

**Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

| | | |
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| In the Matter of |) | |
| |) | |
| Revision of Commission's Rules to |) | |
| Ensure Compatibility With Enhanced 911 |) | CC Docket No. 94-102 |
| Emergency Calling Systems |) | |
| |) | |
| Amendment of Part 2 and 25 to Implement the |) | |
| Global Mobile Personal Communications by |) | |
| Satellite (GCPCS) Memorandum of |) | |
| Understanding and Arrangements; Petition of |) | |
| the National Telecommunications and |) | IB Docket No. 99-67 |
| 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 |) | |

**REPLY COMMENTS OF
INMARSAT VENTURES PLC**

INMARSAT VENTURES PLC

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REPLY COMMENTS OF INMARSAT VENTURES PLC

Inmarsat Ventures plc ("Inmarsat") hereby replies to the comments filed in response to the Further Notice of Proposed Rulemaking in the above-captioned proceeding.¹

INTRODUCTION AND SUMMARY

As discussed in greater detail in its comments, Inmarsat operates a global mobile satellite system ("MSS") that provides data and digitally compressed video transmission, Internet access, and voice communications in the air, on land and on the seas.² In the United States, Inmarsat sells capacity on its system to land earth station operators ("LESOs"), such as Telenor

¹ See *In re Revision of Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems; Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements; Petition of National Telecommunications and Information Administration to Amend Part 25 of the Commission's Rules to Establish Emission Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band*, CC Docket No. 94-102 and IB Docket No. 99-67, Further Notice of Proposed Rule Making (rel. December 20, 2002) ("FNPRM").

² *Comments of Inmarsat Ventures plc*, CC Docket No. 94-102 and IB Docket No. 99-67 at 3-4 (filed February 9, 2003) ("Inmarsat Comments").

Satellite Service, Inc. (“Telenor”) and Stratos Mobile Networks, Inc. (“Stratos”), who in turn offer the aforementioned services directly to customers. The LESOs operate and maintain the gateway earth stations through which calls from Inmarsat terminals are connected to the U.S. public switched telephone network (“PSTN”). The LESOs are responsible for the handling the traffic that passes through their gateway earth stations and for managing the provision of service to their customers, who are the “end users” of Inmarsat services.

As is reflected in Inmarsat’s comments and those of many others, there is strong support for the Commission’s proposal that only MSS providers meeting certain threshold criteria should be subject to the FCC’s basic 911 and E911 requirements. Those criteria allow the Commission to fairly evaluate whether it is necessary and practical for a particular MSS service to include basic 911 or E911 capabilities. Because Inmarsat’s services are not competitive to CMRS and its customers have no expectation of basic 911 or E911 functionality, the Commission should not impose such requirements on Inmarsat or its LESOs. Moreover, Inmarsat’s current satellite system lacks the capability to provide E911 functionality. To the extent, however, that the FCC imposes basic 911 obligations on current Inmarsat services, Inmarsat, Stratos and Mobile Satellite Ventures Subsidiary PLC (“MSV”) agree that such requirements would need to be implemented through providers of MSS service to end users, such as the LESOs.

Finally, as described in its comments, Inmarsat is in the process of developing a new service, called BGAN, utilizing the next-generation, Inmarsat-4 satellites. Like its current services, BGAN will not compete with CMRS services. Moreover, because all BGAN calls originating from the U.S. will be routed through a gateway earth station in Holland, implementation of E911 capabilities in the new service would be extremely difficult. As

multiple MSS operators describe, there are significant technical limitations on current MSS systems and the U.S. PSTN that make incorporation of E911 into MSS services simply infeasible. The international nature of the BGAN service only magnifies these difficulties. Because of significant technical impediments and because the service is not competitive with CMRS, Inmarsat urges the Commission not to impose basic 911 or E911 obligations on Inmarsat BGAN services.

DISCUSSION

I. ONLY MSS SERVICES MEETING THE FCC'S PROPOSED THRESHOLD CRITERIA SHOULD BE OBLIGATED TO PROVIDE BASIC 911 OR E911 FUNCTIONALITY

Inmarsat agrees with the Commission's proposal, which is supported by a number of commenters,³ that basic 911 and E911 requirements should be imposed only where an MSS service meets the following criteria: (i) a real-time, two-way voice service that is interconnected to public switched network; (ii) customers using the service have reasonable expectation of access to 911 and E911 service; (iii) the service competes with traditional CMRS or wireline local exchange services; and (iv) it is technically and operationally feasible for the service or device to support E911.⁴ As AT&T Wireless Services, LLC ("AWS") aptly argues, the proposed criteria will "help ensure that the FCC's 911 and E911 rules are technologically and competitively neutral."⁵ MSS providers offer a variety of services from pure data transfer to

³ See *Comments of ICO Global Communications*, CC Docket No. 94-102 and IB Docket No. 99-67 at 3-4 (filed February 9, 2003) ("*ICO Comments*"); *Comments of AT&T Wireless Services, Inc.*, CC Docket No. 94-102 and IB Docket No. 99-67 at 2 (filed February 9, 2003) ("*AWS Comments*"); *Comments of Stratos Mobile Networks, Inc. and Stratos Communications, Inc.*, CC Docket No. 94-102 and IB Docket No. 99-67 at 2-5 (filed February 9, 2003) ("*Stratos Comments*"); *Comments of Mobile Satellite Ventures Subsidiary LLC*, CC Docket No. 94-102 and IB Docket No. 99-67 at 15, 17 (filed February 9, 2003) ("*MSV Comments*").

⁴ See *FNPRM* at ¶¶ 12 and 13.

⁵ *AWS Comments* at 2.

voice service and do so over a diverse range of equipment. To impose 911 obligations on all MSS services in a blanket manner and without regard to the characteristics of the service would be capricious and unfair.

Certain commenters ignore the substantial differences among MSS services and urge the Commission to haphazardly impose 911 rules on all MSS providers.⁶ These arguments are based on the false premise that MSS and CMRS are interchangeable services. For example, CTIA asserts that “the public will not understand the nuanced difference between a facilities-based, licensed CMRS service provider and . . . MSS licensees”⁷ This is simply not true.

As discussed more fully in its initial comments, Inmarsat’s services are not competitive with CMRS or wireline local exchange services and there is no way a consumer could confuse an Inmarsat service with that of a CMRS provider.⁸ Inmarsat’s maritime and aeronautical services provide data and voice transmission capabilities to users at sea or in the air. Inmarsat terminals for these services are mounted to ships or airplanes. They are not personal devices designed to be carried by individuals. Moreover, Inmarsat agrees with the comments of Globalstar and MSV who support the Commission’s tentative conclusions that it is unnecessary to apply basic 911 or E911 obligations to MSS maritime and aeronautical services, because there

⁶ See *Comments of The Cellular Telecommunications & Internet Association*, CC Docket No. 94-102 and IB Docket No. 99-67 at 2 (filed February 9, 2003) (“*CTIA Comments*”); *Sprint Comments*, CC Docket No. 94-102 and IB Docket No. 99-67 at 1 (filed February 9, 2003) (“*Sprint Comments*”); *Comments of the Association of Public-Safety Communications Officials-International, Inc.*, CC Docket No. 94-102 and IB Docket No. 99-67 at 5 (filed February 9, 2003) (“*APCO Comments*”).

⁷ *Comments of The Cellular Telecommunications & Internet Association*, CC Docket No. 94-102 and IB Docket No. 99-67 at 2 (filed February 9, 2003) (“*CTIA Comments*”).

⁸ See *Inmarsat Comments* at 4-7.

currently exist international standards for emergency communications at sea and in the air.⁹ The international community, including the United States, has developed communications regimes for maritime and aeronautical emergencies that operate effectively both around the U.S. and abroad. Implementing 911 obligations may cause confusion to both MSS providers and individuals who expect to use the existing emergency systems and not a 911 regime. Finally, competing emergency requirements could be harmful if such rules interfered with or hampered the use of the existing emergency systems.

Contrary to the sweeping generalizations made in CTIA's and Sprint's comments, Inmarsat terrestrial services are not competitive with (to the contrary, they are easily distinguishable from) CMRS services. A striking difference is the size and operational characteristics of an Inmarsat terrestrial terminal versus a traditional "cell phone." The smallest Inmarsat terminal is about the size of a small laptop computer and most terminals cannot be used while in motion.¹⁰ Moreover, Inmarsat terminals require the customer to establish a connection with a satellite by deploying a terminal and pointing its antenna at the satellite. The customer needs to establish and maintain a direct line of sight with an Inmarsat satellite and can operate a terminal indoors only if it is near a window with a clear line of sight.

Inmarsat users understand and value the unique capabilities of Inmarsat service and therefore are willing to pay a substantial premium over typical CMRS services. While some

⁹ See *Comments of Globalstar USA LLC and Globalstar, L.P.*, CC Docket No. 94-102 and IB Docket No. 99-67 at 12 (filed February 9, 2003) ("*Globalstar Comments*"); *MSV Comments* at 14-15.

¹⁰ The Inmarsat C terminals may be mounted on vehicles and used while in motion, but these terminals are designed for data transmission only. Standard Inmarsat terrestrial terminals are not typically used while in motion due to the need to keep the antenna on the terminal pointed at the Inmarsat satellite.

MSS services such as those using handheld, mobile terminals or ATC may be competitive to CMRS services, Inmarsat services are not.¹¹

Users of Inmarsat services also do not have an expectation of 911 capabilities. Inmarsat terminals are not devices that can simply be pulled out and used quickly to dial 911. As Stratos points out, because of the significant time need to set up these terminals and acquire a satellite link prior to dialing, customers are not likely to turn to the Inmarsat service in an emergency situation that requires an immediate call to be completed.¹² Because Inmarsat services are not competitive to CMRS services and its customers do not have an expectation of 911 capabilities, the Commission should not impose any basic 911 or E911 obligations on these services.

II. TECHNICAL LIMITATIONS CONSTRAIN INMARSAT'S ABILITY TO PROVIDE BASIC 911 AND E911 CAPABILITIES

In addition to the fact that Inmarsat services are not competitive to CMRS and its customers do not expect 911 capabilities, there are technical reasons that make it difficult, if not impossible, for Inmarsat to provide basic 911 or E911 functionality.

A. The Current Inmarsat Satellite System Does Not Have E911 Capability

As discussed in its comments, Inmarsat does not currently have the ability to locate callers on its network to any meaningful extent.¹³ At best, Inmarsat may be able to identify the satellite beam from which a call originates. The footprint of such a beam could

¹¹ As the Washington State Enhanced 911 Program recognizes, whether an MSS provider needs to integrate 911 capabilities may be based on whether the service is marketed to be competitive to CMRS services. *See Comments by the Washington State Enhanced 911 Program*, CC Docket No. 94-102 and IB Docket No. 99-67 at 2, 3 (filed February 9, 2003). Inmarsat does not market to CMRS customers, because those customers have different needs and desires.

¹² *See Stratos Comments* at 3.

¹³ *See Inmarsat Comments* at 3-4.

cover the entire northeast of the U.S. and such information would be next to useless in actually locating the caller for 911 purposes.

In addition, because the Inmarsat satellite system cannot automatically locate a caller, Inmarsat cannot identify which PSAP is closest to the caller without speaking to the caller. As discussed in its comments, however, Inmarsat does not have a direct relationship with users of the Inmarsat services in the U.S.¹⁴ Instead, Inmarsat sells capacity to LESOs who in turn provide service to and maintain the relationship with individual end users. Thus, a call from an Inmarsat terminal will uplink to an Inmarsat satellite and then be sent to an earth station gateway operated by the LESO. From the LESO's gateway, the call will be connected to the PSTN.

B. If the FCC Imposes a Call Center Requirement, Inmarsat's LESOs Would Need to Implement the Capability

Because the Inmarsat LESOs operate the gateway earth stations through which Inmarsat customers are connected to the U.S. PSTN, they are in the best position to receive and route emergency calls. Stratos recognizes this in its initial comments and states that “[i]f the Commission adopts any emergency service requirements for MSS licensees, only FCC-licensed MSS gateway operators (*i.e.* entities operating earth stations transmitting to and receiving from the satellites and connecting with other communications systems such as the Public Switched Telephone Network) providing voice services should be subject to the new requirements.”¹⁵ MSV also agrees that any 911 obligations should be imposed upon MSS gateway operators and not MSS space station licensees.¹⁶ The Inmarsat LESOs are intricately involved in the provision

¹⁴ See *Inmarsat Comments* at 4.

¹⁵ See *Stratos Comments* at 7-8.

¹⁶ See *MSV Comments* at 12.

of MSS services in the U.S. and are in the best position to communicate with users and connect emergency calls to PSAPs, if any 911 obligations are imposed.

C. Implementation of E911 Capabilities in Inmarsat's Future BGAN System Would Be Technically Infeasible

As described in more detail in its comments, Inmarsat is developing a new service, which will operate using the next-generation, Inmarsat-4 satellites.¹⁷ The BGAN service will offer faster data transmission rates to better support uses such as Internet access and video transmissions. In addition, Inmarsat anticipates that BGAN terminals will have GPS capability. Unlike the case with its current services, for BGAN, Inmarsat will operate its own gateway earth station, which, for U.S. callers, will be located in Burum, Holland. Thus, a call from an Inmarsat terminal in Arizona to a person in Baltimore would be sent from the mobile terminal to an Inmarsat-4 satellite, transmitted to the gateway in Burum and then connected to the individual in Baltimore.

Inmarsat articulated in its comments why BGAN will not be not competitive with CMRS services, and why the Commission should not impose basic or E911 requirements on the BGAN service.¹⁸ In addition, there are significant technical impediments that make it impractical to incorporate E911 functionality into BGAN.

If the Commission imposed E911 obligations on BGAN service, Inmarsat would face the daunting task of developing a mechanism to automatically transmit an emergency call, including ALI/ANI data, it receives in Burum to the appropriate PSAP in the U.S. Assuming that there is an accurate database of PSAPs to which Inmarsat would have access, Inmarsat might be able to identify the location of the nearest PSAP to the caller. Inmarsat, however, would still

¹⁷ See *Inmarsat Comments* at 10-11.

¹⁸ See *Id.*

need a way to ensure that the emergency call and the ANI/ALI data attached to the call actually reached the PSAP.

The architecture of the BGAN network is being finalized and it is unclear at this time whether calls from Burum to the U.S. will be transported over the international PSTN or over a direct trunk to a gateway in the U.S. If Inmarsat uses the international PSTN, implementation of E911 capabilities would be difficult because the international PSTN does not currently have standards for the transport of emergency calls. Because international carriers will not be able to identify an emergency call, Inmarsat would be unable to ensure that a “911” call received priority treatment. During heavy traffic periods, there would be no guaranty that such a call would be completed or, if completed, would not be dropped.

Moreover, because no international emergency signaling standards have been established, guaranteeing the transmittal of ALI and ANI data would be difficult, if not impossible. All local and international switches through which an emergency call passes would need to be capable of identifying and transmitting ALI/ANI data. If one switch did not have this ability, the data might be lost in transit before it reaches the U.S. Inmarsat does not have the authority or ability to ensure that all local and international switches between Burum and the U.S. are able to transmit ALI and ANI data. Such an obligation would need to be imposed by local regulators and most likely would be the result of the establishment of international standards.

If BGAN traffic is transported from Burum to the U.S. gateway via a direct trunk, Inmarsat may be able to avoid some of the international PSTN problems, but would still face numerous difficulties in routing the call from the U.S. gateway to the appropriate PSAP. An emergency call from Burum would need to be routed from the point where it enters the U.S. to

the appropriate PSAP, which may be located 1,000 or more miles away. This would need to be done either over the U.S. PSTN or through a direct trunk to the PSAP. As a number of commenters have discussed, transmitting ALI and ANI data from a single gateway to every PSAP in the U.S. would extremely burdensome.¹⁹

In order to guarantee that ALI/ANI data would reach PSAPs over the U.S. PSTN, Inmarsat would need to ensure that every local and inter-LATA switch through which an emergency call passes is capable of transmitting such data. While Inmarsat may be able to ensure that first carrier to which it routes a “911” call is capable of transmitting the ALI/ANI data, Inmarsat cannot ensure that subsequent carriers of the call, such as the local exchange carrier where the PSAP is located, also use switches that would not strip or drop the ANI/ALI data.

A highly burdensome alternative would be to transport the international emergency calls over direct trunks to the appropriate PSAPs in the U.S. Even if Inmarsat were to establish a direct trunk from Burum to the U.S. for the transport of BGAN calls, it would still need to establish direct trunks from the point where the BGAN calls enter the U.S. to every PSAP in the country.²⁰ Such long distance trunks would be extremely expensive and add significant costs to the BGAN service. As a result, the price of the service in the U.S. would most likely increase significantly. Inmarsat customers would be adversely impacted by the imposition of higher costs to support the addition of functionality they have not requested and do not expect.

¹⁹ See *MSV Comment* at 20-21; *Globalstar Comments* at 8 and 10; *ICO Comments* at 5-6.

²⁰ See *ICO Comments* at 5 (According to ICO’s comments, there are over 10,000 PSAPs in the U.S.).

Finally, Inmarsat notes that standards will need to be established regarding the interpretation of GPS data by PSAPs. Using the GPS capability of the BGAN terminals, Inmarsat anticipates that it would be able to provide GPS coordinates as part of the ALI data. PSAPs receiving this data, however, will need to use the same charts that Inmarsat uses, otherwise the plotting of the GPS coordinates on another chart would provide the wrong location of the caller.

The combination of international and U.S. problems in the implementation of E911 capabilities in BGAN is prohibitive. As many commenters have argued, the technical difficulties of implementing the proposed E911 capabilities strongly weigh against the Commission imposing such obligations on MSS providers. Because BGAN is not competitive to CMRS and because of the significant technical problems, Inmarsat urges the Commission not to impose E911 obligations on Inmarsat's future service.

CONCLUSION

Inmarsat strongly supports the Commission's proposal that only MSS services meeting certain threshold criteria should be subject to the FCC's basic 911 and E911 requirements. Because Inmarsat's services are not competitive to CMRS and its customers have no expectation of such functionality, the Commission should not impose basic 911 or E911 requirements on Inmarsat or its LESOs. Moreover, it is technically infeasible for Inmarsat to implement E911 functionality to its current satellite system. However, if the FCC imposes basic 911 obligations on Inmarsat's current services, such requirements would need to be implemented through Inmarsat's LESOs. Finally, Inmarsat urges the Commission not to impose

basic 911 or E911 obligations on its BGAN services because of the significant technical difficulties in implementing such functionality and because BGAN will not be competitive with CMRS.

Respectfully submitted,

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