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Int'l Bureau

JAN 05 2004

December 30, 2003

Front Office

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

RECEIVED

DEC 30 2003

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: Mobile Satellite Ventures Subsidiary LLC
Written Ex Parte Presentation
File No. SAT-MOD-20031118-00333 (ATC application)
File No. SAT-AMD-20031118-00332 (ATC application)
File No. SES-MOD-20031118-_____ (ATC application)

Dear Ms. Dortch:

Pursuant to the request of staff of the International Bureau, Mobile Satellites Ventures Subsidiary LLC ("MSV") hereby files a redacted copy of additional information regarding the conformity of its Ancillary Terrestrial Component ("ATC") application to the baseline the Commission established for analyzing intra-satellite and inter-satellite interference in the L-band and additional information regarding the current and proposed satellites.

Certain of the information being provided regarding MSV's existing and projected satellite traffic and the projected useful life of the current satellites is being filed under separate cover with a request for confidentiality, pursuant to Sections 0.457(d) and 0.459(b) of the Commission's rules.

47 C.F.R. § 0.459(b)(1) – Identification of the specific information for which confidential treatment is sought

MSV requests confidential treatment of (i) its response to Question 1 in Exhibit A and (ii) its response to Question 3 in Exhibit A.

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47 C.F.R. § 0.459(b)(2) -- Identification of the Commission proceeding in which the information was submitted or a description of the circumstances giving rise to the submission

This information is being submitted in the proceeding pertaining to MSV's applications to add authority to operate ATC in connection with the existing and planned L-band Mobile Satellite Service ("MSS") systems of MSV and MSV Canada.¹ This information is being filed in response to questions presented by the staff of the International Bureau.

47 C.F.R. § 0.459(b)(3) -- Explanation of the degree to which the information is commercial or financial, or contains a trade secret or is privileged

MSV's response to Question 1 in Exhibit A contains commercially sensitive information pertaining to current and projected demand for its satellite services. Disclosure of this information will impact negotiations with current and potential customers, will provide commercially sensitive information to MSV's competitors, and will impact the ongoing international L-band frequency coordination negotiations. MSV's response to Question 3 in Exhibit A contains commercially sensitive information pertaining to the projected lifetimes of AMSC-1 and MSAT-1. Disclosure of this information will impact negotiations with current and potential customers and will provide commercially sensitive information to MSV's competitors.

47 C.F.R. § 0.459(b)(4) -- Explanation of the degree to which the information concerns a service that is subject to competition

The information contained herein concerns the market for Mobile Satellite Services ("MSS"), in which MSV faces competition from Inmarsat, Iridium, Globalstar, and 2 GHz MSS licensees.

¹ File No. SAT-MOD-20031118-00333 (minor modification of license for AMSC-1); File No. SAT-AMD-20031118-00332 (minor amendment of pending application to launch and operate replacement satellite); File No. SES-MOD-20031118-_____ (minor modification of earth station license authorizing access to MSAT-1 in the United States).

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47 C.F.R. § 0.459(b)(5) – Explanation of how disclosure of the information could result in substantial competitive harm

Disclosure of the information contained in MSV's response to Question 1 in Exhibit A will result in substantial competitive harm in that it reveals information pertaining to the current and projected demand for MSV's satellite services that will impact negotiations with current and potential customers as well as the international L-band frequency coordination negotiations.

Disclosure of the information contained in MSV's response to Question 3 in Exhibit A will result in substantial competitive harm in that it reveals information pertaining to the projected lifetimes of AMSC-1 and MSAT-1 that will impact negotiations with current and potential customers and will provide commercially sensitive information to MSV's competitors

47 C.F.R. § 0.459(b)(6) – Identification of any measures taken by the submitting party to prevent unauthorized disclosure

Any disclosure to third parties of the information contained in MSV's responses to Questions 1 and 3 in Exhibit A has been pursuant to non-disclosure agreements.

47 C.F.R. § 0.459(b)(7) – Identification of whether the information is available to the public and the extent of any previous disclosure of the information to third parties

The information contained in MSV's responses to Questions 1 and 3 in Exhibit A is not publicly available. This information has been disclosed to third parties only pursuant to non-disclosure agreements.

47 C.F.R. § 0.459(b)(8) – Justification of the period during which the submitting party asserts that material should not be available for public disclosure

The information contained in MSV's responses to Questions 1 and 3 in Exhibit A should remain confidential indefinitely. This information is commercially sensitive and is only revealed to appropriate third parties pursuant to non-disclosure agreements.

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47 C.F.R. § 0.459(b)(9) – Any other information that the party seeking confidential treatment believes may be useful in assessing whether its request for confidentiality should be granted

N/A.

Please contact the undersigned with any questions.

Very truly yours,


Bruce D. Jacobs

cc: William Bell
Breck Blalock
Lisa Cacciatore
Howard Griboff
William Howden
Paul Locke
John Martin
Kathryn Medley
Robert Nelson
Richard Tseng
Thomas Tycz

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Exhibit A

Question 1: REDACTED

Question 2: The proposed capacity of the next-generation satellites

Each of the next-generation satellites will have approximately 12,000 equivalent voice channels.

Question 3: REDACTED

Question 4: The anticipated launch date of the new satellites

Construction and launch of the new satellites is expected to take approximately 48 months. Construction can begin as soon as the Commission acts on the pending applications and definitive contracts are negotiated with the vendor.

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Exhibit B

The following modified versions of Tables 1.14.A and 2.1.1.C demonstrate that, with the use of a -4 dBi MT antenna gain (-4 dBW MT EIRP) as proposed in its application, MSV can operate approximately 2.5 times as many ATC carriers without increasing the uplink interference potential to Inmarsat or to itself.

Table 1.14.A Calculation of Number of MSV ATC Base Stations

Term	Units	Value
Calculation of Maximum Allowable Interference		
MSV Satellite Gain	(dBi)	41
Satellite Receive Noise Temperature	(K)	450
Satellite Noise Density (No)	(dBW/Hz)	-202.1
Allowable Degradation in Beam using Frequency F1	(dB)	<u>0.25</u>
Maximum Degraded Noise Floor (No+Io)	(dBW/Hz)	-201.8
Maximum Allowable Interference Density (Io)	(dBW/Hz)	-214.3
Calculation Interference Received from One MT		
		0.0
MT Peak EIRP*	(dBW)	<u>-4.0</u>
MT Bandwidth	(kHz)	<u>200</u>
		<u>-53.0</u>
MT EIRP Density**	(dBW/Hz)	<u>-57.0</u>
Average Free Space Loss	(dB)	188.3
Average Outdoor Blockage to MSV Satellite	(dB)	0.5
MSV Average Satellite Antenna Discrimination	(dB)	10
Power Control Factor	(dB)	20.0
Vocoder Factor	(dB)	3.5
Polarization Isolation	(dB)	1.4
Voice Activity Factor for MT	(dB)	<u>1.0</u>
		<u>-236.7</u>
Received Interference Power Density per User**	(dBW/Hz)	<u>-240.7</u>
Calculation of Allowed Simultaneous Users per Beam		
Total Allowed Interference Density (from above)	(dBW/Hz)	-214.3
		<u>-236.7</u>
Individual Average MT Interference Density (from above)**	(dBW/Hz)	<u>-240.7</u>
Simultaneous Users on Frequency F1**	(dB)	<u>22.4</u> <u>26.4</u>
Simultaneous Users on Frequency F1**	(#)	173 <u>436.5</u>
Number of Base Station Carriers on F1**	(#)	173 <u>436.5</u>
Approximate Number of Beams over CONUS using F1***	(#)	<u>10</u>
		<u>1725</u>
Number Base Station Carriers in CONUS on F1	(#)	<u>4365</u>

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Table 2.1.1.C - Comparison of Current Operations and Future MSS and ATC Terminal Usage on Inmarsat-3 and Inmarsat-4 for Adjacent Beam Situation

Parameter	Units	Inmarsat 3			Inmarsat 4		
		Current Terminal	MSS Terminal	ATC Terminal	Current Terminal	MSS Terminal	ATC Terminal
Inmarsat G/T	(dB/K)	-1.45	-1.45	-1.45	12.87	12.87	12.87
Noise Temp	(K)	700	700	700	650	650	650
Noise Density (No)	(dBW/Hz)	-200.2	-200.2	-200.2	-200.5	-200.5	-200.5
MT EIRP*	(dBW)	16	5 -4.0	0 -4.0	16	5 -4.0	0 -4.0
Bandwidth		6	50	200	6	50	200
MT EIRP Density**	(dBW/Hz)	-21.8	-42.0 -51.0	-53.0 -57.0	-21.8	-42.0 -51.0	-53.0 -57.0
Required OOB Reduction	(dBW/Hz)	0.0	0.0	0.0	0.0	0.0	0.0
Max OOB Relative Power Density	(dB)	-21.8	-42.0	-53.0	-21.8	-42.0	-53.0
Inmarsat Gain	(dBi)	27	27	27	41	41	41
Propagation Loss	(dB)	188.7	188.7	188.7	188.7	188.7	188.7
Antenna Discrimination	(dB)	22	22	22	25	25	25
Outdoor Blockage	(dB)	0.0	0.0	3.1	0.0	0.0	3.1
Power Control	(dB)	0.0	2.0	20.0	0.0	2.0	20.0
Vocoder Factor	(dB)	0.0	0.0	3.5	0.0	0.0	3.5
Voice activity	(dB)	0.0	3.0	1.0	0.0	3.0	1.0
Polarization	(dB)	0.0	0.0	1.4	0.0	0.0	1.4
Isolation							
Received Power	(dBW/Hz)	-205.5	-239 0.7	-269 5.7	-194.7	-228 19.7	-254 7
Received I	(K)	205	0.60 875	0.0002 084	2581	7.8 1	0.002 1
Delta T/T	(%)	29.3	0.10 125	0.00003 12	397	1.2 0.15	0.0004
One carrier							0.00015
Max # Co-freq Carriers	(#)	2	4 20	1725	2	4 20	1725 4365
Total Delta T/T	(%)	58.6	1.80 5	0.05	794.1	23.96	0.7

* It would be more accurate for the reference "MT Peak EIRP" or "MT EIRP" to be: "spatially averaged peak MT EIRP during burst." This clarification is discussed more fully in MSV's recent ATC application at Appendix H.

** The reference "MT EIRP Density" should be "fully-loaded return link carrier EIRP density." The individual MT EIRP Density is 9 dB lower than the number indicated in the Table owing to the 8-slot TDMA frame structure of GSM. This clarification is discussed more fully in MSV's recent ATC application, Appendix B. Similarly, the other

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Table entries that are identified with a double asterisk should also refer to a fully-loaded (all eight slots occupied) return link carrier.

*** MSV's more recent application proposes to operate a next-generation satellite with more than 10-fold frequency reuse over CONUS. However, that change is not relevant to the ATC-based inter-system interference analysis. Also, in accordance with MSV's more recent application, the next generation satellite antenna gain is larger than specified in the Table above. The additional impact of the ATC to the larger satellite antenna is accommodated by ground-based interference cancellation as described in detail in MSV's recent ATC application, Appendix F.

The *Spectrum Flexibility Order* permits MSV to operate ATC facilities that may generate up to a 1.4 percent increase in the noise floor of Inmarsat's co-channel operations. See *Spectrum Flexibility Order*, FCC 03-15, Appendix C2, page 207. This is based on half of the ATC facilities being located in the United States while the remaining facilities are located outside of the United States. See *Spectrum Flexibility Order*, FCC 03-15, Appendix C2, page 207. If more than half of the ATC operations are located in the United States (MSV is proposing that up to eighty percent would be located in the United States), there would be no increase in the overall interference potential to Inmarsat. MSV, however, would be permitted to deploy 1.6 times the currently authorized reuse in the United States.

Similarly, if the Commission grants MSV's request to raise the limit on potential impact of its ATC to Inmarsat's co-channel operations from 1.4% $\Delta T/T$ to up to 6% $\Delta T/T$, the additional flexibility will permit MSV to generate approximately 4.3 times more frequency reuse from its ATC operations.

From MSV's perspective, each of the items—recognition of the effect of MSV's -4 dBi MT antenna, permitting MSV to allocate up to 80 percent of its ATC operations to the United States, and setting the limit for an acceptable increase in Inmarsat's co-channel noise floor at six percent—provides important and substantial additional flexibility that improves its ability to serve areas where satellite service is blocked and brings L-band ATC closer to parity with the

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rules for ATC operations in the 2 GHz band, which contain no limits on the amount of frequency reuse. In combination, these items would permit MSV to operate as many as 17.2 times (2.5 x 1.6 x 4.3) the presently authorized number of carriers in the United States. From Inmarsat's perspective, the only one of these three items that has any impact to its uplink interference potential is the one involving the increase in the allowable rise in its noise floor on co-channel frequencies. As discussed elsewhere, the limit of 6% $\Delta T/T$ (less than 0.2 dB link margin degradation to Inmarsat) is well within accepted tolerances and, even then, is based on assumptions that MSV's ATC would be deployed and operating at maximum capacity and loading and co-channel with Inmarsat, neither of which is a realistic possibility.