



January 13, 2002

Mr. Michael Helm
Director General, Telecommunications Policy Branch
Industry Canada
300 Slater Street
Ottawa, Ontario

K1A 0C8

Dear Mr. Helm:

Subject: Consultation on an Application to Use Mobile Satellite Spectrum to Provide Complementary Terrestrial Mobile Service to Improve Satellite Coverage – DGTP-009-01 – Dated October 2001

Inmarsat Ventures plc is pleased to submit the attached reply comments in response to the above-captioned Notice. Please do not hesitate to contact me should you have questions concerning these reply comments.

Yours truly,

/s/ Donald Kennedy
Donald Kennedy
Director
International Regulatory Affairs
Inmarsat Ltd.

Attachments

Notice No. DGTP-009-01

**CONSULTATION ON AN APPLICATION TO USE MOBILE SATELLITE SPECTRUM TO
PROVIDE COMPLEMENTARY TERRESTRIAL MOBILE SERVICE TO
IMPROVE SATELLITE COVERAGE**

Reply Comments of:

INMARSAT VENTURES PLC

January 13, 2002

INTRODUCTION

Inmarsat Ventures plc (“Inmarsat”) hereby submits its reply comments on TMI Communications and Company, Limited Partnership’s (“TMI’s”) application to deploy terrestrial mobile service, as in-fill or complementary service, to its mobile satellite service as part of a joint venture with Motient Corporation (“Motient”).¹

Inmarsat opposes the TMI proposal, as well as any other proposal to allow terrestrial use of the L-Band in Canada. In its Comments, Inmarsat urged Industry Canada not to allow terrestrial use of the L-Band, and to retain the L-Band solely for satellite-based services, for the following three main reasons:

- (i) Terrestrial uses would create unacceptable inference into MSS satellite networks, including Inmarsat’s system, and disrupt vital safety services provided by satellite;
- (ii) Terrestrial uses would violate the Canada’s obligations under the ITU Radio Regulations and under a separate international coordination agreement that governs use of the L-Band over North America, to which Canada is a party; and
- (iii) Terrestrial uses would exacerbate existing spectrum scarcity problems in the L-Band.

Inmarsat provided Industry Canada with a detailed technical analysis documenting each of these positions.

In stark contrast to Inmarsat's detailed analysis, no party advocating a complementary terrestrial mobile service in the L-band has provided one scintilla of technical analysis in support of its claims. Neither TMI, nor Mobile Satellite Ventures (Canada), L.P. (“MSV”), has even attempted to support its claim that the proposed terrestrial system will not interfere with existing mobile satellite systems (“MSS”) and actually would increase spectrum efficiency.

¹ See Consultation on an Application to Use Mobile Satellite Spectrum to Provide Complementary Terrestrial Mobile Service to Improve Satellite Coverage, DGTP-009-01 (October 2001) (the “Flexibility Consultation” or “Consultation”).

Inmarsat urges Industry Canada not to allow TMI and MSV to prop up their troubled business by deploying this terrestrial component, at the expense of other MSS operators who provide important services within Canada, and in violation of Canada's international obligations. Instead, MSV's and TMI's desire to improve service in suburban and urban areas can be met by entering into a service arrangement with a cellular carrier, such as TMI's affiliate "Bell Wireless," and then providing customers with dual-band handsets that use the terrestrial network when a satellite signal is not available.

I. INTERFERENCE PROBLEMS

A. Inmarsat Provides Essential MSS Services In Canada And Around The World

While TMI and MSV may face business difficulties, it is presumptuous, and wrong, to assert that those problems exist for all MSS providers.² As demonstrated in its Comments³, and as reiterated by Telenor Broadband Service AS ("Telenor"), Inmarsat owns and successfully operates a geostationary orbit MSS system that operates across the L-Band and provides essential services within Canada, the rest of North America, and around the world. In particular, Inmarsat provides critical maritime and aeronautical safety services as well as governmental and commercial communications services to areas where land-based systems are unable to reach or uneconomical to deploy. Business and residential customers throughout Canada, including the Canadian North, are able to obtain voice, Internet and data services over the Inmarsat system.

It is simply wrong for MSV to equate the failure of the TMI/MSV system with the possibility that some Canadians might lose their only alternative to terrestrial mobile services.⁴ Inmarsat currently serves Canada, and intends to continue to do so. If TMI and MSV are not in

² See MSV Comments at 2 ("it is no exaggeration to state that the Department's approval of this request is critical to the survival of competitive MSS service in Canada.")

³ See Inmarsat Comments at Section I.

⁴ See MSV Comments at 2.

a position to meet the demands of the Canadian MSS market, other MSS providers, such as Inmarsat, remain willing to do so. However, the interference that would be caused by the proposed TMI/MSV terrestrial system threatens to seriously disrupt the current and future operations of Inmarsat.

B. MSV's Proposed Terrestrial Component Would Cause Unacceptable Interference

MSV and Bell Mobility admit that any terrestrial service at L-band must not be allowed to interfere with existing MSS systems.⁵ Although acknowledging non-interference to be prerequisite to the establishment of such a service, MSV casually dismisses the issue by stating – without providing any technical support whatsoever – that the proposed terrestrial system would not interfere with existing MSS systems.⁶

In contrast, Inmarsat has provided a detailed technical analysis describing the unacceptable interference that the proposed terrestrial service would generate into current and future Inmarsat operations.⁷ The terrestrial services proposed at L-Band would create four main interference problems:

- The in-band signals of MSV's terrestrial mobile terminals would cause unacceptable interference to the signals being received by the Inmarsat satellites (*See* Section 3.1 of the Technical Annex);
- The out-of-band emissions from MSV's terrestrial mobile terminals would cause unacceptable interference to the signals being received by the Inmarsat satellites (*See* Section 3.2 of the Technical Annex);
- Terrestrial base stations' in-band signals would create unacceptable interference into the receivers of nearby Inmarsat mobile terminals (*See* Section 3.3 of the Technical Annex); and
- Terrestrial base stations' out-of-band emissions would create unacceptable interference into the receivers of nearby Inmarsat mobile terminals (*See* Section 3.4 of the Technical Annex).

⁵ *See* Bell Mobility Comments at 6; MSV Comments at 19.

⁶ *See* MSV Comments at 19.

⁷ *See* Inmarsat Comments at 10-20 and Technical Annex.

The interference caused by the proposed terrestrial service would harm Inmarsat's services both within Canada and outside Canada's borders.

Transport Canada and Telenor echo Inmarsat's interference concerns.⁸ Transport Canada explains that the radionavigation satellite services that operate in or near the L-Band, which include the safety services provided by Inmarsat, are put at risk by the proposed terrestrial component.⁹ Transport Canada recognizes that equipment used in the Global Navigation Satellite System ("GNSS") are vulnerable and that "[t]he potential for an aggregate sum of interference [from MSV's proposed system] occurring at airport areas where GNSS services would be used for approach and landing could result in a degradation of GNSS levels of safety."¹⁰

MSV's fails in its effort to find relevant Industry Canada precedent to support the approval of a complementary terrestrial component to MSS service. While implying that multiple decisions support its position, MSV cites only Industry Canada's decision to allow the use of repeaters for cellular carriers. The use of repeaters, however, is not relevant here. A cellular repeater system amplifies the same signal, and is a terrestrial extension of an existing terrestrial service, that is fully consistent with the allocation for the existing service. In contrast, the system proposed by MSV would create a widespread terrestrial network that transmits signals separate and apart from its MSS satellite system. There is no support for this service in the ITU Table of Frequency Allocations. And, as detailed in Inmarsat's Comments (and in contrast to deploying a repeater system), the proposed terrestrial network would create an interference environment that is fundamentally different than a "pure" MSS use of this band.

⁸ See Transport Canada Comments at 2; Telenor Comments at 6-7.

⁹ See Transport Canada Comments at 2; Technical Annex at Section 3.3.2.

¹⁰ Transport Canada at 2; *see also* Technical Annex at Section 3.3.2.

In contrast to the deployment of a cellular repeater system, deployment of the proposed terrestrial network would generate self-interference into the TMI/MSV satellite network, and actually *increase* the spectrum needs of TMI/MSV.¹¹ Thus, this proposal is hardly the type of spectrum-efficient use that TMI and MSV claim.

Because of the significant interference problems that would be created by the development of a terrestrial service in the L-Band, Inmarsat urges Industry Canada to limit the use of the L-Band solely to MSS services.

C. Operating On A Non-Interference Basis Is Not Practical

MSV and Bell Mobility suggest that MSV should be allowed to operate on a non-interference basis and that MSV will cease any operations that it determines, through self-monitoring, are interfering with existing MSS operations.¹² As discussed in Inmarsat's Comments,¹³ this proposal is baseless for three main reasons: (i) Inmarsat has demonstrated that there will be an interference problem to which there is no feasible solution, (ii) it is not possible for TMI or MSV to measure at their satellite the interference generated into the Inmarsat system by their terrestrial transmitters, (iii) it is not realistic to expect that this type of a broadly-deployed, consumer-oriented service would be able to cease or curtail its operations once it commences, and (iv) it is not reasonable to allow MSV, Inmarsat's competitor, to decide when and whether its system is interfering with Inmarsat's network.

If MSV were allowed to develop a terrestrial component, MSV would have to spend hundreds of millions of dollars, if not billions, to do so. Motient has estimated MSV's

¹¹ See Inmarsat Comments at 19-20 and Technical Annex at Sections 3.5 and 5.3.

¹² See MSV Comments at 18; Bell Mobility Comments at 6.

¹³ See Inmarsat Comments at 23-28.

immediate customer base to be 40,000,¹⁴ and ICO has estimated that there are potentially millions of subscribers to the proposed service.¹⁵

It is highly unlikely that MSV would be willing to voluntarily cease terrestrial use of the L-Band upon a showing of interference to Inmarsat's satellite system. After spending hundreds of millions of dollars on new equipment, the pressure on MSV to continue the implementation of the terrestrial service under any circumstances would become overwhelming. Moreover, once MSV starts to provide communication services to its customers, consumer demand will drive MSV to continue providing its service even when its system causes interference to Inmarsat's satellite system. Customer demand and complaints resulting from the cessation of service would make it very difficult, if not impossible, for Industry Canada to compel MSV to cease operations once the service has begun.

In addition, it is likely that a complementary terrestrial service would grow beyond an "ancillary" status and could subsume MSV's MSS service. Any attempt to limit a terrestrial component to an ancillary role is, as a practical matter, unenforceable. Once in service, it would be difficult to prevent such an ancillary service from outgrowing its restrictions. It is unlikely that any regulator would demand that a company stop providing service to its customers based on the fact that its business has grown too much and the scope of its service offerings has expanded too far.

As TELUS Mobility ("TELUS") states "[e]ven with strict enforcement there are valid concerns that there will be pressure by the operator, pleading customer demand, to allow regulatory 'creep' of an ancillary, secondary use to move into and potentially displace the primary service down the road."¹⁶ The only effective way to prevent interference from the

¹⁴ See Rogers Wireless Inc. ("Rogers") Comments, Attachment 1.

¹⁵ See ICO Comments at 5.

¹⁶ TELUS Comments at 2; see also Rogers Comments at 13-14.

proposed complementary terrestrial service is to maintain the current prohibition on providing terrestrial services in the L-Band.

II. TERRESTRIAL USES VIOLATE CANADA'S INTERNATIONAL OBLIGATIONS

A. Canada's ITU Obligations

Industry Canada should limit use of the L-Band to MSS services because the ITU Table of Frequency Allocations does not provide for the proposed terrestrial operations, and those terrestrial operations would cause unacceptable interference into the Inmarsat satellite network, which is operating pursuant to the primary allocation of the L-Band for the MSS. As Industry Canada notes in the *Consultation*, Canada is free not to follow the ITU Table within its borders, only as long as those other uses do not cause interference outside of Canada.¹⁷ As discussed above and in Inmarsat's Technical Annex, the MSV terrestrial service would cause interference into the operation of the Inmarsat system (and the other MSS systems) outside the borders of Canada. Thus, consistent with its obligations under the ITU, and the ITU Radio Regulations, Canada may not authorize this service.

B. TMI's Application Is Fundamentally Inconsistent With The Mexico City MOU

Contrary to the assertions of Bell Mobility and MSV, the Mexico City MOU is not a vehicle to ensure that the proposed terrestrial network will not create interference.¹⁸ Indeed, Canada would violate its obligations under the MOU if it allowed MSV to provide complementary terrestrial service in the L-Band. As discussed more fully in Inmarsat's Comments,¹⁹ MSV's terrestrial proposal is inconsistent with the MOU because the MOU expressly obligates Canada to avoid potential interference situations, such as the one presented

¹⁷ *Consultation* at 3, note 4; *see also* ITU Radio Regulations, Article S4, Section S4.4; Article S8, Section S8.5; *see also* Transport Canada at 4 ("MSS terrestrial services are not authorized in the ITU Radio Regulations.").

¹⁸ *See, e.g.*, Bell Mobility Comments at 6.

¹⁹ *See* Inmarsat Comments at 29-31.

here.²⁰ Moreover, as discussed above, L-Band spectrum is not internationally allocated for terrestrial purposes over North America and the parties who negotiated the MOU never intended that it be used in such a manner.

MSV advocates that a complementary terrestrial service would improve spectrum efficiency²¹ and not require use of any additional spectrum.²² Thus, it asserts, this proposal does not implicate the Mexico City MOU. No commenter, however, provides technical support for this assertion. To the contrary, for the reasons provided in Inmarsat's Comments and Technical Annex,²³ the deployment of terrestrial services in the L-Band would result in spectrum inefficiencies and actually would increase the spectrum scarcity problems in that band. MSV's terrestrial uses would degrade the performance of its own space-based services, thereby increasing its need for L-Band spectrum.²⁴

In short, the proposed terrestrial uses actually would increase the demand for already scarce L-Band spectrum that existing MSS operators, including Inmarsat, need to grow their services. TMI is correct that demand for any spectrum based on terrestrial uses should not be taken into consideration in the annual coordination process under the Mexico City MOU.²⁵ More fundamentally, however, MSV's proposed terrestrial uses would be an inefficient use of L-Band spectrum that is fundamentally inconsistent with the MOU.

²⁰ See *MOU* at ¶ 16.

²¹ See *MSV Comments* at 2.

²² See *MSV Comments* at 8.

²³ See *Inmarsat Comments* at 19-20, 31 and *Technical Annex* at Section 3.5 and 5.3.

²⁴ See *Technical Annex* at Sections 3.5 and 5.3.

²⁵ See *Comments of Motient Services, Inc., TMI Communications and Company, Limited Partnership, and Mobile Satellite Ventures Subsidiary LLC*, FCC IB Docket No. 01-185, ET Docket No. 95-18 at 26 (filed Oct. 22, 2001).

III. NON-INTEGRATED TERRESTRIAL OPERATIONS.

One commenter has advocated that non-integrated terrestrial use of the L-Band be permitted by Industry Canada.²⁶ As discussed in Inmarsat's Comments,²⁷ a non-integrated terrestrial operator presents the same types of interference threat problems to existing MSS services (including safety services) as an integrated operator. Even worse, a terrestrial operator would have absolutely no incentive to prevent interference into MSS services because it would have no MSS network of its own to protect. Finally, there is no basis for addressing international coordination problems with a non-integrated operator as only satellite operators are permitted to participate in the Mexico City MOU coordination process.

IV. THERE IS NO NEED FOR A COMPLEMENTARY TERRESTRIAL SERVICE IN THE L-BAND

The primary need asserted by MSV for the complementary terrestrial service is its desire to extend service to urban and suburban areas where its satellite signals may be blocked.²⁸ As Inmarsat discussed in its Comments and other commenters have concurred, this objective could be achieved through the use of dual-band phones in conjunction with an agreement with a cellular carrier.²⁹ MSV customers, who most likely would be rural residents, would access MSV's satellite network in the rural areas where they live and work and would have the option to roam on a cellular service if they traveled to urban areas. This option should be particularly feasible for MSV because TMI is wholly owned by BCE and is an affiliate of "Bell Wireless", the collective designation given to the BCE-controlled cellular and PCS companies in Canada.³⁰ A deal between MSV and Bell Wireless would ensure MSV's customers nationwide coverage.

²⁶ See W2N Inc. Comments at 4.

²⁷ See Inmarsat Comments at 21.

²⁸ See MSV Comments at 2 and 12.

²⁹ See Rogers Comments at 6; *see also* TELUS Comments at 1 and 4.

³⁰ See W2N Inc. Comments at 1.

Such a deal would also address the MSV concerns about the manufacturing of equipment. MSV argues that the cost of its service is higher because the market is small and therefore it does not benefit from economies of scale in the manufacture of handsets like cellular carriers do. Whether MSV develops a dual-mode handset for use with a complementary terrestrial service or develops a dual-band handset for use with a roaming agreement, the potential market size should be approximately the same. Therefore, in either case, MSV will benefit from the economies of scale.

CONCLUSION

For the reasons discussed above and in Inmarsat's Comments, authorizing terrestrial uses in the L-Band would (i) create unacceptable interference into MSS satellite networks, including Inmarsat's system, and disrupt vital safety services provided by satellite; (ii) violate Canada's obligations under the ITU Radio Regulations and under a separate international coordination agreement that governs use of the L-Band over North America, to which Canada is a party; and (iii) exacerbate existing spectrum scarcity problems in the L-Band.

MSV and other commenters have provided no technical support for their claims that terrestrial services at L-Band will not cause interference into existing MSS systems, such as the Inmarsat system. Nor do they suggest any viable means of controlling interference from proposed terrestrial L-Band transmitters.

Alternative methods of integrating L-Band MSS satellite service and terrestrial cellular and PCS services, such as dual-band handsets, however, provide a means of enhancing MSV's offerings without creating the significant problems presented by TMI's proposal. Inmarsat therefore urges Industry Canada to maintain the L-Band strictly for MSS satellite services.

Respectfully submitted,
INMARSAT VENTURES PLC

/s/ Donald Kennedy
Donald Kennedy
Director, International Regulatory Affairs
Inmarsat Ltd.

January 13, 2002