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January 23, 2003

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
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Re: ***Ex Parte Presentation:***
IB Docket No. 01-185 (electronic filing);
File No. SAT-ASG-20010302-00017 et al. (hand delivery);
File No. SES-ASC-20010116-00099 et al. (hand delivery).

Dear Ms. Dortch:

This letter is written on behalf of Inmarsat Ventures plc in response to the January 21, 2003 *ex parte* submission of Mobile Satellite Ventures ("MSV"), in which MSV articulated certain views on technical limits that MSV believes should be adopted if ATC is authorized in the L-band.

1. *Threshold for interference info Inmarsat*

MSV position: MSV argues in its January 21 *ex parte* that in establishing limits on ATC operations in the L-band, "[t]he threshold for unacceptable interference to Inmarsat should not be set any lower than a 6 percent increase in Inmarsat's noise floor."

Inmarsat response: As an initial matter, MSV's new position contradicts its repeated representations to the Commission that its "fully-loaded, mature ATC operations" will result in "no more than one percent contribution to A T/T" [i.e., 1% increase in Inmarsat's noise floor].¹ Thus, it is inconceivable that MSV now seeks less strict limits for ATC operations in the L-band.

MSV has not even attempted to reconcile its new proposal with Inmarsat's explanation that **an** extremely small margin for ATC operations exists in L-band satellite networks. The interference margin in satellite systems is very limited, even before accounting for interference due to a non-conforming terrestrial use of a frequency band. Based on ITU

¹ See January 11, 2002 *ex parte* presentation of MSV, page 5, IB Docket No. 01-185; January 13, 2003 *ex parte* presentation of MSV, at Exhibit A, page 5, IB Docket No. 01-185. A copy of that page is attached for convenience as Exhibit 1 hereto.

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recommendations, Inmarsat normally allows for about a 25% increase in its noise floor due to interference from all external interference sources. There are currently over 20 satellites operating at L-band and the number has been growing over the last few years.

As to any single satellite network, Inmarsat uses a 6% increase in noise as the basis for satellite coordination. That level has always been the basis for satellite coordination between Inmarsat and MSV. As a general matter, Inmarsat's existing satellite coordination agreement with MSV ensures that this 6% criterion is met. Only in exceptional cases, for specific, worst-case carrier combinations, have exceptions been made to enable increased satellite reuse of the spectrum. Such exceptions have been made on the basis of detailed analysis, taking into account, for example, that most carrier combinations would produce less than a 6% increase, and that the exceptions do not reflect typical, day-to-day interference scenarios.

In establishing any ATC limits, it is important to separate (i) the aggregate level of interference generated by ATC, from (ii) the level of interference generated by satellite networks. As the number of interferers in the L-band increases, it becomes more and more critical to ensure that each interferer is limited to a reasonable interference level. Thus, ATC limits in the U.S. need to take into account the increasing use of L-band spectrum by satellite systems, and the possibility of ATC uses being permitted in countries other than the U.S.

A predicted level of ATC interference amounting to 6% of Inmarsat's noise floor, as MSV proposes, would (i) result in ATC service *solely within the U.S.* consuming about 25% of Inmarsat's overall aggregate interference margin, and (ii) impose significant operational and capacity constraints on Inmarsat's use of the L-band for the primary satellite service to which it is allocated.

For these reasons, Inmarsat has urged the Commission, if it authorizes ATC in the L-band, not to allow ATC to cause more than a 1% increase in the system noise temperature of the Inmarsat-4 network, and to provide an adequate margin for the development of even more advanced future spacecraft technology.²

More fundamentally, to have any hope of effectively constraining ATC interference into satellite uplink operations, any ATC limits that are adopted must clearly specify the relevant parameters of ATC operations, such as the number of simultaneously operating ATC terminals, maximum EIRP, and other salient transmitting characteristics of those terminals.

Inmarsat has previously explained at length why COMTEK is wrong when it suggested that a 13.7% increase in a satellite system's noise floor is not significant,³ and Inmarsat has previously shown why MSV has significantly understated the impact of its ATC operations on Inmarsat's system. Inmarsat will not repeat here its reasons for disagreeing with MSV.

² See *ex parte* presentation of Inmarsat to the FCC's Office of Engineering and Technology, IB Docket No. 01-185, File No. SAT-ASG-20010302-00017 *et al.* (filed November 6, 2002), at 17.

³ See Letter from Inmarsat to Secretary, FCC regarding COMTEK Report, *ex parte* presentation of Inmarsat, IB Docket No. 01-185, File No. SAT-ASG-20010302-00017 *et al.* (filed December 19, 2002).

2. Assumed technical performance of ATC transmitters.

MSV position: MSV argues in its January 21 *ex parte* that the Commission's uplink interference analysis should not account for the maximum power levels emitted by ATC handsets, but rather should assume that a large number of randomly distributed ATC terminals radiating power in different directions will not produce as harmful an effect on Inmarsat as one otherwise might think. MSV appears to ask that the Commission reduce by 50% the ATC limits that the Commission is now considering.

Inmarsat response: MSV has not previously briefed this issue. MSV presents no evidence to support its assertion that the level of power typically transmitted by ATC handheld terminals would be *half* the maximum predicted level. Without details about MSV's planned ATC system architecture, and without knowing how and where its service will be deployed, there could be no basis on which to conclude that the likely interference would be half as bad. In fact, without knowing what limits the Commission is now considering, it is not even possible for Inmarsat to assess the impact of MSV's latest proposal.

The stakes in this proceeding are far too high to accept, at this late date, and without any analysis, these new and unsubstantiated assertions of MSV.

3. Scope of ATC limits.

MSV position: MSV argues in its January 21 *ex parte* that ATC limits should be based on specific, worst-case co-channel situations, and that non-co-channel operations should not be constrained. MSV also asks that the Commission indicate how MSV can, in the future, make showings seeking a relaxation of any ATC limits that are adopted.

Inmarsat response: Inmarsat has already responded in detail to this argument in its January 17, 2003 *ex parte* on ATC technical limits.. Among other things, that filing explains why:

(i) effective ATC limits need to address the potential for both co-channel and non-co-channel uplink interference generated by ATC terminals;

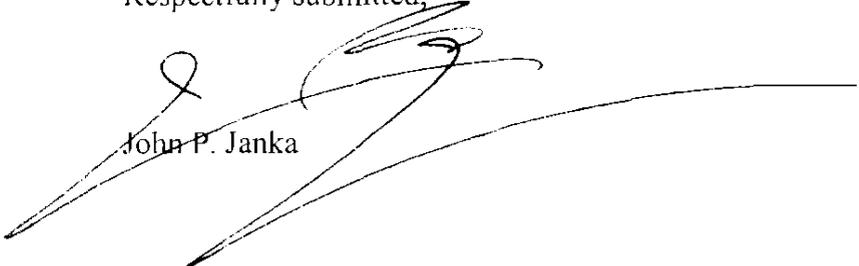
(ii) ATC service rules must account for (1) the eventuality that MSV will share *all* of its L-band frequency assignment on a co-channel basis with other satellite networks, and (2) the fact that the satellite beams in which such sharing occurs change over time;

(iii) to ensure sure that ATC operations can be "retuned" to take into account the dynamic frequency assignments that occur under the Mexico City MOU, ATC service rules designed to prevent co-channel interference must apply across the board, *in every part of the L-band*; and

(iv) Any ATC service rules must take into account the imminent operations of Inmarsat-4, and the increased co-channel sharing of the L-band that will occur once that system commences operations in 2004.

Without knowing what limits the Commission is considering, or how they may apply, it is simply premature to address the conditions under which those limits might be adjListed.

Respectfully submitted,



John P. Janka

Chairman Michael K. Powell
Commissioner Kathleen Q. Abernathy
Commissioner Michael J. Copps
Commissioner Kevin J. Martin
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Bryan Tramont
Jennifer Manner
Paul Margic
Sam Feder
Barry Ohlson
Ed Thomas
Bruce Franca
Bob Eckert
Rick Engelman
Chris Murphy
Breck Blalock
Ron Repasi
Paul Locke
Trey Hanbury
Bruce Jacobs, Counsel for MSV (by e-mail)

2. MSV's next generation system will improve prospects for coordination (uplink issues)

- **Adjacent channel interference to Inmarsat satellites will be reduced by more than two orders of magnitude relative to the level produced by MSV's current satellite system**
- **Co-channel interference will be reduced by more than one order of magnitude**
- **Fully-loaded, mature ATC operations will not impact the ability of MSV and Inmarsat systems to coordinate co-channel operations**
 - less than 1/30th of the effect of the satellite operations
 - no more than one percent contribution to $\Delta T/T$