Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

ORIGINAL

In the Matter of	
Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Services	CC Docket No. 94-102 RM-8143

COMMENTS OF ORBITAL COMMUNICATIONS CORPORATION

Orbital Communications Corporation ("ORBCOMM") hereby comments on the Commission's proposals to amend its Rules to expand the enhanced 911 capabilities of mobile services and dispersed private telephone systems.[1/] The Commission seeks to ensure that the benefits of 911 services are widely available and not compromised by the introduction of new technologies. In the E-911 NPRM, the Commission proposes new rules, inter alia, to govern wireless services to ensure compatibility with 911 and enhanced 911 services.

ORBCOMM holds a license in the Non-Voice, Non-Geostationary Mobile Satellite Service ("NVNG MSS") to construct, launch and operate a constellation of 36 low-Earth orbit satellites.[2/] ORBCOMM anticipates offering intermittent service with two satellites commencing during the first half of

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1/ Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Services, FCC 94-237, released October 19, 1994 (hereafter cited as "E-911 NPRM").

2/ Orbital Communications Corporation (Order and Authorization), FCC 94-268, released October 27, 1994

1995. During 1996, an additional 24 satellites will be placed in service and will give ORBCOMM the capability to offer a data communications and digital messaging service characterized by small, low-cost, power-frugal communicators accessing a continuously available constellation of satellites with communications in near real time.

ORBCOMM supports the goals of the Commission's proceeding -- to enhance the utility of E-911 services. ORBCOMM recognizes that E-911 services have the demonstrated capability of saving lives and property. ORBCOMM anticipates that, in some instances, ORBCOMM customers may also use their communicators to send emergency/distress messages. Nevertheless, ORBCOMM agrees with the Commission's preliminary determination to limit the proposed obligations to voice services,[3/] and urges the Commission to adopt that standard in its final rules.

The Commission indicated in the E-911 NPRM that it believes subscribers to mobile voice services reasonably expect to have access to 911 services. Indeed, the extensive use of cellular phones to access 911 services cited by the Commission supports an expectation that such access will continue to be available even as cellular is supplemented by wideband PCS.[4/] In the case of non-voice services, however, ORBCOMM does not believe that there is any similar expectation.

In contrast to cellular service, the NVNG MSS offerings are entirely new, so there is no expectation of 911 based on past

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3/ E-911 NPRM at ¶ 38.

4/ E.g., E-911 NPRM at ¶ 9.

experience or predecessor technology. Indeed, presently the E-911 network is not generally equipped to handle data connections, but instead is designed to transfer voice or voice equivalent (TTY) traffic from the caller to the emergency services provider. Thus, there could not have been any previous 911 access for non-voice services with respect to the wireless data offerings currently available.

ORBCOMM also believes that the economic and technological constraints of NVNG MSS system, as well as the expected service offerings, would make it impractical and unnecessary to impose the wireless E-911 rules proposed in the E-911 NPRM on NVNG MSS. ORBCOMM will be taking advantage of the Doppler effect to provide positioning services in all subscriber terminals at no additional cost to the subscriber in terms of service fees, and little added cost for equipment purchase to achieve more refined positioning capabilities.[5/] In essence, such a capability is a "free" side-benefit resulting from low-Earth orbit operations below 1 GHz.

The position determination capabilities using the Doppler effect calculations are limited in their accuracy, however. Thus, this capability will be useful for many applications, although it does not meet the standard proposed in the E-911 NPRM of 125 meter, three-dimensional accuracy.[6/]

5/ A more refined capability can be obtained by adding a second receiver in the 400 MHz band to the subscriber terminals. ORBCOMM estimates that the second receiver will add roughly $50 to the cost of the transceiver.

6/ E-911 NPRM at ¶ 51.

ORBCOMM estimates that its system will be able to support an accuracy of 500 meters available within 10 minutes using only a 137 MHz band receiver at 95% confidence. The addition of a second 400 MHz band receiver (at an increased cost of about $50) will improve the accuracy to roughly 300 meters. Additional time will allow more satellite passes and more calculations, which will result in a further refinement of the positioning accuracy. ORBCOMM thus estimates that within 30 minutes, the accuracy of a single 137 MHz band receiver subscriber unit will increase the accuracy to roughly 350 meters; the addition of a second 400 MHz band receiver further increases that accuracy to approximately 220 meters.

Improved positioning capabilities to meet the E-911 NPRM proposal are not feasible using the ORBCOMM system alone. At present (and for the immediate future), the only means to improve the positioning accuracy would be to add Global Positioning Satellites ("GPS") capabilities to ORBCOMM transceivers. ORBCOMM does not believe that such a solution is viable for NVNG MSS.

ORBCOMM estimates that a full-function, stand alone NVNG MSS transceiver will be priced in the neighborhood of $400 retail. Addition of GPS capability would increase the cost by some $200 to $300. In addition, the inclusion of GPS capability in an ORBCOMM transceiver would roughly double the weight of the unit and reduce the battery life by approximately 90%. Moreover, the size of the unit would increase by about 100%, including the need for a second antenna approximately 3" by 3".

The decreased performance characteristics in terms of battery life, weight and size would seriously reduce the functionality of an ORBCOMM receiver as a truly compact and portable data communicator. The ability to utilize an ORBCOMM receiver when hiking or camping or engaging in other activities in remote areas would be severely compromised. In addition, the increase in cost for the transceivers would likely dampen demand significantly, thereby further reducing the market penetration for these services.

ORBCOMM does not believe that the public interest would be served by effectively mandating the addition of GPS capability into all ORBCOMM transceivers.[7/] While a somewhat lesser degree of positioning accuracy would be available to emergency services providers without the GPS function, absent the individual's carrying of an ORBCOMM transceiver, there likely would be no communication at all between the individual and the emergency services provider and no position information available. ORBCOMM believes that the reduction in battery life and increase in price, size and weight resulting from a mandatory GPS capability would significantly decrease demand for the NVNG MSS services. Thus imposition of a "GPS requirement" ultimately will lead to a reduction in the information available to emergency services providers.

7/ ORBCOMM anticipates that some subscribers will need or desire a greater level of positioning accuracy for some particular applications. In those cases, the subscriber will be able to purchase ORBCOMM transceivers that do include GPS capabilities at an added cost. That decision should be left to the consumer, however, who is in the best position to judge the need for and value of the higher level of accuracy.

ORBCOMM contends that the public interest would be better served by not artificially constraining the provision of the positioning information inherent in ORBCOMM's services, rather than in effect eliminating all information and communication capability by imposing the equivalent of a GPS requirement. The access and "limited" automatic location information as will be provided by ORBCOMM is better than no access and no position information at all, which would be the case if the prices for the handsets and services are driven beyond the levels customers are willing to pay by imposing unrealistic position accuracy requirements.

Moreover, decreasing the demand for NVNG MSS by unnecessarily driving up the prices would also reduce the other benefits made possible by these new communications services. As the Commission recognized in granting ORBCOMM its license, implementation of its system will make available to "U.S. consumers, and the world, innovative, affordable and portable satellite communications capabilities."[8/] These services in turn will lead to increased efficiency, enhanced export opportunities and job creation. ORBCOMM therefore urges the Commission not to impose on NVNG MSS the E-911 rules suggested for Commercial Mobile Radio Service providers.

ORBCOMM does anticipate that its system will be very useful for many types of emergency applications. Although ORBCOMM will provide coverage in both urban and rural environments, the principal users of its mobile satellite service

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8/ Orbital Communications Corporation (Order and Authorization), FCC 94-268, released October 27, 1994 at ¶ 29.

will be those individuals who need or desire the capability to send and receive non-voice messages in those areas where wireline services and tower-based services are limited or unavailable. As such, ORBCOMM anticipates that many of the emergency messages that are likely to be generated will be related to search and rescue ("SAR") rather than the traditional 911 type message. The positioning capabilities of the ORBCOMM system are well suited for these purposes.

Nonetheless, ORBCOMM recognizes that some subscribers will want to use their communicators to send 911-type messages, and ORBCOMM intends to address the needs of these potential users by providing the appropriate Public Service Answering Point ("PSAP") with the necessary information to respond to the alert.

Once fully operational, ORBCOMM will provide continuous near real time coverage of the continental United States as well as large areas of Alaska. All ORBCOMM messages regardless of the point of origination, whether distress or not, will pass through the ORBCOMM network control center ("NCC") at ORBCOMM's headquarters in Dulles, Virginia. From there the messages will be routed to their addressed destination using standard E-mail protocols.

Unlike the public switched telephone network ("PSTN"), which can identify a caller's telephone number and rapidly transfer a 911 call to the caller's local PSAP, ORBCOMM is not a local system. Thus, for example, there currently is no way for a distress call received at ORBCOMM's Dulles, Virginia control center from a subscriber in distress to automatically be routed to the PSAP nearest the incident. Assuming that ORBCOMM as well

as other NVNG MSS providers will ultimately be used for the transmission of emergency 911-type messages, then it will be necessary to develop a mechanism for the rapid routing of these messages to the distressed party's local PSAP. In the case of ORBCOMM, since the distress call is already a digital message, the most efficient way of transferring data is via the public switched data network ("PSDN") or the PSTN to a personal computer or via fax to a local fax terminal at the appropriate PSAP.

About a year ago, the Interagency Committee for Search and Rescue ("ICSR"), the governmental body having responsibility for the formulation of policy concerning the role of the federal government in search and rescue, established a working group on commercial distress alerting locating systems ("CDALS"). This group was formed in recognition of the fact that the emerging mobile satellite services would undoubtedly be used to send distress messages and that it was within the government's interest to develop a plan for a smooth incorporation of these systems into the SAR infrastructure.

ORBCOMM has been an industry representative to CDALS since its inception and has continuously urged CDALS and the ICSR to identify an agency or other institution that would be willing to assume the responsibility of developing and maintaining a nationwide PSAP data base that could provide information concerning the telecommunications numbers/facilities of and the geographic territories served by each PSAP. Through access to such a data base, wireless services providers would have the capability to pass 911 messages to the appropriate PSAPs. ORBCOMM urges the Commission to support such a data base as a

means of fostering the availability of additional emergency communications capabilities.

ORBCOMM also urges the Commission to affirm its preliminary conclusion with respect to the applicability of its wireless E-911 proposals, and mandate the refined positioning requirements only with respect to voice services. NVNG MSS services are neither expected, nor well-designed, to provide the E-911 compatibility proposed for other wireless services in the E-911 NPRM. As detailed in these comments, ORBCOMM believes that a decision to restrict the new obligations to voice services will best serve the public interest.

Respectfully submitted,

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Dated: January 9, 1995