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Before the
Federal Communications Commission
Washington, D.C. 20554
JAN 11 2005

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Federal Communications Commission
Office of Secretary

In the Matter of

Mobile Satellite Ventures Subsidiary LLC

Application for Authority to Launch and Operate a
Replacement L-band MSS Satellite at 101°W

) Policy Branch
) International Bureau

) File No. SAT-AMD-20040928-00192
) File No. SAT-AMD-20040209-00014
) File No. SAT-AMD-20031118-00335
) Call Sign S2358

RESPONSE OF MOBILE SATELLITE VENTURES SUBSIDIARY LLC

Mobile Satellite Ventures Subsidiary LLC ("MSV") hereby files this Response to the Comments of DIRECTV, Inc. and the Opposition of PanAmSat Corporation ("PanAmSat"), Intelsat LLC ("Intelsat"), and SES Americom, Inc. ("SES") (collectively, the "Commenters") to MSV's application for a next-generation replacement Mobile Satellite Service ("MSS") satellite at 101°W with a $\pm 0.1^\circ$ East-West station-keeping box.¹ As discussed herein, MSV has fully justified its request to operate its proposed next-generation replacement satellite with a $\pm 0.1^\circ$ East-West station-keeping box.

Background

MSV is the successor to the entity authorized by the Commission in 1989 to construct, launch, and operate a United States MSS system in the L-band.² MSV's current satellite was launched in 1995 and operates at 100.95°W.³ In July 1998, MSV filed an application to launch

¹ Comments of DIRECTV, Inc., File No. SAT-AMD-20040928-00192 (November 8, 2004) ("*Directv Comments*"); Opposition of PanAmSat Corporation, Intelsat LLC, SES Americom, Inc., File No. SAT-AMD-20040928-00192 (November 8, 2004) ("*PanAmSat/Intelsat/SES Comments*").

² *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).

³ *See* File No. SAT-MOD-20040623-00120 (granted August 23, 2004).

and operate a higher-power, replacement satellite with substantially greater capacity.⁴ On February 9, 2004, MSV filed an amendment to request additional feeder link frequencies.⁵ In the application, MSV requested authority to operate its proposed replacement satellite with a $\pm 0.1^\circ$ East-West station-keeping box.⁶ As required by the Bureau, MSV filed another amendment to the application on September 28, 2004 to provide (i) a two-degree spacing analysis and (ii) further justification regarding the need for a $\pm 0.1^\circ$ East-West station-keeping box.⁷ The Bureau subsequently placed MSV's amended application on *Public Notice* in October 2004. *See* Report No. SAT-00248 (October 8, 2004).

On November 8, 2004, DIRECTV filed Comments and PanAmSat, Intelsat, and SES filed a joint Opposition expressing concern with MSV's request to operate its proposed replacement satellite with a $\pm 0.1^\circ$ East-West station-keeping box. First, they argue that MSV's request to operate with a wider station-keeping box than other satellites at 101°W will make it more difficult to collocate satellites at this already-congested orbital location. No Commenter alleges that operation with a $\pm 0.1^\circ$ East-West station-keeping box will increase the potential for RF interference to other satellites. Second, they argue that MSV has not justified its need for a wider station-keeping box than that required by the Commission's rules for Fixed Satellite

⁴ *See* Application of AMSC, File No. SAT-LOA-19980702-00066 (July 2, 1998). To accommodate this greater capacity, the application, as amended in December 2000, requested authority to use additional feeder link frequencies. *See* Application of Motient Services Inc., SAT-AMD-20001214-00171 (December 14, 2000). On November 18, 2003, MSV filed a minor amendment to revise the technical parameters of the proposed satellite. *See* MSV, Minor Amendment, File No. SAT-AMD-20031118-00335 (November 18, 2003) ("*MSV November 2003 Amendment*").

⁵ *See* MSV, Amendment, File No. SAT-AMD-20090209-00014 (filed February 9, 2004) ("*MSV February 2004 Amendment*").

⁶ *Id.* at 6-7 and Appendix A at 16-17.

⁷ *See* MSV, Amendment, File No. SAT-AMD-20040928-00192 (September 28, 2004) ("*MSV September 2004 Amendment*").

Service ("FSS") satellites. While the Commenters acknowledge that operating with a wider station-keeping box saves fuel, they argue that this is true of all satellites and that there is nothing unique about MSV's proposed satellite that justifies a wider box. MSV's response to the Commenters was originally due November 23, 2004. MSV and the Commenters agreed to an extension until January 10, 2005 for MSV to file its response.⁸

Discussion

As an initial matter, MSV notes that it does not need a waiver of any Commission rule to operate its replacement satellite with a $\pm 0.1^\circ$ East-West station-keeping box. In its February 2004 Amendment, MSV explained that it was requesting a waiver of Section 25.210(j) of the Commission's rules (which mandates a $\pm 0.05^\circ$ East-West station-keeping box only for FSS satellites), only to the extent that the Commission modified this rule in the pending *Orbital Debris Mitigation* rulemaking to apply to GSO MSS satellites.⁹ While MSV's amendment was pending, the Commission adopted a decision in this proceeding in which it refrained from applying a $\pm 0.05^\circ$ East-West station-keeping box to GSO MSS satellites.¹⁰

MSV has also fully justified its proposal for a $\pm 0.1^\circ$ East-West station-keeping box.¹¹ As discussed more fully in the attached Technical Appendix, there are two reasons dictating MSV's

⁸ See Mobile Satellite Ventures Subsidiary LLC, Consent Motion for Extension of Time, File No. SAT-AMD-20040928-00192 (November 22, 2004); Mobile Satellite Ventures Subsidiary LLC, Consent Motion for Extension of Time, File No. SAT-AMD-20040928-00192 (December 9, 2004). The Bureau denied MSV's request for a further extension to file a response to the Commenters. See Letter from Fern Jarmulnek, FCC, to Lon Levin, MSV, File No. SAT-AMD-20040928-00192, File No. SAT-AMD-20040209-00014, File No. SAT-AMD-20031118-00335 (January 7, 2004).

⁹ See *MSV February 2004 Amendment* at 16; *Mitigation of Orbital Debris, Notice of Proposed Rulemaking*, IB Docket No. 02-54, FCC 02-80 (March 18, 2002).

¹⁰ See *Mitigation of Orbital Debris, Second Report and Order*, IB Docket No. 02-54, FCC 04-130 (June 21, 2004), at ¶ 44.

¹¹ MSV is also committed to coordinating its station keeping with other operators at the 101°W orbital location.

need for a station-keeping box that is wider than that required for FSS satellites and that employed by Broadcasting Satellite Service (“BSS”) satellites. *See Technical Appendix.* First, MSV’s planned replacement will have a much larger mass than typical FSS and BSS satellites. To achieve its final geosynchronous orbit, the satellite will be required to expend virtually all of its available fuel. As a result, only a very small amount of fuel will remain to provide the required East-West station-keeping. Second, solar pressure on MSV’s satellite, resulting from the satellite’s very large reflector and solar array area, also dictates a wider East-West station-keeping box. As demonstrated in MSV’s *September 2004 Amendment*, requiring MSV to operate its replacement satellite with a $\pm 0.05^\circ$ East-West station-keeping box would reduce the life of the satellite by half. Moreover, MSV notes that no adverse precedent will be set by allowing MSV to operate with a $\pm 0.1^\circ$ East-West station-keeping box. Any precedent established will extend only to GSO MSS satellites, of which there are only three in the entire full-CONUS orbital arc today.¹² Given the unique mass characteristics of MSS satellites, no argument can be made that a decision favorable to MSV in this case will set a precedent for FSS or BSS satellites.

¹² MSAT-1 at 106.5W; AMSC-1 at 101W; Inmarsat-2 at 98W.

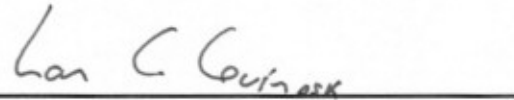
Conclusion

MSV requests that the Bureau act consistently with the views expressed herein.

Respectfully submitted,



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Dated: January 10, 2005

CERTIFICATE OF SERVICE

I, Sylvia Davis, a secretary with the law firm of Shaw Pittman LLP, hereby certify that on this 10th day of January 2005, served a true copy of the foregoing "Response" by first class United States mail, postage prepaid, upon the following:

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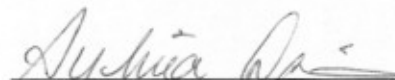
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Technical Appendix

This report responds to the filings by DIRECTV, PanAmSat Corporation, Intelsat LLC, and SES Americom, Inc. (collectively, the "Commenters") in opposition to the application of Mobile Satellite Ventures Subsidiary LLC ("MSV") for a replacement Mobile Satellite Service ("MSS") satellite at 101°W. The comments are limited to MSV's proposal to employ a $\pm 0.1^\circ$ East-West station-keeping box.

MSV's need for a wider station-keeping box than Fixed Satellite Service ("FSS") and Broadcasting Satellite Service ("BSS") satellites is dictated by (i) the large mass of MSV's replacement MSS satellite and (ii) the effect of solar pressure on a satellite with a very large reflector and solar array.

MSV has determined that in order to meet the service objectives of its next-generation MSS system, its satellite could have a mass of as much as 6,400 to 6,800 kg. Contemporary FSS and BSS satellites have a launch mass of only about 5,600 kg. The mass of MSV's next-generation satellite is compatible with only the largest of the launch vehicles--the Atlas V and the Ariane 5. Achieving final geosynchronous orbit will require virtually all of the fuel available on the satellite. Once final geosynchronous orbit is achieved, only a very small amount of fuel will remain to meet the required East-West station-keeping limit.

Solar pressure on MSV's satellite, resulting from the satellite's very large reflector and solar array area, also dictates a wider East-West station-keeping box. The large area-to-mass ratio of the proposed replacement satellite makes it more susceptible to the effects of solar pressure which can cause large accelerations and decelerations of the satellite during the course of the solar day. This will result in a rapid build up of eccentricity which is the primary factor that determines the magnitude and/or frequency of the East-West station-keeping maneuvers.

The current AMSC-1 satellite is maintained within a $\pm 0.05^\circ$ East-West station-keeping box. As a result, it is subject to the same propellant inefficiencies to maintain this tighter box mentioned by the Commenters. These penalties, however, are minor compared to the impact of a $\pm 0.05^\circ$ East-West station-keeping box on a satellite of the mass and solar pressure area contemplated for MSV's replacement satellite. As indicated previously, the Boeing analysis for a similar satellite showed that a $\pm 0.05^\circ$ East-West limits would reduce the life of the satellite by half. This is the equivalent of reducing the satellite revenue potential by at least half, and possibly more. Recently, MSV has been evaluating a satellite design that has a slightly smaller reflector (18 meters vs. 22 meters). A comparable analysis of that design indicated an operational lifetime penalty of 33%, with an equivalent or greater revenue loss, if the satellite was constrained to the $\pm 0.05^\circ$ East-West limit versus the $\pm 0.1^\circ$ East-West limit.

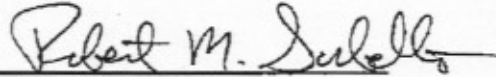
The station keeping of satellites in inclined orbit mode, such as MSV's proposed replacement satellites, is an established and routine procedure. More than sixty satellites currently are being operated in inclined geosynchronous orbits throughout the world. A relevant example is the Thuraya satellite system, in which the satellites were initially launched into an inclined orbit of six degrees and are maintained within $\pm 0.1^\circ$ East-West limits.

CERTIFICATION

I, Robert M. Sorbello, Vice President, Space Segment Programs, Mobile Satellite Ventures L.P. ("MSV"), certify under penalty of perjury that:

I am the technically qualified person with overall responsibility for preparation of the information contained in the foregoing. I am familiar with the requirements of the Commission's rules, and the information contained in the foregoing is true and correct.

Executed on January 10, 2005



Robert M. Sorbello
Robert M. Sorbello
Vice President, Space Segment Programs