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

In the Matter of	)	
	)	
Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements	)	IB Docket No. 99-67
	)	
Petition of the National Telecommunications and Information Administration to Amend Part 25 of the Commission's Rules to Establish Emissions Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band	)	RM No. 9165

NOTICE OF PROPOSED RULE MAKING

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By the Commission:

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I. INTRODUCTION

1. By this action, we propose to amend the Commission's Rules to facilitate the global transport of portable telecommunications terminals used in connection with satellite systems providing global data, voice, Internet and other broadband services. These proposals are designed to implement the international Global Mobile Personal Communications by Satellite[1] ("GMPCS") Memorandum of Understanding which was signed by the United States and over 120 additional parties in February 1997.[2] This voluntary Memorandum of Understanding ("MoU") was the basis for specific "Arrangements" or guidelines for regulators, system operators, manufacturers and service providers that are designed to promote global roaming of GMPCS terminals and ubiquitous service.

2. GMPCS systems offer an exciting array of new services to consumers, especially those living in or traveling to underpopulated and rural areas. The GMPCS Memorandum of Understanding was the culmination of an international cooperative process to speed deployment of global voice, data, and broadband services worldwide. The GMPCS industry has supported this initiative through its dedicated participation in drafting the MoU and related Arrangements (the "GMPCS MoU") and in encouraging administrations to sign it and to incorporate these principles in their domestic laws and regulations.

3. This *Notice* proposes to implement the five articles in the GMPCS MoU in a manner that facilitates the free circulation of fixed and mobile satellite service terminals and equipment ("GMPCS terminals") sold for use in, or transported into, the United States for use with global satellite systems. Specifically, our proposals address: a) type approval (that is, equipment certification); b) licensing; c) marking; d) access to traffic data; and e) a recommendation on customs treatment. Most importantly, we propose to amend our rules to enable manufacturers to obtain certification for GMPCS mobile earth terminal equipment through the Commission's equipment certification process. Certified equipment would receive an FCC identifier or "mark." Moreover, under the MoU, once a terminal is certified by an administration, it may be registered at the International Telecommunications Union (ITU)[3] in Geneva and marked with the new, international "GMPCS-MoU ITU REGISTRY" mark (the "ITU mark"). We expect that many foreign countries will view this ITU mark as sufficient to allow equipment to cross national borders, and in many cases, the ITU mark may also

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[1] "Global Mobile Personal Communications by Satellite" (GMPCS) service is defined in the 1996 Final Report of the World Telecommunications Policy Forum as: "any satellite system, (i.e., fixed or mobile, broadband or narrow-band, global or regional, geostationary or non-geostationary, existing or planned) providing telecommunication services directly to end users from a constellation of satellites."

[2] The MoU was developed as a result of the 1996 World Telecommunications Policy Forum ("WTPF-96") in Geneva. See *Final Report of the World Telecommunications Policy Forum*, Geneva, 1996 (ITU 1997).

[3] The International Telecommunications Union (ITU) is an arm of the United Nations responsible for the global oversight and implementation of international telecommunications policy.

facilitate the sale of GMPCS terminals in other countries. Consistent with our rules governing certification of other radiofrequency devices, we propose to require an FCC certification for all GMPCS terminals sold or leased for use in the United States. We also propose to require terminals sold outside the United States that are to be used in the United States or transported through the United States as an inoperable personal effect to bear the ITU mark.

4. Our proposal also contemplates that any GMPCS terminals used in the United States or transported from abroad for use in the United States must be authorized to communicate with a U.S.-licensed GMPCS service provider before being operated. To this end, we expect that the service provider will permit access to its system only to authorized customers using properly certified terminals. That is, if a user attempts to communicate with a satellite network with a terminal bearing neither an FCC or ITU mark or which he/she has not properly subscribed, he/she should not be able to gain access to that network. We propose to hold the licensed service provider responsible for any interference resulting from unauthorized use of its system. We are also proposing to require user terminals to meet all applicable Commission technical rules in order to receive equipment certification. Finally, we propose a set of procedures designed to enable the U.S. Customs Service to enforce our rules with minimum additional burden at points-of-entry throughout the country.

5. Further, we propose to adopt the National Telecommunication and Information Administration's time-phased out-of-band emissions limits for GMPCS terminals transmitting in the band 1610-1660.5 MHz, in order to protect reception of aeronautical radionavigation signals in the 1559-1605 MHz band. We are also seeking comment on whether GMPCS terminals should be required to provide enhanced E-9-1-1 capability for distress, disaster and safety communications.

6. We recognize that the GMPCS MoU is non-binding and that we have not received a petition for rulemaking requesting implementation of the GMPCS Arrangements. Given the international accord on the GMPCS MoU, and our experience amending Commission rules to implement such non-binding agreements,[4] we are initiating this rulemaking on our own motion. We expect to coordinate this proceeding closely with other U.S. government agencies and international bodies.

[4] *See e.g., Interim Sharing Arrangement Between Industry Canada and the Federal Communications Commission Concerning the Use of the 1850-1990 MHz band for Personal Communications Services (PCS),* November 14, 1994.

II. BACKGROUND

7. At the 1992 World Administrative Radiocommunication Conference ("WARC-92"), the international telecommunications community allocated significant additional spectrum for mobile satellite services ("MSS")[5] systems on a global basis to meet the needs of the rapidly growing satellite telecommunications sector. The Commission subsequently began to implement these international allocations domestically and to develop service rules to authorize individual global MSS systems. In 1994, the Commission authorized the first non-geostationary[6] mobile satellite system to provide non-voice services ("Little LEO" systems) such as environmental data collection, vehicle tracking, and emergency rescue and relief.[7] In early 1995, the Commission licensed the first global satellite systems intended to deliver global voice service through a constellation of non-geostationary satellites ("Big LEO" systems).[8] Both the Big and Little LEO systems allow customers to use small, inexpensive portable terminals, or transceivers, to communicate with satellite space stations. Subsequently, conferees at the 1995 World Radiocommunication Conference ("WRC-95") allocated additional spectrum for the fixed satellite service ("FSS"),[9] as well as spectrum to accommodate "feeder links" for MSS and non-geostationary ("NGSO") FSS constellations. In the past three years, the Commission has received a number of applications from satellite system operators seeking to provide a wide variety of FSS broadband, interactive digital services, including computer access and video services, to users world-wide using geostationary and non-geostationary satellite constellations.[10] In 1997, we granted licenses to 14 applicants to launch and operate FSS systems in the 28 GHz band.[11]

8. Demand for these new satellite-based services is estimated to be significant. One study projects that the worldwide MSS telephony market will surpass 17 million

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5 "Mobile-Satellite Service" is satellite radiocommunication service for users equipped with mobile terminals.

6 A "non-geostationary satellite" is a satellite that does not remain fixed relative to points on the Earth's surface. Unlike geostationary satellites, which orbit in the plane of the equator at an altitude of approximately 37,800 kilometers, non-geostationary satellites can orbit in any plane and at any ex-atmospheric altitude.

7 *Orbital Communications Corporation,* 10 FCC Rcd 6572 (1995).

8 *Motorola Satellite Communications, Inc.*, 10 FCC Rcd 2268.

9 Final Acts of the World Radiocommunication Conference, Resolution 118 (Geneva 1995).

10 *See, e.g., Teledesic Corporation,* 12 FCC Rcd 3154 (1997), and *Skybridge Corporation*, 48-SAT-P/LA-97(64)S2241, (1998).

11 *See e.g. Teledesic Corporation, Order and Authorization,* 12 FCC Rcd. 3154 (International Bur. 1997), and *Hughes Communications Galaxy, Inc., Order and Authorization,* 13 FCC Rcd. 1351 (Int'l Bur. 1997).

subscribers by 2007.[12] The Asia-Pacific region is projected to have the largest subscriber base--over 30% of the world's total. Estimates are that Latin America will serve as the world's largest fixed market, capturing approximately 35% of the total rural fixed user service subscriber base. Several factors that will significantly impact the potential for mobile satellite services include the rapid build-out of terrestrial mobile telephone networks, the availability of multi-band/multi-mode cellular/Personal Communication Services handsets, and technological advances that continue to reduce manufacturing and launch costs.

9. In response to the anticipated demand for GMPCS services, the international community began to consider a new international regulatory paradigm for these global services and systems. The 1994 ITU Plenipotentiary Conference, held in Kyoto, Japan, adopted a resolution to hold a world telecommunications policy forum to address the policy and regulatory issues raised by the introduction of global mobile personal communications systems and services provided by satellite.

10. As a result of this resolution, the ITU's first World Telecommunication Policy Forum was held in Geneva in October 1996. At the Forum, satellite operators and service providers stressed the need for open, equitable, and non-discriminatory access to national markets on a global basis. Operators, manufacturers, service providers, and potential users maintained that the success of this new service would rest on the users' ability to transport a mobile handset around the world and receive service on a real-time, ubiquitous basis. Finally, representatives from many countries stressed the importance of preserving national sovereignty and preventing revenue bypass of their national public switched networks via GMPCS satellite operators.

11. Participants recognized that these and other ancillary issues, including the possible need for equipment to be approved individually in every country where service might be provided, might pose a substantial impediment to the development of GMPCS systems. As a result, the Policy Forum adopted five draft opinions.[13] One of these opinions included a draft Memorandum of Understanding designed to facilitate global transport and roaming of GMPCS user terminals. Many countries, however, wanted any cooperative action proposed by the Policy Forum to remain non-binding. Therefore, interested parties were requested to assemble the following February to finalize and sign the non-binding MoU document and to draft specific arrangements concerning the licensing, type approval, marking, provision of traffic data, and customs treatment of GMPCS user terminals.

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[12] "World Mobile Satellite Telephony Markets: 1999-2007", The Strategis Group, December, 1998.

[13] These included "The Role of GMPCS in the Globalization of Telecommunications" (Opinion 1), "Shared Visions and Principles" (Opinion 2), "Essential Studies by the ITU on GMPCS" (Opinion 3), "Establishment of a Memorandum of Understanding (MoU)" (Opinion 4), and "Implementation of GMPCS in Developing Countries" (Opinion 5).

12. The United States signed the GMPCS MoU in February 1997. To date, a total of over 120 entities -- composed of over 50 Administrations,[14] several associations and over 50 private sector companies -- have signed the MoU. The signatories represent the majority of future GMPCS markets and over one third of all ITU member Administrations. The Arrangements and the accompanying Implementation Plan were finalized in March 1998.[15] The role and function of the ITU in administering these Arrangements was formally approved by the ITU Council in May 1998.[16] At that time, the ITU Council also approved the use of the ITU acronym as part of the new ITU mark for identifying terminals registered in the ITU database. This globally-recognized mark will be placed on GMPCS terminals to signify that a) they have been type-approved by at least one Administration; and b) that the Administration has provided a description of its licensing/type approval/marking requirements to the ITU as outlined in the Arrangements; and c) that a licensed satellite system operator intends to use the particular terminal with its system.[17]

13. Last spring, following final action of the ITU Council, the Commission recognized that several U.S.-licensed GMPCS systems were either currently operating or on the verge of commercial operation. We also recognized that user terminals associated with these systems would need to receive equipment certification as soon as possible in order to receive the FCC mark and, ultimately, the ITU mark. Consequently, in a Notice of Proposed Rulemaking adopted in May 1998 (*"the 1998 Notice"*), we proposed a voluntary interim equipment certification procedure to be used prior to adopting final rules to implement the GMPCS MoU.[18]

14. In the *1998 Notice*, we proposed to issue equipment certifications to all GMPCS terminals meeting certain requirements. Specifically, we proposed to certify all

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[14] The Arrangements were drafted using standard International Telecommunications Union terminology where appropriate. In this case, rather than the terms "country" or "nation" (which may not include entities such as The Republic of Taiwan), the term "Administration" is used to encompass a broader range of affected governments. In the Arrangements, the term "administration" is specifically defined as "any government department or service responsible for implementing these Arrangements or parts thereof." Arrangements, Section IV, p.2.

[15] Copies of the MoU, the current list of Signatories, the final Arrangements and the Notification and Marking Implementation Plan (Annex) are available to the public at the FCC International Bureau Reference Center, 2000 M Street, N.W., lobby entrance.

[16] Resolution 1116.

[17] *See* The Annex to the GMPCS-MoU Arrangements--*"Implementation of the GMPCS-MoU Arrangements"*--adopted on March 13, 1998.

[18] *See 1998 Biennial Regulatory Review --Amendment of Parts 2, 25 and 68 of the Commission's Rules to Further Streamline the Equipment Authorization Process for Radio Frequency Equipment, Modify the Equipment Authorization Process for Telephone Terminal Equipment, Implement Mutual Recognition Agreements and Begin Implementation of the Global Mobile Personal Communications by Satellite (GMPCS) Arrangements*, 13 FCC Rcd 10683 at ¶¶ 40-46.

GMPCS-related terminal equipment that complies with the Commission's technical and other requirements for that service, including requirements governing emissions limits.[19] In addition, we proposed that Big LEO terminals operating in the 1610-1626.5 MHz band would also have to meet the out-of-band emission limits recommended for implementation by the year 2005 by the National Telecommunications and Information Administration (NTIA) in its September 1997 petition for rulemaking.[20]

15. The Commission also noted that, were the Commission to adopt more stringent standards in the final GMPCS proceeding than the ones proposed and adopted for interim certification, the Commission would require the terminals to meet the stricter standards, in accordance with any other associated requirements or provisions adopted as a result of final GMPCS implementation. In December 1998, in light of the comments received in response to the *1998 Notice*, we adopted the proposed voluntary interim procedure for all GMPCS terminal equipment.[21]

III. DISCUSSION

A. GMPCS MoU Implementation

1. GMPCS MoU Implementation

a. The Arrangements

16. The GMPCS-MoU is predicated on two general principles: first, that the global nature of GMPCS can be ensured only when the user can transport a GMPCS terminal across national territories without delay or fees; and second, that it is in the public interest to speed deployment of this new service by streamlining the licensing of GMPCS terminals. Specifically, the Arrangements state that class or blanket licensing of GMPCS terminals, instead of individual terminal licensing (that is, issuing a separate authorization for each terminal), will facilitate regional and global circulation and transborder roaming. The Arrangements also urge nations to sign the MoU and implement the provisions of the Arrangements as soon as possible and to adopt eventually a single unified and harmonized set of requirements for GMPCS terminal type approval/certification.[22]

17. Nevertheless, the MoU also recognizes that compliance with the Arrangements does not curtail the sovereign authority of Administrations or competent

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19 *Id.* at ¶45.

20 RM-9165.

21 *See Report and Order,* FCC 98-338 (rel. Dec. 23, 1998) ("*GMPCS Equipment Certification Order*").

22 Arrangements, Section V, General Provisions.

authorities.[23] Thus, GMPCS operators, manufacturers, and service providers remain subject to the laws and regulations in each country where service is being provided. Moreover, the Arrangements instruct operators that they may not operate their systems in any country that has not authorized the service. Various countries and regional bodies have recently begun promulgating specific regulations governing GMPCS service. In fact, in December 1998, the European Regulatory Commission (ERC) adopted a proposal concerning the free circulation, use, and licensing of individual terminals across the European continent.[24] South Africa has also released a series of proposed regulations governing the licensing of GMPCS services.

b. Commission Authority

18. The first provision in the Arrangements concerns type approval of equipment (currently referenced in our Rules as "equipment certification")[25] and marking of GMPCS terminals. The Arrangements define "type approval" as the "process through which the conformity of GMPCS terminals with regulatory technical requirements is assessed mainly to ensure that GMPCS terminals do not harm networks, GMPCS users, other users or other equipment."[26] This definition is consistent with the intent of the Commission's rules governing equipment certification.[27]

19. The Commission's current rules do not require users or manufacturers to obtain equipment certifications for GMPCS terminals. Rather, we have issued mobile earth terminal authorizations through our earth station licensing process. Under that policy, embodied in Sections 25.115 and 25.136 of the Commission's rules, GMPCS service providers are issued "blanket authorizations" that cover a specified number of user terminals.[28] End users then operate the terminal under authority derived from the blanket licensees, in accordance with Section 25.136 of the Commission's rules, which forbids end users from transmitting to a satellite without prior permission from the satellite licensee or from the service vendor authorized by it. The "blanket" authorizations specify general operating parameters for a specific number of terminals and specific requirements for the protection of

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23 *Id.*,Section III, p.2. The GMPCS-MoU Arrangements define the term "competent authority" as "Any organization competent for regulatory issues addressed in these Arrangements." This term refers to a body such as the European Community's CEPT. See Section IV, p.2.

24 European Commission, ERC/DEC (98) SS.

25 *See* 47 C.F.R. §2.907.

26 *See* Arrangements, Section IV, p. 3.

27 *See* 47 C.F. R. Part 2., subpart J.

28 *See, e.g., U.S. LEO Services*, 11 FCC Rcd 20474 (1996).

radiocommunication services, consistent with our rules.[29]

c. Scope of Proposal

20. While the GMPCS-MoU encompasses all satellite systems, we seek comment on whether our certification proposal should encompass all varieties of earth terminals or be limited to only those that are likely to be transported across national borders. Therefore, we request comment on whether to apply the proposals in this Notice to GMPCS terminals associated with fixed services, such as Very Small Aperture Terminals ("VSATs"), or used in conjunction with geostationary satellite systems in the Fixed Satellite Service, that do not typically transit national borders to provide mobile service.

2. Certification of GMPCS Terminals

a. GMPCS Terminal Certification and International Roaming

21. To promote the development of GMPCS service, we propose to develop a set of requirements by service and terminal type, which would enable manufacturers to obtain an authorization for GMPCS terminal equipment through the Commission's equipment certification process. Certification of terminals should be a major benefit to the global satellite industry, since equipment certification which requires labeling the equipment with a 4 to 14 character FCC identifier, is useful in assuring foreign authorities that other equipment, such as cellular handsets and computer modems, is safe and should be allowed to transit across borders without delay and be used in their respective territories. In contrast, a Commission "blanket" license by itself, because it does not result in the marking of the terminal equipment, may not necessarily facilitate trans-border transport. Many GMPCS operators and terminal manufacturers have expressed interest in obtaining the FCC identifier. In fact, shortly after we adopted the interim certification process last spring, Motorola, Inc. applied to the Commission for certification of a voice terminal and a paging receiver to be used in conjunction with the Iridium satellite system.[30]

22. Under the Arrangements, equipment certified by an Administration is eligible to receive the right to use the "GMPCS-MoU ITU REGISTRY" mark if the certifying Administration, in conjunction with a letter from the system operator stating that the terminal is intended to be used with the particular system, notifies the ITU that the equipment has been certified in accordance with specific national requirements. Thus, once the FCC certification is completed and the terminal information is registered at the ITU, GMPCS operators and manufacturers have the right to place the global "GMPCS-MoU ITU REGISTRY" mark on their terminals. The ITU mark assures Administrations, especially

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[29] *See* 47 C.F.R. §§ 1.1307, 25.135(b) and (c), 25.136(a) and (b), 25.202(a)(3), 25.202(a)(4), 25.202(d), 25.202(f), and 25.213(a)(1) and (b).

[30] *See Petition for Equipment Certification* filed May, 12 1998. [File No. 31010/EQU 4-3-1]

those that do not intend to establish national certification procedures, that the equipment was certified by at least one country and duly registered by the ITU. The ITU mark will be of particular benefit to countries that do not intend to establish national certification procedures of their own.

23. Companies have already begun to take steps to obtain the ITU mark for placement on their terminals. After receiving certification for the Iridium terminals, Motorola, in accordance with the GMPCS-MoU notification procedure, asked the Commission to notify the ITU that the terminals had been certified and to provide a list of the required specifications. After this information was registered at the ITU, the ITU authorized Iridium to place the ITU mark on Iridium terminals. Subsequently, additional terminals for the Iridium system have been type-approved by the FCC and are undergoing the notification process at the ITU.

b. Terminals Sold in the United States for Domestic Use

24. The current interim FCC certification process for GMPCS equipment is voluntary, and makes no specific distinctions between the requirements necessary for selling terminals in the United States and those required for use or transit. As the GMPCS industry develops, we anticipate a growing number of systems, both regional and global, will be serving the public using a wide variety of portable units designed and manufactured by both domestic and foreign entities. We also envision that terminal types will change over time as technology evolves. To ensure that these terminals do not cause interference to existing services and can be readily identified as such, we propose to treat GMPCS terminals similarly to other wireless devices. To this end, we propose to require GMPCS terminals to receive an equipment certification before they can be sold or leased, shipped or distributed for the purpose of sale or lease in the United States.[31] Specifically, GMPCS terminals function similarly to cellular telephone terminals, except that they communicate with a satellite, rather than a terrestrial cell site. Also, like other wireless devices, GMPCS terminals have the capability of causing harmful interference to other users of the radio spectrum, as well as the potential of exposing users to harmful levels of radiofrequency radiation. We therefore propose that all GMPCS terminals sold or leased, or imported for sale or lease in the United States and intended to be used with an authorized GMPCS service be required to obtain an FCC certification in conformance with the requirements proposed below and the procedures described in Part 2 of our rules. However, we propose to distinguish hand-held or portable GMPCS terminals from other mobile terminals. We do not propose extending this requirement to mobile terminals permanently installed on ships, boats or planes, for example, and we request comment on this exemption. Because of the difficulty of recalling and retrofitting equipment already in commercial use, we also request comment on the possibility of "grandfathering" terminals already operating in conjunction with licensed GMPCS systems who have not yet obtained the current voluntary interim equipment certification by exempting

[31] *See* 47 C.F.R. §2.803.

them from this certification requirement.

c. Terminals Brought into the United States for Domestic Use

25. We anticipate that terminals to be used in conjunction with GMPCS systems authorized to provide service in the United States will be manufactured and sold worldwide. Consequently, we anticipate that terminals that have not been FCC-certified may be brought into the United States by individuals for domestic use even if not sold or leased here. We propose to permit these terminals to operate in the United States without further Commission approval, provided they bear an ITU mark and are operated in a manner that is consistent with the authorization granted to the licensed GMPCS service provider with which they are communicating. We propose this for several reasons. First, we intend to hold a U.S.-licensed GMPCS service provider liable for all transmissions in the United States that emanate from its network. Therefore, we expect that any terminal brought into the United States for use will be operated only if there is a U.S.-licensed service provider responsible for its operation. Thus, if a terminal does not meet our technical specifications, the satellite operator would not allow the terminal to access its system. In addition, the appearance of the ITU mark on a terminal, either in conjunction with an individual Administration's identifier or alone,[32] would signify that the terminal was certified by at least one Administration or competent authority, and that the corresponding specifications were registered in the international ITU database. The ITU database is designed so that the standards or technical characteristics that were the basis for the certification will be readily available (in either a written or electronic format) for review and evaluation. This information will be essential for U.S.-licensed GMPCS service providers to determine that the terminals will not cause harmful interference.

26. To protect existing networks against interference, we propose to prohibit terminals not bearing the ITU mark from entering the United States. In addition, we encourage terminal manufacturers who do not apply for an FCC certification to secure an accompanying Administration or regional body mark, in order to allow us to access more easily the information the certifying country had submitted to the ITU concerning its equipment certification process. Once we review the information posted in the ITU database, we also propose to develop a list of GMPCS terminals originating from abroad that have been certified to standards consistent with those in our rules and have been approved by the operator for use with an authorized system in the United States. These terminals, though not FCC-certified, are thus listed as "approved for domestic use" in the United States. This list will enable Customs officials to recognize more easily terminals without an FCC identifier at various points-of-entry. Further, we propose to amend Part 2 of our rules to allow devices bearing the ITU mark to be exempted from the current import conditions governing personal telecommunications devices as specified in our rules.[33]

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[32] For example, we understand that GMPCS equipment certified in Europe would bear the "Communité Européen" or "CE" mark on the terminal.

[33] *See* 47 C.F.R. §2.1204(a).

d. Terminals Brought into the United States for Transit Only

27. The global nature of GMPCS requires us to balance the potential harm which the use of GMPCS terminals could cause to existing services against the desire to allow foreign users entering the United States to transport and use authorized GMPCS terminals in the United States. There may also be regional or global systems licensed by foreign administrations that are not authorized by the Commission to provide GMPCS service in U.S. territory. We note that it is the responsibility of the GMPCS system operators and service providers not to provide service to any user in a territory where it has not been properly authorized. However, we do not wish to prohibit visitors from carrying these terminals into the United States without operating them, en route to a location where the service is authorized. To protect existing networks against any possible interference, we propose that all terminals carried into the United States as a personal effect for transit also be required to bear the ITU mark. Unmarked terminals would, therefore, be prohibited from entering the United States. Notwithstanding the fact that they may be inoperable, we believe that all GMPCS terminals entering the United States must be able to be traced to a specific set of certified technical standards provided by an administration in the event that a user does attempt to operate them. Should harmful interference occur, it will be necessary to trace the terminal to the ITU database and evaluate its technical specifications. Terminals bearing the ITU mark would be included in the ITU database and could therefore also be placed on the list provided to the U.S. Customs Service of GMPCS terminals "approved for transit" through the United States. We request comment on the practicality and enforceability of tracking, accessing, and disseminating this information from the international registry. We also request comment on the other practical considerations of this proposal related to the Customs process below.

3. The Relationship of Equipment Certification to Blanket Licensing of Terminal Equipment

28. The Communications Act of 1934 ("the Act"), as amended, requires the Commission to license transmitting facilities and to make reasonable technical regulations, consistent with the public interest, governing the interference potential of equipment that emits radio frequency energy.[34] In order to issue a license, the Commission must ensure that prospective licensees satisfy our legal and financial requirements, as well as service-specific technical requirements designed to prevent interference. Under our "blanket" license process for earth stations, we have eliminated the need to issue individual licenses for multiple, identical transmitters used in conjunction with an authorized mobile or fixed satellite service within the United States.[35] To date, we have issued blanket licenses to system operators and

[34] 47 U.S.C. § 302(a).

[35] *See* 47 C.F.R. §§ 25.115(d), 25.135, 25.136, and 25.213.

service vendors for terminals operating with three GMPCS systems.[36] We propose to continue to license GMPCS terminals in this manner for domestic service.

29. Apart from this licensing process, the Commission conducts an authorization program to certify that radio transmitters and other electronic devices, before they are sold for use in the United States, meet the standards necessary to avoid interference to radio services and demonstrate compliance with environmental radiation hazard limits. Recently, as part of its 1998 biennial review, the Commission undertook two streamlining measures that simplified our equipment certification processes. The first deregulated the equipment certification requirements for certain types of equipment and provided for electronic filing of applications for equipment certification.[37] Second, the Commission adopted rules permitting private entities in the United States and designated entities in other countries to certify that equipment intended for use within the United States complies with Commission requirements.[38] These rules allow designated private entities to issue equipment approvals in essentially the same manner as the Commission.

30. We noted in our 1998 *GMPCS Equipment Certification Order* that an interim equipment certification for GMPCS terminals does not, in itself, authorize the terminal to be used in the United States. Rather, we emphasized that GMPCS terminals may be operated only under a blanket license awarded to a service provider to provide mobile satellite service in the United States.[39] This is similar to other earth station applications, where we require a space station to be authorized to provide service in the United States before we grant the license for an earth station affiliated with that service.[40] Therefore, only terminals authorized under a licensed space station and authorized service provider holding a blanket license for service in the United States under Part 25 of our rules would be considered for equipment certification.[41] We propose to dismiss as premature all applications for certification of equipment affiliated with an unauthorized service. In the case of GMPCS service provided by non-U.S.-licensed satellites, terminals could be submitted for Commission

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36 *U.S. Leo Services, Inc., supra*; *Orbital Communications Corp.*, 10 FCC Rcd 6572 (1995); *American Mobile Satellite Corp.*, 1995 WL 109123 (F.C.C.).

37 *Amendment of Parts 2, 15, 18 and Other Parts of the Commission's Rules to Simplify and Streamline the Equipment Authorization Process for Radio Frequency Equipment* (Report and Order), 13 FCC Rcd 11415 (1998).

38 *GMPCS Equipment Certification Order*, n.21 *supra*.

39 *Id.* at ¶76.

40 *See 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 24094 (1997) ("*DISCO II*").

41 *See* 47 C.F.R. §§ 25.102(a), 25.11, and 25.136.

certification only after demonstrating that they will be operating under a blanket license issued by the Commission in accordance with our rules governing foreign providers of satellite service.[42]

31. In proposing this new GMPCS terminals certification procedure, we do not intend, at this time, to merge our licensing and certification collection procedures. Nevertheless, we request comment on this issue and on ways in which these processes can be streamlined. For example, should we discontinue our review of earth station technical requirements in the context of the licensing process, deferring it to the equipment certification process? Or, should we instead continue to evaluate the terminals' conformance with the Commission's technical requirements in the licensing process, and simply award equipment certifications to all terminals falling under a particular blanket license? We note that the information currently filed in Form 731 by applicants requesting an equipment certification under Part 2 of our rules includes only the technical information currently required in the Commission's Form 312 (Schedule B) application for earth stations authorizations under a blanket license, including frequency range, power output, frequency tolerance, and emissions data.[43] The legal and financial data required under our licensing procedure are not necessary for equipment certification. We request comment on the best way to streamline even further the licensing and certification process, including modifying our forms, in order to ensure that the data collected are sufficient for evaluating technical compliance with our specifications while avoiding any delay in issuing either a license or a subsequent equipment certification or imposing unnecessary burdens on applicants.

4. Additional Terminal Equipment Standards

32. We propose to adopt certification requirements for terminals used in conjunction with GMPCS systems for which we have adopted service rules. As new GMPCS systems are licensed, we intend to add additional certification standards on a case-by-case basis for terminals operating in conjunction with such licensed systems.

33. The Commission's interim GMPCS equipment certification procedure noted that the existing technical requirements found in Parts 1, 2 and 25 of our rules would form the basis for certification of GMPCS terminals. The Commission also adopted, as the sole additional interim certification requirement, out-of-band emission limits recently proposed by the National Telecommunications and Information Administration ("NTIA") for terminals associated with Big LEO systems operating in the 1610-1626.5 MHz band. Proposals concerning permanent adoption of that particular standard for MSS terminals operating in the L-band, are discussed in detail below.

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42 *DISCO II* at ¶188.

43 *See* FCC Forms 731 and 312.

34. As part of our final implementation of a GMPCS terminals certification process, we request comment on whether our current requirements are adequate to prevent harmful interference and radiation hazards or are too severe. We note that there are other technical standards that do not now apply to GMPCS terminals but may potentially be applied to GMPCS systems by international bodies such as the ITU and European Telecommunication Standards Institute ("ETSI"). We request comment on whether there are other standards that all types of terminals should be required to meet in the future in order to facilitate international roaming.

5. Access to Traffic Data

35. The GMPCS MoU includes a provision concerning whether and to what extent caller traffic data associated with GMPCS terminals can be released to national authorities upon request. The final Arrangements include a set of guidelines with general requirements for the release of traffic data to administrations and competent authorities, consistent with national regulations and specific bilateral agreements between regulators and system operators.[44] The Commission's rules provide for submission of traffic data and other reporting requirements based on the type of service provided.

36. We recognize the potentially conflicting concerns regarding national security and the need to protect the sensitive and proprietary nature of traffic data. Balancing these concerns, however, is best left to specific regulation in this area through individual service agreements developed between regulators and GMPCS companies. We do not propose to require any specific traffic data filings to the Commission from GMPCS operators or service providers.

6. Recommendations on Customs

37. The rapid globalization of the information services and telecommunication market has encouraged countries to eliminate or reduce customs duties and national tariffs on information technology and telecommunications products and to begin recognizing national equipment type approval processes on a bilateral or regional basis. To date, the Commission has participated in two initiatives in these areas. First, the Information Technology Agreement (ITA) was negotiated in 1996 as part of the World Trade Organization Ministerial meeting. It was designed to eliminate tariffs on information and communication technology products by the year 2000. It was signed by 14 countries, including the United States, representing 85 percent of the world information technology trade.[45]

38. Second, the Commission participated in the development of several bilateral

[44] Arrangements, Section VI (C), p. 6.

[45] See USTR press release 96-96; December 13, 1996.

and regional Mutual Recognition Agreements (MRA) for product approvals. The United States/European Community MRA was signed on May 18, 1998, and the Commission adopted rules to implement the agreement in December 1998.[46] Under the US/EC MRA and our rules, products can be tested and certified in the United States for conformance with EC member states' technical requirements. Certified products may be shipped directly to Europe without any further testing or certification. In return, the MRA obligates the United States to permit parties in Europe to test and authorize equipment based on the United States technical requirements.

39. Commission staff and representatives of the United States telecommunications industry have also reached an MRA with the Asia-Pacific Economic Cooperation (APEC), a trade cooperative of twenty-one economies along the Pacific Rim. The text of the model APEC Telecom MRA was endorsed at the APEC Ministerial Meeting on June 5, 1998. Unlike the US/EC MRA, the APEC MRA is a voluntary model agreement. To enact the agreement, each APEC member economy must adopt the agreement with each of its APEC trade partners through a bilateral exchange of letters. The MRA is expected to take effect on July 1, 1999, although individual parties may agree to apply it bilaterally before that date. We anticipate that the United States may develop or participate in additional mutual recognition agreements that involve other regions of the world. For example, the Interamerican Telecommunications Committee (CITEL) of the Organization of American States is considering developing an MRA for the Americas region.

40. The GMPCS MoU is a tool with which the Commission can eliminate obstacles to the availability and provision of GMPCS services. The Arrangements explicitly recognize that telecommunications regulators do not have authority over any aspect of national customs requirements. However, through this *Notice*, we are proposing three mechanisms to facilitate the circulation of GMPCs terminals and to promote the proper use of the ITU registry and recognition of the global GMPCS-MoU.

41. First, we propose to inform the United States Customs Service about the new "GMPCS-MoU ITU REGISTRY" mark and the registration process at the ITU and seek agency comment on how best to disseminate this information to agents and enforce the proposed rules at points of entry. Second, we propose requiring GMPCS terminals certified for sale and use in the United States to comply with the current procedures in Part 2 governing importation of devices capable of causing harmful interference, including following the procedures mandated by the U.S. Customs Service for electronic filing of Form 740 which is required for importation of equipment. Third, we propose developing a list of "approved" GMPCS terminals (i.e., those certified by the Commission and/or other Administrations and, subsequently, registered with the ITU and used in conjunction with an authorized service) that will be posted to a shared Customs-Commission database on a real-time basis. This will help agents readily identify and screen terminals carried into the United States as a personal effect,

[46] *See 1998 Biennial Regulatory Review* (Report and Order), FCC 98-338 (December 23, 1997).

either for temporary use or transit, that are certified or type-approved by other administrations and do not pose a threat of harmful interference to existing networks or emit hazardous environmental radiation. We request comment on what specific procedures should be adopted to fulfill these Commission objectives most efficiently.

7. Enforcement Matters

42. First, Title V of the Act, as amended, delegates broad powers to the Commission for enforcement of its rules.[47] This statutory authority covers violations of rules related to Section 301 and 302 of the Act concerning devices which interfere with radio reception.[48] This would include instances when terminals imported into the United States for transport only are then used and cause interference. Therefore, all our proposed GMPCS certification requirements will be enforced in the same manner as other telecommunication equipment certified under Part 2. Further, we intend to hold the licensed GMPCS service provider accountable for any reported and proven infractions of all our proposed technical and operational terminal requirements. In instances where terminals are not operating in compliance with our rules and no domestic entity is authorized to provide service, the equipment will be confiscated as specified under Section 510 of the Act.

43. We note that there is a pending proceeding that proposes to amend Part 2 of the Commission's rules which requires all telecommunications equipment brought into the United States to be certified. The rules currently exempt from certification any equipment imported solely for export and not offered for the purpose of sale and use in the United States.[49] In its *Notice*, the Commission proposed to amend Section 2.1204 to clarify the language regarding importation for export of a radio frequency device to make the rule more easily enforceable and to address concerns raised by the U.S. Customs Service. Several commenters filing in that proceeding are current or future GMPCS systems or service providers. They have expressed concern that deleting this "solely for export" exemption may be too broad an enforcement remedy and could adversely affect certain equipment manufacturers. Specifically, they contend that deleting the exemption will pose substantial problems for importers of dual-mode terminals (e.g., foreign-standard [GSM] terrestrial wireless combined with GMPCS handsets) from foreign manufacturers who wish to re-sell them to affiliates or distributors for sale or rent to subscribers intending to use terminals abroad. We request comment on how our proposed GMPCS rules should also address the unique case of dual-mode cellular/GMPCS terminals where the terrestrial component cannot be certified to a standard common to the United States.

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[47] 47 U.S.C. § 501 *et seq.*

[48] See 47 U.S.C. § 510.

[49] See *Amendment of Part 2, Subpart K of the Commission's Rules regarding the Importation of radio frequency devices Capable of Causing Harmful Interference*, 1998 WL 289068 (F.C.C.) at ¶C.6.

B. Technical Requirements for GMPCS Terminals:

1. *Limits on Out-of-Band Emissions to Protect Aeronautical Satellite Radionavigation*

44. We further propose a change in our technical rules to adopt additional limits on out-of-band emissions from MSS terminals. Before the GMPCS-MoU was finalized, the Commission began had before it a proposal from the National Telecommunications and Information Administration ("NTIA") of the U.S. Department of Commerce to establish limits on out-of-band emissions[50] from certain types of mobile terminals used for telecommunication via satellite. The NTIA proposal, developed in consultation with the Federal Aviation Administration, is designed to prevent interference with aircraft reception of satellite radionavigation signals in the 1559-1605 MHz band. We propose to adopt time-phased out-of-band emissions limits for MSS terminals transmitting on assigned frequencies in the band 1610-1660.5 MHz, in accordance with the NTIA proposal.

45. The aviation industry is increasingly relying on satellite-based radionavigation, which offers important potential advantages over radionavigation by means of terrestrial facilities. It is feasible for aircraft guided by satellite radionavigation to fly direct routes not dictated by the location of ground radionavigation beacons, reducing flight time and fuel consumption. Satellite radionavigation has generally been found to be more accurate than ground-based radionavigation, moreover, allowing more aircraft to be routed through a given amount of airspace without increased risk of collision. Consequently, more flights can be assigned to the most-favorable routes. Since satellite navigation systems afford global coverage, prospects are bright for evolution of a single, integrated Global Navigation Satellite System ("GNSS") with consequent simplification of aircraft navigational equipment.

46. The International Civil Aviation Organization ("ICAO") has designated two systems as components of the GNSS: the NAVSTAR Global Positioning System ("GPS") and GLONASS.[51] The GPS is a satellite radionavigation system employing 24 non-geostationary satellites controlled from fixed earth stations operated by the U.S. government. GPS satellites transmit signals of two kinds centered on a 1575.42 MHz carrier: a Coarse Acquisition (C/A) signal 2 MHz wide for general civilian use and a Precision-code signal 20 MHz wide for military and authorized civilian use. The Federal Aviation Administration ("FAA") has approved GPS for use as a primary means of navigation over some areas of the ocean and as a supplemental aid to navigation in overland en route flight and for non-precision approach to landing. GLONASS is a global satellite navigation system maintained by the Russian

[50] Radio transmitters are typically designed to concentrate emissions within a certain range of frequencies. A transmitter cannot confine all of its emissions precisely within the band in which it generates useable signals, however. Signals generated in frequencies outside of a licensed transmitter's authorized operating band are referred to as "out-of-band emissions."

[51] GLONASS is an acronym extracted from the phrase "global navigation satellite system".

Ministry of Defense that is similar to GPS. It currently transmits Standard Accuracy signals on frequencies between 1602 and 1616 MHz.[52] In 1996, the ICAO Council accepted an offer from the Russian Federation to provide GLONASS positioning to civilian aircraft as a component of the proposed GNSS, and an ICAO panel is developing standards for hybrid GNSS receivers that would process signals from both GPS and GLONASS satellites. Although it has not yet approved GLONASS for aeronautical radionavigation in the United States, the FAA is planning a next-generation U.S. system based on the ICAO concept of an integrated GPS/GLONASS GNSS.

a. Early Developments

47. When it amended the International Table of Allocations to add allocations for MSS in the 1610-1626.5 MHz band, WRC-92 adopted a requirement that MSS terminals operating in that band were not to cause harmful interference to, or claim protection from, satellite radionavigation systems operating in the band pursuant to international coordination under ITU Article 14.[53] Later in 1992, the Commission proposed a corresponding domestic MSS allocation and chartered a negotiated rulemaking committee to recommend pertinent technical rules.[54] A salient problem to be addressed was the need to accommodate the GLONASS system, which was already operating in the 1610-1616 MHz band pursuant to Article 14 coordination. The Committee recommended that the Commission initiate discussions with the Russian administration as to the possibility of reconfiguring GLONASS for operation in a lower frequency range.[55]

48. In October 1994, the Commission issued a *Report and Order* establishing rules for the "Big LEO" service, *i.e.*, voice-and-data MSS provided via non-geostationary satellites accessed by mobile terminals transmitting in segments of the 1610-1626.5 MHz band.[56] The rules included out-of-band emissions limits to protect reception of GPS C/A

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52 GLONASS also transmits precision-code signals in a wider band. The U.S. government has not agreed to protect reception of precision-code GLONASS in U.S. territory.

53 The restrictions were incorporated in RR 731E (now RR S5.364).

54 *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* (Notice of Proposed Rulemaking and Tentative Decision), 7 FCC Rcd 6414 (1992). The Commission adopted the proposed allocation in January 1994. 9 FCC Rcd 536. The Committee was comprised of representatives from the FAA, the National Academy of Sciences, NASA, the U.S. Army, Comsat, the Wireless Cable Association International, Inc., Aeronautical Radio, Inc., Rockwell International Corporation, and seven MSS license applicants: AMSC, CELSAT, Motorola, Constellation, TRW, Loral Qualcom, and Ellipsat.

55 *Report of the MSS Above 1 GHz Negotiated Rulemaking Committee* (April 6, 1993) at 43.

56 *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*, 9 FCC Rcd 5936 ("*Big LEO Report and Order*").

signals.[57] Although U.S. consultations with Russian officials indicated a likelihood that GLONASS would shift to frequencies below 1606 MHz by the year 2005, the Commission acknowledged that emissions from Big LEO terminals could potentially interfere with GLONASS reception below 1610 MHz in the interim. It refrained from adopting specific out-of-band limits to protect GLONASS, however, leaving the issue to be resolved after further study.

49. In November 1994, representatives of the FCC, the FAA, and the NTIA signed a Memorandum of Understanding ("1994 MoU") concerning domestic implementation of a GPS/GLONASS GNSS. The 1994 MOU declared that the Commission would consider adopting any pertinent out-of-band emissions limits for MSS terminals recommended by the RTCA,[58] and that licenses for MSS terminals operating in bands near the GPS and GLONASS bands issued prior to a U.S. decision to implement GLONASS domestically would indicate that the licensees would be bound by any such limits subsequently incorporated in the Commission's rules. The MOU pertained to all MSS terminals transmitting on assigned frequencies between 1610 and 1660.5 MHz. It therefore identified American Mobile Satellite Corporation ("AMSC") and Comsat/Inmarsat, as well as the Big LEO applicants, as "parties of interest." AMSC, the licensee of an MSS system then under construction, had filed a "blanket" license application for 200,000 mobile terminals that would transmit in the band 1646.5-1660 MHz. Comsat, as the U.S. Signatory to the International Maritime Satellite Organization ("Inmarsat"),[59] provides maritime communications service in U.S. waters via Inmarsat satellites for customers equipped with shipboard terminals transmitting on frequencies in the 1626.5-1645.5 MHz maritime MSS band. Comsat has generally not been permitted to provide domestic land-mobile MSS in the United States but could obtain authority to do so pursuant to policies recently adopted in the "*DISCO II*" order.[60]

50. In January 1997, Special Committee 159, the RTCA committee that had been

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[57] 47 C.F.R. §25.213(b).

[58] RTCA, Inc. is a non-profit corporation that functions as a Federal Advisory Committee and develops consensus-based recommendations on aviation issues. Its recommendations are often used as the basis for FAA Technical Standard Orders.

[59] Inmarsat is an international treaty-based organization created to establish an international maritime satellite system to provide distress, safety, public correspondence, radiodetermination, and ship-management communications. The International Maritime Satellite Telecommunications Act, 47 U.S.C. §§ 751-757, designates Comsat as the sole U.S. operating entity in Inmarsat and as the owner and operator of the U.S. share of Inmarsat space segment and associated facilities.

[60] See *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Service in the United States*, 12 FCC Rcd 24094 (1997), and *Comsat Corporation*,13 FCC Rcd 319 (1998), *application for review pending*. The Commission has occasionally granted temporary authority for domestic use of Comsat MSS terminals on land in emergencies, for manufacturer testing, and in remote areas where no other adequate means of communication is available.

commissioned pursuant to the 1994 MOU to study the potential for harmful interference with GNSS operation, issued its final report.[61] The aviation and MSS participants agreed that a wideband limit of -70 dBW/MHz and a narrowband limit of -80 dBW would suffice to protect aircraft reception of GPS, and the MSS participants conceded that it was feasible for them to meet those limits in the precision-code GPS band. No consensus was reached regarding limits for GLONASS protection, however. The aviation contingent maintained that a -70 dBW/MHz wideband limit and a -80 dBW narrowband limit were necessary. The MSS contingent asserted that it was economically infeasible for them to suppress emissions in the GLONASS band to that extent and argued that limits of -54 dBW/MHz for wideband emissions and -64 dBW for narrowband emissions would be adequate.[62] Due to the lack of consensus, SC-159 did not issue a recommendation for out-of-band emissions limits to protect GLONASS.

b. Recent Developments

51. In the past year, several domestic and international agencies -- namely, the NTIA, the ITU-R, and ETSI -- recommended or adopted specific limits on out-of-band emissions from MSS terminals for protection of GNSS, and we adopted an interim standard for GMPCS terminal certification that was consistent with those recommendations. We will briefly recapitulate those developments.

i. NTIA Petition for Rulemaking

52. Following the release of the RTCA's inconclusive report, interested private parties and officials at the FCC, the NTIA, and the FAA conducted informal discussions concerning emissions limits for protection of GNSS in the United States. The discussions culminated in the filing of the September 1997 rulemaking proposal at issue here, which was placed on public notice with an invitation for comments.[63] As indicated in an accompanying introductory statement, the proposal reflects a compromise worked out by the FAA and the owners of the Globalstar Big LEO system: the out-of-band emission standard that the aviation members of RTCA SC-159 had demanded would ultimately be imposed for protection of aircraft reception of GLONASS between 1597 and 1605 MHz, but there would be an initial grace period during which more lenient limits would apply for emissions in that band, and no specific limits were proposed for protection of GLONASS reception on frequencies above

[61] "Assessment of Radio Frequency Interference Relevant to the GNSS," Document No. RTCA/DO-235 (January 27, 1997).

[62] The reason for the stiffer opposition to application of the -70/-80 standard in the GLONASS operating band is obvious. It would be more difficult for MSS terminals transmitting on assigned frequencies between 1610 and 1660.5 MHz to suppress emissions to that extent in the 1597-1605 MHz GLONASS band than to suppress them to the same level in the GPS band, which is separated by a wider margin from the terminals' operating bands.

[63] Report No. 2227 (Sept. 23, 1997).

1605 MHz.

53. For protection of GPS reception, the NTIA recommends requiring all MSS terminals transmitting on frequencies between 1610 MHz and 1660.5 MHz to conform to two restrictions: a wideband limit of -70 dBW/MHz, averaged over 20 milliseconds, on the e.i.r.p. density[64] of out-of-band emissions in the 1559-1580.42 MHz frequency range and a narrowband limit of -80 dBW/700 Hz, also averaged over 20 ms, on emissions in the 1559-1585.42 MHz range. Those proposed requirements are identical to the requirements advocated by the aviation members of SC-159 for GPS protection.

54. The NTIA's recommended scheme for protection of aircraft reception of GLONASS is more complex, as it is time-phased to lighten the initial burden of compliance. There are three main requirements. First, Big LEO mobile terminals (*i.e.*, MSS terminals transmitting on assigned frequencies in the 1610-1626.5 MHz band) placed in service prior to January 1, 2002 must, in addition to meeting the requirements described in the preceding paragraph, immediately meet an interim -64 dBW/MHz wideband limit on the e.i.r.p. density of out-of-band emissions in the 1580.42-1605 MHz range and a -74 dBW/700 Hz narrowband limit on e.i.r.p. density in the 1585.42-1605 MHz range.

55. Second, all MSS terminals licensed for operation on frequencies between 1610 and 1660.5 MHz commissioned *after* January 1, 2002 must be built to meet limits of -70 dBW/MHz and -80 dBW/700 Hz throughout the 1559-1605 MHz band without relying on software restriction of operating frequencies. Third, MSS terminals commissioned before January 1, 2002 must be deactivated as of January 1, 2005 unless they are altered by then, as necessary, to conform to the -70/-80 limits throughout the 1559-1605 MHz band. These requirements are graphically represented in the following tables.

[64] E.i.r.p., *i.e.*, equivalent isotropically radiated power, is a function of the power supplied to a transmitting antenna and the antenna gain in a given direction relative to that of an isotropic antenna. E.i.r.p. density is the e.i.r.p. developed across a specified bandwidth.

Proposed Limits on Emissions in the 1580.42-1605 MHz Range

TERMINALS	prior to 1/1/02	1/1/02-12/31/04	1/1/05
Big LEO: in service before 1/1/02	-64 dBW/MHz -74 dBW/700Hz*	-64 dBW/MHz -74 dbW/700Hz*	-70 dBW/MHz -80 dBW/700Hz
Big LEO: put in service after 1/1/02	N/A	-70 dBW/MHz -80 dBW/700Hz	-70 dBW/MHz -80 dBW/700Hz
AMSC&Comsat: in service before 1/1/02	none	none	-70 dBW/MHz -80 dBW/700Hz
AMSC&Comsat: put in service after 1/1/02	N/A	-70 dBW/MHz -80 dBW/700Hz	-70 dBW/MHz -80 dBW/700Hz

*Applies above 1585.42 MHz.

Proposed Limits on Emissions in the 1559-1580.42 MHz Range

Big LEO (regardless when placed in service)	-70 dBW/MHz -80 dBW/700Hz*
AMSC (regardless when placed in service)	-70 dBW/MHz -80 dBW/700Hz*
Comsat (regardless when placed in service)	-70 dBW/MHz -80 dBW/700Hz*

*Applies up to 1585.42 MHz.

56. The NTIA also recommends that we address any issues concerning potential interference with reception of GLONASS signals in U.S territory on frequencies above 1605 MHz on a case-by-case basis.

ii. ITU-R Recommendations

57. Uniformity among national technical standards for terminals used with global satellite systems is clearly desirable. The World Telecommunication Policy Forum on GMPCS issues therefore called upon the ITU to study technical requirements for GMPCS terminals, with a view to facilitating type approval and mutual recognition arrangements. In November 1997, the ITU Radiocommunication Assembly ("ITU-R") adopted a series of recommendations for licensing administrations concerning regulatory limits on out-of-band emissions from MSS terminals licensed for transmission to non-geostationary satellites in frequency bands between 1 and 3 GHz.[65] The ITU-R recommendations are essentially consistent with the NTIA's, but do not include a narrowband specification or an interim standard for suppression in the GLONASS band and do not address CDMA emissions in the GLONASS band.

58. More specifically, for non-geostationary-system MSS terminals transmitting in the TDMA mode[66] on assigned frequencies between 1 GHz and 3 GHz, the ITU-R recommends adoption of a -70 dBW/MHz limit on emissions anywhere in the 1559-1605 MHz range and a scaled limit linearly interpolated to -10dBW/MHz at 1610 MHz for emissions in the 1605-1610 MHz segment. For non-geostationary-system MSS terminals transmitting in the *CDMA* mode[67] on assigned frequencies between 1 GHz and 3 GHz, the ITU-R recommends adoption of a -70 dBW/MHz limit, again, on out-of-band emissions between 1559 and 1580.42 MHz but has not yet issued a firm recommendation for a limit on emissions between 1580.42 and 1610 MHz. It guarantees, however, that the final recommended limit on emissions in the 1580-1605 MHz band from CDMA terminals would be no more strict than -70 dBW/MHz.

iii. ETSI Standard

59. ETSI and the European Commission on Post and Telecommunications ("CEPT") recently adopted a set of standards, including out-of-band emissions limits, for MSS

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[65] Recommendation ITU-R M.1343, *Essential Technical Requirements of Mobile Earth Stations for Global Non-Geostationary Mobile-Satellite Service Systems in the Bands 1-3 GHz.*

[66] TDMA, *i.e.*, time-division multiple access,is a transmission technique involving use of the same frequency band for uplinks and downlinks in alternating time slots.

[67] CDMA, *i.e.*, code-division multiple access,is a digital transmission technique in which the signal occupies a band width much larger than needed to contain the information carried. Because the signal is spread over a wide bandwidth, the power is dispersed and interference potential is reduced.

terminals transmitting on frequencies in the 1610-1626.5 MHz band.[68] The ETSI limits on emissions in the 1559-1610 MHz radionavigation band are the same as those recommended by the ITU-R for TDMA terminals, but the ETSI limits apply to both TDMA and CDMA terminals without distinction.

iv. Interim Standard

60. The most recent pertinent development is our adoption, in December 1998, of an interim equipment certification standard for MSS terminals.[69] Although we did not wish to prejudge the final out-of-band emissions standard, we assumed that the final standard would *not* be *stricter* than the -70/-80 standard[70] recommended by the NTIA. This assumption was based on the fact that the -70/-80 standard had been deemed acceptable by the FAA, was consistent with the ITU-R recommendations, and had been endorsed by the aviation members of the RTCA study group.[71] We, therefore, decided that to qualify for optional interim certification, an MSS terminal must meet the -70/-80 limits, in addition to other pertinent technical requirements in our rules.[72] We indicated, however, that terminals voluntarily certified pursuant to the interim standard would be subject to whatever permanent limits are eventually adopted, and we did not guarantee that equipment meeting the interim standard will also meet the final standard.

c. Commission Proposal

61. We propose to adopt rules essentially in accordance with the NTIA's recommendations. The NTIA's proposal is consistent with the pertinent RTCA and ITU-R recommendations and embodies a compromise that offers protection for planned GNSS operations to an extent deemed necessary by the Federal agencies responsible for domestic implementation of the GNSS while affording affected MSS licensees several years' lead time

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68 European Testing and Standards Institute TBR-041 and TBR-042.

69 There are several pertinent existing regulations concerning out-of-band emissions. We have already mentioned the limits in Subsection 25.213(b) on emissions in the GPS C/A band. The wideband limit specified in 25.213(b) for protection of the GPS C/A band is the same one the NTIA is currently advocating for application to terminals placed in service after January 1, 2002 for protection of the entire GNSS band. There is a more-comprehensive set of restrictions on out-of-band emissions by satellite-service transmitters in Section 25.202(f), but they are more lenient than the NTIA-recommended limits. There is also a general requirement in Subsection 2.102(f) that transmission frequencies shall be separated from the limits of an allocated spectrum band insofar as necessary to avoid causing harmful interference to primary services in immediately adjoining bands.

70 *I.e.*, e.i.r.p. density limits of -70 dBW/MHz and -80 dBW/700 Hz on out-of-band emissions in the 1559-1605 MHz band. *See* detailed description in ¶¶ 41, *supra*.

71 Document No. RTCA/DO-235, *supra*, Appendix F at F-2.

72 FCC 98-338, *supra*, at ¶41.

in which to achieve full compliance. On the whole, we think it strikes a reasonable balance between conflicting public interests in fostering improvement in aeronautical radionavigation and promoting GMPCS development.

62. Thus, we propose to adopt and seek comment on the following requirements. MSS terminals licensed to transmit on frequencies between 1610 and 1660.5 MHz that are placed in service on or after January 1, 2002 must suppress the e.i.r.p. density of wideband emissions to -70 dBW/MHz or less in the band 1559-1605 MHz and suppress the e.i.r.p. of discrete emissions of less than 700 Hz bandwidth to -80 dBW in the same band.[73] As of January 1, 2005, those limits on emissions in the 1559-1605 MHz band, *i.e.*, -70 dBW/MHz and -80 dBW, will also apply to MSS terminals transmitting on frequencies between 1610 and 1660.5 MHz placed in service *before* 2002. In the interim prior to January 1, 2005, the terminals placed in service before January 1, 2002 must meet the -70 dBW/MHz limit on emissions in the band 1559-1580.42 MHz and must meet the -80 dBW narrowband limit on emissions in the band 1559-1585.42 MHz. Big LEO terminals (*i.e.*, MSS terminals transmitting on assigned frequencies in the band 1610-1626.5 MHz) placed in service before 2002 must, in addition, meet an interim limit of -64 dBW/MHz on wideband emissions in the band 1580.42-1605 MHz and an interim limit of -74 dBW on narrowband emissions in the band 1585.42-1605 MHz. Aside from a minor difference in the narrowband specifications,[74] these proposed requirements are identical to those recommended by the NTIA, as described in Paragraphs 39 and 40, above.

63. In the following paragraphs we discuss issues raised in the comments on the NTIA's rulemaking petition on which we request further comment.

i. Protection for GNSS Reception in Frequencies Below 1597 MHz

64. Adoption of an immediately-effective wideband limit of -70 dBW/MHz on the spectral power density of out-of-band emissions between 1559 and 1580.42 MHz, as the NTIA recommends and as we are proposing, would be consistent with the ITU-R and ETSI standards. As we have noted, moreover, Section 25.213(b) of the Commission's rules already prescribes a -70 dBW/MHz limit for suppression of emissions in the core GPS band, *i.e.*, 1574.397-1576.443 MHz. Constellation Communications, Inc., a Big LEO licensee, raises an objection, however, based on its understanding of the history of Section 25.213(b). It maintains that rule was adopted on the basis of a negotiated compromise: the MSS participants in the Big LEO negotiated rulemaking agreed to support a recommendation for a -70 dBW/MHz limit if the protected spectrum were limited to a two-megahertz band centered on 1575 MHz, well away from the Big LEO mobile-uplink band at 1610-1626.5 MHz. Constellation argues that the "negotiated" GPS protection band should not be expanded

[73] We propose to require that all measurements are to be averaged over a 20 millisecond interval.

[74] The variance in the narrowband specification is discussed in ¶78, *infra*.

upwards from 1576.443 to 1580.42 MHz without a clear and compelling justification and points out that the NTIA has given no reason for doing so.

65. Constellation has cited no evidence that there was any general understanding that -70 dBW/MHz protection would never extend above 1576 MHz. The premise is belied by the fact that the 1994 MOU, which issued only a month after the adoption of 25.213(b), stipulated that the rule's wideband limit "should be thoroughly reviewed ... and a replacement value recommended" by the RTCA and that MSS terminal licenses should include conditions making them subject to future out-of-band emissions standards to protect GPS. Furthermore, the MSS contingent of RTCA Special Committee 159 unanimously proposed in 1997 that the 25.213(b) limits be extended to precisely the same extent that we are proposing now, *i.e.*, that the wideband limit should extend up to 1580.42 MHz and the narrowband limit should extend up to 1585.42 MHz.[75]

66. We predicate our proposal to expand the protected GPS band on the NTIA's recommendation and on rationale in the report of the aviation contingent of Special Committee 159, which included representatives from the FAA. The report states that plans for the GNSS contemplate GPS operation in a *twenty*-megahertz band centered on 1575 MHz, GLONASS operation in the 1597-1605 MHz segment, and eventual use of the remaining portions of the spectrum between 1559 and 1605 MHz for augmentations that would supplement GPS and GLONASS. "It is therefore essential," the report asserts, "to provide protection from Radio Frequency Interference throughout this band to preserve it for GNSS augmentation and for [other] future developments in aeronautical radionavigation."[76] We assume that this largely coincides with the petitioner's view of the matter.

67. It seems unlikely, moreover, that any expansion of -70 dBW/MHz protection in the portion of the aeronautical radionavigation band below 1597 MHz would prejudicially affect MSS operation on assigned frequencies between 1610 and 1660.5 MHz, if, as we propose, MSS terminals with assigned frequencies in that range are required to suppress emissions to that level in the 1597-1605 MHz segment for protection of GLONASS. Hence we see no reason to withhold protection from any portion of the aeronautical radionavigation band below 1597 MHz that will be used for satellite aeronautical radionavigation in U.S. airspace in the foreseeable future.

ii. Interim Limits on Emissions Above 1597 MHz

68. MCHI, another Big LEO licensee, contends that the NTIA's recommendation for imposing interim limits on emissions in the 1580.42-1605 MHz band from Big LEO terminals commissioned before January 1, 2002 is inconsistent with a determination that the

[75] RTCA/DO-235, Appendix E, Table E4-3.

[76] RTCA DO-235, Appendix F at p.15.

Commission made in 1996 when ruling on petitions for reconsideration of the *Big LEO Report and Order.*[77] In the petitions for reconsideration, some Big LEO licensees had objected to the Commission's plan to adjust the boundary between the Big LEO CDMA and TDMA sub-bands in the event that domestic use of GLONASS for precision approach were to commence before the anticipated downward shift of the GLONASS operating band to frequencies below 1605 MHz, scheduled to occur by January 1, 2005. The Commission surmised in the reconsideration order that GLONASS would not be implemented in the United States before the shift occurred and consequently there would be no need to protect GLONASS on an interim basis and no occasion to implement an interim band-segmentation plan.

69. MCHI maintains that those advocating interim emission limits must identify persuasive reasons for reversing the Commission's conclusion that there will be no need to protect GLONASS in the U.S. prior to January 1, 2005. In contrast, two other Big LEO licensees, L/Q and Motorola, and AirTouch Satellite Services, which has applied for a blanket license for mobile terminals for L/Q's Big LEO system, concur in the recommendation for interim restrictions.

70. We are proposing to adopt the recommended interim limits on emissions in frequencies above 1580.42 MHz, because the NTIA and the FAA, which has primary responsibility for fostering domestic development of the GNSS, have urged us to do so and the recommendation is supported by the principals of two of the four licensed Big LEO systems. Moreover, no one has argued that the proposed -64/-74 requirement, which is more lenient than the interim standard proposed by the aviation members of Special Committee 159,[78] would impede MSS development. We urge the proponents to elucidate the perceived need for interim restrictions (including a pre-2005 cutoff for commissioning terminals that do not meet the -70/-80 limits in GNSS frequencies above 1580.42 MHz) in comments filed in response to this Notice. We also invite comment as to whether the interim limits should apply to MSS terminals transmitting on frequencies in the 1626.5-1660.5 MHz range, as well as to Big LEO terminals.

iii. The Final Compliance Deadline

71. AMSC fears that it would incur heavy costs if, as the NTIA recommends and we are proposing, terminals put in service before 2002 that do not meet -70/-80 limits on emissions between 1580.42 MHz and 1605 MHz must be retired from service as of January 1, 2005. AMSC says that some of its existing first-generation terminals might not meet those limits in the 1597-1605 MHz GLONASS band and maintains that it is not feasible to retrofit existing units with filters in order to achieve compliance with those limits in that band.

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[77] 11 FCC Rcd 12861, *supra*, at ¶¶ 12-14.

[78] The aviation members recommended requiring suppression of out-of-band emissions to the -70/-80 level from 1597 to 1610 MHz in the interim period 1998-2005. RTCA/DO-235 at F3.

AMSC estimates that it might have to spend as much as $80 million to replace non-conforming units unless the compliance deadline is moved back.

72. AMSC contends that the deadline for meeting -70/-80 limits in the GLONASS band should be no earlier than 2010. It argues that there is little likelihood that GLONASS will be used in the United States before 2010 for aeronautical navigation during precision approaches, because the steps that must be taken in order to integrate GLONASS into a domestic GNSS -- Congressional appropriation, development of operational performance standards by the FAA, design, manufacture, equipment certification, and installation of avionic equipment, crew training, and end-to-end FAA certification for use in precision approach -- will take more than a decade.

73. We invite comment as to when use of GLONASS for navigation during precision approach is likely to commence in this country, considering, among other things, the likelihood that foreign-based aircraft dependant on GLONASS for radionavigation will be routed to U.S. destinations. Also, we invite comment on the possibility of waiving or postponing the compliance deadline with respect to emissions in the 1597-1605 MHz band in the event that progress toward domestic implementation of GLONASS proves slower than expected.

74. In the alternative, AMSC argues that if we require compliance with -70/-80 limits by 2005 we should require aircraft owners to compensate owners of terminals that must consequently be altered or replaced. While it is true, as AMSC notes, that the Commission has imposed compensation requirements in exercise of its licensing jurisdiction,[79] it is not clear that any compelling equitable basis exists for granting such relief, as AMSC was on notice when it received its license for mobile terminals that it would be subject to any out-of-band emission limits deemed necessary for protection of GPS and GLONASS.

iv. The Ultimate Limit on Wideband Emission in the GLONASS Band

75. Because the final GLONASS operating band, 1597-1605 MHz, is closer to their assigned mobile-uplink bands, it will be more difficult for the Big LEOs, AMSC, and Comsat to suppress emissions in that band to -70 dBW/MHz than to suppress emissions to the same extent in GNSS spectrum below 1597 MHz. Nevertheless, the Big LEO operators whose interest is most immediate -- namely, Motorola, whose Iridium System became operational in 1998, and Loral/Qualcomm and Air Touch, who plan to put the Globalstar system into commercial operation in 1999 -- have indicated that they are willing to meet a -

[79] *See Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, 7 FCC Rcd 6886, 6890 (1992).

70 dBW/MHz limit in the 1597-1605 MHz band, at least by 2005.[80] Some commenters have raised objections, however, to the NTIA's recommendation for an ultimate -70 dBW/MHz limit to protect GLONASS reception in the 1597-1605 MHz band. Constellation contends that there is no technical justification on the record to support adoption of this requirement. Aviation proponents should demonstrate that the GLONASS-band limit is no more strict than necessary, Constellation argues, in light of receiver characteristics and test data. MCHI asserts that imposing a -70 dBW/MHz limit to protect GLONASS would exact a heavy price in terms of increased size and cost of Big LEO mobile terminals, shorter battery "talk" time, and diminished system capacity. AMSC notes that the interference analysis in the MSS appendix to the Special Committee 159 report suggests that a wideband limit of -54 dBW/MHz would suffice. AMSC contends, moreover, that before imposing additional restrictions on MSS terminals to protect GPS or GLONASS, we should require manufacturers and/or users of GNSS receivers to minimize their susceptibility to interference.

76. We recognize these concerns. Nevertheless, the NTIA and the FAA have maintained that a -70 dBW/MHz limit is needed to protect aircraft reception of GLONASS signals in the 1597-1605 MHz segment from out-of-band emissions from MSS terminals with assigned frequencies between 1610 and 1660.5 MHz. Similarly, the ITU-R has recommended universal adoption of that requirement for TDMA terminals used with non-geostationary MSS systems. Further, the licensees of the Globalstar and Iridium Big LEO systems have indicated that they are willing to comply. We therefore propose to adopt the requirement. We request comment, however, on the assumptions underlying the NTIA's recommendation in this regard and concerning measures that manufacturers of GNSS receivers might employ to minimize susceptibility to out-of-band interference. In particular, evidence that the susceptibility of GNSS receivers could be significantly reduced from the level assumed in the susceptibility analysis in Appendix F of the RTCA/DO-235 report at little additional cost or impairment of performance would be of interest.

77. LSC, Inc. and the U.S. GPS Industry Council have suggested in comments on the interim certification standard that we should consider adopting a limit more restrictive than -70 dBW/MHz in order to afford additional protection for marine and land-mobile radionavigation. LSC maintains that suppression to a level of -83 dBW/MHz in the 1559-1605 MHz band is necessary to that end. Our purpose in this proceeding, however, is to adopt out-of-band emissions limits for protection of *aeronautical* uses of the radionavigation satellite service. Adoption of even stricter limits for protection of less-critical applications is beyond our present contemplation. In any event, we would be reluctant to impose out-of-band limits so strict that Big LEO licensees could not meet them without sacrificing the commercial utility of their systems, which would effectively nullify the Big LEO MSS allocation.

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[80] "Comments on Petition for Rulemaking" filed by L/Q Licensee, Inc. on December 8, 1997; "Comments on Petition for Rulemaking" filed by Motorola Satellite Communications on December 8, 1997 at ¶2; and "Reply Comments on Petition for Rulemaking" filed by AirTouch Satellite Service Systems on December 23, 1997.

v. Measurement Parameters

78. The narrowband limits advocated by the NTIA are of a different kind than the narrowband limits currently specified in the Commission's rules for suppression of out-of-band emissions in the core GPS band. The narrowband limits that the NTIA recommends are expressed in terms of spectral power density, whereas the current narrowband provision in Section 25.213(b) sets an absolute limit on the permissible power of discrete spurious emissions. (The narrowband limits discussed in the report of Special Committee 159 also pertain to power, rather than to spectral power density.) Because we do not see, at this point, that it would serve any useful purpose to switch to spectral power density limits, and as the NTIA has not, as yet, offered any reason for doing so, we are proposing to adopt straightforward limits on the power of narrowband spurs.

79. Motorola contends that if we adopt a narrowband spectral power density limit we should specify a different measurement bandwidth than the 700 Hz bandwidth specified by the NTIA. It is currently impossible to measure compliance with the recommended -80 dBW/700 Hz limit with existing equipment, Motorola asserts, because existing spectrum analyzers have resolution bandwidths of either 300 Hz or 1 kHz. Motorola therefore recommends that we specify either 300 Hz or 1 kHz as the measurement bandwidth for the narrowband limit. Adoption of absolute power limits for discrete narrowband emissions rather than spectral power density limits, as we just proposed in the preceding paragraph, would alleviate the difficulty, however, because it would be possible to demonstrate compliance with the proposed limits on the power of discrete spurs of less than 700 Hz bandwidth with analyzers that do not resolve precisely at 700 Hz. Clearly, if the total power in a 1000 Hz band is -80 dBW, the signal power in any segment of that band will not exceed that level.

80. Motorola asserts that if a peak-detecting spectrum analyzer is used to measure the power density of wideband TDMA emissions, the peaks will exaggerate the power level by the peak-to-rms factor of the measurement technique and will further exaggerate measured power by failing to account for the duty cycle of the TDMA transmitter. Motorola therefore recommends that we make it clear in the rules we adopt that non-peak detectors may be used to test TDMA METs for compliance. Motorola further recommends that we allow licensees to use resolution bandwidths smaller than 1 MHz and integrate the measurements when testing for compliance with the wideband power-density limits. We invite further comment on these suggestions, and, more generally, we invite comment on the advisability of specifying emission measurement techniques for demonstrating compliance with the rule.

vi. Need for a Limit on Narrowband Emission in the GLONASS Band

81. As indicated previously, the NTIA recommends interim and permanent limits on narrowband (as well as wideband) emissions for protection of GNSS reception in frequencies between 1585.42 and 1605 MHz. Although Motorola and the other MSS

members of Special Committee 159 conceded that it was feasible to limit the power of narrowband spurs to -80 dBW between 1559 and 1585.42 MHz, Motorola recommends against adopting a narrowband limit for out-of-band emissions in the GLONASS band, stressing that there is no such requirement in either the ITU-R standard or the ETSI standard. Motorola asserts that eliminating the narrowband limit with respect to the GLONASS band would spare terminal manufacturers from incurring considerable costs.

82. The Commission determined in the Big LEO rulemaking that the narrowband limit now embodied in Section 25.213(b) was necessary for protection of GPS reception in the GPS C/A band. Motorola has given no reason for concluding that GLONASS is less susceptible than GPS C/A service to interference from narrowband spurs. On the contrary, the aviation members of Special Committee 159 maintained that GLONASS is technically equivalent to GPS and approximately as susceptible to interference.[81] We are proposing to adopt narrowband limits pertaining to the GLONASS operating frequencies, but we invite Motorola to explain more fully in response to this order its technical justification for omitting this requirement.

vii. Protection in the 1605-1610 MHz Segment

83. Although as of this date GLONASS satellites are still transmitting Standard Accuracy signals on frequencies above 1605 MHz, the NTIA has not recommended specific limits on out-of-band emissions in the 1605-1610 MHz segment of the satellite radionavigation band. The ITU-R recommends, however, that national administrations require suppression of out-of-band emissions from Big LEO MSS terminals to -10 dBW/MHz at 1610 MHz and to a level between 1605 and 1610 MHz determined by linear interpolation. We invite comment on the advisability of including a similar requirement in our rules in lieu of the NTIA's suggested provision for ad hoc resolution of problems regarding interference with reception in frequencies above 1605 MHz.

viii. Inmarsat Terminals

84. Comsat -- which, as we have noted, provides MSS via Inmarsat space segment, using 1626.5-1646.5 MHz for mobile uplinks -- contends that achieving compliance with -70/-80 limits in the GLONASS band would entail especially complex logistical and operational problems for itself and Inmarsat, due to the fact that thousands of Inmarsat terminals of various types and makes are already in use. Comsat contends that if we adopt these limits on emissions in the GLONASS band we should carve out exemptions for Inmarsat ship terminals and land-based Inmarsat terminals that transmit analog signals.

85. *Land-Based Inmarsat-A Terminals.* The oldest type of Inmarsat MSS terminal still in use, Standard-A, uses analog modulation. All the others transmit digitally-

[81] RTCA/DO-235, Appendix F at 24-25.

modulated signals. On the basis of test results, Comsat is confident that the digital terminals can meet -70/-80 limits throughout the 1559-1605 MHz GNSS band. It is less optimistic regarding compliance with -70/-80 limits on Standard-A emissions in the GLONASS sub-band. It submits that there should be a "grandfather" exemption of indefinite duration for land-based Inmarsat Standard-A terminals from any requirements for suppression in the GLONASS band.

86. Comsat has not shown, however, that the Standard-A terminals could operate at their current emission levels without posing a significant risk of harmful interference with GLONASS reception. In the absence of such a showing we cannot conclude that an exemption is warranted.

87. *Maritime Terminals.* Comsat contends that there is no need to apply the recommended limits for GLONASS protection to Inmarsat ship terminals. In order to cause interference with GLONASS reception, according to Comsat, a shipboard Inmarsat transmitting antenna would have to be directly under an airplane's approach path and at an elevation of 80 feet or more above the water, with the main antenna beam pointing to the zenith -- and Comsat points out that the transmitter would have a zenith pointing angle to a geostationary Inmarsat satellite only if located at the equator at the satellite's longitude. Comsat contends that Inmarsat maritime terminals should therefore be exempt from any limits on emissions in the GLONASS band. It suggests that instead of imposing such restrictions we could obviate concern about potential interference from Inmarsat maritime terminals by adopting a rule prohibiting L-band[82] transmissions from vessels within a specified distance from runways.

88. Alternatively, Comsat argues that we should at least exempt existing Inmarsat ship terminals of the Standard-A type. It asserts that the Standard-A maritime terminals have highly-directional antennae which must be aimed at the geostationary Inmarsat satellite and that automatic tracking of the satellite beacon is required to afford sufficient aiming accuracy under ship operating conditions. Consequently, Comsat maintains, it is highly unlikely that an airplane approaching a runway in the United States will fly through the main lobe of transmission from a shipboard Inmarsat-A terminal. Comsat further asserts that the population of maritime Standard-A terminals in use has been steadily declining, as ship owners now generally prefer to buy digital terminals, and that it would be difficult to retrofit the various vintages of maritime Standard-As with better filters.

89. Comsat's arguments for exempting Inmarsat maritime terminals are unsupported. It has provided no proof that an Inmarsat ship-terminal antenna would have to be 80 feet or higher above water level and aimed at zenith to cause interference with GLONASS reception by an airplane in Category I precision approach to a runway abutting a navigable waterway, nor has it shown that the cost of retrofitting Standard-A maritime MSS

[82] The term "L Band" refers to the frequency range between 1000 MHz and 2000 MHz.

terminals with filters to conform them to the proposed standard for GLONASS protection would be prohibitive. Therefore, we are not proposing any special treatment for these terminals. Of course, we will consider any supporting information Comsat may provide in comments to this Notice.

ix. Other Possible Sources of Interference

90. AMSC asserts that millions of terrestrial two-way radios installed in taxicabs, buses, delivery trucks, public-safety vehicles, and recreational watercraft are currently allowed to radiate up to several thousand times more spurious energy on GNSS frequencies than would be permissible under the proposed limits for MSS terminals. AMSC further asserts that it has ascertained from test data submitted to the Commission in type-acceptance applications that some terrestrial two-way VHF transmitters produce spurious emissions in the GNSS bands at e.i.r.p. levels from -65.4 to -59.2 dBW. AMSC contends that we should not consider imposing emissions limits on MSS terminals to protect GNSS reception except pursuant to a comprehensive rulemaking that examines all potential sources of interference. It argues that to impose "piecemeal" restrictions on MSS-terminal emissions alone would be arbitrary and capricious and hence unlawful.

91. We are issuing this Notice in fulfillment of commitments in the November 1994 FCC-NTIA-FAA MOU and to respond to a petition from the NTIA for restrictions to protect GNSS reception from out-of-band MSS-terminal emissions. The MOU pertains only to MSS terminals with frequency assignments between 1610 and 1660.5 MHz, and the NTIA's petition does not ask for limits on transmitters of any other kind.

92. Contrary to AMSC's assertion, however, the Commission has not focused only on potential interference with the GNSS from MSS terminals. In response to a request from the FAA, we have likewise proposed, in Docket No. 96-86, to establish emissions limits for base and mobile terminals of terrestrial public-safety stations transmitting in the 794-806 MHz band in order to prevent interference with GNSS reception.[83] It does not necessarily follow, though, that equivalent restrictions should be retroactively imposed on licensees of older terrestrial systems. Prompt determination is necessary, on the other hand, with respect to type approval standards for GMPCS terminals with assigned frequencies in the 1610-1660.5 MHz band, in order to facilitate global circulation and transborder roaming. While we invite comments on the need to consider possible restrictions on non-GMPCS devices, we are reluctant to do so in any way that would complicate the urgent task at hand and retard its resolution.

[83] See *Development of the Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communications Through the Year 2010* (First Report and Order and Third Notice of Proposed Rulemaking), 1998 W.L. 667599 (F.C.C.).

d. "Little LEO" Terminals

93. The NTIA's recommendations for emissions limits on MSS terminals transmitting on assigned frequencies between 1610 and 1660.5 MHz do not cover Little LEO MSS terminals, which transmit in a band outside of that frequency range.[84] We believe that Little LEO band is sufficiently separated from the 1559-1605 MHz band earmarked for GNSS operation to ensure that emissions from Little LEO terminals will not interfere with GNSS reception. More specifically, we believe that Little LEO terminals operating in compliance with Section 25.202(f) will not produce wideband emissions in the GNSS band with e.i.r.p. density in excess of -70 dBW/MHz or narrowband spurs in that band with e.i.r.p. greater than -80 dBW. Consequently, we propose to exempt Little LEO systems from the out-of-band emissions standards rather than require the licensees to incur the expense of establishing compliance with unnecessary technical restrictions. We note, however, that an ITU Study Group is currently considering emissions standards for Little LEO systems. We would consider domestic implementation in a future Commission proceeding of any ITU-R recommendation for regulations that would restrict out-of-band emissions from Little LEO terminals to a greater extent than our rules currently require under 25.202(f).

e. 2 GHz Terminals

94. The Commission is considering nine proposals to construct, launch, and operate mobile satellite systems that would provide voice, data, and messaging for users with mobile terminals operating in the 1990-2025/2165-2200 MHz frequency bands (2 GHz MSS). A forthcoming *Notice of Proposed Rulemaking* will propose rules and policies to govern the service, which we expect will include both regional and global systems.

95. As with the geostationary L-band satellite services and Big and Little LEO satellite services, 2 GHz MSS promises to provide regional and global services, search and rescue communications, disaster management communications, geolocation, facsimile transmission, voice, data, messaging services, internet, and multimedia services. These services will be available to varying degrees in the aeronautical, maritime and land mobile environments and will be furnished using mobile terminals of varying designs.

96. The NTIA's recommendation for emissions limits on MSS terminals transmitting on assigned frequencies between 1610 and 1660.5 MHz does not extend to terminals operating in the 2 GHz MSS bands. While 2 GHz MSS systems meet the ITU's

[84] Little LEO mobile terminals transmit in the 148-150.05 MHz band. They provide store-and-forward data communications via non-geostationary satellites to customers equipped with mobile terminals. See *Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile Satellite Service*, 8 FCC Rcd 8450 (1993), and *Amendment of Part 25 of the Commission's Rules to Establish Rules and Policies Pertaining to the Second Processing Round of the Non-Voice, Non-Geostationary Mobile Satellite Service*, 13 FCC Rcd 9111 (1997).

definition of "GMPCS," we are not proposing here to adopt any system-specific technical standards for 2 GHz terminals. Rather, we intend to examine issues related to out-of-band emissions for 2 GHz terminals in the context of proposing and adopting service rules for the 2 GHz MSS service.

f. Compliance with Proposed Standards

97. For purposes of enforcing the ultimate emissions standard as it applies to terminals placed in service before 2002, the NTIA recommends that the Commission, in accordance with advice to be solicited from the FAA and NTIA, specify acceptable hardware/software configurations for achieving compliance by modifying nonconforming units so as to restrict their transmitting frequency range. Constellation contends that there is no rationale in the NTIA's petition for requiring users or providers to secure prior approval of hardware/software configurations and that such a requirement would be unduly intrusive. The Commission should focus on the terminals' actual emissions performance, Constellation maintains, rather than regulating hardware or software design. We generally prefer to leave design decisions to applicants and licensees insofar as possible, and the NTIA has offered no reason for departing from that general policy here. We therefore propose to rely on certification based on performance measurement to monitor compliance with the interim and final emissions requirements, pursuant to procedures specified in Part 2, Subpart J of our rules and our authority under Section 510 of the Act.

6. Distress and Safety Communications and E-9-1-1 Requirements

98. We also request comment on whether to require that GMPCS terminals authorized for use in the United States have position location capabilities. In an earlier rulemaking on enhanced 9-1-1 capability, the Commission determined that, because mobile satellite service was still in the early development stages and facing more technological and international hurdles than terrestrial carriers, it would not impose any obligation to provide enhanced 9-1-1 at that time. The Commission, however, stated that it expected mobile satellite operators to incorporate enhanced 9-1-1 features in their systems as technology advances and new systems are designed and deployed.[85] We seek comment on whether we should prospectively require GMPCS systems to implement their systems with enhanced 9-1-1 capabilities in light of technological developments in the mobile satellite industry, and on appropriate transition measures to ensure that any new requirement does not adversely affect systems at an advanced stage of design or deployment. Specifically, we also seek comment on how the accuracy location requirement of Phase I be would be applied. Or, would only a Phase II-type requirement be more appropriate or practicable, for MSS systems? We also seek comment on whether FSS systems should be required to incorporate enhanced 9-1-1 capabilities. If so, how should this requirement be implemented? If coordinates are to be

[85] *Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling System* (Report and Order and Further Notice of Proposed Rulemaking), 11 FCC Rcd 18676 at ¶83 (1996).

provided, can the 125-meter RMS standard applicable to terrestrial systems be used or should a different criterion be established for MSS systems? Can automatic number identification (ANI) be provided by MSS systems?

IV. CONCLUSION

99. This *Notice* implementing the international GMPCS-MoU will speed deployment of GMPCS service in the United States and around the world by establishing procedural and technical rules to ensure the safe and authorized use of mobile satellite service equipment. We anticipate that these GMPCS systems will provide additional choices for delivering seamless voice, data and broadband services for consumers in all parts of the world. We have attempted to put forward an implementation plan that extends our current Part 2 certification rules to GMPCS system equipment while proposing options for proper implementation of the ITU-administered provisions related to the GMPCS registry and use of the new "ITU mark." By requesting comment on methods for implementing the GMPCS MoU, we seek to encourage development of communications on a national and global basis. We have also proposed establishing specific technical requirements on GMPCS terminals in order to protect existing services to the extent necessary without imposing an undue burden on our licensees. In addition, we seek comment on whether we should impose E-9-1-1 requirements on GMPCS terminals. We request comment on all our proposals and welcome any other suggestions commenters may have in this proceeding.

V. PROCEDURAL MATTERS

A. *Ex Parte* Presentations

100. This is a "permit-but-disclose" proceeding subject to the "permit-but-disclose" requirements under Section 1.1206(b) of the Commission's rules. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in Commission rules. *See generally* 47 C.F.R. Sections 1.1202, 1.1203, and 1.1206.

B. Initial Regulatory Flexibility Analysis.

101. As required by the Regulatory Flexibility Act,[86] the Commission has prepared an this present Initial Regulatory Flexibility Analysis of the possible significant economic impact on small entities by the policies and rules proposed in this *Notice of Proposed Rule Making ("Notice").* Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Notice* provided above. The Commission will send a copy of this *Notice,* including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. In addition, the *Notice* and IRFA will be published in the Federal Register.

1. Need for and Objectives of the Proposed Rules: This Notice proposes to extend the FCC's current equipment certification procedure to GMPCS terminals that are to be sold for use in the United States, while allowing terminals manufactured and sold elsewhere to enter the United States for transit or temporary use if they have complied with the GMPCS-MoU notification process and bear the "GMPCS-MoU ITU Registry" mark.

2. Legal Basis: This action is taken pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 151, 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r), 307, 309, and 310.

3. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply: 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. The RFA generally defines the term "small entity " as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. 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 Small Business Administration (SBA).

[86] 5 U.S.C. § 603.

The Commission has not developed a definition of small entities applicable to geostationary or non-geostationary orbit fixed-satellite, mobile satellite operators or terminal manufacturers. Therefore, the applicable definition of small entity in the satellite services industry is the definition under the Small Business Administration (SBA) rules applicable to Communications Services "Not Elsewhere Classified."[87] This definition provides that a small entity is expressed as one with $11.0 million or less in annual receipts. According to Census Bureau data, there are 848 firms that fall under the category of Communications Services, Not Elsewhere Classified. Of those, approximately 775 reported annual receipts of $11 million or less and qualify as small entities.[88] The Census Bureau category is very broad and commercial satellite services constitute only a subset of its total. Although it is difficult to estimate the number of entities that will be required to or choose to comply with the procedures proposed in this *Notice*, we note that the Commission has licensed 12 entities to provide GMPCS in the United States. Of these licensees, only VITA and LEO One qualify as small businesses.[89] The other entities are not small businesses because they each have revenues in excess of $11 million annually or have parent companies or investors that have revenues in excess of $11 million annually. We request comment on the description and number of small entities that are significantly impacted by this proposal.

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements: In this proceeding, we are proposing to use current forms and procedures to implement new proposed requirements. Therefore, this proposed action may create minimal additional mandatory reporting requirements for license applications and/or new equipment certification equirements for certain sectors of the satellite operator, service provider and equipment manufacturing industry.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered: It should be noted that the Commission received a petition from the National Telecommunications and Information Agency regarding establishment of an out-of-band emission limit for certain GMPCS terminals in 1998 and comments were later filed by several entities. However, no Petitions for Rulemaking were filed to initiate the MoU portion of this proceeding, and there have been no comments in this proceeding that suggest alternatives to the proposed procedure. Therefore, we request comment on alternative licensing and equipment certification procedures that might minimize the amount of economic impact on small entities.

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

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

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

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules: None.

C. Initial Paperwork Reduction Act of 1995 Analysis

102. This NPRM contains either a proposed or modified information collection. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the information collections contained in this NPRM, as required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13. Public and agency comments are due at the same time as other comments on this NPRM; OMB comments are due 60 days from date of publication of this NPRM in the Federal Register. Comments should address: (a) 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; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) 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.

103. Written comments by the public on the proposed and/or modified information collections are due on or before **May 3, 1999.** Written comments must be submitted by the Office of Management and Budget (OMB) on the proposed and/or modified information collections on or before **May 3, 1999.** 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 C-1804, 445 12th Street, S.W., Washington, D.C., 10554 or via Internet to jboley@fcc.gov and to Timothy Fain, OMB Desk Officer, 10236 NEOB, 725-17th Street, N.W., Washington, D.C. 20503 or via the Internet to fain_t@al.eop.gov.

D. Comment Filing Procedures

104. Pursuant to applicable procedures set forth in 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 or before **May 3, 1999** and reply comments on or before **May 18, 1999**. Comments may be filed using the Commission's Electronic Comment Filing System ("ECFS") or by paper copies. *See* Electronic Filing of Documents in Rulemaking Proceedings, 63 Fed. Reg. 24,121 (1998). 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. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. 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 get 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.

105. 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 appear 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, The Portals, 445 Twelfth Street, S.W., Room TW-A325, Washington, D.C. 20554.

106. Parties who choose to file by paper should also submit their comments on diskette. These diskettes should be submitted to: Paul Gordon, Office of the Secretary, Federal Communications Commission, The Portals, 445 Twelfth Street, S.W., Room 2C223, Washington, D.C. 20554. Such a submission should be on a 3.5 inch diskette formatted in an IBM compatible format using WordPerfect 5.1 for Windows or compatible software. The diskette should be accompanied by a cover letter and should be submitted in "read only" mode. The diskette should be clearly labelled with the commenter's name, proceeding (including the lead docket number in this case [IB Docket No. 99-67], type of pleading (comment or reply comment), date of submission, and the name of the electronic file on the diskette. The label should also include the following phrase "Disk Copy - Not an Original." Each diskette should contain only one party's pleading, preferably in a single electronic file. In addition, commenters must send diskette copies to the Commission's copy contractor, International Transcription Service, Inc., 1231 20th Street, N.W., Washington, D.C. 20037. Comments and reply comments should be captioned using the docket number in this proceeding only.

107. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C. 20554. It is anticipated that the Reference Center will be relocated to the Commission's Portals Building during the late spring or early summer of 1999. Accordingly, interested parties are advised to contact the FCC Reference Center at (202) 418-0270 to determine its location.

VI. ORDERING CLAUSES

108. IT IS ORDERED that, pursuant to Sections 4(i), 7(a), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 151, 154(i), 157(a), 303(c), 303(f), 303(g), and 303(r), 307, 309 (a), 310, this Notice of Proposed Rulemaking is hereby ADOPTED.

109. IT IS FURTHER ORDERED that the Commission's Office of Public Affairs, Reference Operations Division, 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, in accordance with Section 603(a) of the Regulatory Flexibility Act, 5 U.S.C. Section 601 *et. seq.* (1981).

110. Additional Information. For further information concerning this rule making proceeding contact Tracey Weisler at (202) 418-0744 [internet: tweisler@fcc.gov] or Bill Bell at (202) 418-0741 [internet: BBell@fcc.gov], International Bureau, Federal Communications Commission, Washington, DC 20554.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Magalie Roman Salas
Secretary

APPENDIX A

PROPOSED RULE CHANGES

Title 47 of the Code of Federal Regulations, Part 2, is amended as follows:

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

Authority: 47 U.S.C. 154, 302, 303, 307, and 336, unless otherwise noted.

2. A new paragraph 2.1204(a)(9) is added to read as follows:

Section 2.1204 *Import conditions.*

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(9) The radio frequency device bears the "GMPCS-MoU ITU REGISTRY" mark and is in compliance with the requirements set forth under Section 25.215.

Title 47 of the Code of Federal Regulations, Part 25, is amended as follows:

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

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

2. Section 25.213 is amended by deleting Paragraph (b).

3. Section 25.200 is deleted.

4. A new section 25.215 is added and reads as follows:

Section 25.215 *Terminals Associated with Global Mobile Personal Communications by Satellite Systems.*

(a) Definitions.

(1) *Global Mobile Personal Communications by Satellite ("GMPCS").*The term "GMPCS" refers to any satellite system, (i.e., fixed or mobile, broadband or narrow-band, global or regional, geostationary or non-geostationary, existing or planned) providing telecommunication services directly to end users from a constellation of one or more satellites.

(2) *"GMPCS-MoU ITU REGISTRY" mark.* The term " 'GMPCS-MoU ITU Registry' mark" refers to the circular identifier distributed by the ITU for placement on GMPCS terminals that are certified by at least one administration or competent authority and registered in the ITU database after meeting the requirements for notification specified in the international GMPCS-MoU Arrangements.

(3) *GMPCS-MoU and Arrangements.* The term " 'GMPCS-MoU and Arrangements" refers to the GMPCS Memorandum of Understanding, a non-binding international framework for the circulation of GMPCS terminals, finalized in February 1997, and the subsequent Arrangements concerning the licensing, type approval, marking, data provision, and customs treatment of GMPCS terminals, finalized in October 1997.

(4) *ITU.* The term refers to the International Telecommunication Union located in Geneva, Switzerland.

(b) Equipment certification for Terminals Sold or Leased in the United States for Domestic Use

(1) All GMPCS terminals offered for sale or lease and use in the United States must be authorized by the Commission under its certification procedure for use under this part. The certification procedure is found in Subpart J of Part 2 of the Rules.

(2) In order to be granted certification, a transmitter must comply with all applicable technical specifications in this Part.

(3) All applicants for certification of GMPCS transmitters that operate in these services must confirm that the equipment complies with the RF radiation exposure requirements specified in Section 24.52 of our rules.

(c) Equipment certification for Terminals Brought into the United States for Domestic Use or Transit

(1) All GMPCS terminals brought into the United States for temporary use must be on the Commission's list of terminals approved for use in the United States; registered in the GMPCS ITU database; and bear the official "GMPCS-MoU ITU Registry" identifier authorized for use by the ITU.

(2) All GMPCS terminals brought into the United States for transit must be registered in the GMPCS ITU database and bear the official "GMPCS-MoU ITU Registry" identifier authorized for use by the ITU.

(d) Enforcement

(1) All GMPCS service providers must be licensed under 25.136 of this part. Holders of a license to provide GMPCS service in the United States shall remain liable for any and all reported and proven infractions of our proposed technical and operational requirements. In instances where terminals are not operating in compliance with our rules and no domestic entity is authorized to provide service, we will take action consistent with our authority under 47 U.S.C.Section 510.

5. A new section 25.216 is added and reads as follows:

Section 26.216 *Limits on Out-of-band Emissions from Terminals Operating in the 1610-1660.5 MHz Band for Protection of Aeronautical Satellite Radionavigation*

(a) *Limits on Emissions Below 1605 MHz.*

(1) The e.i.r.p. density of emissions from mobile earth terminals placed in service prior to January 1, 2002 with assigned frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over any 20 ms interval, in the band 1559-1580.42 MHz. The e.i.r.p. of discrete spurious emissions of less than 700 Hz bandwidth generated by such terminals shall not exceed -80 dBW, averaged over 20 ms, in the band 1559-1585.42 MHz.

(2) The e.i.r.p. density of emissions from mobile earth terminals placed in service prior to January 1, 2002 with assigned frequencies between 1610 MHz and 1626.5 MHz shall not exceed -64 dBW/MHz, averaged over 20 ms, in the band 1580.42-1605 MHz. The e.i.r.p. of discrete spurious emissions of less than 700 Hz bandwidth generated by such terminals shall not exceed -74 dBW, averaged over 20 ms, in the band 1585.42-1605 MHz

(3) The e.i.r.p. density of emissions from mobile earth terminals placed in service after January 1, 2002 with assigned frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over 20 ms, in the 1559-1605 MHz band. The e.i.r.p. of spurious emissions of less than 700 Hz bandwidth from such terminals shall not exceed -80 dBW, averaged over 20 ms, in the 1559-1605 MHz band.

(4) As of January 1, 2005 and from then on, the e.i.r.p. density of emissions from mobile Earth terminals placed in service prior to January 1, 2002 with assigned frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over 20 ms, in the 1559-1605 MHz band, and the e.i.r.p. of spurious emissions of less than 700 Hz bandwidth from such terminals shall not exceed -80 dBW, averaged over 20 ms, in that band.

(b) *Emissions Above 1605 MHz.* Until the GLONASS operating band shifts to

frequencies below 1605 MHz, harmful interference with reception of aeronautical radionavigation transmission on frequencies above 1605 MHz from mobile Earth terminals with assigned transmission frequencies between 1610 MHz and 1660.5 MHz will be resolved on a case-by-case basis.