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

In the Matter of	
SPECTRUM FIVE LLC	File Nos. SAT-LOI-20050312-00062 SAT-LOI-20050312-00063
Petition for Declaratory Ruling To Serve the U.S. Market Using BSS Spectrum from the 114.5° W.L. Orbital Location	Call Signs: S2667 & S2668

REPLY TO THE CONSOLIDATED RESPONSE OF SPECTRUM FIVE LLC

Pursuant to Section 309 of the Communications Act of 1934, as amended, 47 U.S.C. § 309, and Section 25.154 of the Commission's Rules, 47 C.F.R. § 25.154, EchoStar Satellite L.L.C. ("EchoStar") hereby files this Reply to the Consolidated Response of Spectrum Five LLC ("Spectrum Five"). Spectrum Five claims that the initiation of a rulemaking proceeding, as now urged by EchoStar and DIRECTV, Inc., to determine whether DBS satellites closer than 9 degrees from adjacent U.S. DBS satellites ("tweener satellites") can operate without causing unacceptable interference, is not necessary before granting its Petition.[1]

While Spectrum Five is of course correct that many technical interference issues can be resolved by coordination without recourse to a rulemaking, this is not the case here. The question of 4.5° spacing has become so complex and multi-faceted that a rulemaking has now become the preferable vehicle for the Commission to fully consider it. The factors that make it appropriate include the ever-increasing number of tweener satellite proposals currently before

[1] *See* Consolidated Response at p. 14.

the Commission,[2] the similarity of technical and policy issues that each of them presents, and most importantly the more widespread emergence of triple-feed subscriber dishes. In a number a number of circumstances of similar complexity , the Commission has frequently conducted rulemakings.[3] As a general matter, the Commission must first determine whether tweener

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[2] *See* Application of EchoStar Satellite L.L.C. for Authority to Construct, Launch and Operate a Direct Broadcast Satellite in the 12.2-12.7 GHz and 17.3-17.8 GHz Frequency Bands at 86.5° W.L., File No. SAT-LOA-20030609-00113 and In the Matter of SES Americom, Inc. Petition for Declaratory Ruling To Serve the U.S. Market Using BSS Spectrum from the 105.5° W.L. Orbital Location, File No. SAT-PDR-20020425-00071.

[3] *See, e.g.,* Licensing of Space Stations in the Domestic Fixed-Satellite Service and Related Provisions of Part 25 of the Rules and Regulation, Notice of Inquiry and Proposed Rulemaking, 88 FCC 2d 318 at ¶ 14 (1981) (goal of rulemaking proceeding to make a record on the feasibility of reduced orbital spacing); Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service, Memorandum Opinion and Order, 84 FCC 2d 584 (1980) at ¶ 44 (finding that "although a reduction in orbital spacing to accommodate more satellites in orbit, as proposed by NTIA, is likely to be feasible, we are deferring this question to a further proceeding to insure that such a decision is based on [a] more complete record than is before us today"). *See also* Blanket Licensing Order, 15 FCC Rcd 13430 (2000) at ¶ 100, In the Matter of 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; and Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, Ltd. to Provide A Fixed Service in the 12.2-12.7 GHz Band, *First Report and Order and Notice of Proposed Rulemaking*, 16 FCC Rcd 4096 (2000) (establishing rules for Ku-band NGSO satellites) and *Memorandum Opinion and Order and Second Report and Order*, 17 FCC Rcd 9614 (2002) (establishing rules for Multichannel Video Distribution and Data Service); In the Matter of Amendment of the Commission's Rules to Allocate Spectrum for, and to Establish other Rules and Policies Pertaining to, a Radiodetermination Satellite Service; In the Matter of Policies and Procedures for the Licensing of Space and Earth Stations in the Radiodetermination Satellite Service; In the Matter of the Application of GEOSTAR CORPORATION; For Authority to Construct, Launch and Operate Space Stations in the Radiodetermination Satellite Service; A request to allocate the 1606.8-1613.8 MHz band on a Primary Basis to the Radio Astronomy Service, *Report and Order*, 58 Rad. Reg. 2d 1416 (1985) (establishing spectrum for radiodetermination satellite service); In the Matter of Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, *Report and Order*, 9 FCC Rcd 5936, (1994) (establishing rules for the so called Big LEO MSS service)..

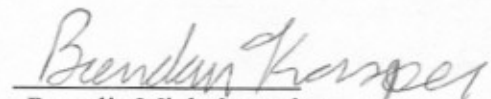
satellites can operate without causing unacceptable interference to adjacent DBS satellites and if so whether technical rules can be fashioned to ensure that tweener satellites do not limit the ability of existing DBS providers to deliver high quality service to U.S. consumers.

Furthermore, despite Spectrum Five's protestations to the contrary, there are still serious concerns about whether its proposed satellites can be coordinated internationally.[4] The fact that there are other satellite proposals for the same orbital location further complicates the analysis.

For the foregoing reasons, EchoStar urges the Commission to defer action on Spectrum Five's Petition until the Commission concludes a rulemaking proceeding to determine whether tweener satellites are feasible and can operate without causing unacceptable levels of interference into adjacent U.S. DBS satellites and if so whether technical rules can be fashioned to ensure that tweener satellites do not limit the ability of existing DBS providers to deliver high quality service to U.S. consumers.

[4] *See* Attachment A, hereto.

Respectfully submitted,



Pantelis Michalopoulos
Philip L. Malet
Brendan Kasper
STEPTOE & JOHNSON LLP
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 429-3000

David K. Moskowitz
Executive Vice President & General Counsel
EchoStar Satellite L.L.C.
9601 South Meridian Boulevard
Englewood, CO 80112
(303) 723-1000

Counsel for EchoStar Satellite L.L.C.

June 8, 2005

Attachment A to Reply To The Consolidated Response Of Spectrum Five

Technical Response to Spectrum Five

Richard Barnett
8th June 2005

I have been asked to review Spectrum Five's Technical Appendix in support of its Consolidated Response in File Nos. SAT-LOI-20050312-00062 and SAT-LOI-20050312-00063. Spectrum Five's optimistic assessment fails to take into account certain important real-world factors include the following:

- Actual subscriber earth station performance in terms of the gain towards the interfering satellite, and taking account of the pointing accuracy of the earth stations as well as the performance of a variety of different antenna types that are either already deployed in vast numbers, or are about to be deployed;

- The wide range of max-min EIRP levels across the service area, for both the interfering and interfered-with satellites, particularly in the case of spot beam satellites intended for local programming;

- The need to maintain the maximum throughput in every transponder, which is determined by the coding and modulation used;

- Actual orbital positions of the satellites, including the ±0.2° offsets from the nominal orbital positions; and

- The evolving nature of the DBS satellite industry, which requires flexibility for innovation in satellite and earth station designs in order to maintain its competitiveness.

Spectrum Five also makes several other specific technical points in its Consolidated Response that I strongly dispute, such as:

1. Average effects of interference. In the last paragraph of Section IV of the Spectrum Five Technical Appendix, the following is stated: "*Note that, in general, antenna pointing error and mismatch of the beams of two systems do not systematically increase the interference experienced by one system. For every earth station that is mispointed toward Spectrum Five, there will be another one pointed away.*"

   It is of no consolation to a DBS operator that, statistically speaking, only 50% of its subscribers are experiencing unacceptable, or harmful, interference. *Averaging* is simply not the way to address such interference issues. Degradation of service to only a very small percentage of subscribers may be a significant and unacceptable situation for an operator in a competitive business such as DBS. A much higher interference threshold must be established than is suggested here by Spectrum Five.

2. Comparison of Ka-band and Ku-band service. In Section VII of the Spectrum Five Technical Appendix, a comparison is drawn between the C/I levels purportedly achievable into Ku-band DBS systems and the C/I levels that would result from operation of Ka-band systems using 2° spacing and 66 cm earth station antennas. Spectrum Five concludes that the C/I at Ka-band will be lower than at Ku-band, but this is both incorrect and misleading.

   Firstly, Spectrum Five assumes that a Ku-band DBS receive antenna meets 29-25log(theta) off-axis gain at a 4.5° off-axis angle, but this is not an FCC requirement, nor is it what small DBS receive antennas can achieve. Such DBS antennas still exhibit main-lobe gain at 4.5 degrees off axis, resulting in gain performance up to 5 dB worse than the value assumed by Spectrum Five. This would worsen the calculated C/I levels by 5 dB, making the Ku-band DBS case significantly worse (~ 3 dB) than the Ka-band case.

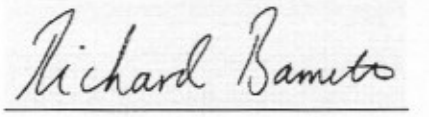
   Secondly, Ka-band is a new service starting off in a 2° orbital spacing environment, and this will require that its antennas be installed from the outset with greater pointing precision than has historically been the case with Ku-band DBS antennas. By contrast, there are tens of millions of Ku-band DBS receive antennas installed and operating, an indeterminate number of which could have quite significant pointing errors.

3. Triple-feed antennas. Spectrum Five asserts in footnote 57 of its Consolidated Response that a triple-feed antenna need not have worse off-axis gain performance than a single-feed antenna, and that by simply oversizing the antenna reflector all associated problems can be resolved. Unfortunately, this is not the way that DBS antennas work, particularly low-cost designs intended for mass-production and simple installation as required for DBS. Antennas of this type use a parabolic reflector that has a unique single focus point, which is where the central feed of a triple-feed design is located. The other two feeds, of necessity, must be located at a physical offset from this focus point, and this results in degraded beam shape and gain performance for these "offset" feeds. The degradation, particularly in off-axis gain performance, is quite severe, and significantly increases the off-axis gain towards the adjacent 4.5° spaced satellite. Triple-feed antennas such as this will be an essential component in future DBS systems, and their use should not be precluded by the introduction of 4.5° spaced co-frequency co-coverage DBS satellites.

4. Mitigation techniques. In the second paragraph of Section V of the Spectrum Five Technical Appendix, the ways proposed to mitigate unacceptable interference all place the burden on the interfered-with network. The proposed techniques of changing the modulation/coding, or adjusting the size of the subscriber terminal, or accepting more rain outage, are all detrimental to the interests of the incumbent DBS operators, and either reduce system capacity or provide inferior and unacceptable quality service to the subscribers.

CERTIFICATION OF PERSON RESPONSIBLE
FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this pleading, that I am familiar with Part 25 of the Commission's Rules, that I have either prepared or reviewed the engineering information submitted in this pleading, and that it is complete and accurate to the best of my knowledge and belief.



Richard J. Barnett, PhD, BSc
Telecomm Strategies Inc.
6404 Highland Drive
Chevy Chase, Maryland 20815
(301) 656-8969

Dated: June 8, 2005

CERTIFICATE OF SERVICE

I, Brendan Kasper, certify that on June 8, 2005 a copy of the foregoing Reply to the Consolidated Response of Spectrum Five LLC was served by U.S. mail, postage prepaid, upon the following:

David Wilson
President
SPECTRUM FIVE LLC
626 S. 25th Street
Arlington, VA 22202

William M. Wiltshire
Michael D. Nilsson
HARRIS, WILTSHIRE & GRANNIS LLP
1200 Eighteenth Street, NW
Washington, DC 20036

Richard E. Wiley
Todd M. Stansbury
Jennifer D. Hindin
WILEY REIN & FIELDING LLP
1776 K Street, NW
Washington, DC 20006

Peter A. Rohrbach
Karis A. Hastings
HOGAN & HARTSON LLP
555 Thirteenth Street, NW
Washington, DC 20004

In addition, I certify that I caused copies of the petition to be mailed via first-class postage prepaid mail to the following:

Paul J. Canessa
Chief Executive
Gibraltar Regulatory Authority
Suite 811, Europort
GIBRALTAR

Brendan Kasper