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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

Re: Mobile Satellite Ventures Subsidiary LLC
***Ex Parte* Presentation**
IB Docket No. 01-185
File No. SAT-MOD-20031118-00333 (ATC application)
File No. SAT-AMD-20031118-00332 (ATC application)
File No. SES-MOD-20031118-01879 (ATC application)

Dear Ms. Dortch:

On June 21, 2004, Alex Good, Chief Executive Officer of Mobile Satellite Ventures LP ("MSV"); Lon Levin, Vice President of MSV; Peter Karabinis, Vice President and Chief Technical Officer of MSV; and Bruce Jacobs and David Konczal of Shaw Pittman LLP met with Ed Thomas and James Schlichting of the Office of Engineering and Technology. MSV presented the information contained in the attached set of presentation materials.

Please direct any questions regarding this matter to the undersigned.

Very truly yours,

David S. Konczal

cc: Ed Thomas
James Schlichting

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L-band Spectrum Sharing

June 21, 2004

Proposed Modifications to Sharing Limits in ATC Order

- Modify uplink parameters to permit up to 6% $\Delta T/T$ intersystem impact
- Modify downlink parameters to permit higher-power base station operations
  - Base station EIRP limit
  - Base station PFD limit
  - Base station overhead gain suppression

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Co-Channel Reuse

Proposal

Permit MSV to operate an ATC that when fully loaded might cause up to a 0.25 dB (6% $\Delta T/T$) rise in the noise floor of a co-channel system. (MSV ATC Application, Appendix I)

Rationale

- Negligible impact on Inmarsat
- Modest increase in what the FCC has permitted
- Consistent with ITU recommendations
- Supported by NTIA and Industry Canada

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Base Station EIRP

Proposal

Permit MSV to increase the aggregate EIRP of each base station sector by 15 dB and remove the limit of 3 carriers per sector. (The existing limit is 19.1 dBW EIRP per carrier, or a total of 23.9 dBW EIRP per sector). (MSV ATC Application, Appendix J)

Rationale

- In setting the existing limit, the FCC assumed that land-mobile and maritime (GMDSS) Inmarsat METs overload at an interfering signal level of -60 dBm.
- MSV has conducted extensive measurements on both types of Inmarsat MET families and has found that the actual overload threshold is conservatively -45 dBm.
- MSV's own terminals overload at more than -30 dBm.
- NTIA supports permitting 12 dB more EIRP and no limit on the number of carriers.

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Base Station PFD Limit

Proposal

- Relax the PFD limit on ATC base stations near airports to an aggregate of -44.8 dBW/m^2/sector (-59.8 + 15). (MSV ATC Application, Appendix K)
- Relax the PFD limit on ATC base stations near navigable waterways to an aggregate of -49.6 dBW/m^2/sector (-64.6 + 15). (MSV ATC Application, Appendix K)

Rationale

As discussed above, the FCC has overstated the overload level of Inmarsat land-mobile and maritime METs by 15 dB and has thus unnecessarily restricted the PFD limit of L-band ATC base stations near airports and navigable waterways.

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Base Station Overhead Gain Suppression

Proposal

Relax the limit on base station overhead gain suppression by 10 dB. (MSV ATC Application, Appendix L)

Rationale

A 10 dB relaxation would permit MSV to build far more cost-effective base station transmitters while increasing the potential impact to airborne receivers by less than 0.03 dB.

NTIA supports this proposal.

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Interference-Neutral Variations from Baseline System

Proposals

Approve interference-neutral variations from baseline system:

1. Permit use of cdma2000 and W-CDMA (MSV ATC Application, App B)
2. Recognize actual impact of half-rate vocoder
3. Permit unlimited reuse of non-co-channel frequencies (MSV ATC Application, App G)
4. Recognize impact of low-gain ATC terminal antenna (MSV ATC Application, App H)
5. Recognize impact of higher US percentage deployment

Rationale

- The proposed operations will permit MSV to increase spectrum efficiency and market appeal without increasing Inmarsat's noise floor above levels permitted in the FCC's initial order.
- NTIA supports 1, 2, and 3 and does not object to 4 or 5.

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Interference-Neutral Variations

Use of GSM, cdma2000, and W-CDMA

- For an ATC that is based on GSM, cdma2000, and W-CDMA, the following constraint equation specifies the allowed distribution of on-the-air traffic associated with the three standards.
- $N/8 + M/50 + L/200 = R$, where

N ≡ Number of GSM time slots (channels) supported ATC-wide by a given GSM carrier as that carrier is used and reused by the ATC

M ≡ Number of cdma2000 co-channel codes (channels) supported by a single cdma2000 carrier as that carrier is used and reused throughout the ATC

L ≡ Number of W-CDMA co-channel codes (channels) on a single W-CDMA carrier as that carrier is used and reused by the ATC

R ≡ Authorized GSM-based ATC frequency reuse.

- From a co-channel interference standpoint, 8 co-channel GSM users equate to 50 cdma2000 users or 200 W-CDMA users.

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Interference-Neutral Variations
Vocoders

Proposal

Attribute to "half-rate" vocoder in ATC mobile terminals the same 3.5 dB reduction in average interference attributed to quarter-rate vocoders in the ATC Order. (MSV ATC Application, Appendix C)

Rationale

In GSM, a half-rate vocoder operates at 4.75 kbps and a full-rate vocoder operates at 13 kbps. Switching a terminal from full-rate to half-rate provides $10\log(13/4.75) \approx 4.4$ dB output power reduction.

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Interference-Neutral Variations

Vocoders (continued)

- As the vocoder information rate changes from R_1 bps to R_2 bps, the output power of the MT changes by $10\log(R_2/R_1)$ dB.
- Thus, for example, if the full-rate vocoder is providing to the MT an information rate of 13 kbps (R_1 = 13 kbps) and the half-rate vocoder information rate is 5.8 kbps (R_2 = 5.8 kbps) the output power of the MT, as it switches from full-rate to half-rate, will change by $10\log(5.8/13) = -3.5$ dB.
- Independently of the air interface protocol that MSV will use (GSM, cdma2000, or W-CDMA), MSV's MTs will use a half-rate vocoder every time the output power of the MT in full-rate mode equals or exceeds $P_{MAX} - 3.5$ dB.
- Once in half-rate mode, the MT will remain in half-rate mode until its output power equals or becomes less than $P_{MAX} - 7$ dB.

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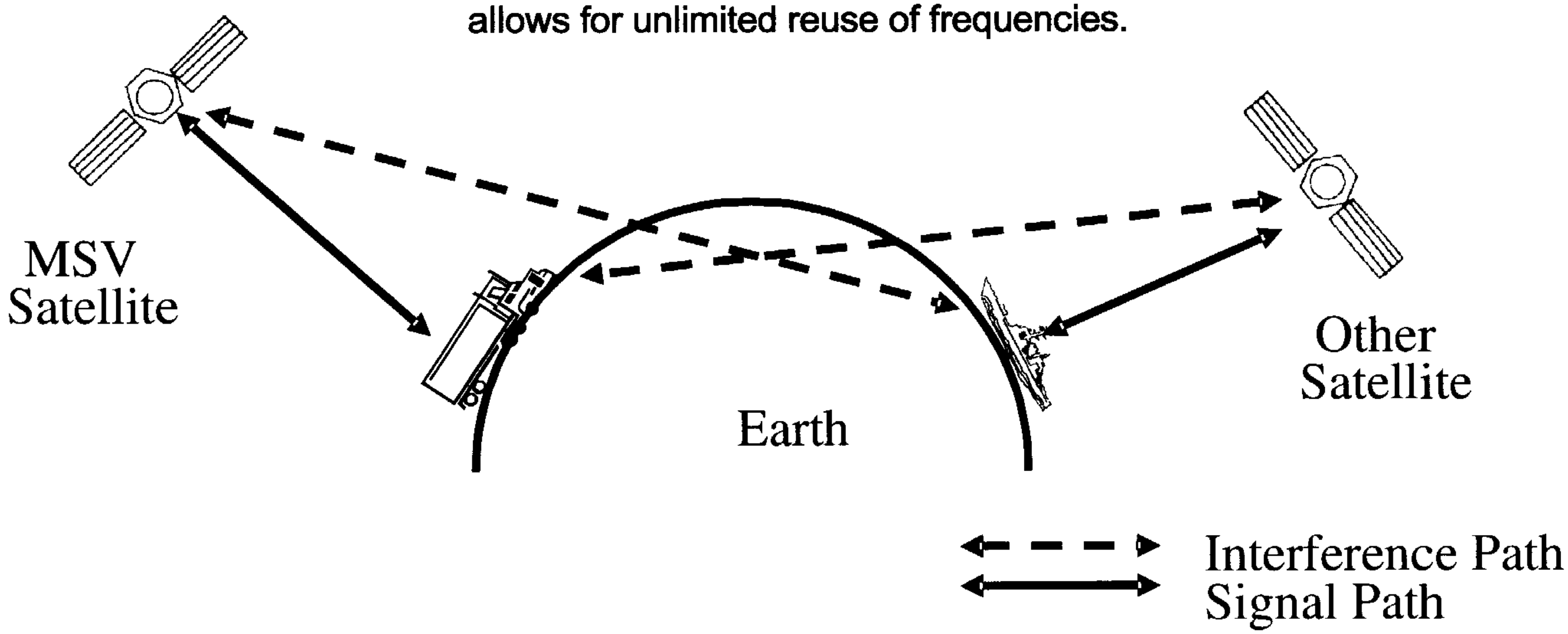
Interference-Neutral Variations
Non-Co-Channel Frequencies

Satellites Widely Separated with Interference Paths Blocked by Earth's Curvature

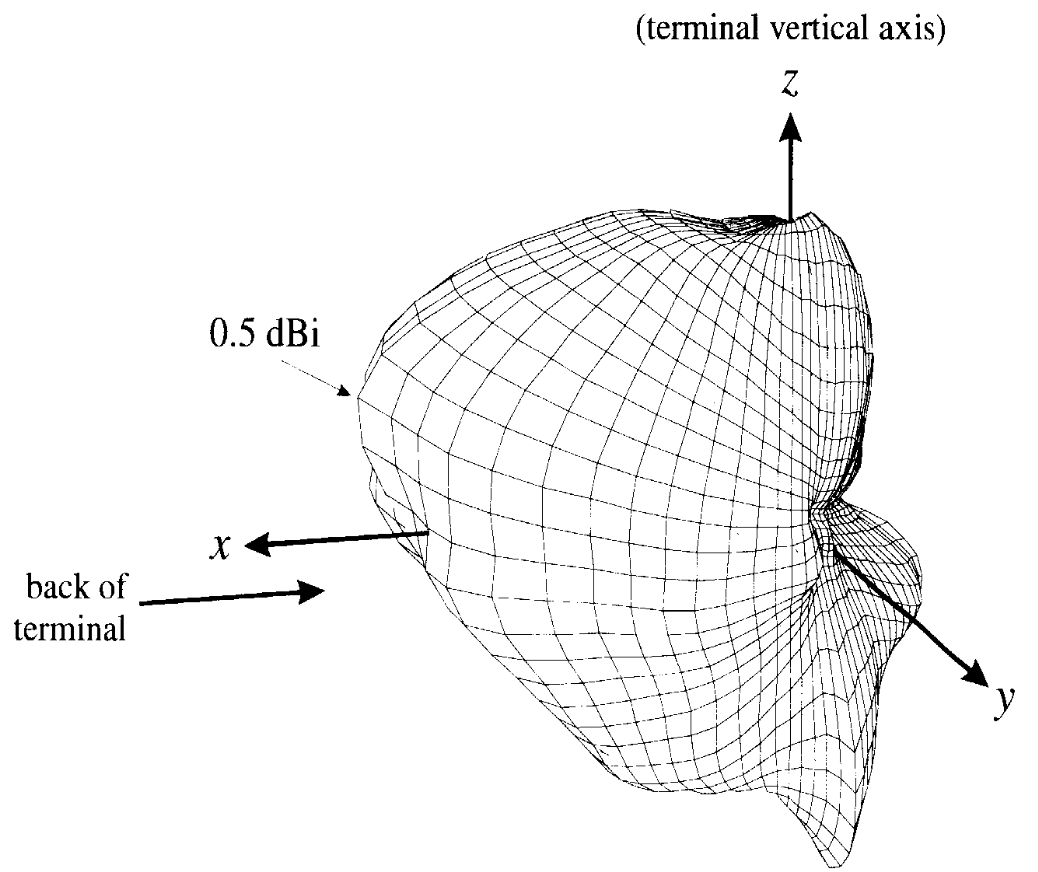
The signal blockage mechanism illustrated below precludes inter-system interference and allows for unlimited reuse of frequencies.



Interference-Neutral Variations
ATC Terminal Antenna Gain

MSV Mobile Satellite Ventures

3-D Model of MSV's Next Generation Satellite/ATC Terminal Antenna Element (Patch Antenna) (Derived from measured data provided to MSV by Ericsson)



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Interference-Neutral Variations
ATC Terminal Antenna Gain (continued)

Average ATC Terminal EIRP toward a Satellite for Random Terminal Orientation (0 dBW into terminal antenna port)

Antenna Type	Avg. EIRP Toward Satellite
Internal Patch	-4.5 dBW
External Stubby	-4.7 dBW

Average EIRP (dBW) Toward a Satellite of a Terminal that is Oriented next to a User's Ear with Internal Patch Antenna (0 dBW into terminal antenna port)

Elevation Angle to Satellite (measured from horizon - degrees)

ATC Terminal Tilt Angle from Vertical (degrees)	25	30	35	40	45
30	-5.2	-5.3	-5.5	-5.7	-5.9
40	-5.1	-5.2	-5.4	-5.6	-5.9
50	-5.1	-5.3	-5.5	-5.7	-6.1
60	-5.1	-5.3	-5.7	-6.0	-6.5
70	-5.2	-5.5	-5.9	-6.4	-6.9