, the licensee would be able to make the required coordination certification even if the offset would significantly adversely affect the interference environment for operations at two-degree spacing.

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\(^{58}\) See id. at 8-9.

\(^{59}\) Id. at 8.

\(^{60}\) Id. at 8-9.
For these reasons, SES and O3b oppose the use of the fleet management notification procedure for relocation of a spacecraft to an offset position, which would eliminate the opportunity for prior comment on requests before they are approved. SES and O3b suggest instead that the Commission adopt an autogrant procedure based on the current earth station autogrant process\textsuperscript{61} that would apply to space station modification applications seeking a minor offset (such as +/- 0.2 degrees) from the assigned orbital location. This approach will streamline the processing of offset applications while still allowing public comment on the potential impact of such a relocation on the two-degree spacing environment. SES and O3b stress, however, that an interference analysis would still be required for such an offset modification.\textsuperscript{62}

\textbf{E. GSO FSS Earth Stations in the 29.25-29.5 GHz Band Should Be Eligible for Autogrant}

As discussed above, SES and O3b also oppose the Iridium suggestion that the Commission deny autogrant eligibility to applications for GSO FSS earth stations in the 29.25-29.5 GHz band that is shared on a co-primary basis with Iridium feeder links and TT&C operations.\textsuperscript{63} Autogrant is available for routine applications for co-primary GSO FSS operations in C-band spectrum, and should likewise be available in the 29.25-29.5 GHz band.

\textsuperscript{61} See revised 47 C.F.R. § 25.115(a)(2), as proposed in the Notice.

\textsuperscript{62} See supra, Section II.E.

\textsuperscript{63} Where only a small offset is involved, the interference analysis need only show the impact of the orbital location shift on the interference environment at two-degree spacing. See, e.g., \textit{SES Americom, Inc.}, Call Sign S2156, File No. SAT-MOD-20050609-00117, Technical Appendix at 1-2, grant-stamped July 20, 2005.
IV. EIBASS PROVIDES NO JUSTIFICATION FOR THE COMMISSION TO REVISIT FULL-BAND, FULL-ARC EARTH STATION LICENSING

The comments of the Engineers for the Integrity of Broadcast Auxiliary Services Spectrum ("EIBASS")\(^6^4\) contain yet another attempt to suggest that the Commission should reconsider its policy of permitting satellite earth stations to coordinate operations throughout the relevant satellite frequency band and for a range of pointing angles. EIBASS argues that in spectrum shared with terrestrial services, the policy unfairly benefits FSS networks, giving them a “super-priority” over terrestrial providers.\(^6^5\) The EIBASS pleading, however, shares the same fatal flaw as prior attacks on this long-settled policy: the filing is devoid of any evidence of an actual material adverse effect on the ability of terrestrial services to deploy new facilities. Accordingly, the Commission should summarily dismiss the EIBASS request.

As EIBASS recognizes, the Commission has already conducted a proceeding in response to a petition filed by the Fixed Wireless Communications Coalition ("FWCC") that was devoted to this very question of whether permitting “full-band, full-arc” earth station licensing unfairly limited the access of terrestrial networks to use of shared spectrum.\(^6^6\) EIBASS notes that the result of that proceeding was a determination that the record did not support any change in the existing earth station licensing policy.\(^6^7\)

The EIBASS statement is accurate as far as it goes, but it does not come close to fairly characterizing the record before the Commission in that rulemaking, which was


\(^6^5\) Id. at 3.

\(^6^6\) Id. (referring to the IB Docket 00-203 rulemaking proceeding).

overwhelmingly opposed to any change in full-band, full-arc licensing. Specifically, comments
defending the necessity for the operational flexibility permitted by the Commission’s earth
station licensing policy were filed by dozens of parties, including the broadcasters whose
interests EIBASS purports to represent here.68 In light of these comments, the Commission
concluded that:

FWCC’s proposals fail to fully and properly take into
account the fact that the FSS and FS services have
significantly different requirements for access to the
electromagnetic spectrum in order to meet their business
needs, and these needs must be recognized and
accommodated in the context of the entire interference
environment . . .69

In contrast, despite the Commission’s express request for information of any adverse impact on terrestrial networks from earth station licensing policy, the record in response
to the FWCC petition presented no significant evidence that those networks’ use of the spectrum
was being materially restricted.70 To the contrary, Comsearch represented that in its extensive
experience in frequency coordination, only a small percentage of terrestrial fixed service
 coordinations had been unsuccessful due to interference with FSS stations.71 Accordingly, the
Commission explained that:

68 Commenters opposing the suggested changes in full-band, full-arc licensing included the National Association of Broadcasters, National Public Radio, Radio Netherlands, Walt Disney Co., the National Cable Television Association, Home Box Office, Turner Broadcasting System, Starz Encore Group LLC, Chevron, Sola Communications, Tosco Corp., Arrowhead Space & Telecommunications, Inc., BT North America Inc., Sprint Corp. and others.
69 FWCC Order at ¶ 11.
70 See id. at ¶ 13 (“a single documented case and references to ‘anecdotal evidence’ is an insufficient record upon which to base the extensive relief sought by FWCC”).
71 See id. at ¶ 12, citing Comments of Comsearch, IB Dkt No. 00-203, RM-9649, filed Jan. 8, 2001.
Our inability to provide the relief FWCC requests stems from the absence of evidence of the extent to which our current rules have resulted in injury to the terrestrial fixed service community.72

More recently, the record in other proceedings confirms that instances where terrestrial networks cannot be accommodated in spectrum shared with satellite operations are exceedingly rare.73

The EIBASS Comments here provide no new information on this subject that could possibly warrant expending any Commission resources on this issue again. If anything, EIBASS undercuts its own arguments through the internal inconsistency of its pleading. In one breath, EIBASS attacks full-band, full-arc licensing of earth stations, alleging that the practice allows improper warehousing of spectrum.74 In the next, EIBASS applauds the Commission’s decision in WT Docket No. 10-153 regarding protection of certain broadcast auxiliary operations from the entry of new fixed services. Specifically, EIBASS notes that fixed service paths would not be permitted to intersect “any portion of the operational area of record for a TV Pickup station in the same band.”75 EIBASS goes on to state that “a TV Pickup station on just one 7 GHz frequency, or just one 13 GHz frequency, would act as a keep-away preclusion for fixed service stations for the entire band.”76

72 Id. at ¶ 12.
73 Deployment of 11 GHz, 18 GHz, and 23 GHz Microwave Bands – Report Pursuant to Section 6412 of the Middle Class Tax Relief and Job Creation Act of 2012, Report to Congress, WT Docket No. 12-156, DA 12-1880 (WTB, rel. Nov. 20, 2012) at ¶ 28 (estimating that the “rejection rate” for coordination attempts in spectrum including the 11 and 18 GHz bands shared with FSS is “well under one percent,” and noting that the licensee with the largest number of terrestrial licenses in these bands “has never had a coordination request rejected”).
74 EIBASS Comments at 2. EIBASS erroneously suggests that such warehousing is inconsistent with Section 309(j)(4)(B) of the Communications Act. Id. In fact, however, that section applies only to spectrum licensed pursuant to auctions and is therefore irrelevant here.
75 Id. at 2 (footnote omitted).
76 Id. at 2-3.
Thus, both the regulatory framework for TV Pickup stations in the 7 and 13 GHz bands and the full-band full-arc earth station licensing policy allow protection from interference throughout an entire band and in a significant arc surrounding a receive site without regard to current use in order to preserve future operational flexibility. If EIBASS supports the former, it cannot possibly raise any legitimate objection to the latter.

In short, the Commission must conclude, as it did a few years ago in ET Docket No. 03-254, that questions relating to full-band, full-arc earth station licensing “have been fully considered and addressed in prior proceedings” and there is “no need to revisit them here.”

V. CONCLUSION

SES and O3b support the Commission’s significant efforts to undertake a broad update to the Part 25 rules and urge the Commission to revise its proposals consistently with the arguments expressed herein and in the pleadings of SIA.

Respectfully submitted,

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