

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

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In the Matter of Amendment of)
)
MOBILE SATELLITE VENTURES)
SUBSIDIARY LLC)
)
To Application for Authority to Launch and)
Operate a Replacement L-Band Mobile)
Satellite Service Satellite at 101° W.L.)

Federal Communications Commission
Office of Secretary

File No. SAT-AMD-20040928-00192

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Policy Branch
International Bureau

**OPPOSITION OF PANAMSAT CORPORATION,
INTELSAT LLC, AND SES AMERICOM, INC.**

The above-captioned amendment¹ modifies the application filed by Mobile Satellite Ventures Subsidiary LLC ("MSV") for a replacement satellite to operate at 101° W.L. Specifically, in response to a Commission Order released on September 15, 2004,² MSV provided additional information with regard to its request for an expanded East-West station-keeping tolerance of $\pm 0.1^\circ$ for the replacement spacecraft. For the reasons described below, PanAmSat Corporation ("PanAmSat"), Intelsat LLC ("Intelsat"), and SES Americom, Inc. ("SES Americom") oppose the MSV station-keeping request.

First, grant of MSV's request for a larger station-keeping box at 101° W.L. would adversely affect operators of collocated satellites. The simplest, most fuel-efficient, and possibly the safest way to collocate satellites is to strictly maintain adjacent, non-overlapping longitude assignments or boxes. If MSV is granted a larger longitude box, less room will remain for other satellites to be safely and easily collocated nearby.³

¹ Amendment to Application for Authority to Launch and Operate a Replacement L-band Mobile Satellite Service Satellite at 101° W.L., SAT-AMD-20040928-00192, Call Sign S2358 (filed Sep. 28, 2004).

² *Mobile Satellite Ventures Subsidiary LLC*, Order, DA 04-2985 (Sat. Div., Sep. 15, 2004).

³ FSS satellites are constrained by ITU station keeping requirements and the need to operate consistently with ITU filings. The ITU Radio Regulations restrict the east-west station keeping boxes of FSS satellites to $\pm 0.1^\circ$ (see No. 22.8 of the ITU Radio Regulations). While this box is larger than allowed under FCC rules, it does not give flexibility for FSS satellites to be located with more than minimal offsets from their nominal orbit locations. The need to coordinate with other operators at two-degree spacing also restricts the ability of FSS spacecraft to operate at an offset from their nominal positions. Moving closer to an adjacent satellite in the same band could require the FSS satellite to modify its operations in order to avoid interference to the neighboring spacecraft.

This is a particularly serious issue at 101° W.L. because there are five spacecraft other than MSV's assigned to locations between 100.8 and 101.2° W.L., including SES Americom's AMC-4 and three DIRECTV satellites (DIRECTV-1, 1R, -2 and -4S). With the many satellites clustered at 101° W.L., some satellites might be forced to operate in overlapping longitudinal boxes. This would necessitate an alternate collocation strategy to adjust orbit geometries to reduce the risk of close approaches, at the cost of increased fuel usage for these neighboring satellites. Maneuver and strategy coordination would also likely be required between the satellite operators. MSV might save propellant and extend the life of its satellite, but adjacent and collocated satellites could be forced to expend additional propellant, shortening the lives of their satellites. There is no justification for permitting MSV to conserve fuel while imposing additional fuel costs on other operators.

Second, MSV is requesting unjustified special treatment. Section B of the Technical Appendix contained in the MSV's submission of September 28, 2004 provides justification to operate a satellite in a $\pm 0.1^\circ$ longitude box. MSV correctly states that the main factor driving the requirement for a larger longitude box is the large orbit eccentricity needed to optimize fuel usage for a satellite with a large area to mass ratio, as is the case for its proposed Mobile-Satellite Service ("MSS") satellite.

Longitude deviation due to eccentricity is approximately equal to two times the eccentricity (e), *i.e.*, if e is expressed in radians, the longitude deviation in degrees would be given by $(2.e.180/\pi)$. For an orbit with MSV's proposed eccentricity of 0.0006, the longitude deviation due to eccentricity is approximately $\pm 0.069^\circ$. MSV could operate its satellite in a $\pm 0.05^\circ$ longitude box by maintaining a smaller eccentricity with either a sun-pointing or a 2-part maneuver strategy, albeit with a fuel penalty.

However, this is a penalty that all satellite operators have to pay in order to comply with Commission station-keeping rules. For example, PanAmSat is currently using the station-keeping strategy described above with all of its body-stabilized satellites because they have area to mass ratios that would require longitude boxes larger than $\pm 0.05^\circ$ if a fuel-optimized eccentricity was used. Intelsat uses either the sun-pointing maneuver strategy or the 2-part maneuver strategy, depending on the satellite. While MSV might save fuel if it was allowed to operate in a larger longitude box, so would PanAmSat, Intelsat, SES Americom, and many other satellite operators. MSV provides no evidence of special circumstances that would justify allowing MSV to operate with $\pm 0.1^\circ$ station keeping at 101° W.L.

Finally, MSV's analysis skews the technical facts. In Section B of the Technical Appendix contained in the September 28, 2004 submission, MSV explained how the orbit of its proposed satellite is designed to have a large inclination (6°) at the onset. MSV further refers to a Boeing filing⁴ that discusses the high orbit inclination of MSS satellites. Both papers seem to imply that the longitude box applies only near the equator

⁴ See Letter from Boeing to Ms. Marlene H. Dortch, File No. SAT-AMD-20030827-00241 *et al.* (December 19, 2003).

and longitude deviations that occur when a satellite is sufficiently above or below the equator are safe and permissible. If so, then orbit inclination has little bearing on the longitude box since the effects of inclination are small near the equator, contrary to their claim.

The same Boeing filing states that *"the use of a 0.05° longitudinal station keeping tolerance...would result in as much as a six-fold increase in the amount of propellant that would be consumed to maintain the spacecraft in its assigned orbit."* While this statement could be true, the reference point for making this statement is not clear. For example, it is important to compare the amount propellant needed to maintain MSV's proposed satellite within the $\pm 0.05^\circ$ East-West limits at the equator to the amount of propellant needed by an FSS satellite of similar size to do the same thing. Such a comparison would allow us to put the statements made by Boeing and MSV in context.

Since most MSS satellites are designed to operate in inclined orbit from the onset, they have the advantage of using less propellant when compared to FSS satellites. Therefore, the statement made above by Boeing, and affirmed by MSV, is misleading because it is predicated on an inherently low propellant level in MSS satellites, so any additional station keeping maneuvers required would have a larger relative effect on their propellant usage. If such a maneuver is evaluated in the context of average propellant usage for a similar maneuver on FSS satellites, the impact will not be as significant as MSV and Boeing imply. It appears that MSV is trying to enhance the inherent advantage that MSS satellites have, when it comes to propellant usage, at the expense of the orbital flexibility of FSS satellites.

For the foregoing reasons, PanAmSat, Intelsat, and SES Americom oppose MSV's request for a $\pm 0.1^\circ$ station keeping tolerance for its proposed replacement satellite at 101° W.L.

Respectfully submitted,

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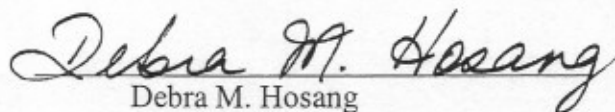
November 8, 2004

CERTIFICATE OF SERVICE

I, Debra M. Hosang, do hereby certify that on this 8th day of November, 2004, a copy of the foregoing "Opposition of PanAmSat Corporation, Intelsat, LLC and SES Americom, Inc." was sent to the following parties by first class mail:

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