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

In the Matter of	)	
	)	
Amendment of Part 2 of the	)	
Commission's Rules to Allocate the	)	ET Docket No. 97-214
455-456 MHz, and 459-460 MHz bands	)	
to the Mobile-Satellite Service	)	
	)	

NOTICE OF PROPOSED RULE MAKING

Adopted: October 7, 1997 **Released:** October 14, 1997

Comment Date: [30 days after publication in the Federal Register]
Reply Comment Date: [45 days after publication in the Federal Register]

By the Commission:

INTRODUCTION

1. By this action, we propose to amend Part 2 of the Commission's Rules to allocate the 455-456 MHz and 459-460 MHz bands to the Mobile Satellite Service (Earth-to-space) ("MSS uplinks") on a primary basis for non-voice, non-geostationary mobile satellite services ("NVNG MSS"). When implemented, this service, also referred to as the "Little LEO" satellite service, will use constellations of low-Earth orbiting ("LEO") satellites to provide commercial radiolocation and two-way data messaging services to potential customers anywhere in the world. This action proposes to implement domestically the NVNG MSS allocations adopted at the 1995 World Radiocommunication Conference ("WRC-95").[1] This proposal would also address the growing demand for NVNG MSS and could provide satellite operators with increased flexibility in the design of their systems. Additionally, we propose to update Section 2.106 of our Rules to indicate the international allocations and international footnotes adopted at WRC-95 in the domestically allocated NVNG MSS frequency bands.

[1] *See Final Acts of the World Radiocommunication Conference (WRC-95) Geneva, 1995* (ITU 1996) ("*Final Acts*").

BACKGROUND

2. Little LEO satellite systems will allow customers to use small, inexpensive transceivers to communicate with satellites operating at altitudes much lower than those in geostationary satellite orbits. The lower altitudes improve signal quality and reduce the time delay of transmission. Further, the orbital mechanics of LEO satellites cause them to appear on the horizon and move across the sky and then to disappear over the horizon as they orbit the Earth. In order to achieve continuous coverage, LEO systems plan to employ a constellation of satellites, so that as one satellite moves out of view, another satellite will come over the horizon to maintain coverage. The potential applications for this service include emergency location service, environmental data collection, vehicle tracking, and time-sensitive business and personal data communications, anywhere in the world.

3. The 1992 World Administrative Radio Conference ("WARC-92") allocated the 137-138 MHz, 148-150.05 MHz and 400.15-401 MHz bands to NVNG MSS operations.[2] WARC-92 also adopted advanced publication, coordination and notification requirements between satellite systems in these bands and additional coordination requirements with terrestrial services. Subsequently, in 1993, the Commission domestically allocated the 137-137.025 MHz, 137.175-137.825 MHz, and 400.15-401 MHz bands on a primary basis and the 137.025-137.175 MHz and 137.825-138 MHz bands on a secondary basis for NVNG MSS (space-to-Earth) operations. Additionally, the Commission domestically allocated the 148-149.9 MHz and 399.9-400.05 MHz bands on a primary basis for NVNG MSS (Earth-to-space) operations, while the 149.9-150.05 MHz band is limited to Land Mobile-Satellite Service (Earth-to-space) on a primary basis.[3]

4. At WRC-95, the United States continued to seek additional allocations for NVNG MSS operations below 1 GHz. Specifically, the United States proposed that the following frequencies be allocated internationally to MSS: 216-216.5 MHz, 217.5-218 MHz, 399.9-400.05 MHz, 401-404 MHz, 455-456 MHz and 459-460 MHz. Of these proposed bands, WRC-95 allocated the 399.9-400.05 MHz band in all international regions on a primary basis and allocated the 455-456 MHz and 459-460 MHz bands in Region 2 on a primary basis for Earth-to-space NVNG MSS operations.[4] Additionally, WRC-95 adopted international footnote S5.286A, which subjects MSS operations in the 455-456 MHz and 459-460 MHz bands to coordination under

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[2] *See Final Acts of the World Administrative Radio Conference, Malaga-Torremolinos, 1992* ("*WARC-1992 Final Acts*").

[3] *See Report and Order* ("*R&O*"), ET Docket No. 91-280, 8 FCC Rcd 1812 (1993) ("*First Allocation for Little LEOs R&O")*. These actions were in response to petitions filed by ORBCOMM, STARSYS, and VITA and to international allocations made for this service at WARC-92.

[4] *Supra*, note 1.

Resolution 46 of the ITU regulations.[5] Further, international footnotes S5.286B and C state that MSS operations in these bands shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services and shall not constrain the development and use of the fixed and mobile services.

5. Domestically, the 455-456 MHz band is allocated to the land mobile service and is used on a primary basis by Part 74 Auxiliary Broadcast Services for remote pick-up broadcast operations.[6] The 459-460 MHz band is allocated to fixed and land mobile services on a primary basis and is primarily used for Part 22 services such as the Basic Exchange Telephone Radio Service ("BETRS"),[7] public land mobile one-way or two-way operations (paired with the 454 MHz band),[8] the air-to-ground public radio telephone service,[9] and rural radio services,[10] as well as for Part 90 petroleum radio services[11] and Part 80 maritime mobile services.[12] Further, the Commission is planning to conduct auctions for licenses in the public land mobile services with

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[5] *See Final Acts* at 127 and 620. Resolution 46 invites all administrations concerned with non-geostationary-satellite systems to cooperate in the application of the coordination requirements outlined in the Annexes of Resolution 46. *See also* S9.11A of the ITU Radio Regulations.

[6] Remote pickup auxiliary broadcast services are used by radio and television stations, broadcast networks, and cable network entities for the transmission of material from the scene of events back to the studio, communications related to production of remote programs, and operational communications including tones for signaling and for remote control and automatic transmission system control and telemetry. *See* 47 C.F.R. § 2.106 and Part 74 Subpart D.

[7] BETRS operations provide basic exchange telephone service by radio to rural areas where wireline telephone services are not cost effective. *See* 47 C.F.R. § 22.757.

[8] The 459.025-459.650 MHz band is used by one-way and two-way public land mobile services, which can be used by mobile or base transmitters, and by fixed transmitters (including control, repeater, paging or other fixed transmitters). *See* 47 C.F.R. § 22.561.

[9] There are 13 airborne mobile channels in the 459.665-459.985 MHz band which are used for the provision of radiotelephone service to airborne mobile subscribers in general aviation aircraft. *See* 47 C.F.R. §§ 22.805 and 22.809.

[10] Channels in the frequency range 459.025-459.65 MHz, inclusive, are allocated to the rural radiotelephone service. Stations in the paging and radiotelephone service that provide two-way public mobile service on these channels must also provide rural radiotelephone service upon request from a subscriber. *See* 47 C.F.R. § 22.563.

[11] A single channel at 459.00 MHz is reserved for oil spill containment and cleanup operations and for training and drills essential in the preparations for the containment and cleanup of oil spills. *See* 47 C.F.R. § 90.65.

[12] The maritime mobile service may use the 459.00 MHz channel for offshore radiolocation and associated telecommand operations. *See* 47 C.F.R. §§ 2.106 and 80.373(g).

respect to spectrum in the 454.025-454.65 MHz and 459.025-459.65 MHz segments in the future.[13]

DISCUSSION

6. One of the Commission's primary objectives is to facilitate the provision of efficient, innovative, and cost-effective satellite communications services in the United States. We have sought to do so by promoting fair and vigorous competition in the satellite communications market through application of an "Open Skies" policy that encourages market entry by qualified applicants and affords satellite operators maximum flexibility to tailor their offerings to meet customer requirements.[14] Since we first proposed to allocate spectrum for Little LEO operations in 1991,[15] there has been a growing demand for spectrum for this service.[16] The record in the *First Allocation and Second Processing Round for Little LEOs* proceedings,[17] the WRC-95 Preparation Docket,[18] and the WRC-97 preparation material[19] support the additional Little LEO spectrum allocations contemplated in this proceeding. Nevertheless, the intensive use of spectrum below 1 GHz requires careful consideration for each allocation of spectrum to new operations in this frequency range. Based on our consideration of the demand for Little LEO operations demonstrated at WRC-95, but recognizing the heavy incumbent use of these bands, we are commencing this proceeding to develop a complete record on whether to allocate spectrum for Little LEO operations in the 455-456 MHz and 459-460 MHz bands.

A. Need for Additional NVNG MSS Spectrum.

7. The Commission has supported the development of the Little LEO service as an affordable means to meet the growing demand for low-cost mobile data-messaging and position

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[13] *See Second Report and Order and Further Notice of Proposed Rulemaking*, WT Docket No. 96-18 and PP Docket No. 93-253, 12 FCC Rcd 2732 (1997). Licenses in various other bands, including the 900 MHz bands, will also be auctioned.

[14] *See Notice of Proposed Rule Making*, IB Docket No. 96-220, 11 FCC Rcd 19841, ("*Second Processing Round for Little LEOs NPRM") (1996).*

[15] *See Notice of Proposed Rulemaking*, ET Docket No. 91-280, 6 FCC Rcd 5932 (1991).

[16] The Commission has thus far licensed three Little LEO systems, one of which has launched satellites that operate within existing allocations. Eight additional Little LEO system applications are pending, which the Commission plans to consider in the near term, to meet the demands of this evolving market. *See Second Processing Round for Little LEOs NPRM* at ¶8.

[17] *See supra* notes 3 & 14.

[18] *See Report* in Preparation for International Telecommunications Union World Radiocommunications Conference ("WRC-95 Preparation Docket"), IC Docket No. 94-31, 10 FCC Rcd 12783 (1995).

[19] *See Informal Working Group 2A Final Report* for WRC-97, Reference Number ISP-96-005 (1997).

determination services.[20] We note that the Commission and the MSS satellite proponents performed a substantial amount of work to prepare for WRC-95 and that numerous studies and supporting documents were filed in that docket to support additional allocations for Little LEO operations. For example, the *FCC Industry Advisory Committee Final Report* ("*IAC Final Report*") indicates that studies by Little LEO proponents estimate a "capturable" Little LEO market in North America in excess of 40 million users by the year 2000.[21] These proponents stress that the substantial subscriber demand for Little LEO services is due to their operational characteristics which include:

> Low-cost subscriber equipment and services resulting from use of VHF/UHF frequencies, data transmissions only, and low investment requirements;
>
> Two-way ubiquitous global communications capabilities for the first time combined with low subscriber costs;
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> Enabling technologies such as pocket portability and long battery life, two fundamental requirements for numerous applications;
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> Interconnectivity and compatibility with e-mail systems; and
>
> Complementary with mobile computers and global positioning system ("GPS") devices.

8. As a result of the record developed in the WRC-95 Preparation Docket, we determined that one of our primary goals at WRC-95 would be the facilitation, introduction and expansion of new MSS technologies, including Little LEOs below 1 GHz.[22] The WRC-95 preparation *Report* relied upon a finding in an IAC Interim Report that MSS operations below 1 GHz would need an additional 7 to 10 megahertz of spectrum by the year 2000 and an additional 13 to 20 megahertz by the year 2010.[23] As further evidence of the need for additional Little LEO spectrum, the IAC Final Report found that the currently allocated NVNG MSS spectrum is heavily used by existing terrestrial services and it is unlikely that this spectrum is sufficient for all pending United States applicants and licensed systems to operate simultaneously while providing reliable commercial grades of service.[24]

9. *Proposal.* We tentatively find that additional spectrum for NVNG MSS is needed to

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[20] *See First Allocation for Little LEOs R&O.*

[21] *See IAC Final Report* at 81 and 111, filed May 5, 1995 in IC Docket No. 94-31.

[22] *See Report* at ¶6, IC Docket No. 94-31, 10 FCC Rcd 12783 (1995).

[23] *See IAC Interim Report* at 65, filed December 30, 1994 in IC Docket No. 94-31.

[24] *See IAC Final Report* at 81.

facilitate the competitive development of the Little LEO service. Although NVNG MSS has been allocated 4.05 megahertz of spectrum below 1 GHz (2.2 megahertz for uplinks and 1.85 megahertz for downlinks), we note that this spectrum is often shared with a number of incumbent operations, a factor which limits the capacity of Little LEO systems to meet service demands. We tentatively conclude that an allocation of additional spectrum will enable Little LEO licensees to develop cost effective systems with sufficient capacity to compete with other service providers in the telecommunications marketplace. Further, we note that the United States delegation for WRC-97 will seek an international allocation of additional spectrum below 1 GHz for Little LEO operations. Accordingly, we propose to allocate additional spectrum for Little LEO service and request comment on this proposal.

B. Allocation.

10. As a result of considerable analyses and studies at WRC-95, the 455-456 MHz and 459-460 MHz bands were allocated internationally in Region 2 for Little LEO uplinks. Several other frequency bands were considered at WRC-95 but, for various reasons, were ultimately not allocated for Little LEOs. We note that the WRC-95 Preparation Docket contains sharing analyses and spectrum utilization studies which indicate that these bands may have potential capacity for sharing with Little LEO uplinks without creating an unacceptable impact on incumbent operations.[25] Although the international allocation in Region 2 for Little LEO operations in these bands is on a co-primary basis with fixed and mobile services, international footnote S5.286B states that MSS stations in these bands are not to cause harmful interference to, or claim protection from, stations of the fixed or mobile services.[26] Additionally, footnote S5.286C states that these MSS stations are not to constrain the development and use of this spectrum by the fixed and mobile services. Therefore, even though Little LEO operations have a Region 2 primary allocation in these bands, their operations are effectively secondary to fixed and mobile services.

11. In view of the foregoing, we propose to allocate the 455-456 MHz and 459-460 MHz bands for Little LEOs on a co-primary basis subject to the provisions of international footnotes S5.286A, B, and C and request comment on this proposal. Notwithstanding that the WRC-95 Preparatory Docket concluded that these bands may have potential capacity for sharing with Little LEO uplinks without creating an unacceptable impact on incumbent operations, we request additional comment on whether there is sufficient spectrum sharing capacity in these bands to support the proposed allocation for Little LEOs and on whether there are techniques available that would permit Little LEOs to share this spectrum without causing harmful interference to or constraining the development of incumbent operations. If so, we also request comment on whether a primary allocation with technical sharing requirements would be sufficient to protect

[25] *See, e.g.*, Joint Supplemental Reply Comments at Appendix A, filed May 18, 1995 in IC Docket No. 94-31; and *IAC Final Report* at 98.

[26] *See supra* note 5.

incumbent operations.

12. In this regard, Commission staff analysis indicates that there are more than 25,000 Part 74 auxiliary broadcast transmitters authorized to use the 455-456 MHz band throughout the United States.[27] Since many auxiliary broadcast remote pickup channels in the 455-456 MHz band tend to be used only intermittently and Little LEO transmissions are currently limited to a short duration of only 450 milliseconds in the 148-149.9 MHz band, Little LEO systems may be able to search the spectrum for unused channels and accomplish their communications without hindering incumbent use. Further, as indicated in the Commission's WRC-95 preparatory *Report*, Little LEO channel assignment and low power techniques combined with brief message duration and geographic separation may be able to protect broadcast auxiliary use.[28] We note, however, that the signal integrity of broadcast programming material must be maintained and that Little LEO operations will not be permitted to cause harmful interference to such auxiliary broadcast signals. We invite comment on the feasibility of spectrum sharing between Little LEO transmissions and the terrestrial broadcast remote pickup operations.

13. Also, Little LEO uplinks in the 459-460 MHz band would have to be compatible with a wide variety of fixed and mobile services authorized under Parts 22, 80 and 90 of the Rules.[29] We note that certain operations in this frequency range, such as petroleum radio service operations at 459.0 MHz and BETRS operations, may be used only intermittently but require a high degree of reliability. Additionally, we note plans to auction channels in the 459.025-459.65 MHz segment to Part 22 licensees for such operations as common carrier paging, two-way mobile telephony, and rural radiotelephony. We thus seek comment on whether using the 459-460 MHz band for Little LEO operations would be compatible with current and future fixed and mobile operations. Specifically, we seek comment on whether certain portions of this band should not be allocated for Little LEO operations and on the feasibility of auctioning the 459.025-459.65 MHz segment to Part 22 licensees and also using this spectrum for Little LEO operations.

C. Spectrum Sharing.

14. With respect to spectrum sharing between Little LEO operations and incumbent fixed and mobile operations in the 455-456 MHz and 459-460 MHz bands, we note that this was initially addressed in preparation for WRC-95. While the sharing studies in IC Docket No. 94-31 were sufficient to justify seeking NVNG MSS uplink allocations in these bands, WRC-95 concluded that additional analysis was necessary. Specifically, WRC-95 acknowledged the demand for additional NVNG MSS spectrum, but it noted that spectrum below 1 GHz is extensively used by many services and that new technologies of some radio services, especially

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[27] *See* 47 C.F.R. § 2.106 and § 74.402.

[28] *See Report* at ¶26, IC Docket No. 94-31, FCC 95-256 (1995).

[29] These diverse terrestrial operations have been able to share this spectrum due to geographical separation, frequency separation and the intermittent use of the channels by some operations.

within the terrestrial mobile and broadcasting services, may have an impact on the sharing possibilities. Accordingly, WRC-95 adopted Resolution 214 to invite the study and development of recommendations on technical and operational issues related to sharing between Little LEO operations and other services having allocations in the bands proposed at that conference, and in other bands as necessary.[30]

15. Since WRC-95, Informal Working Group 2A ("IWG-2A") has been tasked with analyzing NVNG MSS below 1 GHz for WRC-97, including spectrum sharing between Little LEO operations and other services. We note, however, that although the *IWG-2A Final Report* indicates that frequency sharing between NVNG MSS uplinks and land mobile service stations may be feasible in the 450-470 MHz band, that report did not specifically focus on the 455-456 MHz and 459-460 MHz segments at issue in the instant proceeding. In addition, it appears that the IWG-2A conclusions may in part be based on theoretical assumptions such as low traffic-level mobile incumbent usage and that certain engineering techniques, such as the Dynamic Channel Activity Assignment System ("DCAAS"),[31] which have been successfully used to permit Little LEO sharing in the 148-149.9 MHz band, may readily be applied to the instant bands. As Motorola points out, however, the 455 MHz and 459 MHz bands are more heavily used by incumbent commercial operations than the 148-149.9 MHz band is used by incumbent Government operations.[32] Therefore, the issues of spectrum sharing between Little LEO operations and incumbent operations in the 455-456 MHz and 459-460 MHz bands are complex and will be thoroughly explored in a future, separate proceeding that will focus on developing appropriate service and licensing rules. Nevertheless, as previously indicated, we are seeking comment in the instant proceeding on whether there is sufficient sharing capacity in these bands to support the proposed allocation for Little LEOs and on whether there are techniques available that would permit Little LEOs to share this spectrum without causing harmful interference to or constraining the development of incumbent operations.

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[30] *See Final Acts* at 695, Resolution 214.

[31] DCAAS allows MSS mobile Earth uplink stations to communicate effectively in the presence of nearly co-channel interference from mobile transmitters. In a DCAAS scheme, the satellite scans the entire uplink band for terrestrial channel activity. The instantaneous power level at the satellite for each channel is recorded and these measurements are combined with past measurements in a weighted time average for each potential channel. This weighted time average takes into account the short and long-term statistics of talker and calling activity and the channels are then ranked from most to least desirable in terms of potential for interference. The list of available channels is sent to the mobile Earth stations and each satellite periodically updates the list of available channels. MSS uplink channels can be re-assigned (on the order of every 10 seconds) in response to statistical time variation of channel use by mobile transmitters. *See Recommendation ITU-R M.1039* at 8. Additionally, the digital band-scanning receiver to be used by one Little LEO system can detect a 0.5 second duration, 460 MHz, 2.5 kHz bandwidth, 3.5 milliwatts ("mW") transmit power signal anywhere in the satellite footprint with 99.9% probability. For a 16 kHz signal the sensitivity is 22 mW. At 149 MHz the transmit power sensitivities are 0.4 mW and 2.3 mW, for 2.5 kHz and 16 kHz signals, respectively. *See IWG-2A Final Report* at 31.

[32] *See* Motorola Comments in Ref. No. ISP-96-005 ("Joint Preliminary Draft Proposals for WRC-97"), at 16-17 & n.24.

D. Related Matters.

16. Finally, we propose to update the International Table of Allocations in Part 2 of our Rules to reflect the *Final Acts* of WRC-95 for the 137-138 MHz, 148-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 455-456 MHz and 459-460 MHz bands. Specifically, we propose to update the 137-138 MHz and 148-150.05 MHz bands to reflect changes in international footnotes in this segment. We also propose to correct the domestic allocation segments of the Allocation Table for the 137.025-137.175 MHz and 137.825-138 MHz bands to indicate that the Mobile-Satellite allocation is on a secondary basis. We also propose to update the 399.9-400.05 MHz segment of the International Table of Allocations to reflect a primary allocation in all Regions to Land Mobile-Satellite (Earth-to-space) operations and the associated international footnotes for this segment. Further, we propose to update the 400.15-401 MHz segment of the International Table of Allocations to reflect changes in the international footnotes in this segment. Additionally, we propose to update the 455-456 MHz and 459-460 MHz segments of the International Table of Allocations to reflect a Region 2 allocation to Mobile-Satellite (Earth-to-space) operations and the associated international footnotes in this segment.

17. We also propose to replace international footnote numbers 596, 597, 598, 599A, 599B, 608, 608A, 608B, 608C, 609, 609A, 609B, 645B, 647A, and 647B with new international footnotes which meet the new Radio Regulation numbering scheme and which reflect all modifications to these footnotes adopted at WRC-95. Specifically, we propose to replace the removed footnotes with new international footnote numbers S5.204, S5.205, S5.206, S5.207, S5.208, S5.208A, S5.209, S5.218, S5.219, S5.220, S5.221, S5.222, S5.223, S5.224, S5.260, S5.262, S5.263, S5.264, S5.271, S5.286A, S5.286B, and S5.286C in the list of international footnotes in Section 2.106. Further, we propose to update the Table of Frequency Allocations by removing United States footnote number US326 which expired on January 1, 1997. We also propose to revise Section 25.202(a)(3) by removing certain provisions that expired on January 1, 1997. Parties may comment on these proposed updates.

PROCEDURAL INFORMATION

18. Initial Regulatory Flexibility Analysis. The analysis pursuant to the Regulatory Flexibility Act of 1980, 5 U.S.C. Section 603, is contained in Appendix B.

19. Ex Parte Presentation. This is a permit-but-disclose rule making proceeding. Ex parte presentations are permitted, provided they are disclosed as provided in Commission rules. See generally 47 C.F.R. Sections 1.1202, 1.1203, and 1.1206(a).

20. Authority. This action is taken pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r).

21. Comment. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419

of the Commission's Rules, interested parties may file comments on or before 30 days after publication in the Federal Register, and reply comments on or before 45 days after publication in the Federal Register. All relevant and timely comments will be considered by the Commission before final action is taken in this proceeding. To file formally in this proceeding, participants must file an original and four copies of all comments, reply comments, and supporting comments. If participants want each Commissioner to receive a personal copy of their comments, an original plus nine comments must be filed. Comments and reply comments should be sent to Office of the Secretary, Federal Communications Commission, Washington, DC 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center (Room 239) of the Federal Communications Commission, 1919 M Street, N.W., Washington, DC 20554.

22. Additional Information. For further information concerning this rule making proceeding contact Tom Derenge at (202) 418-2451, internet: tderenge@fcc.gov, Office of Engineering and Technology, Federal Communications Commission, Washington, DC 20554.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

Appendix A: Proposed Rules

Parts 2 and 25 of title 47 of the Code of Federal Regulations are proposed to be amended as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

a. Remove the existing entries for 137-137.025 MHz, 137.025-137.175 MHz, 137.175-137.825 MHz, 137.825-138 MHz, 148-149.9 MHz, 149.9-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 455-456 MHz and 459-460 MHz in columns (1) through (7).

b. Add entries in numerical order for 137-137.025 MHz, 137.025-137.175 MHz, 137.175-137.825 MHz, 137.825-138 MHz, 148-149.9 MHz, 149.9-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 455-456 MHz and 459-460 MHz in columns (1) through (7).

c. Remove International Footnote Number 596, 597, 598, 599A, 599B, 608, 608A, 608B, 608C, 609, 609A, 609B, 645B, 647A, and 647B.

d. Add International Footnote Numbers S5.204, S5.205, S5.206, S5.207, S5.208, S5.208A, S5.209, S5.218, S5.219, S5.220, S5.221, S5.222, S5.223, S5.224, S5.260, S5.262, S5.263, S5.264, S5.271, S5.286A, S5.286B, and S5.286C.

e. Remove United States Footnote Number US326.

§ 2.106 Table of Frequency Allocations

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International table			United States table		FCC use designators	
Region 1 -- allocation MHz (1)	Region 2 -- allocation MHz (2)	Region 3 -- allocation MHz (3)	Government Allocation MHz (4)	Non-Government Allocation MHz (5)	Rule part(s) (6)	Special-use frequencies (7)
*	*	*	*	*	*	*
137 – 137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137 – 137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137 – 137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137 – 137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	137 – 137.025 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	SATELLITE COMMUNICATIONS (25)	
137.025 – 137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.025 – 137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.025 – 137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.025 – 137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	137.025 – 137.175 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	SATELLITE COMMUNICATIONS (25)	

International table			United States table		FCC use designators	
Region 1 -- allocation MHz (1)	Region 2 -- allocation MHz (2)	Region 3 -- allocation MHz (3)	Government Allocation MHz (4)	Non-Government Allocation MHz (5)	Rule part(s) (6)	Special-use frequencies (7)
137.175 – 137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SAT-ELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.175 – 137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SAT-ELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.175 – 137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SAT-ELLITE (space-to-Earth) MOBILE-SATELLITE (space- to-Earth) 5.208A S5.209 SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.175 – 137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SAT-ELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	137.175 – 137.825 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SAT-ELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	SATELLITE COMMUNI-CATIONS (25)	
137.825 – 138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.825 – 138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.825 – 138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile-Satellite (space-to-Earth) S5.208A S5.209 Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208	137.825 – 138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	137.825 – 138 SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Mobile-Satellite (space-to-Earth) S5.209 US318 US319 US320 S5.208 S5.208A	SATELLITE COMMUNI-CATIONS (25)	
*	*	*	*	*	*	*

International table			United States table		FCC use designators	
Region 1 -- allocation MHz	Region 2 -- allocation MHz	Region 3 -- allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
(1)	(2)	(3)	Allocation MHz (4)	Allocation MHz (5)	(6)	(7)
148 – 149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	148 – 149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	148 – 149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.218 S5.219 S5.221	148 – 149.9 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 US319 US320 US323 US325 S5.218 S5.219 US10 G30	148 – 149.9 MOBILE-SATELLITE (Earth-to-space) S5.209 US319 US320 US323 US325 S5.218 S5.219 US10	SATELLITE COMMUNICATIONS (25)	
149.9 – 150.05 LAND MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.223	149.9 – 150.05 LAND MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.223	149.9 – 150.05 LAND MOBILE-SATELLITE (Earth-to-space) S5.209 S5.224 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.223	149.9 – 150.05 RADIONAVIGATION-SATELLITE LAND MOBILE-SATELLITE (Earth-to-space) S5.209 S5.220 S5.223 US319 US322	149.9 – 150.05 RADIONAVIGATION-SATELLITE LAND MOBILE-SATELLITE (Earth-to-space) S5.209 S5.220 S5.223 US319 US322	SATELLITE COMMUNICATIONS (25)	
*	*	*	*	*	*	*
399.9 – 400.05 LAND MOBILE-SATELLITE (Earth-to-space) S5.209 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.224 S5.260	399.9 – 400.05 LAND MOBILE-SATELLITE (Earth-to-space) S5.209 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.224 S5.260	399.9 – 400.05 LAND MOBILE-SATELLITE (Earth-to-space) S5.209 RADIONAVIGATION-SATELLITE S5.220 S5.222 S5.224 S5.260	399.9 – 400.05 RADIONAVIGATION-SATELLITE MOBILE-SATELLITE (Earth-to-space) US319 S5.209 S5.260	399.9 – 400.05 RADIONAVIGATION-SATELLITE MOBILE-SATELLITE (Earth-to-space) US319 S5.209 S5.260	SATELLITE COMMUNICATIONS (25)	
*	*	*	*	*	*	*

International table			United States table		FCC use designators	
Region 1 -- allocation MHz (1)	Region 2 -- allocation MHz (2)	Region 3 -- allocation MHz (3)	Government Allocation MHz (4)	Non-Government Allocation MHz (5)	Rule part(s) (6)	Special-use frequencies (7)
400.15 – 401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.263 Space Operation (space-to-Earth) S5.262 S5.264	400.15 – 401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.263 Space Operation (space-to-Earth) S5.262 S5.264	400.15 – 401 METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 SPACE RESEARCH (space-to-Earth) S5.263 Space Operation (space-to-Earth) S5.262 S5.264	400.15 – 401 METEOROLOGICAL AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 US319 US320 US324 SPACE RESEARCH (space-to-Earth) S5.263 Space Operation (space-to-Earth) S5.262 S5.264 US70	400.15 – 401 METEOROLOGICAL AIDS (radiosonde) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) S5.208A S5.209 US319 US320 US324 SPACE RESEARCH (space-to-Earth) S5.263 Space Operation (space-to-Earth) S5.262 S5.264 US70	SATELLITE COMMUNICATIONS (25)	
*	*	*	*	*	*	*
455 – 456 FIXED MOBILE S5.271 S5.286B	455 – 456 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.271 S5.286A S5.286B S5.286C	455 – 456 FIXED MOBILE S5.271 S5.286B	455 – 456	455 – 456 LAND MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.286A, S5.286B, S5.286C	AUXILIARY BROADCASTING (74) SATELLITE COMMUNICATIONS (25)	
*	*	*	*	*	*	*
459 – 460 FIXED MOBILE S5.271 S5.286B	459 – 460 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.271 S5.286A S5.286B S5.286C	459 – 460 FIXED MOBILE S5.271 S5.286B	459 – 460	459 – 460 FIXED LAND MOBILE MOBILE-SATELLITE (Earth-to-space) S5.209 S5.286A, S5.286B, S5.286C NG12 NG112 NG148	PUBLIC MOBILE (22) MARITIME (80) SATELLITE COMMUNICATIONS (25)	
*	*	*	*	*	*	*

INTERNATIONAL FOOTNOTES

* * * * *

S5.204 *Different category of service:* in Afghanistan, Saudi Arabia, Bahrain, Bangladesh, Bosnia and Herzegovina, Brunei Darussalam, China, Cuba, the United Arab Emirates, India, Indonesia, the Islamic Republic of Iran, Iraq, Malaysia, Oman, Pakistan, Philippines, Qatar, Singapore, Sri Lanka, Thailand, Yemen and Yugoslavia, the band 137-138 MHz is allocated to the fixed and mobile, except aeronautical mobile (R), services on a primary basis (see No. S5.33).

S5.205 *Different category of service:* in Israel and Jordan, the allocation of the band 137-138 MHz to the fixed and mobile, except aeronautical mobile, services is on a primary basis (see No. S5.33).

S5.206 *Different category of service:* in Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Egypt, Finland, France, Georgia, Greece, Hungary, Kazakstan, Lebanon, Moldova, Mongolia, Uzbekistan, Poland, Kyrgyzstan, Syria, Slovakia, the Czech Republic, Romania, Russia, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 137-138 MHz to the aeronautical mobile (OR) service is on a primary basis (see No. S5.33).

S5.207 *Additional allocation:* in Australia, the band 137-144 MHz is also allocated to the broadcasting service on a primary basis until that service can be accommodated within regional broadcasting allocations.

S5.208 The use of the band 137-138 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-95)/No. S9.11A. The power flux-density limit indicated in Annex 2 of Resolution 46 (Rev.WRC-95)/Annex 1 of Appendix S5 shall apply until such time as a competent world radiocommunication conference revises it. Additionally, until that time, the provisions of Resolution 714 (WRC-95) apply.

S5.208A In making assignments to space stations in the mobile-satellite service in the bands 137-138 MHz, 387-390 MHz and 400.15-401 MHz, administrations shall take all practicable steps to protect the radio astronomy service in the bands 150.05-153 MHz, 322-328.6 MHz, 406.1-410 MHz and 608-614 MHz from harmful interference from unwanted emissions. For information, the threshold levels of interference detrimental to the radio astronomy service to be protected are shown in Table 1 of Recommendation ITU-R RA.769-1.

S5.209 The use of the bands 137-138 MHz, 148-149.9 MHz, 400.15-401 MHz, 455-456 MHz, and 459-460 MHz by the mobile-satellite service and the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the land mobile-satellite service is limited to non-geostationary-satellite systems.

* * * * *

S5.218 *Additional allocation:* the band 148-149.9 MHz is also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under Article 14/No. S9.21. The bandwidth of any individual transmission shall not exceed ± 25 kHz.

S5.219 The use of the band 148-149.9 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-95)/No. S9.11A. The mobile-satellite service shall not constrain the development and use of the fixed, mobile and space operation services in the band 148-149.9 MHz.

S5.220 The use of the bands 149.9-150.05 MHz and 399.9-400.05 MHz by the land mobile-satellite service is subject to coordination under Resolution 46 (Rev. WRC-95)/No. S9.11A. The land mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz.

S5.221 Stations of the mobile-satellite service in the band 148-149.9 MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services operating in accordance with the Table of Frequency Allocations in the following countries: Albania, Algeria, Germany, Saudi Arabia, Australia, Austria, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bosnia and Herzegovina, Brunei Darussalam, Bulgaria, Burkina Faso, Cameroon, Canada, China, Cyprus, Colombia, Congo, the Republic of Korea, Croatia, Cuba, Denmark, Egypt, the United Arab Emirates, Ecuador, Eritrea, Spain, Estonia, Ethiopia, Finland, France, Gabon, Ghana, Greece, Guinea, Guinea Bissau, Honduras, Hungary, India, Indonesia, the Islamic Republic of Iran, Ireland, Iceland, Israel, Italy, Jamaica, Japan, Jordan, Kazakstan, Kenya, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Luxembourg, Malaysia, Mali, Malta, Mauritania, Moldova, Mongolia, Mozambique, Namibia, Norway, New Zealand, Oman, Uganda, Uzbekistan, Pakistan, Panama, Papua New Guinea, Paraguay, the Netherlands, Philippines, Poland, Portugal, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, the United Kingdom, Russia, Senegal, Sierra Leone, Singapore, Slovenia, Sri Lanka, South Africa, Sweden, Switzerland, Suriname, Swaziland, Tanzania, Chad, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Viet Nam, Yemen, Yugoslavia, Zambia, and Zimbabwe.

S5.222 Emissions of the radionavigation-satellite service in the bands 149.9-150.05 MHz and 399.9-400.05 MHz may also be used by receiving earth stations of the space research service.

S5.223 Recognizing that the use of the band 149.9-150.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation-satellite service, administrations are urged not to authorize such use in application of No. 342/S4.4.

S5.224 In the bands 149.9-150.05 MHz and 399.9-400.05 MHz, the allocation to the land mobile-satellite service shall be on a secondary basis until 1 January 1997.

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S5.260 Recognizing that the use of the band 399.9-400.05 MHz by the fixed and mobile services may cause harmful interference to the radionavigation satellite service, administrations are urged not to authorize such use in application of No. 342/S4.4.

* * * * *

S5.262 *Additional allocation*: in Saudi Arabia, Armenia, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Bulgaria, Colombia, Costa Rica, Cuba, Egypt, the United Arab Emirates, Ecuador, Estonia, Georgia, Hungary, Indonesia, the Islamic Republic or Iran, Iraq, Israel, Jordan, Kazakstan, Kuwait, Liberia, Malaysia, Moldova, Nigeria, Uzbekistan, Pakistan, the Philippines, Qatar, Syria, Kyrgyzstan, Slovakia, Romania, Russia, Singapore, Somalia, Sri Lanka, Tajikistan, Turkmenistan, Ukraine and Yugoslavia, the band 400.05-401 MHz is also allocated to the fixed and mobile services on a primary basis.

S5.263 The band 400.15-401 MHz is also allocated to the space research service in the space-to-space direction for communications with manned space vehicles. In this application, the space research service will not be regarded as a safety service.

S5.264 The use of the band 400.15-401 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-95)/No. S9.11A. The power flux-density limit indicated in Annex 2 of Resolution 46 (Rev.WRC-95)/Annex 1 of Appendix S5 shall apply until such time as a competent world radiocommunication conference revises it.

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S5.271 *Additional allocation*: in Armenia, Azerbaijan, Belarus, China, Estonia, Georgia, India, Kazakstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, the United Kingdom, Russia, Tajikistan, Turkmenistan and Ukraine, the band 420-460 MHz is also allocated to the aeronautical radionavigation service (radio altimeters) on a secondary basis.

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S5.286A The use of the bands 455-456 MHz and 459-460 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-95)/No. S9.11A.

S5.286B Stations in the mobile-satellite service in the bands 455-456 MHz and 459-460

MHz shall not cause harmful interference to, or claim protection from, stations of the fixed or mobile services.

S5.286C Stations in the mobile-satellite service in the bands 455-456 MHz and 459-460 MHz shall not constrain the development and use of the fixed and mobile services.

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PART 25--SATELLITE COMMUNICATIONS

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

AUTHORITY: Secs. 25.101 to 25.601 issued under Sec. 4, 48 Stat. 1066, as amended; 47 U.S.C. 154. Interpret or apply secs. 101-104, 76 Stat. 419-427; 47 U.S.C. 701-744; 47 U.S.C. 554.

2. Section 25.202(a)(3) is revised to read as follows:

§ 25.202 Frequencies, frequency tolerance and emission limitations.

(a) * * *

(3) The following frequencies are available for use by the non-voice, non-geostationary mobile-satellite service:

Non-Voice, Non-Geostationary (NVNG) Mobile Satellite Frequencies	
Space-to-Earth Transmit (MHz)	Earth-to-Space Transmit (MHz)
137-138	148.00-150.05
400.15-401.00	399.90-400.05

* * * * *

APPENDIX B

Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act,[33] the Commission has prepared an Initial Regulatory Flexibility Analysis of the expected significant economic impact on small entities by the policies and rules proposed in this *Notice of Proposed Rule Making ("Notice").* Written public comments are requested on the IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Notice* provided above. The Secretary shall send a copy of this Notice, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.[34]

A. Need for and Objectives of the Proposed Rules.

This Notice proposes to allocate the 455-456 MHz and 459-460 MHz bands to the Mobile Satellite Service (Earth-to-space) ("MSS uplinks") on a primary basis for non-voice, non-geostationary mobile satellite services ("NVNG MSS"). This service, also referred to as the "Little LEO" satellite service, uses constellations of low-Earth orbiting ("LEO") satellites to provide commercial radiolocation and two-way data messaging services to potential customers anywhere in the world. We take this action on our own initiative in order to adopt domestically the NVNG MSS allocation adopted at the 1995 World Radiocommunication Conference ("WRC-95").[35] This proposal addresses the growing demand for NVNG MSS and could provide satellite operators with increased flexibility in the design of their systems.

B. Legal Basis.

This action is taken pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r).

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

The Commission has not developed a definition of small entities relevant to satellite services

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[33] 5 U.S.C. § 603.

[34] *See id.* § 603(a).

[35] *See Final Acts of the World Radio[communication] Conference (WRC-95) Geneva, 1995,* Geneva, 17 November 1995 ("*Final Acts*").

licensees. Therefore, the applicable definition of small entity in the satellite services industry is the definition under the Small Business Administration (SBA) rules applicable to Communications Services "Not Elsewhere Classified."[36] This definition provides that a small entity is expressed as one with $11.0 million or less in annual receipts. According to Census Bureau data, there are 848 firms that fall under the category of Communications Services, Not Elsewhere Classified. Of those, approximately 775 reported annual receipts of $11 million or less and qualify as small entities.[37] The Census Bureau category is very broad and commercial satellite services constitute only a subset of its total.

Although it is difficult to estimate the number of Little LEO entities that will utilize the spectrum proposed in this *Notice*, we note that the Commission has licensed three entities to provide Little LEO services in the United States: Orbital Communications Corporation ("Orbcomm"), Starsys Global Positioning, Inc. ("Starsys"), and Volunteers in Technical Assistance ("VITA"). Additionally, five more entities have filed applications with the Commission to provide Little LEO services: LEO One USA Corporation ("LEO One"); CTA Commercial Systems; E-Sat, Inc.; Final Analysis Communication Service, Inc. ("FACS"); and GE American Communications, Inc. ("GE Americom"). Of the eight potential Little LEO licensees that may ultimately utilize these bands if allocated, only VITA and LEO One qualify as small businesses.[38] The other six entities are not small businesses because they each have revenues in excess of $11 million annually or have parent companies or investors that have revenues in excess of $11 million annually. We request comment on the description and number of small entities that are significantly impacted by this proposal.

Additionally, we note that there are numerous small entities that currently operate terrestrial fixed and mobile radio systems in the 455-456 MHz and 459-460 MHz bands under Parts 22, 74, 80 and 90 of our rules. However, in a future proceeding we will consider technical limitations on the new Little LEO operations in these bands in order to prevent harmful interference to incumbent fixed and mobile operations. We have not proposed any rule changes to the incumbent fixed and mobile operations. Accordingly, we do not believe this proposed action will have a negative impact on small entities that currently operate in the 455-456 MHz and 459-460 MHz bands.

D. Description of Projected Reporting, Recordkeeping and Other Compliance

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[36] 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4899.

[37] U.S. Bureau of the Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications, and Utilities, UC92-S-1, Subject Series, Establishment and Firm Size, Table 2D, Employment Size of Firms: 1992, SIC Code 4899 (issued May 1995).

[38] *See Notice of Proposed Rule Making* at 44, IB Docket No. 96-426, FCC 96-426, (1996).

Requirements.

In this proceeding, we are proposing to allocate this spectrum to NVNG MSS. The licensing and technical regulations governing these operations will be addressed in a separate proceeding. Therefore, this proposed action does not create any reporting or compliance requirements.

E. Significant Alternatives to Proposed Rules which Minimize Significant Economic Impact on Small Entities and Accomplish Stated Objectives.

No Petitions for Rule Making were filed to initiate this proceeding and there are no comments in this proceeding that suggest alternatives to this proposed allocation. International regulations require that NVNG MSS operations not cause harmful interference to nor constrain the development of incumbent operations which should minimize the impact on incumbent small entities. We request comment on further alternatives that might minimize the amount of economic impact on small entities.

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

None.