

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

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

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IB Docket No. 99-67

RM No. 9165

COMMENTS OF MOTOROLA, INC.

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SUMMARY

By its GMPCS NPRM, the Commission has proposed a variety of rules and policies in support of implementation of the GMPCS MoU Arrangements. By adopting these proposals, the Commission will accomplish an important first step toward global availability of GMPCS terminals, and allow United States manufacturers and service providers broader access to international markets.

Motorola favors the Commission's proposals with respect to application of the equipment certification program to all types of GMPCS terminals, mobile and fixed, in order to facilitate securing type approval of such terminals on a worldwide basis. Motorola also supports the Commission's proposals to require FCC certification of all GMPCS terminals sold or leased in the U.S. as well as to require only the ITU mark for purposes of allowing terminals to be imported into the U.S. on a temporary basis. Further, Motorola suggests that the satellite equipment blanket licensing process be streamlined by eliminating requirements that are duplicative, such as the radiation hazard demonstration for both equipment certification and blanket license approval.

Motorola also supports the technical proposals initiated by NTIA's petition for rulemaking. There is a need, however, for clarification of some of the Commission's specific proposals, particularly with regard to measurement techniques. For example, Motorola requests that the Commission clarify that narrowband spurs may be measured using bandwidths less than as well as greater than 700 Hz. Further, Motorola does not believe that there should be any special interim emission limits for MSS systems.

Lastly, Motorola does not believe that existing or reasonably foreseeable technologies will allow MSS networks to provide a consistent standard of geolocation capability across all environments. Motorola therefore urges the Commission to reaffirm its earlier decision not to impose an E911 requirement on MSS operations.

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RM No. 9165

To: The Commission

COMMENTS OF MOTOROLA, INC.

Pursuant to Section 1.415 of the Commission's Rules, 47 C.F.R. §1.415,

Motorola, Inc. ("Motorola") hereby submits these Comments in response to the Commission's
Notice of Proposed Rulemaking in IB Docket No. 99-67.¹

¹ In the Matter of the Application of Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements 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, Notice of Proposed Rulemaking ("NPRM"), 64 Fed. Reg. 16687 (Apr. 6, 1999). Motorola is a manufacturer of GMPCS terminals and is licensee of the Iridium system through its wholly-owned subsidiary, Space System License, Inc. See Motorola Satellite Communications, Inc., 10 FCC Rcd. 2268 (Int'l Bureau 1995); Erratum, 10 FCC 3925 (1995); Modification granted, 11 FCC Rcd 13952 (1996); reconsideration denied, 11 FCC Rcd 18502 (1996).

In its GMPCS NPRM, the Commission proposed a variety of rules and policies with regard to GMPCS-MoU implementation. It also offered a number of technical proposals in response to comments submitted on NTIA's petition for rulemaking to impose certain out-of-band emission limitations in the L-band.

With regard to the Commission's GMPCS-MoU implementation proposals, Motorola favors applying the Commission's equipment certification program to all types of GMPCS terminals, mobile and fixed, because such certification is critical for obtaining type approval of GMPCS terminals outside the United States. Motorola also supports the Commission's proposal to require FCC equipment certification for all GMPCS terminals to be sold or leased in the United States, and agrees the ITU mark should be required for purposes of allowing terminals to be brought into the United States on a temporary basis. Further, Motorola urges the Commission to streamline its blanket licensing process removing duplicative submission requirements, such as the radiation hazard showing for both equipment certification and blanket licensing.

On the more technical issues, Motorola generally supports NTIA's out-of-band emissions proposal. Motorola also agrees with the Commission's decision not to address marine and land-mobile radionavigation out-of-band emission issues in this proceeding. Motorola believes, however, that there is a need for clarification, particularly with regard to measurement techniques. Also, Motorola does not believe that there should be any special interim emission limits for Big LEO Mobile-Satellite Service ("MSS") or other MSS systems operating in the L-band. In fact, in order to adequately protect the Iridium system from harmful interference, Motorola urges the Commission to require MSS terminals operating above 1626.5 MHz must keep their out-of-band emissions in the Iridium system spectrum below -78 dBW/3 kHz.

With regard to E911 capability, Motorola does not believe that existing and reasonably foreseeable technologies will allow the Iridium system or other MSS systems to provide a consistent level of geolocation capability across all environments. It therefore urges the Commission to reaffirm its earlier decision not to impose an E911 requirement on MSS operations.

I. GMPCS-MoU IMPLEMENTATION

A. The Proposed Equipment Certification Program Should Apply to All Types of GMPCS Terminals

The NPRM seeks comment on whether the proposed certification procedures should be limited to GMPCS terminals likely to be transported across national borders.²

Although the primary purpose of the GMPCS-MoU Arrangements is to facilitate free circulation of GMPCS terminals, the FCC identifier and ITU mark also serve to facilitate type approval of GMPCS terminals outside the United States. This is a benefit that should be available equally to fixed and mobile GMPCS terminals.³

It has long been Motorola's experience in type approvals of terrestrial handsets that in many developing countries having an FCC equipment approval greatly facilitates the

² NPRM at ¶¶20, 24.

³ Motorola is not suggesting that all earth stations be subject to the certification process, only those that can be categorized as user terminals. There is no need, for example, to require equipment certification for large earth stations such as those used for gateway or TT&C operations. To make this distinction clear, the Commission may want to consider incorporating into proposed rule section 25.215(a) the definition of "GMPCS Terminal" from the GMPCS-MoU Arrangements – "a user terminal intended to be operated with a GMPCS System." In connection with the specific question raised in paragraph 24 of the NPRM, Motorola would include GMPCS terminals permanently installed on ships, boats or planes within this definition to the extent that the operator of the ship, boat or plane can be considered an end user.

process of obtaining other type approvals. Indeed, Motorola's recent experience in obtaining type approval for the Iridium handset around the world suggests that the FCC identifier and ITU mark may be even more critical in obtaining type approval of GMPCS terminals because of the complete lack of any means or process to evaluate this new technology in the vast majority of countries. At least from an equipment certification standpoint, this will be equally true regardless of whether the GMPCS terminal is intended for a mobile or fixed application.

Moreover, from a timing standpoint, the need for tools like the FCC identifier and ITU mark to facilitate type approvals outside the United States will, in many cases, be no different for a fixed than mobile satellite system because, by their very nature, GMPCS systems will introduce service in many countries simultaneously. This means that as soon as a given GMPCS product is ready for commercial production, be it mobile or fixed, it needs type approvals in many different countries at virtually the same time.

Lastly, Motorola observes that while the ITU mark alone could also be used to facilitate type approval outside the U.S. (which has in fact been Motorola's experience in a number of countries) and while manufacturers of fixed GMPCS terminals could obtain the ITU mark without benefit of an FCC certification, it is still important for manufacturers of these terminals to be able to obtain FCC certification. This is because the ITU mark is still relatively new and does not enjoy the same degree of recognition around the world as the FCC identifier. Therefore, Motorola urges the Commission to apply the proposed certification program to all types of GMPCS terminals.

B. All GMPCS Terminals Sold or Leased in the U.S. Should Be Subject to FCC Certification

Motorola supports the Commission's proposal to require FCC equipment certification for GMPCS terminals to be sold or leased in the United States.⁴ For the reasons noted above, however, Motorola does not agree with the Commission's proposal to limit certification to handheld or portable GMPCS terminals. It is not clear from the Commission's proposal whether manufacturers would be able to obtain FCC certification on a voluntary basis for terminals other than handheld/portables. Even if this is contemplated by the Commission, Motorola is concerned that equipment certification applications submitted on a voluntary basis will not be put in the same queue as mandatory applications and, consequently, will be subject to processing delays. This would defeat the purpose of obtaining FCC certification because of the need to use it to expedite the type approval process outside the U.S. Having said that, however, Motorola would support a voluntary process for all types of GMPCS terminals if the Commission is willing to guarantee manufacturers seeking such certification that they would not be disadvantaged from a processing standpoint.

Motorola notes that, regardless of whether FCC certification is mandatory or voluntary, it may become appropriate for the Commission to exempt FCC-certified terminals from the requirement to display the FCC identifier as the ITU mark gains greater global recognition. This would help alleviate the problem that global terminals have with multiple markings.

Finally, Motorola wishes to emphasize that any certification requirement that may apply to terminals placed on the market in the U.S. should not supercede applicable Mutual

⁴ NPRM at ¶24.

Recognition Agreements (“MRAs”) to the extent they allow the Commission to recognize test results or certifications from outside the U.S.⁵ Motorola believes that MRAs can be an effective complement to the GMPCS-MoU Arrangements inasmuch as they provide another tool for manufacturers to use in facilitating and expediting the process of obtaining equipment approvals.⁶ Indeed, the Arrangements note that Administrations may need to take account of applicable MRAs in recognizing type approvals granted by other participating Administrations.⁷

C. All GMPCS Terminals Brought into the U.S. on a Temporary Basis Should Be Required to Bear the ITU Mark

Motorola agrees with the Commission’s proposal to require only the ITU mark on terminals brought into the U.S. on a temporary basis and, if the terminal is to be used here, to require also that the U.S. service provider ensure that the terminal is operated in accordance with the terms of its license.⁸ As noted by the Commission, the appearance of the ITU mark signifies that the terminal has been certified by at least one Administration or competent authority and that information on the technical standards on which that certification is based has been registered with the ITU. Motorola believes this proposal strikes the right balance by allowing for a lighter regulatory approach in the case of terminals that will be in the country on only a temporary basis

⁵ See, e.g., NPRM at ¶38-39.

⁶ See, Comments and Reply Comments of Motorola, Inc. Gen. Dkt. No. 98-68, filed July 27, 1998 and August 26, 1998, urging the Commission to establish a system of Telecommunications Certification Bodies in connection with the implementation of MRAs.

⁷ GMPCS-MoU Arrangements at Section VI(A)(6). It is worth noting that existing and near-term MRAs are not viable substitutes for the GMPCS-MoU Arrangements, even for the limited purpose of facilitating type approval because, while multilateral, they tend to be regional in nature. The global nature of GMPCS systems requires a multilateral agreement in the broadest sense which, in fact, the Arrangements are.

⁸ Id. at ¶25-27.

as compared to those to be sold or leased in the U.S. In addition, by recognizing the ITU mark for this purpose, the Commission will help strengthen the value of the mark by giving it the credibility that comes with recognition by one of the world's leading telecommunications regulators – the FCC.

Indeed, Motorola believes that in the case of most GMPCS systems, there is little risk of recognizing type approvals granted outside the U.S. because most GMPCS systems are or will be characterized by use of technically identical terminals around the world. In order to ensure that a terminal can be approved anywhere in the world, the manufacturer must design it so that it meets the most stringent technical standards that are likely to be in place in any given country. Moreover, GMPCS operators can maintain control over and ensure uniformity of the technical characteristics of terminals used with their systems because manufacturers of GMPCS terminals typically must be approved or certified by the system operator. Therefore, a terminal certified and sold outside the U.S. is unlikely to be technically different from a terminal placed on the market in the U.S.

D. The Blanket Licensing Process Should Be Retained But Streamlined to Reduce Some Overlap with the Equipment Certification Process

Because equipment certification traditionally has not been a separate requirement for most satellite services, the blanket licensing process that evolved for GMPCS incorporated certain technical showings from the equipment certification process that the Commission would not otherwise have had an opportunity to review. Now that a permanent equipment certification process is being proposed for GMPCS, the Commission appropriately asks for comment on how

the two processes can be streamlined.⁹ Before suggesting how this might be accomplished, Motorola notes that it agrees with the Commission's proposal to retain blanket licensing as a separate process for GMPCS systems.¹⁰ It is important to recognize that in addition to the domestic regulatory purposes served by blanket licensing and equipment certification, these processes have the incidental benefit of facilitating the global introduction of GMPCS. In this regard, the blanket licensing process provides a benefit to GMPCS operators and services providers different from the previously described benefit that GMPCS terminal manufacturers derive from the equipment certification process. While the FCC equipment certification process benefits GMPCS terminal manufacturers by facilitating the equipment approval process outside the U.S., the FCC blanket licensing process has been used by GMPCS operators and service providers to provide a model for other countries to follow as they face licensing GMPCS systems for the first time.

In terms of streamlining, one requirement in the current blanket licensing process that should be eliminated as duplicative is the submission of a radiation hazard compliance showing. This information typically cannot be compiled until a terminal is ready for the equipment certification process anyway which will usually be long after the blanket license is granted (e.g., about 20 months in the case of the Iridium system).

A related way in which the blanket licensing process can be streamlined is in how new terminal-types may be added after the initial blanket license has been granted. Under the current process, the blanket licensee submits a notification letter to the International Bureau

⁹ Id. at ¶31.

¹⁰ Id. at ¶28.

regarding each new terminal-type along with a new radiation hazard showing. As long as new terminal-types are subject to the equipment certification process, it should not be necessary for the blanket licensee to submit anything as long as the new terminal-types would meet all applicable Part 25 requirements as well as any other conditions contained in the initial license.

E. FCC Equipment Certification Should Be Based on Compliance with the U.S. Equivalent of the “Essential Requirements” as Defined in the GMPCS-MoU Arrangements

The Commission notes 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 ETSI) and requests comment on whether there are other standards that such terminals should be required to meet in order to facilitate international roaming.¹¹ The issue of what standards should generally be used in the type approval process in order to facilitate transborder roaming was considered at length during development of the GMPCS-MoU Arrangements. The result is reflected in the type approval section of the Arrangements in the provision on the “Essential Requirements,” which are basically defined as applicable international, regional or national standards on electromagnetic interference (EMI), electromagnetic compatibility (EMC) and RF safety.¹² Although the FCC does not have a separate EMC standard, there is no need to adopt one because FCC certification is still sufficient under the terms of the Arrangements to enable a manufacturer to use the ITU mark and the FCC identifier will be recognized in its own right in many countries regardless of whether the FCC

¹¹ *Id.* at ¶34.

¹² GMPCS-MoU Arrangements at VI(A(1-2)).

requires separate EMC testing. Moreover, because of the global nature of GMPCS terminals, a given GMPCS terminal-type going through the FCC certification process must also, as a practical matter, be designed to meet whatever EMC requirements apply in Europe and most GMPCS terminal manufacturers will obtain both FCC and European certification anyway. Therefore, at least at this point in time, most GMPCS terminals, particularly those used with mobile satellite systems, are likely to bear the FCC identifier, the EC mark and the ITU mark.

II. TECHNICAL REQUIREMENTS FOR GMPCS TERMINALS

NTIA submitted a petition for rulemaking to the Commission to establish certain out-of-band emissions criteria for MSS terminals to protect the Global Navigation Satellite System (“GNSS”) below 1610 MHz.¹³ In response to comments filed in RM-9165, the Commission now proposes 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.

Among other things, the Commission proposes interim standards for MSS compliance with out-of-band emission standards, and asks whether compliance in the 1597-1605 MHz band should be waived or postponed in the event GLONASS implementation is delayed.

The Commission also poses a revised measurement bandwidth standard for out-of-band emissions, addresses peak detection and 1 MHz bandwidth measurement techniques, and seeks comment on application of a narrowband emissions limit to GLONASS, as well as a roll-

¹³ FCC Office of Public Affairs Public Notice No. 2227 (September 23, 1997).

off proposal in the 1605-1610 MHz band. The Commission further seeks comment on whether to require that GMPCS terminals have position location capabilities, and whether MSS systems should be required to incorporate enhanced 9-1-1 capabilities (“E911”). These issues, as well as related matters, are discussed in these Comments.

A. Motorola Generally Supports NTIA’s Out-of Band Emissions Proposal but Not the Interim Limits for MSS Terminals Operating in the 1626.5-1660 MHz Band

Motorola generally agrees with the need to protect RNSS from out-of-band emissions in the 1559-1610 MHz band. More specifically, Motorola fully supports efforts to ensure that the components of the proposed GNSS -- the Russian Global Orbiting Navigation Satellite System (“GLONASS”) and the U.S. Global Positioning System (“GPS”) -- can coexist with nearby MSS operations.

The Commission invites comments as to whether the interim limits it proposes on Big LEO MSS emissions in frequencies above 1580.42 MHz, as supported by NTIA and the FAA, should apply to MSS terminals transmitting on frequencies in the 1626.5-1660.5 MHz range.¹⁴ As Motorola stated in its Comments to NTIA’s petition for rulemaking, it has already committed to meeting the ultimate GNSS protection criteria below 1605 MHz of -70 dBW/MHz and -80 dBW/700 Hz.¹⁵ Accordingly, Motorola does not support any interim standards for out-

¹⁴ The Commission has proposed interim limits on transmissions in the 1580.42-1605 MHz range prior to January 1, 2005 of -64 dBW/MHz and -74 dBW/700 Hz for Big LEO MSS terminals in service before January 1, 2002. These terminals operate in the 1610-1626.5 MHz band. NPRM at ¶55. The Commission also asks whether these interim limits should apply to terminals operating above 1626.5 MHz.

¹⁵ Motorola Comments in RM-9165 (filed Dec. 8, 1997) at 3.

of-band emission limits for MSS terminals transmitting in the Big LEO MSS frequencies or in the 1626.5-1660.5 MHz range.

Motorola strongly believes that any terminal transmitting in the 1610-1660.5 MHz band should be capable of complying with the -70/-80 standards upon commencement of service. While the proposed -64/-74 requirement may be more easily met by operators, there is no technical justification for not immediately requiring compliance with the permanent out-of-band emission standard of -70/-80. Any transition from an interim to a final compliance standard is likely to produce dislocations for the carriers and confusion in the marketplace, as well as unnecessarily risk of creating an environment contaminated by terminals that may never be retrofitted or replaced. In short, Motorola favors a single set of standards for all MSS terminals without the complications and risks associated with a less stringent, interim standard. It is for this reason as well that Motorola recommends against any consideration of a waiver or postponement of imposition of the -70/-80 standard even if domestic implementation of GLONASS proves slower than expected.¹⁶

Indeed, Motorola is concerned that out-of-band-emissions from lower L-band operations into the Iridium System band may cause similar risks of harmful interference to Iridium terminals. Motorola has supported, therefore, an out-of-band emission limit of -78 dBW/3 kHz in the Iridium frequencies for all terminals operating in the lower L-band.¹⁷

¹⁶ NPRM at ¶73.

¹⁷ See, e.g., Comments of Space System License, Inc. and Iridium LLC in the Matter of Infosat Communications, Inc., File No. SES-LIC-19990128-00134 (May 27, 1999); Comments of Space System License, Inc. and Iridium LLC in the Matter of National Systems & Research Co., File No. SES-LIC-19990217-00241 (May 26, 1999). Space System License, Inc. is the U.S. licensee of the Iridium system. See Motorola Satellite Communications, Inc., 10 FCC (Continued ...)

B. Motorola Supports the Commission's Position on Marine and Land-Mobile Radionavigation

The Commission, responding to comments by LSC, Inc. and the U.S. GPS Industry Council ("Council") that more restrictive limits should be imposed to afford additional protection for marine and land-mobile radionavigation, observed that the purpose of this proceeding "is to adopt out-of-band emissions limits for protection of *aeronautical* uses of the radionavigation satellite service."¹⁸ The Commission concluded that adoption of even stricter limits for protection of less critical applications is beyond its present contemplation and, in any event, would "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."¹⁹ Motorola commends the Commission for its concise and forthright response to suggestions that plainly have no place in this proceeding.²⁰

Rcd. 2268 (1995). In January 1998, the Commission authorized pro forma assignment of this license to Space System License, Inc.

¹⁸ NPRM at ¶77.

¹⁹ Id.

²⁰ Indeed, the U.S. GPS Industry Council ("Council") has filed hopelessly late and frivolous petitions in other Commission proceedings, abusing the Commission's administrative process by raising issues extraneous to the captioned matters at hand. See, e.g., Council Petition for Reconsideration in File No. 1044-DSE-AL-98 (June 19, 1998) (Attempt to raise out-of-band emission limits in routine grant of assignment of handset license from Motorola to Iridium U.S., L.P.); Iridium U.S., L.P. Opposition (June 29, 1998). See also Council Comments in WT Docket No. 96-86 (January 19, 1999) (Attempt to reopen Big LEO MSS emission standards adopted in 1994); Reply Comments of Motorola in WT Docket No. 96-86 (Feb. 25, 1999). The Commission must continue to reject attempts by Council or others to divert scarce Commission resources from the important issues at hand.

C. Motorola Agrees with Most of the Commission's Technical Proposals But Seeks Some Clarification

In response to NTIA's rulemaking petition, Motorola contended that the specified narrowband spurious measurement bandwidth was ambiguous -- 600 Hz in Section 25.213(b) of the Rules and 700 Hz in NTIA's proposal. Further, Motorola observed that measurement spectrum analyzers have resolution bandwidths of either 300 Hz or 1 kHz, not 600 Hz or 700 Hz. In response, the Commission stated that "it would [not] serve any useful purpose to switch to spectral power density limits [as proposed by NTIA]. . . ,"²¹ and proposed to adopt straightforward limits on the power of narrowband spurs rather than spectral power density limits. The Commission further stated that if the total power in a 1 kHz band is -80 dBW, the signal power in any segment of that band -- such as 700 Hz -- will not exceed that level. Motorola agrees with this approach, which also clarifies the measurement bandwidth ambiguity that was raised in response to NTIA's petition for rulemaking.

Motorola notes, however, that a narrowband spur measurement bandwidth of 1 kHz will increase the noise sensitivity relative to 700 Hz by 1.5 dB, in effect making the combined spurious-plus-noise limit 1.5 dB stricter than would measurement of the same spur in a 700 Hz bandwidth. By using a measurement bandwidth of less than 700 Hz, e.g., 300 Hz, the spur may be measured more accurately. Moreover, the noise penalty that otherwise would accompany a measurement that is unnecessarily wide, such as 1 kHz, will be eliminated.

²¹ NPRM at ¶78.

Motorola therefore requests that the Commission clarify that narrowband spurs may be measured using bandwidths less than as well as greater than 700 Hz.²²

Similarly, in response to the NTIA petition, Motorola recommended that the Commission clarify that non-peak detectors may be used to test TDMA METs for compliance with the out-of-band emission standards. Motorola also recommended that the Commission allow licensees to use resolution bandwidths smaller than 1 MHz and integrate measurements when testing for compliance with the wideband power-density limits.²³ In the current NPRM, the Commission invites further comment on these suggestions and, more generally, on the advisability of specifying emission measurement techniques for demonstrating compliance with the rule.²⁴

In the NPRM, the Commission states that it proposes “to require that all measurements are to be averaged over a 20 millisecond interval.”²⁵ The purpose of Motorola’s comments was to identify the method that should be used to best protect GNSS. The Commission’s intention to specify that all measurements be averaged over 20 ms would accomplish this goal, and Motorola supports inclusion of this statement in the Commission’s rules.

²² Proposed Section 25.216(a) refers to a bandwidth of less than 700 Hz for discrete spurious emissions but does not specify that the measurement bandwidth should be 700 Hz or less. Motorola does not suggest that the rule itself should be changed; it only asks that the Commission clarify that the measurement bandwidth should not be specified as 700 Hz or wider, to preserve accuracy when measurements are taken in the presence of noise.

²³ Motorola Comments in RM-9165 at 8.

²⁴ NPRM at ¶80.

²⁵ Id. at ¶62 n.73.

With regard to the wideband power-density limit, Motorola supports the use of measurements in bandwidths that are narrower than the 1 MHz reference set forth in the proposed rule.²⁶ This is particularly appropriate near band edges where often there are steep spectral slopes.²⁷

In its earlier Comments in RM-9165, Motorola noted that Section 25.213(b) sets forth GPS frequencies between 1574.397 and 1576.443 MHz as qualified for protection from out-of-band MET emissions, and that NTIA had proposed to protect the 1559-1580.42 MHz band for protection from wideband signals and the 1559-1585.42 MHz band for protection from narrowband signals. Motorola also observed that the band afforded protection after year 2005 is 1559-1605 MHz, for both GPS and GLONASS operations, adding that the current rules do not establish any protection standard for GLONASS operations. Motorola asked that the Commission reconcile the difference in the GPS frequencies subject to protection from MSS terminals, assuring that any resulting rule sets forth only the GLONASS frequencies subject to interim and final protection. In response, the Commission took the position that there is no reason for concluding that GLONASS is any less susceptible to interference than the GPS C/A code from narrowband spurs. On the contrary, it continues, “the aviation members of Special Committee 159 maintained that GLONASS is technically equivalent to GPS and approximately as susceptible to interference.”²⁸

²⁶ Such measurements would then be scaled by the ratio of the measured bandwidth to the required 1 MHz standard.

²⁷ Scaling and narrower measurement bandwidths are permitted in, for example, ITU-R Recommendation M.1343, Essential Technical Requirements of Mobile Earth Stations for Global Non-Geostationary Mobile-Satellite Service Systems in the Bands 1-3 GHz, 1997, at 3.

²⁸ NPRM at ¶82 [footnote omitted].

As Motorola indicated in its earlier Comments, there is no requirement for the protection of GLONASS receivers from narrowband spurious radiation in any ITU or ETSI standard. Indeed, neither ETSI TBR-041 nor ITU-R Recommendation M.1343 – the relevant standards -- require such protection. Such a unique requirement in the U.S. could create barriers to international roaming and complicate equipment approval overseas. Moreover, restricting the narrowband requirement to just the GPS band simplifies radio design and reduces handset cost.

The Commission has also sought comment on the advisability of including a requirement for specific limits on out-of-band emissions in the 1605-1610 MHz segment of the satellite radionavigation band, noting that GLONASS satellites are transmitting Standard Accuracy signals on frequencies above 1605 MHz and that NTIA has not proposed such limits.²⁹ As the Commission correctly states, the ITU-R Recommendation M.11343 recommends a limit of -10 dBW/MHz at 1610 MHz, linearly interpolated to -70 dBW/MHz at 1605 MHz.³⁰ Motorola believes that the levels adopted by the Commission should be consistent with those recommended by ETSI and the ITU-R, and therefore Motorola supports the Commission's proposal to include these values as limits in its rules. By promulgating specific standards, the Commission will prevent potentially intractable disputes over assertions of harmful interference to GLONASS in the 1605-1610 MHz segment of the band.

Finally, the Commission responded to an assertion by AMSC that this proceeding should address out-of-band emissions from all potential sources of interference, not only MSS

²⁹ Id. at ¶83. NTIA would rely on *ad hoc* resolution of problems regarding interference with reception in frequencies above 1605 MHz. Id.

³⁰ Id. See ITU-R Recommendation M.1343 and ETSI TBR-041, which specify -10 dBW/MHz at 1610 MHz and -70 dBW/MHz at 1605, linearly interpolated in dB/MHz.

terminals. The Commission concluded that “[w]hile we invite comments on the need to consider possible restrictions on non-GMPCS devices, we are reluctant do so in any way that would complicate the urgent task at hand [to develop type approval standards for GMPCS terminals in the 1610-1660.5 MHz band, in order to facilitate global circulation and transborder roaming]. . . .”³¹ Motorola agrees with the Commission’s position on this issue.³²

III. IT IS NOT YET FEASIBLE FOR MSS SYSTEMS TO IMPLEMENT FULL E911 CAPABILITY

The Commission has also asked for comment on whether to require that GMPCS terminals authorized for use in the United States have position location capabilities.³³ In its 1996 E911 Report and Order, the Commission decided to forego imposing specific emergency service requirements, including enhanced 9-1-1, on MSS while noting that MSS carriers would eventually be required to provide such services as the technology emerged.³⁴

³¹ NPRM at ¶92.

³² Indeed, Motorola filed Comments in response to the First Report and Order and Third Notice of Proposed Rulemaking, WT Docket No. 96-86, 63 Fed. Reg. 58685 (Nov. 1, 1998), in which it addressed issues associated with protection of GNSS receivers from out-of-band emissions from the 746-806 MHz public safety band. Clearly, the greater priority in this proceeding rests with resolving out-of-band emission issues associated with MSS terminals operating in the 1610-1660.5 MHz band.

³³ The Commission has also requested comment on whether FSS systems should be required to incorporate enhanced 9-1-1 capabilities and, if so, how they should be implemented; and whether automatic number identification (ANI) can be provided by MSS systems. NPRM at ¶98. Due to differences in telephone and radio system dialing protocols, it is not yet feasible to provide ANI on the Iridium system.

³⁴ See In the Matter of Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Report and Order, 11 FCC Rcd. 18676 (July 26, 1996) (E911 Report and Order) at ¶ 83.

It still remains premature to impose specific geolocation requirements on MSS systems. Existing and reasonably foreseeable technologies do not support an across-the-board solution to the problem of establishing the location of GMPCS subscribers, at least within the 125 meter RMS standard adopted by the Commission in the E911 Report and Order for terrestrial carriers and noted in the NPRM. Rather, the ability of MSS systems to establish the location of a subscriber is likely to vary from system to system, as well as from situation to situation, depending on a host of complex factors. To take but one example, the ability of MSS providers to incorporate GPS-based solutions into their products will be constrained by the fact that GPS has a very limited link margin compared to some MSS systems. As a result, MSS handsets will frequently operate in environments where the GPS receiver would not, which makes GPS a generally unreliable solution.³⁵ Accordingly, the Commission should not impose any such requirement at this time on MSS systems.

IV. CONCLUSION

For the reasons discussed herein, Motorola supports the Commission's GMPCS-MoU implementation proposals. It agrees with the Commission's proposal to apply the equipment certification program to all types of GMPCS terminals, subjecting all GMPCS terminals sold or leased in the U.S. to Commission certification and requiring all GMPCS terminals brought into the U.S. on a temporary basis to bear the ITU mark. Motorola also urges

³⁵ For example, an MSS handset that can operate just inside a window or door of an office building may not be able to receive a viable GPS signal.

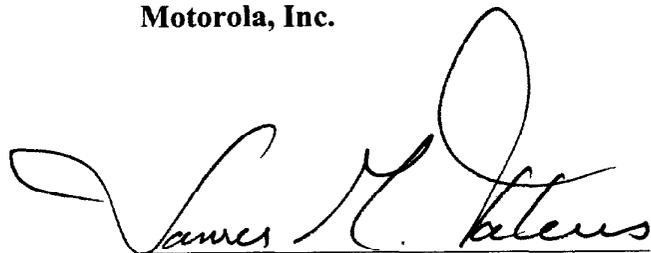
the Commission to streamline the GMPCS terminal approval process by eliminating duplicative submission requirements.

Motorola further supports NTIA's out-of-band emissions proposal, as well as the Commission's decision not to include marine and land-mobile radionavigation issues in this proceeding. Motorola generally agrees with the Commission's specific technical proposals, though it does not believe that there should be any special interim emission limit for Big LEO MSS or other MSS systems operating in the 1626.5-1660 MHz band.

Finally, Motorola strongly urges the Commission not to adopt an E911 requirement on satellite systems at this time because current and foreseeable satellite technologies do not support a consistent standard of geolocation capability.

Respectfully submitted,

Motorola, Inc.

A handwritten signature in black ink, appearing to read "James M. Talens", is written over a horizontal line.

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CERTIFICATE OF SERVICE

I hereby certify that the foregoing pleading was served this 21st day of June, 1999, by hand delivery (or first class mail where indicated by an asterisk (*)) on the following:

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