

BEFORE THE

Federal Communications Commission

WASHINGTON, DC 20554

In the Matter of)
)
Amendment of Part 2 of the Commission's)
Rules for Federal Earth Stations) ET Docket No. 13-115
Communicating with Non-Federal Fixed)
Satellite Service Space Stations;) RM-11341
)
Federal Space Station Use of the 399.9-400.05)
MHz Band; and)
)
Allocation of Spectrum for Non-Federal Space)
Launch Operations)

To: The Commission

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

August 30, 2013

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Summary

The Satellite Industry Association (“SIA”) believes that a modified version of the Allocation Approach outlined in the *NPRM/NOI* can successfully attain the Commission’s objectives of ensuring parity, providing certainty, avoiding delay to FCC licensees, and establishing that all spectrum users in the affected bands must comply with FCC rules. This approach will accordingly avoid any adverse impact on non-Federal licensees using this spectrum and serve the interests of Federal earth station operators and commercial satellite service providers alike.

SIA agrees with the Commission that it must remain clear that the FCC is the sole regulator of the satellite systems operating in the FSS and MSS bands, but believes that this critical requirement can be met through clarification of the Allocation Approach. To achieve this requirement, the Commission should make two changes to its existing proposal. First, it should state in the Allocation Table itself that the primary Federal allocation for FSS is limited to earth stations only. Second, the Commission should add language to its proposed Footnote US107 stating that the FCC has “exclusive regulatory jurisdiction over these co-primary allocations (except for those covered by US334), with the National Telecommunications and Information Administration responsible for assignments for Federal earth stations that are authorized to operate in these bands pursuant to Part 25 of the Commission’s Rules.” This language will ensure that Federal users are subject to the same technical, regulatory and procedural rules applicable to non-Federal earth station licensees.

Under the revised Allocation Approach, the affected spectrum would not be considered “shared” for purposes of Commission or NTIA rules and coordination procedures because this is not a circumstance where spectrum uses within the same frequency band are separately

administered by the FCC and NTIA. It is instead a unique circumstance in which both Federal Government and non-government users would have co-equal status with respect to access and use of *the same non-government satellite space networks, which are exclusively FCC-regulated*. Accordingly, because all licensing in the band would be subject to the FCC's public application procedures, any NTIA presentations in connection with this process would be subject to same FCC *ex parte* rules as non-Federal applicants and licensees.

Finally, SIA believes that there is currently no need for change to the spectrum allocations used to support space launches. By keeping control of these critical frequencies with the Federal government, frequency coordinators will be able to continue to exercise centralized authority to promote reliability and certainty of access, whether for use at a Federal (*e.g.*, Vandenberg Air Force Base) or a non-Federal site (*e.g.*, Kodiak Launch Complex). Spectrum for launch activities has been fully supported to-date through the FCC's existing Special Temporary Authority ("STA") process. Through STA grants, each launch receives *de facto* interference protection because there is no non-Federal spectrum allocation and therefore no other launch activities will occur simultaneously during the same launch window. SIA believes, however, that the Commission should assure that STAs granted under its process afford commercial launch service providers protection from harmful interference with respect to *any non-Federal entity* that falls within the FCC's jurisdiction.

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COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association (“SIA”) hereby comments on the above-captioned Notice of Proposed Rulemaking and Notice of Inquiry (“*NPRM/NOI*”)¹ pursuant to Sections 1.415 and 1.419 of the Commission’s Rules (47 C.F.R. §§ 1.415 & 1.419). In the *NPRM/NOI*, the Commission proposes, in response to a petition filed by the National Telecommunications and Information Administration (“NTIA”), to afford Federal earth stations that communicate with non-Federal Fixed-Satellite Service (“FSS”) and Mobile-Satellite Service (“MSS”) space stations interference protection that is equivalent to that afforded to non-Federal earth stations licensed by the FCC to communicate with the same commercial FSS and MSS satellites. The Commission also proposes to make changes in the manner by which spectrum is

¹ See *Amendment of Part 2 of the Commission’s Rules for Federal Earth Stations Communicating with Non-Federal Fixed-Satellite Service Space Stations et al.*, FCC 13-65, Notice of Proposed Rulemaking and Notice of Inquiry, ET Dkt. No. 13-115, *slip op.* (released May 9, 2013).

provided for use by non-Federal service providers during commercial space launches. Finally, the Commission seeks comment broadly on the future spectrum needs of the commercial space sector to meet the communications needs for new technologies, including suborbital space flights and commercial space stations.

SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, and ground equipment suppliers.² Since its creation nearly two decades ago, SIA has become the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business. As the primary organization voicing the interests of the U.S.-based satellite industry, SIA has a significant interest in the successful outcome of this proceeding. As detailed herein, SIA believes that the allocation changes that have been proposed can be accomplished in a manner that serves both the commercial satellite operators and their Federal satellite earth station customers.

² SIA Executive Members include: Artel, LLC; The Boeing Company; The DIRECTV Group; EchoStar Satellite Services LLC; Harris CapRock Communications; Hughes Network Systems, LLC; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; LightSquared; Lockheed Martin Corporation.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES Americom, Inc.; and SSL. SIA Associate Members include: AIS Engineering, Inc.; Astrium Services Government, Inc.; ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data Corp.; DRS Technologies, Inc.; Encompass Government Solutions; Eutelsat, Inc.; Globecom Systems, Inc.; Glowlink Communications Technology, Inc.; Inmarsat, Inc.; ITT Exelis; Marshall Communications Corporation.; MTN Government Services; NewSat America, Inc.; O3b Networks; Orbital Sciences Corporation; Panasonic Avionics Corporation; Spacecom, Ltd.; Row 44, Inc.; Spacenet Inc.; TeleCommunication Systems, Inc.; Telesat Canada; The SI Organization, Inc.; TrustComm, Inc.; Ultisat, Inc.; ViaSat, Inc., and XTAR, LLC. Additional information about SIA can be found at www.sia.org.

I. THE COMMISSION SHOULD CONTINUE TO TAKE INTO ACCOUNT THE CONCERNS RAISED BY SIA IN RESPONSE TO THE NTIA PETITION FOR RULEMAKING.

From the outset of this proceeding, SIA has expressed support for the concept of providing equal status for Federal Government earth stations accessing commercial FSS and MSS satellites, but has also observed that adoption of the proposal should neither complicate nor delay processing of new commercial earth station applications.³ As it considers further action in this proceeding, the Commission should continue to take SIA's concerns into account, and should adopt new rules that avoid any adverse impact on new and existing non-Federal licensees using FSS and MSS spectrum. As outlined below, SIA believes that through modifications to the Allocation Approach outlined in the *NPRM/NOI*, the Commission can successfully attain these goals and serve the interests of both Federal earth station operators and commercial satellite service providers.

II. THE ALLOCATION APPROACH OUTLINED IN THE *NPRM/NOI* CAN BE MODIFIED TO ADDRESS THE CONCERNS RAISED BY SIA AND OTHER SATELLITE INDUSTRY COMMENTERS.

A. A Modified Version of The Commission's Allocation Approach Will Serve the Needs of Both Government and Non-Government Customers of Commercial Satellite Operators.

In the *NPRM/NOI*, the Commission outlines two distinct, yet similar, approaches in order to implement the goal of providing Federal earth stations accessing non-Federal FSS and MSS networks with interference protection rights equivalent to non-Federal earth stations. The Commission first advances an Allocation Approach under which a co-primary allocation for FSS and/or MSS would be added to the Federal portion of the Table of Allocations in the relevant frequency bands subject to a footnote restricting primary use to federal earth stations

³ See Comments of the Satellite Industry Association, RM-11341, at 3-5 (filed Sept. 18, 2006).

communicating with non-Federal space stations.⁴ Alternatively, the Commission offers an Interference Protection Approach under which no primary allocation would be added for Federal earth stations, but a similar status would be achieved by adding a footnote reference that would establish co-equal interference protection rights for Federal earth stations in the relevant frequency bands.⁵

The Allocation Approach has the virtue of being relatively simple and in line with the existing method by which “co-primary” status is evidenced in the Allocation Table. The *NPRM/NOI* outlines a straightforward, step-by-step approach for Federal earth stations to be approved through the established FCC authorization process and included in the FCC’s database of facilities,⁶ without requiring any additional coordination procedures for non-Federal applicants.⁷ As the Commission notes, the Allocation Approach also allows the adoption of more streamlined footnotes to the Allocation Table, permitting current non-government-only “NG” notes to become general “US” notes.⁸ As a general rule, the Allocation Table functions best when it is easily understood, with the use of qualifying explanatory footnotes minimized as much as possible.

The Interference Protection Approach appears to arise from two related Commission concerns about elevating Federal Government users to co-primary status, and the presumed

⁴ See *NPRM/NOI* at 15-20 (¶¶ 36-46).

⁵ See *NPRM/NOI* at 20-23 (¶¶ 47-58).

⁶ See *NPRM/NOI* at 16 (¶ 38).

⁷ See *NPRM/NOI* at 17 (¶ 39).

⁸ See *NPRM/NOI* at 19 (¶ 44) (“[I]f we adopt the allocation approach, we propose to reclassify all non-Federal footnotes that apply to the non-Federal FSS allocations in the proposed frequency bands ... as U.S. footnotes”).

result that the affected bands would then be considered “shared” Federal/non-Federal spectrum.⁹ The first issue that the Commission raises in the *NPRM/NOI* is its concern that the “allocation approach would increase uncertainty over who is the regulator of the satellite systems that operate in these bands.”¹⁰ The Commission also states that “it is important that the satellite network as a whole remain under the Commission’s oversight, even when the authority to operate the Federal and non-Federal earth stations is granted by different entities.”¹¹ SIA agrees with the Commission that it must remain clear that the FCC is the sole regulator of the satellite systems operating in the FSS and MSS bands, but believes that this critical requirement can be met through clarifications in the implementation of the Allocation Approach.

A second, closely related issue the Commission raises is the potential application of an established exemption to the *ex parte* rules allowing undisclosed presentations “from an agency or branch of the Federal Government or its staff [that] involves *a matter over which that agency or branch and the Commission share jurisdiction.*”¹² The Commission notes this issue in the *NPRM/NOI*, stating that “presentations by NTIA are normally exempt from *ex parte* restrictions in matters involving shared jurisdiction.”¹³ It further comments that “[u]nder the interference protection approach, the satellite bands that are exclusively non-Federal would not acquire a Federal allocation and therefore will not become shared Federal/non-Federal bands.”¹⁴ As

⁹ See *NPRM/NOI* at 17 (¶ 39).

¹⁰ *NPRM/NOI* at 10 (¶ 22).

¹¹ *NPRM/NOI* at 21 (¶ 52).

¹² 47 C.F.R. § 1.1204(a)(5).

¹³ *NPRM/NOI* at 22 (¶ 53) & n.107, citing 47 C.F.R. § 1.1204(a)(5).

¹⁴ *NPRM/NOI* at 22 (¶ 54).

discussed below, under SIA's proposed Allocation Approach, any NTIA presentations regarding use of the spectrum at issue here would not be exempt, but would be subject to the same Commission *ex parte* rules as non-Federal applicants and licensees.

SIA previously expressed concerns about the impact of parity for Federal Government earth stations on the FCC-NTIA coordination procedures applicable to non-Federal earth station operators seeking authorization to operate. SIA believes that these matters can be addressed efficiently and transparently through a modified version of the Allocation Approach, as set forth below.

B. Concerns with Respect to “Shared” Spectrum Can Be Addressed Through The Proposed Revisions of the Allocation Approach.

The Allocation Approach can be revised to address concerns regarding “shared” spectrum. First, the Commission should add language to the Allocation Table stating that the primary Federal allocation for FSS is limited to earth stations only. Second, the Commission should add language to proposed Footnote US107 stating that the FCC has “exclusive regulatory jurisdiction over these co-primary allocations (except for those covered by US334), with the National Telecommunications and Information Administration responsible for assignments for Federal earth stations that are authorized to operate in these bands pursuant to Part 25 of the Commission’s Rules.”

The Commission should ensure that Federal users’ authorizations are subject to the same technical, regulatory and procedural rules that are applicable to non-Federal earth station licensees. The NTIA Manual should be modified accordingly to include a cross-reference to the Part 25 rules providing that Federal earth station operations are required to comply with all of the

technical and operational rules contained therein.¹⁵ This approach would affirmatively promote the Commission’s four key objectives for this proceeding of ensuring parity, providing certainty, avoiding any hindrance or delay to FCC licensees, and establishing the requirement of all FSS spectrum users to comply with FCC rules.¹⁶ An attachment detailing how these changes can be implemented with respect to the Ku-band FSS uplink frequencies, with the revisions highlighted in bold with double underlining, is attached hereto. *See* Attachment, “SIA Proposal for Modified Allocation Table as Applied to 14.0-14.5 GHz Ku-Band FSS Uplink.” Comparable changes would need to be made for the other frequency bands that are the subject of this proceeding.

Under the revised Allocation Approach, the affected spectrum would not be considered “shared” for purposes of Commission or NTIA rules and coordination procedures because this is not a circumstance where spectrum uses within the same frequency band are separately administered by the FCC and NTIA and must be carefully coordinated to achieve compatibility.¹⁷ It is instead a unique circumstance in which both Federal Government and non-government users would have co-equal status with respect to access and use of *the same non-government satellite space networks*. Despite the fact that both classes of users will have primary status in the band, the use of the spectrum allocations would continue to be for commercial satellite space networks that are themselves exclusively FCC-regulated.¹⁸ NTIA’s

¹⁵ Allocation changes adopted in this proceeding should not become effective until the NTIA Manual is modified to require Part 25 compliance.

¹⁶ *See NPRM/NOI* at 10 (¶ 23).

¹⁷ Indeed, as the Commission notes in the *NPRM/NOI*, NTIA does not seek any substantive change in how spectrum matters are currently handled procedurally between the two agencies. *See NPRM/NOI* at 10 (¶ 22) & n.46.

¹⁸ Such language would also be consistent with the Memorandum of Understanding (“MOU”) between the Commission and NTIA, which does not rely on spectrum being “shared” to require inter-agency cooperation, but instead applies broadly to “all proposed actions that could

authority would accordingly be limited to making frequency assignments for Federal Government earth stations that must operate consistent with Part 25 of the FCC rules.

The Commission should also make plain in the Report & Order that because the FCC retains exclusive jurisdiction over the relevant spectrum allocations, the provisions of Section 1.1204(a)(5) of the Commission's *ex parte* rules relating to circumstances where jurisdiction is "shared" do not apply to the processing of applications for earth stations in the satellite bands. Because these are non-government bands to which Federal Government earth stations are now being permitted equal access, they are not "shared" bands in the sense provided for under the *ex parte* rules, *i.e.*, circumstances where the FCC and NTIA each issue licenses independently in the band for facilities that also operate independently of each other. Accordingly, because all licensing in the band would be subject to the FCC's public application procedures, any NTIA presentations in connection with this process should be subject to same FCC *ex parte* rules as non-Federal applicants and licensees.

C. The Commission's Interference Protection Approach Would Require Additional Modifications in Order to Address All Relevant Coordination Considerations.

If the Commission were to further consider the Interference Protection Approach instead of SIA's modified Allocation Approach, that proposal would also need to be modified to address some problems with the formulation of the implementing footnote set forth in the *NPRM/NOI*. Subsection (c) of the proposed footnote, for example, says that non-Federal stations in the subject bands cannot claim protection from harmful interference from *any previously-assigned*

potentially cause interference to government operations." Memorandum of Understanding between the Federal Communications Commission and the National Telecommunications and Information Administration, at 2 (§ IV(3)), dated January 31, 2003. The notice requirements of this MOU provision would be satisfied by the process already outlined in the *NPRM/NOI*, *i.e.*, potentially affected Federal earth stations would have the opportunity to participate in the public FCC licensing process to the extent that they have interference concerns.

*Federal stations.*¹⁹ The rule, as written, makes no exception for mobile Federal stations operating in the bands on a secondary basis under the current NG footnotes for Earth Stations on Vessels, Vehicle-Mounted Earth Stations, or Earth Stations Aboard Aircraft. This circumstance, if left uncorrected, could elevate Federal stations of these types to an unintended “superprimary” status. In addition, by stating that non-Federal stations shall not claim protection from Federal stations, it appears that the Commission may unintentionally be relegating non-Federal stations to a lower international status than Federal stations. Internationally, at least, when an allocation is said to be made on the basis that protection from harmful interference cannot be claimed, the allocation is considered secondary unless the obligation not to cause harmful interference is specifically rejected.²⁰

III. THERE IS NO NEED AT THE PRESENT TIME FOR CHANGES IN THE ALLOCATION OF SPECTRUM FOR SPACE LAUNCH SERVICES.

The second element of the *NPRM/NOI* relates to allocation of spectrum for space launch services. In particular, the Commission considers non-Federal access to three frequency bands commonly used by Federal agencies for communication with launch vehicles. The frequency ranges 420-430 MHz (for transmitting self-destruct signals), 2200-2290 MHz (for launch and telemetry), and 5650-5925 MHz (radar tracking) are important for launch operations but are not currently allocated for non-Federal use.

SIA believes that there is currently no need for change to the spectrum allocations used to support space launches. By keeping control of these critical frequencies with the Federal government, Federal frequency coordinators will be able to continue to exercise centralized

¹⁹ See *NPRM/NOI* at 20 (¶ 47).

²⁰ See International Telecommunication Union (“ITU”) Radio Regulations at Nos. 5.43 and 5.44.

authority to promote reliability and certainty of access. Moreover, SIA launch service providers are satisfied with access to spectrum for launch services pursuant to Special Temporary Authority (“STA”), as the frequencies have been traditionally specified by the Federal launch ranges, whether for use at a Federal (*e.g.*, Vandenberg Air Force Base) or a non-Federal site (*e.g.*, Kodiak Launch Complex).

Spectrum for launch activities has been fully and adequately supported through the current process of *ad hoc* STA grants.²¹ Accordingly, there is no present need to change access to these frequencies, as launch service providers have been able to make use of the spectrum assigned by the Federal launch facilities without difficulty, and have successfully operated pursuant to the launch range specifications in the currently authorized frequency bands. For launches that are on Federal facilities, permission to use the Federal launch frequencies is granted through Federal launch controllers and Federal spectrum coordinators such as the Air Force Spectrum Management Office. No commercial allocation in the band for launches is required; when commercial operators are given access to the necessary spectrum on an STA basis, each launch receives *de facto* interference protection because there is no non-Federal spectrum allocation and, therefore, no other launch activities will occur during the same launch window at the same site. Access to spectrum is therefore governed, as a practical matter, by launch scheduling, with spectrum access going hand-in-hand with access to a launch range. There is no arbitrariness in this approach as access to the federally administered launch facilities is required to launch new satellites and other space-based ventures, and all communications and tracking equipment used conforms to the requirements of the Federal launch ranges.

²¹ See *NPRM/NOI* at 25 (¶ 65).

However, SIA believes that the Commission should assure that STAs granted under its process clearly provide that a commercial launch service provider has primary status with respect to *any non-Federal entity* that falls within the FCC's jurisdiction. Currently, the Commission includes a Special Condition on commercial launch provider STAs stating that operations "shall be on an unprotected, non-interference basis to authorized Federal stations."²² The Commission should consider altering this standard condition by providing that STA operations may claim interference protection from non-Federal stations in the above frequency bands. Thus, commercial launches using Federal facilities would be protected from harmful interference from any non-Federal spectrum users.

Although commercial launches at non-Federal facilities are just beginning, it is anticipated that such launches will be subject to spectrum coordination by Federal frequency coordinators as outlined above. Such launches at non-Federal sites would thus have the same *de facto* protection as launches from Federal facilities with respect to the use of the frequencies by Federal spectrum users. The FCC should issue STAs to commercial launch operators using such non-Federal launch facilities on the same terms as those issued for the Federal ranges, affording explicit interference protection from non-Federal spectrum users.

Finally, the Commission also seeks comment on how to determine whether a given launch is Federal or non-Federal for purposes of licensing launch spectrum. The Commission has ample guidance on this matter in the form of statutory law, as well as precedent from past FAA determinations. The Commission should avoid inconsistency on this well-settled matter by continuing to follow the FAA's practice. While the relevant statutory definitions provide somewhat different phrasing for such determinations, they are substantively very similar. Under

²² See, e.g., Orbital Science Corporation STA, File No. 0611-EX-ST-2012.

the Communications Act, the Commission may license stations except for those “belonging to and operated by the United States.”²³ Under the Commercial Space Launch Act, as amended, the term “commercial provider” means an entity conducting a launch the “primary control” of which is held by someone other than Federal, state or local government.²⁴ In practice, the two definitions are effectively and substantively the same. When making a determination under the Communications Act, the NTIA examines whether a US government department or agency exercises “effective control” over the station.²⁵ FCC case law supports this approach as well.²⁶ A finding of “effective control” is arguably synonymous with “primary control.” Further, the FAA’s classification of whether a launch is “commercial” or “Federal” merits deference by other Federal agencies because the FAA has considerable experience applying the statutory criteria of “primary control” to the launch sector.²⁷ The Commission and the commercial launch industry would be best served by the Commission following the established body of law on this topic and aligning itself with the FAA’s determination.

²³ 47 U.S.C. § 305(a).

²⁴ 51 U.S.C. § 50101.

²⁵ NTIA Manual at 8.2.17.

²⁶ See *Communications Services Rendered to the U.S. Government*, Public Notice, 27 F.C.C. 2d 926 (1971) (clarifying that Commission requirements are applicable to commercially-controlled radio facilities “even though Government frequencies are to be used,” and deferring to the Interdepartment Radio Advisory Commission on clearance of such use).

²⁷ In contrast, the remaining potential factors suggested in the *NPRM/NOI* as potentially relevant to determining whether a launch is Federal or non-Federal, such as the nature of the payload, the location of the launch, and the provider of the launch vehicle, are not relevant to the determination because they are at best peripheral to the central issue of control over the radio station.

IV. CONCLUSION

For all of the foregoing reasons, SIA urges the Commission to move forward with the spectrum allocation changes outlined in the *NPRM/NOI* consistent with adoption of the policy choices and clarifications outlined in these comments.

Respectfully submitted,

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August 30, 2013

ATTACHMENT

SIA Proposal for Modified Allocation Table as Applied to 14.0-14.5 GHz Ku-Band FSS Uplink

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505			14-14.2 <u>FIXED-SATELLITE (Earth-to-space) (earth stations only) US54 US107 US183 US187</u> Space research US133		Satellite Communications (25)
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508			14.2-14.4 <u>FIXED-SATELLITE (Earth-to-space) (earth stations only) US54 US107 US183 US187</u>		
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.4-14.47 <u>FIXED-SATELLITE (Earth-to-space) (earth stations only) US54 US107 US183 US187</u> Fixed Mobile		
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A			14.4-14.47 <u>FIXED-SATELLITE (Earth-to-space) (earth stations only) US54 US107 US183 US187</u> Fixed Mobile		
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A			14.47-14.5 <u>FIXED-SATELLITE (Earth-to-space) (earth stations only) US54 US107 US183 US187</u> Fixed Mobile		
			US133 US203 US342		

See Updated Footnotes on Following Page

US54 In the band 14-14.5 GHz, Earth Stations Aboard Aircraft (ESAA) as regulated under 47 CFR part 25 may be authorized to communicate with geostationary satellites in the fixed-satellite service (Earth-to-space), subject to the condition that ESAA shall not claim protection from, nor cause interference to, earth stations at given positions (where the given position may be a specified fixed point or any fixed point within specified areas).

US107 In the bands 3700-4200 MHz, 5850-6725 MHz, 10.7-12.2 GHz, 12.7-13.25 GHz, 13.75-14.5 GHz, 18.3-19.3 GHz (except as provided for in US334), 19.7-20.2 GHz (except as provided for in US334), 27.5-30 GHz, 37.5-39.5 GHz, and 47.2-48.2 GHz, Federal stations in the fixed-satellite service shall be restricted to earth stations operating with non-Federal space stations and that comply with Part 25 of the Commission's rules. **The Commission has exclusive regulatory jurisdiction over these co-primary allocations (except for those covered by US334), with the National Telecommunications and Information Administration responsible for assignments for Federal earth stations that are authorized to operate in these bands pursuant to Part 25 of the Commission's Rules.**

US183 In the bands 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space), earth stations on vessels (ESVs) are an application of the fixed-satellite service (FSS) and may be authorized to communicate with space stations of the FSS on a primary basis.

US187 In the bands 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space), Vehicle-Mounted Earth Stations (VMES) as regulated under 47 CFR part 25 are an application of the fixed-satellite service and may be authorized to communicate with geostationary satellite orbit space stations of the fixed-satellite service on a primary basis.

[NOTE: Footnotes US54, US183 and US187 are existing Footnotes NG54, NG183 and NG187. Footnote US107 is proposed in the NPRM, and the changes shown here are SIA-proposed modifications to the FCC-proposed text.]