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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Establishing Rules and Policies for the use of Spectrum for Mobile Satellite Services in the Upper and Lower L-band	)	IB Docket No. 96-132
	)	
	)	
	)	
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REPORT AND ORDER

Adopted: January 28, 2002 **Released:** February 7, 2002

By the Commission:

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I. INTRODUCTION

1. By this action we establish licensing policies to govern mobile-satellite service ("MSS")[1] in certain portions of the L-band: the 1545-1559 MHz and 1646.5-1660.5 MHz frequency bands ("upper L-band") and the 1525-1530 MHz, 1530-1544 MHz, and 1626.5-1645.5 MHz frequency bands ("lower L-band").[2] Specifically, we assign up to 20 megahertz of spectrum across the entire L-band to Motient Services, Inc. ("Motient"), the only U.S. MSS system currently authorized to operate in the L-band.[3] We will assign the lower L-band frequencies to Motient in lieu of upper L-band frequencies that have been assigned to Motient, and that the United States has been unable to coordinate internationally for use by a U.S. licensee. Any coordinated lower L-band spectrum not required to secure Motient an aggregate of 20 megahertz of L-band spectrum will be made available for other MSS applicants that may wish to apply for assignment of the frequencies. By this action we also adopt and incorporate into Part 25 of the Commission's service rules specific operational parameters and technical requirements to ensure that the integrity of maritime distress and safety communications service will not be compromised by MSS operation in the lower L-band.

II. BACKGROUND

2. In the Notice of Proposed Rule Making (the "*NPRM*") in this proceeding, the Commission asked for comment on the possibility of assigning up to a maximum of 28 megahertz of internationally coordinated upper and lower L-band spectrum to Motient.[4] Additionally, the Commission asked for comment on whether any spectrum coordinated for U.S. use above 28 megahertz should be made available to future MSS applicants. The Commission also proposed a series of technical and operational standards designed to prevent new MSS operations from interfering with maritime distress and safety communications in the lower L-band.

3. To support providing Motient with spectrum in the lower L-band, the Commission explained that Motient was originally authorized to use 28 megahertz of spectrum in the upper L-band for MSS service. In the original Licensing Order the Commission required 12 applicants to form a single MSS operating consortium.[5] The Commission based this requirement on the twelve applicants before it and the Commission's finding that there was only sufficient spectrum available to support one system.

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[1] The mobile-satellite service is a radio service between mobile earth stations (located on land, at sea or in the air) and one or more space stations providing voice, data, and other radiocommunication services.

[2] The L-band is generally understood to include frequencies from 1 to 2 GHz. However, as used in this order, the term is limited to those frequency bands mentioned above.

[3] When this proceeding was initiated, Motient was incorporated as AMSC Subsidiary Corporation. Subsequently, it changed its name to Motient.

[4] 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, Notice of Proposed Rule Making, 11 FCC Rcd 11675 (1996).

[5] Memorandum Opinion, Order and Authorization, 4 FCC Rcd 6041 (1989), *rev'd and remanded*, Aeronautical Radio, Inc. v. FCC, 928 F. 2d 428 (D.C. Cir. 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).

Subsequently, however, during on-going yearly international coordination meetings, the Commission has been unable to secure sufficient spectrum to support Motient's authorized system in the upper L-band. In the *NPRM,* the Commission also noted that the on-going international coordination in the lower L-band was similarly difficult.[6]

4. Based on the inability to coordinate sufficient spectrum, the Commission tentatively concluded that Motient should be authorized to operate across the upper and lower L-band frequencies in order to support its authorized MSS system.[7] Thus, it proposed that Motient be assigned up to 28 megahertz from the entire L-band. That amount of spectrum represented the optimum system that Motient hoped to operate.

5. In 1985, the Commission had estimated that an MSS system would likely require a minimum of 20 megahertz of spectrum to be viable.[8] In the *NPRM* the Commission asked whether its estimate was still valid. The Commission tentatively concluded that there would be sufficient L-band spectrum available to support only one U.S. MSS system.[9] Accordingly, the Commission proposed to assign the lower L-band frequencies it was able to coordinate for use by U.S. licensed space stations to Motient by modifying its existing license, pursuant to Section 316 of the Communications Act ("the Act"),[10] enabling Motient to use these frequencies in lieu of those from the upper portion of the L-band that the U.S. was unable to coordinate for domestic use. The Commission also tentatively concluded that reassignment is within the authority invested in the Commission by Sections 303 and 4(i) of the Act to adopt regulations to carry out its spectrum management obligations.[11]

6. To address issues pertaining to maritime distress and safety in the lower L-band, the Commission noted that the L-band is allocated for generic MSS.[12] That is, aeronautical mobile-satellite service ("AMSS"), land mobile-satellite service ("LMSS"), and maritime mobile-satellite service ("MMSS") are allowed to share portions of the- L-band for non-safety related communication on an equal basis. Operation within the Global Maritime Distress and Safety System ("GMDSS"), however, has priority access with real-time preemptive capability over all other mobile-satellite communications operating in the 1530-1544 MHz and the 1626.5-1645.5 MHz portions of the lower L-band.[13] Therefore,

[6] *NPRM* at 11680.

[7] *Id.*

[8] Amendments of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for the Establish Rules Pertaining to the Use of Radio Frequencies in Land Mobile Satellite Service, Notice of Proposed Rule Making, Docket No. 84-1234, FCC No. 84-558 (released Jan., 28, 1985).

[9] *See NPRM* at 11680.

[10] 47 U.S.C. § 316.

[11] *See NPRM* at 11685.

[12] *Id.* at 11681.

[13] *See* Footnote US315 to Section 2.106 of the Commission's rules, which states: "In the frequency band 1530-1544 MHz and 1626.5-1645.5 MHz maritime mobile-satellite distress and safety communications, *e.g.,* GMDSS, shall have priority access with real-time preemptive capability in the mobile-satellite service. Communications of

to protect and maintain the integrity of safety and distress maritime communications, both internationally and domestically, the Commission proposed to establish and codify priority access and preemption standards and policies for MSS systems operating in these portions of the lower L-band.[14] The Commission also proposed to allow mobile earth terminal data message transmissions to be half-duplex, rather than requiring full-duplex, and sought comment as to the maximum amount of time that transmissions should be permitted.[15] The Commission tentatively concluded that adopting a maximum time limit on data message transmissions and proposed priority access and real-time preemption standards for distress and safety communication would provide sufficient priority to comply with the requirements of U.S. Footnote 315 of the U.S. Table of Frequency Allocations.

7. Nine parties filed initial comments in response to the *NPRM*.[16] Five of these parties also filed reply comments.[17] Nearly all of the comments address the proposals related to the assignment of lower L-band frequencies to Motient. Only Motient and the U.S. Coast Guard commented on the proposals concerning maritime safety and distress priority and preemptive access.

III. DISCUSSION

A. Assignment of Spectrum in the L-band

8. One of the concerns giving rise to the *NPRM* was that international coordination difficulties precluded securing sufficient spectrum in the upper L-band to support Motient's authorized system. Moreover, at the time of the *NPRM*, based on on-going international coordination meetings, the Commission believed the likelihood of securing more than 20 megahertz from the entire L-band (both upper and lower) for U.S. use was remote.[18] Two parties, Celsat and LQL have taken issue with this assumption, contending that subsequent events have altered the L-band assignment process.[19] They point out that shortly after the release of the *NPRM* the Commission issued a news release announcing that Inmarsat, Canada, Mexico, the Russian Federation, and the United States, the operators currently

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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." Similar language is contained in International Telecommunication Union ("ITU") Radio Regulation S5.353A.

[14] These proposals are specified in "Appendix B" of the *NPRM* at 11691.

[15] "Half-duplex" transmissions require that a message be completed before an incoming message can be received. "Full-duplex" transmissions allow a message to be received and transmitted at the same time.

[16] The parties that filed comments are: Motient, Celsat America, Inc. ("Celsat"), Comsat Corporation ("Comsat"), L/Q Licensee, Inc. ("LQL"), Lockheed Martin Corporation ("Lockheed Martin"), Motorola Satellite Communications, Inc. and Iridium LLC ("Motorola/Iridium"), Rural Telecommunications Group ("RTG"), United States Coast Guard ("U.S. Coast Guard"), and Radio Satellite Corporation ("RSC").

[17] The parties that filed reply comments are Motient, Comsat, Lockheed Martin, Motorola/Iridium, and RSC.

[18] *NPRM* at 11680.

[19] *See* Celsat Comments at 3 and LQL Comments at 3.

coordinating spectrum for a variety of MSS systems in the vicinity of North America, had signed a Memorandum of Understanding ("MOU") in Mexico City. The news release stated, in part, that the MOU specified that "[s]pectrum allocations to individual operators will be reviewed annually on the basis of actual usage and short-term projections of future need."[20] LQL interprets the news release as providing the United States with what LQL characterizes as a "dynamic allocation" across the upper and lower L-band as determined by actual traffic.[21]

9. We believe that the coordination process established in Mexico City has worked well to ensure equitable sharing of the L-band spectrum. It has not, however, altered the fact that the L-band is in high demand. All five MSS operators have claimed to need more spectrum than is currently assigned to them and some seek amounts that exceed availability. Consequently, the international coordination difficulties remain in negotiating sufficient spectrum to enable Motient to establish and operate a viable MSS system.

10. In the *NPRM,* the Commission gave three bases to support its proposal to modify Motient's license to allow it to operate over frequencies in the lower and upper L-band. First, MSS is well suited to serve areas that are too remote or sparsely populated to receive service from terrestrial land mobile systems. Second, since launching its first satellite in 1995, Motient was in the best position to provide MSS in the U.S. in the shortest amount of time. Third, and most importantly, a license issued by the Commission must include a reasonable expectation that spectrum will be available to enable the licensee to implement the system that it has proposed and has been authorized to operate.[22] Each of these justifications has generated comments.

11. No commenter disagreed with the Commission's assertion that MSS systems are particularly well suited for providing mobile communication services to areas that are not being adequately served by terrestrial radio facilities.[23] Commenters left undisputed the fact that despite the growth of terrestrial radio services such as cellular radio and Personal Communications Services ("PCS"), large areas of the nation remain without basic telecommunications services. Commenters agree that MSS provides the technical capability to meet the needs of people in remote areas for public safety, business and personal communications and that MSS operations should be supported in the L-band.

12. In the *NPRM,* the Commission concluded that Motient was best suited to provide expeditious service to the public because one of its three authorized satellites is in operation. Our experience has been that it normally takes licensees three years to construct, launch and begin operations of a geostationary satellite. Motient concurs with this assessment. Motorola/Iridium disagrees. Motorola/Iridium contends

[20] *See* "FCC Hails Historic Agreement on International Satellite Coordination," Report No. IN 96-16, released June 25, 1996.

[21] LQL Comments at 6. *See also* Celsat Comments at 4-5.

[22] *See NPRM* at 11680-81.

[23] *See* Motient Comments at 5, Motorola/Iridium Comments 9-10, LQL Comments at 7-8, Celsat Comments at 57, and RTG Comments at 8. Two of the parties, however, Motorola/Iridium and LQL, suggest that the L-band be made available to systems that are designed to provide global, rather than regional, MSS service. This proposal was not before the Commission when Motient was licensed and will not be addressed here.

that Motient is the only operational MSS system because the Commission has refused to accept other MSS applications.[24] Motorola/Iridium submits that this action has been prejudicial to it and to other potential MSS applicants. What Motorola/Iridium fails to address in its argument, however, is that the Commission chose not to invite a new processing round because there was not sufficient spectrum to accommodate the existing licensed systems. Moreover, in this particular coordination process, where spectrum allocation is based on actual usage and short-term projections of future need, an operating system is essential. Without such a system, the available spectrum would have been allocated to non-U.S. systems and none would be available. Thus, under these circumstances, Motorola/Iridium's argument is not persuasive.

13. LQL, on the other hand, contends that the Commission has not adequately established a connection between expediting service and adding frequencies to Motient's system.[25] It points out that Motient has failed to meet the deadlines for launching its other two satellites. LQL therefore argues that there are no rational grounds for concluding that Motient would use the additional spectrum that we propose to assign to it before another licensed system could be placed in operation. We disagree. Given that Motient has proposed an MSS system designed to use 28 megahertz of spectrum, requiring it to fully construct this system when the spectrum for which it was designed is not available would not advance the public interest. Moreover, given the lack of available spectrum, there is no indication that the expense of constructing, launching and operating these satellites would improve the services that Motient is currently providing. And, as pointed out above, waiting for another system to be placed in operation would have resulted in no frequencies being available. Thus, LQL's comments have not altered our conclusion that Motient is best suited to serve the U.S. MSS market using this portion of the L-band.

14. The Commission's proposal to allow Motient to have initial access to the lower L-band spectrum was based on our conclusion that, unless modified for overriding public interest reasons, licensees should be entitled to a reasonable expectation that adequate spectrum will be made available to support their authorized systems. Motient supports this determination.[26] Other commenters, however, argue that satellite authorizations are conditioned upon, and subject to, international coordination.[27] These commenters argue that there is no basis for providing Motient spectrum outside of what it has been able to coordinate though the normal coordination process in the upper L-band.

15. We agree that all satellite licenses are granted subject to the uncertainties of international coordination. However, this does not alter our belief that, when possible, the public interest requires that a Commission license carry with it a reasonable expectation that adequate spectrum will be available to the licensee. Certainly the eight initial applicants who joined to form the Motient consortium had this expectation. Moreover, none of the parties that have taken issue with this proposition have provided a

[24] *See* Motorola/Iridium Comments at 14.

[25] *See* LQL Comments at 7.

[26] *See* Motient Comments at 5.

[27] *See* LQL Comments at 5-6, Motorola/Iridium Comments at 6-7, RTG Comments at 9-10, Lockheed Martin Comments at 9-10, and RSC Comments at 1-2.

persuasive reason for holding otherwise. [28]

16. The Commission also stated in the *NPRM* that the Commission can, and shall, take reasonable and appropriate steps to ensure that licensees have a fair opportunity to compete.[29] The commenters all agreed that the Commission is entrusted with this responsibility.[30] In order for an MSS licensee to compete, it must have sufficient spectrum to provide acceptable service at a reasonable price. Previously, the Commission estimated that a minimum of 20 megahertz of L-band spectrum is necessary for an economically viable domestic MSS system in this frequency band.[31] The *NPRM* sought comment on whether this amount is still needed to enable an MSS licensee to establish and operate a competitive system.[32]

17. Commenters contend that based on the development of satellite and mobile radio technology, it is now possible to operate a profitable MSS system using less than 20 megahertz of spectrum. Commenters state that new MSS systems using state-of-the-art technology are dramatically more efficient than Motient's system and provide a higher level of satellite services, including service to hand-held

[28] The practical effect of the action here neither exceeds nor reduces the licensee's reasonable expectation. While Motient originally had the opportunity under its license to coordinate and use up to 28 MHz of upper L-band spectrum for an optimum system, the Commission had estimated as early as 1985, and reiterated in the 1996 *NPRM*, that 20 MHz was probably the minimum amount needed for a viable operation. *See* para. 18 *infra*. And, of course, it is now well known that even coordinating 20 MHz for use has been, and continues to be, problematic. The license modification retains here, for public interest reasons, the possibility that Motient might be able to coordinate and use 20 MHz of spectrum, but over the entire L-band. This is certainly consistent with whatever reasonable expectations the licensee may have. The reasonable expectations of Motient were also recently addressed by the court in *AMSC Subsidiary Corporation v. FCC*, 216 F. 3d 1154 (D.C. Cir. 2000). There, the court upheld the Commission's decision to license mobile earth terminals (METs) to receive MSS service from a foreign-licensed satellite in the upper L-band. The result of this decision was not to license an additional U.S. system to use L-band spectrum (i.e., other than Motient). Rather, the result was simply to permit implementation of the Commission's DISCO II policy. *See* 12 FCC Rcd 24094 (1997). That policy allows foreign satellite systems to provide service in the U.S. provided certain conditions not relevant here are met. The Commission action effectively allowed a foreign MSS provider licensed elsewhere entry into the U.S. market. The foreign MSS provider already had access to L-band spectrum through the same international coordination procedure participated in by Motient. AMSC (Motient) challenged the action in part on the basis that this entry deprived it of the spectrum it was entitled to under its license. The court rejected the argument. In doing so, it expressly recognized the Commission's "goal" of securing 20 MHz of spectrum for AMSC's use. *See* 216 F. 3d at 1160. It also characterized the Commission's action as protecting AMSC's "existing operations, " stressing that the foreign entry did not require AMSC to "change its licensed operating parameters," "decrease its system capacity" nor incur any "interference problems." *Id.* at 1161. Thus, AMSC's reasonable expectations were not adversely affected by the Commission's action.

[29] *NPRM* at 11681.

[30] *See* RSC Comments at 4, RTG Comments at 7, LQL Comments at 3-4, Motorola/Iridium Comments at 11, Comsat Comments at 1, Celsat Comments at 9, and Lockheed Martin Comments at 14.

[31] Amendments of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for and Establish Rules Pertaining to the Use of Radio Frequencies in Land Mobile Satellite Service, Notice of Proposed Rule Making, 50 Fed. Reg. 8149, 8152 (1985).

[32] *NPRM* at 11680.

mobile terminals. RSC, for instance, points out that there are three competing geostationary L-band systems under construction in Asia, and two other systems that are planned for service in the Middle East and nearby regions.[33] In this regard, Lockheed Martin indicates that it is the prime contractor for the Asia Cellular Satellite ("ACeS") system, which is one of the systems identified by RSC. ACeS is a satellite-based, hand-held, digital mobile telecommunications system that is designed to provide service to subscribers in the Asia-Pacific region. Lockheed Martin maintains that use of the latest technological developments in its design of the ACeS satellite and associated ground equipment for the ACeS system enables it to achieve new levels of spectral efficiency and circuit capability. In fact, Lockheed Martin professes that the ACeS system may be up to 20 times more spectrum efficient than Motient's first generation MSS system because of its extensive reliance on frequency reuse. Accordingly, Lockheed Martin declares that as little as five megahertz of spectrum can now simultaneously support up to 16,000 MSS simplex circuits and ten megahertz of spectrum can support the same number of full duplex circuits.[34] Both Motorola/Iridium and RSC support Lockheed Martin's assessments.[35] Motient concedes that a multiple-beam satellite, such as the one Lockheed Martin has designed for the ACeS MSS system, would probably be three times more spectrum efficient than Motient's existing satellite, and that efficiency gains that the ACeS system achieves through the employment of newer voice coding and compression algorithms ("vocoders") are likely to result in a 20 percent reduction in Motient's spectrum usage.[36]

18. We recognize that technical strides have been made since 1987, when MSS was first authorized in the L-band. The Commission then determined that there was insufficient spectrum to support the applications it had on file for this service. With this in mind, the Commission required the applicants to form a consortium.[37] The consortium was the only licensee in the upper L-band. In the 1996 *NPRM,* the Commission concluded that Motient would need up to the first 28 megahertz of available L-band spectrum to operate an optimum MSS system. It also concluded that an economically viable MSS system designed to the technical specifications on file must have a minimum of 20 megahertz of spectrum.[38] Based on the minimum spectrum estimation and ongoing international coordination meetings, the Commission concluded that opening the lower L-band for competing applications was unlikely.[39] At the time the *NPRM* was adopted, the Commission did not believe that there would be

[33] *See* RSC Comments at 5, identifying PT Asia Cellular Satellite System, Afro-Asia Satellite Communications, Ltd., and Asia Pacific Mobile Telecommunications as L-band MSS systems designed to provide service to Asia, and SatPhone and Etisalat as those systems which are proposing to serve the Middle East.

[34] *See* Lockheed Martin Comments at 7-10.

[35] *See* Motorola/Iridium Reply Comments at 17 and RSC Reply Comments at 2-3.

[36] *See* Motient Reply Comments at 10.

[37] *See* Amendment of Parts 2, 22, and 25 of the Commission's Rules to Allocate Spectrum for, and Establish Rules Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier Services, Second Report and Order, 2 FCC Rcd 485 (1987).

[38] *NPRM* at 11680.

[39] *Id.*

sufficient spectrum to accommodate more than Motient's system in the entire L-band. Thus, it tentatively concluded that in the lower L-band Motient should be authorized to use the balance of the available 28 megahertz for which it is authorized.

19. That situation has now changed. Commenters state that technical advances in MSS systems have reduced the spectral requirements that some MSS operators would need to operate profitably. Based on these assertions, and on our earlier finding that 20 megahertz would be the minimum required, we have reassessed our earlier determination regarding the amount of lower L-band spectrum that should be reserved exclusively for Motient. We recognize that, whether three times more efficient, as Motient claims, or twenty times more efficient, as others suggest, Motient's authorization was issued before these new, more efficient technologies were available. Motient is operating the system it was authorized to construct and launch and cannot redesign its system while in operation. Nevertheless, we believe that the public interest requires that we accommodate both the interest in providing service through Motient's system and new systems to the extent possible. Although the system Motient has been authorized to construct and operate is designed to use 28 megahertz, the record indicates that the system is capable of providing an economically viable MSS service with as little as 20 megahertz of spectrum. In light of this fact, we find that reserving the first 20 megahertz of internationally coordinated L-band spectrum for Motient's use in providing MSS service satisfies any reasonable expectations that Motient might have. Thus, we are modifying Motient's license and authorizing it to use up to 20 megahertz of spectrum across the upper and lower L-band. In other words, Motient's modified authorization will be limited to a total of 20 megahertz of coordinated spectrum in the upper and lower L-band for the reminder of its license period.[40] Furthermore, if sufficient spectrum in the L-band should become available once the Commission has coordinated the 20 megahertz for which Motient is authorized, or should Motient acquire access to at least 20 megahertz of L-band spectrum through other means, *i.e.* its proposed merger with TMI, we find that the public interest benefit derived from reserving the additional spectrum to enable the creation of competitive MSS providers outweighs any benefits that might stem from assigning additional L-band spectrum to Motient.

20. Similarly, in view of the strides made in spectrum-efficient MSS technologies, we believe that both the availability and the amount of L-band spectrum needed for a viable MSS system is changing rapidly and that continuing the freeze on accepting applications to use L-band spectrum might needlessly retard the development of a more competitive MSS environment. Thus, after the L-band international coordination process is completed for Motient, applicants may apply for L-band spectrum in excess of the 20 megahertz authorized to Motient if they believe that there is sufficient L-band spectrum available to implement a system.

B. Legal Authority

21. Section 316 of the Act provides the Commission with authority to modify an existing license when necessary.[41] LQL challenges the Commission's authority to use Section 316 of the Act to modify Motient's current license to enable it to use lower L-band frequencies due to our unsuccessful attempts to coordinate sufficient upper L-band spectrum to support the system the Commission authorized Motient to

[40] Given the advances in MSS satellite technology, we shall expect second generation systems posed by Motient and other future applicants to be state-of-the-art satellites capable of operating on less spectrum.

[41] *See* 47 U.S.C. § 316.

operate. According to LQL, Section 316 does not apply to Motient's situation. LQL claims that the application of Section 316 is limited to those cases in which the Commission's action has the effect of modifying an "unconditional right" in a license. According to LQL, that has not been done in the case before us. LQL argues that Motient's authorization does not encompass an unconditional right to operate in the lower L-band. LQL concludes that since we are not modifying Motient's existing license, Section 316 is not applicable.[42] We disagree. As Motient correctly points out, we are modifying its assignment of specific frequencies in the upper L-band.[43]

22. The language of Section 316 is clear and unequivocal: "[A]ny station license . . . may be modified by the Commission . . . if in the judgment of the Commission such action will promote the public interest, convenience, and necessity." The original license authorized Motient to use the upper L-band frequencies. Now, because many of these frequencies are not available because of international coordination, we intend to modify Motient's license. If and when the spectrum becomes available, we will realign frequencies that are unavailable in the upper L-band and include frequencies in the lower L-band, up to the 20 megahertz that we intend to authorize to Motient. This action allows Motient to aggregate up to 20 megahertz of L-band spectrum in which to operate its current MSS system and promotes the public interest, convenience and necessity by providing Motient sufficient spectrum to provide service to many of the nation's rual and remote areas.

23. Because we are adopting the *NPRM* proposal to modify Motient's license pursuant to Section 316 of the Act,[44] we will dismiss its 1993 application in which Motient requests authority to use spectrum in the lower L-band. Accordingly, the concerns regarding the acceptance of Motient's 1993 application are now moot. New applications for L-band spectrum, however, may be filed once Motient has acquired the 20 megahertz that we are now authorizing.

24. RTG contends that the Commission's reliance on *Rainbow Broadcasting Co. v. FCC*[45] as a basis for proposing not to open the initially allocated portion of the lower L-band to competing applications was misplaced. RTG points out that *Rainbow Broadcasting* involved an exchange of channels between a commercial broadcast licensee and a non-commercial educational licensee that was permitted to take place without the involvement of third parties. It further notes that both stations were concurrently serving the same market, and that each licensee benefited from the exchange. Whereas, says RTG, our proposal involves open frequencies that belong to no one but the public. RTG asserts that the holding in *Rainbow Broadcasting* is not applicable because it concerns an entirely different fact pattern, to which its applicability is limited. Consequently, RTG insists that all of the lower L-band frequencies must be open to competing applications.[46]

25. We are not persuaded by RTG's arguments. RTG has provided no grounds supporting its

[42] *See* LQL Comments at 14-15; *see also* Motorola/Iridium Reply Comments at 4

[43] *See* Motient Reply Comments at 13

[44] *See NPRM* at 11683.

[45] 949 F.2d 405 (D.C. Cir. 1991)

[46] *See* RTG Comments at 4-7.

contention that the holding in *Rainbow Broadcasting* is applicable only to situations involving channel swaps. The opinion contains no language indicating that the court intended that its holding to be narrowly construed. Rather, in *Rainbow Broadcasting* the court found that the Commission is afforded significant latitude when it exercises its Section 316 authority. Specifically, the court referred to the Commission's authority to utilize Section 316 to expand a licensee's authority, pointing to the legislative history of the 1983 amendment of Section 316.[47] Further, the Commission is not required to open all frequencies for competing applications, so long as it provides a reasoned explanation for not doing so.[48] Section 303 of the Act provides the Commission with broad authority to implement its spectrum management policies. We have concluded that the public interest is best served by ensuring that the existing MSS licensee, Motient, is afforded sufficient spectrum to provide a viable service, before opening this spectrum to additional applications. Moreover, Section 316 of the Act allows the Commission to modify a radio license in order to serve the public interest. We have concluded that by modifying Motient's license to use frequencies in the lower L-band in addition to those in the upper L-band, the public interest will be served by expeditiously providing MSS to areas that are too remote or sparsely populated to receive service from terrestrial communications systems. We note in addition that Section 316, unlike Section 309 of the Act, provides for challenges to modifications only by existing licensees or permittees whose own authorizations would be modified by the Commission's action. Congress did not require the Commission to entertain objections by potential applicants for any spectrum used in accordance with a modification. Consequently, the action the Commission proposed, as well as the action we have decided to take, is both proper and in accordance with the guidelines articulated in *Rainbow Broadcasting*.

26. Motorola/Iridium, maintains that we have mistakenly relied on the decisions in *United States v. Storer Broadcasting*[49] and *Ashbacker Radio v. FCC*[50] for the proposition that the Commission may forego comparative review of applicants by limiting eligibility for spectrum by rule to just one entity. According to Motorola/Iridium, *Storer Broadcasting* does not empower the Commission to limit eligibility for new spectrum to a single entity.[51] Motorola/Iridium contends that this was made clear in *Aeronautical Radio v. FCC*.[52] Motorola/Iridium states that in *Aeronautical Radio*, the court reviewed a Commission rule that compelled eligible applicants to join a consortium, which ultimately became AMSC and then Motient, rather than holding comparative hearings as the vehicle for assigning an MSS license. Motorola/Iridium states that the court invalidated the Commission's consortium policy, finding that the Commission had failed to provide adequate justification for the adoption of this policy. The court directed the Commission to determine whether it has statutory authority to require applicants to form a consortium instead of holding comparative hearings on individual applications. According to Motorola/Iridium, the court's ruling bars the Commission from limiting eligibility for newly allocated

[47] *See Rainbow Broadcasting*, 949 F.2d at 410.

[48] *See* 949 F.2d at 409-10.

[49] 351 U.S. 192 (1956).

[50] 326 U.S. 332 (1945).

[51] *See* Motorola/Iridium Reply Comments at 8.

[52] 928 F.2d 428 (D.C. Cir. 1991).

spectrum to just one company.[53]

27. At the outset, we disagree that we have relied on the decision cited by Motorola/Iridium. As noted above, our action here is primarily based on our authority under Section 316 of the Act to modify an existing license. The Commission's exercise of Section 316 authority was simply not at issue in *Aeronautical Radio.* Thus we expressly stated in the *NPRM* that this proceeding "does not involve initial applicants and the hearing rights of eligible new applicants under [S]ection 309 of the Act,"[54] matters that were at issue in *Ashbacker, Storer,* and *Aeronautical Radio.* [55] None of the commenters has suggested that this proceeding involves competing eligible applicants for the lower L-band spectrum. We did not propose to open this spectrum for competing applications and we have not done so. This decision is a permissible exercise of our rulemaking authority. Nor have we "established the licensee itself by rule,"[56] Motient is already a Commission licensee, and we have simply modified its license pursuant to Section 316.

28. Furthermore, even if the court's decision in *Aeronautical Radio* were relevant, we note that many of the fundamental legal premises underlying that decision have been affected by subsequent statutory amendments to the Act. In questioning the Commission's authority to license only a consortium of applicants, rather than utilizing comparable hearings, the court relied heavily on the proposition that the Act embodies a congressional policy that "comparable consideration ... is the process most likely to serve the public."[57] Congress, however, has since modified the Act to make clear it dissatisfaction with the comparative licensing scheme.[58] Although the statutory amendments require competitive bidding as

[53] *Id.* at 511.

[54] *NPRM* at 11685.

[55] *See Reuters Limited v. FCC*, 781 F.2d 946, 951 (D.C. Cir. 1986)("Ashbacker's teaching applies not to prospective applicants, but *only to parties whose applications have been declared mutually exclusive.*")(Emphasis in original).

[56] *Committee for Effective Cellular Rules*, 53 F. 3d 1309, 1318-20 (D.C. Cir. 1995).

[57] *Aeronautical Radio*, 928 F. 2d at 450.

[58] In 1993, Congress gave the Commission permissive authority to resolve mutually exclusive license applications by auctioning spectrum licenses in certain radio services. *See* Omnibus Budget Reconciliation Act of 1993 (OBRA-93), Pub. L. 103-66, 107 Stat. 312 (1993), § 6001(a) (codified at 47 U.S.C. § 923(a)-(b)). The dissatisfaction with comparative hearings was further underscored by the legislative history of OBRA-93. In addition to addressing the desire for use of spectrum auctions, the Conference Report stated that ". . . the Conference Agreement includes a provision that requires the Commission to continue to use engineering solutions, negotiation, threshold qualifications, service regulations, and other means in order to avoid exclusivity in application and licensing proceedings." *See* H. R. Conf. Rep. 103-213, 103rd Cong., 1st Sess. 485 (1993). In 1997, Congress expanded the Commission's auction authority by amending Section 309(j) of the Communications Act to require that all mutually exclusive applications for initial licenses, including those for broadcast services, "shall" be auctioned except for licensing for public radio services and certain other types of licenses not relevant here. *See* Balanced Budget At of 1997 (OBRA-97), Pub. L. 105-33, 111 Stat. 251 (1997), § 3002(a) (codified at 47 U.S.C. §§ 309(f), 309(j), 397). The Conference Report for OBRA-97 similarly stated that the Commission should not "overlook[ing] engineering solutions, negotiations, or other tools that avoid mutual exclusivity." *See* H. R. Conf. Rep. 105-217, 105th Cong., 1st Sess. 572 (1997). These enactments are a clear indication that Congress does not consider the comparative hearing process the exclusive means of effectuating the public interest.

the selection process for most services they do not apply to international or global satellite communications services.[59] Congress's decision not to use auctions for these international satellite services does not suggest, however, that it favors the use of comparative hearings instead.[60] Indeed, many of the reasons that Congress relied on to reject the use of auctions for international satellite services, such as the long lead time required for satellite construction and the uncertainty that could result from use of auctions, apply equally to the use of comparative hearings. Thus, as the Commission explained in its decision on remand from *Aeronautical Radio*, the Commission historically as never used comparative hearings to select among satellite applicants.[61]

29. We continue to believe, therefore, that the Commission has ample authority to modify Motient's license as discussed above and that this action best serves the public interest. MSS provides service to areas in the United States that would otherwise go unserved. Motient is the U.S. company in

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[59] Section 647 of the Open Market Reorganization for the Betterment of International Telecommunications (ORBIT Act) provides:

Notwithstanding any other provision of law, the Commission shall not have the authority to assign by competitive bidding orbital locations or spectrum used for the provision of international or global satellite communications services. The President shall oppose in the International Telecommunication Union and in other bilateral and multilateral fora any assignment by competitive bidding of orbital locations and spectrum used for the provision of such services.

Pub. L. 106-180, 114 Stat. 48 § 647 (2000) (codified at 47 U.S.C. § 647).

[60] The legislative history of the ORBIT Act provides:

> New section 649 [section 647] prevents the Commission from using competitive bidding procedures (i.e., auctions) to award licenses for spectrum or orbital locations used for providing international satellite services. In addition, it requires the Administration to oppose the adoption of auctions to award licenses for orbital locations or satellite services in the ITU and other fora.
>
> The Committee believes that auctions of spectrum or orbital locations could threaten the viability and availability of global and international satellite services, particularly because concurrent or successive spectrum auctions in the numerous countries in which U.S.- owned global satellite service providers seek downlink or service provision licenses could place significant financial burdens on providers of such services. This problem would be compounded by the fact that the multi-year period required for design, construction and launch of global and international satellite systems usually requires service providers to invest substantial resources well before they obtain all needed worldwide licenses and spectrum assignments. The uncertainty created by spectrum auctions could disrupt the availability of capital for such projects, and significantly reduce the available benefits offered by global and international satellite systems.

Report of Committee on Commerce, Communications Satellite Competition and Privatization Act of 1998, H.R. Rep. No. 494, 105th Cong., 2d Sess. 64-65 (1998).

[61] *Final Decision on Remand*, 7 FCC Rcd 266, 269 (1992). For example, the Commission stated, citing its tentative decision on remand, *Tentative Decision*, 6 FCC Rcd 4900, 4904-05 (1991), that because of the significant time required for construction and launch and rapidly developing satellite technology, the considerable time involved in comparative hearings would likely cause a substantial delay in service to the public unless the Commission adopted more pragmatic, timely approaches to licensing.

the best position in the L-band to provide this service and it is entitled to a reasonable expectation that enough spectrum will be coordinated to support its authorized system. Commenters have not persuasively demonstrated that a different outcome is warranted. Thus Motient will be granted use of the first 20 megahertz of internationally coordinated spectrum in the L-band.

C. Priority Access and Preemption

30. Footnote US315 to Section 2.106 of the Commission's rules states that lower L-band MSS systems may not interfere with maritime mobile-satellite (MMSS) distress and safety communications that are also operating in these frequencies.[62] Footnote US315 protects MMSS distress and safety communications, such as GMDSS, domestically by providing priority access and real-time preemptive capability for distress and safety communications. To ensure MSS compliance with the provisions of Footnote US315, the Commission proposed establishing priority access and preemption standards and policies for mobile-satellite service in the lower L-band and incorporating these standards into the Commission's rules. The proposed system and terminal requirements are delineated in Appendix B of the *NPRM*.[63] The Commission sought comment on the proposed standards in Appendix B, and on the maximum number of seconds to which half-duplex data MET transmissions should be limited. The proposed requirements are derived from similar requirements that the Commission adopted in connection with the operation of aeronautical distress and safety-related communication in the upper L-band. These technical requirements were formulated in order to comply with the provisions of Footnote US308 for priority and preemptive access for aeronautical safety communications.[64] The Commission also proposed in the *NPRM* to continue to allow U.S.-licensed MSS systems to operate half-duplex Inmarsat "Standard C" type or technically similar mobile earth terminals ("METs") in the lower L-band.[65] Additionally, the Commission proposed establishing a time limit for data messages transmitted in half-duplex from METs in order to protect the integrity of maritime safety and distress communications in the lower L-band. At the end of this period, the MES could be commanded to pause by the LES and the higher priority traffic could be placed ahead of any further transmissions. In cases where priority traffic is intended for the MES that is transmitting, it could be commanded to stop transmitting and receive the priority traffic.

31. The Commission stated that the proposal to allow U.S.-licensed MSS systems to operate in half-duplex with appropriate restraints could provide sufficient distress and safety communication priority to comply with the intent of Footnote US315. The *NPRM* explained that maritime distress and safety services in the lower L-band have been operational for years and are sufficiently dynamic and robust to accommodate the operation of half-duplex METs. In this regard, it also noted that Inmarsat and others

[62] 47 C.F.R. § 2.106.

[63] *NPRM* at 11691-93.

[64] *See AMSC Subsidiary Corp.*, 1995 WL 109123 (F.C.C., Mar 13, 1995)(DA 95-482).

[65] The International Bureau previously found that full compliance with Footnote US315 was not possible while operating in half-duplex in the lower L-band, since this mode of operation is not capable of real-time termination. That is, a transmission cannot be interrupted once it has started. Nevertheless, the Bureau found that, because of the short duration of half-duplex transmission, MSS METs then in use complied with the intent, if not the letter, of US315. Consequently, full compliance with Footnote US315 had been waived for two years. *See AMSC Subsidiary Corp.*, 10 FCC Rcd 10458 (Int'l.Bur. 1995) and *Rockwell International Corp.* 10 FCC Rcd 10952 (Int'l.Bur. 1995).

operate in half-duplex "Standard C" or other technically similar data METs with no apparent harm to maritime safety and distress communications.

32. Only Motient and the U.S. Coast Guard commented on the Commission's priority access and preemption proposals. Each expressed some misgivings, but both generally endorse the proposals. Motient states that it supports providing priority and preemptive access in the lower L-band.[66] It objects, however, to the establishment of a maximum time limit on transmissions by half-duplex terminals. Motient contends that half-duplex terminals can be operated in either the upper or lower MSS L-bands in a manner that meets the requirements for priority and preemptive access for both aviation safety and maritime safety communications. In fact, Motient states that priority and preemptive access operations in the lower L-band are easier than operation in the upper L-band. Motient explains that whatever the relative demand may be for capacity for aviation safety and maritime safety communications, the peaks in demand for maritime safety communications are much more gradual than for aviation safety communications. Moreover, Motient maintains that the maritime community and its aviation counterparts, made no demonstration of what, if any, time limit is needed to ensure safety at sea. Motient, therefore, submits that there is no basis for an arbitrary time limit.[67]

33. In addition, Motient says that while its half-duplex terminals are capable of operating in compliance with the requirements of Footnote US315, it believes that the demand for maritime safety communications can be easily satisfied with only a few channels.[68] Using this assumption, Motient provides several options for providing priority and preemptive access for distress and safety communications. One option includes a subsystem designed, operated, and controlled by maritime entities, including the U.S. Coast Guard, to which Motient would provide the necessary space segment and frequencies.[69]

34. Motient offers some suggestions regarding the proposed system and terminal requirements specified in Appendix B of the *NPRM*. Motient maintains that some of the provisions in Appendix B are ambiguous. Its principal concerns are with Requirements Nos. 2 and 8 for MES and Requirement No. 9 for LES.[70] Specifically, Motient argues that these requirements obligate terminals to be capable of being automatically interrupted during a transmission to receive a higher priority incoming call. Motient says that a more reasonable approach to a busy signal will typically be to try again momentarily. It explains that automatic preemption works well in the case of packet data or data message communications systems. In those cases, Motient says, messages or packets from a ship may be queued, either in the MES or in other shipboard communications equipment. It adds that a high priority message or packet could then be placed at the head of the queue, and, if necessary preempt an ongoing outbound transmission. Motient also advises that its data services queue messages for processing, distribution, and transmission,

[66] *See* Motient Comments at 7.

[67] *Id.* at 8-9.

[68] In support of its claim, Motient provides an affidavit of Rear Admiral M. Edward Gilbert (USCG, Ret.). *Id.* "Exhibit A."

[69] *Id.* "Technical Appendix."

[70] *See NPRM* at 11691-93.

so that those services have the capabilities specified in Appendix B of the *NPRM*. Voice communications, submits Motient, are handled differently. It says that it is reasonable to expect that preemption be done manually by the ship's crew disconnecting a low priority call when one of higher priority is placed. Motient therefore professes that there is no need for a requirement that this preemption be done automatically by the MES, and it proposes the following revisions to MES Requirements Nos. 2 and 8, and LES Requirement No. 9, to limit them to data terminals:

> MES No. 2: "Each MES with a requirement to handle maritime distress and safety data communications shall be capable of either (1) recognizing message and call priority identification when transmitted from its associated Land Earth Station ('LES') or (2) accepting message and call priority identification embedded in the message or call when transmitted from its associated LES and passing the identification to shipboard data message processing equipment."
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> MES No. 8: "Each MES with a requirement to handle maritime distress and safety data communications shall have the capacity within the station to automatically preempt lower precedence data traffic. This capability may reside in either the MES or in the shipboard message processing equipment."
>
> LES No 9: "An LES with a requirement to handle maritime distress and safety data communications shall have the capability within the station to automatically preempt lower precedence traffic."[71]

35. The U.S. Coast Guard, though generally agreeing with the Commission's proposals, takes issue with the assertion concerning the ability of maritime distress and safety services in the lower L-band to accommodate the operation of half-duplex METs. It says that GMDSS satellite equipment, while improving the U.S. Coast Guard's distress and safety communications with ships, is not as "dynamic and robust" as the Commission believes. An example cited by the U.S. Coast Guard concerns the passenger vessel *Achille Lauro,* which caught fire near the coast of Somalia on November 30, 1994. We are informed that rescue operations were delayed for two hours because of the loss of radio contact between rescue coordination center authorities and the rescuing vessels. The U.S. Coast Guard states that the communications failure was due to interference caused principally by calls from the news media and because of a lack of preemptive priority capability in the shore-to-ship facilities. Conceding that the *Achille Lauro* incident involved the use of a different type of terminal, the U.S. Coast Guard contends that operation of that system, nevertheless, requires an equivalent portion of L-band spectrum and its terminals are similar to half-duplex METs. The U.S. Coast Guard also says that there are other instances that exemplify the vulnerability of GMDSS. It points out that Standard C half-duplex METs operated by Inmarsat are incapable of identifying and protecting maritime safety messages other than distress alerts.[72] Due to this limitation, the U.S. Coast Guard says other, but nonetheless important messages, such as those concerning medical emergencies, warnings to mariners, and rescue coordination center communications, are occasionally delayed significantly. Moreover, these inadequacies, contends the U.S. Coast Guard,

[71] Motient Comments "Technical Appendix" at 6.

[72] The U.S. Coast Guard notes that in a report to the International Maritime Organization, Norway stated that 154 out of 158 distress alerts received over a four-year period were false. *Citing* "Report of GMDSS Alerts, from 1991 through November 1995, within the Norwegian SRR," IMO COMSAR/INF. 14, 22 Dec. 1995.

will worsen as mobile terminal usage increases. Consequently, the U.S. Coast Guard urges us not to waive the provision of Footnote US315 for half-duplex METs in the lower L-band on a permanent basis.[73]

36. It is apparent from the U.S. Coast Guard's comments that it believes that the maritime distress and safety services in the lower L-band are not as dynamic and robust as described in the *NPRM*. The fact that the U.S. Coast Guard alleges that use of half-duplex METs has resulted in significant delays in the communication of maritime safety messages, despite the fact that the number of ship-borne earth station terminals has been relatively small, is of note. Consequently, we are concerned that as more vessels install satellite equipment and begin using their terminals for longer periods the situation will become more severe. Although we do not know exactly how many vessels will ultimately be affected, the U.S. Coast Guard estimates that as of February 1, 1999, between 35,000 and 50,000 ships engaged in international voyages were required to carry GMDSS equipment.[74] The U.S. Coast Guard also states that there is a fleet of approximately 30,000 American commercial fishermen that carry this equipment.[75] Finally, the U.S. Coast Guard predicts additional demand for maritime distress and safety communications as over one million radio-equipped recreational craft begin to install marine satellite devices.[76]

37. In addition to our concern regarding an increase in maritime distress and safety traffic, we believe it is reasonable to expect that the generic use of mobile terminals by Motient, and possibly additional systems, will increase as well. It is reasonable to assume that as mobile terminal usage increases so will channel congestion and the reliability of maritime distress and safety communications will diminish. Because of the importance of safety-related communications, we will take the U.S. Coast Guard's recommendation and therefore we decline to waive the provisions of Footnote US315 for half-duplex METs in the lower L-band on a permanent basis.[77]

38. As we mentioned above, Motient suggests that we modify the system and terminal

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[73] *See* U.S. Coast Guard Comments at 2-5.

[74] While we do not dispute this estimate, it should be noted that not all of these ships are required to have INMARSAT MESs.

[75] Again it appears that the U.S. Coast Guard is referring to GMDSS and not specifically to INMARSAT. INMARSAT Equipment Models B, C, and M require a ship to have a maritime mobile service identity ("IMMSI") ending in three zeros. The U.S. has only five maritime identification digits ("MIDs") in use with a maximum of 5000 MMSIs available in the proper format.

[76] *Id.* at 4.

[77] Although we decline to adopt a permanent waiver of Footnote US315, we remain open for considering requests, for a limited number of on a case-by-case basis, for operational authority subject to waiver of Footnote US315 for a limited number of METs. This will provide us with flexibility to balance the competing needs of the maritime community and the non-maritime community and is consistent with the Commission's past practice. The original basis for Footnote US315 was to protect ships in distress from getting a busy signal when sending a distress call. This involves control of capacity of the satellite space segment and receiving station. Manual preemption on board ship is elementary. Additionally, priority calls to a ship from search and rescue ("SAR") authorities should be able to be made. This would involve the ability of LES to break into a call in progress but is still under study by the ITU. *See* WRC-03 Agenda item 1.10.3 (Res. 348).

requirements for MES and LES proposed in Appendix B of the *NPRM*. Motient notes that the Commission's proposed MES Requirement Nos. 2 and 8, and LES Requirement No. 9, which require automatic preemption, are requirements based on aeronautical rather than maritime application. As such, the requirements do not take into account how voice communications are handled aboard ships. Motient raises a valid point. The Commission's proposed requirements were derived from similar requirements that it adopted in order to ensure the integrity of aeronautical safety communications.[78] Upon further analysis, we do not believe that they are entirely suitable for maritime application. We believe that provision should be made for shipboard voice systems. Therefore, we adopt Motient's proposed modification to MES No. 2.

39. We decline, however, to adopt Motient's proposed modifications to MES No. 8 and LES No. 9. Regarding, MES No. 8, we do not agree with Motient's interpretation that this requirement relates to requested traffic only within the ship. That traffic should be handled manually. The requirements of provisions MES No. 8 and LES No. 9 refer to both traffic from ships to gain access to a channel (ship-to-shore), and to traffic from coast stations to the ship (shore-to-ship) communications that may be busy with ongoing routine traffic. We note previously the importance of having shore-to-ship channels available for rescue operations such as during the *Achille Lauro* incident. Regarding LES No. 9, we shall modify this and LES No. 10, specifying that each LES shall have a capability to preempt ongoing routine traffic from MES in order to complete a maritime distress, urgency or safety call to that particular MES.[79] We believe that this wording is better suited to meet the priority and preemption needs of maritime communications. The remaining proposals are adopted as specified in Appendix B.

40. We also noted that Motient has proposed that no time limit be established for transmissions by half-duplex METs. In the *NPRM*, however, the Commission proposed placing a limit on the duration of MET transmissions because it believed that such a time limit, coupled with priority access and preemption requirements, would ensure the integrity of maritime safety and distress communications. Long –term needs of maritime distress and safety communications may not ultimately be met if no time limit is imposed on transmissions by half-duplex METs. We have not, however, received adequate comment on this issue to make a reasoned determination as to what the time limit should be. For example, we need to know how Motient will give high priority requests for a satellite channel for half-duplex traffic in face of a system being saturated by half-duplex data traffic.

41. Accordingly, until a record on this issue is more fully developed, we decline to adopt a definite time limit for transmissions by half-duplex terminals. Parties may, of course, file a petition for rulemaking to address the imposition of a definite time limit if, and when there is sufficient evidence to demonstrate what the limit should be. Until that time, the Commission and the National Telecommunications and Information Administration (NTIA) will continue to review applications for half-duplex MES terminal operational authority (with requests for waiver of Footnote US315, as appropriate) on a case-by-case basis. NTIA indicated to the Commission, in its case-by-case review of recent applications to operate half-duplex MES terminals, that if a MES terminal is capable of, among

[78] *See AMSC Subsidiary Corp.*, 1995 WL 109123 (F.C.C., Mar 13, 1995)(DA 95-482).

[79] The proposed language of these two requirements was as follows: LES No. 9 "An LES with a requirement to handle maritime distress and safety communications shall have the capability within the station to automatically preempt lower precedence traffic." LES No. 10 "Each LES shall be capable of automatically turning off one or more of its associated channels."

other things, ceasing transmissions and inhibiting further transmissions within one second, that terminal would be considered to meet the real time preemption requirements.[80] We anticipate that new licenses to operate half-duplex terminals will be similarly conditioned, or limited by waiver of Footnote US315 as in past practice, to ensure that GMDSS in the frequency band remain protected.

D. System Design

42. In the *NPRM*, the Commission specifically sought comment only on the proposed standards in Appendix B and on the maximum number of seconds to which half-duplex data MET transmissions should be limited in order to ensure the integrity of maritime distress and safety communications. Motient, however, has advanced several system design proposals for providing priority and preemptive access for maritime distress and safety communications.81 We believe that Motient's suggestions are beyond the scope of this proceeding. Matters such as how a licensee designs its system to comport with our rules are properly left to satellite system operators. Therefore, once Motient finalizes its system design, it can seek to amend its construction and operating authority.

E. Interference

43. Motorola/Iridium raises concerns about interference into its system from out-of-band emissions from Motient METs operating in the lower L-band.[82] In the *NPRM*, however, the Commission explained that if the lower L-band spectrum coordinated for Motient's operation does not include spectrum at the lower band edge it expects that there will be no adjacent band interference. The Commission also noted that should an interference issue arise, it expects the parties to first attempt to resolve interference issues among themselves. We will address such interference issues only if the parties are unable to reach a solution. Finally, the Commission noted that Inmarsat, Australia, Mexico, Canada, and the Russian Federation are either now or will soon be using terminals having out-of-band emissions similar to the METs operated by Motient. Consequently, the Commission noted that Motorola/Iridium may need to coordinate, worldwide, with all the parties operating at band edge.[83]

F. Inmarsat Use of Lower L-Band

44. The Commission also recently authorized several entities to operate mobile earth terminals and land earth stations via Inmarsat satellites to provide domestic and international mobile-satellite service in the L-band.[84] The authorizations were granted pursuant to the ORBIT Act[85] and our DISCO II

[80] *See* Letter from William T. Hatch, Associate Administrator, NTIA, to Donald Abelson, Chief, International Bureau, FCC, filed August 25, 2000.

[81] *Id.* "Technical Appendix."

[82] *See* Motorola/Iridium Comments at 4-7.

[83] *See NPRM* at 11684.

[84] *See In the Matter of COMSAT Corporation d/b/a Comsat Mobile Communications, Application for authority under Section 753(c) of the International Maritime Satellite Act and Section 214 of the Communications Act of 1934, as amended, to establish channels of communication between land earth stations at Brewster, Washington, Santa Paula, California, Southbury, Connecticut and Clarksburg, Maryland and Inmarsat Third generation satellites in the Atlantic Ocean Region in support of Federal Aviation Administration's Wide Area Augmentation*

decision.[86] In the *Inmarsat Authorization Order,* the Commission stated that the permanent authority for the specified earth stations to communicate on frequencies in the lower L-band granted would not become effective until further action in this Lower L-Band proceeding. In the interim, the Commission granted applicants Special Temporary Authority to operate in the lower L-band subject to further action in the Lower L-band proceeding. It said that if the decision in the Lower L-Band Proceeding does not require modification of the authorizations granted for use of Inmarsat, the authorizations would become effective without further action by the applicants. Our decision in this proceeding requires modification only to the half-duplex terminal the authorizations granted to Comsat Corporation/Mobile Communications (Comsat) and Marinesat Communications Network d/b/s Stratos Communications (Stratos) for use of the Inmarsat system.[87] Accordingly, the authorizations are now permanent. The authorizations recently granted to Comsat and Stratos for 1000 half-duplex terminals, each, are modified by this Order to be limited to a term of two years.[88]

IV. CONCLUSION

45. We adopt the licensing policies discussed in this proceeding to govern MSS in the L-band. We also assign to Motient up to 20 megahertz of spectrum that is internationally coordinated in the L-band. We conclude that this is sufficient spectrum to enable Motient to implement its authorized satellite system. In addition, we incorporate into the Commission's service rules, priority access and preemption standards. The standards will safeguard the integrity of maritime distress and safety services in the lower L-band. The action we are taking will enable Motient to construct and operate an MSS system that will be economically viable without interfering with maritime distress and safety communications. In addition, by limiting Motient's use of the L-band to 20 megahertz, we believe that there may be an opportunity for others to inaugurate competing MSS systems as well.

V. ORDERING CLAUSES

46. Accordingly, IT IS ORDERED that, pursuant to Sections 1, 2, 4(i), 303(c), 303(f), 303(g), and 303(r),of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 152,154(i), 303(c), 303(f), 303(g), 303(r), Part 2 and Part 25 of the Commission's rules ARE AMENDED as specified in Appendix A, effective 30 days after publication in the Federal Register.

47. IT IS FURTHER ORDERED that, pursuant to Section 316 of the Communications Act of 1934, as amended, 47 U.S.C. § 316, Motient's license (Call Sign AMSC-1) to operate only in the upper L-band IS MODIFIED to include up to 20 megahertz of spectrum from the lower L-band, but no part of

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System, et. al., Memorandum Opinion and Order, FCC 01-272 (released Oct. 9, 2001) (*Inmarsat Authorization Order*).

[85] Pub.L. 106-108, 115 Stat 48 (2000).

[86] Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States, IB Docket No. 96-111, Notice of Proposed Rulemaking, 11 FCC Rcd 18178 (1996), Report and Order, 12 FCC Rcd 24094 (1997) (DISCO II).

[87] *See Inmarsat Authorization Order* at para. 88.

[88] This is consistent with authorizations granted to AMSC and Rockwell in the past. *See supra,* footnote No. 51.

the lower L-band frequencies so assigned shall enable Motient's allotted combined upper and lower L-band spectrum to exceed 20 megahertz.

48. IT IS FURTHER ORDERED that COMSAT Corporation/Mobile Communications (Call Sign E000284) and MARINESAT Communications Network d/b/s Stratos Communications (Call Sign E010050) licenses ARE MODIFIED to reflect a license term of two years form the release of the Commission Order granting operational authority in the lower L-band.

49. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Certification, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

ensure that the MSS system complies with Footnote 726C and the priority and real-time preemption requirements imposed by Footnote US315. It should be noted that the LES operates in the Fixed-Satellite Service ("FSS") as a feeder-link for the MSS (Radio Regulations 71) and that the following capabilities are to facilitate the priority and preemption requirements of the above footnotes. The FSS feeder-link stations fulfilling these MSS requirements shall not have any additional priority with respect to FSS stations operating with other FSS systems.

(1) All LES transmissions to mobile earth stations (MESs) shall have a priority assigned to them that preserves the priority and preemptive access given to maritime distress and safety communications.

(2) The LES shall recognize the priority of calls to and from MES and make channel assignments taking into account the priority access that is given to maritime distress and safety communications.

(3) The LES shall be capable of receiving the MES identification number when transmitted and verifying that it is an authorized user of the system to prohibit unauthorized access.

(4) The LES shall be capable of transmitting channel assignment commands to the MESs.

(5) The communications channels used between the LES and the MES shall have provision for signalling within the voice/data channel, for an MES, which does not continuously monitor the LES signalling channel during the time of a call.

(6) The LES shall transmit periodic control signalling signals to MES, which do not continuously monitor the LES signalling channel.

(7) The LES shall automatically inhibit all transmissions to MESs to which it is not transmitting a signalling channel or signalling within the communications channel.

(8) The LES shall be capable of transmitting channel-shut-off commands to the MESs on signalling or communications channels.

(9) Each LES shall be capable of interrupting, and if necessary, preempting ongoing routine traffic from an MES in order to complete a maritime distress, urgency or safety call to that particular MES.

(10) Each LES shall be capable of automatically turning off one or more of its associated channels in order to complete a maritime distress, urgency or safety call.

APPENDIX A

AMENDMENTS TO THE CODE OF FEDERAL REGULATIONS

PART 25 – SATELLITE COMMUNICATIONS

1. The authority citations for Part 25 continue to read as follows:

Authority: 47 U.S.C. 701-744. Interprets or applies 47 U.S.C. sections 51, 152, 154, 302, 303, and 307, unless otherwise noted.

2. Section 25.136 is amended by revising the title and introductory language and by adding paragraphs (d) and (e) which read as follows:

§ 25.136 Operating provisions for earth stations for each station network in the 1.6/2.4 GHz and 1.5/1.6 GHz mobile-satellite services.

In addition to the technical requirements specified in § 25.213, earth stations operating in the 1.6/2.4 GHz and 1.5/1.6 GHz Mobile Satellite Services are subject to the following operating conditions:

* * * * *

(d) Any mobile earth station (MES) associated with the Mobile Satellite Service operating in the 1530-1544 MHz and 1626.5-1645.5 MHz bands shall have the following minimum set of capabilities to ensure compliance with Footnote S5.353A and the priority and real-time preemption requirements imposed by Footnote US315.

(1) All MES transmissions shall have a priority assigned to them that preserves the priority and preemptive access given to maritime distress and safety communications sharing the band.

(2) Each MES with a requirement to handle maritime distress and safety data communications shall be capable of either (1) recognizing message and call priority identification when transmitted from its associated Land Earth Station (LES) or (2) accepting message and call priority identification embedded in the message or call when transmitted from its associated LES and passing the identification to shipboard data message processing equipment

(3) Each MES shall be assigned a unique terminal identification number that will be transmitted upon any attempt to gain access to a system.

(4) After an MES has gained access to a system, the mobile terminal shall be under control of a LES and shall obtain all channel assignments from it.

(5) All MESs that do not continuously monitor a separate signalling channel or signalling within the communications channel shall monitor the signalling channel at the end of each transmission.

(6) Each MES shall automatically inhibit its transmissions if it is not correctly receiving separate signalling channel or signalling within the communications channel from its associated LES.

(7) Each MES shall automatically inhibit its transmissions on any or all channels upon receiving a channel-shut-off command on a signalling or communications channel it is receiving from its associated LES.

(8) Each MES with a requirement to handle maritime distress and safety communications shall have the capability within the station to automatically preempt lower precedence traffic.

(e) Any Land Earth Station (LES) associated with the Mobile Satellite Service operating in the 1530-1544 MHz and 1626.5-1645.5 MHz bands shall have the following minimum set of capabilities to

APPENDIX B

FINAL REGULATORY FLEXIBILITY CERTIFICATION

1. The Regulatory Flexibility Act of 1980, as amended ("RFA")[89] requires that a regulatory flexibility analysis be prepared for rulemaking proceedings, unless the agency certifies that "the rule will not have a significant economic impact on a substantial number of small entities."[90] The RFA generally defines "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[91] In addition, the term "small business" has the same meaning as "small business concern" under the Small Business Act.[92] A small business concern is one that: (1) is independently owned and operated; (2) is not dominant in its field or operation; and (3) satisfies any additional criteria established by the Small Business Administration ("SBA").[93]

2. The Report and Order adopts and incorporates into the Commission's service rules specific operational parameters and technical requirements to ensure that the integrity of maritime distress and safety will not be compromised by mobile satellite service operation in certain portions of the L-band. By this action the Commission is essentially codifying the same conditions that are placed on every mobile satellite service license for operation in these portions of the L-band. There are currently three entities, Motient Services, Inc., TMI Communications and Company, L.P., and the International Maritime Satellite Organization ("Inmarsat"), that are authorized to provide L-band mobile satellite service in the United States. None comes within the definition of small entity. We therefore certify that the adoption of this Report and Order will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the Report and Order, including a copy of this final certification, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996.[94] In addition, the Report and Order and this final certification will be sent to the Chief Counsel for Advocacy of the SBA and will be published in the Federal Register.

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[89] *See* 5 U.S.C. § 603. The FRA, *see* 5 U.S.C. § 601 *et seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) ("CWAA"). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 ("SBREFA").

[90] 5 U.S.C. § 605(b).

[91] 5 U.S.C. § 605(6).

[92] 5 U.S.C. § 605(3) (incorporating by reference the definition of "small business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after the opportunity for public comment, establishes one or more definitions of such term that are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register

[93] Small Business Act, 15 U.S.C. § 632 (1996).

[94] 5 U.S.C. § 801(a)(1)(A).