Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of the Commission's Policies and Rules for Processing Applications in the Direct Broadcast Satellite Service	)	IB Docket No. 06-160
	)	
Feasibility of Reduced Orbital Spacing for Provision of Direct Broadcast Satellite Service in the United States	)	

Comments of ManSat Ltd

ManSat Ltd (ManSat) welcomes the opportunity to comment on the Commission's Notice of Proposed Rulemaking[1] regarding the suitability of implementing reduced orbital spacing for Direct Broadcast Satellite (DBS) spacecraft operating at 12/17 GHz under the ITU's Region 2 BSS Plan. ManSat has an interest in this proceeding by virtue of ITU filings made on its behalf for new DBS/BSS networks with North American coverage, to be located at 96.5º W.L. (IOMBSS-1) and 123.5º W.L. (IOMBSS-2).

A. Introduction to ManSat

ManSat is a privately-held company formed under the laws of the Isle of Man. Situated in the British Isles, the Isle of Man is an internally self-governing dependency of the British Crown that is not part of the United Kingdom. The Island's Parliament makes law and oversees all internal administration, fiscal, and social policies. By convention, and on behalf of the Island, the United Kingdom administers the Island's external interests in matters such as

[1] *Amendment of the Commission's Policies and Rules for Processing Applications in the Direct Broadcast Satellite Service; Feasibility of Reduced Orbital Spacing for Provision of Direct Broadcast Satellite Service in the United States,* FCC 06-120 (rel. Aug 18, 2006) *("NPRM").*

foreign representation and defense, including representation at the ITU. Thus, the ITU filings made on ManSat's behalf were made by the United Kingdom for the benefit of the Isle of Man.[2]

The Island has developed into a flourishing international finance center and it is committed to the highest standards of regulation and business practices. The Island is financially stable: the IMF recognizes the Island as a jurisdiction with the highest standards in banking and securities supervision; both Standard & Poor's and Moody's have awarded the Island their coveted AAA rating for the past six years. Moreover, the Island cooperates closely with the United States on important policy matters. The Island has entered into an arrangement with the United States for the mutual exchange of information on tax matters to ensure that no safe haven exists anywhere for funds associated with activities such as money laundering, terrorist financing or tax evasion.

While banking, insurance, shipping, and manufacturing long have been important industries on the Island, new industries recently have begun to develop under the government's economic diversification policy. ManSat is at the forefront of one of those new industries. Specifically, ManSat represents a revolutionary partnership of international aerospace, banking, and financial services interests, who have combined to offer essential services to the world's commercial space industry. ManSat currently has commercial arrangements with some of the world's leading launch providers, satellite operators, and satellite service providers, and thereby supports the provision of existing and future satellite service by those entities to the United States and to other parts of the world.

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[2] Through its relationship with the United Kingdom, ManSat enjoys the benefits of the United Kingdom's participation in the World Trade Organization (WTO), the Organisation for Economic Co-operation and Development (OECD) and the International Monetary Fund (IMF). The Island also enjoys a special relationship with the European Union (EU) that allows the streamlined movement of goods between the Island and the EU.

B. Reducing DBS Orbital Spacing Is Consistent with Commission Policy

ManSat commends the Commission for its forward thinking in initiating this proceeding, as well as the parallel proceeding that seeks to develop rules to open other frequency bands for DBS licensing.[3] Both of these proceedings provide the opportunity to introduce a new generation of broadband services to the public, providing a mix of local, national and international, video, audio, data, video-on-demand and multimedia services to residential and business subscribers in the United States, including in high-definition formats. Thus, these proceedings have the potential to provide U.S. consumers with access to a wider variety of services and suppliers, with increased competition leading to reduced prices and further technological innovation.[4] Moreover, this type of a reassessment of the Commission's policies regarding orbital spacing is vital to the continued growth of the industry, and is essential to maintaining entrepreneurial opportunities that allow both expansion by incumbent operators and new entry by additional competitors.[5]

The world has changed dramatically in the almost quarter of a century since the ITU's Region 2 BSS Plan was created in 1983. At that time, the launch of the U.S. DBS industry was still over a decade away, and digital modulation technology was in its infancy. Thus, it is widely acknowledged that the ITU's BSS plan for Region 2 (as well as its plan for Regions 1 & 3) was out-of-date by the time the DBS industry launched. Indeed, both Echostar and DIRECTV have had to seek modifications to the ITU plan in order to implement the full-

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[3] *Establishment of Policies and Service Rules for the Broadcasting-Satellite Service at the 17.3-17.7 GHz Frequency Band and at the 17.7-17.8 GHz Frequency Band Internationally, and at the 24.75-25.25 GHz Frequency Band for Fixed Satellite Services Providing Feeder Links to the Broadcasting-Satellite Service and for the Satellite Services Operating Bi-directionally in the 17.3-17.8 GHz Frequency Band*, FCC 06-90 (rel. Jun. 23, 2006).

[4] *See id.* at ¶ 1.

[5] *See Licensing of Space Stations in the Domestic Fixed-Satellite Service and Related Revisions of Part 25 of the Rules and Regulations*, 54 Rad. Reg. 2d 577 at ¶ 7 (1983) ("*Two-Degree Spacing Order*").

CONUS, digitally-modulated systems that they now operate. Thus, proceedings such as this are both necessary and appropriate to ensure that outdated regulation does not unduly constrain the choices available to U.S. consumers.

In many ways, the issues giving rise to this proceeding are very similar to the circumstances that existed in the early 1980s when the Fixed Satellite Service (FSS) industry was growing, and spectrum resources were becoming scarce. At that time, the Commission took a similar "two-pronged" approach of (i) reducing orbital spacing in the FSS frequency bands to two degrees,[6] and, simultaneously, (ii) opening a new frequency band, the Ka band, for FSS licensing.[7] At that time, the orbital spacing of C and Ku band spacecraft was typically 1.5 to 2 times the two-degree separation at which the industry successfully operates today. Namely, C band FSS spacecraft typically were spaced at 4 degree intervals, and Ku band spacecraft typically were spaced at 3 degree intervals.[8] Those spacing policies were adopted in 1974 and 1977, respectively,[9] and within a decade, a demonstrated need had developed to facilitate a more intensive and efficient use of the limited spectrum resource. The Commission therefore conducted a rulemaking proceeding similar to this one, and, in 1983, adopted reduced, two-degree, spacing for FSS spacecraft at both C and Ku Band, concluding as follows:

> Demand for voice, data and video services delivered by . . . satellites is expected to grow steadily through at least the end of this century. It is clear that additional . . . satellites must be licensed to meet this demand. But the usable orbital arc in which these satellites can be operated is limited. *The search for new ways to maximize use of the orbital spectrum must necessarily be of a continuing nature. . . .* The most promising avenue towards the achievement of these objectives has been the placement of more satellites

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6 *See Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577.

7 The Ka band was allocated for FSS in the U.S. in the early 1970s, *see Amendment of Part 2 of the Commission's Rules to Conform with Space WARC 1971*, 39 FCC 2d 959 (1973), but service rules to allow Ka band licensing were not adopted until 1983, *see Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577 at ¶ 112 & Appendix D at ¶ 3 (adding the Ka band to Section 25.202(a) as available for licensing for the FSS).

8 *Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577 at ¶ 12.

9 *Id.*

> closer together in orbit. We therefore began this proceeding to evaluate that approach as well as other options to increase capacity. *Based on the record before us, reduced orbital spacings afford the best opportunities now for both existing operators and new entrants to satisfy growing user requirements with a minimum of administrative costs and delay.*

Two-Degree Spacing Order, 54 Rad. Reg. 2d 577 at ¶ 1 (emphasis added).

These words of the Commission ring just as true twenty-three years later. To be sure, the need to make additional spectrum resource available for DBS service is beyond question. Both Echostar and DIRECTV have turned to non-U.S.-licensed DBS satellite systems,[10] and to FSS frequency bands,[11] to enhance their system capacity, to offer improved services, and to provide more local programming to the U.S. It remains axiomatic that Commission policies are well-served by providing the opportunity for additional competitors to enter the marketplace. Thus, ManSat submits that the critical question should not be whether to implement reduced DBS spacing, it should be precisely how to do so.

C. <u>The Commission Should Facilitate Nominal 4.5 Degree DBS Spacing</u>

While the *NPRM* generally considers reduced orbital spacing for DBS spacecraft at 12/17 GHz, it does not specifically propose a new standard to replace the current nine-degree-spacing standard. ManSat respectfully recommends that the Commission work to develop a nominal 4.5-degree-spacing standard for DBS spacecraft at 12/17 GHz. As with the

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[10] DIRECTV is currently using a Canadian-licensed spacecraft at 72.5º W.L. to provide DBS to the U.S. *See DIRECTV Request for Special Temporary Authority for the DIRECTV 5 Satellite and for Blanket Authorization to Provide DBS in the U.S. Using the Canadian Authorized DIRECTV 5 Satellite at 72.5º W.L.*, 19 FCC Rcd 15529 (2004). Likewise, EchoStar is currently using a Mexican-licensed spacecraft at 77º W.L. to provide DBS service to the U.S. *See EchoStar Application for Receive-Only Earth Stations to Provide DBS Service in the U.S. Using the Mexican-Authorized Satellite EchoStar 4 at 77° W.L.*, 21 FCC Rcd 4077 (2006).

[11] DIRECTV provides direct-to-the-home (DTH) service in the U.S. using Ka band FSS spacecraft at 99° W.L. and 101° W.L. *See, e.g., Application of DIRECTV*, SAT-MOD-20040630-00128. EchoStar has authority to provide DTH in the U.S. using Ku band FSS spacecraft. *See, e.g., EchoStar and SES Americom, Applications for Modification of Earth Station License to add the AMC-16 Space Station at the 118.75° W.L. Orbital Location as a Point of Communication and for other associated authority*, DA 06-757 (rel. April 7, 2006).

Commission's current two-degree policy in FSS bands, of course, appropriate accommodations may need to be made for the ITU filings of other nations that are not fully compliant with any orbital spacing standard that may be adopted,[12] and for any offsets from nominal orbital assignments that are necessary to accommodate the Commission's safe spacecraft flight profile requirements.[13]

There are a number of significant benefits to adopting a nominal 4.5-degree-spacing standard:

First, by interleaving 4.5-degree-spaced DBS spacecraft within the current ITU BSS Plan for Region 2, the Commission would effectively *double* the amount of DBS spectrum that could be used to serve the United States.

Second, this approach would allow the Commission to accommodate the needs of other nations who have assignments within the ITU's Region 2 plan that can be used to serve the United States, and who have ITU priority at those locations.[14] For example, imposing a 4.5-degree-spacing requirement with respect to any network that seeks to serve the United States could be fully consistent with the Canadian BSS networks at 129º, 91º, 82º and 72.5º W.L., and

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[12] *See, e.g., Telesat Canada, Petition for Declaratory Ruling For Inclusion of Anik F2 on the Permitted Space Station List; Petition for Declaratory Ruling to Serve the U.S. Market Using Ka-band Capacity on Anik F2*, 17 FCC Rcd 25287 at ¶¶ 25-26 (2002) ("*Anik F2 Order*") (authorizing operation at 111.1º W.L., at slight deviation from uniform two-degree spacing).

[13] *See, e.g., Application of Hughes Communications, Inc.*, File Nos. SAT-AMD-20060306-00025; SAT-MOD-20050523-00106 (authorizing offset from 95º to 94.95º W.L.); *Application of PanAmSat License Corp.*, SAT-MOD-20040405-00079 (authorizing offset from 95º to 95.05º W.L.); *Amendment to Modification Application of New ICO Satellite Services, G.P.*, SAT-AMD-20060505-00054 (seeking offset from 93º to 92.85º W.L.).

[14] The Commission has recognized the need to make appropriate accommodations for ITU priority. *See, e.g., Anik F2 Order*, 17 FCC Rcd 25287 at ¶¶ 25-26; *Amendment of the Commission's Space Station Licensing Rules and Policies and Mitigation of Orbital Debris*, 18 FCC Rcd 10760 at ¶¶ 96, 296-297 (2003).

the Mexican network at 77º W.L.[15] All of these locations are at least 4.5 degrees (or multiples thereof) away from the U.S. BSS assignments at 61.5º, 101º, 110º, 119º, 148º, 157º, 166º and 175º W.L.

Third, this approach is fully consistent with the proposals made by SES Americom, Echostar, and Spectrum Five, for new DBS spacecraft at 105.5º, 86.5º and 114.5º W.L., respectively, which proposals were recently granted subject to the outcome of this rulemaking.

D. Coordination Is Required to Effectuate Reduced Spacing

ManSat's Region 2 BSS filings are spaced 4.5 degrees away from other Region 2 BSS Plan assignments. Thus, ManSat has been coordinating its BSS filings with other affected administrations/operators, and it believes those coordination discussions have shown the viability of reaching a reasonable coordination agreement with the affected operators.

Nonetheless, it is important that the Commission establish an appropriate regulatory mechanism that ensures that all affected operators have an incentive to coordinate in a timely and constructive manner. Effectuating reduced orbital spacing and increasing the overall spectrum resource necessarily involves compromises by everyone involved. In adopting reduced orbital spacing for FSS spacecraft, the Commission recognized that reduced spacing would require close coordination among all satellite operators, that frequency coordination has generally proven to be an effective means of managing interference between satellite networks,

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[15] The Commission has recognized its ability to impose technical requirements on non-U.S.-licensed spacecraft who seek to serve the United States, including its orbital spacing policies, *see Amendment of the Commission's Regulatory Policies To Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States*, 12 FCC Rcd 24094 at ¶ 156 (1997) ("*DISCO II*"), but also has considered the impact of reduced spacing on other administrations before adopting it, *Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577 at ¶¶ 50-56 (recognizing need to consider impact of reduced spacing on other administrations and the Commission's "commitment to accommodate the actual requirements of other countries for orbital locations through the international frequency coordination procedures").

and that coordination "appears to be a reasonable price to pay for the resulting increase in available in-orbit capacity."[16]

One of the ideas raised in the *NPRM* would not, however, facilitate the implementation of reduced orbital spacing. Specifically, it would place far too much leverage into the hands of the incumbents if the Commission were to adopt a scheme where an incumbent DBS operator could decline to achieve coordination within a specified time period, and the Commission would then dismiss an applicant for a reduced-spaced DBS satellite because it had not achieved coordination in a timely manner.[17]

In this regard, it bears noting that almost any proposal to serve the United States with a non-nine-degree-spaced DBS satellite is likely to trigger the currently-applicable ITU-specified overall equivalent protection margin (OEPM) for Region 2 that then gives rise to the requirement to coordinate under ITU procedures.[18] This is not surprising, because the ITU's Region 2 plan is based on nine-degree spacing, outmoded analog modulation, and outdated antenna technology. Thus, unless the Commission develops different criteria for what constitutes "acceptable" interference into DBS spacecraft in a reduced-spacing environment, based on *today's* technology, any requirement that an operator achieve coordination prior to commencing U.S. service with a reduced-spaced satellite[19] simply will not provide incumbent DBS operators with an appropriate incentive to coordinate.

E. <u>The Burdens of Implementing Reduced Spacing Must be Shared</u>

At bottom, the near doubling of spectrum resource that could flow from reduced DBS spacing necessarily involves a tradeoff between (i) the public interest in developing new

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[16] *Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577 at ¶ 38.

[17] *See NPRM*, FCC 06-120 at ¶ 42.

[18] *See id.* at ¶¶ 35-36.

[19] *See id.* at ¶ 41.

and innovative services and the increased competition that should result, on the one hand, and (ii) the costs of the accommodations that incumbents may be asked to bear, on the other hand. To be sure, implementing reduced DBS orbital spacing will likely have some effect on incumbent DBS providers, whether on their future plans and/or their current operations. As the Commission recognized in the context of reduced FSS spacing:

> reduced orbital spacings will indubitably entail adjustments to the current regulatory and operational environment. However, with the full cooperation of satellite operators, carriers, equipment manufacturers and users, the expansion of this industry can be achieved with a minimum amount of disruption to current plans and operations.

Two-Degree Spacing Order, 54 Rad. Reg. 2d 577 at ¶ 15.

This last point bears emphasis: it is not just the newcomers who should bear the burden of implementing reduced spacing. The burden needs to be shared with incumbents, whether that takes the form of slightly reduced operational flexibility, the need to upgrade existing antennas to modern technology, the need to deploy improved signal processing or other equipment, or the need to start designing replacement satellite networks that are compatible, from the outset, with reduced spacing.[20] The six-year time period the Commission has provided for Echostar and Spectrum Five to launch their 4.5-degree-spaced satellites should serve as the effective start of a transition period during which all operators reasonably could be expected to start to accommodate reduced DBS orbital spacing.[21]

Finally, ManSat urges the Commission to carefully scrutinize any claims that reduced orbital spacing will unduly constrain incumbent DBS operators, noting that they currently deploy new technology, including digital modulation, for their operational satellites, which is also the most likely scenario for any replacement or expansion satellites. In fact, the

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[20] *See Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577 at ¶¶ 30, 39.

[21] *See, e.g., id.* at ¶¶ 41-43 (establishing transition period based on heavy incumbent use of C band).

development of a vibrant Ku band VSAT industry in the past twenty years demonstrates the ability of the satellite industry to continue to deploy innovative, cost-effective technologies in the face of reduced orbital spacing. Despite the constraints of a reduced spacing environment, the VSAT industry now uses terminals as small as 74 cm, which are far smaller than the 1.2 meter antennas that were "cutting edge" when the Commission adopted reduced spacing for FSS providers.

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For these reasons, ManSat urges the Commission to pursue the goal of facilitating nominal 4.5 degree spacing for DBS spacecraft serving the United States at 12/17 GHz. In considering any objections to such a proposal, ManSat respectfully suggests that the Commission keep in mind its prior determination that "the benefits to be derived from the timely availability of additional in-orbit transponder capacity outweigh the costs of the reduced orbital separations we are adopting today."[22]

Respectfully submitted,

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[22] *Two-Degree Spacing Order*, 54 Rad. Reg. 2d 577 at ¶ 43.