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

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Establishing Rules and Policies for the)
Use of Spectrum for Mobile Satellite)
Service in the Upper and Lower L-band)

IB Docket No. 96-132

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COMMENTS
OF
AMSC SUBSIDIARY CORPORATION

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Dated: September 17, 1996

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Use of Spectrum for Mobile Satellite)
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COMMENTS OF AMSC SUBSIDIARY CORPORATION

AMSC Subsidiary Corporation ("AMSC") hereby submits its comments in support of the Commission's Notice of Proposed Rulemaking in the above-referenced matter. FCC 96-259 (June 18, 1996) ("*NPRM*"). AMSC strongly supports the Commission's proposal to assign the first 28 MHz of coordinated L-band spectrum to AMSC, including spectrum in the lower portion of the band. As the *NPRM* recognizes, the lower L-band is critical if the U.S. MSS system is to gain access to sufficient coordinated spectrum.^{1/}

AMSC also generally supports the Commission's proposal for regulating the provision of the priority and preemptive access to the lower L-band for maritime distress and safety communications. AMSC disagrees only with the proposal to establish a time limit for the length of transmissions by half-duplex terminals. There is no evidence that such a limit is or will be needed in order to provide priority access by maritime distress and safety communications. If and when such a limit is needed, it can be adopted and all terminals (including those in the field) modified to comply. In the meantime, to adopt any such requirement would arbitrarily limit the quality of the service that AMSC can offer to its customers.

^{1/} Although the Commission does not specifically address the associated feeder links in the *NPRM*, AMSC assumes that the Commission intended to also assign the corresponding feeder links to AMSC on a permanent basis. These feeder links have been assigned to AMSC on a temporary basis. See File Nos. 1649/1650-SSA-95; 977-SSA-96.

Background

Access to lower L-band spectrum. As the *NPRM* recounts, the early development of the Commission's licensing policy for MSS was based on a recognition of the need for a minimum of 20 MHz of spectrum for a viable U.S. system and the limited amount of spectrum that was likely to be available after international coordination. *NPRM*, para. 9, citing *Notice of Proposed Rulemaking* in Gen. Docket No. 84-1234 (January 28, 1985).^{2/} As a result, the Commission required all applicants to form a single consortium to hold a license assigning it 28 MHz and authorizing the construction of the U.S. MSS system. AMSC spent the next seven years defending its authorization, finalizing the system design, securing additional financing, developing ground systems and constructing and launching the first satellite. All of this was based on the Commission's stated goal of access to between 20 MHz and 28 MHz of spectrum.^{3/}

The possibility that the lower L-band would be needed and might be used to provide at least some of that spectrum was apparent fairly early in the process. As international frequency coordination progressed, it became increasingly apparent that the lower L-band would be needed for the U.S. system to meet its spectrum goal. One of the most important developments was

^{2/} See also Second Report & Order, 2 FCC Rcd 485 (1987), *clarified*, 2 FCC Rcd 2417 (1987), *recon denied*, 4 FCC Rcd 6029 (1989), *rev'd and remanded on other grounds sub nom.*, *Aeronautical Radio, Inc., v. FCC*, 928 F.2d 428 (D.C. Cir. 1991), Tentative Decision on Remand, 6 FCC Rcd 4900 (1991), Final Decision on Remand, 7 FCC Rcd 266 (1992), *aff'd sub nom.*, *Aeronautical Radio, Inc., v. FCC*, 983 F.2d 275 (D.C. Cir. 1993)

^{3/} AMSC's Initial Public Offering in December 1993 was reported to have been the largest such offering for a new venture that year. The prospectus discussed the Commission's assignment of 28 MHz to AMSC and management's belief that the company would gain access to a minimum of 20 MHz of L-band spectrum. Capacity estimates were based on this spectrum assumption and the power requirements of the different user terminals. The prospectus noted that the actual mix of terminals might require additional spectrum to provide the same number of channels. Revenue projections were explicitly based on the stated assumptions concerning the available spectrum.

Inmarsat's proposal to develop a third generation of satellites that would operate not only throughout the lower L-band, which Inmarsat's earlier generation satellites had substantially filled, but also throughout the upper L-band, which until then Inmarsat had largely left unused. The Mexican system was submitted for coordination only in 1990. The other systems being coordinated, including particularly the Canadian system which was being built to use a satellite with the same design as that of AMSC, also proposed operation across both the upper and lower L-band. These developments meant that the U.S. would be at a disadvantage in the negotiations if it continued to limit its options for spectrum to the upper L-band.

Priority and preemptive access. AMSC's access to the lower L-band has always been predicated on its ability to provide priority and preemptive access to maritime distress and safety communications. The use of this band for the development of the Global Maritime Distress and Safety System is an important public safety goal that AMSC recognizes and hopes to be able to support with its own facilities.

As important as GMDSS is, the spectrum requirements for maritime distress and safety communications in the MSS L-band are relatively small and will remain small even as more ships and boats acquire satellite communications capability. The latest available U.S. Coast Guard search and rescue statistics, which include far more than just the GMDSS, indicate that the Coast Guard responded to 52,455 cases in 1993, 95% of which were within 37 kilometers of the coast, where terrestrial communications systems in frequencies other than the MSS L-band are much more likely to be used. US Coast Guard Search and Rescue Statistics, 1993, Publication P-16107.6 (GPO). This is confirmed by the fact that in only approximately two percent of all cases were long-range telecommunications systems used for notification of an emergency. Admiral M. Edward Gilbert (U.S. Coast Guard, Retired), a consultant to AMSC on maritime safety

communications, estimates that for the next ten years or more, it is unlikely that more than two channels would be needed in the lower L-band for its Mobile Satellite Service search and rescue efforts. The Coast Guard itself may need several more satellite channels for its own internal communications. *See* Affidavit of Admiral M. Edward Gilbert, attached as Exhibit A.

The issue of priority access for maritime distress and safety communications arose last year in the context of the licensing of half-duplex data terminals by AMSC and Rockwell. The Inmarsat satellite system operates similar half-duplex terminals in the lower L-band. The Federal Aviation Administration argued that these terminals did not comply with a requirement to either monitor continuously a separate signaling channel or provide signaling within the communications channel. AMSC and Rockwell demonstrated, however, that the use of these half-duplex terminals would not have an adverse impact on AMSC's ability to provide priority and preemptive access for either aviation safety or maritime safety communications. *See, e.g.,* AMSC's Consolidated Reply and Opposition to Petitions to Deny (April 25, 1995); AMSC's Letter to William F. Caton (June 20, 1995); AMSC's Petition for Partial Reconsideration (August 30, 1995). (A copy of the Petition for Partial Reconsideration is attached hereto as Exhibit B.) AMSC has taken a systematic approach to priority and preemptive access, with appropriately sized buffers, that does not require all terminals to monitor a control channel continuously. Given the usage characteristics of the data terminals, AMSC could preempt most of the data network's spectrum within 15 seconds and virtually all of it within one minute. AMSC has continued to monitor those usage characteristics and has determined that they have not changed over the past year.

To resolve the matter in a timely manner that would not interfere with the use of AMSC's new satellite system, the Commission decided to permit AMSC and Rockwell to operate up to 33,100 half-duplex terminals at least temporarily in the lower L-band. *See Order and*

Authorization (AMSC), 10 FCC Rcd 10458 (August 1, 1995); *Order on Reconsideration (AMSC)*, DA 95-1723, 1995 FCC LEXIS 5180 (August 4, 1995). *Order and Authorization (Rockwell)*, 10 FCC Rcd 10952 (September 7, 1995) This decision was made with the concurrence of the Coast Guard, which is responsible for GMDSS in the United States.

Discussion

Lower L-band. AMSC strongly supports the Commission's proposal to expand its authorization to include the lower L-band. Access to sufficient spectrum is obviously a critical element in the development and success of a wireless communications system, and the U.S. MSS system is no exception. Indeed, given the tremendous risk involved in launching a \$650 million system that uses a substantial amount of new technology, access to sufficient spectrum is all the more important. The *NPRM* recognizes the importance that a Commission license "carry with it some reasonable expectation that it will permit the holder to implement its system." para. 14.

AMSC has built its satellite to operate its mobile links over a range of frequencies covering 58 MHz of spectrum at 1530-1559 MHz for downlinks and 1631.5-1660.5 MHz for uplinks, depending on the mix of user terminals and the outcome of international frequency coordination. Different user terminals require different combinations of power and bandwidth.

As the Commission states, the public interest reasons to support MSS are as valid today as they were in 1986 at the time the Commission allocated the spectrum to MSS. Despite the phenomenal growth of terrestrial mobile radio systems such as cellular radio, there remain hundreds of thousands of square miles of the United States that are not served by terrestrial radio facilities. A U.S. domestic MSS system provides the technical capability to meet the needs in those areas for public safety, business, and personal communications.

AMSC can make efficient use of the spectrum. AMSC uses extremely efficient 6 kHz

voice channels for its Skycell service. AMSC is also able to increase its spectrum efficiency by reusing the same spectrum in its Central and Alaska/Hawaii beams. In contrast, Inmarsat requires 25-50 kHz channels for its Standard A service, 20 kHz channels for Standard B service, and 10 kHz channels for Standard M service. In addition, Inmarsat Standard A service requires the use of global beams, which reduce geographically-based spectrum reuse and sharing.

No other system or potential system is in a position to use the spectrum. The Commission has properly concluded that non-geostationary systems will not be able to use the lower L-band without causing or receiving harmful interference from the existing systems in the band. It is also highly improbable that there will be enough spectrum available after international frequency coordination to provide for a viable second U.S. geostationary MSS system. The recent coordination meetings in Mexico City confirm both that it will remain difficult for AMSC to secure access to even 20 MHz of L-band spectrum and that inclusion of the lower L-band in AMSC's operational authority is critical to any eventual success in the coordination effort.

As the Commission recognizes, the lower L-band is particularly attractive because it is allocated to generic MSS, suitable for geostationary satellite operation, already part of the international frequency coordination process, and all other participating administrations are coordinating for their systems' indiscriminate use of both bands.

AMSC is a uniquely U.S. system. It is the only system designed specifically to serve the United States and operating pursuant to authority from the Commission. Gaining access to spectrum for the U.S. system means that there will be more capacity to provide service to the American public.

Modification of AMSC's license. As AMSC has discussed previously, the Commission could have decided this issue without first issuing a notice and accepting further comment. *See*

Consolidated Opposition and Reply, pp. 17-23, File No. 59-DSS-MP/ML-93 (December 22, 1993)

The issue has been before the Commission at least since it accepted comment on AMSC's 1990 application. At that time, the record firmly established that AMSC needs access to the lower L-band and is the only party capable of making efficient use of the spectrum. No party can complain that they have not had sufficient opportunity to comment on AMSC's use of the spectrum.

The Commission has ample authority to act without accepting competing applications. *See United States v. Storer Broadcasting Co.*, 351 U.S. 192 (1956). There have been several cases in which the Commission has limited the availability of new frequencies to existing licensees, including most recently the Commission's assignment to AMSC of the 1544-1545/1645.5-1646.5 MHz bands without accepting competing applications. 8 FCC Rcd 4040, para. 37 (1993). *See also, Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems*, 2 FCC Rcd 1822 (1986); *Review of the Technical Assignment Criteria for the AM Broadcast Service*, 8 FCC Rcd 3250 (1993). In all of these cases, the Commission made a policy decision not to accept competing applications.

Priority and preemptive access. In order to meet the requirements of Footnote US315, the Commission proposes certain system and terminal requirements identified in Appendix B to the *NPRM*. These requirements appear to be derived from similar requirements that were adopted in connection with operation in the upper L-band, in order to meet the requirements of Footnote US308 for priority and preemptive access for aeronautical safety communications.

AMSC supports the goal of providing priority and preemptive access in the lower L-band for maritime distress and safety communications. AMSC acknowledges the concerns of the Coast Guard and others in the maritime community that there be: (i) a system available that is as affordable as possible, to encourage its use by the maritime community; (ii) immediate availability

of spectrum resource for maritime distress and safety communications; (iii) the ability to distinguish between maritime terminals and non-maritime terminals; and (iv) capacity for growth in demand for maritime safety traffic. AMSC greatly appreciates the Coast Guard's flexibility in connection with the operation of half-duplex data terminals in the lower L-band.

AMSC believes that there are different ways to meet the Coast Guard's concerns. One approach would be the same as is contemplated for aeronautical safety communications -- a separate aviation subsystem designed and operated by the aviation community. This approach would give the maritime community complete control over key elements of the system and its operation. AMSC would provide the necessary space segment and spectrum resources, and would be capable of shifting additional capacity to the safety subsystem as needed. Using a properly-sized spectrum buffer, all parties could be assured that sufficient additional capacity would be made available in a timely manner. The attached Technical Appendix also describes two other approaches to providing priority and preemptive access for maritime safety communications, either of which should meet the requirement of providing sufficient capacity for maritime safety communications, including the ability to shift additional capacity to such communications if demand increases.

The Technical Appendix also addresses the proposed requirements contained in Appendix B of the *NPRM*, including proposed clarifying language for a provision that appears to be unnecessary in a maritime environment.

AMSC strongly objects to the Commission's proposal to establish a maximum time limit on transmissions by half-duplex terminals. AMSC has demonstrated that it is capable of recovering the spectrum used for these terminals sufficiently quickly to meet any reasonable definition of priority and preemptive access, for either aviation safety or maritime safety

communications. Moreover, if and when the aviation or maritime communities define their safety communications needs, if at that time there is any indication that the transmission length of the half-duplex terminals is an impediment to providing priority and preemptive access, then the Commission can impose a requirement and AMSC can implement it remotely from its Network Control Center. Until then, any arbitrary time limit would be unwarranted.

In licensing AMSC, the Commission endorsed AMSC's basic systematic approach to providing priority and preemptive access. *Memorandum Opinion Order & Authorization*, 4 FCC Rcd 6041, para. 90. The Commission also recognized that it was reasonable for AMSC to begin building and operating its system without excessive constraints imposed by unspecified needs for priority and preemptive access. *Id.*, para. 92. The Commission based its decision to license a generic MSS system in part on its estimate that aviation safety needs would typically require only a relatively small amount of the satellite's resources. *Id.*, para. 49. The same can reasonably be said regarding maritime safety communications. As discussed above, the peak demand for maritime distress and safety communications, including Coast Guard internal communications, is likely to be no more than a few channels.

Although AMSC believes that the half-duplex terminals can be operated in either the upper or lower MSS L-bands in a manner that is consistent with the requirements for priority and preemptive access for both aviation safety and maritime safety communications, operation in the lower MSS L-band appears to be even more clear-cut than operation in the upper MSS L-band. Whatever the relative demand for capacity that aviation safety and maritime safety communications may have, it is apparent that the peaks in demand for maritime safety communications are much more gradual than for aviation safety communications. Simply put, it is unfathomable that hundreds of MSS channels would need to be shifted to maritime safety

communications in a matter of seconds. The traffic is too small and the need for communications is not as instantaneous as it may be in an aeronautical environment.

AMSC supports the Commission's proposal to remove the temporary designation for the data terminals' authorization. There is ample evidence that the operation of the terminals is consistent with the requirement to provide priority and preemptive access for safety communications; thus, there is no need to restrict authority to operate the terminals. Such restrictions will only inhibit the marketing and deployment of a service that has many valuable applications.

Conclusion

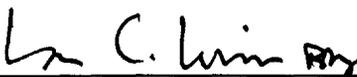
Therefore, based on the foregoing, AMSC urges the Commission to assign the additional lower L-band spectrum to AMSC. With respect to the provision of priority and preemptive access for maritime safety communications, AMSC urges the Commission to limit any requirements at this time to those for which there is a clear need, so as not to unduly impede the development of Mobile Satellite Service generally.

Respectfully submitted,

AMSC SUBSIDIARY CORPORATION



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Dated: September 17, 1996

Exhibit A

Gilbert & Associates

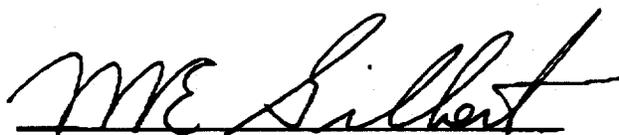
P.O. Box 7332 • Arlington, VA 22207 • Tel: 703-241-2592 • Fax: 703-241-0689

AFFIDAVIT OF M. EDWARD GILBERT

I am a retired officer of the U.S. Coast Guard, having served for 35 years. My final assignment was as Commander, Eleventh Coast Guard District from 1990 to 1993. This position included responsibility for all operations and risk management in the southwest and for carrying out the Coast Guard missions of law enforcement, maritime safety, port safety and security, environmental protection, military operations, and recreational boating safety. Earlier I served as Director of Telecommunications for the Coast Guard. At present, I am President of Gilbert & Associates and providing consulting services to American Mobile Satellite Corporation and others on matters of maritime communications.

Based on my experience and the most recent available statistics, it is apparent that the spectrum requirements for maritime distress and safety communications in the MSS I.-band are likely to be no more than a few channels for the foreseeable future. This is a result of the number of ships and boats that will have a need for distress and safety communications, how often they are needed, their location, and the availability of other communications systems that provide a supplement to the use of AMSC's system. Based on these factors, it is unlikely that more than two channels would be needed in the lower I.-band for Mobile Satellite Service search and rescue efforts. The Coast Guard may need several more satellite channels for its own internal communications.

These statements are complete and accurate to the best of my knowledge.



M. E. Gilbert (RADM USCG, Ret.)

Date: September 16, 1996

Exhibit B

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

RECEIPT COPY

In re Application of)
)
AMSC SUBSIDIARY CORPORATION) File No. 681-DSE-MP/L-95
)
For Modification of its Blanket License to)
Construct and Operate 30,000 L-Band)
Mobile Earth Stations)

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

PETITION FOR PARTIAL RECONSIDERATION

AMSC Subsidiary Corporation ("AMSC"), pursuant to Section 1.106 of the

Commissions Rules, hereby petitions for partial reconsideration of the Commission's order in response to the above-referenced application to operate 30,000 mobile earth terminals ("METs") to provide a store-and-forward data service using AMSC's new satellite system.^{1/} Specifically, AMSC seeks reconsideration of the Commission's determination that the "half-duplex" nature of the data METs precludes their complying with the requirement to provide priority and preemptive access for aeronautical and maritime safety communications. As discussed more fully below, AMSC will operate the METs at issue here as part of a system and in a manner that is fully consistent with the Commission's rules.^{2/}

^{1/} See Order and Authorization, DA-95-1701 (August 1, 1995) ("Order"); see also Order on Reconsideration, DA 95-1723 (August 4, 1995). AMSC is the entity authorized to construct, launch and operate the U.S. MSS system. See Memorandum Opinion, Order and Authorization, 4 FCC Rcd 6041 (1989); Final Decision on Remand, 7 FCC Rcd 266 (1992); aff'd sub nom. Aeronautical Radio, Inc. v. FCC, 983 F.2d 275 (1993). AMSC launched the AMSC-1 satellite from Cape Canaveral in April 1995 and expects to commence full operations by the end of this year.

^{2/} AMSC focuses its argument here on the upper L-band (1545-1559/1646.5-1660.5 MHz) and the related issues of aeronautical communications, since at present AMSC has permanent operational authority only in the upper L-band. See Application of AMSC Subsidiary Corporation, Request for Authority to Construct, Launch and Operate AMSC-
(continued...)

Background

On February 15, 1995, AMSC filed an application to modify its interim blanket authorization for 30,000 data terminals to permit operation on AMSC-1.^{2/} As part of its modification request, AMSC sought authority to operate its data terminals in the upper L-band, thus subjecting them to the requirements of Footnotes US308 and 730C of the ITU Regulations and the Commission's Table of Allotments.^{4/} These footnotes require priority and real-time

^{2/} (...continued)

1 in the 1530-1544/1626.5-1645.5 MHz Bands, File No. 59-DSS-MP/ML-93 (July 7, 1993). Nevertheless, the argument put forward by AMSC regarding its compliance with aeronautical safety communications requirements applies even more so to AMSC's compliance with maritime safety communications requirements, given the fact that maritime communications appear to be at least somewhat less time-sensitive than aeronautical communications.

^{3/} See In the Matter of the Application of AMSC for Blanket License for 30,000 Mobile Earth Stations, 7 FCC Rcd 942 (1992).

^{4/} Footnote US308 states:

In the frequency bands 1549.5-1558.5/1651-1660 MHz bands the AMS(R)S requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile satellite service. Systems not interoperable with AMS(R)S shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the MSS.

Note 730C states:

The band 1555-1559/1656.5-1660.5 MHz is allocated to MSS on a primary basis subject to the condition that the aeronautical mobile-satellite (R) service shall have priority access and immediate availability over all other mobile-satellite communications within a network operating under this provision; mobile-satellite systems shall be interoperable with the AMS(R)S; and account shall be taken of the priority of safety-related communications in the other MSS services.

preemptive access for AMS(R)S.^{2/} AMSC also requested authority to continue to operate a number of its METs in the lower L-band (1530-1544/1626.5-1645.5 MHz), thus subjecting them to the requirements of Footnote US315, a provision similar to US308 that requires the provision of priority and preemptive access for maritime distress and safety communications.^{5/} In its application and in subsequent pleadings, AMSC demonstrated that the system which AMSC operates will meet the requirements for priority and preemptive access.^{7/} AMSC's Network Operations Center will continuously monitor all traffic over AMSC's system, and will allocate frequencies away from low-priority use to any high-priority use that may develop, such as AMS(R)S. Reply at 6.^{8/} Further, the Network Operations Center will always maintain a "reserve pool" of unoccupied frequencies which could be allocated to AMS(R)S without preempting other users. Id. The data terminals are expected to occupy less than ten percent of the total spectrum AMSC can access as a result of international coordination. Reply at 8. Of

^{2/} AMS(R)S stands for "Aeronautical Mobile Satellite (Route) Service" and is defined by the Commission as "an aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes." 47 C.F.R. §2.1. This service is sometimes abbreviated as "AMSS(R)."

^{5/} US315 states:

In the frequency bands 1530-1544 and 1626.5-1645.5 MHz, maritime satellite distress and safety communications, e.g., GMDSS, shall have priority access with real-time preemptive capability in the mobile-satellite service. Communications of mobile-satellite system stations not participating in the GMDSS shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety-related communications in the mobile-satellite service.

^{7/} See Application of AMSC (February 15, 1995); Supplement (March 23, 1995); Consolidated Reply and Opposition to Petitions to Deny (April 25, 1995) ("Reply"); Letter to William F. Caton (June 20, 1995) ("Letter Supplement").

^{8/} At this time, there is no specific domestic aviation safety system using satellites that is in place or even in the design stage.

the data terminals that operate in this ten percent, 99.8% of the messages currently are less than 9 seconds in length, while 99% of transmissions are less than 4 seconds. Reply at 3. Based on the available evidence, all the satellite sources of data networks could be shifted to an aviation safety system within less than one minute, and most within less than 15 seconds. Letter Supplement at 2. In addition, AMSC has the ability to reduce the maximum length of the terminals' transmissions to guarantee the short transmissions that characterize the terminals' current use. AMSC pledged to take such action should it become understood that safety communications traffic patterns prove heavier than expected and such action becomes necessary. Reply at 14.

AMSC further noted that the Commission had already endorsed its basic systemic approach to providing priority and preemptive access when it originally licensed AMSC to operate in the upper L-band. At that time, the Commission had admonished the aviation community to act expeditiously to specify reasonable and necessary technical needs for AMS(R)S communications in order not to delay the offering of MSS to the public. *Id.* at 19-20. At the same time, the Commission made clear that the penalty to AMSC, if it were unable to comply with the requirements to provide priority and preemptive access, would be that AMSC will operate on a secondary basis. *Id.* at 20-21. AMSC recognized and accepted this condition on its operational authority, but stressed that it should not be prevented from operating its system during the time necessary to resolve these issues. *Id.*

The Commission issued its Order on August 1, 1995. The Commission indicated that it was satisfied with AMSC's proposal, stating that it believed "AMSC's engineering defense of its "systemic" approach to real-time preemption is convincing..." and furthermore, that AMSC's arguments regarding its satisfaction of the requirements of US308 and 730C are "reasonable." *Id.*

Nonetheless, citing the “vigorous opposition” of the National Telecommunications and Information Administration (“NTIA”) to AMSC’s application, the Commission stated that it was “reluctant to overrule NTIA and its concerns that accepting [AMSC’s] arguments would be perceived by the aeronautical community as a breach of the agreement which permitted the MSS allocation.” Order at ¶17. As a result, the Commission denied AMSC’s application to operate its data METs in the upper L-band.

Regarding AMSC’s operations in the lower L-band, the Commission stated that the language of US315 is sufficiently similar to US308 that it cannot conclude that US308, but not US315, requires full-duplex terminals. Order at ¶18. Thus, the Commission stated that it is “inclined” to believe that AMSC’s data terminals are not in compliance with US315. Id. At the same time, the Commission noted that maritime distress and safety services are not as time-sensitive as their aeronautical counterparts, have been in operation for years, and are sufficiently “robust and dynamic” to permit consideration of less rigorous enforcement of US315 than the Commission believes to be required for aeronautical services under US308. Order at ¶19. Based on AMSC’s statistical analysis and related information, the Commission held that existing data METs in the lower L-band would provide sufficient priority and preemptive access for distress and safety communications to comply with the intent of US315. Order at ¶20. Thus, the Commission granted AMSC a waiver of US315 for a period of two years to allow for use of approximately 3100 data METs in the lower L-band. In its Order on Reconsideration, the Commission increased this number by an additional 12,000 METs.

Discussion

The Commission's Decision Is Contrary To the Evidence Regarding AMSC's Ability To Provide Immediate Priority and Preemptive Access

The Commission correctly states that “[t]he primary question before us with regard to preemption is whether AMSC’s statistical, systematic approach to achieving real-time preemption satisfies Footnotes US308 and 730C.” Order at ¶17. The record is straightforward. In its pleadings, AMSC has submitted a comprehensive plan to provide immediate priority and preemptive access for safety communications on a system-wide basis. In addition, AMSC has submitted actual operational information for its data terminals based on current use of over 7,000 such terminals. The data indicates that, in the extremely unlikely event that it is necessary, most of the satellite resources of AMSC’s data networks could be shifted to a safety system within less than 15 seconds and all could be shifted within less than one minute. AMSC has also committed if necessary to further limit the transmission times of the data METs, and has accepted the relegation of its terminals to secondary status should it not be able to meet the future requirements for priority and preemptive access. No party to this proceeding has offered any evidence to refute the practical feasibility of AMSC’s system-based approach, or to call into question AMSC’s good faith efforts to meet the requirements of priority and preemptive access.

In its Order, the Commission recognized the overwhelming evidence of the technical feasibility of AMSC’s proposal, and the lack of evidence refuting AMSC’s position. Nevertheless, the Commission did not grant AMSC authority to operate its data terminals in the upper L-band, citing the unsupported concerns of aeronautical authorities regarding the preemptibility of these terminals. Therefore, the Commission should reverse its decision. AMSC pledges to continue discussions with NTIA and the FAA during the pendency of this

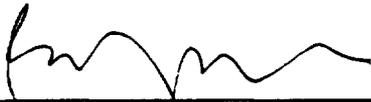
proceeding to seek resolution of their concerns.

Conclusion

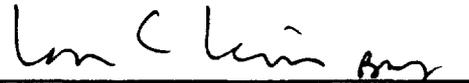
For the reasons stated herein, AMSC respectfully requests that the Commission reconsider its Order in part and find AMSC's proposal for using the data terminals to be consistent with AMSC's obligations under US308 and US315.

Respectfully submitted,

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Dated: August 30, 1995

Technical Appendix

Technical Appendix

This Technical Appendix addresses the ability of AMSC to provide priority and preemptive access for safety communications and, more particularly, the related issues that the Commission raises in its *Notice of Proposed Rulemaking* in IB Docket No. 96-12, including the requirements proposed in Appendix B for Mobile Earth Stations (“MESs”) and Land Earth Stations (“LESs”).

This discussion of priority and preemptive access for safety communications should take place in the context of an understanding of the high quality of service that AMSC has designed into its system generally. AMSC has built its Skycell mobile telephone system with the expectation that it will provide at least a blocking rate of no worse than two percent. In other words, all calls, including low priority calls, will not experience blocking on average more than twice every one hundred attempts. Moreover, any such blocking should be only momentary. The average call length is expected to be no more than 2-3 minutes, so there will be a constant opportunity for callers to initiate new calls even when usage is high. AMSC intends to maintain low blocking rates and high quality of service by building and deploying a more powerful satellite, capable of greater frequency reuse, when demand reaches a level that indicates additional capacity will be needed.

Options for Priority and Preemptive Access

The most straightforward way to accommodate priority and preemptive access for safety communications is for the community involved in the safety service to design and operate its own subsystem. This is the approach that is contemplated for aeronautical safety communications. *See Report of AMSC’s Chief Scientist on Matters Involving the Provision of*

Aeronautical Mobile Satellite (R) Service (November 24, 1992). Routine AMS(R)S

communications would be served using capacity leased from AMSC and dedicated to AMS(R)S use. If additional capacity were needed to serve peak requirements, the AMS(R)S Network Operations Center (NOC) would request the required amount of capacity from the AMSC NOC. AMSC has an automated system with a three level response mechanism for provisioning these requests.

- Level 1 The first level response is from a reserve pool of unused spectrum set aside for immediate response. This pool is sized to accommodate all but the most extreme demands. If the reserve pool level drops below a threshold, the LES transfers unused capacity from demand assigned resources, which can be released in the shortest time interval, to the reserve pool. The reserve pool level is thus maintained, permitting immediate response to additional requests.
- Level 2 If there is insufficient unused resources to transfer, the LES will preempt in-use resources from demand assigned services, transferring them to the reserve pool.
- Level 3 There is a possibility that services that use permanently assigned channels may need to be preempted if the demand assigned channels are exhausted. These services generally take somewhat longer to preempt than demand assigned services.

With a properly-sized spectrum buffer, this approach insures that spectrum can be shifted in a timely manner. The buffer can be sized to take into consideration the amount of time that may be required to shift spectrum from lower priority users. Lower-priority users of MSS voice services operate full-duplex MESs that if necessary can be preempted within a few seconds. Lower-priority users of MSS data service operate half-duplex terminals which cannot be preempted during a transmission, but over 99 percent of their transmissions are shorter than ten seconds, so it is virtually certain that spectrum used for that service could also be shifted to a safety spectrum buffer in approximately one minute.