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

In the Matter of	)	
	)	
International Bureau Seeks Comment on	)	Report No. SPB-196
Proposals to Permit Reducing Orbital Spacings	)	
Between U.S. Direct Broadcast Satellites	)	

COMMENTS OF TELESAT CANADA

Telesat Canada ("Telesat") is pleased to provide the Federal Communications Commission ("FCC" or the "Commission") with the following comments in the above-captioned proceeding.

At the outset and as discussed in more detail below, it must be noted that although this Public Notice proceeding is framed in terms of orbital spacings between U.S. direct broadcast satellites ("DBS"), any reduction in these spacings would have serious adverse implications for other DBS Region 2 service providers. Indeed, since this proceeding concerns bands associated with the Region 2 Broadcasting Satellite Service ("BSS") and associated feederlink Plans of Appendices 30/30A of the ITU *Radio Regulations* ("Region 2 Plan"), any reduced spacing cannot be examined unilaterally by the FCC but instead must be considered in the context of BSS satellites and Plan entries for all Administrations. As part of the *Radio Regulations*, the Region 2 Plan forms part of an international treaty of which the U.S. is a signatory.

The situation of BSS orbital spacing differs from the more familiar first-come first-served Fixed Satellite Service ("FSS") bands, where normally only first and second-adjacent satellites with higher ITU priority are considered in interference analyses.

Therefore, while Telesat commends the Commission for initiating this information-gathering proceeding on reduced DBS orbital spacings, Telesat submits that no subsequent FCC rulemaking, or assignment of any new DBS orbital positions not currently allocated to the U.S.,

can proceed before the Region 2 Plan is modified subsequent to agreement in the appropriate international forum.

As also discussed in more detail below, Telesat's specific concern with reduced orbital spacings in Region 2 centers on the impact such action may have on its current and planned fleet of BSS satellites serving this region. Telesat currently owns and operates two BSS satellites in Region 2, namely, Nimiq 1 at 91°WL and Nimiq 2 at 82°W[1]. These satellites have been designed for optimal performance based on the orbital spacing and other technical criteria agreed to internationally as part of the Region 2 Plan. Consistent with approved Region 2 Plan modifications, these satellites have also been designed to provide coverage of areas which extend beyond Canada's national boundaries, including the United States.[2] The modifications at 91°WL and 82°WL are now part of the Region 2 Plan. Any reduction in the spacing requirements of U.S.-licensed DBS satellites could therefore have a significant impact on Telesat's current and planned BSS operations which are, or will be, implemented according to the provisions of the Region 2 Plan. Telesat therefore has a direct interest in the matters being addressed in this proceeding.

I. The ITU Region 2 BSS Plan

As the Commission is aware, the development of the Region 2 Plan evolved over many years, essentially beginning with the original 12 GHz allocation at the 1971 Space World Administrative Radio Conference ("WARC"), but it was not until the 1983 Regional Administrative Radio Conference ("RARC") for Region 2 that the 17 GHz feederlink and the 12 GHz downlink spectrum were planned for this Region.

The intent of the 1983 Region 2 Plan was to provide a certain number of channels at given orbital locations based on the stated requirements of each of the Region 2 Administrations, with this "planned" allocation to last in perpetuity. The footprint for each of the orbital

[1]Telesat has also recently been authorized by Industry Canada to launch and operate a BSS satellite in the 72.5°WL position. See Letter to Mr. Ted Ignacy, Vice President-Finance and Treasurer, Telesat Canada, from Mr. Jan Skora, Director General, Radiocommunications and Broadcasting Regulatory Branch, Industry Canada (December 17, 2003).

[2] The FCC has also granted a U.S. service provider access to Telesat's Nimiq satellites to offer DBS services within the U.S. See In the Matter of Digital Broadband Applications Corp., File No. SES-LIC-20020109-00023, DA 03-15, at ¶ 4 (May 7, 2003).

location/channel combinations was initially confined to a limited coverage area, normally corresponding to the national territory of the associated Administration. Due to rain fade, centrally-located orbital positions, giving higher elevation angles, were more attractive and hence in greater demand. Thus, the "nine-degree orbital spacing environment" referred to in the Public Notice actually refers to "co-coverage" footprints, but the Plan itself uses much closer orbital spacings and relies on the geographical separation of the footprints to provide the required carrier-to-interference protection levels. Between 101° and 119°WL, for example, besides the U.S., several other countries – including Brazil, Chile, Honduras, Turks and Caicos Islands, Venezuela, Bolivia, Colombia, Ecuador, Easter Island (Chile), and Peru – have Region 2 Plan entries. Similarly, besides Canada, other countries such as Mexico would also be affected by reduced orbital spacings between 82° and 101°WL and 119° and 129°WL.

It should also be noted that although the Plan was based on 1980s technology and, in particular, analog modulation, the modification provisions have allowed evolution consistent with technological change. No satellites have been brought into service with technical parameters exactly reflecting the Region 2 Plan, but operational networks have been designed and implemented within the technical confines of the current Plan criteria.

For example, in a known interference environment as determined by the Region 2 Plan, the satellite power has been adjusted to maximize the capacity at a given orbital location, while addressing customer demands concerning optimal receiver dish sizes. Furthermore, the use of advanced modulation schemes, such as 8PSK, is being done within the technical confines afforded by the Region 2 Plan, while preserving the overall interference environment of the Plan. Such modulation schemes increase data through-put to allow greater channel capacity, but require more system margin. Indeed, the CAN-BSS1 and CAN-BSS2 modifications to the Region 2 Plan, at 82°WL and 91°WL respectively, have been based on this fine balance between available resources and customer requirements, in the context of a specific adjacent satellite interference environment. These modifications have completed the entire coordination and notification procedure, and are therefore now part of the Plan itself.

Moreover, all the modifications to the Region 2 Plan submitted to date – which includes modifications to the Plan filed by Argentina, Canada, Great Britain, the Netherlands, Mexico,

and the U.S. – reflect not only advances in BSS technology but also the globalization of the satellite service marketplace. That is, without exception, these modifications show digital transmissions with coverage footprints that include territory well beyond the originally intended national service areas.

Changes to U.S. DBS orbital spacing policies and/or new orbital assignments not currently allocated to the U.S. under the Region 2 Plan would therefore cause problems and raise issues for other Administrations and satellite networks operating in this region.

II. Incumbent Networks Must Be Protected

DBS operators such as Telesat and its U.S. counterparts now have millions of customers tuned to their DBS spacecraft, receiving literally hundreds of broadcast signals using very small dishes mounted on their homes and businesses. Launch of these satellites and development of these networks have also cost each of these operators more than a billion dollars. With so much at stake, the full ramifications of any findings in this proceeding must be thoroughly analyzed and understood in terms of their impact on operational networks in the Region 2 Plan, the integrity of the Region 2 Plan, and the associated ITU compliance requirements, before any further action is taken.

For example, the EchoStar applications before the Commission, two of which are of particular concern to Telesat due to the close proximity of the orbital locations to Telesat networks operating at the 82°WL and 91°WL locations, gloss over the potential interference to neighbouring networks, indicating simply that compatible operation is expected to be achieved through coordination. A preliminary analysis by Telesat indicates substantial MSpace (the relevant ITU calculation software) triggers by networks with characteristics like those of the EchoStar applications, on Telesat networks and other networks in the Plan.[3] Moreover, some of the ideas cited to achieve coordination, such as beam shaping and power roll-off, clearly cannot be used in a co-coverage coordination situation.

[3] Telesat notes that the EchoStar applications do not include the Appendices 30/30A MSpace analyses, which are required for the planned bands to identify affected Administrations. Paragraph 10 of Attachment 1 of each Application indicates that perhaps the analyses were too complex to be submitted at this time.

The simple truth is that any failure to protect existing networks from increased interference caused by new satellites introduced at reduced orbital spacings would seriously disrupt these networks, to the detriment of these operators and the millions of customers they now serve. What's more, this disruption would be completely unjustified as these billion dollar networks have been planned and deployed based on technical criteria and orbital spacings agreed to internationally.

III. Changes Potentially Impacting the Region 2 Plan Require International Study

Consistent with the foregoing, given that the planned bands are managed as a collective, that there are now well-established incumbent services operating within the technical and procedural provisions provided by the Plan, and that all modifications to date embrace the global marketplace, it is clear that changes to the fundamental principles of the Region 2 Plan (such as changing orbital spacings) cannot be made in isolation or unilaterally by any one Administration. Indeed, even if an Administration were to allow new BSS satellites only interstitial to other satellites which that Administration licenses, this alone would not guarantee coordination with the incumbent interstitial non-co-coverage Plan entries that could be affected.

Accordingly, while Telesat appreciates that this Public Notice proceeding provides an opportunity for interested parties to identify and discuss possible technical issues arising from closer spacing, of necessity these same issues must ultimately be addressed in an appropriate international venue, beginning in the ITU-R Working Party for Broadcast-Satellite issues, WP 6S, and perhaps leading to a Regional Radio Conference, if this is determined to be the best course of action.

In this regard, Telesat notes that the Region 1 and 3 Administrations have relied upon Radio Conferences to achieve consensus in the re-working of their Plan. Indeed, through the re-planning process these regions did agree on new orbital spacings of six degrees between satellites, based on minimum dish size of 60 cm and other specific technical criteria. One must note, however, that the much smaller minimum dish size of 45 cm has become the standard for the networks deployed in Region 2 and that the number of such dishes already deployed in North America is in the 20 million range. Tradeoffs between orbital spacing and required dish size will

therefore be a key issue in any re-planning exercise, and any decision reached must also accommodate the existence of prior networks which have deployed the 45 cm dishes.

IV. Conclusion

Telesat commends the Commission for this opportunity to provide comment on these important matters. The views and technical information received as a result may prove extremely useful. However, in Telesat's respectful opinion, the appropriate venue for decisions on satellite spacing or other changes to the Region 2 BSS Plan is the ITU. This is consistent with past Commission practice, where new rulemakings are contemplated only when the international allocation of spectrum resources has been agreed upon, and without which the Commission cannot assign orbital positions.

Region 2 BSS satellite operators – Telesat included – have also invested billions of dollars to construct their satellites and roll out their networks based on the technical criteria and orbital spacing set out in the current Plan. Any contemplated changes in that Plan, arrived at through the appropriate international mechanisms and conferences, must fully accommodate these existing networks.

Respectfully submitted,

TELESAT CANADA

By: _____
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