UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

ORIGINAL

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Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals
445 Twelfth Street, S.W.
Room TW-A325
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: 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, DA 00-2826

Dear Ms. Salas:

Enclosed please find an original and four copies of the late-filed Supplemental Reply Comments of the National Telecommunications and Information Administration, Department of Commerce, in the above-captioned proceeding. A copy has also been delivered to the Commission's contractor.

Please direct any questions you may have regarding this filing to the undersigned. Thank you for your cooperation.

Respectfully submitted,

Kathy Smith
Chief Counsel

Enclosures

cc: International Transcription Service

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 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 DA 00-2826
	)	
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

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FEDERAL COMMUNICATIONS COMMISSION
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SUPPLEMENTAL REPLY COMMENTS OF THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

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SUPPLEMENTAL REPLY COMMENTS OF THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

The National Telecommunications and Information Administration (NTIA), an Executive Branch agency within the Department of Commerce, is the President's principal adviser on domestic and international telecommunications policy, including policies relating to the Nation's economic and technological advancement in telecommunications. Accordingly, NTIA makes recommendations regarding telecommunications policies and presents Executive Branch views on telecommunications matters to the Congress, the Federal Communications Commission (Commission), and the public. NTIA, through the Office of Spectrum Management, Public Safety Program Office, is also responsible for coordinating the various spectrum and telecommunications related activities, within the Federal Government as they relate to public safety. NTIA submits the following Supplemental Reply Comments in response to the Commission's Public Notice in the above-captioned proceeding.[1]

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[1] *International Bureau Invites Further Comment Regarding Adoption of 911 Requirements for Satellite Services (Public Notice)*, IB Docket No. 99-67, DA 00-2826 (rel. Dec. 15, 2000). (hereinafter "911 Public Notice").

I. INTRODUCTION

In 1996, the Commission adopted rules for the provision of Basic and Enhanced 911 (E 911) service by terrestrial commercial mobile radio service (CMRS) carriers.[2] Basic 911 is the delivery of emergency 911 calls to a Public Safety Answering Point (PSAP). E911 includes the additional features of Automatic Location Identification (ALI) and Automatic Number Identification (ANI). The rules adopted by the Commission required CMRS carriers to offer basic 911 and E911 under a phased schedule.

In the 1996 Order, the Commission exempted the providers of Mobile Satellite Service (MSS) from the Basic 911 and E911 rules. The Commission revisited the subject of emergency call service for MSS users in two separate proceedings. The first proceeding is the Notice of Proposed Rulemaking (NPRM) in IB Docket No. 99-67, which addressed rules to facilitate the international circulation of satellite terminals used for the Global Mobile Personal Communications by Satellite (GMPCS).[3] The second proceeding was the NPRM in IB Docket No. 99-81 proposing licensing and service rules for the 2 GHz MSS.[4] In the 2 GHz MSS Report and Order, the Commission decided that it would be better to address the issues concerning 911

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[2] *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems (First Report and Order and Further Notice of Proposed Rulemaking)*, 11 FCC Rcd 18676 (1996), *on recon.*, 12 FCC Rcd 22665 (1997), *on further recon.*, 14 FCC Rcd 20850 (1999).

[3] *Amendments 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)*, IB Docket No. 99-67, 14 FCC Rcd 5871 (rel. March 5, 1999) (hereinafter "GMPCS NPRM").

[4] *Establishment of Polices and Service Rules for the Mobile Satellite Service in the 2 GHz Band (Notice of Proposed Rulemaking)*, IB Docket No. 99-81, 14 FCC Rcd 4843, 4885 (rel. March 25, 1999) (hereinafter "2 GHz MSS NPRM").

requirements for MSS in the GMPCS proceeding.[5] In order to gather additional information regarding the technological, regulatory, and international aspects of Basic 911 and E 911 for satellite services, the Commission directed the International Bureau to issue a public notice in the GMPCS proceeding.

NTIA applauds the Commission for its efforts in advancing emergency communications by satellite. In the 911 Public Notice the Commission requests that commenters identify and discuss any issues related to the implementation of 911 services by MSS licensees. Both NTIA and the Commission recognize the importance and the challenges encountered in deploying emergency communications on satellite networks. NTIA offers the following Supplemental Reply Comments to specific issues raised in the 911 Public Notice that NTIA believes will likely have a direct and significant impact on public safety.

II. THE COMMISSION SHOULD ESTABLISH AN ADVISORY COMMITTEE TO ADDRESS NATIONAL AND INTERNATIONAL ISSUES ASSOCIATED WITH THE IMPLEMENTATION OF EMERGENCY CALLING ON MSS NETWORKS.

The Commission requests comment on the establishment of an ad hoc fact finding committee to gather information on the issues related to 911 and E911 using MSS.[6] The establishment of an ad hoc fact finding committee is based in part on the reply comments submitted by NTIA in response to the GMPCS and 2 GHz MSS NPRMs.[7] NTIA supports the Commission establishing an advisory committee comprised of MSS system operators,

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[5] *Establishment of Polices and Service Rules for the Mobile Satellite Service in the 2 GHz Band (Report and Order)*, 14 FCC Rcd 4843, 4885 (2000).

[6] 911 Public Notice at 4.

[7] Reply Comments of the National Telecommunications and Information Administration (NTIA GMPCS Reply Comments), IB Dkt. 99-67, at 8 (July 21, 1999); Reply Comments of the National Telecommunications and Information Administration (NTIA 2 GHz MSS Reply Comments), IB Dkt. No. 99-81, at 8 (July 26, 1999).

representatives from public safety organizations, and equipment manufacturers. As pointed out by the Commission, a similar approach was used to develop a consensus agreement between the wireless and public safety communities on the wireless 911 rules.[8]

This advisory committee could address the issues encountered by the system operators in deploying emergency services on MSS networks such as: 1) locating users with sufficient accuracy, 2) determining appropriate call routing and information delivery, 3) determining the appropriate transport mechanism for connecting to all of the approximate 6,200 PSAPs in the United States from only a limited number of gateways, and 4) interconnecting gateways to PSAPs without an established standard for interconnection for voice and data signaling.[9] The public safety organizations could address the development and implementation of national standards for PSAP databases and the steps that PSAPs must take to upgrade the E-911 network to accommodate MSS provision of E-911 information. Representatives from equipment manufacturers could provide information on how technologies such as Global Positioning System (GPS) can be employed to satisfy the Commission's ALI requirement. NTIA believes that this advisory committee could also work in cooperation with international standard setting bodies to establish global emergency calling standards. Once technically achievable mechanisms to address the varying issues are developed for emergency calling, these mechanisms can be fully implemented by operators of the next generation of MSS systems.

III. ESTABLISHING EMERGENCY CALLING CENTERS FOR FIRST GENERATION MSS SYSTEMS STRIKES THE PROPER BALANCE BETWEEN IMPACT TO MSS SYSTEM OPERATIONS AND PUBLIC BENEFIT.

NTIA supports the Commission's long-term commitment to implement technologies

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[8] 911 Public Notice at 4.

[9] The gateway is an earth station that connects the space segment to terrestrial switching equipment.

needed to bring emergency assistance to wireless callers throughout the United States. NTIA strongly believes that ensuring prompt delivery of 911 and E911 calls without delay promotes safety of life and is clearly in the public interest. Several MSS system operators have submitted comments stating that implementing the Commission's E911 requirements, particularly those related to the provisions of ALI and ANI, would require significant modifications to the gateway stations and the handsets.[10] As the Commission has acknowledged, two MSS providers, Iridium LLC and ICO Global Communications Ltd., declared bankruptcy in 1999.[11] Therefore, adding costly new regulatory requirements that may further impede the development of the current MSS systems may not be in the public interest.

The Commission seeks comment on whether MSS licensees should be required to route 911 calls directly to PSAPs in the caller's vicinity, or should they have the option of initially routing the calls to special operators at central emergency-call bureaus for relay to PSAPs based on information obtained from the callers.[12] First generation MSS systems such as Globalstar and Motient currently provide emergency calling services for their subscribers. Globalstar provides an emergency access service referred to as the Emergency Call-Assistance Service (ECAS).[13] Motient has developed an emergency communications capability under its Emergency Referral

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[10] Supplemental Comments of Motient Services Inc. (Motient Supplemental Comments), IB Dkt. No. 99-67, at 3 (Feb. 20, 2001); Supplemental Comments of Inmarsat LTD. (Inmarsat Supplemental Comments), IB Dkt. No. 99-67, at 3 (Feb. 20, 2001); Supplemental Comments of ICO Global Communications, IB Dkt. No. 99-67, at 5 (Feb. 20, 2001); Joint Supplemental Comments of Globalstar USA, Inc., Globalstar, L.P., L/Q Licensee, Inc., and Qualcomm Inc. (Globalstar Supplemental Comments), IB Dkt. No. 99-67, at 13 (Feb. 20, 2001).

[11] *Implementation of Section 6002(b) of the Omnibus Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, FCC 00-289, at 32 (rel. Aug. 18, 2000).

[12] 911 Public Notice at 5.

[13] Globalstar Supplemental Comments at 2.

Service (ERS) system.[14] The ECAS provides assistance for callers dialing 911, utilizing a centralized database of PSAPs that were developed in cooperation with the National Emergency Number Association (NENA). The ERS has a group of trained operators that conference the caller in with the appropriate emergency contact based on callers location and phone number. There are currently no standards in place for the emergency calling assistance services provided by these first generation MSS systems.

NTIA believes that the Commission should investigate the feasibility of first generation MSS systems establishing and maintaining emergency calling centers to serve their subscribers. Standards could be established for the emergency calling centers which should include operator training by organizations such as the Association of Public Safety Communications Officials-International, Inc. (APCO). Establishing emergency calling centers strikes the proper balance between impact to first generation MSS system operations and benefits to the public.

IV. THE PUBLIC SAFETY COMMUNITY IN COORDINATION WITH THE MSS INDUSTRY SHOULD ADDRESS ISSUES RELATED TO THE NATIONAL PSAP DATABASE.

The Commission seeks comment on whether the nationwide PSAP database has been developed.[15] In their comments NENA states that they are currently working on a campaign to encourage PSAPs to share their contact data, and to store the data in a national database registry.[16] NENA anticipates significant improvements in its database in the first and second quarters of 2001.[17] The creation of a nationwide database of the PSAPs in the United States is

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[14] Motient Supplemental Comments at 2.

[15] 911 Public Notice at 5.

[16] Comments of the National Emergency Number Association, IB Dkt. No. 99-67, at 3 (Feb. 20, 2001).

[17] *Id.*

necessary if emergency communications on MSS networks is to be implemented. Since there is currently no coordinated nationwide PSAP database, the MSS network operators would have to work with the PSAPs on a state-by-state, or even locality-by locality basis, resulting in an enormous administrative cost. Moreover, the system operators of first generation MSS networks cannot be expected to make modifications to gateway software to accommodate the PSAP information until the data and data formats are standardized. As stated in Globalstar's supplemental comments, "... routing of an emergency call in a particular region to a pre-defined 10-digit PSAP number may eventually be possible with their system's gateway technology, but only if a geographic database of such numbers is first completed and maintained".[18]

Based on the information available in the public record, the task of developing the nationwide coordinated PSAP database has not been completed. NTIA believes that NENA as well as other public safety organizations such as APCO will continue their efforts in completing this work. NTIA also agrees with several of the commenters that it would be extremely difficult for first generation MSS system operators to make software modifications to handle the PSAP information until the data in the nationwide database and the data format of the PSAP database has been standardized. NTIA also believes that a dialogue between MSS system operators and the developers must be established to address the issues related to handling the PSAP information. NTIA recommends that, if the Commission establishes an advisory committee on emergency communication using MSS, this should be one of the first areas addressed.

V. THE MSS INDUSTRY AND PUBLIC SAFETY ORGANIZATIONS SHOULD PARTICIPATE IN THE ITU-R TO DEVELOP STANDARDS FOR IMPLEMENTING EMERGENCY COMMUNICATIONS ON THE NEXT GENERATION OF MSS SYSTEMS.

MSS systems can provide an international, as well as a regional or local service, creating

[18] Globalstar Supplemental Comments at 11.

technical and administrative problems that are not encountered by terrestrial CMRS networks. The Commission seeks comment on the efforts put forth by the public safety community and the MSS industry to develop and establish international standards for emergency calling.[19] As suggested by several commenters, international standards for emergency calling, need to be developed within an appropriate international forum.[20] The International Telecommunications Union Radiocommunications Sector (ITU-R) would provide an effective forum for developing such standards.

Within ITU-R Study Group 8, there is a new question that addresses issues related to emergency communications on MSS systems.[21] The ITU-R question addresses such areas as:

- the preferred technical and operating capabilities of MSS systems which provide radiocommunication for emergency operation;
- the preferred operational requirements for automatic determination of location;
- the aspects of routing of emergency traffic carried by MSS that must be considered to insure compatibility with existing international routing procedures; and
- the information that must be automatically forwarded with the emergency calls.

The question was developed by the United States Coast Guard in coordination with NTIA and the MSS participants in ITU-R Study Group 8. A copy of the ITU-R question is provided in Appendix A. The technical studies that are performed in response to this question can be used as the basis for developing ITU-R Recommendations. Since the ITU-R Recommendations are developed in an international forum, they are often used by MSS operators in the designing of

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[19] 911 Public Notice at 7.

[20] Motient Supplemental Comments at 2; Inmarsat Supplemental Comments at 8.

[21] Question ITU-R 227/8, *Technical and Operational Characteristics of Emergency Communications in the Mobile-Satellite Service.*

their systems.

During the current study cycle preparing for the 2003 World Radio Conference, there have been no contributions submitted in response to this question. NTIA recommends that the Commission encourage the MSS industry and the public safety organizations to develop a study program to respond to the technical, regulatory, and administrative issues raised in this question. The ITU-R Recommendations that are ultimately developed can then be used by MSS operators to implement emergency communications on the next generation MSS systems.

VI. MSS HANDSETS SHOULD BE LABELED TO INDICATE THE EXTENT OF THEIR E911 CAPABILITIES.

The Commission seeks comment on the methods that should be used to notify consumers that MSS handsets cannot be used for E911 emergency calls.[22] In the NTIA reply comments to both the GMPCS NPRM and the 2 GHz MSS NPRM, NTIA recommended that the Commission adopt a labeling system to notify users that their handsets could not be used for placing E911 calls.[23] NTIA continues to believe that users of MSS handsets are likely to have the same expectations as users of CMRS handsets when making emergency 911 calls. NTIA reiterates its recommendation that the Commission require that all MSS handsets be labeled to clearly indicate that the equipment cannot be used for making E911 calls. NTIA continues to believe that labeling the handsets will be beneficial to the public by identifying certain handsets that cannot be used for E911 calls.

VII. ADDITIONAL INFORMATION IS NEEDED ON THE TECHNICAL ISSUES RELATED TO IMPLEMENTING GPS RECEIVER TECHNOLOGY IN MSS HANDSETS.

The Commission seeks comment on the extent that the incorporation of components such

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[22] 911 Public Notice at 7.

[23] NTIA GMPCS Reply Comments at 10; NTIA 2 GHz MSS Reply Comments at 11.

as GPS will have on the size, weight, battery life, and unit cost of new MSS handsets.[24] For terrestrial CMRS networks GPS receiver technology is under consideration as one alternative for a "handset based" solution to meet the Commission's E911 ALI requirements. However, when employing GPS receiver technology into MSS handsets, there are additional technical issues that must be considered.

MSS handsets currently operate in the 1610-1660.5 MHz and 1990-2025 MHz frequency bands. GPS coarse/acquisition (C/A) code receivers operate in the 1559-1610 MHz radionavigation satellite service frequency band. NTIA has proposed that the Commission limit the out-of-band emission levels in the GPS frequency band from MSS handsets to -70 dBW/MHz for wideband emissions and -80 dBW for narrowband emissions.[25] The wideband interference protection threshold for a GPS C/A code is on the order of -140 dBW/MHz.[26] This means that approximately 70 dB of additional attenuation would be required for a GPS receiver that is incorporated into an MSS handset to function properly if operating while the MSS handset is transmitting. In order to achieve this amount of attenuation, filters with an extremely steep roll-off would be required. Implementing these filters is probably not practical from a cost, weight, or battery perspective in an MSS handset.

If MSS transmission and GPS signal reception functions cannot be performed simultaneously because of interference concerns, a time sharing arrangement could be employed (e.g., GPS receiver is turned off while MSS handset is transmitting). There is currently no

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[24] 911 Public Notice at 6.

[25] Comments of the National Telecommunications and Information Administration, IB Dkt. No. 99-67, at 16 (June 21, 1999); Comments of the National Telecommunications and Information Administration, IB Dkt. No. 99-81, at 12 (June 24, 1999).

[26] This interference threshold is based on the requirements for a GPS C/A code receiver used in aviation applications.

information on the public record related to the affect this type of time sharing arrangement would have on the cost, weight, size, and battery requirements of new MSS handsets. Moreover, from a practical standpoint, a continuously updated GPS position location while an MSS handset is transmitting may not be an insurmountable problem. When the MSS handset is transmitting, the position location recorded by the GPS receiver is still available for transmission to the PSAP. Since the location of many land-based MSS handset users may not change significantly over short periods of time, the position location stored in the GPS receiver may be sufficient for dispatchers to direct agencies responding to emergency situations. NTIA recommends that representatives of the U.S. GPS Industry Council participate in any advisory committees established by the Commission to develop more information for the public record regarding implementing GPS receiver technology in MSS handsets.

VIII. NON-VOICE MSS SHOULD BE EXEMPTED FROM THE COMMISSION'S 911 and E911 REQUIREMENTS.

The Commission seeks comment on whether there are any MSS services that should be exempted from the 911 requirements for terrestrial wireless systems.[27] Section 3 of the Wireless Communications and Public Safety Act of 1999 (1999 Act) does not define the term "telephone service."[28] However, NTIA believes that the use of the word telephone implies "telephony" which is the transmission of voice over a communications network.[29] There are several MSS systems that provide non-voice (data only) services.[30] NTIA believes that the wording of the

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[27] 911 Public Notice at 4.

[28] Wireless Communications and Public Safety Act of 1999, P.L. 106-81, Section 3.

[29] *Glossary of Telecommunications Terms*, Federal Standard-1037A (Oct. 25, 1985) at 274.

[30] Supplemental Comments of Final Analysis Communication Services and Orbital Communications Corporation, IB Dkt. No. 99-67, at 1 (Feb. 20, 2001).

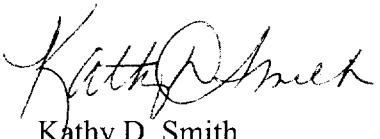
1999 Act was not intended to address MSS systems providing non-voice services and that they should be exempted from the Commission's 911 and E911 requirements. Similarly, Section 3 of the 1999 Act states that 911 is to be used "for reporting an emergency ... and requesting assistance." This implies that the 911/E911 requirements would not be applicable where assistance could not be rendered in a timely manner.

IX. CONCLUSION

NTIA and the Commission recognize the unique challenges that are encountered in deploying emergency services on MSS systems. NTIA urges the Commission to consider carefully the issues raised in these Supplemental Reply Comments in an effort to develop a workable arrangement to facilitate the implementation of emergency communications on MSS systems.

For the foregoing reasons, NTIA submits these supplemental reply comments.

Respectfully submitted,



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APPENDIX A

QUESTION ITU-R 227/8

TECHNICAL AND OPERATIONAL CHARACTERISTICS OF EMERGENCY COMMUNICATIONS IN THE MOBILE-SATELLITE SERVICE*

(2000)

The ITU Radiocommunications Assembly,

considering

a) that within the mobile-satellite service (MSS) there is an increasing number of systems offering communication services that offer global or regional coverage;

b) that users of mobile-satellite services are expected to be using these mobile terminals for emergency services, especially in sparsely populated, uninhabited or remote areas;

c) that rapid routing of emergency traffic and accurate position data are essential in search and rescue cases;

d) that mobile radio systems are in operation for other services which can give accurate position data;

e) that a mobile transmitter subscriber's name and call back number is essential to the rescue effort to contact the caller if the initial connection is severed, as an aid to identifying inadvertent false alerts, and in the prosecution of malicious call cases;

f) that advanced land mobile systems are in operation for other services which can give the subscriber's name and call back number;

g) that within the MSS there is a great and growing need to determine standard international routing procedures for emergency traffic;

h) that many administrations have emergency traffic routing procedures in place that automatically route calls to the responsible response agency;

j) that the ITU-D has transmitted to the ITU-R a liaison statement with the objective of initiating studies on technical and operational requirements for emergency communications in sparsely populated, uninhabited or remote areas;

k) that distress, emergency, safety and other communications are defined in Article S33 of the Radio Regulations,

recognizing

a) that the Global Maritime Distress and Safety System (GMDSS) has been implemented for compulsory ships as of February 1, 1999;

b) that the International Maritime Organization is considering a draft assembly resolution addressing criteria for the provision of mobile satellite communications systems in the GMDSS;

c) that standards for aeronautical safety and emergency communications, and automatic dependent surveillance are being addressed within the International Civil Aviation Organization,

and therefore aeronautical issues will not be considered in this Question,

decides that the following Question should be studied

1 What are the preferred technical and operating capabilities of mobile-satellite systems which provide radiocommunication using geostationary or non-geostationary satellite systems, for emergency operations, other than those in the GMDSS, excluding aeronautical mobile operations?

2 What are the various technical and operating problems related to the use of MSS systems for emergency and search and rescue operations?

3 What are the preferred operational requirements for automatic determination of location (ADL), e.g. procedures, accuracy and coverage?

4 What aspects of the routing of emergency traffic carried by the MSS must be considered to insure compatibility with existing international routing procedures?

5 What information to be automatically forwarded with the call such as subscriber name and call back number is deemed essential for emergency calls?

6 What are the satellite voice and data systems that need to be considered separately with regard to the above questions?

7 What type of call or message constitutes an emergency?

8 How is the term "emergency" to be defined?

further decides

1 that the results of the above studies should be included in one or more Recommendations;

2 that the results of these studies should be completed by 2001.

NOTE 1 – The results of these studies should be brought to the attention of the Telecommunication Development Sector.

* Excluding the aeronautical mobile service.

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I. INTRODUCTION

In 1996, the Commission adopted rules for the provision of Basic and Enhanced 911 (E 911) service by terrestrial commercial mobile radio service (CMRS) carriers.[2] Basic 911 is the delivery of emergency 911 calls to a Public Safety Answering Point (PSAP). E911 includes the additional features of Automatic Location Identification (ALI) and Automatic Number Identification (ANI). The rules adopted by the Commission required CMRS carriers to offer basic 911 and E911 under a phased schedule.

In the 1996 Order, the Commission exempted the providers of Mobile Satellite Service (MSS) from the Basic 911 and E911 rules. The Commission revisited the subject of emergency call service for MSS users in two separate proceedings. The first proceeding is the Notice of Proposed Rulemaking (NPRM) in IB Docket No. 99-67, which addressed rules to facilitate the international circulation of satellite terminals used for the Global Mobile Personal Communications by Satellite (GMPCS).[3] The second proceeding was the NPRM in IB Docket No. 99-81 proposing licensing and service rules for the 2 GHz MSS.[4] In the 2 GHz MSS Report and Order, the Commission decided that it would be better to address the issues concerning 911

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[2] *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems (First Report and Order and Further Notice of Proposed Rulemaking)*, 11 FCC Rcd 18676 (1996), *on recon.*, 12 FCC Rcd 22665 (1997), *on further recon.*, 14 FCC Rcd 20850 (1999).

[3] *Amendments 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)*, IB Docket No. 99-67, 14 FCC Rcd 5871 (rel. March 5, 1999) (hereinafter "GMPCS NPRM").

[4] *Establishment of Polices and Service Rules for the Mobile Satellite Service in the 2 GHz Band (Notice of Proposed Rulemaking)*, IB Docket No. 99-81, 14 FCC Rcd 4843, 4885 (rel.

requirements for MSS in the GMPCS proceeding.[5] In order to gather additional information regarding the technological, regulatory, and international aspects of Basic 911 and E 911 for satellite services, the Commission directed the International Bureau to issue a public notice in the GMPCS proceeding.

NTIA applauds the Commission for its efforts in advancing emergency communications by satellite. In the 911 Public Notice the Commission requests that commenters identify and discuss any issues related to the implementation of 911 services by MSS licensees. Both NTIA and the Commission recognize the importance and the challenges encountered in deploying emergency communications on satellite networks. NTIA offers the following Supplemental Reply Comments to specific issues raised in the 911 Public Notice that NTIA believes will likely have a direct and significant impact on public safety.

II. THE COMMISSION SHOULD ESTABLISH AN ADVISORY COMMITTEE TO ADDRESS NATIONAL AND INTERNATIONAL ISSUES ASSOCIATED WITH THE IMPLEMENTATION OF EMERGENCY CALLING ON MSS NETWORKS.

The Commission requests comment on the establishment of an ad hoc fact finding committee to gather information on the issues related to 911 and E911 using MSS.[6] The establishment of an ad hoc fact finding committee is based in part on the reply comments submitted by NTIA in response to the GMPCS and 2 GHz MSS NPRMs.[7] NTIA supports the Commission establishing an advisory committee comprised of MSS system operators,

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[5] *Establishment of Polices and Service Rules for the Mobile Satellite Service in the 2 GHz Band (Report and Order)*, 14 FCC Rcd 4843, 4885 (2000).

[6] 911 Public Notice at 4.

[7] Reply Comments of the National Telecommunications and Information Administration (NTIA GMPCS Reply Comments), IB Dkt. 99-67, at 8 (July 21, 1999); Reply Comments of the National Telecommunications and Information Administration (NTIA 2 GHz MSS Reply Comments), IB Dkt. No. 99-81, at 8 (July 26, 1999).

representatives from public safety organizations, and equipment manufacturers. As pointed out by the Commission, a similar approach was used to develop a consensus agreement between the wireless and public safety communities on the wireless 911 rules.[8]

This advisory committee could address the issues encountered by the system operators in deploying emergency services on MSS networks such as: 1) locating users with sufficient accuracy, 2) determining appropriate call routing and information delivery, 3) determining the appropriate transport mechanism for connecting to all of the approximate 6,200 PSAPs in the United States from only a limited number of gateways, and 4) interconnecting gateways to PSAPs without an established standard for interconnection for voice and data signaling.[9] The public safety organizations could address the development and implementation of national standards for PSAP databases and the steps that PSAPs must take to upgrade the E-911 network to accommodate MSS provision of E-911 information. Representatives from equipment manufacturers could provide information on how technologies such as Global Positioning System (GPS) can be employed to satisfy the Commission's ALI requirement. NTIA believes that this advisory committee could also work in cooperation with international standard setting bodies to establish global emergency calling standards. Once technically achievable mechanisms to address the varying issues are developed for emergency calling, these mechanisms can be fully implemented by operators of the next generation of MSS systems.

III. ESTABLISHING EMERGENCY CALLING CENTERS FOR FIRST GENERATION MSS SYSTEMS STRIKES THE PROPER BALANCE BETWEEN IMPACT TO MSS SYSTEM OPERATIONS AND PUBLIC BENEFIT.

NTIA supports the Commission's long-term commitment to implement technologies

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[8] 911 Public Notice at 4.

[9] The gateway is an earth station that connects the space segment to terrestrial switching equipment.

needed to bring emergency assistance to wireless callers throughout the United States. NTIA strongly believes that ensuring prompt delivery of 911 and E911 calls without delay promotes safety of life and is clearly in the public interest. Several MSS system operators have submitted comments stating that implementing the Commission's E911 requirements, particularly those related to the provisions of ALI and ANI, would require significant modifications to the gateway stations and the handsets.[10] As the Commission has acknowledged, two MSS providers, Iridium LLC and ICO Global Communications Ltd., declared bankruptcy in 1999.[11] Therefore, adding costly new regulatory requirements that may further impede the development of the current MSS systems may not be in the public interest.

The Commission seeks comment on whether MSS licensees should be required to route 911 calls directly to PSAPs in the caller's vicinity, or should they have the option of initially routing the calls to special operators at central emergency-call bureaus for relay to PSAPs based on information obtained from the callers.[12] First generation MSS systems such as Globalstar and Motient currently provide emergency calling services for their subscribers. Globalstar provides an emergency access service referred to as the Emergency Call-Assistance Service (ECAS).[13] Motient has developed an emergency communications capability under its Emergency Referral

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[10] Supplemental Comments of Motient Services Inc. (Motient Supplemental Comments), IB Dkt. No. 99-67, at 3 (Feb. 20, 2001); Supplemental Comments of Inmarsat LTD. (Inmarsat Supplemental Comments), IB Dkt. No. 99-67, at 3 (Feb. 20, 2001); Supplemental Comments of ICO Global Communications, IB Dkt. No. 99-67, at 5 (Feb. 20, 2001); Joint Supplemental Comments of Globalstar USA, Inc., Globalstar, L.P., L/Q Licensee, Inc., and Qualcomm Inc. (Globalstar Supplemental Comments), IB Dkt. No. 99-67, at 13 (Feb. 20, 2001).

[11] *Implementation of Section 6002(b) of the Omnibus Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, FCC 00-289, at 32 (rel. Aug. 18, 2000).

[12] 911 Public Notice at 5.

[13] Globalstar Supplemental Comments at 2.

Service (ERS) system.[14] The ECAS provides assistance for callers dialing 911, utilizing a centralized database of PSAPs that were developed in cooperation with the National Emergency Number Association (NENA). The ERS has a group of trained operators that conference the caller in with the appropriate emergency contact based on callers location and phone number. There are currently no standards in place for the emergency calling assistance services provided by these first generation MSS systems.

NTIA believes that the Commission should investigate the feasibility of first generation MSS systems establishing and maintaining emergency calling centers to serve their subscribers. Standards could be established for the emergency calling centers which should include operator training by organizations such as the Association of Public Safety Communications Officials-International, Inc. (APCO). Establishing emergency calling centers strikes the proper balance between impact to first generation MSS system operations and benefits to the public.

IV. THE PUBLIC SAFETY COMMUNITY IN COORDINATION WITH THE MSS INDUSTRY SHOULD ADDRESS ISSUES RELATED TO THE NATIONAL PSAP DATABASE.

The Commission seeks comment on whether the nationwide PSAP database has been developed.[15] In their comments NENA states that they are currently working on a campaign to encourage PSAPs to share their contact data, and to store the data in a national database registry.[16] NENA anticipates significant improvements in its database in the first and second quarters of 2001.[17] The creation of a nationwide database of the PSAPs in the United States is

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[14] Motient Supplemental Comments at 2.

[15] 911 Public Notice at 5.

[16] Comments of the National Emergency Number Association, IB Dkt. No. 99-67, at 3 (Feb. 20, 2001).

[17] *Id.*

necessary if emergency communications on MSS networks is to be implemented. Since there is currently no coordinated nationwide PSAP database, the MSS network operators would have to work with the PSAPs on a state-by-state, or even locality-by locality basis, resulting in an enormous administrative cost. Moreover, the system operators of first generation MSS networks cannot be expected to make modifications to gateway software to accommodate the PSAP information until the data and data formats are standardized. As stated in Globalstar's supplemental comments, "... routing of an emergency call in a particular region to a pre-defined 10-digit PSAP number may eventually be possible with their system's gateway technology, but only if a geographic database of such numbers is first completed and maintained".[18]

Based on the information available in the public record, the task of developing the nationwide coordinated PSAP database has not been completed. NTIA believes that NENA as well as other public safety organizations such as APCO will continue their efforts in completing this work. NTIA also agrees with several of the commenters that it would be extremely difficult for first generation MSS system operators to make software modifications to handle the PSAP information until the data in the nationwide database and the data format of the PSAP database has been standardized. NTIA also believes that a dialogue between MSS system operators and the developers must be established to address the issues related to handling the PSAP information. NTIA recommends that, if the Commission establishes an advisory committee on emergency communication using MSS, this should be one of the first areas addressed.

V. THE MSS INDUSTRY AND PUBLIC SAFETY ORGANIZATIONS SHOULD PARTICIPATE IN THE ITU-R TO DEVELOP STANDARDS FOR IMPLEMENTING EMERGENCY COMMUNICATIONS ON THE NEXT GENERATION OF MSS SYSTEMS.

MSS systems can provide an international, as well as a regional or local service, creating

[18] Globalstar Supplemental Comments at 11.

technical and administrative problems that are not encountered by terrestrial CMRS networks. The Commission seeks comment on the efforts put forth by the public safety community and the MSS industry to develop and establish international standards for emergency calling.[19] As suggested by several commenters, international standards for emergency calling, need to be developed within an appropriate international forum.[20] The International Telecommunications Union Radiocommunications Sector (ITU-R) would provide an effective forum for developing such standards.

Within ITU-R Study Group 8, there is a new question that addresses issues related to emergency communications on MSS systems.[21] The ITU-R question addresses such areas as:

- the preferred technical and operating capabilities of MSS systems which provide radiocommunication for emergency operation;
- the preferred operational requirements for automatic determination of location;
- the aspects of routing of emergency traffic carried by MSS that must be considered to insure compatibility with existing international routing procedures; and
- the information that must be automatically forwarded with the emergency calls.

The question was developed by the United States Coast Guard in coordination with NTIA and the MSS participants in ITU-R Study Group 8. A copy of the ITU-R question is provided in Appendix A. The technical studies that are performed in response to this question can be used as the basis for developing ITU-R Recommendations. Since the ITU-R Recommendations are developed in an international forum, they are often used by MSS operators in the designing of

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[19] 911 Public Notice at 7.

[20] Motient Supplemental Comments at 2; Inmarsat Supplemental Comments at 8.

[21] Question ITU-R 227/8, *Technical and Operational Characteristics of Emergency Communications in the Mobile-Satellite Service.*

their systems.

During the current study cycle preparing for the 2003 World Radio Conference, there have been no contributions submitted in response to this question. NTIA recommends that the Commission encourage the MSS industry and the public safety organizations to develop a study program to respond to the technical, regulatory, and administrative issues raised in this question. The ITU-R Recommendations that are ultimately developed can then be used by MSS operators to implement emergency communications on the next generation MSS systems.

VI. MSS HANDSETS SHOULD BE LABELED TO INDICATE THE EXTENT OF THEIR E911 CAPABILITIES.

The Commission seeks comment on the methods that should be used to notify consumers that MSS handsets cannot be used for E911 emergency calls.[22] In the NTIA reply comments to both the GMPCS NPRM and the 2 GHz MSS NPRM, NTIA recommended that the Commission adopt a labeling system to notify users that their handsets could not be used for placing E911 calls.[23] NTIA continues to believe that users of MSS handsets are likely to have the same expectations as users of CMRS handsets when making emergency 911 calls. NTIA reiterates its recommendation that the Commission require that all MSS handsets be labeled to clearly indicate that the equipment cannot be used for making E911 calls. NTIA continues to believe that labeling the handsets will be beneficial to the public by identifying certain handsets that cannot be used for E911 calls.

VII. ADDITIONAL INFORMATION IS NEEDED ON THE TECHNICAL ISSUES RELATED TO IMPLEMENTING GPS RECEIVER TECHNOLOGY IN MSS HANDSETS.

The Commission seeks comment on the extent that the incorporation of components such

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[22] 911 Public Notice at 7.

[23] NTIA GMPCS Reply Comments at 10; NTIA 2 GHz MSS Reply Comments at 11.

as GPS will have on the size, weight, battery life, and unit cost of new MSS handsets.[24] For terrestrial CMRS networks GPS receiver technology is under consideration as one alternative for a "handset based" solution to meet the Commission's E911 ALI requirements. However, when employing GPS receiver technology into MSS handsets, there are additional technical issues that must be considered.

MSS handsets currently operate in the 1610-1660.5 MHz and 1990-2025 MHz frequency bands. GPS coarse/acquisition (C/A) code receivers operate in the 1559-1610 MHz radionavigation satellite service frequency band. NTIA has proposed that the Commission limit the out-of-band emission levels in the GPS frequency band from MSS handsets to -70 dBW/MHz for wideband emissions and -80 dBW for narrowband emissions.[25] The wideband interference protection threshold for a GPS C/A code is on the order of -140 dBW/MHz.[26] This means that approximately 70 dB of additional attenuation would be required for a GPS receiver that is incorporated into an MSS handset to function properly if operating while the MSS handset is transmitting. In order to achieve this amount of attenuation, filters with an extremely steep roll-off would be required. Implementing these filters is probably not practical from a cost, weight, or battery perspective in an MSS handset.

If MSS transmission and GPS signal reception functions cannot be performed simultaneously because of interference concerns, a time sharing arrangement could be employed (e.g., GPS receiver is turned off while MSS handset is transmitting). There is currently no

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[24] 911 Public Notice at 6.

[25] Comments of the National Telecommunications and Information Administration, IB Dkt. No. 99-67, at 16 (June 21, 1999); Comments of the National Telecommunications and Information Administration, IB Dkt. No. 99-81, at 12 (June 24, 1999).

[26] This interference threshold is based on the requirements for a GPS C/A code receiver used in aviation applications.

information on the public record related to the affect this type of time sharing arrangement would have on the cost, weight, size, and battery requirements of new MSS handsets. Moreover, from a practical standpoint, a continuously updated GPS position location while an MSS handset is transmitting may not be an insurmountable problem. When the MSS handset is transmitting, the position location recorded by the GPS receiver is still available for transmission to the PSAP. Since the location of many land-based MSS handset users may not change significantly over short periods of time, the position location stored in the GPS receiver may be sufficient for dispatchers to direct agencies responding to emergency situations. NTIA recommends that representatives of the U.S. GPS Industry Council participate in any advisory committees established by the Commission to develop more information for the public record regarding implementing GPS receiver technology in MSS handsets.

VIII. NON-VOICE MSS SHOULD BE EXEMPTED FROM THE COMMISSION'S 911 and E911 REQUIREMENTS.

The Commission seeks comment on whether there are any MSS services that should be exempted from the 911 requirements for terrestrial wireless systems.[27] Section 3 of the Wireless Communications and Public Safety Act of 1999 (1999 Act) does not define the term "telephone service."[28] However, NTIA believes that the use of the word telephone implies "telephony" which is the transmission of voice over a communications network.[29] There are several MSS systems that provide non-voice (data only) services.[30] NTIA believes that the wording of the

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[27] 911 Public Notice at 4.

[28] Wireless Communications and Public Safety Act of 1999, P.L. 106-81, Section 3.

[29] *Glossary of Telecommunications Terms*, Federal Standard-1037A (Oct. 25, 1985) at 274.

[30] Supplemental Comments of Final Analysis Communication Services and Orbital Communications Corporation, IB Dkt. No. 99-67, at 1 (Feb. 20, 2001).

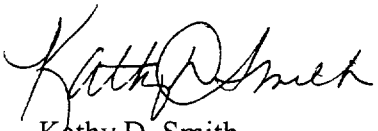
1999 Act was not intended to address MSS systems providing non-voice services and that they should be exempted from the Commission's 911 and E911 requirements. Similarly, Section 3 of the 1999 Act states that 911 is to be used "for reporting an emergency ... and requesting assistance." This implies that the 911/E911 requirements would not be applicable where assistance could not be rendered in a timely manner.

IX. CONCLUSION

NTIA and the Commission recognize the unique challenges that are encountered in deploying emergency services on MSS systems. NTIA urges the Commission to consider carefully the issues raised in these Supplemental Reply Comments in an effort to develop a workable arrangement to facilitate the implementation of emergency communications on MSS systems.

For the foregoing reasons, NTIA submits these supplemental reply comments.

Respectfully submitted,



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APPENDIX A

QUESTION ITU-R 227/8

TECHNICAL AND OPERATIONAL CHARACTERISTICS OF EMERGENCY COMMUNICATIONS IN THE MOBILE-SATELLITE SERVICE*

(2000)

The ITU Radiocommunications Assembly,

considering

a) that within the mobile-satellite service (MSS) there is an increasing number of systems offering communication services that offer global or regional coverage;

b) that users of mobile-satellite services are expected to be using these mobile terminals for emergency services, especially in sparsely populated, uninhabited or remote areas;

c) that rapid routing of emergency traffic and accurate position data are essential in search and rescue cases;

d) that mobile radio systems are in operation for other services which can give accurate position data;

e) that a mobile transmitter subscriber's name and call back number is essential to the rescue effort to contact the caller if the initial connection is severed, as an aid to identifying inadvertent false alerts, and in the prosecution of malicious call cases;

f) that advanced land mobile systems are in operation for other services which can give the subscriber's name and call back number;

g) that within the MSS there is a great and growing need to determine standard international routing procedures for emergency traffic;

h) that many administrations have emergency traffic routing procedures in place that automatically route calls to the responsible response agency;

j) that the ITU-D has transmitted to the ITU-R a liaison statement with the objective of initiating studies on technical and operational requirements for emergency communications in sparsely populated, uninhabited or remote areas;

k) that distress, emergency, safety and other communications are defined in Article S33 of the Radio Regulations,

recognizing

a) that the Global Maritime Distress and Safety System (GMDSS) has been implemented for compulsory ships as of February 1, 1999;

b) that the International Maritime Organization is considering a draft assembly resolution addressing criteria for the provision of mobile satellite communications systems in the GMDSS;

c) that standards for aeronautical safety and emergency communications, and automatic dependent surveillance are being addressed within the International Civil Aviation Organization,

and therefore aeronautical issues will not be considered in this Question,

decides that the following Question should be studied

1 What are the preferred technical and operating capabilities of mobile-satellite systems which provide radiocommunication using geostationary or non-geostationary satellite systems, for emergency operations, other than those in the GMDSS, excluding aeronautical mobile operations?

2 What are the various technical and operating problems related to the use of MSS systems for emergency and search and rescue operations?

3 What are the preferred operational requirements for automatic determination of location (ADL), e.g. procedures, accuracy and coverage?

4 What aspects of the routing of emergency traffic carried by the MSS must be considered to insure compatibility with existing international routing procedures?

5 What information to be automatically forwarded with the call such as subscriber name and call back number is deemed essential for emergency calls?

6 What are the satellite voice and data systems that need to be considered separately with regard to the above questions?

7 What type of call or message constitutes an emergency?

8 How is the term "emergency" to be defined?

further decides

1 that the results of the above studies should be included in one or more Recommendations;

2 that the results of these studies should be completed by 2001.

NOTE 1 – The results of these studies should be brought to the attention of the Telecommunication Development Sector.

* Excluding the aeronautical mobile service.