

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

In the Matter of )  
 )  
Flexibility for Delivery of Communications )  
by Mobile Satellite Service Providers in the ) IB Docket No. 01-185  
2 GHz Band, the L-Band, and the 1.6/2.4 )  
GHz Bands )

**REPLY TO OPPOSITION OF MOBILE SATELLITE VENTURES SUBSIDIARY LLC**

In its Petition for Partial Reconsideration and Clarification of the Commission’s February 2005 order in this proceeding,<sup>1</sup> Inmarsat Ventures Ltd (“Inmarsat”) requests that the Commission address three narrow issues: (i) conform the text of a “legacy” rule provision adopted in 2003 to the new approach for constraining ATC base station power specified in the text of the *2005 ATC Order*, (ii) clarify the “trigger” for coordinating intermodulation effects between an L-Band ATC operator and a “victim” L-Band MSS terminal by specifying the assumed separation distance between the two, and (iii) reinstate an appropriate limit to protect MSS satellite receivers from signal “overload” by ATC operations.<sup>2</sup>

In its *Opposition*, Mobile Satellite Ventures Subsidiary LLC (“MSV”)<sup>3</sup> misconstrues the history of the ATC proceeding, but more importantly fails to present cogent responses to the three narrow issues that Inmarsat raises. Instead, MSV attempts to raise new issues well after the time for reconsideration has passed. MSV responds to Inmarsat’s request to conform old Section 25.253 of the Commission’s Rules to the new decisions made in the *2005*

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<sup>1</sup> *Flexibility for Delivery of Communications by Mobile Satellite Service Providers*, FCC 05-30 (rel. Feb. 25, 2005) (“*2005 ATC Order*”).

<sup>2</sup> Petition for Partial Reconsideration and Clarification of Inmarsat Ventures Ltd, IB Docket No. 01-185 (filed May 13, 2005) (“*Petition*”).

<sup>3</sup> Opposition of Mobile Satellite Ventures Subsidiary LLC to Inmarsat’s Petition for Partial Reconsideration and Clarification IB Docket No. 01-185 (filed Aug. 4, 2005) (“*Opposition*”).

*ATC Order* by arguing that the Commission should *increase* the adopted ATC power limits in order to put MSV on technical parity with high-powered terrestrial wireless operations in PCS spectrum. Failing that, MSV asks that it be allowed to operate any combination of higher power carriers that MSV chooses, and for the Commission to shift the burden to Inmarsat to demonstrate that Inmarsat would be hurt by such non-conforming ATC operations. While MSV agrees that the Commission should amend its rules to specify a separation distance to allow the calculation of the intermodulation coordination trigger, MSV proposes a different distance than Inmarsat, and again argues for a burden shift----that the Commission require Inmarsat to demonstrate that it would be hurt by the ATC intermodulation interference that the Commission's own testing has proven is a potential problem. Finally, MSV simply ignores record evidence regarding the susceptibility of Inmarsat's satellite receivers to interference from large numbers of ATC terminals.

In sum, MSV's arguments are untimely and/or without merit. The Commission should therefore promptly grant Inmarsat the limited relief requested in its Petition.

#### **I. ATC Base Station Power Limits Should Not Reference a Carrier Bandwidth**

As Inmarsat explains in its *Petition*, the continued reference to a 200 kHz carrier bandwidth in Section 25.253(d) of the Commission's Rules is a vestige of the *2003 ATC Order* and should be removed in light of the Commission's 2005 determination that "it is the total EIRP produced within an ATC base station sector that can cause [MSS mobile terminal] receiver overload," not the number or type of the carriers themselves.<sup>4</sup> Moreover, the text of the *2005 ATC Order* specifies how the relevant per carrier EIRP level of the ATC base station is to be calculated, and in doing so, the Commission made no reference whatsoever to the bandwidth of

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<sup>4</sup> *2005 ATC Order* at ¶ 60.

the ATC carrier used: “the EIRP level of each carrier can be expressed as the total EIRP divided by the number of carriers. Alternately, expressed in decibels, the EIRP per carrier will be the peak EIRP-10\*log (number of carriers).”<sup>5</sup>

The Commission’s reasoning for establishing a fixed EIRP level within an ATC base station sector is clear: whether the ATC base station transmits, for example, a single 1.25 MHz CDMA-type carrier or a larger number of 200 kHz GSM-type carriers is irrelevant to the interference effect on the victim MSS receiver. What is important to the interference dynamic is the total power transmitted in the ATC base station sector, and not the power generated by each individual ATC carrier. Therefore, the Commission afforded ATC operators the flexibility to design base stations to use “a few high power carriers or more low power carriers,”<sup>6</sup> regardless whether they use GSM, CDMA, WiMAX, OFDM, or any other transmission standard that might be developed in the future. As Inmarsat explained in its *Petition*, the language in Section 25.253(d) referencing 200 kHz was adopted in 2003 when the rules were written to address a GSM-based ATC architecture with a 200 kHz carrier bandwidth. Inmarsat merely requests that the text of the rule be conformed to the clear text of the *2005 Order* to remove the vestigial 200 kHz reference to an assumed GSM architecture. Otherwise, as Inmarsat explained, the rule could be ripped out of context and invoked to justify an ATC power level that is many times more than what the Commission recently concluded is appropriate at L-Band.<sup>7</sup>

MSV does not respond directly to these arguments. Rather, MSV uses Inmarsat’s *Petition* as a springboard to argue, for the first time in its *Opposition*, that the increased ATC base station power levels adopted in the *2005 ATC Order* should be *further increased* so that

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<sup>5</sup> *Id.*, n. 138.

<sup>6</sup> *Id.* at ¶ 60.

<sup>7</sup> *Petition* at 4-5.

MSV can deploy ATC base stations with power levels similar to those at terrestrial PCS cell sites.<sup>8</sup> In doing so, MSV cavalierly disregards all of the Commission’s careful technical analysis that went into establishing the revised ATC base station power levels earlier this year. The Commission has recognized that higher base station emissions than those adopted in the *2005 ATC Order* present interference problems for Inmarsat mobile terminals, and MSV presents no new evidence that warrants revisiting the Commission’s determinations in that regard.<sup>9</sup>

Realizing the futility of its argument, MSV tries a new approach—suggesting that under any circumstances MSV should be able to operate at power levels in excess of those adopted in the *2005 ATC Order unless Inmarsat proves it actually would be harmed by those higher power levels*.<sup>10</sup> Even if Inmarsat did so, MSV proposes that Inmarsat be required to coordinate with MSV to “mitigate the potential for interference” posed by MSV’s unilateral actions.

It is far too late for MSV to try to change the basic underpinning of the ATC rules---that the burden is on ATC operators, as providers of a secondary service, to resolve

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<sup>8</sup> See *Opposition* at 5.

<sup>9</sup> MSV’s technical statement in its *Opposition* baldly asserts that Section 25.253 “allows base stations to accommodate technologies with carrier bandwidths wider than those of GSM based systems and to radiate more power (commensurate with the wider carrier bandwidths) to thereby serve a larger number of users,” noting that “[a]s the bandwidth of the carrier increases, the number of users that can be served by the carrier also increases, thereby requiring more EIRP for the provision of service.” This assertion is antithetical to the clear text of the *2005 ATC Order*. It also ignores that a larger number of users, as could be supported by one CDMA 1.25 MHz carrier, or one 5 MHz OFDM/OFDMA carrier, similarly could be accommodated using more GSM-type 200 kHz carriers. That was the type of flexibility the Commission provided—to use different carrier types within an overall power limit umbrella---not to operate with impunity at any resulting power level of MSV’s choosing.

<sup>10</sup> *Opposition* at 6 (suggesting that Inmarsat should be able to prevent MSV from deploying at unauthorized ATC power levels only if Inmarsat could prove “that (i) its METs are used continuously within the vicinity of the subject [ATC] base station; and (ii) the METs suffer actual harmful interference from operation of the subject base station . . . .”) ; see also *id.* at 8.

harmful ATC interference: “If harmful interference is caused to other services by ancillary MSS ATC operations, either from ATC base stations or mobile terminals, *the ATC operator must resolve any such interference.*”<sup>11</sup> Nothing in the *2005 ATC Order* alters the secondary nature of ATC.

Moreover, MSV’s new proposal suffers from a number of other fatal flaws, including the following:

- It is based on the faulty premise that ATC will be deployed only in urban areas. MSV is not constrained in the location of its ATC base stations, and MSV likens its own ATC deployment plans to cellular/PCS systems that have been deployed far beyond urban areas.<sup>12</sup>
- It is impossible for Inmarsat to prove where its users will operate, because Inmarsat users rely on *mobile* terminals that could be anywhere in the Inmarsat coverage area at any given time. The beams on Inmarsat spacecraft encompass both “urban” and “non-urban” coverage, and Inmarsat has no way to tell when its users go near a possible ATC base station location.
- The morass created by a case-by-case showing is the very reason the Commission declined to license ATC on a site-by-site basis: it would create “spectrum and administrative inefficiencies” and require “expensive, time consuming testing and monitoring.”<sup>13</sup>
- It would not take into account inevitable subsequent events, such as (i) new Inmarsat services and technology, (ii) new customers with new service coverage requirements, (iii) changes in topography in the vicinity of an ATC base station, or (iv) the modification or razing of buildings in the vicinity of an ATC base station.

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<sup>11</sup> 47 C.F.R. § 25.255 (emphasis added); *see also Flexibility for Delivery of Communications by Mobile Satellite Service Providers*, 18 FCC Rcd 1962, 2017 (2003) (“*2003 ATC Order*”); 47 CFR § 2.105(c)(2) (“Stations of a secondary service: (i) Shall not cause harmful interference to stations of primary services to which frequencies are already assigned or to which frequencies may be assigned at a later date.”). The Commission authorized ATC on a non-harmful interference basis to ensure consistency with applicable ITU regulations, because such terrestrial uses of the L-Band were not provided for in the International Table of Frequency Allocations. *2003 ATC Order* at 2066.

<sup>12</sup> Moreover, the Commission has found that cases will exist where ATC base stations are deployed even though satellite service is available in that vicinity. *2003 ATC Order* at 2015 (“achieving optimal spectrum usage may require an MSS operator to use ATC *even though a particular call might be served by satellite*”) (emphasis added).

<sup>13</sup> *2003 ATC Order* at 2015 (rejecting a proposal that MSS licensees provide evidence they could not serve via satellite a location that they intend to serve via ATC).

- It would embroil the Commission in a series of adjudicatory disputes about whether MSV's high-powered operations really are a problem, and it would be near impossible to put the genie back into the proverbial bottle once MSV had deployed such base stations and commenced service to the public.

These are the very types of problems that the Commission intended to avoid by adopting the new rules in the *2005 ATC Order*, rather than engaging in the types of *ad hoc* exceptions that mandate full Commission review of the MSV ATC licensing decision.<sup>14</sup> The Commission should not reopen that regulatory can of worms.

For the foregoing reasons, the Commission should conform Section 25.253(d) of its rules to the text of the *2005 ATC Order* by deleting the reference to an assumed 200 kHz carrier bandwidth.

## **II. The Commission Should Adopt a 100 Meter Reference Distance for Calculating the Intermodulation Coordination Threshold**

In its Opposition, MSV agrees with Inmarsat that the Commission should clarify Section 25.253(h) by including a reference distance in the formula for calculating the intermodulation interference level that triggers an obligation for an ATC operator to notify and coordinate with an affected MSS operator.<sup>15</sup> Inmarsat proposes a 100 meter reference distance based on the Commission's finding in the *2003 ATC Order* that 100 meters is a reasonable assumption regarding the minimum likely distance of an MSS terminal from an ATC base station in an urban area.<sup>16</sup> Additionally, using a 100 meter reference distance would reflect that new mobile satellite technologies are evolving that make MSS service more accessible than ever to users in urban areas.

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<sup>14</sup> See Inmarsat Ventures Ltd, Application for Review, *In re Applications of Mobile Satellite Ventures Subsidiary LLC*, DA 04-3553 (filed Dec. 8, 2004).

<sup>15</sup> See *Opposition* at 7.

<sup>16</sup> See *2003 ATC Order* at ¶¶151-152.

MSV, on the other hand, proposes a 600 meter reference distance, by arguing that 600 meters represents only a very small percentage of the overall service area of an ATC base station. Based on MSV's logic, a 100 meter separation distance would be even better than 600 meters, because a smaller distance would leave an even lower percentage of the ATC base station service area vulnerable to unmanaged ATC interference. MSV focuses on entirely the wrong criteria by comparing the reference distance to the service area of the ATC base station. Nor does MSV's proposed separation distance of almost 4/10 of a mile accommodate the Commission's acknowledged need to protect Inmarsat's L-Band operations, particularly the safety-related applications of Inmarsat's service.

As above, MSV also proposes, regardless of the reference distance that the Commission may adopt, that MSV should not have to modify its operations to resolve ATC-generated intermodulation interference, *unless Inmarsat proves it actually would be harmed by those interference effects.*<sup>17</sup> For the reasons provided above, saddling Inmarsat with such a requirement would be unsubstantiated and unworkable, impermissibly would shift the burden from the secondary ATC user to the primary MSS user (thereby undermining a basic underpinning of the ATC rules), and would create a whole host of practical and administrative nightmares.

Therefore, Inmarsat urges the Commission to adopt a 100 meter reference separation distance for purposes of Section 25.253(h), based on the same assumptions that the Commission used in 2003 when it analyzed the potential "real world" interference impact of ATC on MSS.<sup>18</sup>

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<sup>17</sup> *Opposition* at 8.

<sup>18</sup> *See 2003 ATC Order* at ¶¶ 151, 152.

### III. MSV Incorrectly Assesses The Potential For Overload of an MSS Satellite Receiver

The Commission should reinstate an appropriate limit to prevent interference from a large number of transmitting L-Band ATC mobile terminals overloading the Inmarsat-4 satellite receiver. As noted in Inmarsat's *Petition*, the 90,000 limit on the number of simultaneously operating L-Band ATC terminals that existed prior to the *2005 ATC Order* adequately protected Inmarsat from this interference dynamic. But the deletion of that limit, without addressing the issues presented in Inmarsat's February 3, 2005 *ex parte* submission in this proceeding, has now left this interference dynamic unconstrained.

As Inmarsat has demonstrated, overload of the Inmarsat-4 satellite receiver would have a catastrophic effect on Inmarsat's ability to provide service in the U.S. using this type of satellite. Inmarsat explained in its February 3, 2005 *ex parte* submission that the maximum aggregate L-Band emissions that the Inmarsat-4 satellite receiver is designed to tolerate is 40 dBW (measured within the -3 dB gain contour of an Inmarsat-4 receive feed element). This aggregate overload threshold level includes the impact of emissions from all sources in the L-Band----both Inmarsat and MSV, both MSS and ATC operations. Inmarsat has allocated half of this allowance (37 dBW) to interference from all Inmarsat-related sources, combined, and half (37 dBW) to interference from all MSV-related sources, combined. At this stage, although it is far from clear what the appropriate apportionment should be between MSV's MSS terminals and its ATC terminals, based on the nascent nature of ATC and MSV's failure to make any tangible progress on deploying ATC in two-and-a-half years, Inmarsat has assumed that one eighth of the 37 dBW MSV allowance would be appropriate to allocate to MSV's ATC terminals, which corresponds to an aggregate level of 31 dBW from ATC operations.

MSV does not rebut Inmarsat's technical explanation. Rather MSV simply asserts, without any justification, that Inmarsat should be able to tolerate over four times this

level of aggregate interference for which Inmarsat has designed its system, or 46 dBW. MSV baldly asserts that this level corresponds to the effect of 1000 of MSV's "legacy" mobile terminals simultaneously operating. MSV provides nothing to support a conclusion that its satellite is loaded to a level where such a result is likely, or even possible. Moreover, MSV itself admits that it is phasing out those legacy terminals. Even more problematic is MSV's calculation that the 37 dBW allowance Inmarsat has allocated to interference from all MSV sources (and the same level Inmarsat allocates to emissions from its own operations) would be consumed *entirely* by MSV's ATC terminals.

Inmarsat does not endorse MSV's calculation – MSV has used assumptions that have been the subject of an intense debate, including reliance on the 20 dB power control factor, which has never been resolved. The *2005 ATC Order* requires MSV, in the context of its ATC application, and/or during coordination, to demonstrate how it would comply with such an assumed parameter, and thereby to validate that its assumptions are realistic.<sup>19</sup> However, MSV's ability to justify the application of that factor need not be resolved at this time. Suffice it to say that MSV's own calculation shows that there is potential for overload of the Inmarsat-4 satellite from ATC operations, especially if MSV's assumptions turn out to be overly optimistic, and this reinforces the need for a limit to prevent that overload from happening.

In sum, MSV does not provide any evidence to refute that high emission levels within L-band could cause overload of the Inmarsat-4 receiver. MSV's random assertions about Inmarsat's ability to sustain high emission levels are wholly unsubstantiated, and MSV's own calculation shows that an overload potential does exist.

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<sup>19</sup> *2005 ATC Order* at ¶ 51.

For these reasons, and consistent with the Commission's stated desire in the 2005 *ATC Order* to provide flexibility to MSS/ATC operators to design their systems to meet relevant overall interference limits, Inmarsat requests that the Commission require MSV to limit to 37 dBW the aggregate EIRP of all emissions generated from MSV's MSS and ATC terminals combined. Currently, it is unclear how MSV would want to apportion such a limit between its MSS and ATC terminals, and this aggregate approach would allow MSV to make the allocation of the 37 dBW limit between ATC and MSS use in the course of coordination with Inmarsat. Inmarsat urges the Commission to adopt such a limit to protect Inmarsat's I-4 satellite receivers from overload caused by interference in the L-Band.

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For the foregoing reasons, Inmarsat respectfully requests that the Commission clarify and reconsider the its 2005 *ATC Order* in this proceeding in the manner and to the limited extent specified above and in Inmarsat's Petition for Partial Reconsideration and Clarification.

Respectfully submitted,

INMARSAT VENTURES LTD

By: /s/ John P. Janka

John P. Janka  
Elizabeth R. Park  
LATHAM & WATKINS LLP  
555 Eleventh Street, N.W.  
Suite 1000  
Washington, D.C. 20004  
202-637-2200

August 17, 2005

**ENGINEERING INFORMATION CERTIFICATION**

I hereby certify that I am the technically qualified person responsible for reviewing the engineering information contained in the foregoing submission, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this pleading, and that it is complete and accurate to the best of my knowledge and belief.

/s/ Richard J. Barnett

Richard J. Barnett, PhD, BSc

Telecomm Strategies, Inc.  
6404 Highland Drive  
Chevy Chase, Maryland 20815  
(301) 656-8969

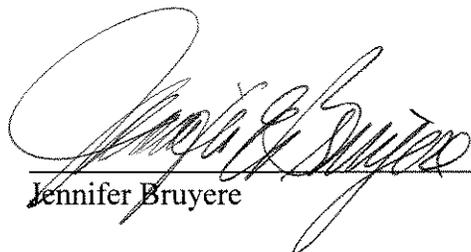
August 17, 2005

**CERTIFICATE OF SERVICE**

I, Jennifer Bruyere, of Latham & Watkins, 555 Eleventh Street, NW, Suite 1000, Washington, DC 20004, do hereby certify that a copy of the foregoing "Reply to Opposition of Mobile Satellite Ventures Subsidiary LLC" was served on this 17<sup>th</sup> day of August, 2005, via first class United States mail, postage prepaid, upon the following parties:

Jennifer A. Manner  
Vice President, Regulatory  
Mobile Satellite Ventures Subsidiary LLC  
10802 Park Ridge Boulevard  
Reston, VA 20191

Bruce D. Jacobs  
David S. Konczal  
Pillsbury Winthrop Shaw Pittman LLP  
2300 N Street, N.W.  
Washington, D.C. 20037



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Jennifer Bruyere