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

In the Matter of	)	
	)	
Review of Part 87 of the Commission's Rules	)	WT Docket No. 01-289
Concerning the Aviation Radio Service	)	

Reply Comments of Mobile Satellite Ventures Subsidiary LLC

Mobile Satellite Ventures Subsidiary LLC ("MSV") hereby files these Reply Comments in the above-referenced proceeding in which the Commission has proposed to extend Part 87 licensing rules to the provision of Aeronautical Mobile Satellite (Route) Service ("AMS(R)S") in the Big LEO, 2 GHz, and 5 GHz bands. As discussed herein, MSV opposes the proposal of Inmarsat Ventures Limited ("Inmarsat") to amend Part 87 to include the entire L band among the frequency bands in which AMS(R)S may be provided. This request is beyond the scope of this proceeding, is completely unsupported by any evidence that Inmarsat needs additional spectrum to meet demand for AMS(R)S, and threatens both current and future L band services. MSV also objects to the request of Inmarsat and Rockwell Collins, Inc. ("Rockwell") to amend the Part 87 rules to accommodate Inmarsat's Swift64 and SwiftBroadband service in the L band. This request, too, is beyond the scope of this proceeding and, in any event, to ensure protection of L band satellite systems from harmful interference, the Commission should consider variances from the Part 87 technical rules for L band services only on a case-by-case basis after seeking public comment. This is especially the case considering that some of the rule changes proposed contemplate use of wideband carriers and other technical parameters that have never been coordinated among the North American L band operators and which are currently being considered in the context of pending applications before the International Bureau.

Background

MSV. MSV is the entity authorized by the Commission in 1989 to construct, launch, and operate a United States Mobile Satellite Service ("MSS") system in the L band.[1] MSV's licensed satellite was launched in 1995, and MSV began offering service in 1996. Today, MSV offers a full range of mobile satellite services, including voice and data, using both its own U.S.-licensed satellite and the Canadian-licensed L band satellite licensed to Mobile Satellite Ventures (Canada) Inc. ("MSV Canada"). In May 2005, the Bureau licensed MSV to launch and operate a replacement L band MSS satellite at 101°WL.[2]

L Band Coordination. Spectrum in the L band in North America is shared primarily among five operators: MSV, MSV Canada, Inmarsat, and Mexican and Russian systems. The five Administrations that license these systems reached an agreement in 1996 for a framework for future coordination of the L band spectrum in North America, called the Mexico City Memorandum of Understanding ("*Mexico City MoU*").[3] Under the *Mexico City MoU*, the L band operators are each assigned certain specific frequencies to use on their specific satellites through multi-party operator agreements, called Spectrum Sharing Arrangements ("SSA"). Under the 1999 SSA, which was based on operation of narrowband carriers only, spectrum is divided among the five L band operators in largely non-contiguous slivers. The *Mexico City MoU* and the subsequent SSAs have never contemplated the provision of L band services

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[1] *Order and Authorization*, 4 FCC Rcd 6041 (1989); *remanded by Aeronautical Radio, Inc. v. FCC*, 928 F.2d 428 (D.C. Cir. 1991); *Final Decision on Remand*, 7 FCC Rcd 266 (1992); *aff'd, Aeronautical Radio, Inc. v. FCC*, 983 F.2d 275 (D.C. Cir. 1993); *see also AMSC Subsidiary Corporation, Memorandum Opinion and Order*, 8 FCC Rcd 4040 (1993).

[2] *See Mobile Satellite Ventures Subsidiary LLC, Order and Authorization*, DA 05-1492 (May 23, 2005) ("*MSV-1 Order*").

[3] *See Memorandum of Understanding for the Intersystem Coordination of Certain Geostationary Mobile Satellite Systems Operating in the Bands 1525-1544/1545-1559 MHz and 1626.5-1646.5/1646.5-1660.5 MHz*, Mexico City, Mexico, 18 June 1996 ("*Mexico City MoU*").

requiring bandwidth wider than 30 kHz (wideband carriers). Since 1999, all the L band operators, only recently with the exception of Inmarsat, have been operating on a non-interference basis using spectrum assignments listed in the 1999 SSA. As Inmarsat stated in an April 2005 securities filing, "the amount of spectrum available to each operator is currently frozen at the levels agreed in 1999."[4]

Throughout its history, Inmarsat has abused the L band coordination process to undercut the ability of other MSS operators to compete. For example, Inmarsat has refused to return spectrum that MSV and MSV Canada loaned temporarily to Inmarsat in 1999 and again in 2003.[5] Not surprisingly, MSV's lack of access to the loaned spectrum complicates its ability to initiate its high speed mobile service with its current satellites and to develop a full complement of these services with its satellites under construction. Inmarsat's continued use of these loaned frequencies also risks interference to MSV's customers. In addition, Inmarsat has maintained its competitive advantage *vis-à-vis* competing L band MSS providers by denying them fair and efficient access to spectrum. The highly segmented nature of the L band frequency assignments

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[4] Inmarsat April 2005 SEC Form F-20 (April 29, 2005) at 10.

[5] The Commission has taken action to preclude Inmarsat's use of these loaned frequencies, but Inmarsat has not yet returned the frequencies to MSV and MSV Canada. In January 2006, the International Bureau permitted Inmarsat's distributors to provide earlier generation services with the new Inmarsat 4F2 satellite, but subject to the condition that each distributor provide a report discussing the impact (if any) if the Commission were to terminate Inmarsat's access to the loaned frequencies. *See, e.g.*, *Telenor STA Grant*, File No. SES-STA-20060118-00055 et al (January 18, 2006), at ¶ 3. Beginning in March 2006, when the Office of Engineering and Technology ("OET") modified an experimental license authorizing use of an Inmarsat satellite, OET has modified experimental licenses to prohibit the use of the loaned frequencies. *See* Letter from Ira Keltz, FCC, to Steven Doiron, Hughes Network Systems Sub LLC, File No. 0137-EX-ML-2005 (Call Sign WD2XJU) (March 7, 2006). In May 2006, the International Bureau permitted Inmarsat's distributors to provide new Broadband Global Area Network ("BGAN") services with the Inmarsat 4F2 satellite, but specifically prohibited Inmarsat from using any of the loaned frequencies. *See, e.g.*, Stratos Communications, Inc., Request for Special Temporary Authority, File No. SES-STA-20060310-00419 (filed March 10, 2006; granted with conditions on May 12, 2006).

makes it difficult for MSV and other competitors to make the most efficient use of the spectrum and to deploy the latest broadband technologies. Inmarsat has stalled efforts to re-band the L band to prevent competing providers from accessing contiguous blocks of spectrum. Moreover, Inmarsat has obstructed efforts to coordinate its new Inmarsat 4F2 satellite. Inmarsat uses this satellite to support the use of BGAN terminals that use wider bandwidths than the narrowband terminals used with coordinated Inmarsat-3 satellites. As MSV has explained in opposition to earth station applications pending before the International Bureau to provide these uncoordinated services with the uncoordinated Inmarsat 4F2 satellite, these broadband terminals and the Inmarsat 4F2 satellite present new spectrum management challenges that require coordination to avoid interference with affected satellite operators.[6] Nevertheless, Inmarsat has not engaged in good faith frequency coordination with affected L band operators regarding the specific frequencies to be used and other characteristics of the services. Such coordination is essential to avoid interference to MSV's existing and planned operations.

AMS(R)S in the L Band. The "lower" MSS L band refers to the following 38 MHz of L band frequencies: 1525-1544 MHz and 1626.5-1645.5 MHz.[7] The "upper" MSS L band refers to the following 28 MHz of L band frequencies: 1545-1559 MHz and 1646.5-1660.5 MHz.[8] The Commission's rules define AMS(R)S as an "aeronautical mobile-satellite service that is reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes." 47 C.F.R. § 87.5. The Commission's Part 87 rules restrict AMS(R)S to the upper L band frequencies. 47 C.F.R. § 87.187(q). Footnote US308 to the

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[6] *See, e.g.*, MSV, Petition to Hold in Abeyance, File No. File No. SES-LFS-20060522-00852 (Call Sign E060179) (July 14, 2006); MSV, Reply, File No. File No. SES-LFS-20060522-00852 (Call Sign E060179) (August 1, 2006).

[7] *See Upper and Lower L-band, Report and Order*, 17 FCC Rcd 2704, ¶ 1 **(**February 7, 2002**).**

[8] *Id*.

United States Table of Frequency Allocations further provides that AMS(R)S requirements that cannot be accommodated in the 10 MHz of upper L band spectrum at 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz, and 1660-1660.5 MHz, shall have priority access with real-time preemptive capability in the remaining 18 MHz of upper L band spectrum at 1549.5-1558.5 MHz and 1651-1660 MHz. 47 C.F.R. § 2.106 n.US308.

Part 87 Rulemaking. In the above-referenced proceeding, the Commission determined that it would serve the public interest to provide for the licensing of AMS(R)S in the Big LEO, 2 GHz, and 5 GHz bands under Part 87.[9] The Commission explained that such action would "allow the use of a well-established licensing system to expand the options available for aircraft operators." *2nd Report and Order* ¶ 10. The Commission decided to defer the implementation of Part 87 licensing in the aforementioned bands, however, until it resolves certain issues pertaining to the provision of AMS(R)S. *Id.* Accordingly, the Commission adopted a *2nd FNPRM* in which it asked commenters to "refresh and augment the record on how to broaden the AMS(R)S rules to accommodate new AMS(R)S providers, *i.e.*, satellite systems other than Inmarsat."[10] Among other things, the Commission asked whether priority and preemptive access requirements for AMS(R)S should be extended to the Big LEO, 2 GHz, and 5 GHz bands. *Id.* ¶ 32.

In its Comments on the *2nd FNPRM*, Inmarsat proposes that the Commission amend Part 87 to include the entire L band (including the lower L band) among the frequency bands in which AMS(R)S may be provided.[11] In addition, Inmarsat and Rockwell ask the Commission to amend its Part 87 technical rules to accommodate the certification of aircraft earth stations

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[9] *See Review of Part 87 of the Commission's Rules, Second Report and Order*, WT Docket No. 01-289, FCC 06-148 (rel. October 10, 2006) ("*2nd Report and Order*"), at ¶ 10.

[10] *See Review of Part 87 of the Commission's Rules, Second Further Notice of Proposed Rulemaking*, WT Docket No. 01-289, FCC 06-148 (rel. October 10, 2006) ("*2nd FNPRM*").

[11] *See* Comments of Inmarsat Ventures Limited, WT Docket No. 01-289 (March 6, 2007), at 2-5 ("*Inmarsat Comments*").

("AES") that use Inmarsat's Swift64 and SwiftBroadband services.[12] Inmarsat and Rockwell assert that the Commission's Part 87 rules are based on the provision of low-data-rate MSS services and do not contemplate broadband services. *See Inmarsat Comments* at 5; *Rockwell Comments* at 2-3. Inmarsat asks the Commission to either amend its rules to eliminate all Part 87 data rate and modulation limitations or to adopt rules that would authorize Swift 64 and SwiftBroadband services without requiring a waiver. *Inmarsat Comments* at 6.

Discussion

I. The Commission Should Not Amend Part 87 to Authorize AMS(R)S Throughout the Entire L Band

MSV objects to Inmarsat's proposal to include the entire L band among the frequency bands in which AMS(R)S may be provided pursuant to Part 87. As an initial matter, Inmarsat's request is beyond the scope of this proceeding. In its *2nd Report and Order* in this proceeding, the Commission found that it would serve the public interest to facilitate the provision of AMS(R)S by "additional systems" (*i.e.*, in the Big LEO, 2 GHz, and 5 GHz MSS bands) because it would "expand the options available for aircraft operators."[13] The Commission never stated or implied that it would serve the public interest to facilitate Inmarsat's provision of AMS(R)S in additional L band frequencies. The *2nd FNPRM* does not seek comment on whether AMS(R)S should be extended to the lower L band. In fact, the *2nd FNPRM* specifically seeks comment only on how to broaden the Part 87 AMS(R)S rules "to accommodate new AMS(R)S providers, i.e., satellite systems other than Inmarsat." *2nd FNPRM* ¶ 30.

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[12] *See Inmarsat Comments* at 5-7; Comments of Rockwell Collins, Inc., WT Docket No. 01-289 (March 6, 2007) ("*Rockwell Comments*").

[13] *2nd Report and Order* ¶ 10 ("We conclude that the record in this proceeding demonstrates that the adoption of rules in Part 87 to facilitate provision of AMS(R)S by additional systems would serve the public interest. Doing so would allow the use of a well-established licensing system to expand the options available for aircraft operators.").

In addition to being beyond the scope of this proceeding, Inmarsat's request to amend Part 87 to authorize AMS(R)S throughout the entire L band is completely unsupported by any record evidence that Inmarsat's spectrum access in the upper L band is insufficient to meet the current and expected demand for its provision of AMS(R)S. Inmarsat never contends that it has coordinated an insufficient amount of spectrum in the upper L band to meet any demand for AMS(R)S. Given that Inmarsat has failed to provide any evidence that it needs access to lower L band spectrum to meet demand for AMS(R)S, MSV is particularly concerned that Inmarsat's efforts will only further unnecessarily complicate efforts to coordinate the L band. For example, Inmarsat could use the designation of AMS(R)S in the lower L band to make further (albeit unsupported) claims for access to more spectrum in this band during international frequency coordination or to claim greater interference protection. Of particular concern is Inmarsat's claim that it manages priority and preemptive access requirements for some services by setting aside dedicated spectrum, which could further inflate Inmarsat's already questionable spectrum demands. *Inmarsat Comments* at 4,5. The inefficiency of set-aside spectrum was the very concern that led to the requirement for real-time preemption via the MSS network's signaling system, a requirement which is now codified in international and domestic radio regulations. *See* 47 C.F.R. § 2.106, nn. US308, 5.357A.

Moreover, Inmarsat's request to extend AMS(R)S to the lower L band threatens current and future customers of both MSV and Inmarsat that rely on the operation of half-duplex METs that are incapable of "real-time" preemption. The National Telecommunications and Information Administration ("NTIA"), on behalf of the Federal Aviation Administration ("FAA") and the United States Coast Guard, has taken the position that L band mobile earth terminals ("METs") must be capable of preemption within one second in order to satisfy the

requirement to provide "real-time" priority and preemptive access to AMS(R)S in the upper L band and to the Global Maritime Distress and Safety System ("GMDSS") in the lower L band.[14] While NTIA has conditionally consented to the operation of certain half-duplex METs in the lower L band that require more than one second to be preempted,[15] it has generally not afforded this same flexibility to operations in the upper L band.[16] This policy limits the operation of most half-duplex METs not capable of real-time preemption to the lower L band. Adding AMS(R)S

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[14] *TMI Communications and Company, L.P., Order and Authorization*, 15 FCC Rcd 24467, ¶ 5 (Chief, Satellite and Radiocommunication Division, December 11, 2000) ("*TMI Order*") (discussing NTIA's position that METs satisfy priority access and real-time preemption requirements if the METs are capable of ceasing transmission and inhibiting any further transmissions within one second of a command from the network land earth station); *see also Upper and Lower L-band, Report and Order*, 17 FCC Rcd 2704, ¶ 41 **(**February 7, 2002**)** **(**"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 other things, ceasing transmissions and inhibiting further transmissions within one second, that terminal would be considered to meet the real time preemption requirements.").

[15] *See TMI Order* n.7 ("[H]alf-duplex METs must finish transmitting before they can receive an incoming message. As a result, the amount of time necessary to preempt service to provide AMS(R)S is longer."); *COMSAT Corporation et. al., Memorandum Opinion, Order and Authorization*, 16 FCC Rcd 21661, n. 221 (2001) ("*Inmarsat Market Entry Order*") ("[A] half-duplex METs cannot receive and transmit data messages simultaneously and, therefore, must finish transmitting before receiving an incoming message. This could result in delay in preempting half-duplex operations.").

The Commission, based upon input from NTIA, has generally permitted half-duplex METs that are incapable of real-time preemption to operate only in the lower L band subject to certain conditions. *See, e.g., Inmarsat Entry Order* (authorizing Stratos and Comsat to operate half-duplex Inmarsat C METs in the lower L band); *Richtec Incorporated, Order and Authorization*, 18 FCC Rcd 3295 **(**March 7, 2003**)** (authorizing half-duplex Inmarsat D+ METs in the lower L band); *Vistar Data Communications, Inc., Order and Authorization*, 17 FCC Rcd 12899 (Deputy Chief, Satellite Division, International Bureau, July 2, 2002**)** (authorizing half-duplex METs on MSV system in lower L band with a preemption time of as long as 20 seconds); *GeoLogic Solutions, Inc., Order and Authorization*, 21 FCC Rcd 6249 (Chief, Satellite Division, International Bureau, May 31, 2006**)** (authorizing half-duplex METs on MSV system in lower L band with a preemption time of as long as 10.34 seconds); *AMSC Subsidiary Corporation, Order and Authorization*, 10 FCC Rcd 10458 (Chief, International Bureau, August 1, 1995) (authorizing half-duplex METs on MSV's system in lower L band with a preemption time of as long as 48 seconds).

[16] *Inmarsat Entry Order* ¶ 90 ("All METs, whether operating in the upper or lower L-band, must comply with real-time access and priority preemption requirements. There are no exceptions or waivers in the upper L-band due to the quick reactions needed in an aeronautical environment.").

to the lower L band threatens the continued operation of half-duplex L band METs that are incapable of real-time preemption by current and future customers of both MSV and Inmarsat.[17]

II. The Commission Should Not Amend Part 87 to Accommodate Swift64 and SwiftBroadband Services in the L Band

The proposal of Inmarsat and Rockwell to amend Part 87 to accommodate Inmarsat's Swift64 and SwiftBroadband services is beyond the scope of this proceeding. In the *2nd FNPRM*, the Commission sought comment on rule changes necessary to extend Part 87 licensing and technical rules to "new AMS(R)S providers, i.e., satellite systems other than Inmarsat." *2nd FNPRM* ¶ 30. The Commission did not seek comment or propose any rule changes to accommodate Inmarsat's Swift 64 and SwiftBroadband services.

In any event, MSV urges the Commission to retain its current Part 87 technical rules for L band services and to consider waivers of these rules only on a case-by-case basis after seeking public comment. Such a procedure will ensure that satellite operators such as MSV which could be subject to potential interference from new aeronautical MSS technologies are afforded an opportunity to assess the interference potential and to provide the Commission with input prior to approval. For example, the rule changes proposed by Rockwell contemplate services with bandwidths as wide as 200 kHz. *Rockwell Comments* at 4-5. The *Mexico City MoU* and the subsequent SSAs, however, have never contemplated the provision of L band services requiring bandwidth wider than 30 kHz (wideband carriers). As MSV has explained in opposition to earth station applications pending before the International Bureau to provide uncoordinated BGAN service using wideband carriers with the uncoordinated Inmarsat 4F2 satellite, Inmarsat and other L band operators have never coordinated an envelope of frequency assignments, including

[17] In addition to these concerns, Inmarsat fails to address whether AMS(R)S or GMDSS will have priority in the lower L band and how competing claims for spectrum between these systems will be resolved.

necessary guard band requirements, within which Inmarsat can operate wideband carriers while avoiding non-co-channel interference to other L band operators.[18] The inappropriate placement of a broadband, uncoordinated carrier at frequencies too close to a band edge may result in an absolute level of non-co-channel emissions that result in harmful interference to other L band operators. Accordingly, to avoid interference to L band MSS operators, MSV urges the Commission to retain its current Part 87 technical rules for L band services and to entertain waivers only on a case-by-case basis after seeking public comment.

Conclusion

Based on the foregoing, MSV urges the Commission to refrain from amending its Part 87 rules to include the entire L band among the frequency bands in which AMS(R)S may be provided or to adopt rule changes to accommodate Inmarsat's Swift64 and SwiftBroadband services.

Respectfully submitted,

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Dated: April 5, 2007

[18] MSV hereby incorporates by reference the following pleadings which document the interference concerns presented by Inmarsat's provision of services using uncoordinated wideband carriers. *See* MSV, Petition to Hold in Abeyance, File No. File No. SES-LFS-20060522-00852 (Call Sign E060179) (July 14, 2006); MSV, Reply, File No. File No. SES-LFS-20060522-00852 (Call Sign E060179) (August 1, 2006).

Technical Certification

I, Richard O. Evans, Senior Engineer of Mobile Satellite Ventures Subsidiary LLC, certify under penalty of perjury that:

I am the technically qualified person with overall responsibility for the technical information contained in the foregoing. I am familiar with the Commission's rules, and the information contained herein is true and correct to the best of my knowledge and belief.

/s/Richard O. Evans
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Dated: April 5, 2007

CERTIFICATE OF SERVICE

I, Sylvia A. Davis, a secretary with the law firm of Pillsbury Winthrop Shaw Pittman LLP, hereby certify that on this 5th day of April 2007, I served a true copy of the foregoing by first-class United States mail, postage prepaid, upon the following:

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