November 3, 2003

Via Electronic Filing
Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Mobile Satellite Ventures Subsidiary LLC
Written *Ex Parte* Presentation
IB Docket No. 01-185

Dear Ms. Dortch:

Mobile Satellite Ventures Subsidiary LLC ("MSV") hereby submits this letter to summarize how the technical restrictions imposed on the operation of an ancillary terrestrial component ("ATC") in the L-band both conflict with the Commission's goal of promoting more efficient use of spectrum and are without precedent.[1]

Flexibility is a cornerstone of the Commission's spectrum management policies. The Spectrum Policy Task Force ("SPTF") recently concluded that one of the fundamental objectives of the Commission's spectrum management policies should be to "allow for maximum feasible flexibility of spectrum use."[2] The SPTF explained that "flexibility" means that spectrum users are granted "the maximum possible autonomy to determine the highest valued use of their spectrum." *SPTF Report* at 16. Flexibility, the SPTF emphasized, is "critical to improving access to spectrum." *Id.*

Given the increasing demand for spectrum-based services, the Commission in a series of decisions over the past five years has granted operators the flexibility to determine how to most efficiently use spectrum to meet these demands. In proceeding after proceeding, the Commission has created broad new service categories, expanded the services that existing

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[1]MSV has provided a complete technical discussion of its concerns with these restrictions in its Petition for Partial Reconsideration, Opposition, and Reply submitted in the ATC proceeding. *See* MSV, Petition for Partial Reconsideration and Clarification, IB Docket No. 01-185 (July 7, 2003) ("*MSV Petition*"); MSV, Opposition to Petitions for Reconsideration, IB Docket No. 01-185 (August 20, 2003); MSV, Reply to Oppositions to Petition for Reconsideration, IB Docket No. 01-185 (September 2, 2003).

[2]*Spectrum Policy Task Force Report*, ET Docket No. 02-135 (Nov. 1, 2002), at 16 ("*SPTF Report*").

licensees can provide, and eliminated many technical restrictions that were determined to be unnecessary.[3]

This past January, the Commission took a huge step toward greater spectrum flexibility by allowing Mobile Satellite Service ("MSS") licensees in the L-band, 2 GHz, and Big LEO bands to operate terrestrial base stations to supplement their satellite service.[4] The Commission found that ATC authority would permit satellite licensees to improve coverage, increase capacity and competition, reduce costs, and promote public safety and national security. *ATC Order* ¶¶ 19-32.

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[3]To ensure "broadest possible use of the spectrum," the Commission has afforded licensees in newly allocated bands the flexibility to provide mobile, fixed, and broadcast-type services. *See First Report and Order*, 15 FCC Rcd 476, ¶ 1 (2000) (establishing rules for 700 MHz service); *see also Report and Order*, 17 FCC Rcd 9980 (2002) (establishing rules for the paired 1392-1395 MHz and 1432-1435 MHz bands and the unpaired 1390-1392 MHz, 1670-1675 MHz, and 2385-2390 MHz bands); *Report and Order*, 12 FCC Rcd 10785 (1997) (establishing rules for the 2.3 GHz Wireless Communications Service ("WCS")). The Commission has adopted the same type of flexibility for new Advanced Wireless Services ("AWS"). *See News Release*, "*FCC Adopts Third Generation Rules for Making 90 MHz of Spectrum Available for Broadband and Advanced Wireless Services*," (October 16, 2003).

With respect to existing licensees, the Commission has permitted a terrestrial wireless licensee to operate repeaters from high-altitude balloons, granted Satellite Digital Audio Radio Service ("SDARS") operators temporary authority to use terrestrial repeaters to supplement their satellite service in urban areas; and allowed wireless cable licensees, who were originally licensed to provide one-way fixed services, to provide two-way and mobile services. *See Space Data Corporation,* 16 FCC Rcd 16421 (Wireless Bur. 2001); *XM Radio, Inc.*, 16 FCC Rcd 16781 (Int'l Bur. 2001); *Report and Order*, 13 FCC Rcd 19112 (1998) (allowing wireless cable operators to deploy two-way systems), *recon.*, 14 FCC Rcd 12764 (1999), *further recon.*, 15 FCC Rcd 14566 (2000); *First Report and Order and Memorandum Opinion and Order*, ET Docket No. 00-258, FCC 01-256 (2001) (allowing wireless cable operators to provide mobile services). The Commission has also expanded use of licensed spectrum, as reflected in its decision to authorize a new terrestrial wireless service that will operate on frequencies used by Direct Broadcast Satellite ("DBS") operators. *First Report and Order and Further Notice of Proposed Rulemaking,* 16 FCC Rcd 4096 (2000).

The Commission has also recently eliminated restrictions it imposed in the mid-1980's when originally granting certain licensees flexibility. *See Report and Order,* 17 FCC Rcd 18401, ¶¶ 64-69 (2002) (lifting restrictions on the provision of incidental services by cellular operators); *Report and Order*, 17 FCC Rcd 11331, ¶¶ 145-155 (June 13, 2002) (lifting restrictions on the provision of ancillary services by DBS operators).

[4]*See Report and Order*, 18 FCC Rcd 1962 (February 10, 2003) ("*ATC Order*").

The *ATC Order* is a model for flexible spectrum use -- with one glaring and unjustifiable exception. The Commission has chosen to impose unique technical restrictions on the operation of ATC in the L-band that are both inefficient and unprecedented.

(1) *The Commission has imposed an unprecedented self-interference cap uniquely on MSV.* In none of the cases granting spectrum flexibility did the Commission impose a limit on the amount of interference a licensee could cause to itself. Indeed, even in authorizing ATC, the Commission refrained from applying a self-interference cap on any MSS operators other than MSV.[5] For the first time, the Commission has adopted a self-interference cap and it has chosen to impose this cap exclusively on MSV.

(2) *The Commission has set an unprecedented high limit for interference protection.* In other cases, including the authorization of ultra-wideband ("UWB") devices, the Commission has "rejected the use of small increases to the noise floor for determining the presence of harmful interference, believing this method of analysis to be unduly pessimistic."[6] The Commission has characterized a 1 dB rise in the noise floor (25% $\Delta T/T$) as "small" and "not indicative of harmful interference."[7] This is far more than the one-quarter of 1 dB noise increase (6% $\Delta T/T$) which MSV has advocated as the level at which L-band ATC should be permitted to impact other L-band operators and which the Commission has recognized is internationally accepted as the threshold for coordination between satellites (*ATC Order* ¶ 164). Yet, in the *ATC Order*, the Commission has ignored its previous findings and has restricted the deployment of L-band ATC to limit the noise increase to other L-band satellites to an imperceptible *six hundredths of 1 dB*. Moreover, the SPTF has recognized that "advances in technology create the potential for systems . . . to be much more tolerant of interference than in the past." *SPTF Report* at 3. Yet, nowhere in the *ATC Order* does the Commission acknowledge the responsibility of L-band operators to build satellite systems with at least a reasonable ability to coexist with other spectrum users.

(3) *For the first time, the Commission had adopted co-channel interference limits on frequencies that are not shared co-channel.* When there are no co-channel operators on a given frequency, only adjacent channel interference is relevant. The Commission has recognized this

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[5]The Commission is required to treat similarly situated parties alike, something it has failed to do in adopting a self-interference cap on MSV's ATC but not on the ATC of 2 GHz or Big LEO operators. *Melody Music, Inc. v. FCC*, 345 F.2d 730 (D.C. Cir. 1965).

[6]*Ultra-Wideband Transmission Systems, Memorandum Opinion and Order*, 18 FCC Rcd 3857, ¶ 77 (March 12, 2003) ("*UWB Reconsideration Order*").

[7]*UWB Reconsideration Order* ¶ 77 ("we do not agree that a 1 dB increase in the noise floor of a [PCS] mobile receiver is indicative of harmful interference"); *id.* at ¶ 14 ("To our knowledge, no correlation has ever been made between this slight rise [*i.e.*, 1 dB] in the noise floor and actual GPS harmful interference); *Service Rules for the 746-764 and 776-794 MHz Bands, Second Memorandum Opinion and Order*, 16 FCC Rcd 1239, ¶ 7 (January 12, 2001). In these decisions, the Commission was referring to mobile receivers. However, the Commission gave no indication, nor could it, that this policy is not equally applicable to receivers on a satellite.

basic concept in past decisions granting flexibility.[8] Indeed, in the *ATC Order*, the Commission did not impose co-channel interference limits on either 2 GHz or Big LEO operators because there is not expected to be any co-channel sharing of these frequencies. In the L-band, where only a very small percentage of the frequencies are shared co-channel among the existing satellite operators, the Commission nonetheless imposed co-channel interference restrictions on *all* frequencies, regardless of whether they are shared co-channel. Thus, for the first time, the Commission has ignored the fundamental concept that co-channel interference restrictions are not needed on frequencies that are not shared co-channel.

(4) *The Commission has chosen to set protection limits without regard to reasonable receiver design.* Elsewhere, the Commission has acknowledged that receivers that are unusually susceptible to interference are hindering its goal of facilitating new and more efficient uses of spectrum.[9] The Commission has observed that "more robust receiver performance would help to facilitate more flexible use of the spectrum" and "create opportunities for new and additional use of radio communications by the American public." *Receiver Standards NOI* ¶ 1. The SPTF has recognized that receiver improvements would be particularly useful in resolving overload interference. *SPTF Report* at 33. Yet, in the *ATC Order*, the Commission has decided to protect certain L-band mobile receivers from overload from L-band ATC base stations based on the assumption that these receivers are unusually susceptible to interference compared to other L-band mobile receivers, such as those used on MSV's system. As it stands, the *ATC Order* supports the proposition that the Commission will restrict flexibility by protecting receivers from interference no matter how poorly these receivers are designed.

(5) *The Commission has adopted technical restrictions on ATC base stations based purely on worst-case interference scenarios without considering the probability of such scenarios.* The Commission has consistently acknowledged that assessing the potential for interference entails analyzing not only worst-case scenarios but also the probability that these worst-case scenarios will occur in the real world. For example, in the *ATC Order*, the Commission rejected the claims of PCS carriers that 2 GHz ATC handsets would overload PCS handsets because the Commission found that there was little probability that the worst-case interference scenarios presented by the PCS carriers would occur in the real world. *ATC Order* ¶ 120.[10] Similarly, the Commission rejected various worst case interference scenarios in

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[8] *See Space Data Corporation* ¶¶ 15-16 (holding that there is no risk of co-channel interference within the United States from balloon-borne transmissions since Space Data proposed to operate on narrowband PCS spectrum that is licensed on a nationwide basis); *Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules, Report and Order*, 17 FCC Rcd 9980, ¶ 119 (May 24, 2002) (stating that there is no need for co-channel interference restrictions for the 1670-1675 MHz licensee since one nationwide license will be awarded).

[9] *See generally Interference Immunity Performance Specifications for Radio Receivers, Notice of Inquiry*, ET Docket No. 03-65 (March 24, 2003) ("*Receiver Standards NOI*").

[10] The PCS carriers claimed that a 2 GHz ATC handset would overload a PCS handset if (i) the 2 GHz and PCS handsets are operating in close proximity under line-of-sight conditions; (ii) the 2 GHz ATC handset is operating at full power; and (iii) the antennas of the 2 GHz and

authorizing UWB devices, given the minimal probability that these events would occur simultaneously. *UWB Reconsideration Order* ¶¶ 89, 115. Yet, in adopting power flux density ("PFD") limits for L-band ATC base stations to protect certain L-band maritime receivers and non-safety-related receivers located in airports from potential interference, the Commission assumed nothing but the worst-case interference scenario without considering the low probability that this scenario would occur in the real world.[11] Moreover, the Commission has required L-band ATC base stations to satisfy both a separation distance and a PFD limit to protect non-safety-related receivers in airports despite the fact that a base station need only satisfy one of these requirements to avoid causing potential interference.

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The reuse restrictions mean that L-band ATC operators will not be able to deploy a seamless MSS/ATC network. For example, the limited reuse allowance means that L-band ATC operators will have to forgo deploying base stations in smaller cities, despite the fact that satellite signals are blocked in such cities and base stations will be needed to overcome gaps in coverage. Moreover, the limited power of L-band ATC base stations means that L-band operators will have to deploy more base stations than would otherwise be necessary to cover the top-tier markets. Given the limited reuse allowance, this further restricts MSV's ability to deploy base stations in smaller cities and to achieve a seamless MSS/ATC network. Finally, the overly stringent PFD limits near airports and waterways further restrict the flexibility of L-band ATC operators to locate base stations and will hinder their ability to provide the best coverage possible.

For the foregoing reasons, MSV urges the Commission to revise the unprecedented technical restrictions imposed on ATC in the L-band to ensure that the Commission's goals of promoting flexible and more efficient use of spectrum are fulfilled.

Very truly yours,

Lon C. Levin
Vice President

PCS handsets are aligned for perfect coupling. *ATC Order* ¶ 120. The Commission stated that the "probability of these various circumstances occurring simultaneously is relatively small." *Id.*

[11]The Commission's analysis assumed that (i) MSV's base stations would be located in direct line of sight of Inmarsat mobile receivers located on waterways and in airports; (ii) the Inmarsat receiver would be operating in close proximity to an ATC base station (despite the fact there are relatively few Inmarsat receivers operating in the United States today and only a fraction (if any) of these receivers can be expected to operate in areas where ATC base stations will be located); and (iii) the victim receiver would overload at a level of -60 dBm (despite the fact that MSV demonstrated that this level is overstated by at least 15 dB). *ATC Order*, Appendix C2 §§ 2.2.1.3, 2.2.2.

cc: Breck Blalock
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