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October 14, 2005

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

Re: IB Docket No. 05-220

Dear Ms. Dortch:

Attached for inclusion in the record of this proceeding are the Reply Comments of Inmarsat Ventures Limited ("Inmarsat") filed in IB Docket No. 05-221. Inmarsat hereby submits the attached Reply Comments in the above-captioned docket because the issues in IB Docket Nos. 05-220 and 05-221 are closely related, and the attached pleading will inform the optimal resolution of, and lead to a more complete record in, both proceedings.

Please contact the undersigned if you have any questions regarding the attached.

Sincerely,

/s/

John P. Janka
Jeffrey A. Marks

cc: Cassandra Thomas
William Bell
Steven Spaeth

Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	IB Docket No. 05-221
Comments Concerning Use of	)	
Portions of Returned 2 GHz	)	
Mobile Satellite Service Frequencies	)	

REPLY COMMENTS OF INMARSAT VENTURES LIMITED

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August 15, 2005

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Before the
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REPLY COMMENTS OF INMARSAT VENTURES LIMITED

Inmarsat Ventures Limited ("Inmarsat") replies to the comments filed in response to the June 29, 2005 *Public Notice* in this proceeding.[1]

I. INTRODUCTION AND SUMMARY

This proceeding provides a unique opportunity for the Commission to ensure that the MSS industry will have the opportunity to play a vital role in the wireless broadband revolution, whose beginnings are evidenced by the terrestrial wireless broadband services that cellular and PCS providers are just beginning to roll out. To achieve that goal, Inmarsat urges the Commission to take a step back and evaluate the fundamental changes in the telecommunications world that have occurred since the Commission began to open the 2 GHz band for MSS in 1997, and thereby set the stage for licensing the first eight entities, including ICO and TMI, who were provided the chance to bring 2 GHz MSS services to the American consumer.

In the past two years in particular, significant advances in mobile technologies, new user applications, and the resulting demand for wireless broadband service to handheld and

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[1] *Comments Concerning Use of Portions of Returned 2 GHz Mobile Satellite Service Frequencies*, IB Docket No. 05-221 (rel. June 29, 2005).

vehicular devices, have begun to fuel a revolution in the communications industry. It is not an overstatement to say that wireless broadband networks are on the brink of a revolution and a colossal expansion that is expected to outpace even the explosive growth of mobile telephony in the 1990s.

While these developments have been occurring, none of the eight entities whom the Commission originally authorized to deploy MSS at 2 GHz has come even close to deploying its authorized satellite system. The only 2 GHz MSS entities authorized by the Commission who remain standing — TMI and ICO — have retained their authorizations only through milestone waivers or extensions, they have yet to make any significant progress on the construction of their systems, and they therefore still remain years away from actually deploying an MSS satellite network or commencing commercial services.

Inmarsat believes that the failure to deploy the eight 2 GHz MSS systems authorized by the Commission in 2001 was principally caused by a faster-than-expected and more extensive deployment of cellular and PCS services throughout America, and the slower-than-expected rollout of the wireless broadband revolution. Those developments together have undermined the business plans of the original 2 GHz MSS applicants, including TMI and ICO, which originally called for the provision of satellite-based, telephony-like services to handheld devices in competition with then-regional PCS and cellular services. The business plan of each of those 2 GHz applicants was simply overtaken by events.

TMI's and ICO's filings in this matter acknowledge that their original system designs and business plans would likely have suffered the same fate as that of Boeing, Celsat, and Iridium, who recently recognized failure, and tendered their 2 GHz licenses for cancellation. TMI and ICO therefore claim that they now need to deploy combined MSS/ancillary terrestrial

component (ATC) networks, and that their current spectrum assignments are not adequate to support the expected increased spectrum demand of an MSS/ATC system. Thus, they ask for government largesse in the form of a 250 percent increase in their current spectrum assignments, from 4 MHz in each direction to 10 MHz in each direction. Significantly, they also ask the Commission to provide them with the exclusive right to use the 2 GHz band in the U.S., by licensing them to a duopoly. In other words, despite failing to achieve any commercial success whatsoever, TMI and ICO request to be treated as special cases, for the ground rules to be materially changed in their favor, and for each of them to be cemented into a highly protected competitive position, to the exclusion of *any* new entrants to the 2 GHz band. Inmarsat does not believe that granting any such request would improve the prospects of the American consumer receiving competitively-priced MSS-based wireless broadband services in the near future.

Fortunately, the Commission has recognized its obligation to increase the chances that the American consumer will secure access to the significant benefits of broadband MSS at 2 GHz, by ensuring that more entrants than just TMI and ICO will have the chance to deploy a 2 GHz MSS system. The Commission has recognized that "the factors that have led courts to disfavor mergers to duopoly also support establishing a procedure that will maintain at least three competitors in a frequency band, unless an interested party can rebut our presumption that three is necessary to maintain a competitive market."[2] To rebut this presumption, the Commission has indicated that a party must provide "*convincing evidence* that allowing only two licensees in the frequency band will result in *extraordinarily large, cognizable, and non-speculative efficiencies*."[3]

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[2] *Amendment of the Commission's Space Station Licensing Rules and Policies*, 18 FCC Rcd 10760, 10788-89 ¶ 64 (2003) (citations omitted).

[3] *Id.* (emphasis added).

Some commenters argue that all MSS bands are fungible, and that it does not matter how many entities the Commission licenses at 2 GHz. Others urge the Commission to disregard Inmarsat's interest in the 2 GHz band, because they claim that Inmarsat's future businesses adequately can be accommodated in the L-Band where Inmarsat currently operates. In each case, the commenters are mistaken. As an initial matter, the nascent nature of the 2 GHz band, and the complete absence of any MSS services in the band today, create significant obstacles to defining the relevant markets or market participants, and therefore make it next to impossible, outside the context of a comprehensive rulemaking, to ascertain whether licensing to duopoly at 2 GHz would provide extraordinarily large, cognizable, and non-speculative efficiencies, or whether it instead would result in competitive harm. Nothing that the commenters, including TMI and ICO, have provided to the Commission over the past weeks has in any way demonstrated even the beginnings of a cogent argument that a duopoly would provide such efficiencies. The burden of proof is on TMI and ICO in this respect, and without compelling evidence of such efficiencies, which is clearly not present in the record either of this docket or companion IB Docket No. 05-220, the Commission must not license a duopoly at 2 GHz.

Inmarsat disagrees that all frequency bands allocated for MSS should be treated as one single "marketplace." Frequency bands are not marketplaces — instead they are the "real estate" via which specific communications services may be provided to particular consumers of those services, with a combination of those services and those consumers defining the relevant markets. Examined in this context, the 2 GHz band is unique among MSS bands in its ability to support next-generation multimedia and broadband MSS offerings, including in rural areas that may otherwise be unserved or underserved. This is true because the 2 GHz band is ideal for

supporting the growing demand for wireless multimedia and broadband services over mobile handheld devices and in vehicles, including personalized access to news, music and video entertainment, and information services. By combining the ubiquitous reach of satellite technology with the "greenfield" that is 2 GHz, an MSS system in the 2 GHz band can allow new multicast, broadcast and video-on-demand applications to be delivered seamlessly to low-cost terminal equipment, and with the efficiencies inherent in "piggybacking" on technological developments that are being made to support terrestrial 3G networks. Moreover, 2 GHz spectrum can be utilized in spectrum "building blocks" that facilitate the employment of wide bandwidth channels (*e.g.*, 1.25 MHz) that are well-suited for the provision of emerging broadband and multi-media MSS services, and are not readily available in other MSS bands. Furthermore, because there are simply no satellite systems operating in the 2 GHz band today, the 2 GHz band does not suffer from the same spectrum congestion and legacy uses that constrain the deployment of next-generation broadband services in other MSS bands. Finally, the 2 GHz band represents essential "expansion capacity" for MSS systems operating in other frequency bands that are becoming increasingly congested. From this perspective, therefore, the 2 GHz band is unique "real estate," offering the potential to create entirely new and exciting industries by supporting the provision of new services to a new generation of consumers in robust competition with terrestrial and wireless communications systems operators, which services previously have been beyond the reach of MSS operators. In this context, it is surely vital that competition in the 2 GHz band be optimized.

Now that Inmarsat is nearing completion of the deployment of its $1.5 billion next-generation Inmarsat-4 satellite network in the L-Band, Inmarsat is developing plans for a broadband and multimedia MSS system in the 2 GHz band, based upon a hybrid

satellite/terrestrial architecture and in potential partnership with leading technology, service, and content partners. In support of those plans, Inmarsat has made appropriate 2 GHz filings with the International Telecommunication Union through its UK regulator, Ofcom. These plans are expected to lead to the development of a state-of-the-art, next-generation MSS system, optimized for tomorrow's wireless broadband and multimedia needs, using the 2 GHz band, and focused on providing the next generation of global voice, data, and multimedia MSS offerings, based upon Inmarsat's established position as a provider of global, high-speed-data MSS services. Inmarsat, however, can provide that competitive opportunity to American businesses and consumers by the end of this decade only if the Commission makes suitable provisions in this proceeding for entry by Inmarsat in the U.S. in the 2 GHz band. Inmarsat believes that there is a real benefit for American consumers in making an equitable assignment of 2 GHz spectrum to the world's leading MSS player, who has an established record of designing, constructing, launching and successfully bringing into commercial operation next-generation MSS networks. Inmarsat's experience, unparalleled technological and service reputation, and financial stability would represent a "safe bet" in spectrum assignment terms — in stark contrast to the records of the current remaining 2 GHz licensees — and would significantly improve the prospects of American consumers seeing in the near term the attractive services and other benefits that the 2 GHz band can be used to provide.

As set forth in more detail below, neither TMI's nor ICO's track record, nor any of their respective proffered rationalizations for licensing to duopoly at 2 GHz, supports the Commission rewarding them for delaying the implementation of their systems until they were the last authorized 2 GHz entities standing. More fundamentally, neither TMI nor ICO has met its burden to provide "convincing evidence" that licensing TMI and ICO to duopoly so they can

provide ATC would provide extraordinarily large, cognizable, and non-speculative efficiencies, and would not result in competitive harm. ICO provides no evidence to substantiate its case. The key evidence on which TMI relies — its new, "high-powered" satellite design — simply may not be considered by the Commission in this proceeding, or in companion IB Docket No. 05-220. The satellite that TMI is building is very different from the technical design that the Commission approved in granting TMI's 2 GHz LOI authorization — it has *over twice* the authorized power, over *four* times the number of spot beams, carriers that are *1,000 times* larger, and user terminals that are *five times less sensitive*. TMI has not complied with Commission procedures for obtaining modified LOI authority — TMI has neither sought nor received Commission approval for the satellite system that it is building. Commission policy therefore is clear that any information about TMI's unauthorized satellite network (including the over-powered, allegedly bandwidth-limited aspects to which TMI cites) cannot be used to substantiate TMI's request to modify its LOI authorization by increasing its 2 GHz spectrum assignment. In sum, TMI's request amounts to an unauthorized "land-grab" that simply is not sustainable under current regulatory policy, and is made on the back of an over-designed satellite yet to be built.

Instead of granting TMI's and ICO's request for additional spectrum, and instead of increasing their spectrum assignments to 2 x 6.67 MHz or to 2 x 10 MHz, the public interest would be better served by ensuring that other entities, including Inmarsat, have the chance to access a segment of 2 GHz spectrum equal to TMI's and ICO's spectrum assignment, thereby increasing the chances that the American public can actually realize the promise of 2 GHz MSS service that has eluded it for so long.

The Commission's spectrum management responsibilities mandate that these questions and opportunities be explored in a comprehensive manner and in a rulemaking, before

a decision is made on the proposal in companion IB Docket No. 05-220 to assign additional 2 GHz spectrum to TMI and ICO. To date, the Commission consistently has declined to establish a policy about what to do with returned 2 GHz MSS spectrum. In the absence of a clear spectrum policy regarding the 2 GHz band, Commission precedent is clear that a rulemaking proceeding "is generally a better, fairer and more effective method of implementing a new industry-wide policy than is the ad hoc and potentially uneven application of conditions in isolated proceedings affecting or favoring a single party."[4]

Moreover, the revolutionary developments that have occurred in the wireless industry since the Commission first licensed MSS systems at 2 GHz provide a compelling reason to consider adopting a new policy to assign the 2 GHz band in multiples of rationally-sized spectrum "building blocks" (such as 1.25 MHz) that would facilitate the employment of channels wider in bandwidth than those that are used for MSS today, which would be well-suited to provide emerging broadband and multimedia MSS offerings. The Commission's policy presumption to provide for at least three licensed competitors in the nascent 2 GHz band, and the opportunity to assign 2 GHz spectrum in rationally-sized segments, provide compelling reasons why the Commission should address its 2 GHz policy in a comprehensive manner and in a rulemaking, and should not take the precipitous step proposed in the June 29, 2005 *Public Notice* in IB Docket No. 05-220 of assigning each of TMI and ICO a random-sized 2 x 6.67 MHz segment of 2 GHz spectrum.

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[4] *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates*, 17 FCC Rcd 9614, 9699 ¶ 218 (2002) ("*NGSO-MVDDS Second Report and Order*").

Inmarsat therefore urges the Commission to conduct a comprehensive evaluation of these issues and opportunities, *on an expedited basis*, to provide regulatory certainty, and to allow the prompt deployment of 2 GHz MSS offerings to the American public. The failure to address these types of issues in a comprehensive manner — specifically, the failure to comprehensively address the issues presented by the award of spectrum proposed in *both of* the June 29, 2005 *Public Notices* — may preordain the answer to the fundamental policy questions that this proceeding raises, and leave the American public without the benefits of having multiple providers who can bring 2 GHz MSS to fruition.

II. THERE IS NO POLICY REGARDING RETURNED 2 GHZ MSS SPECTRUM

TMI seems to believe that if keeps chanting the mantra "there *is* a policy presumption that returned 2 GHz MSS spectrum will be given to the remaining licensees, TMI and ICO," the Commission will ignore reality and believe TMI. TMI goes so far as to assert that Inmarsat has "fabricated" the fact that the FCC has "no policy" for how to handle returned 2 GHz MSS spectrum.[5] As Inmarsat has previously detailed, TMI's delusions and unfounded assertions are belied by the express language of the relevant Commission orders.[6] To reiterate briefly:

- In 2000, the Commission plainly stated: "[2 GHz s]pectrum abandoned by authorized systems may be available for expansion of systems that are operational and require additional spectrum. *We do not, however, establish a policy or rule for redistribution of abandoned spectrum here*."[7]

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[5] *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 27 & n.50 (July 29, 2005) (citing *Reply Comments of TMI and TerreStar*, IB Docket No. 05-220, at 13 (July 25, 2005)).

[6] *See Comments of Inmarsat Ventures Limited*, IB Docket No. 05-220, at 12-14 (July 13, 2005).

[7] *Establishment of Policies & Service Rules for the Mobile Satellite Service in the 2 GHz Band*, 15 FCC Rcd 16127, 16139 ¶ 18 (2000) (emphasis added).

- In 2002, the Commission articulated: "The *2 GHz Order* did not specify any policy regarding cases in which a licensee is not able to implement its system. Rather, we stated that *we would decide whether to redistribute the spectrum or allow new entrants* at the time any license is cancelled."[8]

- In 2003, the Commission confirmed that, "[a]s we previously stated in *2 GHz MSS R&O*, *we have not established nor do we do so here any policy or rule regarding the use of additional abandoned spectrum* that may result after future MSS milestone reviews are completed."[9]

- And, in a 2004 decision reinstating TMI's revoked 2 GHz Letter of Intent authorization, the Commission noted approvingly its prior affirmation that its "policy for reassignment of 2 GHz MSS spectrum freed as a result of future milestone rulings [has been] left for later determination."[10]

Try as TMI might to obfuscate the issue, there simply is no existing policy presumption that TMI and ICO should be awarded 2 x 6.67 MHz, much less 2 x 10 MHz, of 2 GHz MSS spectrum. That is the reason a rulemaking proceeding is the appropriate venue for addressing the issues presented both here, and in companion IB Docket No. 05-220.

III. A COMPREHENSIVE RULEMAKING PROCEEDING IS WARRANTED

A common theme cuts across the many different industries whose participants have commented in this proceeding — the Commission should consider the important issues raised by the *Public Notices* in this docket, and in companion IB Docket No. 05-220, in a single,

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8 *Amendment of the Commission's Space Station Licensing Rules & Policies*, 17 FCC Rcd 3847, 3864 ¶ 48 (2002) (emphasis added).

9 *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, 18 FCC Rcd 2223, 2240 ¶ 32 (2003) (emphasis added).

10 *TMI Communications and Company, Limited Partnership and TerreStar Networks, Inc. Application for Review and Request for Stay*, 19 FCC Rcd 12603, 12621 ¶ 52 n.97 (2004) (citing *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, 18 FCC Rcd 2223, 2239 ¶ 32 (2003).

consolidated rulemaking proceeding, rather than addressing on a piecemeal basis the issues presented by the return of 2 GHz MSS spectrum.[11] This consensus even exists among entities who have fundamentally different views about what the Commission should do with the returned 2 GHz MSS spectrum — whether it should be retained for MSS, as Inmarsat advocates, or whether it should be reallocated for SDARS, broadcast auxiliary, or terrestrial CMRS purposes, as others advocate.[12] As Inmarsat has noted, a rulemaking proceeding is appropriate because the Commission has no policy about what to do with returned 2 GHz MSS spectrum, and conducting a rulemaking would permit the Commission to consider both (i) its overall policy goals in developing MSS in the 2 GHz band, and (ii) the competitive issues presented by the re-assignment of reclaimed 2 GHz MSS spectrum resources.[13]

For example, as discussed in Section IV.A.2 below, the revolutionary developments that have occurred in the wireless industry since the Commission first licensed MSS systems at 2 GHz warrant a "fresh look" toward adopting a new policy to assign the 2 GHz band in multiples of rationally-sized spectrum "building blocks" (such as 1.25 MHz) that would facilitate the employment of channels wider in bandwidth than those that are used for MSS today, which would be well-suited to provide emerging broadband and multimedia MSS

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[11] *See Comments of Inmarsat Ventures Limited*, IB Docket No. 05-221, at 3 (July 29, 2005); *Comments of RF Marketing, Inc.*, IB Docket No. 05-221, at 7 (July 29, 2005); *Comments of United States Cellular Corp.*, IB Docket No. 05-221, at 6 (July 27, 2005); *Comments of CTIA – The Wireless Association*, IB Docket No. 05-221, at 9-12 (July 29, 2005); *Comments of Sirius Satellite Radio Inc.*, IB Docket No. 05-221, at 14-16 (July 29, 2005).

[12] *Compare Comments of Inmarsat Ventures Limited*, IB Docket No. 05-221 (July 29, 2005), *with Comments of Sirius Satellite Radio Inc.*, IB Docket No. 05-221 (July 29, 2005), *with Comments of CTIA – The Wireless Association*, IB Docket No. 05-221 (July 29, 2005), *with Comments of United States Cellular Corp.*, IB Docket No. 05-221 (July 27, 2005), *and Comments of RF Marketing, Inc.*, IB Docket No. 05-221 (July 29, 2005).

[13] *See Comments of Inmarsat Ventures Limited*, IB Docket No. 05-221, Ex. A at 25-29 (July 29, 2005).

offerings. The Commission's policy presumption to provide for at least three licensed competitors in the nascent 2 GHz band, and the opportunity to assign 2 GHz spectrum in rationally-sized segments, provide compelling reasons why the Commission should address its 2 GHz policy in a comprehensive manner, and should not take the precipitous step proposed in the June 29, 2005 *Public Notice* in IB Docket No. 05-220 of assigning TMI and ICO each a random-sized 6.67 MHz segment of 2 GHz spectrum. Indeed, use of a 1.25 MHz spectrum building block could serve both goals — supporting *four or five* competitors in the band, each with a 2 x 5 MHz or a 2 x 3.75 MHz assignment, and using a building block that is consistent with many terrestrial channelization schemes, perhaps coupled with a pre-defined policy how to reassign spectrum that becomes free thereafter (if some operators fail to meet appropriate milestones or otherwise return their licenses) to those who have successfully satisfied their milestones and have commenced commercial services to real, paying American consumers.[14] Such an approach also would serve an important policy goal of preventing satellite spectrum from being seen as a "commodity" that is intrinsically valuable in itself — capable of being traded or repurposed for terrestrial use — or otherwise hoarded or used tactically.

Moreover, addressing the use of reclaimed spectrum in a rulemaking context would be consistent with how the Commission handled issues surrounding previously returned 2

[14] TMI asserts without any support that licensing even one more 2 GHz MSS operator would "leave all 2 GHz MSS providers with access to insufficient spectrum." *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 3, 21, 22 (July 29, 2005). As detailed herein, neither TMI nor ICO has presented any showing that the minimum amount of spectrum needed to commence mobile satellite service at 2 GHz exceeds its current reservation of 4 MHz in each direction, nor has either demonstrated that the Commission was wrong when it last concluded, based on its experience, that 2.5 MHz in each direction is sufficient for the commencement of mobile satellite service at 2 GHz. *See Establishment of Policies & Service Rules for the Mobile Satellite Service in the 2 GHz Band*, 15 FCC Rcd 16127, 16138-39 ¶ 17 (2000). Moreover, neither TMI nor ICO has projected any traffic levels over its spacecraft at any point in the expected useful life of the satellite.

GHz spectrum. When the Commission last addressed the issue of redistributing 2 GHz spectrum that was made available by entities losing their MSS authorizations, it did so in a rulemaking.[15] And, as noted above, in that very rulemaking, the Commission also reiterated that it did not have any policy about to whom additional abandoned 2 GHz MSS spectrum would be assigned in the future. Holding a rulemaking also would be consistent with the approaches taken by the Commission in the recent *Big LEO*[16] and *L-Band*[17] proceedings.

Indeed, in the absence of a clear spectrum policy regarding the 2 GHz band, Commission precedent is clear that a rulemaking proceeding "is generally a better, fairer and more effective method of implementing a new industry-wide policy than is the ad hoc and potentially uneven application of conditions in isolated proceedings affecting or favoring a single party."[18]

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15 *See Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, 18 FCC Rcd 2223 (2003).

16 *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, 19 FCC Rcd 13356, 13378 ¶ 48 (2004). TMI urges that the *Big Leo Order* is "plainly distinguishable" because "the Commission had not adopted a clear policy on how to reassign surrendered Big LEO spectrum." *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 27 (July 29, 2005). As set forth above, however, there is no clear policy on how to reassign surrendered 2 GHz MSS spectrum.

17 *See Establishing Rules and Policies for the Use of Spectrum for Mobile Satellite Service in the Upper and Lower L-Band*, 11 FCC Rcd 11675, 11678-79 ¶ 6 (1996). TMI asserts that the *L-Band Order* is "easily distinguishable" due to an "absence of any prior policy to govern the matter." *Id.* As discussed above, however, there is no clear policy on how to reassign surrendered 2 GHz MSS spectrum.

18 *NGSO-MVDDS Second Report and Order*, 17 FCC Rcd at 9699 ¶ 218.

IV. THE COMMISSION SHOULD PROVIDE FOR AT LEAST THREE MSS COMPETITORS AT 2 GHZ

At the outset, it is important to reiterate the Commission has both (i) an established presumption that it is necessary to maintain at least three competitors in a frequency band, and (ii) a standard that TMI and ICO must meet in their quest to exclude all other MSS providers from the 2 GHz band:

> Here, we find that the factors that have led courts to disfavor mergers to duopoly also support establishing a procedure that will maintain at least three competitors in a frequency band, unless an interested party can rebut our presumption that three is necessary to maintain a competitive market. To rebut this presumption, a party must provide convincing evidence that allowing only two licensees in the frequency band will result in extraordinarily large, cognizable, and non-speculative efficiencies.[19]

As detailed below, TMI and ICO do not meet their evidentiary burden. Neither the pages and pages of platitudes TMI and ICO provide about the policy goals they hope to serve, nor the volumes of technical calculations, letters and declarations that TMI proffers, in support of their request that the Commission license to duopoly in the 2 GHz band, constitutes *convincing evidence* that doing so would result in *extraordinarily large, cognizable, and non-speculative efficiencies*.

A. The Commission Must Consider Competitive Effects in Light of the Unique Nature of the 2 GHz Band

Intel takes the position that all MSS frequency bands — the Big LEO band, the L-Band, the Little LEO band, and the 2 GHz band are fungible.[20] Intel, as well as TMI and ICO, urge the Commission not to concern itself with taking actions that would result in only two

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[19] *Amendment of the Commission's Space Station Licensing Rules and Policies*, 18 FCC Rcd 10760, 10788-89 ¶ 64 (2003) (citations omitted).

[20] *See Reply Comments of Intel Corporation*, IB Docket No. 05-220, at 11-12 (July 25, 2005).

entities being authorized to provide MSS at 2 GHz in the U.S.[21] As Inmarsat explained in its Comments in this proceeding, and its Comments and Reply Comments in companion IB Docket No. 05-220, and as Inmarsat elaborates below, those commenters are wrong that all MSS bands are fungible and that licensing to duopoly in the 2 GHz band would not be a problem. As Inmarsat describes below, there are a number of reasons why the 2 GHz band is unique among MSS bands in its ability to support next-generation broadband MSS services.

1. It Is Not Possible At This Juncture To Ascertain the Full Competitive Effects of TMI's and ICO's Proposal

TMI, ICO and Intel fail to substantiate their claims about the relevant markets and the relevant market participants. And they fail to recognize that the nascent nature of the 2 GHz band, and the complete absence of any services in the band today, create significant obstacles to defining the relevant markets or market participants, and therefore make it next to impossible, outside the context of a comprehensive rulemaking, to ascertain whether licensing to duopoly at 2 GHz would provide *extraordinarily large, cognizable, and non-speculative efficiencies*, or whether it instead would *result in competitive harm*. Because the burden of proof is on TMI and ICO to demonstrate such efficiencies in order to permit a duopoly, the *complete absence of such proof* should lead the Commission to avoid the risk of such competitive harm and to license additional MSS providers in the 2 GHz band.

The Commission has recognized that the anticipated provision of broadband services in a nascent frequency band (such as the 2 GHz band), presents issues that warrant a much more sophisticated look at the definitions of markets and market participants than the those

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[21] *See id.*; *Comments of ICO Satellite Services G.P.*, IB Docket No. 05-221, at 11 (July 29, 2005); *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 3, 18, Ex. B at 2-3, Ex. C at 3 (July 29, 2005).

assumed in the broad-brush assertion by Intel that all MSS frequency bands are fungible. In fact, one of the reasons the Commission designated for hearing (and thereby effectively terminated) the proposed DIRECTV/EchoStar merger was a concern about the impact of that transaction on the provision of broadband services by satellite in the nascent FSS Ka band.[22]

In this regard, the Commission's hearing designation order (HDO) in the DIRECTV/EchoStar case treated the nascent FSS Ka band as different from the congested FSS Ku band in which satellite broadband service already was being provided, explaining that "the gestational character of these yet un-deployed services, combined with rapidly developing technology in this area, makes it difficult to define markets or market participants with any confidence."[23] Like Intel here, the applicants in that case urged that there were plenty of other new entrants in the wider broadband market, using "several different technology platforms," and that the Commission should not look at one frequency band in isolation when examining competitive effects. The Commission disagreed, recognizing that (i) it did not have a basis to conclude whether satellite broadband service to be provided is a nascent frequency band actually would be reasonably interchangeable with terrestrially-provided alternatives, and (ii) the fluid state of broadband technologies prevented a determination at that time whether potential entrants would be able to challenge the alleged "unassailable dominance" that the merged DIRECTV/EchoStar entity would have over the broadband market in many areas of rural America.[24] Thus, the Commission designated for an evidentiary hearing issues regarding the effect of the proposed merger on the provision of broadband services by satellite.

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22 *See In re EchoStar Communications Corp.*, 17 FCC Rcd 20559, 20665-66 ¶ 289 (2002).

23 *Id.* at 20650 ¶ 241.

24 *Id.* at 20651 ¶ 244.

In this case, given the nascent status of the 2 GHz band, and the complete absence of anyone providing 2 GHz MSS in the US today or over the next several years, there is no reasonable basis for the Commission to accept Intel's attempt to define the relevant market and market participants, or to conclude, as TMI and ICO urge, that licensing to duopoly in the 2 GHz band would not result in competitive harm in rural and other areas, but rather would result in extraordinarily large, cognizable, and non-speculative efficiencies. That data, if it could be divined, would need to be developed in a more comprehensive proceeding, such as the rulemaking that Inmarsat and many other commenters have urged. Inmarsat is confident that a duopoly would, at this stage of the development of the 2 GHz band, generate no such efficiencies and indeed runs a very grave risk of creating significant competitive harm and materially damaging the prospects that the MSS industry will be able to bring competitively-priced, cutting-edge wireless broadband services to American consumers in the near term.

2. The Nascent 2 GHz Band is Unique in Its Ability to Support Broadband MSS

As Inmarsat has explained previously, and as further detailed below, the 2 GHz band is unique among MSS bands as the 2 GHz band is ideal for supporting the growing demand for multimedia and broadband services to mobile handheld devices and in vehicles, including personalized access to news, music and video entertainment, and information services. By combining the unrivalled ubiquitous reach of satellite technology with the "greenfield" that is 2 GHz, an MSS system in the 2 GHz band can allow new multicast, broadcast and video-on-demand applications to be delivered seamlessly to low-cost terminal equipment, and with the efficiencies inherent in "piggybacking" on technological developments that are being made to support terrestrial 3G networks. Thus, MSS is the sole technology that can offer a nationwide, highly-reliable, "anytime, anywhere" mobile broadband and multimedia network with the launch of a single radio transmitter. In this regard, 2 GHz MSS is exceptionally well-suited to providing

a “megacell” overlay to the terrestrial wireless network in support of such applications, because the traditional 3G network architecture, with hundreds of base-stations, is not an efficient platform for transmitting multicast/broadcast content.

There are a number of reasons that the 2 GHz band is uniquely suited to support the provision of broadband and multimedia MSS offerings, in a manner different from other MSS bands.

i. Synergies with Terrestrial 3G

Since WARC-92, the international community has identified the 2 GHz frequency band as the spectrum ideally suited to be used for the development of “IMT-2000” compliant or compatible 3G terrestrial and satellite services. The fact that the 2 GHz bands allocated for the terrestrial and satellite components of IMT-2000 are physically near each other facilitates the development and implementation of user terminals with 3G form factors and sizes, as well as service capabilities comparable to those offered by 3G terrestrial systems. These two factors, in turn, enable the mass-market development of integrated and interoperable satellite/terrestrial terminals that can provide ubiquitous coverage and mobile services throughout North America. The 2 GHz MSS band therefore is ideally suited to support the development of advanced and innovative broadband and multi-media services for mobile users. The L-Band does not have these same advantages.

ii. Support for Wide-Bandwidth Channels

Once the relocation of terrestrial Broadcast Auxiliary Service (BAS) and Fixed Service (FS) incumbent radio systems from the 2 GHz band has been accomplished, the 2 GHz band will be essentially “virgin” spectrum from an MSS standpoint and will afford considerable flexibility for the development of new and innovative MSS services. In particular, because of

the revolutionary developments that have occurred in the wireless industry since the Commission first licensed MSS systems at 2 GHz, the Commission should consider adopting a policy to assign the 2 GHz band in multiples of spectrum "building blocks" that would facilitate the employment of channels wider in bandwidth than those that are used for MSS today, which would be well-suited to provide emerging broadband and multimedia MSS offerings. For example, one possibility would be to use the 1.25 MHz cdma2000 channelization approach as a building block. The potential use of such rational building blocks, rather than assigning the band in randomly-sized segments that previously have been used, provides yet another compelling reason why the Commission should address its 2 GHz policy in a comprehensive manner and in a rulemaking. Moreover, this opportunity counsels against taking the precipitous step proposed in the June 29, 2005 *Public Notice* in IB Docket No. 05-220 of assigning each of TMI and ICO a random-sized 2 x 6.67 MHz segment of 2 GHz spectrum. Inmarsat also believes that, in the context of licensing three or more MSS operators, such an approach also would facilitate the development by the Commission of a pre-defined policy how to reassign spectrum that comes free thereafter (if some operators fail to meet their license milestones or otherwise return their licenses) to those who have satisfied their milestones and have commenced commercial services to real, paying American consumers. Such an approach also would serve an important policy goal of preventing satellite spectrum from being seen as a "commodity" that is intrinsically valuable in itself — capable of being traded or repurposed for terrestrial use — or otherwise hoarded or used tactically).

In contrast, various MSS operators around the world historically have used the L-Band spectrum for a mix of voice and relatively low-data-rate traffic. This has led to a high level of segmentation or fractionalization of the band (*e.g.*, segments as small as 50 kHz). As a result,

there has been very little opportunity to assemble the L-Band into the types of spectrum building blocks more suitable for the provision of emerging broadband and multimedia MSS offerings. This problem in the L-Band is exacerbated because the ability to "refarm" the band in Region 2 is constrained by its impact on users of the band in Regions 1 and 3 who do not have an interest in Region 2. Above all, the L-Band is needed to support the hundreds of thousands of existing users of services currently being provided in the band who have in the aggregate invested billions of dollars in their terminal equipment, and there are significant technical challenges involved with offering a high data rate platform to 3G-like terminals alongside currently provided services in the L-Band that have very different link budget characteristics.

iii. Lack of Congestion

There are simply no satellite systems operating today in the part of the 2 GHz band that is at issue. Moreover, spectrum assignments in the 2 GHz band can be well-defined and fixed. In contrast, the L-Band MSS spectrum at 1525-1559/1626.5-1660.5 MHz is heavily congested in ITU Region 2 (the Americas) and in the rest of the world as well.[25] In particular, five different administrations have rights to the L-Band in Region 2, six different administrations have rights to the L-Band in Regions 1 and 3, and approximately 20 GSO spacecraft are currently in operation around the world with L-Band payloads. The Commission has long recognized the congestion in the L-Band MSS spectrum, which is likely to be exacerbated through continued growth in the services being offered by successful MSS providers like Inmarsat.

[25] There is no other available spectrum at L-Band to accommodate future growth of Inmarsat's current and planned services. The recently ITU allocated frequency band of 1518-1525 MHz and 1668-1675 MHz is not available in the U.S. due to the existing operations of other systems in the U.S.

The L-Band presents other challenges not present at 2 GHz. Namely, the dynamic annual spectrum assignment process that governs the sharing of L-Band spectrum prevents any satellite system from acquiring a stable, long-term assignment of a specific segment of spectrum. Rather, spectrum assignments are made for one-year periods, and are to be revisited annually, based on demonstrated short-term traffic demands. As Inmarsat has previously told the Commission, the failure of MSV since 1999 to participate in the annual operators' meetings called for by the Mexico City MOU spectrum sharing arrangement has led to an impasse in the ability to reassign spectrum to accommodate traffic growth in L-Band systems. In addition, Inmarsat believes that the continued growth of successful MSS systems globally will over the medium term — even with the annual spectrum assignment process — start to create very real spectrum constraints within the L-Band, warranting the creation now of a "safety valve" for such operators — in the 2 GHz band. By way of example, Inmarsat's high speed data (HSD) and capacity leasing services have each had compound annual growth rates in excess of 15 percent for the last half dozen years and Inmarsat believes that this growth will accelerate in the coming years based on a number of factors, including the launch of our next-generation BGAN services, which offer rich, new HSD services at three times the current maximum speed, to terminals a third of the price, weight and size of current generation HSD MSS terminals.

iv. Lack of Preemption Priority for Safety Services

The L-Band is used for GMDSS and AMSRS services, and "safety related" GMDSS and AMSRS services are afforded regulatory priority under ITU and Commission rules. The L-Band MSS spectrum will continue to be used for such purposes, whose spectrum requirements are also likely to progressively increase, especially in the aeronautical sector. For Inmarsat, the requirement to give priority or preference in assigning channels to safety services

has had a clear and significant impact on our operational flexibility. The 2 GHz band is not subject to any such preemption priorities.

Thus, the 2 GHz band has a number of unique attributes that differentiate it from other MSS bands. Indeed, TMI, ICO, Microwave Circuits, Advanced Microwave Technologies, and Virginia Region 2000 all seem to believe that there is something unique about the 2 GHz band's ability to support homeland security needs.[26] The DIRECTV/EchoStar HDO counsels that these attributes are compelling reasons to be concerned about limiting the number of MSS licensees in the band to two, as TMI and ICO urge. Inmarsat believes that common sense dictates absolutely the opposite to what TMI and ICO urge — that the potential for the successful deployment of a 2 GHz system that could actually capitalize on these benefits, and deliver valuable services to the public (and support homeland security), would be greatly increased by licensing at least three competitive MSS systems in the band, and ensuring that all such licensees have access to an equal amount of 2 GHz MSS spectrum. As Inmarsat has previously indicated, Inmarsat stands ready to be that third 2 GHz licensee.

B. Inmarsat is Well-Qualified to Deploy a 2 GHz MSS System

In its earlier Comments, Inmarsat demonstrated its interest in the 2 GHz band, the need to use the 2 GHz band to provide new classes of service that are not possible to provide in other MSS bands, and its intention to launch a 2 GHz broadband multimedia MSS system to

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[26] *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 7-10 (July 29, 2005); *Comments of ICO Satellite Services G.P.*, IB Docket No. 05-221, at 7-8 (July 29, 2005); Letter from Carl Hofferberth, Microwave Circuits, Inc., and Larry Hatch, Advanced Manufacturing Technology, Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 05-221 (July 25, 2005); Letter from Lee Cobb, Region 2000 Economic Development Partnership, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 05-221 (July 29, 2005).

serve the United States by the end of this decade — just 11 months after TMI's final license milestone of November 2008.

Inmarsat demonstrated that is well-qualified to deploy a 2 GHz MSS system. Inmarsat and its predecessors have over twenty-five years of experience deploying a successful and profitable business based on a global fleet of geostationary orbit MSS communications satellites that operate in the L-Band, providing a wide range of essential services to, from, and within the United States to public safety, military, governmental, commercial, and humanitarian users alike, and generating almost half a billion dollars of revenue in 2004 alone. Inmarsat has *ten* operational MSS spacecraft in orbit, and each currently is being used to support ever-growing customer demands. Moreover, Inmarsat has a long history of building, launching, and operating new MSS spacecraft to meet market demands. Inmarsat's commitment to the MSS industry is evidenced by its recent investment of over $1.5 billion in the deployment of its next-generation Inmarsat-4 network of L-Band satellites and related ground infrastructure, with its first Inmarsat-4 satellite commencing commercial service on May 28, 2005, and the second scheduled for launch in the second half of this year or in early 2006, and to begin serving the U.S. shortly thereafter. There is no doubt that Inmarsat is the world's leading provider of MSS, committed to remaining at the leading edge of technological and commercial innovation and enterprise.

Faced with these unassailable credentials, ICO and TMI make spurious allegations that Inmarsat does not have the resources to develop a viable 2 GHz MSS business, and also argue that Inmarsat has no equitable interest in the band because Inmarsat "had its chance" and decided not to pursue a 2 GHz FCC authorization before, and that Inmarsat does not

have any needs that cannot be accommodated at L-Band.[27] Because Globalstar's 2 GHz authorization has been revoked, and no other MSS entity has expressed an interest in the 2 GHz band, TMI and ICO urge the Commission to ignore Inmarsat's interest, and to assign the entire 2 GHz band to the two of them.

As an initial matter, while it is true that Inmarsat at one time had an application pending at the Commission for a 2 GHz authorization, and that it withdrew that application five years ago, TMI and ICO conveniently fail to mention that the Inmarsat withdrawal letter they cite (x) explains that Inmarsat withdrew its application because Inmarsat had determined that it would not be in a position to deploy a 2 GHz system in a manner consistent with the Commission's 2 GHz milestones, and (y) expressly reserved Inmarsat's right to seek a 2 GHz authorization from the Commission at a later time.[28] Five years later, (i) fresh from investing $1.5 billion in the construction and deployment of a next generation L-Band MSS system, (ii) after having overcome the market access obstacles presented by the ORBIT Act (which *precluded* Inmarsat from implementing a 2 GHz system until it had fully privatized), (iii) in response to the Commission's June 29, 2005 *Public Notices* soliciting interest in the 2 GHz band, (iv) in an entirely different commercial, technological and regulatory (ATC) environment, and (v) in recognition that the growth potential of the L-Band is limited in the long term, Inmarsat has done *precisely* what it told the Commission Inmarsat might do — express an interest in using its unrivalled expertise to bring the benefits of 2 GHz MSS broadband and multimedia offerings

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27 *See Comments of ICO Satellite Services G.P.*, IB Docket No. 05-221, at 12-14 (July 29, 2005); *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 21-24 (July 29, 2005).

28 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. D (July 29, 2005) (attaching Inmarsat's 2 GHz withdrawal letter).

to the American public. Inmarsat hardly can be criticized for (in stark contrast to TMI and ICO) deciding not to waste the Commission's resources, and instead withdrawing until a time when market conditions and technological developments dictated that Inmarsat could actually deliver next-generation 2 GHz MSS services on a reasonable time schedule. That time is now.

Neither TMI nor ICO even attempts to rebut Inmarsat's prior explanation why the 2 GHz band represents essential "expansion capacity" for MSS systems operating in the L-Band, which is becoming increasingly congested. Nor do these entities attempt to rebut Inmarsat's showing that the 2 GHz band provides the main opportunity to support the continued growth and development of MSS services, just as the Ku band has been utilized by the FSS industry to fill needs that could not be met at C band, and just as the Ka band is starting to be used to fulfil needs that cannot be met in the now-congested Ku band.

There is no question that MSS service applications and bandwidth demands, and Inmarsat's use of the L-Band in particular, continue to grow at a significant rate and are expected to accelerate in the coming years with Inmarsat's innovative BGAN service, which is expected to drive the demand for data-intensive applications and to extend the range of potential customers for MSS. Longstanding maritime applications are becoming more data intensive as corporate networks are extended to their vessels around the world. Aeronautical MSS uses are dramatically expanding in both the cabin and the cockpit, as MSS provides the opportunity for an "always on" broadband link to airplanes, wherever they are flying, to support air traffic control, weather updates, navigation, and voice and data communications. In both the maritime and aeronautical sectors, there has been significant recent growth in the use of stabilized VSATs using the FSS bands, highlighting the appetite among users for bandwidth-hungry applications, despite the unsuitability of FSS bands for ubiquitous mobile service to small terminals.

Moreover, the use of MSS to support land mobile services will continue to grow, particularly with the forthcoming deployment of Inmarsat's BGAN service in the U.S. and elsewhere. Over the last six years, Inmarsat's revenues from its spectrum-intensive data MSS have grown at a compound rate of more than 15 percent, amply demonstrating the global thirst of consumers for ubiquitous, high-quality, and bandwidth-intensive data services. Inmarsat expects this trend to continue following the launch of its BGAN land service later this year, with complementary maritime (Fleet Broadband) and aeronautical (Swift Broadband) services expected to follow.

Despite the exponential increase in efficiency with which the revolutionary Inmarsat-4 system uses the scarce spectrum resource, and even taking into account similar expected gains in spectrum efficiency in the future, the high-bandwidth demands of MSS broadband and multimedia services, and the rapid take-up of new MSS services and applications, eventually can be expected to outstrip the available capacity in both the L-Band and the Big LEO band. The nascent 2 GHz band therefore is an important "safety valve" to provide both for the continued growth of existing MSS services, and the development of new and innovative MSS services that cannot be accommodated in other MSS bands because of existing uses of those bands by satellite networks around the world, and the ways that shared use of those bands is accommodated. Indeed, the 2 GHz band provides a unique opportunity to provide for the continued growth of MSS.

TMI tries to impeach Inmarsat's expressed intention to begin the development of a 2 GHz MSS system that would serve the United States *if* the Commission retains the entire 20 + 20 MHz of the 2 GHz MSS allocation that exists in the U.S. today, and *if* the Commission ensures the potential for more than two MSS licensees to use the band. TMI's claim that Inmarsat has previously represented that it would not seek additional spectrum to pursue future

business opportunities, or need to make additional capital expenditures for additional spacecraft that would use that additional spectrum and support those future business opportunities,[29] is belied by even a cursory glance at Inmarsat's IPO prospectus to which TMI cites. The *very heading* for one of the risk factors in Inmarsat's IPO prospectus states (in bold, italicized font no less), "***We may not retain sufficient rights to the spectrum required to operate our satellite system to its expected capacity or to take full advantage of future business opportunities.***"[30] In both that risk factor and in the very same paragraph that TMI cites, Inmarsat expressly indicated that "*it is possible that we would need to apply for additional spectrum to support our future services*."[31] Thus, Inmarsat's June 1, 2005 IPO disclosures foreshadowed Inmarsat's pursuing the very type of a 2 GHz MSS opportunity presented by the subsequent, June 29, 2005 *Public Notices*, and which Inmarsat proposed in its FCC comments a month and a half later, on July 13, 2005. The statements TMI cites about Inmarsat's not needing to make additional capital expenditures until 2014 were made in the context of a discussion of Inmarsat's L-Band business, and in no way qualified any capital expenditures attendant to the "*possible . . . need to apply for additional spectrum to support our future services*," such as a 2 GHz MSS system. Given the requirement for extensive associated terrestrial infrastructure and additional media-based applications, it is Inmarsat's intent to develop the 2 GHz MSS business opportunity with key companies in the telecommunications, IT and media sectors, and Inmarsat is currently in active

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29 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 22-23 (July 29, 2005).

30 *Inmarsat plc Prospectus*, available at http://about.inmarsat.com/investor_relations/default.aspx, at 19 (last visited August 9, 2005) (emphasis in original).

31 *Id.* at 45 (emphasis added).

discussions with several leading players in that regard. TMI's disregard for the express language in Inmarsat's prospectus borders on a lack of candor to the Commission.[32]

Returning to TMI's and ICO's claims that Inmarsat already has access to "enough" spectrum, it is important that Commission recognize that, under Commission rules, the L-Band spectrum currently "used" (or appropriated) by MSV, and any 2 GHz spectrum assigned to TMI/TerreStar, would be fully attributable to Motient Corporation.[33] Motient owns 61% of the equity of and controls TerreStar, and also owns 49% of the equity of MSV. TerreStar, of course, is the entity that currently holds the contract for the construction of the TMI spacecraft, and is the entity to which TMI intends to assign its 2 GHz LOI authorization.[34] Thus, to the extent that ICO argues that Inmarsat has no legitimate interest in the 2 GHz band because of its L-Band business, that same line of argument would indicate that TMI/TerreStar has no legitimate interest in more 2 GHz spectrum because of Motient's L-Band interest. That logic, in turn, would argue for the absurd result of ICO getting access to the entire 2 GHz band. Fortunately, as set forth above, TMI and ICO's premise is wrong. Inmarsat has legitimate needs for the 2 GHz band both to bring new and innovative multimedia and broadband MSS services to the American

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32 *See, e.g.*, *In re Application of Fox Television Stations, Inc. for Renewal of License of Station WNYW-TV, New York, New York*, 10 FCC Rcd 8452, 8478 ¶ 59 (1995) ("A licensee's duty of candor is critical given the FCC's many duties. . . . [T]he Commission must rely heavily on the completeness and accuracy of the submissions made to it, and its applicants in turn have an affirmative duty to inform the Commission of the facts it needs in order to fulfill its statutory mandate.' . . . There is thus no question that an applicant's candor is an issue of the utmost importance to us." (Quoting *RKO General, Inc. v. FCC*, 670 F.2d 215, 232 (D.C. Cir. 1981)).

33 *See* 47 C.F.R. § 25.159(c). In this regard, it is notable that TMI relies on the financing efforts of Motient to substantiate TMI's assertions that the TMI 2 GHz MSS system is moving forward. *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 5 (July 29, 2005).

34 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 1 n.1 (July 29, 2005).

public, and to provide expansion capacity for the hundreds of thousands of users who rely on its existing L-Band services. Indeed, on that dual basis, Inmarsat has a more legitimate claim to an assignment in the 2 GHz band than either TMI or ICO, neither of which has an operating MSS system of any meaningful substance.

V. TMI AND ICO'S TRACK RECORD DOES NOT WARRANT AN ASSIGNMENT OF MORE 2 GHZ SPECTRUM

Unlike Inmarsat's track record, which demonstrates its willingness and ability to invest in the MSS industry even when market conditions are tough, and its willingness to abide by the Commission's regulatory requirements, TMI and ICO have engaged in a game of regulatory "rope a dope"[35] until they are the only 2 GHz MSS licensees left standing. Particularly given the Commission's mandate that TMI and ICO should "be given the opportunity to succeed or fail in the market on their own merits,"[36] TMI's and ICO's track records clearly do not warrant providing them a windfall assignment of more spectrum simply because they are the last 2 GHz MSS licensees to have accepted the failure of their original business plans, and they now want more spectrum to pursue ATC — a business opportunity that is radically different from the services envisaged at the time of original licensing. A short recitation of their track record is warranted, particularly because ICO has the temerity to assert that it "diligently and promptly has pursued implementation of its system and has not required any milestone extension or waiver."[37]

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35 *See http://www.os2hq.com/articles/uibm11.htm* (last visited Aug. 12, 2005) (describing the use by a business of Muhammad Ali's boxing strategy of positioning oneself defensively, waiting for the opponent to tire himself out with his own futile efforts, them stepping in for the strategic kill).

36 *In the Matter of ICO Services Limited*, 16 FCC Rcd 13762, 13774 ¶ 31 (2001).

37 *Comments of ICO Satellite Services G.P.*, IB Docket No. 05-221, at 5 (July 29, 2005)

ICO's predecessor in interest and affiliate[38] originally promised the Commission a global network of thirteen non-geostationary-orbit (NGSO) 2 GHz spacecraft, with commercial service beginning in 2000. As it does now, ICO urged the Commission not to accommodate the needs of MSS systems that would be brought into service much after ICO expected to commence service.[39] ICO then went through bankruptcy reorganization, changed ownership, renegotiated with its spacecraft contractor, modified its spacecraft design, and told the Commission in November 2000 that it would need only a few more years — until the second quarter of 2003.[40] That deadline came and went, and by October 2003, ICO had constructed and launched only two (one successfully) of the thirteen spacecraft in its network.[41] Early this year, almost five years after the long-promised commencement of 2 GHz MSS service, ICO abruptly abandoned its NGSO network and sought authority to deploy a much scaled back system consisting of a single spacecraft in GSO orbit, which it hopes to launch by July 2007. By the Commission's own analysis, this spacecraft "is of a relatively simple bent-pipe design, and most of the components

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38 ICO Services Limited effectuated a pro forma assignment of its letter of intent authorization to an affiliate, the currently authorized and commonly-controlled ICO Satellite Services G.P. *See* FCC File No. SAT-ASG-20020128-00015.

39 ICO Letter of Intent to Access 2 GHz MSS Frequency Bands at 1990-2025/2165-2200 MHz, SAT LOI-19970926-00163, at 3 (Sept. 26, 1997) ("[t]o consider a longer implementation period [than September 2002] likely will result in an artificial demand based on speculative applications for use of the 2 GHz MSS bands, thereby creating unnecessary pressure on the limited amount of available spectrum").

40 *See* Second Amendment to ICO's Letter of Intent to Access 2 GHz MSS Frequency Bands at 1990-2025/2165-2000 MHz, SAT-AMD-20001103-00155, at 7 (Nov. 3, 2000).

41 *See* ICO Satellite Services G.P. Section 25.143(e) Annual Report, File No. 188-SAT-LOI-97 (Oct. 15, 2003).

are 'legacy' equipment that has been used or developed for previous projects,"[42] and by no means is it a sophisticated, state-of the-art MSS spacecraft.

Under a best case scenario, ICO's 2 GHz MSS system will be *seven years late* And when the Commission authorized ICO to scrap its sophisticated NGSO system in favor of a stripped-down regional GSO satellite, the Commission itself recognized that ICO's proposed schedule *was inconsistent in two respects with Commission rules and policies*. Thus ICO required *two milestone extensions*,[43] and five years more time to deploy than ICO advocated *anyone should have* when ICO first sought FCC authority at 2 GHz

Nor has TMI implemented its system within the milestones it originally described. TMI represented that it would have its 2 GHz system launched and operating within 44 months after it received a license from the Canadian government.[44] TMI received that approval 38

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42 *ICO Satellite Services Application for Modification of 2 GHz LOI Authorization*, 20 FCC Rcd 9797, 9803 ¶ 24 (2005).

43 *ICO Satellite Services G.P. Application for Modification of 2 GHz LOI Authorization*, 20 FCC Rcd 9797, 9803 ¶ 25 (2005) ("ICO's post-CDR timeline is inconsistent in two respects with the Commission's milestone schedule for 2 GHz MSS systems with GSO architecture, which requires physical construction to begin within three years after initial grant, *i.e.*, by July 17, 2004, and launch to occur within five years, *i.e.*, by July 17, 2006. Granting the modification application with the milestone schedule that ICO proposes would extend the time allowed for starting physical construction and the time allowed for launch by approximately one year. We conclude that granting such extensions in this case is warranted . . . .").

44 *See* TMI Communications and Company, Limited Partnership Letter of Intent by Non-U.S. Operator to Provide Mobile Satellite Service (MSS) in 2 GHz Band, SAT-LOI-19970926-00161, at 8 (Sept. 26, 1997).

months ago,[45] yet its spacecraft is only in the earliest stages of physical construction and remains years away from completion.[46]

Notwithstanding TMI's original plan to launch and place its spacecraft into service by the end of 2005, based on a license issued by Industry Canada[47] after TMI failed to comply with Commission requirements to enter into the requisite satellite construction contract by July 2002, the Commission declared TMI's spectrum reservation null and void. In granting TMI's request to reinstate its spectrum reservation, the Commission excused TMI's failure to move forward in accordance with Commission requirements due to Canadian legal complications, waived the application of the Commission's first 2 GHz MSS milestone, and extended TMI's final two milestones by 16 months, thereby providing TMI until November 2008 to complete its 2 GHz satellite and place it into operation.[48]

The record is clear that TMI and ICO are not willing to deploy their originally authorized systems on the terms and conditions they proposed, or on the terms and conditions that the Commission established, and that they voluntarily accepted, over four years ago. In this regard, it bears noting that the same two entities who claim that their MSS systems now are not feasible with 4 + 4 MHz voluntarily accepted their initial assignment of only 3.5 + 3.5 MHz, and

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45 *See* Letter from Gregory C. Staple, Counsel for TMI, to Marlene H. Dortch, Secretary, FCC, File No. 189-SAT-L03-97, IBFS Nos. SAT-LOI-19970926-00161 & SAT-AMD-20001103-60158, at 2 (July 26, 2002).

46 TMI Communications and Company Limited Partnership March 2005 Milestone Certification, File Nos. SAT-LOI-19970926-00161, SAT-AMD-20001103-60158, & SAT-MOD-20021114-00237 (Apr. 11, 2005).

47 December 31, 2005 will be two days shy of 44 months after the May 2, 2002 grant of authority by Industry Canada to TMI.

48 *See TMI Communications and Company, Limited Partnership and TerreStar Networks Inc. Application for Review and Request for Stay*, 19 FCC Rcd 12603, 12623 ¶ 59 (2004).

the attendant obligation to implement an MSS system with those spectrum constraints under the milestones the Commission established in 2001.[49] If ICO and TMI believed that the Commission was wrong, and its spectrum assignment was inadequate, they should have accepted the Commission's invitation to decline to accept their authorizations.[50] Having accepted those authorizations, and having reported to the Commission year after year that they were moving forward with their authorized systems, neither TMI nor ICO can be heard to complain about the adequacy of its current 4 + 4 MHz spectrum assignment, or to criticize Inmarsat for withdrawing from the 2 GHz proceeding when it was clear that Inmarsat would not be able to comply with the Commission's requirements.

VI. NEITHER TMI NOR ICO HAS SUBSTANTIATED THE NEED FOR MORE SPECTRUM

Neither TMI nor ICO makes a legally sustainable showing that it is entitled to more 2 GHz spectrum, or that the Commission should license to duopoly at 2 GHz. Neither TMI nor ICO as much as attempts to demonstrate the projected customer demand for its 2 GHz MSS service, or the anticipated traffic level over its MSS system. And neither explains why *licensing TMI and ICO to duopoly* would suddenly allow them to effectively compete with PCS and cellular service providers in the provision of telephony-like services to handheld devices, particularly when neither of them has a single MSS customer today, and when every other MSS licensee who tried that before (including them) has failed. Rather, TMI and ICO primarily resort to a long-winded "if we build it, they will come" rubric that the Commission has previously

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49 *See In the Matter of ICO Services Limited Letter of Intent to Provide Mobile-Satellite Service in the 2 GHz Bands*, 16 FCC Rcd 13762, 13774-76 ¶¶ 32-39 (2001); *In the Matter of TMI Communications and Company, Limited Partnership, Letter of Intent to Provide Mobile-Satellite Service in the 2 GHz Bands*, 16 FCC Rcd 13808, 13816-17 ¶¶ 23-29 (2001).

50 *See id.*

rejected as inadequate,[51] wrapped in an inchoate plan to better serve homeland security needs (presumably designed to elicit an emotive, knee-jerk reaction from the Commission).

More fundamentally, TMI's and ICO's showings do not constitute "convincing evidence" of "extraordinarily large, cognizable and non-speculative efficiencies." Specifically, ICO provides no evidence to substantiate its case, and TMI's technical showing is not even legally cognizable because, in its quest for a modification of its authorization to serve the U.S., TMI relies on the design of a satellite that it is not authorized to use to serve the U.S.

A. TMI and ICO's Policy Arguments Are Not Persuasive

Now that Inmarsat has expressed an interest in the 2 GHz band, each of TMI and ICO responds that the entire band should be assigned exclusively to them, because they allegedly will be the first two entities who will be able to deploy in the band.[52] Given that ICO is already seven years late, and TMI will clearly miss its original commitment to deploy by the end of 2005, that assertion is questionable at best. Even if it turns out to be true, it fails to provide a persuasive reason, considering that Inmarsat has indicated it could be in a position deploy a 2 GHz system by the end of this decade — a mere 11 months after TMI's final, November 2008 milestone.

TMI's and ICO's argument about the "first to deploy," taken to its logical conclusion, would mean that the 2 GHz band should not be split equally between the two of

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51 *J & W Mobile Radio Association*, 15 FCC Rcd 1893, 1897-98 ¶ 11 (2000) ("[T]he Applicants rely on an unsubstantiated 'build it and they will come' approach. Unfortunately this approach does not ensure that the large number of channels requested will be efficiently used, if used at all. . . . [B]ecause they have not provided user information, we find that the Applicants have not justified the number of channels sought.").

52 *See Comments of ICO Satellite Services G.P.*, IB Docket No. 05-221, at 3 (July 29, 2005); *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 20 (July 29, 2005).

them; rather, the first of them who actually can deploy at 2 GHz should get the entire band. Of course, TMI and ICO would not endorse that approach because it would undercut their cozy cabal to create a 2 GHz duopoly. A true race to see who finished first sure would provide them an incentive to actually implement, rather than complaining, as ICO does, that the Commission did not assign it enough spectrum back in 2001, and that its ability to deploy has been constrained by "persistent regulatory uncertainty" created by "incumbent [terrestrial] service providers"[53] who urged the Commission to limit the amount of the 2 GHz band that should be kept available for MSS. But it would not make sense to license to monopoly based simply on who is likely to deploy first. Nor would it make sense to license to duopoly on that basis, as TMI and ICO propose.

B. TMI's and ICO's Evidentiary Submissions Are Inadequate

Other than general platitudes about the benefits of MSS, which are equally applicable to all MSS providers (including Inmarsat), ICO has submitted literally *no* evidence to substantiate its purported need for more 2 GHz spectrum. Thus, ICO has failed to carry its burden of rebutting the Commission's presumption that at least three MSS competitors are appropriate at 2 GHz.

In terms of pure paper volume, TMI goes far beyond ICO — introducing modified versions of the same types of data it provided to the Commission back in April, most of which has already been fully vetted in companion IB Docket No. 05-220: a technical annex about its new spacecraft design and qualitative (but admittedly non-quantitative) declarations about economies of scale regarding the manufacture of cellular/PCS handsets.[54] From that data,

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53 *Comments of ICO Satellite Services G.P.*, IB Docket No. 05-221, at 6 (July 29, 2005).

54 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at Exs. A-C (July 29, 2005).

TMI argues that its desire to fully use the power available on its satellite, and its desire to be able to sell low cost handsets, warrants assigning it more spectrum. Despite the volume of TMI's submission, that showing does not meet TMI's burden of rebutting the Commission's presumption that there should be the opportunity for least three 2 GHz MSS licensees.

1. TMI's Evidentiary Submission is Not Legally Cognizable

As an initial matter, it bears emphasis that the essence of TMI's justification for additional spectrum is its desire to deploy ATC at 2 GHz. Contrary to TMI's assertions, Inmarsat has not claimed that the addition of ATC means that TMI's 2 GHz MSS system needs more spectrum than it otherwise would need.[55] It is TMI who stated that the driving factor in its own desire for more 2 GHz spectrum is its own wish to have more spectrum for ATC purposes: "To deploy a modern ATC network, however, at least 2 x 10 MHz of spectrum is needed."[56]

In this regard, Commission policy is clear that ATC plans in and of themselves are not a justification for demanding more MSS spectrum. In authorizing ATC, the Commission indicated that ATC would not be a ruse to justify access to more MSS spectrum: "MSS ATC proponents do not seek additional spectrum, but rather greater authority to use spectrum previously licensed for their use in satellite systems in additional ways."[57] The Commission went on to affirm that ATC was to be deployed within an MSS operator's existing spectrum assignment: "granting MSS operators the ability to provide more and better services to both existing and potentially new subscribers with the same amount of spectrum necessarily improves

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55 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 5 (July 29, 2005).

56 *See* Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, at 7 (Apr. 19, 2005).

57 *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands*, 18 FCC Rcd 1962, 1974 ¶ 20 (2003).

the efficiency with which they can use the spectrum . . . ."[58] To this end, the Commission expressly agreed with TMI/TerreStar's affiliate MSV, who asserted that "parties could not legitimately justify terrestrial ATC usage to justify a larger MSS satellite spectrum assignment."[59] If the Commission were to allow an operator to advance this type of argument successfully, then the consequences, perversely, could be to encourage spectrum hoarding and attempted re-purposing/sale of MSS spectrum exclusively for terrestrial use, which would have the unintended effect of actually discouraging the operator from advancing an MSS network with all due speed — exactly the situation in which ICO and TMI (in the 2 GHz band) and MSV (in the L-Band) have currently positioned themselves — thereby defeating the Commission's policy of encouraging the build-out of MSS systems and innovation for the benefit of American consumers.

TMI's alternate argument that it needs more 2 GHz spectrum due to its MSS satellite design simply is not legally cognizable. In this regard, it is significant that the satellite technical design on which TMI relies is very different from the satellite technical design that the Commission approved in granting TMI's 2 GHz Letter of Intent (LOI) authorization. A comparison of TMI's 1997 LOI filing with the details from its July filing yields the following significant differences.[60]

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58 *Id.*

59 *Id.* at 2067 ¶ 215.

60 *Application of TMI Communication and Company, L.P., for Letter of Intent Authorization to Provide MSS in the 2 GHz Band* (filed Sept. 26, 1997, as amended, modified and proposed to be assigned) FCC File Nos. SAT-LOI-19970926-00161, SAT-AMD-20001103-00158, SAT-MOD-20021114-00237, SAT-ASG-20021211-00238 (the "*TMI 1997 LOI Application*").

- The authorized satellite has a peak power (EIRP) of 76.8 dBW, whereas TMI now relies on a satellite design with over twice the power — 80 dBW.[61]

- The 2 GHz spot beams on the authorized satellite have a peak gain of 45 dBi, whereas TMI now relies of a 2x increase in antenna gain — to 48 dBi.[62]

- The carriers specified on the authorized satellite are narrowband 5 kHz carriers, whereas TMI now assumes wideband carriers that are 1,000 times larger — 5 MHz.[63]

- The smallest mobile terminal in the authorized network would have a G/T of -24 dB/K, whereas the smallest terminal that TMI now proposes is 7 dB, or five times less sensitive, with a G/T of only -31 dB/K.[64]

- The authorized system was to have 72 beams covering the U.S., whereas the new design has over 280 beams.[65]

- The authorized system relies on 50 W of power fed into the Ku band feeder link antenna. Although no comparable information appears to have been provided for the new satellite,

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61 *Compare Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 1, 2 (July 29, 2005), *with TMI 1997 LOI Application* at Section 12, Table 1. It is not clear whether the 80 dBw value that TMI cites is edge of coverage or peak EIRP. It is reasonable to conclude that is an edge of coverage value, as peak values typically are not used for satellite link budgets. Thus, the peak value is likely higher, and the discrepancy from the 1997 TMI LOI filing is likely to be actually greater.

62 *Compare Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 10, 14, 18, 22, 26 (July 29, 2005), *with TMI 1997 LOI Application* at Section 12, Table 1. It is not clear whether the 48 dBi value that TMI cites is edge of coverage or peak gain. It is reasonable to conclude that it is an edge of coverage value, as peak values typically are not used for satellite link budgets. Thus, the peak value is likely higher, and the discrepancy from the 1997 TMI LOI filing is likely to be actually greater.

63 *Compare* Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, Technical Appendix at 3 (Apr. 19, 2005), *with TMI 1997 LOI Application* at Section 8.

64 *Compare Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 2 (July 29, 2005), *with TMI 1997 LOI Application* at Section 8.

65 *Compare Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 4 (July 29, 2005), *with TMI 1997 LOI Application* at Section 5.

> the power level should be several times that with the new "ground based" beam forming approach on which TMI relies to support its claims that the new satellite design improves spectrum reuse.[66]

In short, the TMI satellite system as a whole, and the spacecraft in particular, is very different than before as a technical matter, with much smaller spot beams, and consequently much higher EIRP, serving much smaller terminals with very wide carriers.

Commission policy is very clear that LOI authorization holders, like TMI, are required to file appropriate modification applications when the parameters of their authorized systems change, because the Commission must consider the changed parameters in order to determine the potential impact of other satellites authorized to serve the United States.[67] This policy is consistent with the general Commission policy that non-U.S. licensed satellite operators generally must provide the same information, and comply with the same regulations, as U.S. satellite licensees.[68]

It does not appear that TMI has complied with Section 25.117 of the Commission's rules, which mandates that no modification to a radio station authorized by the Commission may be effectuated without complying with the requirements of that Section, including (i) that an application for modification be filed with the Commission, and (ii) if the authorized entity intends to proceed with implementing the modification before the Commission approves the modification application, that a letter be filed, under Section 25.118(e), that

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66 *Compare* Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, Technical Appendix at 4 (Apr. 19, 2005), *with TMI 1997 LOI Application* at Section 12, Table 1.

67 *See Amendment of the Commission's Space Station Licensing Rules and Policies*, 18 FCC Rcd 10760, 10878 ¶ 320 (2003).

68 *Id.* at 10872 ¶ 300.

implementation is proceeding at the applicant's own risk. Section 25.137(f) is clear that these types of requirements apply to an entity, such as TMI, that holds an LOI authorization.

Because TMI has not complied with Commission procedures for obtaining modified LOI authority — TMI has neither sought nor received Commission approval for its system, as it is being built — Commission policy also is clear that any information about TMI's unauthorized satellite network may not be used to substantiate this request to modify TMI's LOI authorization. Specifically, Commission policy provides that in a case where an entity builds a spacecraft different than the one it is authorized to build, the Commission will not take those unauthorized efforts into consideration when deciding whether to grant modified authority for that different spacecraft design.[69] This proceeding, and the proceeding in companion IB Docket No. 05-220, clearly involve a potential modification to TMI's LOI authorization under Section 316 of the Communications Act. Thus, TMI's technical showing may not be used, considered, or relied on, as any justification for TMI's request to increase its current 2 x 4 MHz spectrum authorization. Moreover, the Commission should inquire when TMI intends to seek modified LOI authority and to provide the requisite notice that it is proceeding with its modified system at its own risk that the Commission may not issue a modified LOI authorization.

2. TMI's Evidentiary Showing is Deficient

i. <u>TMI's showing about handset manufacturing volumes is not substantiated.</u> Cingular is correct in noting that TMI's "backwards logic" regarding handset manufacture does

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69 *See Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures*, 11 FCC Rcd 21581, 21585 ¶ 9 (1996) ("We underscore again that any [unauthorized] construction will be at the applicant's own risk, and we will not in any way consider the status of construction or expenditures made when acting on the underlying application.").

not support TMI's claim for more spectrum.[70] TMI argues that in order to have a commercially attractive service, it needs to be able to procure low cost handsets, and, in order to do so, it needs to be able to support a sufficiently large customer base to ensure that its manufacturers have large enough production runs each year.[71] As Cingular aptly notes, TMI asserts, without any supporting projections that it is even remotely possible for TMI to achieve a customer base of 15 to 25 million users, that it needs that many customers in order to keep handset costs down to PCS/cell phone cost levels.[72]

In fact, TMI's expectation that its mobile handheld devices will be based on existing cellular/PCS handsets, and that the incorporation of MSS functionality will add no more than $5 to the cost of each handset,[73] cuts against TMI's argument that it needs a user base of 15 to 25 million users to constrain handset costs.[74] By TMI's own admission, its handsets are intended to be based on existing cell/PCS handset technology, and therefore will use many of the same electronics parts as other wireless devices — cellular and PCS handsets, and the ATC devices of other MSS providers. Thus, with the same vendors making electronic parts for the cellular and PCS industry, and also potentially to support the ATC devices of Globalstar, ICO, MSV, Inmarsat and others, it is reasonable to expect that non-recurring costs for those parts will be spread among the different purchasers, reducing the overall cost of the handsets for everyone.

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70 *Reply Comments of Cingular Wireless LLC in IB Docket 05-220 and Comments in IB Docket 05-221*, IB Docket Nos. 05-220, 05-221, at 3 (July 25, 2005).

71 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Exs. B, C (July 29, 2005).

72 *Id.*, Ex. B at 3-4.

73 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at Ex. 2 (July 29, 2005).

74 *Id.*, Ex. B at 5.

Thus, TMI has not provided convincing evidence that it needs a customer base of 15 to 25 million to take advantage of low cost, cellular/PCS-like devices.

ii. TMI's showing about its spacecraft design does not warrant licensing to duopoly in the 2 GHz band. Even if the Commission were to consider the content of TMI's technical submission, as Inmarsat explained in its Comments,[75] the thirty-some odd pages of TMI's annexes simply confirm the basic principle that if you build a larger satellite, you can carry more traffic.[76] Contrary to TMI's suggestions, its technical showing simply does not support the type of robust satellite service that TMI touts as part of its justification for assigning all of the 2 GHz MSS band to it and ICO: "The defining characteristic of TerreStar's groundbreaking system design is its ability to provide *broadband satellite service* to user equipment that is as small, lightweight and inexpensive as today's cellular and PCS equipment and has similar RF characteristics in terms of output power and receiver sensitivity."[77]

(1) TMI's Handheld Satellite Terminals Will Not Work Indoors or in Vehicles. TMI touts its satellite design as a feat of engineering that "offers a user experience" and "function" similar to cellular/PCS service that is "robust and reliable" and will offer maximum throughput in times of emergency.[78] Thus, one would expect that devices intended to look and function just like a cell phone or PCS phone, would work in a like manner, wherever

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75 *See Comments of Inmarsat Ventures Limited*, IB Docket No. 05-221, Ex. A at 22 (July 29, 2005).

76 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A (July 29, 2005).

77 *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 1 (July 29, 2005) (emphasis added).

78 *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at i-ii, 2 (July 29, 2005).

they are located, whether indoors or outdoors, and whether inside a car or a building. TMI's claimed spacecraft power levels cannot hide the Achilles heel of its argument — all the spacecraft power in the world does not solve the problem that TMI's handheld cellular/PCS-like mobile terminals simply cannot generate sufficient power to communicate *in satellite mode* when they are located indoors or inside vehicles any better than the satellite phones of all of the MSS systems that have preceded it.[79]

The Commission has extensively analyzed the extent to which the signals of satellite terminals operating inside buildings or vehicles can be expected to experience significant levels of signal blockage. This analysis was used by the Commission to support its conclusions that transmissions from ATC handsets would not likely cause harmful interference to MSS spacecraft, and the analysis was driven, in large part, by data submitted by TMI/TerreStar's affiliate, MSV. Thus, that analysis is entitled to significant weight here. In that analysis, the Commission concluded that a mobile terminal operating inside a building should experience a signal loss of 13 to 21 dB,[80] and a mobile terminal operating inside a vehicle should

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79 TMI discusses the possible use of separate, plug-in "booster" devices to provide service at rates of 2 Mbps or more. *See* Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, at 4 (Apr. 19, 2005).

80 *See In the Matter of Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band*, 18 FCC Rcd 1962, App. C2 § 1 (2003) (the Commission assumed 10 dB of structural attenuation if the user was located near a window, 18 dB of structural attenuation if not located near a window, and 3 dB of head and body attenuation in each case).

experience a signal loss of about 10 dB.[81] TMI's own link calculations show that it has allocated only 5-6 db to signal loss from its handheld terminals.[82]

Surely, there are inherent challenges with making a small, cellular/PCS-like handheld devices generate enough power to provide a robust signal that can reach a spacecraft in orbit 22,300 miles away. Indeed, those challenges provide a very compelling reason to deploy ATC, in order to provide an alternate transmission path for the user, and thereby ensure reliable communications over the handheld devices. Significantly, those challenges also drive home the point here that there is nothing in TMI's *satellite* design that ensures robust service to the handheld terminals that are the "defining characteristic" of its MSS network. Thus, TMI's promise of robust service to handheld terminals can be achieved only by the deployment of ATC, and the Commission has made clear on multiple occasions that ATC is not be used as a means to justify access to more MSS spectrum,"[83] that ATC is to be deployed within an MSS operator's existing spectrum assignment, [84] and that "parties could not legitimately justify terrestrial ATC

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81 *Id.* (the Commission assumed 7 dB of attenuation from the vehicle, and 3 dB of head and body attenuation). In reality, assuming only 10 dB of attenuation from a vehicle may be optimistic for purposes of developing a suitable link budget for a wanted signal.

82 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 8, 9, 10, 12, 13, 14 (July 29, 2005). In contrast, TMI's own technical consultant has advised that 10 dB or more of margin for signal loss needs to be provided to allow a reasonable quality of voice and data services. *See id.*, Ex. A at Ex. 2.

83 *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands*, 18 FCC Rcd 1962, 1974 ¶ 20 (2003) ("MSS ATC proponents do not seek additional spectrum, but rather greater authority to use spectrum previously licensed for their use in satellite systems in additional ways.").

84 *Id.* ("granting MSS operators the ability to provide more and better services to both existing and potentially new subscribers *with the same amount of spectrum* necessarily improves the efficiency with which they can use the spectrum . . . .").

usage to justify a larger MSS satellite spectrum assignment."[85] Thus, it is that ATC design of the TMI network that has the potential to provide the public interest benefits that TMI touts, and it is the ATC design that drives TMI's quest for more 2 GHz spectrum. Because Commission policy is clear that the desire to deploy ATC does legitimately justify a greater MSS spectrum assignment, TMI's desire to provide PCS/cellular-like service to handheld terminals does not satisfy TMI's burden of persuasion that there should be only two MSS licensees in the 2 GHz band.

(2) TMI's Over-Powered Spacecraft Is a Merely the Result of TMI's Own Business Decision. As Inmarsat demonstrated in its initial Comments, whether or not TMI's satellite will have available but unused power on board, and therefore may be "bandwidth limited," is a matter of TMI's own design, and in no way justifies an assignment of the entire 2 GHz band to TMI and ICO.[86] TMI suggests that building such a high-powered spacecraft was the only rational choice, since the cost of upgrading to "high powered" amplifiers on the spacecraft was nominal.[87] To this end, TMI provides a letter from Loral, in an effort to buttress its claim that the out of pocket cost to "upgrade" to higher powered amplifiers was nominal.[88] Neither Loral nor TMI, however, even attempts to address the impact of the oversized RF sections of the spacecraft, the resulting increase in DC power requirements on the spacecraft mass, the need for bigger batteries, larger solar arrays and a more substantial thermal subsystem,

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85 *Id.* at 2067 ¶ 215.

86 *Comments of Inmarsat Ventures Limited*, IB Docket No. 05-221, Ex. A at 22 (July 29, 2005).

87 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, at 11 n.11 (July 29, 2005).

88 *See id.*, Ex. A at Ex. 3.

the corresponding impact on fuel requirements and spacecraft structure, the resulting cost-impact from the complexity of the overall spacecraft design, and the potential increase in launch costs, all of which are likely far greater than the simple incremental cost of buying high-power amplifiers.[89]

As described above, this "high-powered" satellite on which TMI relies is very different from the satellite technical design that the Commission approved in granting TMI's 2 GHz LOI authorization — it has *over twice* the authorized power, over *four* times the number of spot beams, carriers that are *1,000 times* larger, and user terminals that are *five times less sensitive*. TMI has neither sought nor received Commission approval for the system that it is building. Commission policy therefore is clear that any information about TMI's unauthorized satellite network (including the over-powered, allegedly bandwidth-limited aspects to which TMI cites) cannot be used to substantiate TMI's request to modify its LOI authorization by increasing its 2 GHz spectrum assignment.

More fundamentally, however, any decision to assign more spectrum to TMI based on TMI's decision to over-size its spacecraft transmit power capabilities would establish bad Commission policy. It would open the door for even more outrageous claims for spectrum in the future, as any potential operator, judging that the increased satellite cost would be far less than the value of the extra spectrum, would follow the same path, building an over-powered spacecraft and demanding more spectrum.

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[89] TMI tries to make much of the fact that its spacecraft, which does not need to be brought into operation until November 2008, would be more powerful that the Inmarsat-4 spacecraft that was designed in the late 1990's and launched in March of this year. This should not be too surprising — advances in spacecraft design and component technologies continually allow more and more powerful spacecraft to be launched.

(3) TMI Has Not Adequately Addressed Alternate Air Interfaces.

TMI fails in its attempt to rebut Inmarsat's showing that TMI not adequately considered the use of air interfaces that could improve the efficiency with which TMI uses the limited spectrum resource, and thereby obviate the need for an assignment of more 2 GHz MSS spectrum. In its earlier comments, Inmarsat, by way of example, referenced the type of air interface used in Inmarsat's BGAN technology, which would allow TMI and ICO achieve data rates of approximately 10 Mbps in each 4 MHz spectrum re-use cluster, simply using the 2 x 4 MHz of spectrum currently assigned for their respective systems.[90]

TMI responds to Inmarsat by asserting that a data rate of 10 Mbps in each 4 MHz spectrum re-use cluster would be "far from sufficient to achieve the mobile broadband needs of public safety organizations, particularly those requiring the ability to receive and/or transmit live video and other data related to a disaster scene."[91] While it is significant that TMI provides no support for that proposition, this statement is even more relevant because it impeaches TMI's showing that TMI necessarily needs more spectrum to provide homeland security services. TMI explains that when configured for broadband data services to "first responders," and using a cdma2000 air interface protocol, "the TerreStar satellite operating with 2 x 10 MHz of spectrum will be able to provide a throughput of 1.28 Mbps per four cell frequency reuse cluster and an overall CONUSwide throughput of 90 Mbps."[92] By TerreStar's own admission, using an "off-the shelf" air interface for its MSS network would use 250% more spectrum than Inmarsat uses

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90 *See Comments of Inmarsat Ventures Limited*, IB Docket No. 05-221, Ex. B at 7 (July 29, 2005).

91 *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 5 n.11 (July 29, 2005).

92 *Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 4 (July 29, 2005).

to provide only 13% of the bps/Hz spectrum efficiency that Inmarsat's latest air interface design is able to achieve. That proves Inmarsat's point precisely — TMI has not even attempted to maximize the efficient use of the spectrum already assigned to it.

iii. TMI's Showings are Self-Contradictory. As an initial matter, it bears noting that some of the data in TMI's technical annex demonstrates that the assignment of 2 x 10 MHz to TMI would actually result in spectrum being *underutilized*. Page 18 of TMI's Technical Annex shows that with a 2 x 10 MHz assignment, the spacecraft would actually be *power limited* — it could support fewer simultaneous cdma2000 4.8 kbps voice circuits based on the available power on the spacecraft (6650) than the number based on the available spectrum (7952).[93] That means TMI would be wasting spectrum.

As odd as that may appear, it is consistent with the fact that TMI's technical statements are self-contradictory in a number of respects.

Indeed, there are wide divergences between the data that TMI provided on April 19, 2005,[94] and that it provides now. For example, in April, TMI claimed that its spacecraft had the power to support 5670 simultaneous cdma2000 4.8 kbps voice circuits using 2 x 10 MHz[95] — about 15 percent fewer than the 6656 TMI now claims would be supportable based on the

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93 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 18 (July 29, 2005).

94 *See* Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, Technical Appendix (Apr. 19, 2005)

95 Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, Technical Appendix at 12 (Apr. 19, 2005).

power of the spacecraft,[96] and about 29 percent fewer than the 7952 TMI now claims would be supportable by a 2 x 10 MHz spectrum assignment.[97] Similarly, in April, TMI claimed that its spacecraft had the power to support 5800 simultaneous cdma2000 4.8 kbps voice circuits using 2 x 6.67 MHz,[98] but only 2850 simultaneous circuits based on an assignment of 2 x 6.67 MHz. Now, TMI calculates that its spacecraft has the power to support 6656 simultaneous cdma2000 4.8 kbps voice circuits using 2 x 6.67 MHz, but would have the bandwidth to support 4560 such uses.[99]

The fact that TMI's analyses about the technical capabilities of its spacecraft contain such wide divergences, especially when they were produced within the short span of only three months, calls into question the validity of all of TMI's technical assertions about the spectrum constraints of its spacecraft, and demonstrates that TMI's data is simply not reliable enough to serve any probative value in TMI's substantive case for additional 2 GHz spectrum. The Commission simply cannot rely on such unreliable data and still fulfil its obligations to engage in reasoned decision making.[100]

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96 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 14, 18 (July 29, 2005).

97 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 18 (July 29, 2005).

98 Letter from Gregory C. Staple, Counsel for TMI, and Jonathan D. Blake, Counsel for TerreStar, to Donald Abelson, Chief, International Bureau, FCC, Technical Appendix at 8 (Apr. 19, 2005).

99 *See Comments of TMI Communications and Company Limited Partnership and TerreStar Networks Inc.*, IB Docket No. 05-221, Ex. A at 14 (July 29, 2005).

100 *See U.S. Telecom Ass'n v. F.C.C.*, 227 F.3d 450, 461-62 (D.C. Cir. 2000) ("Fundamental principles of administrative law require that agency action be 'based on a consideration of the relevant factors,' . . . and rest on reasoned decisionmaking in which 'the agency must examine the relevant data and articulate a satisfactory explanation for its action

VII. CONCLUSION

The 2 GHz MSS is a critical resource for the MSS industry, both in terms of: (i) its ability to support new multimedia and broadband services, and (ii) its ability to provide an important "safety valve" for the continued growth of MSS services currently provided in other bands. Rather than licensing TMI and ICO to duopoly in the 2 GHz band (as those entities urge), so they can deploy ATC systems, the Commission should conduct a comprehensive evaluation of the opportunities for the continued development of the 2 GHz band by the MSS industry. The Commission should not constrain itself to fashioning a 2 GHz solution around the proposal in companion IB Docket No. 05-220 to assign additional 2 GHz spectrum to TMI and ICO. However, the Commission should ensure that more than just those TMI and ICO will have the opportunity to deliver the promise of multimedia and broadband MSS offerings at 2 GHz to the American public. Inmarsat, the world's leading MSS operator with a demonstrated track record of innovation and investment in next-generation services, stands ready to use such an opportunity to support its development of a state-of-the-art 2 GHz MSS system. That system, serving the United States, would ensure that all Americans, including those in rural and other unserved and underserved areas, will be able to enjoy the unique reliability and efficiencies of multimedia and broadband MSS offerings.

Inmarsat therefore respectfully requests that the Commission ensure the opportunity for effective MSS competition at 2 GHz by:

First, reaffirming its decision to keep 20 MHz + 20 MHz of the 2 GHz band available for MSS;

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including a rational connection between the facts found and the choice made' . . . ." (Internal quotations omitted)).

Second, determining the optimal number of entities that should be authorized to provide MSS in the nascent 2 GHz band and the means for authorizing competitive entry in the band; and

Third, ensuring that all authorized entities in the 2 GHz band (including TMI and ICO) have access to an identical amount of spectrum.

Only after addressing the foregoing issues, should the Commission evaluate the requests of TMI and ICO to increase their 2 GHz MSS spectrum assignments, and in doing so, the Commission should be sure to take into account each of TMI's and ICO's lack of progress in implementing the systems each was authorized to deploy four years ago.

In order to provide regulatory certainty and thereby allow the prompt deployment of 2 GHz MSS to the American public, Inmarsat urges the Commission to conduct such a comprehensive evaluation *on an expedited basis*.

Respectfully submitted,

INMARSAT VENTURES LIMITED

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August 15, 2005

TECHNICAL CERTIFICATION

I have reviewed the foregoing Reply Comments of Inmarsat Ventures Limited. The technical information contained therein is true and correct to the best of my present knowledge, information, and belief.

/s/ Marcus Vilaca
Name: Marcus Vilaca
Title: Chief Systems Engineer

August 15, 2005