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

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In the Matter of	)	
	)	
Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band	)	IB Docket No. 01-185
	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Service	)	ET Docket No. 95-18

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NOTICE OF PROPOSED RULEMAKING

Adopted: August 9, 2001 **Released: August 17, 2001**

Comment Date: 28 days after Federal Register publication
Reply Comment Date: 42 days after Federal Register publication

By the Commission:

I. INTRODUCTION

1. This proceeding is initiated to obtain comment on proposals to bring flexibility to the delivery of communications by mobile satellite service ("MSS") providers. The Commission has recognized the value of MSS to provide advanced communications on a global basis to areas that may not be readily or economically served by terrestrial systems, such as rural and remote areas, and to the maritime and aeronautical markets.[1] Recently, two MSS operators have made proposals to the Commission to integrate terrestrial services with their networks, using assigned

[1] Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, *Memorandum Opinion and Order*, 9 FCC Rcd 4957, 4995-96 ¶¶ 94-97 (1994) ("*PCS Allocation Order*"); Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, IB Docket No. 99-81, *Notice of Proposed Rulemaking*, 14 FCC Rcd 4843, 4846 ¶ 4 (1999); Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Service, ET Docket No. 95-18, *First Report and Order and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 7388, 7389 ¶ 2 (1997) ("*2 GHz MSS Allocation Order*"), *on recon.*, *Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order*, 13 FCC Rcd 23,949 (1998) (affirming 2 GHz MSS allocation and seeking further comment on relocation issues).

MSS frequencies to augment signals in areas where the satellite signal is attenuated, particularly in urban areas and inside buildings.

2. We believe that the potential long-term benefits of MSS merit consideration of approaches to achieve flexibility in the delivery of communications by MSS operators. Flexibility has been the Commission's favored approach to spectrum management and licensing in recent years. While we do not make tentative conclusions in this *Notice*, we seek comment on approaches by which we may permit more flexible use of MSS spectrum. We recognize that this concept raises new issues, by in part cutting across the different licensing regimes established for satellite and terrestrial services. This fact, however, does not foreclose consideration of potentially innovative ideas that may result in improved quality and availability of services to the public.[2]

3. In a companion *Further Notice of Proposed Rulemaking* to consider use of frequency bands below 3 GHz for introduction of advanced wireless services, we raise the question as to whether some MSS spectrum might be reallocated for use by advanced wireless terrestrial services.[3] In this proceeding, we consider specific issues regarding whether and how we might bring flexibility in MSS spectrum either by: (1) permitting 2 GHz and L-band MSS operators to provide service in areas where the MSS signals are attenuated by integrating terrestrial operations with their networks using assigned MSS frequencies, as has been proposed by two operators, or (2) opening up portions of the 2 GHz and L-bands for any operator to provide a terrestrial service that could either be offered in conjunction with MSS or as an alternative mobile service.

4. While we have not received any proposals from MSS licensees operating in bands other than the 2 GHz and L-bands to enhance their services by integrating terrestrial operations with their networks, we nevertheless seek comment on whether we should also consider permitting terrestrial operations in the 1610-1626.5/2483.5-2500 MHz bands (the "Big LEO" bands), given the similarity between these systems and MSS operations in the 2 GHz MSS bands. In particular we ask that commenters consider whether the preliminary approach we outline for permitting terrestrial operations in the 2 GHz band could be adopted also for permitting similar terrestrial operations in the Big LEO bands.

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[2] *See, e.g.*, Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium, *Policy Statement*, 14 FCC Rcd 19,868 (1999); Principles for Promoting the Efficient Use of Spectrum by Encouraging the Development of Secondary Markets, *Policy Statement*, 15 FCC Rcd 24,178 (2000). *See also* Communications Act of 1934, as amended, § 7, 47 U.S.C. § 157 ("It shall be the policy of the United States to encourage the provision of new technologies and services to the public.").

[3] Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, ET Docket No. 00-258, *Notice of Proposed Rule Making and Order*, 16 FCC Rcd 596 (2001); Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258, ET Docket No. 95-18, IB Docket No. 99-81, *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, FCC 01-224 (adopted August 9, 2001) ("*Advanced Wireless Services FNPRM*").

I. BACKGROUND

5. We have received proposals from New ICO Global Communications (Holdings) Ltd. ("ICO") and from Motient Services Inc. ("Motient") and Mobile Satellite Ventures Subsidiary LLC ("MSV Sub") to integrate terrestrial components with their networks using assigned MSS frequencies. ICO made its proposal in an *ex parte* filing in Docket No. 99-81, in which the Commission has promulgated service rules for MSS operators in the 2 GHz band.[4] We have received additional filings in that proceeding regarding the ICO proposal.[5] Motient made its proposal in the context of an application with the Commission seeking to combine the MSS systems of Motient and TMI Communications and Company, Limited Partnership ("TMI") into a jointly-owned subsidiary, MSV Sub.[6] We incorporate by reference as part of the record in this proceeding the proposals of both ICO and Motient in the proceedings in which ICO and Motient made them. We also incorporate by reference all comments and replies in these proceedings made in response to the proposals.[7]

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[4] *Ex parte* letter from Lawrence H. Williams and Suzanne Hutchings, New ICO Global Communications (Holdings) Ltd., to Chairman Michael K. Powell, Federal Communications Commission, IB Docket No. 99-81 (March 8, 2001) ("ICO Letter"). *See also* Letter from Cheryl A. Tritt, Counsel to ICO Services Limited, to Magalie Roman Salas, Secretary, Federal Communications Commission, IB Docket No. 99-81 (April 20, 2001) ("ICO Supplemental Letter").

[5] Letter to Chairman Michael K. Powell, Federal Communications Commission, from Senator Ted Stevens (March 29, 2001); Letter to Chairman Michael K. Powell, Federal Communications Commission, from Senators Ted Stevens, Ernest Hollings, John D. Rockefeller IV, and Byron L. Dorgan (April 24, 2001); Petition for Rulemaking of the Cellular Telecommunications & Internet Association (May 18, 2001); Letter to Magalie Roman Salas, Secretary, Federal Communications Commission from Donald C. Brittingham, Director Spectrum Policy Federal Relations, Verizon Wireless (April 24, 2001); Letter to Magalie Roman Salas, Secretary, Federal Communications Commission from Ari Q. Fitzgerald, Michele Farquhar, Counsel for Alaska Native Wireless, (July 2, 2001).

[6] Application filed by Motient Services Inc. and Mobile Satellite Ventures Subsidiary LLC for Assignment of Licenses and for Authority to Launch and Operate a Next-Generation Mobile Satellite Service System (March 1, 2001) ("Motient Application"). *See* Public Notice, Report No. SAT-00066 (rel. March 19, 2001). Motient is an MSS operator in the United States, and TMI is an operator of a Canadian-licensed MSS system.

[7] *See* Opposition of Sprint Corporation, File No. SAT-ASG-20010302-00017 (April 18, 2001); Comments of the Cellular Telecommunications and Internet Association, File No. SAT-ASG-20010302-00017 (April 18, 2001); Opposition of Verizon Wireless, File No. SAT-ASG-20010302-00017 (April 18, 2001); Petition to Deny in Part of Aeronautical Radio, Inc, File No. SAT-ASG-20010302-00017 (April 18, 2001); Partial Petition to Deny of Inmarsat Ventures PLC, File No. SAT-ASG-20010302-00017 (April 18, 2001); Comments of AT&T Wireless Services, Inc., File No. SAT-ASG-20010302-00017 (April 18, 2001); Opposition of Cingular Wireless LLC, File No. SAT-ASG-20010302-00017 (April 18, 2001); Comments of New ICO Global Communications (Holdings) LTD., File No. SAT-ASG-20010302-00017 (April 18, 2001); Petition to Deny of Deere & Company, File No. SAT-ASG-20010302-00017 (April 18, 2001); Joint Petition to Defer of Motient Services Inc., TMI Communications and Company Limited Partnership, Federal Bureau of Investigation, and Department of Justice, File No. SAT-ASG-20010302-00017 (April 18, 2001); Comments of Ericsson Inc., File No. SAT-ASG-20010302-00017 (April 18, 2001).

6. The Commission has allocated and assigned spectrum in several bands to MSS.[8] Not all of this spectrum, however, is available for use by systems licensed by the United States. This spectrum is available globally or regionally and is subject to the international satellite coordination process. The spectrum available for U.S. use are those frequencies that have been successfully coordinated, taking into account the requirements of other countries' systems. Motient is licensed for the L-band, and ICO is one of eight recently authorized 2 GHz MSS system operators. The allocation and service rules in effect for the 2 GHz and L-band are particularly relevant to the proposals before us.

A. The 2 GHz Band

1. *Current Allocation and Service Rules*

7. The Members of the International Telecommunication Union ("ITU") have divided the world into three Regions. Generally, Region 1 includes Africa, Europe, Northern and Western portions of Asia; Region 2 includes the Americas and Greenland; and Region 3 includes Southern portions of Asia, Australia and the South Pacific.[9] In accordance with ITU Regulations, the 1980-2010 MHz and 2170-2200 MHz bands are allocated to MSS worldwide, each on a co-primary basis with fixed and mobile services.[10] Region 2 allocations, however, vary slightly from those of the other regions. In Region 2, the 1980-1990 MHz band does not become available for MSS until January 1, 2005.[11] In addition, the 2010-2025 MHz and the 2165-2170 MHz bands, which the ITU already has made available for MSS use in Canada and the United States, will become available for MSS in the rest of Region 2 on January 1, 2002.[12] In 1997, the Commission reallocated the 1990-2025 MHz (uplink) and 2165-2200 MHz (downlink) bands to MSS in the United States, which became effective January 1, 2000.[13]

8. On August 25, 2000, the Commission released a *Report and Order* ("*2 GHz Service Rules Order*") setting forth licensing and service rules for the then nine pending applicants to provide MSS in the 1990-2025 MHz and 2165-2200 MHz bands.[14] Upon launch, these new

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[8] The Commission has allocated spectrum for MSS that is readily usable for voice services in the following frequency bands: 1525-1559 MHz (space-to-Earth), 1610-1660.5 MHz (Earth-to-space), 2483.5-2500 (space-to-Earth), 1990-2025 MHz (Earth-to-space), 2165-2200 MHz (space-to-Earth).

[9] *See* ITU Radio Regulations Article S5, Section I.

[10] *Id.* Article S5, Section IV.

[11] *Id.* S5.389A.

[12] *Id.* S5.389C & S5.389D.

[13] *See, 2 GHz MSS Allocation Order,* 12 FCC Rcd at 7393-95 ¶¶ 10-15 (international allocation of portions of the 2 GHz frequency band for mobile satellite service links adopted for use in the United States); *Second Report and Order and Second Memorandum Opinion and Order*, 15 FCC Rcd 12,315 (2000), *recon. pending* ("*Second Report and order and Second Memorandum Opinion and Order*"). The 1980-1990 MHz portion of the international 2 GHz MSS allocation was allocated for domestic terrestrial mobile service use by Personal Communications Services (PCS) in 1994. *PCS Allocation Order*, 9 FCC Rcd 4957.

[14] Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, IB Docket No. 99-81, *Report and Order*, 15 FCC Rcd 16,127 (2000) ("*2 GHz Service Rules Order*"), *recon. pending*. Six of (continued....)

systems are expected to provide mobile voice, data, Internet, and other services to consumers around the world. In the *2 GHz Service Rules Order*, the Commission adopted a band arrangement that can accommodate initially the multiple and technically-diverse systems that have requested authorization. Each authorized system received an equal share of the available frequencies. Because there is not sufficient spectrum to award to each applicant the full amount of spectrum that it has indicated its proposed system requires, the Commission stated in the *2 GHz Service Rules Order* that operational systems could aggregate spectrum assignments "by reaching agreement for sharing of those assignments among themselves."[15] Not all proposed systems can share the same spectrum due to the modulation schemes proposed. A licensee will select the specific frequencies in which its primary service operations will take place at the time it has launched one satellite into its intended orbit.[16] In addition, because there are a number of incumbent terrestrial services in the 2 GHz MSS band, each authorized system will have flexibility to operate at other frequencies in the band.[17] The Commission also reserved additional spectrum for system expansion by operators meeting certain criteria for service to unserved areas.[18]

9. On July 17, 2001, the International Bureau authorized Boeing, Celsat, Constellation, Globalstar, ICO, Iridium, MCHI, and TMI to provide 2 GHz MSS in the United States, subject to satisfaction of certain milestones.[19] Our milestone rules are intended to ensure the speedy delivery of service to the public and to prevent warehousing of spectrum. These milestone

(Continued from previous page)
the applicants were U.S. entities seeking licenses and two were foreign entities seeking authorization to use the spectrum for their foreign-licensed systems. The domestic applicants were The Boeing Company ("Boeing"), Celsat America, Inc. ("Celsat"), Constellation Communications, Inc. ("Constellation"), Globalstar, L.P. ("Globalstar"), Iridium LLC ("Iridium"), and Mobile Communications Holdings, Inc. ("MCHI"). The foreign applicants were TMI and ICO Services Limited. The ninth applicant, Inmarsat Horizons, withdrew its application in November 2000.

[15] *Id.* at 16,140-41 ¶ 22.

[16] *Id.* at 16,138 ¶ 16.

[17] *Id.* at 16,139-40 ¶¶ 19-21. Operations at frequencies outside of an MSS operator's selected frequency assignment cannot cause harmful interference to other assigned satellite networks or incumbent terrestrial services.

[18] *Id.* at 16,145-47 ¶¶ 33-39. We note that we are considering certain changes to these licensing and service rules in a companion proceeding on advanced wireless services. *See Advanced Wireless Services FNPRM* at ¶¶ 21.

[19] *See* The Boeing Company, *Order and Authorization*, DA 01-1631 (Int'l Bur., rel. July 17, 2001); Celsat America, Inc., *Order and Authorization*, DA 01-1632 (Int'l Bur., rel. July 17, 2001); Constellation Communications Holdings, Inc., *Order and Authorization*, DA 01-1633 (Int'l Bur./OET, rel. July 17, 2001); Globalstar, L.P., *Order and Authorization*, DA 01-1634 (Int'l Bur./OET, rel. July 17, 2001); ICO Services Limited, *Order*, DA 01-1635 (Int'l Bur./OET, rel. July 17, 2001); Iridium LLC, *Order and Authorization*, DA 01-1636 (Int'l Bur., rel. July 17, 2001); Mobile Communications Holdings, Inc., *Order and Authorization*, DA 01-1637 (Int'l Bur./OET, rel. July 17, 2001); TMI Communications and Company, *Order*, DA 01-1638 (Int'l Bur., rel. July 17, 2001). Pursuant to the 2 GHz Service Rules Order, these authorizations provide each system access to "Selected Assignments" of 3.5 megahertz of spectrum in each of the 1990-2025 MHz and 2165-2200 MHz bands. The International Bureau delayed full implementation of the *2 GHz Service Rules Order* with regard to an incremental .38 megahertz of spectrum per licensee in each band, pending Commission consideration of various pending proposals related to the 2 GHz frequencies, including ICO's proposal described herein.

deadlines began to run on the authorization date, July 17, 2001. Specifically, non-geostationary satellite orbit ("NGSO") MSS operators must enter into a non-contingent satellite manufacturing contract within one year of authorization, complete critical design review ("CDR") within two years of authorization, begin physical construction of all satellites in the system within two-and-a-half years of authorization, and complete construction and launch of the first two satellites within three-and-a-half years of authorization.[20] The entire system must be launched and operational within six years of authorization.[21] Geostationary orbit ("GSO") operators must enter a non-contingent satellite manufacturing contract within one year, complete CDR within two years, begin physical construction of all the GSO satellites in the system within three years, and complete construction of one satellite in the constellation and launch it into its assigned orbital location within five years of authorization.[22] Hybrid GSO-NGSO satellite systems must follow GSO milestones for the GSO portion of their systems as well as NGSO milestones for the NGSO portion of their systems.[23]

2. *ICO Proposal*

10. ICO requests that we amend the 2 GHz MSS service rules to allow authorized MSS operators in that band to re-use their assigned frequencies on terrestrial base stations on an ancillary basis.[24] The 2 GHz frequency bands at issue are at 1990-2025 MHz and 2165-2200 MHz. ICO contends that adding a terrestrial component to MSS networks would bolster the commercial viability of MSS systems by allowing MSS operators to extend service to indoor and urban areas that otherwise would remain unserved by a satellite-only MSS network.[25] ICO asserts that terrestrial base stations would be used in areas where satellite-only coverage is inadequate and would be located on towers, rooftops or High Altitude Long Endurance ("HALE") platforms. ICO also indicates that it is exploring the use of low power license exempt wireless technology such as Bluetooth or IEEE 802.11, which could allow a whole range of consumer devices – standard terrestrial phones, personal digital assistants, or laptop computers – to communicate with a satellite transceiver that houses the antennas, amplifiers, and other electronics unique and specific to the satellite link. ICO believes that such a solution might, in some cases, make MSS handsets more consumer-friendly and affordable. ICO emphasizes, however, that low power license exempt technology would be only a partial solution and that more complete ancillary terrestrial operations are necessary to account for coverage problems due to urban canyons and other obstacles. ICO claims that expanding the MSS customer base to urban areas would in turn enable the MSS industry to offer lower prices and higher quality of

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20 *2 GHz Service Rules Order*, 15 FCC Rcd at 16,177 ¶ 106.

21 *Id.* at 16,178 ¶ 106.

22 *Id.* at 16,177 ¶ 106.

23 *Id.*

24 *See* ICO Letter.

25 *Id.* at 1-2.

service to rural, underserved, aeronautical, and maritime markets, which are most efficiently served by MSS networks.[26]

11. In its proposal, ICO has described plans for integrating an MSS network with terrestrial components, including four possible architectures, frequency plans, and associated calculations to mitigate interference with adjacent users. Under these suggested network approaches, it appears that the MSS operator would assign separate channels to the terrestrial and satellite portions of the network to meet traffic demands and that a call could originate and terminate on one part of the network (*e.g.*, terrestrial) without being carried on the other part of the network (*e.g.*, satellite). ICO asserts that any 2 GHz MSS operator could integrate terrestrial components with any of the possible "selected assignment" bandwidths that might result from the Commission's 2 GHz MSS licensing plan. ICO further asserts that its proposal could be implemented without harmful interference to other MSS band users or to adjacent band users. ICO proposes that the Commission allow the proposed terrestrial stations only after commercial operation of the satellite constellation has commenced to ensure that the terrestrial use is truly part of the satellite network. ICO asserts that the terrestrial component of its service would not compete directly with existing terrestrial wireless networks in urban markets. It maintains that its focus will be on the provision of global services and coverage of now underserved and unserved areas.

B. The L-Band

1. *Current Allocation and Service Rules*

12. In 1986, the Commission allocated the 1549.5-1558.5 MHz and 1651-1660 MHz bands (the "upper L-band") for MSS including the aeronautical mobile-satellite (R) service ("AMS(R)S").[27] The Commission also allocated 1545-1549.5 MHz and 1646.5-1651 MHz on a

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[26] ICO Supplemental Letter at 1.

[27] Amendment of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service, GEN Docket No. 84-1234, *Report and Order*, 2 FCC Rcd 1825, 1844-45 ¶¶ 152-56 (1986). AMS(R)S is a mobile satellite service using mobile terminals on board aircraft. This service can be used to support domestic and international traffic, including air traffic control. The (R) indicates that the spectrum is used for aeronautical communications related to the safety and regularity of flights primarily along national and international civil air routes. The Commission also adopted footnote US308 to the Table of Frequency Allocations, which states: "In the frequency bands 1549.5-1558.5 MHz and 1651-1660 MHz, the Aeronautical Mobile- Satellite (R) requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile-satellite service. Systems not interoperable with the aeronautical mobile-satellite (R) service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the mobile-satellite service." 47 C.F.R. § 2.106 US308. In addition, we note that footnote US 309 expressly provides that "[t]ransmissions in the bands 1545-1559 MHz from terrestrial aeronautical stations directly to aircraft stations, or between aircraft stations . . . are also authorized when such transmissions are used to extend or supplement the satellite to aircraft links. Transmissions in the band 1646.5-1660.5 MHz from aircraft stations . . . directly to terrestrial aeronautical stations, or between aircraft stations, are also authorized when such transmissions are used to extend or supplement the aircraft-to-satellite links." 47 C.F.R. § 2.106 US309.

primary basis to AMS(R)S and on a secondary basis to MSS. In developing licensing rules for this service, the Commission concluded that the spectrum available in the upper L-band could support only one U.S. space station licensee and directed that the license be held by a consortium of qualified applicants.[28] As a result, eight applicants eventually formed Motient, initially known as American Mobile Satellite Corporation (AMSC), and submitted a joint technical proposal and operating agreement to the Commission in 1988. In 1989, the Commission issued a license to Motient to construct, launch, and operate a three-satellite GSO MSS system in the upper L-band, subject to international satellite network coordination.[29] Motient currently operates one satellite, which was launched in 1995.[30] Today, Motient offers land, maritime, and aeronautical MSS services, including voice and data, to the United States, including coastal areas.[31]

13. Four other non-U.S.-licensed satellite operators provide service in the L-band in the North America coverage area.[32] In 1996, after seven years of negotiations, the five L-band satellite operators recognized that they would not be able to reach a long-term coordination agreement that would accommodate their business plans.[33] Their respective administrations (the United States, Canada, Mexico, Russia, and Inmarsat)[34] developed and agreed upon a framework to facilitate annual and dynamic spectrum assignment agreements among the operators.[35] The operators signed a one-year agreement, to be revisited annually, that provided each system with

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[28] Amendment of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services, GEN Docket No. 84-1234, *Second Report and Order*, 2 FCC Rcd 485 (1987).

[29] Amendment of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services, GEN Docket 84-1234, *Memorandum Opinion, Order and Authorization*, 4 FCC Rcd 6041 (1989); 7 FCC Rcd 266 (1992) (remand decision); *aff'd sub nom. Aeronautical Radio, Inc. v. FCC*, 983 F.2d 275 (D.C. Cir. 1993).

[30] Motient Application at 3.

[31] *Id.*

[32] The four operators aside from Motient are MSAT, a Canadian-licensed operator; Solidaridad, a Mexican-licensed operator; TM Sat, a Russian-licensed operator; and Inmarsat Ltd., a United Kingdom operator.

[33] In accordance with the provisions of the ITU Radio Regulations, operators of satellite systems are required to coordinate their spectrum use to prevent interference to, and to receive protection from, other systems. *See generally* ITU Radio Regulations Article S9.

[34] Inmarsat has since restructured as a private company of the United Kingdom. The United Kingdom has informed the Commission that it is now a party to the Mexico City Agreement (see note 35 *infra*). *See* Letter from Steve Jones, United Kingdom Radiocommunications Agency, to Thomas S. Tycz, Federal Communications Commission (August 18, 1999).

[35] *See* International Action: "FCC Hails Historic Agreement on International Satellite Coordination, "News Release," Report No. IN 96-16 (June 25, 1996) ("Mexico City Agreement").

an amount of spectrum based upon its current and projected near-term traffic requirements.[36] Thus, unlike most international coordinations that create permanent assignments of specific spectrum, the operators' assignments could change from year to year based on their marketplace needs. Each of the five operators received less spectrum than it had requested for its system, and in some cases, less spectrum than it had been authorized to use by its respective administration.

14. The Commission has also allocated the "lower L-band" for MSS. Specifically, the 1530-1544 MHz and 1626.5-1645.5 MHz bands were allocated in 1993, and the 1525-1530 MHz band was allocated in 1995.[37] In 1996, the Commission issued a *Notice of Proposed Rulemaking*, which remains pending, to establish rules and policies for the use of spectrum for MSS in the lower L-band.[38] In that *Notice*, the Commission acknowledged that in the course of international coordination, it became clear that the United States would not be able to secure sufficient spectrum in the upper L-band to support Motient's system.[39] To alleviate this problem, the Commission proposed to modify Motient's authorization to permit it to operate in the lower L-band spectrum coordinated for the U.S. system, without considering competing U.S. lower L-band applications for U.S. space station licenses.[40] In addition, the United States coordinated spectrum in the lower L-band to compensate for some of the spectrum shortfall for the Motient system in the upper L-band.

2. *Motient Proposal*

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36 The agreement governs use of both upper and lower L-band spectrum. By agreement of the operators, the actual amount of spectrum and the frequencies that each party has coordinated and is able to use is confidential.

37 Amendment of Part 2 of the Commission's Rules to Allocate Spectrum for Mobile-Satellite Services in the 1530-1544 MHz and 1626.5-1645.5 MHz Bands, GEN Docket No. 90-56, *First Report and Order and Further Notice of Proposed Rule Making*, 8 FCC Rcd 4246 (1993); Amendment of Part 2 of the Commission's Rules to Allocate Spectrum for Mobile-Satellite Services in the 1530-1544 MHz and 1626.5-1645.5 MHz Bands, GEN Docket No. 90-56, *Second Report and Order*, 10 FCC Rcd 7305 (1995). The MSS allocation in the 1530-1544 and 1626.5-1645.5 MHz band is subject to footnote US315 to the Table of Frequency Allocations, which states that "[i]n the frequency bands 1530-1544 MHz and 1626.5-1645.5 MHz, maritime mobile-satellite distress and safety communications, e.g., GMDSS shall have priority access with real time pre-emptive capability in the mobile-satellite service. Communications of the mobile satellite system not participating in the GMDSS shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety related communications in the mobile-satellite service." 47 C.F.R. § 2.106 US315. GMDSS, or global maritime distress and safety system, is an international maritime organization worldwide coordinated maritime distress system designed to provide the rapid transfer of distress messages from vessels in distress to units best suited for giving or coordinating assistance.

38 Establishing Rules and Policies for the Use of Spectrum for Mobile Satellite Service in the Upper and Lower L-band, IB Docket No. 96-132, *Notice of Proposed Rulemaking*, 11 FCC Rcd 11,675 (1996).

39 *Id.* at 11,680 ¶ 9.

40 *Id.* at 11,680 ¶ 11. The Commission also proposed that if the United States were able to coordinate more than 28 megahertz of spectrum in the upper and/or lower L-bands, other parties would be allowed to apply for assignment of the additional spectrum for U.S. space station licenses. *Id.* at 11,682 ¶ 16.

15. Motient seeks authority to operate terrestrial base stations, as part of Motient's next-generation mobile satellite system in both the upper and lower L-band. The terrestrial base stations would be integrated with the satellite network and would enable co-channel reuse of the satellite service link frequencies in adjacent satellite antenna beams to provide coverage to areas where the satellite signal is attenuated by foliage or terrain and to provide in-building coverage.[41] The terrestrial component would use digital cellular technology and GSM wireless protocol. Motient states that customers using lightweight, handheld mobile terminals would communicate through both the satellite and the base stations. The satellite path would be the preferred communications link, but if the user's satellite path is blocked, the communications link would be sustained via the fill-in base stations. When a user travels between the two coverage areas or between base stations, the network control facility would hand off the user among facilities as required to sustain a continuous communications link.

16. Motient states that the new system would be optimized for basic voice and data wireless services up to 9.6 Kbps and packet data wireless services up to 165.5 Kbps. The base stations would not begin operation until the first satellite is operating. The new system would comply with all of the regulatory and technical requirements currently applicable to MSS L-band systems in the United States, including those requirements relating to emergency communications capabilities including preemptive access for safety communications services, access by law enforcement agencies, and telecommunications access for the disabled.

17. Motient contends that this type of "next-generation" MSS system is necessary to establish the critical mass of customers needed to provide affordable service.[42] Motient believes that the inability of a satellite-only system to offer in-building coverage in urban areas has prevented the MSS industry from achieving its potential success as a provider of competitive services to all areas, including rural and underserved areas.

18. Twelve parties have filed comments in response to Motient's application, of which seven address Motient's terrestrial component proposal.[43] One party, ICO, supports the proposal.[44] Six parties oppose the proposal. Those opposing Motient's proposal principally

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[41] Under Motient's proposal, the satellite service links will be at 1626.5-1660.5 MHz (Earth-to-space) and 1525-1559 MHz (space-to-Earth). Satellite feeder links will be at 12.75-13.25 GHz (Earth-to-space) and 10.75-10.95, 11.20-11.45 GHz (space-to-Earth). Mobile terminals would transmit at 1626.5-1660.5 MHz and receive at 1525-1559 MHz. Motient Application at 8-9.

[42] *Id.* at 12-13.

[43] *See* Opposition of Sprint Corporation, File No. SAT-ASG-20010302-00017 (April 18, 2001); Comments of the Cellular Telecommunications and Internet Association, File No. SAT-ASG-20010302-00017 (April 18, 2001); Opposition of Verizon Wireless, File No. SAT-ASG-20010302-00017 (April 18, 2001); Petition to Deny in Part of Aeronautical Radio, Inc, File No. SAT-ASG-20010302-00017 (April 18, 2001); Partial Petition to Deny of Inmarsat Ventures PLC, File No. SAT-ASG-20010302-00017 (April 18, 2001); Comments of AT&T Wireless Services, Inc., File No. SAT-ASG-20010302-00017 (April 18, 2001); Opposition of Cingular Wireless LLC, File No. SAT-ASG-20010302-00017 (April 18, 2001).

[44] Comments of New ICO Global Communications (Holdings) LTD., File No. SAT-ASG-20010302-00017 (April 18, 2001).

argue that: (1) Motient's proposal cannot be granted by waiver, but rather must involve a rulemaking;[45] (2) permitting Motient to provide terrestrial services without obtaining a license at auction would give Motient an unfair competitive advantage over terrestrial wireless service providers;[46] and (3) the Commission should consider reallocating Motient's spectrum for terrestrial use and auction the spectrum.[47] We agree that a rulemaking considering Motient's proposal is the most appropriate method for addressing these issues. Accordingly, we intend to address Motient's proposal relating to the provision of terrestrial services in the context of this rulemaking rather than in the context of Motient's and TMI's merger application.

C. The Big LEO Bands

19. At the 1992 World Administrative Radio Conference, the 1610-1626.5 MHz band was allocated on a co-primary basis with other radio services for MSS operations in the Earth-to-space direction, and the 2483.5-2500 MHz band was allocated on a co-primary basis for MSS operations in the space-to-Earth direction (the "Big LEO" bands). The 1613.8-1626.5 MHz band was also allocated, on a secondary basis, for MSS operations in the space-to-Earth direction. The Commission adopted conforming changes to the U.S. frequency allocation table in December 1993.[48]

20. In 1994, the Commission issued rules for the Big LEO service.[49] The Commission designated the 1621.35-1626.5 MHz band for time division multiple access/frequency division multiple access (TDMA/FDMA) operations and the 1610-1621.35 MHz and 2483.5-2500 MHz bands for code division multiple access (CDMA) operations. The Commission concluded the basic plan could accommodate four CDMA systems and one TDMA/FDMA system. CDMA systems are capable of sharing use of the same frequencies, but TDMA/FDMA systems require separate dedicated frequencies. The Commission's rules required that applicants propose a NGSO system capable of serving all areas of the fifty United States, Puerto Rico, and the U.S. Virgin Islands continuously, and in all areas of the world as far north as 70 degrees latitude, and as far south as 55 degrees latitude, for 75 percent of the day.

21. Originally, six applicants applied for MSS licenses in the 1610-1626.5/2483.5-2500 MHz bands, including Loral/Qualcomm Partnership, L.P. (the "Globalstar" system), Motorola, Inc. (the "Iridium" system), TRW Inc. (the "Odyssey" system), Constellation Communications,

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45 *See, e.g.*, Sprint Corporation Opposition at 4; Opposition of Verizon Wireless at 4.

46 *See, e.g.*, Comments of the Cellular Telecommunications and Internet Association at 3-5.

47 *See, e.g.*, Comments of AT&T Wireless Services, Inc. at 15; Opposition of Cingular Wireless LLC at 9.

48 Amendment of Section 2.106 of the Commission's Rules to Allocate the 1610-1626.5 MHz and the 2483.5-2500 MHz Bands for Use by the Mobile-Satellite Service, Including Non-Geostationary Satellites, ET Docket No. 92-28, *Report and Order*, 9 FCC Rcd 536 (1993).

49 Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, CC Docket No. 92-166, *Report and Order*, 9 FCC Rcd 5936 (1994); *on reconsideration, Memorandum Opinion and Order*, 11 FCC Rcd 12,861 (1996).

Inc. (the "Aries" system), Mobile Communications Holdings, Inc. (the "Ellipso" system), and AMSC. Each of the applicants received a Big LEO license, except for AMSC because it proposed a GSO satellite system. TRW subsequently notified the Commission that it would no longer pursue its Odyssey system and asked that its authorization be cancelled.[50] MCHI's license was recently declared null and void for failing to meet construction milestones.[51] Therefore, three licensed MSS systems remain in the Big LEO bands: Globalstar and Aries in the CDMA portion of the bands, and Iridium in the TDMA portion of the bands. The Aries system is licensed but not yet operational. Globalstar is operational and currently providing commercial service. Under new management after emerging from bankruptcy proceedings, Iridium re-entered the global telephone market in March 2001 with niche marketing plans for maritime, aviation, oil and gas, mining, construction, forestry, government and military users in remote areas.[52]

II. DISCUSSION

A. Scope of *Notice*

22. This *Notice* seeks comment on whether we should permit MSS licensees in the 2 GHz and L-bands flexibility to use terrestrial operations in conjunction with their satellite services on an ancillary basis. We seek comment on a specific proposal intended to implement the two requests currently before us. The specific proposal would be limited to authorized MSS providers in the 2 GHz and L-bands that seek authorization to use ancillary terrestrial operations. We also, in a separate section of this *Notice*, seek comment on an alternative proposal that would allow any entity to use the MSS spectrum at issue to provide a terrestrial service either in conjunction with MSS operations, or as an alternative mobile service, which most likely would require licensing using the Commission's competitive bidding procedures. Finally, we seek comment on whether we should also consider permitting MSS operators in the Big LEO bands to provide terrestrial services in these bands, in light of the similarity between these systems and MSS operations in the 2 GHz MSS bands, and, if so, whether the preliminary approach we outline for terrestrial operations in the 2 GHz band could be tailored to the Big LEO bands.

B. Need for Flexibility by MSS Operators

23. We are committed to policies promoting the provision of broadband communications services to rural, unserved and underserved areas of the country. MSS systems continue to offer the potential to achieve this goal. ICO and Motient have proposed that MSS licensees should be

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50 Public Notice, Report No. SPB-114, at 3 (rel. January 15, 1998).

51 Mobile Communications Holdings, Inc., *Memorandum Opinion and Order*, DA 01-1315 (rel. May 31, 2001).

52 *Iridium Hopes New Data Service Will Boost Revenue*, Mobile Communications Report, Volume 15, Issue 12, 2001 WL 8134906 (June 11, 2001).

permitted to offer ancillary terrestrial services to overcome apparent technical difficulties in achieving signal penetration in urban areas and inside buildings, and related difficulties in achieving economies of scale for equipment and service pricing. However, these proposals implicate two very different licensing regimes for satellite and wireless services.

24. Some participants in the MSS industry have experienced difficulties in establishing commercially successful systems.[53] ICO and Motient argue that the inability to build a customer base in densely populated areas is the main reason why the promise of MSS has not been realized.[54] They claim that a major limitation of a satellite-only system is that satellite signal is usually too weak to penetrate buildings. Motient and ICO assert that, because MSS handsets generally are not operational inside buildings or even on city streets surrounded by buildings, the demand for MSS in urban areas is weakened. They contend that the weak demand for MSS phones prevents MSS providers from achieving the economies of scale necessary to reduce handset manufacturing costs.[55] ICO states that, in a cycle difficult to reverse, the higher equipment prices further dampen system-wide demand. ICO maintains that, without the opportunity to expand the MSS customer base, the future of this service is in "dire jeopardy."[56] ICO and Motient assert that increasing the number of potential users would enable MSS licensees in the 2 GHz and L-bands to become viable enterprises and to "preserve the promise of MSS" to deliver important public interest benefits to rural and underserved areas.[57] According to ICO, "MSS service must be extended to all, or it will be available to none."[58]

25. We seek comment on the premise offered by ICO and Motient that allowing terrestrial operations in conjunction with 2 GHz and L-band MSS networks is important to assure the commercial viability of MSS systems and to promote the Commission's goal of bringing access to advanced communications services to rural and underserved areas of the country. To what degree would permitting MSS operators to use terrestrial stations increase the consumer demand for their services, and how substantially would prices be affected? Further, would authorizing appropriate terrestrial operations lead to use of the spectrum that is more efficient from a technical and economic point of view? Would it be consistent with the Commission's general policy goal of granting licensees technical, operational, and service flexibility?[59] In this

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53 *See* Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Sixth Report,* FCC 01-192, 35-38 (rel. July 15, 2001).

54 ICO Letter at 5-6; Motient Application at 12-13.

55 *See* ICO Letter at 5.

56 *Id.* at 1.

57 ICO Letter at 1, 5-6; Motient Application at 12-13.

58 ICO Letter at 6.

59 *See, e.g.,* Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium, *Policy Statement*, 14 FCC Rcd 19,868 (1999); Principles for Promoting the Efficient Use of Spectrum by Encouraging the Development of Secondary Markets, *Policy Statement*, 15 FCC Rcd 24,178 (2000).

regard, Section 303(y) of the Communications Act gives the Commission authority to provide flexible use of spectrum under certain specified conditions.[60] We seek comment on whether providing for flexible use of MSS spectrum is consistent with the elements of Section 303(y).

26. We seek comment on the severity of the signal problems that underlie the ICO and Motient proposals. ICO, for instance, maintains that "MSS handsets generally do not work indoors . . ."[61] Is this true primarily for large industrial, commercial and office buildings found mainly in urban areas, or is it also true for smaller buildings located throughout the country? If MSS terrestrial operations were confined to large urban areas, to what extent would indoor service problems in other areas limit the market for MSS service there? And if terrestrial operations were widespread, would the resulting communications offered by MSS operators become primarily terrestrial based rather than satellite based? We seek comment on the comparative abilities of terrestrial CMRS systems (both existing and planned) and hybrid MSS systems to serve rural and unserved areas, and how we might quantify the differences. Furthermore, we seek comment on how service to rural and unserved areas will be provided otherwise if MSS operators cannot achieve commercial viability. We request specific information and data that demonstrates existing and planned coverage by terrestrial land mobile systems of rural, remote and unserved areas. How will planned terrestrial coverage compare with current plans for satellite buildout, including the ICO system, which has just launched a satellite and is currently constructing its system?

27. We believe that we should obtain comment on alternative arrangements with terrestrial CMRS providers that would give MSS operators urban and in-building coverage. For example, could MSS operators rely on commercial arrangements with terrestrial CMRS service providers, as Celsat has proposed to do,[62] to extend coverage to urban areas and to penetrate buildings? What are the competitive implications of permitting MSS operators to provide terrestrial services directly, especially in areas where terrestrial wireless services are available? What effect would the need to negotiate commercial arrangements with terrestrial CMRS service providers have on the cost to MSS operators and ultimately to final customers and what effect would that have on the viability of the proposed service? How would such options affect MSS operators' ability to obtain possible economies of scale in terms of their service offerings and in handset manufacturing? Can any such possible economies of scale only be achieved through integration of terrestrial and satellite service offerings using the same MSS frequencies? What effect would the alternative of manufacturing and using integrated MSS and terrestrial CMRS

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60 Section 303(y) grants "authority to allocate electromagnetic spectrum so as to provide flexibility of use, if— (1) such use is consistent with international agreements to which the United States is a party; and (2) the Commission finds, after notice and an opportunity for public comment, that— (A) such an allocation would be in the public interest; (B) such use would not deter investment in communications services and systems, or technology development; and (C) such use would not result in harmful interference among users." 47 U.S.C. § 303(y).

61 ICO Letter at 5.

62 *See* Letter to Magalie Roman Salas, Secretary, Federal Communications Commission from Brian Weimer, Skadden, Arps, Slate, Meagher & Flom LLP (December 9, 1999).

handsets have on the size, weight and complexity of handsets, and what effect would that have on consumer demand for such devices?[63]

28. As noted above, in the companion *Further Notice of Proposed Rulemaking* on new advanced wireless services, we are seeking comment on the possible reallocation of some amount of MSS spectrum to alternative services such as advanced wireless services. With this proceeding in mind, should we view the ICO and Motient proposals as indicating that too much spectrum has been allocated for MSS? Would using this spectrum for terrestrial service in urban areas diminish spectrum capacity for satellite service to rural and unserved areas? Does the technology exist to provide this integrated service? Would it be in the public interest to adopt a segmentation plan wherein separated bands for terrestrial services would be identified and available for licensing to a larger group of parties, for example, through an auctions process? Are technological advances likely to occur in the next few years that will change the nature of the sharing relationship between terrestrial and satellite services in the near future?

C. Proposals to Provide Flexibility to MSS Operators in the 2 GHz and L-Bands

1. *Permitting MSS Operators to Provide Ancillary Terrestrial Services Using Assigned MSS Spectrum*

29. Taking the above issues into consideration, we seek comment on a proposal that, if adopted, would permit ancillary terrestrial operations in the manner proposed by ICO and Motient. Both ICO and Motient essentially request that they be authorized to construct a network with both satellite and terrestrial facilities operating on the same frequencies and to transmit traffic on either portion of the network, as needed, to provide service. Under this proposal, we would authorize ancillary terrestrial operations only to MSS operators in the 2 GHz and L-bands that requested reuse of assigned frequencies in conjunction with their provision of MSS.

30. In this *Notice*, we intend the term "ancillary" terrestrial services to refer strictly to services provided by MSS operators that are integrated with the satellite network, use assigned MSS frequencies, and are provided for the purpose of augmenting signals in areas where the principal service signal, the satellite signal, is attenuated. We expect the character of such services to remain the same whether provided by satellite or terrestrially. We note that the Commission at times uses the term "ancillary" to refer to the use of spectrum or facilities to provide services of a nature different from the service ordinarily offered over the facilities, for example, as the Commission has used the term "ancillary" to describe "subscription television programming, computer software distribution, data transmissions, teletext, interactive services, [and] audio signals... " in the context of additional services that may be provided by Digital Television licensees.[64] We do not intend that the term "ancillary" in the context of this *Notice*

[63] *See id.* (one of the impediments to the success of the MSS industry has been that the handsets were large and expensive).

[64] *See* Advanced Television System and Their Impact upon the Existing Television Broadcast Service, *Fifth Report and Order*, 12 FCC Rcd 12,809, 12,821 ¶ 29 (1991); 47 C.F.R. § 73.624(c).

refer to services that differ materially in nature or character from the principal services offered by MSS providers. We seek comment on our use of the term "ancillary" in this context.

31. The specific proposal, which is detailed in a separate section below, includes the following general components:

32. ***Conditions on the Use of Terrestrial Components to Ensure Ancillary Operation.*** To ensure ancillary operation, under this approach, we would authorize an MSS operator to provide services using terrestrial stations only after the MSS operator demonstrates that it can provide space segment service covering all 50 states, Puerto Rico, and the U.S. Virgin Islands 100% of the time, consistent with the coverage requirements for 2 GHz MSS operators. For the L-band, we would impose an analogous restriction, with the understanding that an L-band operator could seek an exception if it is not technically possible for the L-band MSS operator to meet the coverage criteria from its orbital position. We would require the L-band operator to demonstrate that it can provide the space segment service across its entire satellite coverage area. We also would consider standards for ensuring that the MSS operator maintains coverage if, for example, a satellite fails, and whether there should be requirements that the MSS operator demonstrate the commercial availability of its MSS service, and whether we should limit terrestrial operations to the precise frequencies that the operator is assigned as a result of the MSS licensing process. We seek comment on these potential restrictions, which, we note, would minimize the flexibility of the use of the spectrum. What public interest objectives would such restrictions further and how long should they be effective? Should these restrictions sunset after a certain number of years? (See paragraphs 41-49 below.)

33. ***Licensing Requirements.*** For U.S. licensees, we would under this approach authorize ancillary terrestrial service by modifying the U.S. licensee's space station license to permit such operations, upon the request of a licensee that demonstrates it has met the conditions for such operations. For non-U.S. licensed systems, we would expressly provide for such services in the Declaratory Orders issued to reserve spectrum for foreign-licensed MSS systems or require foreign-licensed operators to file a blanket earth station application that incorporates the terrestrial component as part of the application, and then the Commission could include with the earth station license authority to operate the terrestrial component. We seek comment on this and any alternative licensing schemes. (See paragraphs 50-53 below.)

34. ***Technical Issues.*** Permitting reuse of MSS spectrum for terrestrial services will require protection of adjacent channel and intraband operations, restrictions on tower heights and transmit powers, and frequency stability.[65] If we adopt the flexible use proposed for MSS spectrum, we propose modeling technical rules on the rules currently in place for broadband PCS. With respect to the L-band, we would extend special requirements currently in place with respect to the Global Maritime Distress and Safety System, AMS(R)S, and the Global Positioning System to any terrestrial component operated by an L-band MSS operator. We seek comment on this proposal. (See paragraphs 54-68 below.)

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[65] *See* 47 C.F.R. § 24.200 *et seq.*

35. ***Modifications to the Table of Allocations.*** We would, under this approach, add a footnote, or in the case of the L-band amend footnote US309, to the Table of Allocations to clarify that MSS providers operating in the relevant bands may also operate an ancillary terrestrial component reusing the assigned bands. We seek comment on this and any alternative or other necessary changes to the Table of Allocations. (See paragraphs 69-71 below.)

36. ***Impact on Existing Relocation and Reimbursement Rules.*** Finally, we seek comment on whether the current rules in place for relocation of incumbent 2 GHz operations would continue to be sufficient to address the concerns of incumbents if MSS operators are permitted to build out terrestrial components. (See paragraphs 72-76 below.)

2. *Permitting Alternative Terrestrial Services in the 2 GHz and L-Bands*

37. As an alternative to authorizing only MSS operators to reuse MSS spectrum on an ancillary basis for terrestrial operations, we seek comment on making some MSS spectrum available for use by any entity to provide terrestrial services either in conjunction with MSS systems or as an alternative mobile service. Under this approach, portions of the spectrum currently designated for 2 GHz and L-band MSS would be made available for use by terrestrial operations, separated from the MSS operations in the bands, and possibly assigned through the process prescribed for instances in which the Commission receives multiple, mutually exclusive applications – specifically, by auction. As noted above, this proposal is subject to findings we make from our companion *Further Notice of Proposed Rulemaking* on advanced wireless services.

38. We seek comment on how such an identification and assignment process might work from the perspective of the MSS operators and of others interested in providing terrestrial services in this spectrum. In this respect, we note that Section 309(j) of the Communications Act provides that if mutually exclusive applications are accepted for any initial license or construction permit, then the Commission shall grant the licenses or permits to qualified applicants through competitive bidding unless certain specific statutory exemptions apply.[66] In a *Report and Order and Further Notice of Proposed Rule Making*, the Commission established a framework for exercise of its auction authority, as amended by the Balanced Budget Act of 1997.[67] The *Report and Order* affirmed that in identifying which classes of licenses should be subject to competitive bidding, the Commission is required to pursue the public interest objectives set forth in Section 309(j)(3).[68] The *Report and Order* also affirmed that, as part of this public interest analysis, the Commission must continue to consider alternative procedures

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[66] *See* 47 U.S.C. § 309(j)(1), (2) (as amended by Balanced Budget Act of 1997, § 3002).

[67] *See* Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, WT Docket No. 99-87, *Report and Order and Further Notice of Proposed Rule Making*, 15 FCC Rcd 22,709 (2000).

[68] *Id.* at 22,718-23 ¶¶ 20-27.

that avoid or reduce the likelihood of mutual exclusivity.[69] The Commission concluded, however, that its obligation to avoid mutual exclusivity does not preclude it from adopting licensing processes in the non-exempt services that result in the filing of mutually exclusive applications where it determines that such an approach would serve the public interest.[70]

39. We also note that Section 647 of the Open-Market Reorganization for the Betterment of International Telecommunications Act (the "ORBIT Act") prohibits the Commission from assigning by competitive bidding spectrum or orbital locations used for the provision of international or global satellite communications services.[71] If we were to determine in this proceeding to permit provision of terrestrial services in the 2 GHz and L band spectrum, but limit such authority only to MSS operators providing such service on an ancillary basis, our obligation to use competitive bidding under Section 309(j) would not appear to be implicated, in part because terrestrial rights would be linked to pre-existing MSS authorizations and operations. Under such circumstances there would not be mutually exclusive applications triggering the competitive bidding provisions of Section 309(j). We seek comment on this observation. If, on the other hand, we were to adopt an alternative proposal, permitting the provision of terrestrial service separate from pre-existing MSS authorizations, we believe the public interest would favor the adoption of a licensing scheme under which applications to provide such service may be filed. The filing of those applications could create mutual exclusivity which would trigger the competitive bidding provisions of Section 309(j).[72] We thus seek comment on authorizing terrestrial service separate from MSS authorizations and providing flexible terrestrial use not ancillary to MSS operations. Commenters should address how Section 309(j) and the ORBIT Act effect such a licensing scheme, and whether such an approach would better serve the public interest. Commenters should also address whether the recent decision of the U.S. Court of Appeals for the D.C. Circuit in *National Public Radio, Inc. vs. Federal Communications Commission*[73] is in any respect applicable to the ORBIT Act exemption from competitive bidding and the issues raised in this proceeding.

40. In addressing the Section 309(j) implications, commenters should discuss whether allowing ancillary terrestrial use of MSS spectrum would be consistent with the objectives of

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69 *Id.*

70 *Id.* We note that subsequent to the adoption of the Balanced Budget Act, the U.S. Court of Appeals for the D.C. Circuit concluded that the Section 309(j)(6)(E) obligation does not foreclose new licensing schemes that are likely to result in mutual exclusivity. The Court stated that if the Commission finds such schemes to be in the public interest, it may implement them "without regard to [S]ection 309(j)(6)(E) which imposes an obligation only to minimize mutual exclusivity 'in the public interest,' and 'within the framework of existing policies." *See Benkelman Telephone Co., et al. v. FCC*, 220 F.3d 601, 606 (D.C. Cir. 2000).

71 Pub. L. No.106-180, 114 Stat. 48 (enacted March 12, 2000) ("the ORBIT Act").

72 For example an MSS operator may participate in competitive bidding to receive a license to provide terrestrial service. *See* TRW INC., Request for Waiver of the Commission's Rules to provide Fixed Satellite Service in the 39 GHz Band, *Memorandum, Opinion and Order,* 16 FCC Rcd 5198 (WTB, 2001).

73 *National Public Radio v. Federal Communications Commission*, 354 F.3d 226 (D.C. Cir. 2001).

Section 309(j)(3).[74] In particular, would providing for ancillary terrestrial operations for an international satellite communications service be consistent with treatment of other auction-exempt services? For example, we note that for advanced television services, Congress allowed flexible use of the broadcast spectrum and permitted licensees to offer ancillary or supplemental services as may be consistent with the public interest, convenience and necessity.[75] However, Congress also required that if the Commission were to permit a licensee to offer ancillary or supplementary services for a fee or in return for compensation, it should establish a system of fees to be paid by the licensee. Congress further specified that such fees should recover for the public an amount that, to the extent feasible, equals the amount that would have been recovered had such service been licensed pursuant to the provisions of Section 309(j) and avoid unjust enrichment through the method employed to permit such uses of that resource.[76] Absent legislation, we likely do not have authority to assess similar fees in this context. We seek comment on the comparison and ask what implications the ORBIT Act auction exemption has on our ability to grant flexibility to MSS authorized providers to use the spectrum for ancillary terrestrial services that may not otherwise be subject to the exemption.

D. Specific Proposals for Permitting Ancillary Terrestrial Services in the 2 GHz and L-Bands

1. *Conditions on Use of Terrestrial Components*

41. In the event we allow terrestrial operations in the 2 GHz and L-bands, we seek comment on the degree to which it is important to ensure, consistent with stated Commission policy, that the principal operations of the MSS licensee remains the provision of satellite service and that terrestrial operations remain ancillary to the satellite service offering to the customers. We seek general comment on how to structure a regulatory framework that would achieve this result. Parties should address whether the terrestrial services, as envisioned in ICO and Motient proposals, would be truly ancillary to satellite service offerings and otherwise would be consistent with Commission precedent permitting ancillary service offerings.[77] We request comment on conditions that might be imposed that would achieve this objective but also comport with the Commission's general goals of encouraging flexibility of spectrum usage and service to rural and underserved areas.

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[74] 47 U.S.C. § 309(j)(3).

[75] 47 U.S.C. § 336.

[76] 47 U.S.C. § 336(e). *See also* Fees for Ancillary or Supplementary Use of Digital Television Spectrum Pursuant to Section 336(e)(1) of the Telecommunications Act of 1996, MM Docket No. 97-247, *Memorandum, Opinion and Order*, 14 FCC Rcd 19,931 (1999).

[77] *See, e.g.*, Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, IB Docket No. 95-91, GEN Docket No. 90-357, *Report and Order, Memorandum Opinion and Order*, and Further Notice of Proposed Rulemaking, 12 FCC Rcd 5754, 5810 ¶ 138 (1997) ("*DARS Order*").

42. With respect to 2 GHz MSS operators, we seek comment on whether commercial operation of terrestrial facilities should not be permitted until the MSS system can provide space segment service covering 100 percent of the United States that is available 100 percent of the time. This coverage requirement would be consistent with our current minimum coverage requirements for 2 GHz MSS.[78] Specifically, we seek comment on requiring that, before a 2 GHz MSS operator may initiate service that incorporates terrestrial services, the system must provide MSS on a continuous basis throughout the 50 states, Puerto Rico and the U.S. Virgin Islands and that at least one satellite must be visible above the horizon at an elevation angle of at least five degrees at all times within the described geographic areas.

43. With respect to MSS operations in the L-band, we seek comment on the same requirements except that if a GSO MSS operator in the L-band can demonstrate that 100 percent coverage is not possible from the orbit location of the satellite, we would permit commercial operation of terrestrial facilities so long as the MSS service is continually available in all geographic areas the satellite is capable of covering. In those areas where L-band licensees are not able to provide satellite service, but they provide terrestrial service, we seek comment on the extent to which their terrestrial services would affect current and future international satellite coordination agreements, particularly as the L-band is not allocated internationally for terrestrial mobile services.

44. So long as these coverage and service availability requirements continue to be met, we seek comment on whether we should allow an MSS operator to offer ancillary terrestrial service even if some of its authorized satellites are not fully operational. In other words, we seek comment on whether the MSS operator could initiate operation of terrestrial services as soon as its operational satellites cover 100 percent of the United States 100 percent of the time, even if the operator has not yet launched its entire constellation of satellites.

45. We also seek comment on what measures we should take to ensure that an MSS operator maintains sufficient satellite coverage and service availability once it has initiated commercial use of its terrestrial facilities. For example, should we consider revoking an MSS operator's authorization to use terrestrial facilities if its coverage or service availability falls below 100 percent due to a failed satellite and the MSS operator does not replace the satellite within a reasonable time period? If so, what is a reasonable deadline for requiring a satellite to be replaced? In addition, we seek comment on whether we should allow MSS operators to build out and test their terrestrial facilities in advance of fulfilling our coverage conditions. Permitting advance construction and testing of terrestrial components would enable MSS operators to turn on their terrestrial service as soon as they have met their satellite coverage and service availability requirements. Further, we seek comment on whether requiring that MSS operators integrate the terrestrial and satellite operations of their network through one central data switch would ensure that the terrestrial component is ancillary to the satellite component. What functions should such a central data switch perform? How could we monitor buildout of such an

[78] *See* 47 C.F.R. § 25.143(b)(2)(ii) and (iii); *2 GHz Service Rules Order*, 15 FCC Rcd at 16,153 ¶ 56.

integrated system?

46. We further request comment on the frequencies on which we might permit an MSS provider to operate ancillary terrestrial facilities, as further discussed below. The objective of the terrestrial service proposal is to allow MSS operators to use the spectrum now allocated to MSS more efficiently and intensively. ICO states that the advantage of this proposal is that it would not require "a single kilohertz of spectrum that the Commission has not already allocated to MSS" and it would allow MSS operators to utilize frequencies in urban areas "that would otherwise lie fallow."[79] We seek comment on this contention.

47. For the 2 GHz MSS band, we could limit an MSS operator's authority to provide service using terrestrial stations to use of that operator's "selected assignment" or "selected segment" assigned in the MSS licensing process. This limitation would ensure that all MSS licensees have unfettered access to their selected assignment spectrum and reduce issues regarding inter-system sharing. We seek comment on this proposal. On the other hand, we note that our 2 GHz MSS service rules permit a licensee to operate in service links outside its selected assignment, but within the 2 GHz MSS allocation, on a secondary basis with respect to other MSS operators, subject to certain conditions.[80] Technically, it might be possible for a 2 GHz MSS operator to provide ancillary terrestrial service using spectrum outside its selected assignment. We seek comment on whether to permit ancillary terrestrial services outside of a system's selected assignment, but within the 2 GHz MSS allocation. What impact might permitting such secondary terrestrial operations have on interference issues and inter-system sharing? What impact might terrestrial operations outside selected segments have on possible system architectures? Would such operations encumber the space or terrestrial operations of other MSS operators? What effect would one MSS operator's existing ancillary terrestrial services outside its selected assignment on a secondary basis have on another MSS operator's choice of selected assignments? What costs or technical difficulties might be encountered in vacating spectrum used to provide ancillary terrestrial operations on a secondary basis should a subsequent MSS operators select that spectrum as its selected assignment and initiate operations?

48. Under the 2 GHz MSS service rules, assigned MSS spectrum will be considered for redistribution at some later time if an operator does not meet its MSS implementation milestones.[81] Consequently, we propose that if an MSS operator does not fulfill its implementation milestones, it would also lose any opportunity to implement an ancillary terrestrial service. Several of the 2 GHz MSS licensees have stated that, in order to operate their MSS systems, they need more spectrum than is currently provided for in their "selected assignments." Thus, we currently allow 2 GHz MSS operators to aggregate their spectrum by reaching agreements whereby their respective operational systems would share each other's selected segments. Accordingly, where MSS operators have devised a sharing scheme involving

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79 ICO Letter at 6.

80 See *2 GHz Service Rules Order*, 15 FCC Rcd at 16139-40, ¶ 19.

81 In today's companion proceeding on advanced wireless services, we seek comment on how to redistribute this so-called "abandoned spectrum." *See Advanced Wireless Services FNPRM*, FCC 01-224, at ¶ 28.

more than one "selected assignment" of spectrum, we seek comment on whether they should be permitted to operate terrestrial facilities using all of the aggregated or shared selected assignment spectrum. In addition, we propose to revoke a 2 GHz MSS operator's authority to provide service using terrestrial stations if the operator ceases to use its MSS frequencies for satellite service. We seek comment on these proposals.[82]

49. As for the L-band, it is difficult to state a clear method for limiting the bands in which ancillary terrestrial operations would be permitted because MSS frequency use is determined by international satellite coordinations that are ongoing and that may change annually.[83] We could restrict MSS terrestrial services in the L-band to the coordinated frequency assignments designated for Motient in the annual review of the operator-to-operator agreement in accordance with the MSS Memorandum of Understanding ("MOU").[84] If the coordinated Motient frequency assignment changes annually, then the frequencies for the ancillary terrestrial operations will also need to be changed within the Motient coverage area. However, given that the MOU is not a Commission, government-to-government, or similar document that normally would be publicly available, would such a restriction be appropriate? How could interested parties be given notice of the annual frequency assignments? Is there a better approach to apply in the L-band? Since the individual satellite antenna beams of each satellite system have been assigned different frequencies to avoid interference, can the terrestrial facilities use the Motient assigned frequencies for one antenna beam coverage area in another Motient antenna beam coverage area without causing harmful interference to Motient's network or to other satellite networks? Should these terrestrial operations be taken into account in the annual coordination meetings? Given the difficulty of reaching satisfactory annual satellite coordination agreements today, we seek comment on a proposal that any additional spectrum requirements generated by the terrestrial services should not be a factor for consideration in the annual satellite coordination review. These meetings have been conducted in the context of the ITU Radio Regulations for satellite coordination in these bands. We request comment on these issues.

2. *Licensing Requirements*

50. With respect to U.S.-licensed MSS operators, we seek comment on the possibility of authorizing, upon request, the use of terrestrial facilities by modifying a U.S. licensee's space

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82 We note that ICO's proposal identifies four possible modes of intra-system spectrum sharing, forward band sharing, reverse band sharing, downlink duplex sharing, and uplink duplex sharing. ICO Letter at Appendix B, 2-8. We seek comment on the details of ICO's proposed architectures and whether those architectures are consistent with our proposals herein.

83 We note, however, that the annual meetings have not been undertaken since January 1, 2000. All of the satellite operations from Motient, TMI, and Inmarsat that are providing service to the United States are operating on a non-harmful interference basis with respect to each other and to the other satellite operators in the Memorandum of Understanding until such an agreement can be reached. As a practical matter, there have not been any complaints of interference to the affected administrations of these satellite operators during the subsequent period of time.

84 *See* International Action: "FCC Hails Historic Agreement on International Satellite Coordination," News Release, Report No. IN 96-16 (June 25, 1996).

station license to authorize explicitly the provision of service by means of terrestrial facilities. We would license the terrestrial facilities provided that the licensee has requested a modification to its license and demonstrated that it has met the eligibility criteria we otherwise establish. This proposal is consistent with our approach in other bands.[85] We propose that the authority granted under this procedure would cover the 50 states, Puerto Rico, and the U.S. Virgin Islands, and that no further licenses or authority would be necessary to initiate the provision of service through a terrestrial component associated with MSS. We seek comment on this proposal.

51. With respect to foreign-licensed MSS operators, we seek comment on proposing to allow terrestrial operations by expressly providing for the provision of such service in Declaratory Orders issued to reserve spectrum for foreign-licensed systems in response to Letters of Intent ("LOI") filed in compliance with our DISCO II procedure, or by issuing modified declaratory orders following the filing of a modified letter of intent requesting authority to provide terrestrial services when initial orders have already been issued. Under the DISCO II procedure, foreign-licensed MSS systems may file an LOI requesting that the Commission reserve spectrum so that the non-U.S.-licensed satellite system may provide service in the United States through future-licensed earth stations that may or may not be ultimately licensed to the MSS provider.[86] There were two foreign-licensed LOI filers in the initial 2 GHz MSS processing round -- ICO and TMI. As an alternative, or in addition, we propose to require foreign-licensed operators that provide MSS service in the United States, and that wish to offer terrestrial service to file an appropriate earth station application, including the terrestrial facilities as part of the application, which demonstrates that the MSS space segment operator meets our minimum eligibility criteria, including coverage requirements. We seek comment on these proposed licensing approaches. More generally, we seek comment on whether it is necessary to require that an MSS operator obtain an earth station license before offering terrestrial services.

52. We also seek comment on alternative licensing and equipment approval procedures, discussed below. Unlike satellite DARS, the terrestrial components proposed by ICO and Motient could allow two-way traffic that could originate and terminate on the terrestrial component of the network without having to transverse the satellite component of the network. The ICO and Motient proposals could entail a significant number of fixed stations deployed in a multicellular network, particularly in urban areas, that would allow traffic to be handed off from one cell to another.[87] We seek comment on whether individual licensing and coordination of

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85 *See,* 47 C.F.R. § 2.106 US327; *DARS Order*, 12 FCC Rcd 5754, at 5810 ¶ 138.

86 The LOI procedure was developed as part of the U.S. implementation of its market access commitments in the World Trade Organization Basic Agreement on Telecommunications to avoid the need to issue separate (and duplicative) U.S. licenses for those space stations under the jurisdiction of another licensing and coordinating administration. Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States, *Report and Order*, 12 FCC Rcd 24,094, 24,173 ¶¶ 183 (1997) ("*DISCO II Order*"). The Commission explained that it adopted this procedural framework in order to avoid issues of national comity and international coordination responsibilities for space stations. *Id.* at 24,174 ¶ 188.

87 For purposes of this proposal, the term "fixed station" refers to terrestrial base stations that would be used to communicate with mobile terminals or handsets.

fixed stations used to provide MSS ancillary terrestrial operations is needed to protect adjacent channel and co-channel operations for both incumbent operators and other MSS operators. We also note, as discussed in more detail below, that not all incumbent fixed operations may be relocated, and these incumbent fixed operations will remain co-primary until 2010. Would separate licensing of the terrestrial operations provide co-channel and adjacent channel users information on the location and the technical and operational parameters of these facilities? Should terrestrial facilities be licensed for the U.S. coverage of the MSS space segment or a smaller area? Should we permit construction of terrestrial facilities prior to obtaining an earth station license, at the provider's own risk?

53. If such use is permitted, we propose to require that handsets designed to operate using MSS ancillary terrestrial facilities be authorized pursuant to our certification rules contained in Part 2, Subpart J of our rules.[88] The use of equipment certification procedures for these handsets would be consistent with procedures to authorize other handsets used for cellular-type service and would ensure that they satisfy any technical and safety requirements to protect co-channel and adjacent channel operations and end users.

3. *Technical Issues*

54. If we were to permit MSS operators to operate terrestrial stations, we propose to provide flexibility in our technical standards so as to encourage terrestrial service development in the most rapid, economically efficient and diverse manner. We believe the standards we propose here, which unless otherwise noted would apply to both 2 GHz and L-band MSS terrestrial operations, are generally the minimum standards necessary to avoid harmful interference. We seek general comment on whether the following rules are necessary and sufficient for this purpose. For example, what limits should be placed on the terrestrial facilities' out-of-band emissions into adjacent bands? Is it necessary to impose intersystem limits, or can we simply allow applicants to coordinate among themselves? Are there alternative approaches that would provide ample protection while better furthering our goals of encouraging rapid, efficient deployment of integrated MSS terrestrial services? Are there differences between the 2 GHz and L-bands that would require an alternative approach for operations in one or the other band? We also seek comment on the more specific proposals outlined below.

a. Protection of Adjacent Channel and Intra-Band Operations

55. Emission limits on any frequency outside a licensee's authorized frequency assignment are important in preventing harmful interference to MSS and other systems operating in adjacent frequency bands. The MSS satellite operations must meet existing rules on out-of-band emissions contained in Section 25.202 of the Commission's rules. We propose to apply emission limits on the terrestrial facilities similar to the limits in Section 24.238, which are those limits currently in place for Broadband PCS. We also note that work has been ongoing for a number of years in the ITU-R Study Group 1, and the other ITU-R Study groups, on defining

[88] *See* 47 C.F.R. §§ 2.1031 *et seq.*

emission limits for various radio services. We ask if the limits contained in Section 24.238 are the appropriate limits for the terrestrial equipment of both the 2 GHz and L-band MSS terrestrial services or are there other limits that are more appropriate? Should different emission limits be applied to the 2 GHz and L-band terrestrial systems? Specifically, should our rules, in this case, reflect any new information that has recently been adopted by the ITU or other relevant technical body relative to the terrestrial services of these applications?

b. Coordination with Co-Frequency Systems

56. If we permit MSS operators to provide terrestrial services, restrictions on the tower heights and transmit powers of the base stations will help in coordinating between the terrestrial systems of different L-band MSS systems. In addition, restrictions on the tower heights and transmit powers will assist in coordinating the 2 GHz terrestrial operations with the existing terrestrial users that operate in the 2 GHz MSS bands. We note that Section 24.232 contains limits on tower heights and transmit powers for broadband PCS systems, and Section 24.237 contains rules on the coordination between PCS and other co-frequency terrestrial systems. We propose to model our rules on the limitations contained in Sections 24.232 and 24.237 in order to allow the deployment of advanced technologies, lower operating costs, and provide better coverage while ensuring proper coordination with co-frequency systems. We ask whether these are the proper rules to apply to assist with coordination and deployment of MSS terrestrial systems. Should the same rules be applied to both 2 GHz and L-band terrestrial systems, or should new rules, based upon the different operational frequencies be adopted, and if so, using what model?

c. Frequency Stability

57. Radio systems have frequency stability rules to ensure that any transmissions take place in the appropriate communication channels. The frequency stability rules appropriate to satellite systems are contained in Section 25.202. In general, terrestrial communication systems such as broadband PCS use different rules to limit frequency stability. We seek comment on whether the frequency stability rules for possible MSS terrestrial equipment should parallel those of similar terrestrial communication systems, such as those contained in Section 24.235. Are there other, more appropriate, frequency stability limits that should be applied?

d. Use of Handheld Terminals Aboard Aircraft

58. There are restrictions on using a number of different types of handheld electronic devices onboard commercial aircraft.[89] Cell phones and certain types of VHF/UHF MSS terminals must be turned off while the aircraft is in flight. If we permit MSS operators to provide terrestrial services, we propose to place the same restriction on handheld terminals used with the MSS terrestrial facilities. We ask if there are any other restrictions that should be applied to the operation of handsets used with MSS terrestrial facilities.

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[89] *See, e.g.* 47 C.F.R. §§ 25.136(a) and 25.135(b).

e. *System Architecture*

59. MSS systems with associated terrestrial facilities would require multiple use of at least some of the MSS frequency bands. That is, the communication links between the terrestrial base station and the handheld terminals will have to occupy the MSS uplink band, the MSS downlink band, or both the uplink and downlink bands. The basic architecture, i.e., which MSS bands are selected to support the various terrestrial links, will have an impact on both sharing with systems in adjacent frequency bands and sharing with other MSS systems and incumbent users that are not relocated using the same allocated bands. In its proposal for 2 GHz MSS operators, ICO does not set forth a specific architecture. The ICO proposal presents at least four possible ways that its system might be structured. Each of these proposal architectures rely on the MSS operator initially assigning non-overlapping channels to the terrestrial and satellite components of the network, and limiting by dynamic assignment the number of overlapping channels to each network component. We seek comment on all four proposed ICO system architectures with regard to interference to adjacent or intra-band users.[90] ICO has maintained that its proposed architecture involves dynamic spectrum management not resulting in band segmentation. We seek comment this assertion and whether ICO's proposed should be considered band segmentation, which might lead to an option of establishing terrestrial licenses for segmented spectrum suitable for auction.

60. ICO identifies the following four modes for intra-system sharing: (1) forward band sharing; (2) reverse band sharing; (3) downlink duplex sharing; and (4) uplink duplex sharing. In forward band sharing, the terrestrial facility return links operate in the same spectrum as the satellite uplinks, and the terrestrial facility forward links operate in the satellite downlinks. According to ICO, this mode of sharing creates the potential for interference between satellites and user terminals operating in terrestrial mode, and between user terminals operating in the satellite mode and the terrestrial base stations.

61. According to ICO, in reverse band sharing mode, the terrestrial return links operate in the same spectrum as the satellite downlinks, and the terrestrial forward links operate in the same spectrum as the satellite uplinks. This mode of operation raises the potential for interference between the satellite and terrestrial base stations and between user terminals operating in different (satellite and terrestrial) modes.

62. ICO states that in the downlink duplex sharing mode, terrestrial return links and forward links both operate in the spectrum assigned to the satellite downlinks. This mode of operation raises the potential for interference from the satellite into the terrestrial base station and into user terminals operating in terrestrial mode, and from user terminals operating in terrestrial mode and from terrestrial base stations into user terminals operating in satellite mode.

63. According to ICO, in the uplink duplex sharing mode, the terrestrial return links and

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90 *See* ICO Letter at Appendix B.

forward links both operate in the spectrum assigned to the satellite uplinks. This mode of operation raises the potential for interference from user terminals operating in satellite mode into terrestrial base stations and user terminals operating in terrestrial mode, and from terrestrial base stations and user terminals operating in terrestrial mode into satellites.

64. According to ICO, potential interference in all of these spectrum sharing modes can be mitigated using a combination of the following techniques: 1) planning small terrestrial cells; 2) requiring that all user terminals are dual mode and capable of responding to network and resource management functions; 3) designing the terrestrial base station antennas to minimize gain at angles above the horizon; 4) assigning non-overlapping spectrum to potentially interfering satellite channels and terrestrial channels in areas where the satellite beams overlap terrestrial cells, and then dynamically controlling the number of overlapping channel assignments based on the relative loading between the satellite and terrestrial operations; and 5) insuring that potentially interfering channels for user terminals operating in satellite mode near terrestrial base stations do not overlap those channels being used by the base station.

65. ICO asserts the key to mitigating interference and insuring that the satellite and terrestrial operations can successfully share spectrum is to have a single entity responsible for fully integrated operation of the MSS network. ICO also asserts that terrestrial operations can be made fully compatible with any of the segment widths that may result from the Commission's 2 GHz MSS band arrangement including segments 3.5 MHz, 3.889 MHz, 4.375 MHz, 5 MHz, or 17.5 MHz wide. We seek comment on the architectures proposed by ICO. Specifically, we seek comment on the potential for interference and the mitigation techniques suggested by ICO. How much separation between forward/return links for duplex mode would be needed? How much impact could mitigation techniques have on the availability of satellite or terrestrial links? What is the minimum amount of spectrum needed to implement the system architectures ICO proposes to ensure adequate service by both the satellite and terrestrial components? What impact could the various architectures have on incumbent operations? How could inter-system interference be avoided? Can our proposal to base technical operating parameters for MSS terrestrial operations on those restrictions currently in place for broadband PCS be reconciled with ICO's mitigation techniques and analysis?

66. With respect to inter-system interference, ICO asserts that there are only four possible interference cases between an MSS provider employing integrated terrestrials services to an unrelated MSS system operating in an adjacent MSS system. ICO also asserts that the potential interference to an adjacent MSS operator in the MSS downlink is negligible when compared to that from services operating outside the MSS bands. We seek comment on these assertions and ICO's accompanying analysis. We also seek comment on the validity of this analysis if multiple MSS systems in the 2 GHz band elect to integrate terrestrial operations with their MSS network. In addition, we seek comment on any inter-system interference that might result from system architectures different from those proposed by ICO.

f. Technical Requirements Specific to the L-Band MSS Terrestrial Operations

67. With respect to the two proposals for MSS terrestrial operations, there are a number

of Commission requirements that are applicable to the L-band proposal but are not applicable to the 2 GHz band proposal. Some of the existing L-band MSS systems are part of the GMDSS or provide AMS(R)S, and must meet the applicable requirements regarding the provision of priority and preemptive access for safety communications, provided in Section 2.106, footnotes US308 and US315. We intend to maintain these requirements and, therefore, terrestrial operations would be subject to preemption for satellite-delivered safety communications. We seek comment on how the proposed terrestrial operations can implement the conditions for priority access with real-time preemptive capability for related safety communications within an integrated satellite and terrestrial system.

68. The L-band MSS satellite transmitters operate the lower adjacent band to the Global Positioning System ("GPS") and other Radio Navigation Satellite Serices. Unwanted emissions from terrestrial stations in the MSS will have to be carefully controlled in order to avoid interfereing with GPS receivers. We request comment on the adequacy of limits similar to those in Section 25.213(b) on the terrestrial operations, including whether these limits are sufficient for the case of base station emissions. We seek comment on whether these limits are an effective means of protecting GPS.

4. Modifications to the Table of Allocations

69. The 1990-2025 MHz and 2165-2200 MHz bands are currently allocated on a primary basis to earth-to-space and space-to-earth MSS, respectively, in the United States. The bands are also allocated to fixed and mobile services on a primary basis for facilities where the receipt of the date of the initial application was prior to June 27, 2000 and on a secondary basis for all other initial applications, with the bands to become secondary for all fixed and mobile services in 2010. If we decide to permit MSS operators to provide ancillary terrestrial services, we seek comment on whether we should amend the U.S. Table of Allocations contained in Section 2.106 of the Commission's rules to add a footnote to the above allocations to clarify that MSS providers may provide an ancillary terrestrial component in conjunction with their provision of MSS in these service bands. We also seek comment on whether the secondary allocations for fixed and mobile services contained in footnotes NG156 and NG168 are already sufficient to allow MSS ancillary terrestrial operations in these bands.[91] Alternatively, we seek comment on whether to modify the Table of Allocations to permit both fixed and mobile use on a co-primary basis. This approach would not only allow MSS operators to provide an ancillary terrestrial component on a co-primary basis, but it also would facilitate the use of portions of this band for terrestrial operations that are not used in conjunction with MSS operators, if we approved that type of use.

70. The "upper L-band," or 1545-1559 MHz and 1646.5-1660.5 MHz bands, is currently allocated for MSS on a co-primary basis with the AMS(R)S, except that the 1545-1549.5 MHz and 1646.5-1651 MHz bands are allocated to MSS on a secondary basis with respect to AMS(R)S. The "lower L-band," or 1530-1544 MHz and 1626.5-1645.5 MHz bands, is also

[91] 47 C.F.R. § 2.106, NG156, NG1668.

allocated for MSS, although service rules for MSS use of this spectrum are subject to a pending rulemaking. If we decide to permit MSS operators to provide ancillary terrestrial operations, we seek comment on whether we should amend the U.S. Table of Allocations contained in Section 2.106 of the Commission's rules to add a footnote to the above allocations to permit MSS operators operating in these bands to also operate integrated terrestrial components in conjunction with their provision of MSS. We note that existing footnote US309 specifically authorizes ancillary terrestrial services in the AMS(R)S. Alternatively, we seek other approaches to modify the MSS allocations at the L-band to permit the use of portions of this band for terrestrial operations by MSS operators or by others in conjunction with MSS operators.

71. We seek comment on these proposals. For example, is it necessary to reallocate the bands at issue to terrestrial services or are footnotes to the Table of Allocations indicating that MSS operators are permitted to integrate terrestrial operations into their MSS systems sufficient to permit such operations? Would this approach be consistent with existing international allocations? What are the advantages or disadvantages to the approaches set forth above? Are there other approaches that we should be considering? Do these approaches adequately balance the flexibility needed for implementation of novel services with the purpose behind the Table of Allocations?

5. Potential Impact on Existing Relocation and Reimbursement Rules

72. In 2000, the Commission finalized the rules for relocation of existing terrestrial services in the 1990-2025 MHz and 2165-2200 MHz bands.[92] The rules apply when harmful interference would occur to incumbent terrestrial services or to new MSS operations as well as procedures for relocating affected incumbent operations. Obviously, those rules were based on the potential for interference only between MSS and incumbent terrestrial services. We must now determine whether our proposal to allow terrestrial components to be integrated with MSS networks materially affects our recently adopted relocation rules.

a. Relocation of the Broadcast Auxiliary Service in the 1990-2025 MHz Band

73. The 1990-2025 MHz band is to be used for MSS uplinks, and unacceptable mutual interference will occur between MSS and incumbent broadcast auxiliary services ("BAS").[93] The plan for relocation of the BAS was designed to ensure the integrity of BAS throughout the transition, as well as to minimize the costs and barriers to entry for MSS licensees.[94] Specifically, BAS relocation from the 1990-2025 MHz band is to occur in two phases. The first

[92] *Second Report and Order and Second Memorandum Opinion and Order*, 15 FCC Rcd at 12,322-53 ¶¶ 18-112.

[93] The incumbent licensees in the 2 GHz MSS uplink band from 1990-2025 MHz are the broadcast auxiliary service, cable television relay service, and local television transmission service (collectively, "BAS").

[94] Interference will occur from BAS transmitters into MSS uplinks, and from MSS handsets into BAS receivers.

phase will free 18 megahertz of former BAS spectrum for MSS use. It requires MSS to relocate BAS licensees in the top 30 Nielsen Designated Market Areas ("DMAs") before MSS operations begin. Once MSS operations begin, BAS licensees are prohibited from operating in the 1990-2008 MHz range in all other markets. In Phase I, MSS licensees are required to relocate BAS licensees in the 1990-2008 MHz band in Nielsen DMAs 31-100 within three years after operations begin. If Phase I spectrum is no longer sufficient to meet MSS requirements, Phase II relocation will begin. In Phase II, MSS is required to relocate BAS from the 2008-2023 MHz range in the top 30 Nielsen DMAs before operating in that range. Once MSS operations begin in the 2008-2023 MHz range, BAS in the remaining markets will be prohibited from operating in that range. MSS then has three years to complete relocation of BAS from 2008-2023 MHz in the Nielsen DMAs 31-100, and five years to complete BAS relocation from 1990-2023 MHz in all Nielsen DMAs. Finally, on September 6, 2010, all existing incumbent licensees become secondary in the 1990-2025 MHz band. Negotiations between MSS and BAS are mandatory, and the negotiation period began September 6, 2000. At the end of the two year negotiation period, the MSS licensee can involuntarily relocate a BAS licensee if the parties have not reached a relocation agreement.

74. We seek comment on whether the relocation procedures recently adopted for this band are sufficient to accommodate the possible introduction of MSS terrestrial operations and the relocation of BAS. As an initial matter, we note that our existing plan is based on clearing markets in MSS uplink spectrum over a period of time on an "as needed" basis based on unacceptable mutual interference between the MSS and BAS operations. Presumably, as the MSS licensees clear a market, the absence of previously existing terrestrial services removes any potential interference concerns between BAS and MSS terrestrial operations. In addressing this issue, commenters should address whether the four potential system architectures described by ICO, or other possible architectures, can be accommodated under the existing phased relocation plan. We also seek comment on whether, if we were to adopt our proposals for MSS terrestrial operations, the negotiation period for relocating BAS should be extended. Finally, parties are invited to comment on whether an alternative relocation procedure is necessary for introducing the MSS terrestrial components. Those addressing alternative procedures should provide specifics of their proposed alternatives.

b. Relocation of Fixed Service Microwave Licensees in the 2165-2200 MHz Band

75. The 2165-2200 MHz band will be used for MSS downlinks.[95] In the *First Report and Order and Further Notice of Proposed Rulemaking*, we stated that MSS licensees would be required to relocate those fixed service ("FS") operations that would receive harmful interference from MSS, but MSS would not be required to relocate any FS licensee with which it could successfully share spectrum.[96] To determine when interference between the two services would

[95] Interference will occur from MSS downlinks into FS receivers, and from FS transmitters into MSS handsets.

[96] *2 GHz MSS Allocation Order*, 12 FCC Rcd at 7406-07 ¶¶ 42-43.

occur, we decided to rely on TIA Bulletin TSB86.[97] Using the criteria of TSB86, MSS licensees are required to relocate any FS operation where it is determined that sharing is not possible. Noting that the TSB86 criteria were developed by MSS and FS technical experts specifically for analyzing MSS to FS interference, we ask whether MSS terrestrial facilities could be accommodated using this approach.

76. The interference criteria and mechanisms would be different for interference between incumbent FS and the terrestrial facilities of MSS than they are for interference between FS and MSS. We seek comment on whether this difference would be material with regard to relocation requirements. If the difference is material, it may be necessary to add a separate interference analysis procedure for MSS licensees that choose to operate terrestrial facilities. We note that MSS terrestrial operations would appear to be technically similar to PCS, which operates in nearby bands. In the PCS proceeding, extensive analyses of PCS to FS interference were undertaken. As a result, the Commission adopted, in 47 C.F.R. § 24.237, TIA Bulletin TSB10-F as the criteria for determining PCS to FS interference.[98] We propose to adopt the same criteria to determine where sharing would not be possible between FS and MSS terrestrial operations. Therefore, MSS licensees that seek to offer terrestrial services would be required to perform an MSS to FS interference analysis as well as an analysis for interference between MSS terrestrial operations and FS. If either analysis indicated interference to the FS, MSS licensees would be required to relocate the affected FS operation. Parties are invited to comment on our proposal and to provide any detailed alternatives that may be appropriate. We also seek comment on whether, if we were to adopt our proposals for MSS terrestrial operations, the negotiation period for relocating FS, which is the same as for BAS relocation, should be extended.

6. Proposed Amendments to Service Rules

77. In the event we decide to permit MSS operators to provide ancillary terrestrial services, we propose several changes to service rules relating to 2 GHz and L-band MSS. Specifically, we propose the following:

1. In Section 25.201, define "2 GHz Mobile-Satellite Service" as "a mobile-satellite service (together with any authorized ancillary terrestrial service) that operates in the 1990-2025 MHz and 2165-2200 MHz frequency bands, or in any portion thereof." Also in Section 25.201, define "L-band Mobile-Satellite Service" as "a mobile-satellite service (together with any authorized ancillary terrestrial service) that operates in the 1525-1559 MHz and 1626.5-1660.5 MHz frequency bands, or in any portion thereof."

2. Amend Section 25.114 to require applicants for 2 GHz or L-band Mobile-Satellite Service authorizations to include the complete radio frequency

[97] *Second Report and Order and Second Memorandum Opinion and Order*, 15 FCC Rcd at 12,341 ¶ 78.

[98] *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, *Second Report and Order*, 8 FCC Rcd 7700, 7762 ¶ 150 (1993); *PCS Allocation Order*, 9 FCC Rcd at 5029 ¶ 186.

plan for any terrestrial equipment that may be proposed for incorporation into their network, together with a demonstration that use of terrestrial facilities will not cause harmful interference to other authorized incumbent and MSS users in adjacent bands or to incumbent co-primary users in the same band.

3. Amend Section 25.115 to clarify that earth station applicants operating in conjunction with foreign-licensed 2 GHz or L-band MSS space segment providers may seek authority to incorporate terrestrial facilities into such service by including in their earth station application the complete radio frequency plan for any terrestrial operations that may be proposed for incorporation into their network, together with a demonstration that use of terrestrial facilities will not cause harmful interference to other incumbent and MSS users in adjacent bands or to incumbent co-primary users in the same band.

4. Add rule section to allow any applicant authorized to construct and launch a 2 GHz or L-band MSS system to construct and operate terrestrial facilities in the applicant's selected assignment band, in the case of 2 GHz MSS, or in the spectrum that has been coordinated, in the case of L-band MSS.

5. Add rule section to prohibit the commercial operation of terrestrial facilities of a 2 GHz or L-band MSS network unless: (i) the terrestrial equipment is operating in the same spectrum segment as the satellite system; (ii) at least one satellite is visible above the horizon at an elevation angle of at least five degrees at all times within the required geographic areas; and (iii) the satellite system provides mobile satellite service on a continuous basis throughout the 50 U.S. states, Puerto Rico, and the U.S. Virgin Islands, with the exception that a GSO L-band operator that can demonstrate that it cannot meet these coverage requirements may commercially operate its terrestrial component if it is providing continuous mobile satellite service in all geographic areas it is capable of serving.

78. We seek general comment on whether this proposed approach would make it possible for all 2 GHz and L-band MSS operators meeting our eligibility criteria to use terrestrial facilities with their MSS networks. We also seek comment on whether these rule changes sufficiently prevent interference problems and whether they adequately ensure that terrestrial operations remain strictly ancillary. We also seek comment on whether there are any other rule modifications that would be necessary or advisable if we adopted the MSS terrestrial services proposal.

E. Consideration of Future Proposals to Provide Flexibility in the Big LEO MSS Bands

79. We seek comment on whether we should consider extending to Big LEO MSS licensees the opportunity to incorporate terrestrial operations within the Big LEO MSS bands into their respective MSS networks. In particular, we seek comment on whether the general approach that we discuss above for 2 GHz and L-band MSS could be adopted for Big LEO MSS. In the alternative, should we consider opening up the Big LEO MSS bands to parties other than Big LEO licensees to provide terrestrial services either in conjunction with Big LEO MSS operators or to provide additional alternative services.

80. With respect to application of our proposed approach for 2 GHz and L-band MSS providers outlined above to Big LEO MSS, we ask that interested parties comment on the possible applicability of each element of the proposed approach as it might be applied to Big LEO MSS providers should we receive a proposal to permit Big LEO MSS operators to provide terrestrial services in the Big LEO MSS bands. For example, commenters should comment on the applicability of the economic, technical, and policy issues raised above for 2 GHz and L-band MSS as those issues may relate to Big LEO MSS. Commenters should also address whether the Commission should consider requiring Big LEO MSS providers to meet minimum MSS coverage requirements similar to those proposed above prior to being permitted to provide ancillary terrestrial services. Could our licensing approaches described above be adapted to apply to Big LEO operations? Would our proposal to model 2 GHz and L-band operational parameters on the operational requirements currently in place for Broadband PCS be appropriate in considering the appropriate operating parameters for terrestrial operations in the Big LEO service bands? Would some variation on our proposed rule changes to implement ancillary terrestrial services for 2 GHz and L-band MSS be sufficient in the context of consideration of a Big LEO proposal? What changes to the U.S. Table of Allocations might be necessary to permit terrestrial operations in the Big LEO MSS bands? What changes to the Big LEO service rules are required to accommodate terrestrial services in the same frequency bands?

81. We seek comment on several issues specific to Big LEO operations. The Big LEO band plan provides for one TDMA based system operating over 5.33 MHz of spectrum, and up to four CDMA based systems all sharing 11.35 MHz of spectrum. With respect to the TDMA system, we seek comment on whether integrated terrestrial services are technically feasible where uplinks and downlinks for the satellite component share the same frequencies. What type of architectures are possible in the context of TDMA based systems? Are there any particular interference or other technical issues that the Commission would be required to address with respect to TDMA systems in possibly considering a proposal to permit Big LEO operations to integrate terrestrial operations into their specific networks? What technical information should a TDMA Big LEO MSS provider include in any proposal to provide terrestrial services to permit the Commission to evaluate the technical sufficiency of such a proposal?

82. With respect to CDMA based Big LEO systems, does the absence of a "selected assignment" for such operations present technical problems that might make the provision of terrestrial services by CDMA Big LEO MSS operators difficult or technically infeasible? Could terrestrial operations be incorporated within our existing Big LEO band plan or might we be required to consider changing our band plan to facilitate the provision of integrated terrestrial services by multiple CDMA based Big LEO MSS operators? What technical information should a CDMA Big LEO MSS provider include in any proposal to provide terrestrial services to permit

the Commission to evaluate the technical sufficiency of such a proposal?

83. We seek comment on what specific out of band interference issues we might be required to consider in evaluating a proposal to provide terrestrial services integrated with Big LEO operations. For example, would we need to consider any particular operating parameters to protect GPS operations in adjacent bands or Radioastronomy operations in the 1610-1613.8 MHz bands Are there other adjacent frequency band users that might require particular consideration, such as MDS at 2500 MHz? In considering these issues, would it be necessary to designate one band, for example the 2483.5-2500 MHz band for terrestrial base stations and the other band for mobile terminal operations? What configuration for terrestrial operations or sharing conditions would be necessary to make terrestrial operations compatible with other users in the same bands or in adjacent frequency bands?

III. PROCEDURAL MATTERS

A. Ex Parte Presentations

84. This is a permit-but-disclose notice and comment rulemaking proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed as provided in Commission rules.

B. Initial Regulatory Flexibility Analysis

85. As required by the Regulatory Flexibility Act (RFA),[99] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this *Notice*. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments provided below in paragraph D of this Section. The Commission will send a copy of the *Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. *See* 5 U.S.C. § 603(a). In addition, the *Notice* and IRFA (or summaries thereof) will be published in the Federal Register. *See id.*

1. *Need for and Objectives of the Proposed Rules*

86. This *Notice* seeks comment on proposals to bring flexibility to delivery of MSS. The *Notice* seeks comment on issues regarding whether and how we might bring flexibility to MSS either by: (1) permitting MSS operators to provide coverage to areas where the MSS system is attenuated by integrating terrestrial operations within their networks using assigned MSS frequencies, as has been proposed by two operators, or (2) opening up portions of the 2 GHz and L-band for MSS or terrestrial operators to provide a stand-alone terrestrial service offered in

[99] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

conjunction with MSS or use it for additional alternative services. We believe that permitting greater flexibility would reduce regulatory burdens and, with minimal disruption to existing permittees and licensees, result in the continued development of 2 GHz and L-band MSS and other satellite services to the public.

2. *Legal Basis*

87. This action is taken pursuant to Sections 1, and 4(i) and (j) of the Communications Act, as amended, 47 U.S.C. § § 151, 154 (i), 154(j), and Section 201(c)(11) of the Communications Satellite Act of 1962, as amended, 47 U.S.C. § 721(c)(11), and Section 553 of the Administrative Procedure Act, 5 U.S.C. § 553.

3. *Description and Estimate of the Number of Small Entities to which the Proposed Rules Would Apply*

88. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[100] The RFA defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction" under Section 3 of the Small Business Act.[101] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.[102]

89. The Commission has not developed a definition of small entities applicable to geostationary or non-geostationary orbit fixed-satellite or mobile satellite service operators. Therefore, the applicable definition of small entity is the definition under the Small Business Administration (SBA) rules applicable to Communications Services, Not Elsewhere Classified.[103] This definition provides that a small entity is 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 which could potentially fall into the 2 GHz, L-band, or Big LEO MSS category. Of those, approximately 775 reported annual receipts of $11 million or less and qualify as small entities. The rules proposed in this *Notice* apply only to entities providing 2 GHz, L-band, or Big LEO mobile satellite service. Small businesses may not have the financial ability to become 2 GHz MSS system operators because of the high implementation costs associated with satellite systems and services. At least one of the 2 GHz MSS licensees and one of the Big LEO licensees may be considered a small business at this time. We expect, however, that by the time of implementation they will no longer be considered small businesses due to the capital

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100 5 U.S.C. § 603(b)(3).

101 *Id.* § 601(3).

102 *Id.* § 632.

103 13 C.F.R. § 121.201, NAICS Code 51334.

requirements for launching and operating its proposed system. Since there is limited spectrum and orbital resources available for assignment at 2 GHz, we estimate that no more than eight entities will be approved by the Commission as operators providing these services. Therefore, because of the high implementation costs and the limited spectrum resources, we do not believe that small entities will be impacted by this rulemaking to a great extent.

4. *Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements*

90. The proposed action in this *Notice* would affect those entities applying for 2 GHz, L-band, and Big LEO MSS space station authorizations and those applying to participate in assignment of 2 GHz, L-band, and Big LEO MSS spectrum. In this *Notice*, we seek comment on requiring U.S.-licensed operators to file an authorization request to use terrestrial facilities and to demonstrate that the eligibility criteria have been met. Foreign-licensed operators would be required to file a Letter of Intent and/or an appropriate earth station authorization, including the terrestrial facilities as part of the application, demonstrating compliance with the eligibility and coverage requirements. We seek comment on alternatives to these proposed licensing requirements.

5. *Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered*

91. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

92. In developing the proposals contained in this *Notice*, we have attempted to allow flexibility for efficient operations by all participants in the 2 GHz, L-band, and Big LEO MSS market, regardless of size, consistent with our other objectives. We believe the proposed conditions under which these entities would be granted this additional flexibility would not impose a significant economic impact on small entities because: (1) the conditions are reasonable and not overly burdensome and (2) as mentioned above, we do not expect small entities to be impacted by this rulemaking due to the substantial implementation costs involved. Nonetheless, we seek comment on the impact of our proposals on small entities and on any possible alternatives that could minimize any such impact.

6. *Federal Rules that May Duplicate, Overlap, or Conflict with Proposed Rules*

93. None.

C. Paperwork Reduction Analysis

94. The Notice of Proposed Rule Making contains a proposed information collection. As part of our continuing effort to reduce paperwork burdens, we invite the general public and the Office of Management and Budget (OMB) to take this opportunity to comment on the information collections contained in this Notice, as required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13.[104] Public and agency comments are due at the same time as other comments on this Notice; OMB comments are due 60 days from the date of publication of this Notice in the Federal Register. Comments should address:

- Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility.
- The accuracy of the Commission's burden estimates.
- Ways to enhance the quality, utility, and clarity of the information collected.
- Ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

Written comments by the public on the proposed information collections are due 60 days after the date of publication in the Federal Register. Written comments must be submitted by the OMB on the proposed information collections on or before 60 days after the date of publication in the Federal Register. In addition to filing comments with the Secretary, a copy of any comments on the information collections contained herein should be submitted to Judy Boley, Federal Communications Commission, Room 1-C804, 445 12th Street, S.W., Washington, D.C. 20554, or via the Internet to jboley@fcc.gov, and to Virginia Huth, OMB Desk Officer, 10236 New Executive Office Building, 725 17th Street, N.W., Washington, D.C. 20503, or via the Internet to fain_t@al.eop.gov.

D. Deadlines and Instructions for Filing Comments

95. Under Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on the Further Notice of Proposed Rule Making on or before 28 days after the date of publication in the Federal Register. Reply comments are due 42 days after the date of publication in the Federal Register. Interested parties may file comments by using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies.[105] The Commission will consider all relevant and timely comments prior to taking

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[104] *See generally* 44 U.S.C. §§ 3501-3520.

[105] *See Electronic Filing of Documents in Rulemaking Proceedings*, Memorandum Opinion and Order, 13 FCC Rcd 21,517 (1998); *Electronic Filing of Documents in Rulemaking Proceedings,* Report and Order, 13 FCC Rcd 11,322 (1998).

final action in this proceeding. To file formally, interested parties must file an original and four copies of all comments, reply comments, and supporting comments. If interested parties want each Commissioner to receive a personal copy of their comments, they must file an original plus nine copies. Interested parties should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554. Parties not filing via ECFS are also encouraged to file a copy of all pleadings on a 3.5-inch diskette in Word 97 format.

96. Comments filed through the ECFS can be sent as an electronic file via the Internet to http://www.fcc.gov/e-file/ecfs.html. Generally, only one copy of an electronic submission must be filed. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To receive filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message: "get form <your e-mail address." A sample form and directions will be sent in reply.

97. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be sent to the Commission's Secretary, Magalie Roman Salas, Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554.

98. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, 445 12th Street, S.W., Washington, D.C. 20554. Comments are also available on the ECFS, at https://gullfoss2.fcc.gov/cgi-bin/websql/prod/ecfs/comsrch_v2.hts.

IV. ORDERING CLAUSES

99. Accordingly, **IT IS ORDERED** that pursuant to the authority contained in Sections 1, 4(i), 4(j), 7(a), 301, 303(c), 303(f), 303(g), 303(r), 303(y), and 308 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 151, 154(i), 154(j), 157(a), 301, 303(c), 303(f), 303(g), 303(r), 303(y), 308, this *Notice of Proposed Rulemaking* **IS ADOPTED**.

100. **IT IS FURTHER ORDERED** that the Commission's Consumer Information Bureau, Reference Information Center, **SHALL SEND** a copy of this *Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Magalie Roman Salas
Secretary