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Director General, Telecommunications Policy Branch
Industry Canada,
300 Slater Street,
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Dear Mr. Helm;

Subject: **Globalstar Canada Comments to *Canada Gazette* Notice DGTP-001-02 dated 2002-01-19: Consultation on Revisions to the Spectrum Utilization Policies in the 3-30 GHz Frequency Range**

Globalstar Canada has reviewed the Gazette Notice DGTP-001-02, and complements the Department on its outline of the wide range of issues addressed in the document. We are immediately concerned with only a few of the issues raised in the document, those that relate directly with our use of the frequency bands 5091-5150 MHz and 6875-7055 MHz for feeder links of the Globalstar mobile-satellite network in Canada.

The issues raised in the document DGTP-001-02 that are of immediate concern to us are

1. The sharing of spectrum with other fixed and fixed-satellite networks in the 6875-7055 MHz band. This includes the interpretation and application of Canadian Footnote C16A, the alternatives of either full-band or partial band licensing, and the possible use of airborne TV pickups in the 6930-7055 MHz portion of the band 6930-7125 MHz; and

2. The sharing of spectrum with license-exempt devices in the frequency band 5150-5250 MHz.

We have participated in the RABC's preparation of its response to the Gazette Notice, and agree in general with most of its comments. We do, however, wish to retain use of the band 6875-7055 MHz at the two current sites Smiths Falls and High River for the space-to-Earth feeder-link portion of our network.

Our more detailed comments and suggestions on these matters can be found in the attachment to this letter. We would be pleased to discuss any of the points raised in the attachment with you or your staff at your convenience if required.

Yours sincerely,

Brian Martin

General Manager,
Globalstar Canada Co

Attachment 1
to
Globalstar Canada's Comments to Industry Canada
On Matters Relating to Gazette Notice DGTP-001-02

1. Introduction:

1.1 The Globalstar Canada Mobile-Satellite System: Globalstar Canada provides mobile-satellite telecommunications services in Canada to Canadian users through the Globalstar constellation of 48 low-Earth-orbiting satellites. User terminals operate in Canada in the 1610-1618.25 MHz and 2483.5-2500 MHz bands. Communication between these terminals and the public switched telephone network is provided through gateway earth stations at Smiths Falls Ontario and High River Alberta. These gateway earth stations operate in the 5091-5250 MHz band in the Earth-to-space direction, and in the 6875-7055 MHz band in the space-to-Earth direction. The earth station complexes at Smiths Falls and at High River each have several large tracking earth-station antennas that track different visible satellites of the Globalstar constellation at all azimuths from horizon to horizon. Signal enhancement is provided through signal processing at the earth station by coherently combining the signals through the different satellites and associated earth stations that are being used at a given instant of time.

1.2 Issues Raised in DGTP-001-02 of Concern to Globalstar Canada: Of the many topics addressed in DGTP-001-02 the ones addressed here are those that might have an effect on the operation of those earth station complexes in the 5091-5250 MHz and 6875-7055 MHz bands. These include

1. Application of Canadian Footnote C16A or its variations in the 6875-7025 MHz band, as addressed in **Sections 2.3, 2.3.1, 2.3.2, and 3.2.2** of the Gazette Notice;

2. Full band licensing of FSS networks, as addressed in **Section 2.3.2** of the Gazette Notice**;**

3. Use of 6930-7055 MHz For Space-to-Earth Feeder Links of NGSO MSS Systems, a topic arising from **Sections 2.3 and 3.2.2** of the Gazette Notice;

4. Possible review of the use of license-exempt devices in the 5150-5250 MHz band, as addressed in **Section 8.0** of the Gazette Notice; and

5. The possible use of transmitting airborne TV pickups in the 6930-7055 MHz portion of the band 6930-7125 MHz, as addressed in **Section 8.3** of the Gazette Notice

Each of these matters is addressed below, with suggestions made on how the Department might foster the most effective spectrum-sharing arrangements in the two bands at 5 GHz and 7 GHz.

2. Detailed Discussion of Issues

2.1 Application of Canadian Footnote C16A, and Spectrum-Sharing in Appendix 30B Allotment Bands:

The Issue: Document DGTP-001-02 discusses Footnote C16A in **Section 2.3.1**, and seeks comment on spectral sharing arrangements in the Appendix 30B allotment bands in **Section 2.3.2**. Specifically, DGTP-001-02 states that

> *The Department will seek comments later in this consultation paper on the suitability of adopting similar spectrum sharing arrangements as in the FCC proposal in these bands.*

Footnote C16A and the comments in Sections 2.3.1 and 2.3.2 focus on GSO fixed-satellite systems in a number of bands, including 6725-7025 MHz in the Earth-to-space direction. The text addresses the need to locate earth stations outside of urban areas, and that in the future earth stations might or might not be licensed on a full-arc full-band basis.

Discussion: Although the text focuses on GSO systems in the Earth-to-space direction in the 6725-7025 MHz band, we are concerned that a new regulation that addressed these issues for those systems might also inadvertently apply to NGSO systems operating in the space-to-Earth direction in a portion of the same 6725-7025 MHz band. Globalstar Canada operates two multi-antenna earth-station complexes in the 6875-7055 MHz band at Smiths Falls and High River, as described above in Section 1.1 above. It is necessary that these earth stations communicate on a minute-by-minute basis with any visible Globalstar satellite, and to be able to expand to full-band operation as traffic increases through the network in North America.

Proposal: Globalstar Canada requests that any regulation that the Department might adopt for GSO satellite networks operating in the 6725-7025 MHz band or adjacent bands, in the Earth-to-space direction, related to earth station location and full-band full-arc use not be extended to apply to FSS feeder links of MSS systems operating in accordance with Regulations S5.444A and S5.458B. Specifically, Globalstar Canada requests such regulatory changes not impose additional constraints on the operation of its MSS feeder-link earth station complexes at Smiths Falls and High River.

2.2. Full Band Licensing of FSS Networks

The Issue: Section 2.3.2 of the Gazette Notice raises the possibility of licensing only partial bands rather than the full allocated band to specific FSS networks. It is mentioned that this issue is under discussion in the USA. Specifically, it is stated that

> *The Department will seek comments later in this consultation paper on the suitability of adopting similar spectrum sharing arrangements as in the FCC proposal in these bands*.

Discussion: Consideration of this matter within the RABC working group established that the co-ordination procedure specified in RSP-114 has thus far proven satisfactory to the operators of both earth stations and fixed stations. Further, the working group determined that FCC has concluded that there is insufficient basis to impose the proposed conditions on the FSS earth stations in bands that are shared on a co-primary basis with fixed service operations.

Proposal: For these reasons, it is proposed that the Department not impose any additional constraints on full-band full-arc use by FSS earth stations, including stations such as those at Smiths Falls and High River.

2.3. Use of 6930-7055 MHz For Space-to-Earth Feeder Links of NGSO MSS Systems

The Issue: The issue of the bandwidth available in the 7 GHz frequency range for feeder links of NGSO MSS systems is an indirect one, in that it is not raised as such in Gazette Notice DGTP-001-02. However, the constraining of the spectrum allocated for this purpose under ITU and Canadian RR S5.458B is under discussion in the USA, and this matter has been noted in the RABC response to DGTP-001-02. In that context the issue is raised indirectly in **Section 2.3.2 of the Gazette Notice**.

Discussion: The frequency plan of the Globalstar Canada network is that there are 16 L-band up-link antenna beams operating over the full 1610-1618.25 MHz band. The content of each of these 16 beams is communicated to the feeder-link earth stations through a different down-link RF channel in the 6875-7055 MHz band. There are eight channels transmitted from the space station with right-hand circular polarization, and another eight channels with left-hand circular polarization. Changing frequencies of these 16 rf carriers currently in the 6875-7055 MHz band to operate below 7025 MHz would not be possible with the current generation of Globalstar spacecraft. To reduce the number of such channels would be to temporarily deny service in the area served by the associated beam in the 1610-1618.25 MHz band. In this eventuality it would be very difficult to provide continuous Globalstar MSS service at any given location.

Proposal: It is proposed that the frequency band 6875-7055 MHz continue to be available in Canada for space-to-Earth feeder links of the Globalstar network. Specifically, Globalstar Canada associates itself with the views of the fixed-satellite community that stations in the 6725-7075 MHz band should be coordinated and licensed on a first-come-first-served. This is also expressed in Section 3.2.2 of the RABC response to the Gazette Notice.

2.4. License Exempt Devices in the 5 GHz Band:

The Issue: In **Section 8.0 of the DGTP-001-02 Gazette Notice** the Department addresses the need for license-exempt devices in the 5 GHz band. This matter is raised in the context of WRC-03. The Department asks several questions, including

> *the types of (LE-LAN) applications which could be accommodated.*

Discussion: Globalstar Canada is concerned only about the characteristics and applications of LE-LAN devices in the 5150-5250 MHz band, a portion of the 5091-5250 MHz band used for Earth-to-space feeder links of its MSS system.

There has been considerable discussion recently about the characteristics of LE-LAN's (also known as RLAN's) in the 5150-5250 MHz band. The results of these past discussions in Canada are the decisions of the Department in Documents SP-5150, dated in October 1999, and Issue 5 of RSS-210, dated November 2001. Internationally in the ITU, the discussions have resulted in the approval of Recommendations M.1450, M.1454, and S.1426. The decisions in SP-5150 and RSS-210 are consistent with the ITU-R recommendations, and with similar FCC decisions on the characteristics and applications of their UNII devices in the 5150-5250 MHz band.

Proposal: It is proposed that there be no change in the characteristics, applications, and management of LE-LAN devices in the 5150-5250 MHz band in Canada as a result of consideration of 5 GHz LE-LAN devices as described in Section 8.0 of DGTP-001-02.

2.5 TV Pickups and Airborne TV Pickups In the Band 6930-7055 MHz

The Issue: In **Section 8.3 of the DGTP-001-02 Gazette Notice** the Department has asked for comment on the use of the 7 GHz and in the 8 GHz frequency bands for TV-pickup operations from airborne platforms transmitting to receivers on the ground. Specifically,

> *The Department asked whether airborne TV pick-up applications can be introduced into the current TV pick-up band 6930-7125 MHz.*

Discussion: The document commented that coexistence of airborne TV pickups and terrestrial fixed service systems will be difficult due to the large area over which these systems are expected to operate. However, the document did not address the feasibility of the sharing of spectrum between airborne TV pickup transmitters and fixed-satellite service space-to-Earth feeder-links of NGSO MSS systems, operating with primary status in accordance with Footnote S5.458B. Such systems are licensed to Globalstar Canada to operate in the band 6875-7055 MHz at Smiths Falls and High River, as discussed in Section 1.1 above.

Globalstar Canada's concern is that TV pickup transmissions from an aircraft, either fixed-wing or a helicopter, may cause temporary levels of harmful interference whenever the aircraft was within large distances of the receiving satellite earth station. In coordinating with a terrestrial fixed transmitter, natural shielding can be used effectively to allow the sharing of spectrum at reasonably short distances from the earth station. However, if the fixed or mobile transmitter were airborne, the interfering signal path would be line-of-sight for large distances. In effect, putting the TV pickup transmitter on an airborne platform would make co-frequency spectrum sharing with MSS feeder-link receiving earth stations impossible within large distances of the earth stations, in our case at Smith Falls and High River. The result may be chaos from a frequency-management perspective if the location of the news event, be it a train wreck, forest fire, environmental disaster, major traffic accident, terrorist activity, etc, were within several hundred miles of the earth stations at Smiths Falls or High River. Globalstar service is used by government and law enforcement agencies and is expected to provide emergency communications at times when terrestrial based services are compromised. Should an event such as the terrorist attack on New York City occur in Ottawa, the television coverage of the event, if airborne pickups were permitted in the band, could quite conceivably render the Globalstar system inoperable at the time it is most needed. This is certainly not in keeping with public policy objectives.

The RABC has considered this and several other factors and has concluded that airborne TV pick-up transmitters should not be introduced in the band 6930 to 7125 MHz

Proposal: For these reasons, it is proposed that in the 7 GHz band airborne platforms of transmitting TV pickups be not authorized in the sub-band 6930-7055 MHz.

3. Summary

Globalstar Canada is making five frequency-management proposals in its response to Gazette Notice DGTP-001-02. None of these proposals are contrary to stated requirements and requests of other members of the CWTA or the RABC. Globalstar Canada requests that these proposals be fully taken into account in decisions taken by the Department in reviewing responses to the Gazette Notice.