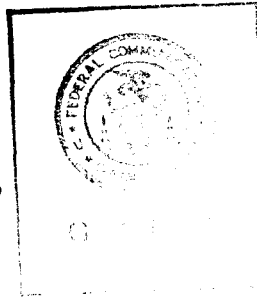


See:
SAT-LOA-20051221-00267



SAT-AMD-20060120-00007
with attached conditions
SL694 3/27/2006

See conditions See conditions

RCN
Robert G. Nelson Chief Satellite
Division

Approved by OMB
3060-0678

Date & Time Filed: Jan 20 2006 8:31:09:563PM
File Number: SAT-AMD-20060120-00007

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

Minor Amendment To Application To Make Minor Modification To DBS Authorizations And For Launch And Operating Authority For EchoStar 10 at 110 W.L.

1-8. Legal Name of Applicant

Name: EchoStar Satellite Operating Corporation	Phone Number: 303-723-1000
DBA Name:	Fax Number: 303-723-1699
Street: 9601 South Meridian Boulevard	E-Mail:
City: Englewood	State: CO
Country: USA	Zipcode: 80112 -
Attention: David K Moskowitz	

ATTACHMENT

Conditions of Authorization: IBFS File Nos. SAT-LOA-20051221-00267, SAT-AMD-20060120-00007

Call Sign: S2694

Grant Date: March 27, 2006

1. EchoStar Satellite Operating Corporation's (EchoStar) application, IBFS File No. SAT-LOA-20051221-00267,¹ as amended by SAT-AMD-20060120-00007,² to construct, launch, and operate a direct broadcast satellite (DBS), EchoStar 10 (Call Sign: S2694),³ at the 110° W.L.⁴ orbital location IS GRANTED IN PART and DEFERRED IN PART. Accordingly, EchoStar is authorized to operate the EchoStar 10 satellite at the 110.0° W.L. orbital location with feeder links (Earth to space) in the 17.3–17.8 GHz band on DBS channels 2-7, 9-27, 29, and 31, and service links (space to Earth) in the 12.2–12.7 GHz band on DBS channels 4, 12, 18, 20, 23, 25, and 26. Action on EchoStar's request to operate service links on DBS channels 27, 29, and 31 at the 110° W.L. nominal orbital location is deferred. This partial grant is in accordance with the terms, conditions, and technical specifications set forth in its application, the Federal Communication Commission's (Commission) rules, and the requirements stated below.

2. Until further action by the Commission, EchoStar may not operate service link channels 27, 29, and 31 at the 110° W.L. nominal orbital location on the EchoStar 10 satellite. If, however, EchoStar and DirecTV enter into an operator agreement with respect to service links on channels 27, 29, and 31 on the EchoStar 10 satellite at the 110 W.L. nominal orbital location, EchoStar may commence service on those channels after notifying the Commission in writing through a letter to Robert Nelson, Chief, Satellite Division, International Bureau, Federal Communications Commission.

3. EchoStar's request for waiver of Section 25.210(i), of the Commission's rules, 47 C.F.R. § 25.210(i), for the EchoStar 10 satellite located at the 110° W.L. nominal orbital location, IS GRANTED IN PART as conditioned and DEFERRED with respect to the channels not

¹ This application was accepted for filing on December 22, 2005. Comments were filed by DIRECTV Enterprises, LLC (DIRECTV) addressing EchoStar's request to operate service links on channels 27, 29, and 31 on the EchoStar 10 satellite at the 110.0° W.L. orbital location. DIRECTV, however, indicated that it did not oppose grant of feeder links in the 17.3–17.8 GHz (Earth-to-space) band on DBS channels 2-7, 9-27, 29, and 31, and service links in the 12.2–12.7 MHz (space-to Earth) band on DBS channels 4, 12, 18, 20, 23, 25, and 26. Response of DIRECTV Enterprises, LLC, filed February 3, 2006, at 8 ("... DIRECTV's concern relates to only three of the twenty-nine DBS channels used by EchoStar 10...").

² This amendment, filed January 20, 2006, is a minor amendment to modify the information required by No. 4.2.6 of Appendices 30 and 30A of the ITU Radio Regulations, and to replace the interference analysis contained in Appendix 1 of the original application. This minor amendment does not change any aspect of the design or capability of the EchoStar 10 satellite as described in the application.

³ EchoStar is currently authorized to provide DBS service on DBS channels 1-27, 29, and 31 at the 110° W.L. nominal orbital location using EchoStar 6, *See Application for Minor Modification of Four DBS Space Station Authorizations, Memorandum, Opinion and Order* 18 FCC Rcd. 15,211 (Sat. Div. 2003); and EchoStar 8, *See EchoStar Satellite Corporation, Application for Minor Modification of Direct Broadcast Satellite Authorization, Launch and Operating Authority for EchoStar VIII, Order and Authorization*, 17 FCC Rcd 11,326 (Sat. Div. 2002).

⁴ Requests for special temporary authority recently filed by EchoStar relating to EchoStar 10 appear to contemplate permanent operation at 110.2° W.L. EchoStar, however, requested the 110° W.L. orbital location in SAT-LOA-20051221-00267. Accordingly, if EchoStar seeks to operate at a different orbital location, it should file an appropriate modification request.

addressed in this action. Section 25.210(i) requires Fixed-Satellite Service (FSS) space station antennas to be designed to meet a cross-polarization isolation of 30 dB within the primary coverage area of the antenna.⁵ EchoStar indicates that the cross-polarization isolation of some of the antennas in EchoStar 10's primary coverage area will be less than the minimum 30 dB required by the rules, and is a minimum of 24.6 dB for the feeder-link receiving antennas, which operate in the FSS.⁶ This shortfall will not produce a significant increase in interference, except to the applicant itself. As a condition of the waiver, EchoStar shall claim no more protection from interference from other licensed radiocommunication systems operating in accordance with the Commission's rules than if its feeder-link receiving antennas had met Section 25.210(i) of our rules. Grant of this waiver request is consistent with our precedent.⁷

4. EchoStar's request for waiver of Section 25.215 of the Commission's rules, 47 C.F.R. § 25.215 for the EchoStar 10 satellite located at 110° W.L. nominal orbital location, IS GRANTED IN PART as conditioned and DEFERRED with respect to the channels not addressed in this action as conditioned. Section 25.215 requires DBS space station service link antennas to be designed to meet a cross-polarization isolation of 30 dB within the primary coverage area of the antenna.⁸ EchoStar states that the cross-polarization isolation of some of the service-link transmitting antennas of the EchoStar 10 satellite's primary coverage area is slightly less than the minimum 30 dB required by Section 25.215, and is a minimum of 28.8 dB for the service-link transmitting antennas within the primary service area of the antennas covering U.S. territory.⁹ We find that, with respect to the granted channels, given the relatively small difference between the required cross-polarization isolation of Section 25.215 of the Commission's rules and that which the antennas of EchoStar 10 will achieve, it is unlikely that EchoStar's less than 30 dB cross-polarization isolation will cause material degradation in the service of other currently-authorized DBS systems serving the U.S. on these channels. The Commission has stated that licensees may use cross-polarization isolation which is different from that specified for the Region 2 BSS Plan if they demonstrate that such a difference does not result in interference to other operational or planned systems, including U.S.-licensed systems.¹⁰ As a condition of this waiver, with respect to the channels granted by this grant stamp, EchoStar must coordinate the operations of EchoStar 10 with other potentially affected radiocommunication systems, and operate on a non-harmful interference basis with respect to any DBS space stations that are in compliance with the cross-polarization isolation requirement. Also, since the intra-system cross-polarization interference caused by EchoStar 10 not meeting the requirements of Section 25.215 must be factored into EchoStar's own link budgets, EchoStar shall not claim any more protection from interference from other radiocommunication systems operating in accordance with the Commission's rules than if it met the requirements of Section 25.215.

⁵ 47 C.F.R. § 25.210(i).

⁶ IBFS File No. SAT-LOA-20051221-00267, EchoStar Satellite Operating Corporation, Application to Make Minor Modifications to Direct Broadcast Satellite Authorizations and For Launch and Operating Authority for the EchoStar 10 satellite (EchoStar 10 Application), Section A.11, page 13.

⁷ Star One S.A.; Petition for Declaratory Ruling to Add The Star One C1 Satellite at 65° W.L. to the Permitted Space Station List, *Order*, 19 FCC Rcd 16334 (Sat. Div. 2004) (finding that the impact on neighboring satellite systems of a 3-5 dB difference from the required cross polarization isolation ratio would be negligible).

⁸ 47 C.F.R. § 25.215.

⁹ EchoStar 10 Application, Section A.11, page 13.

¹⁰ *See In re EchoStar Satellite Corp., Directsat Corp., EchoStar DBS Corp. Application for Authority to Make Minor Modifications to Direct Broadcast Satellite Authorizations, Launch, and Operational Authority, Memorandum Opinion and Order*, 13 FCC Rcd 8595, 8604 at para. 17 (1998).

5. EchoStar must maintain the EchoStar 10 satellite at 110.0 deg. W.L. with +/- 0.05 degree longitudinal stationkeeping. *See* 47 C.F.R. § 25.210(j).

6. The license term for the EchoStar 10 satellite is 10 years and will begin to run on the date the licensee certifies to the Commission that the satellite has been successfully placed into orbit and its operation fully conforms to the terms and conditions of this authorization.

7. EchoStar is afforded thirty days from the date of release of this grant and authorization to decline this authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

8. This Grant is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon release. Petitions for reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within 30 days of the date of the public notice indicating that this action was taken.

9-16. Name of Contact Representative

Name:	Pantelis Michalopoulos	Phone Number:	202-429-6494
Company:	Steptoe & Johnson LLP	Fax Number:	
Street:	1330 Connecticut Ave., NW	E-Mail:	pmichalo@steptoe.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20036-
Attention:		Relationship:	Legal Counsel

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

- a1. Earth Station
- a2. Space Station

- (N/A) b1. Application for License of New Station
- (N/A) b2. Application for Registration of New Domestic Receive-Only Station
- (N/A) b3. Amendment to a Pending Application
- (N/A) b4. Modification of License or Registration
- b5. Assignment of License or Registration
- b6. Transfer of Control of License or Registration
- (N/A) b7. Notification of Minor Modification
- (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
- (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
- (N/A) b10. Other (Please specify)

<p>17c. Is a fee submitted with this application? <input type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114). <input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee <input checked="" type="radio"/> Other (please explain): This application is a minor amendment to a DBS application and as such no fee is required.</p>	
<p>17d. Fee Classification CWY – Space Station Amendment (Geostationary)</p>	
<p>18. If this filing is in reference to an existing station, enter: (a) Call sign of station:</p>	<p>19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number: (a) Date pending application was filed: 12/21/2005 (b) File number: SATMOD2005122100267</p>

TYPE OF SERVICE

<p>20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:</p> <p> <input type="checkbox"/> a. Fixed Satellite <input type="checkbox"/> b. Mobile Satellite <input type="checkbox"/> c. Radiodetermination Satellite <input type="checkbox"/> d. Earth Exploration Satellite <input type="checkbox"/> e. Direct to Home Fixed Satellite <input type="checkbox"/> f. Digital Audio Radio Service <input checked="" type="checkbox"/> g. Other (please specify) DBS </p>	
<p>21. STATUS: Choose the button next to the applicable status. Choose only one.</p> <p> <input type="radio"/> Common Carrier <input checked="" type="radio"/> Non-Common Carrier </p>	<p>22. If earth station applicant, check all that apply.</p> <p> <input type="checkbox"/> Using U.S. licensed satellites <input type="checkbox"/> Using Non-U.S. licensed satellites </p>
<p>23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:</p> <p> <input type="radio"/> Connected to a Public Switched Network <input type="radio"/> Not connected to a Public Switched Network <input checked="" type="radio"/> N/A </p>	
<p>24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).</p> <p> <input type="checkbox"/> a. C-Band (4/6 GHz) <input type="checkbox"/> b. Ku-Band (12/14 GHz) <input checked="" type="checkbox"/> c. Other (Please specify upper and lower frequencies in MHz.) Frequency Lower: 12200 Frequency Upper: 17800 (Please specify additional frequencies in an attachment) </p>	

TYPE OF STATION

<p>25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.</p> <ul style="list-style-type: none"><input type="radio"/> a. Fixed Earth Station<input type="radio"/> b. Temporary-Fixed Earth Station<input type="radio"/> c. 12/14 GHz VSAT Network<input type="radio"/> d. Mobile Earth Station<input checked="" type="radio"/> e. Geostationary Space Station<input type="radio"/> f. Non-Geostationary Space Station<input type="radio"/> g. Other (please specify)
<p>26. TYPE OF EARTH STATION FACILITY:</p> <p><input type="radio"/> Transmit/Receive <input type="radio"/> Transmit-Only <input type="radio"/> Receive-Only <input checked="" type="radio"/> N/A</p> <p>"For Space Station applications, select N/A."</p>

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a -- authorization to add new emission designator and related service
- b -- authorization to change emission designator and related service
- c -- authorization to increase EIRP and EIRP density
- d -- authorization to replace antenna
- e -- authorization to add antenna
- f -- authorization to relocate fixed station
- g -- authorization to change frequency(ies)
- h -- authorization to add frequency
- i -- authorization to add Points of Communication (satellites & countries)
- j -- authorization to change Points of Communication (satellites & countries)
- k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l -- authorization to change orbit location
- m -- authorization to perform fleet management
- n -- authorization to extend milestones
- o -- Other (Please specify)

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Appendix 1

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30–34.

29. Is the applicant a foreign government or the representative of any foreign government?	<input type="radio"/> Yes <input checked="" type="radio"/> No
30. Is the applicant an alien or the representative of an alien?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? Yes No N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? Yes No
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.

Service Areas

36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances. Yes No

Response to Q.36

<p>37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p style="text-align: right;">GXT File</p>
<p>40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.</p>	<p>Response to Q40</p>

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application"; for these purposes. Yes No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43. Yes No
SpaceCap File

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?

43. Description. (Summarize the nature of the application and the services to be provided). (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

See Narrative.

Narrative

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
- Unincorporated Association
- Partnership
- Corporation
- Governmental Entity
- Other (please specify)

45. Name of Person Signing
David K. Moskowitz

46. Title of Person Signing
Executive Vice President and General Counsel

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**WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).**

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THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

Response to Question 36

In a Memorandum Opinion and Order released May 16, 2002, the Satellite Division of the International Bureau cancelled two conditional construction permits held by EchoStar affiliates for 22 channels at the 175° W.L. orbital location. *See In the Matter of EchoStar Satellite Corporation, Directsat Corporation, Direct Broadcasting Satellite Corporation, Consolidated Request for Additional Time to Commence Operation*, Memorandum Opinion and Order, DA 02-1164 (rel. May 16, 2002).

By Order released July 1, 2002, the International Bureau cancelled EchoStar's license for a Ka-band satellite system and dismissed a related modification application filed by EchoStar. *See In the Matter of EchoStar Satellite Corporation; Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed-Satellite Service*, Memorandum Opinion and Order, DA 02-1534 (rel. July 1, 2002). On November 8, 2002, the International Bureau reinstated EchoStar's license for a Ka-band system as well as the related modification application. *See In the Matter of EchoStar Satellite Corporation; Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed-Satellite Service*, Memorandum Opinion and Order, DA 02-3085 (rel. Nov. 8, 2002).

In a Memorandum Opinion and Order released April 29, 2004, the International Bureau denied, in part, four applications filed by EchoStar to operate GSO FSS satellites using the Ka and/or Extended Ku-bands at the 83° W.L., 105° W.L, 113° W.L, and 121° W.L orbital locations. *See In the Matter of EchoStar Satellite LLC, Applications for Authority to Construct, Launch, and Operate Geostationary Satellites in the Fixed-Satellite Service Using the Ka and/or Extended Ku Bands at the 83° W.L., 105° W.L, 113° W.L, and 121° W.L Orbital Locations*, Memorandum Opinion and Order, DA 04-1167 (rel. Apr. 29, 2004). EchoStar has petitioned for reconsideration of this decision.

In a Memorandum Opinion and Order released August 3, 2004, the International Bureau declared null and void the space station authorization held by VisionStar, an EchoStar affiliate, for use of the Ka-band at the 113° W.L. orbital location. *See VisionStar, Inc., Application for Modification of Authority to Construct, Launch and Operate a Ka-Band Satellite System in the Fixed Satellite Service*, Memorandum Opinion and Order, DA 04-2449 (rel. Aug. 3, 2004).

By letter dated May 19, 2005, the International Bureau denied EchoStar's applications for a Fleet Management Modification and for a Special Temporary Authority to move the EchoStar 4 satellite to 61.5° W.L., pending the Commission's consideration of another EchoStar request to move the satellite to 77° W.L., on the grounds that the purpose of the proposed fleet management modification was not consistent with the purposes of the Commission's rules and that there were no extraordinary circumstances for the grant of temporary authority. *See Letter from Thomas S. Tycz, Chief, Satellite Division, International Bureau, FCC to Pantelis Michalopoulos, Counsel to EchoStar Satellite L.L.C., DA 05-1405 (May 19, 2005).*

In a Memorandum Opinion and Order released June 3, 2005, the International Bureau denied EchoStar's application for a Special Temporary Authority to move the EchoStar 4 satellite to 77° W.L. on the grounds that EchoStar had failed to establish extraordinary circumstances for the grant of such authority. *See EchoStar Satellite L.L.C., Application for Special Temporary Authority to Conduct Telemetry, Tracking and Command Operations During the Relocation of EchoStar 4 to the 77° W.L. Orbital Location*, Memorandum Opinion and Order, DA 05-1581 (rel. Jun. 3, 2005). However, the International Bureau later granted partial reconsideration of this order and the applications related to moving the EchoStar 4 satellite to

77° W.L. are currently pending before the Commission. *See EchoStar Satellite L.L.C., Application for Special Temporary Authority to Conduct Telemetry, Tracking and Command Operations During the Relocation of EchoStar 4 to the 77° W.L. Orbital Location, Application for Modification of Direct Broadcast Satellite Authorization To Permit Long-Term Cessation of Operations at the 157° W.L. Orbital Location, Application for Modification of Earth Station Authorization to add the EchoStar 4 Satellite at 77° W.L. as a Point of Communication, Order on Reconsideration, DA 05-2067 (rel. Jul. 25, 2005).*

RESPONSE TO QUESTION 40

OWNERSHIP AND CORPORATE OFFICERS AND DIRECTORS

OWNERSHIP

EchoStar Satellite Operating Corporation is an indirect, wholly-owned subsidiary of EchoStar Communications Corporation (a Nevada corporation). The stockholders owning of record and/or voting 10 percent or more of the voting stock of EchoStar Communications Corporation include:

<u>Ownership Interest</u>	<u>Citizenship</u>	<u>Approx. Equity Interest¹</u>	<u>Approx. Voting Interest¹</u>
Charles W. Ergen ² Chairman and CEO EchoStar Communications Corporation 9601 South Meridian Blvd. Englewood, CO 80112	USA	53.8%	72.8%
David K. Moskowitz Executive Vice President and General Counsel 9601 South Meridian Blvd. Englewood, CO 80112	USA	*% ³	19.3% ⁴
Fidelity Management and Research Corporation 82 Devonshire Street Boston, MA 02109	USA (Massachusetts corporation)	15.2%	1.5%

¹ As of January 20, 2006.

² Includes both Class A common and Class B common stock ownership. Class B common stock is owned through several trusts.

³ Less than 1%.

⁴ Includes Class B Common Stock for which Mr. Moskowitz has voting power solely by virtue of his position as a trustee of several Ergen trusts.

CORPORATE OFFICERS AND DIRECTORS⁵

EchoStar Communications Corporation

Executive Officers:

Charles W. Ergen	Chief Executive Officer
James DeFranco	Executive Vice President
Carl E. Vogel	Vice Chairman
Michael A. Neuman	President and Chief Operating Officer
David K. Moskowitz	Executive Vice President, General Counsel and Secretary
Steven B. Schaver	President, EchoStar International Corporation
David J. Rayner	Executive Vice President and Chief Financial Officer
Mark W. Jackson	President, EchoStar Technologies Corporation
O. Nolan Daines	Executive Vice President, Broadband
Michael Kelly	Executive Vice President, DISH Network Service L.L.C. and Customer Service Operations

Board of Directors:

Charles W. Ergen	Chairman
Carl Vogel	
Steven R. Goodbarn	
James DeFranco	
David K. Moskowitz	
Cantey M. Ergen	
C. Michael Schroeder	
Michael T. Dugan	
Tom A. Ortolf	
Gary Howard	

EchoStar Satellite Operating Corporation

Executive Officers:

Charles W. Ergen	President and Chief Executive Officer
James DeFranco	Executive Vice President
David K. Moskowitz	Executive Vice President, General Counsel, Corporate Secretary

Board of Directors:

Charles W. Ergen	Chairman
James DeFranco	
David K. Moskowitz	

⁵ The address for all officers and directors of EchoStar Communications Corporation and EchoStar Satellite Operating Corporation is 9601 South Meridian Blvd., Englewood, CO 80112.

**Appendix 1 to
(ECHOSTAR-10 Spot Beam Satellite)**

**Analysis of ANNEX 1 of Appendix 30
for USABSS-26 at 110° W.L**

- 1 Limits for the interference into frequency assignments in conformity with the Regions 1 and 3 Plan or with the Regions 1 and 3 List or into new or modified assignments in the Regions 1 and 3 List**

Does not apply to the Region 2 Plan.

- 2 Limits to the change in the overall equivalent protection margin for frequency assignments in conformity with the Region 2 Plan**

With respect to § 4.2.3 c) of Article 4, an administration in Region 2 is considered as being affected if the overall equivalent protection margin²⁸ corresponding to a test point of its entry in the Region 2 Plan, including the cumulative effect of any previous modification to that Plan or any previous agreement, falls more than 0.25 dB below 0 dB, or, if already negative, more than 0.25 dB below the value resulting from:

- the Region 2 Plan as established by the 1983 Conference; or*
- a modification of the assignment in accordance with this Appendix; or*
- a new entry in the Region 2 Plan under Article 4; or*
- any agreement reached in accordance with this Appendix. (WRC-03)*

The MSPACE analysis was performed utilizing the ITU Plan file in IFIC 2555. The results of the analysis for foreign networks are contained in Annex 1 to this Appendix. As shown the affected foreign administrations are Canada, the United Kingdom, and the Netherlands. It is noted that none of the OEPM degradations are more than 1.0 dB greater than the allowed 0.25 dB except for the United Kingdom and Netherlands filings at 105.5°W and 114°W respectively. Given the close orbital separation between these filings and the U.S. 110°W orbital location this would be expected to be the worst case.

²⁸ For the definition of the overall equivalent protection margin, see § 1.11 of Annex 5.

3 Limits to the change in the power flux-density to protect the broadcasting-satellite service in Regions 1 and 2 in the band 12.2-12.5 GHz and in Region 3 in the band 12.5-12.7 GHz

With respect to § 4.2.3 a), 4.2.3 b) or 4.2.3 f) of Article 4, as appropriate, an administration in Region 1 or 3 is considered as being affected if the proposed modification to the Region 2 Plan would result in exceeding the following power flux-density values, at any test point in the service area of its overlapping frequency assignments:

$-147 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $0^\circ \leq \theta < 0.23^\circ$</i>
$-135.7 + 17.74 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $0.23^\circ \leq \theta < 2.0^\circ$</i>
$-136.7 + 1.66 \theta^2 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $2.0^\circ \leq \theta < 3.59^\circ$</i>
$-129.2 + 25 \log \theta \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $3.59^\circ \leq \theta < 10.57^\circ$</i>
$-103.6 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$	<i>for $10.57^\circ \leq \theta$</i>

where θ is the minimum geocentric orbital separation in degrees between the wanted and interfering space stations, taking into account the respective East-West station-keeping accuracies. (WRC-03)

The closest Regions 1 and 3 BSS orbital location in the Regions 1 and 3 Plan or List is the French OCE10100 assignment at 160°W, which is 50° from the 110°W orbital location of USABSS-26. Therefore the $-103.6 \text{ dB}(W/(m^2 \cdot 27 \text{ MHz}))$ level from the above limits applies in this case. The GIMs Appendix 30 pfd tool was used to assess compliance with this Section. Using the antenna gain contours and power levels of the 49 spot beams the GIMS pfd tool showed that no Administrations are affected. Therefore USABSS-26 is compliant with this Section.

4 Limits to the power flux-density to protect the terrestrial services of other administrations^{29, 30, 31}

With respect to § 4.2.3 d) of Article 4, an administration in Region 1, 2 or 3 is considered as being affected if the consequence of the proposed modification to an existing assignment in the Region 2 Plan is to increase the power flux-density arriving on any part of the territory of that administration by more than 0.25 dB over that resulting from

²⁹ See § 3.18 of Annex 5.

³⁰ In the band 12.5-12.7 GHz in Region 1, these limits are applicable only to the territory of administrations mentioned in Nos. 5.494 and 5.496.

³¹ See Resolution 34.*

* *Note by the Secretariat:* This Resolution was revised by WRC-03.

that frequency assignment in the Region 2 Plan at the time of entry into force of the Final Acts of the 1985 Conference. The same administration is considered as not being affected if the value of the power flux-density anywhere in its territory does not exceed the limits expressed below.

With respect to § 4.1.1 d) or § 4.2.3 d) of Article 4, an administration in Region 1, 2 or 3 is considered as being affected if the proposed new assignment in the Regions 1 and 3 List, or if the proposed new frequency assignment in the Region 2 Plan, would result in exceeding a power flux-density, for any angle of arrival, at any point on its territory, of:

$$\begin{array}{ll} -148 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } \theta \leq 5^\circ \\ -148 + 0.5 (\theta - 5) \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } 5^\circ < \theta \leq 25^\circ \\ -138 \text{ dB}(W/(m^2 \cdot 4 \text{ kHz})) & \text{for } 25^\circ < \theta \leq 90^\circ \end{array}$$

where θ represents the angle of arrival. (WRC-03)

The GIMS pfd tool was used to determine the list of Administrations whose terrestrial services may be affected by the USABSS-26 modification to the Region 2 Plan. Of the analysis of 49 spot beams only 2 beams resulted in identifying an Administration as potentially affected. These are Beam T33 which has an exceedence over Canada and bema T46 that has an exceednce over Russia. Beam T46 provides coverage of Alaska and the exceedence of the pfd level is over a small area of north eastern Russia. Given the limited area where the exceedence occurs it is believed that this can be successfully coordinated. Although the T33 beam exceeds the pfd level in Canada Paragraph 4.2.3 d) of Article 4 of Appendix 30 states that the above pfd limits apply to countries not having frequency assignments in the broadcasting-satellite service in the channel concerned. Since both Canada is assigned all 32 channels in the Plan, these limits do not apply on their territory.

5 (Not used.)

6 **Limits to the change in the power flux-density of assignments in the Regions 1 and 3 Plan or List to protect the fixed-satellite service (space-to-Earth) in the band 11.7-12.2 GHz³² in Region 2 or in the band 12.2-12.5 GHz in Region 3, and of assignments in the Region 2 Plan to protect the fixed-satellite service (space-to-Earth) in the band 12.5-12.7 GHz in Region 1 and in the band 12.2-12.7 GHz in Region 3**

With respect to § 4.2.3 e), an administration is considered as being affected if the proposed modification to the Region 2 Plan would result in an increase in the power flux-

³² Including assignments operating under No. 5.485.

density over any portion of the service area of its overlapping frequency assignments in the fixed-satellite service in Region 1 or 3 of 0.25 dB or more above that resulting from the frequency assignments in the Region 2 Plan at the time of entry into force of the Final Acts of the 1985 Conference.

With respect to § 4.1.1 e) or 4.2.3 e) of Article 4, with the exception of cases covered by Note 1 below, an administration is considered as not being affected if the proposed new or modified assignment in the Regions 1 and 3 List, or if a proposed modification to the Region 2 Plan, gives a power flux-density anywhere over any portion of the service area of its overlapping frequency assignments in the fixed-satellite service in Region 1, 2 or 3 of less than:

$-186.5 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $0^\circ \leq \theta < 0.054^\circ$
$-164.0 + 17.74 \log \theta \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $0.054^\circ \leq \theta < 2.0^\circ$
$-165.0 + 1.66 \theta^2 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $2.0^\circ \leq \theta < 3.59^\circ$
$-157.5 + 25 \log \theta \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $3.59^\circ \leq \theta < 10.57^\circ$
$-131.9 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$	for $10.57^\circ \leq \theta$

where θ is the minimum geocentric orbital separation in degrees between the wanted and interfering space stations, taking into account the respective East-West station-keeping accuracies.

The GIMS pfd tool was used to verify compliance with this Section. All Regions 1 and 3 FSS satellites are greater than 11.57° from the 110°W location, therefore the $-131.9 \text{ dB}(W/(m^2 \cdot 40 \text{ kHz}))$ level applies. The results of the GIMS analysis shows that no Administrations are affected by USABSS-26. Therefore USABSS-26 is compliant with this Section.

7 Limits to the change in equivalent noise temperature to protect the fixed-satellite service (Earth-to-space) in Region 1 from modifications to the Region 2 Plan in the band 12.5-12.7 GHz

With respect to § 4.2.3 e) of Article 4, an administration of Region 1 is considered as being affected if the proposed modification to the Region 2 Plan would result in:

- the value of $\Delta T/T$ resulting from the proposed modification is greater than the value of $\Delta T/T$ resulting from the assignment in the Region 2 Plan as of the date of entry into force of the Final Acts of the 1985 Conference; and
- the value of $\Delta T/T$ resulting from the proposed modification exceeds 6%,

using the method of Appendix 8 (Case II). (WRC-03)

From a review of the available ITU space network databases there are no assignments registered in the Earth-to-space direction in the frequency band 12.5-12.7 GHz. Therefore no Region 1 space station can be affected and USABSS-26 is compliant with this Section.

Annex 1 to Appendix 1 to Technical Annex

ECHOSTAR-10

MSPACE Results

Adm	Beam Name	Long Nom	Aff Chs	EPM Dgr	Sat Name
CAN	CANBSS2A	-91.1	27	0.251	CAN-BSS2
G	00009949	-96.2	18	0.269	BERMUDASAT-1
G	00009950	-96.2	18	0.26	BERMUDASAT-1
G	00008906	-123.5	3,5,11,13,23,25,27,29,31	0.852	IOMBSS-2
G	00008907	-123.5	4,12,18,24,26,28,30	0.782	IOMBSS-2
G	00007028	-105.5	3,5,11,13,17,19,21,25,27	2.101	USAT-S1
G	00007029	-105.5	3,5,11,13,17,19,21,23,25,27,29,31	2.023	USAT-S1
G	00007030	-105.5	5,13,19,21,25,27,29,31	1.455	USAT-S1
G	00007031	-105.5	5,13,19,21,25,27,29,31	1.46	USAT-S1
G	00007032	-105.5	5,13,19,21,23,25,27,29,31	1.521	USAT-S1
G	00007038	-105.5	4,12,18,20,24,26,28,30,32	1.152	USAT-S1
G	00007039	-105.5	4,12,18,20,24,26,28,30,32	1.63	USAT-S1
G	00007040	-105.5	4,12,18,20,26,28,30,32	1.358	USAT-S1
G	00007041	-105.5	4,12,18,20,26,28,30,32	1.36	USAT-S1
G	00007042	-105.5	4,12,18,20,24,26,28,30,32	1.544	USAT-S1
G	00007604	-105.5	5,13,19,21,27,31	0.661	USAT-S1 MOD-A
G	00007606	-105.5	5,13,19,21,27,29,31	0.457	USAT-S1 MOD-A
G	00007607	-105.5	5,13,19,27,29,31	0.566	USAT-S1 MOD-A
G	00007609	-105.5	19,21,27,29,31	0.327	USAT-S1 MOD-A
G	00007610	-105.5	27,29,31	0.446	USAT-S1 MOD-A
G	00007613	-105.5	27	0.267	USAT-S1 MOD-A
G	00007616	-105.5	5,13,19,21,27,29,31	0.724	USAT-S1 MOD-A
G	00007618	-105.5	5,13,19,21,27,29,31	0.511	USAT-S1 MOD-A
G	00007619	-105.5	5,13,19,27,29,31	0.639	USAT-S1 MOD-A
G	00007621	-105.5	19,21,27,29,31	0.37	USAT-S1 MOD-A
G	00007622	-105.5	5,13,19,27,29,31	0.509	USAT-S1 MOD-A
G	00007624	-105.5	19,27,29,31	0.28	USAT-S1 MOD-A
G	00007625	-105.5	27	0.309	USAT-S1 MOD-A
G	00007628	-105.5	4,12,18,20,24,26,28,30,32	1.098	USAT-S1 MOD-A
G	00007629	-105.5	4,12,24,26,28,30,32	0.537	USAT-S1 MOD-A
G	00007630	-105.5	4,12,18,20,24,26,28,30,32	0.853	USAT-S1 MOD-A
G	00007631	-105.5	4,12,18,26,28,30,32	0.84	USAT-S1 MOD-A
G	00007632	-105.5	4,12,24,26,28,30,32	0.404	USAT-S1 MOD-A
G	00007633	-105.5	4,12,18,20,26,28,30,32	0.732	USAT-S1 MOD-A
G	00007634	-105.5	4,12,18,26,28,30,32	0.698	USAT-S1 MOD-A
G	00007635	-105.5	4,12,24,26,28,30,32	0.316	USAT-S1 MOD-A
G	00007636	-105.5	4,12,18,20,26,28,30,32	0.603	USAT-S1 MOD-A
G	00007637	-105.5	4,12,18,26,28,30,32	0.476	USAT-S1 MOD-A
G	00007640	-105.5	4,12,18,20,24,26,28,30,32	1.149	USAT-S1 MOD-A
G	00007641	-105.5	4,12,24,26,28,30,32	0.581	USAT-S1 MOD-A
G	00007642	-105.5	4,12,18,20,24,26,28,30,32	0.908	USAT-S1 MOD-A

G	00007643	-105.5	4,12,18,26,28,30,32	0.908	USAT-S1 MOD-A
G	00007644	-105.5	4,12,24,26,28,30,32	0.444	USAT-S1 MOD-A
G	00007645	-105.5	4,12,18,20,24,26,28,30,32	0.787	USAT-S1 MOD-A
G	00007646	-105.5	4,12,18,26,28,30,32	0.764	USAT-S1 MOD-A
G	00007647	-105.5	4,12,24,26,28,30,32	0.351	USAT-S1 MOD-A
G	00007648	-105.5	4,12,18,20,26,28,30,32	0.658	USAT-S1 MOD-A
G	00007649	-105.5	4,12,18,26,28,30,32	0.533	USAT-S1 MOD-A
G	00007651	-105.5	26,28,30	0.275	USAT-S1 MOD-A
G	00008996	-105.5	5,13,19,21,27,31	0.661	USAT-S1 MOD-A
G	00008998	-105.5	5,13,19,21,27,29,31	0.457	USAT-S1 MOD-A
G	00008999	-105.5	5,13,19,27,29,31	1.311	USAT-S1 MOD-A
G	00009001	-105.5	19,21,27,29,31	0.327	USAT-S1 MOD-A
G	00009002	-105.5	5,13,19,27,29,31	1.141	USAT-S1 MOD-A
G	00009005	-105.5	5,13,19,27,29,31	0.745	USAT-S1 MOD-A
G	00009007	-105.5	27	0.373	USAT-S1 MOD-A
G	00009008	-105.5	5,13,19,21,27,29,31	0.724	USAT-S1 MOD-A
G	00009010	-105.5	5,13,19,21,27,29,31	0.511	USAT-S1 MOD-A
G	00009011	-105.5	5,13,19,27,29,31	1.431	USAT-S1 MOD-A
G	00009013	-105.5	19,21,27,29,31	0.37	USAT-S1 MOD-A
G	00009014	-105.5	5,13,19,27,29,31	1.262	USAT-S1 MOD-A
G	00009016	-105.5	19,27,29,31	0.28	USAT-S1 MOD-A
G	00009017	-105.5	5,13,19,27,29,31	0.84	USAT-S1 MOD-A
G	00009019	-105.5	27,29,31	0.427	USAT-S1 MOD-A
G	00009020	-105.5	4,12,18,20,24,26,28,30,32	1.098	USAT-S1 MOD-A
G	00009021	-105.5	4,12,24,26,28,30,32	0.537	USAT-S1 MOD-A
G	00009022	-105.5	4,12,18,20,24,26,28,30,32	0.853	USAT-S1 MOD-A
G	00009023	-105.5	4,12,18,26,28,30,32	1.53	USAT-S1 MOD-A
G	00009024	-105.5	4,12,24,26,28,30,32	0.404	USAT-S1 MOD-A
G	00009025	-105.5	4,12,18,20,26,28,30,32	0.732	USAT-S1 MOD-A
G	00009026	-105.5	4,12,18,26,28,30,32	1.387	USAT-S1 MOD-A
G	00009027	-105.5	4,12,24,26,28,30,32	0.316	USAT-S1 MOD-A
G	00009028	-105.5	4,12,18,20,26,28,30,32	0.603	USAT-S1 MOD-A
G	00009029	-105.5	4,12,18,26,28,30,32	1.076	USAT-S1 MOD-A
G	00009031	-105.5	4,12,18,26,28,30,32	0.604	USAT-S1 MOD-A
G	00009032	-105.5	4,12,18,20,24,26,28,30,32	1.149	USAT-S1 MOD-A
G	00009033	-105.5	4,12,24,26,28,30,32	0.581	USAT-S1 MOD-A
G	00009034	-105.5	4,12,18,20,24,26,28,30,32	0.908	USAT-S1 MOD-A
G	00009035	-105.5	4,12,18,26,28,30,32	1.597	USAT-S1 MOD-A
G	00009036	-105.5	4,12,24,26,28,30,32	0.444	USAT-S1 MOD-A
G	00009037	-105.5	4,12,18,20,24,26,28,30,32	0.787	USAT-S1 MOD-A
G	00009038	-105.5	4,12,18,26,28,30,32	1.466	USAT-S1 MOD-A
G	00009039	-105.5	4,12,24,26,28,30,32	0.351	USAT-S1 MOD-A
G	00009040	-105.5	4,12,18,20,26,28,30,32	0.658	USAT-S1 MOD-A
G	00009041	-105.5	4,12,18,26,28,30,32	1.162	USAT-S1 MOD-A
G	00009043	-105.5	4,12,18,26,28,30,32	0.665	USAT-S1 MOD-A
HOL	00007415	-125	4,12,18,26,28,30	0.489	NSS-10 BSS
HOL	00007416	-125	4,12,18,26,28,30	0.458	NSS-10 BSS
HOL	00007417	-125	4,12,18,26	0.302	NSS-10 BSS

HOL	00007421	-125	4,12,18,26	0.407	NSS-10 BSS
HOL	00007422	-125	4,12,18,26,28	0.426	NSS-10 BSS
HOL	00007429	-125	27	0.263	NSS-10 BSS
HOL	00007439	-125	3,5,11,13,27,29,31	0.782	NSS-10 BSS
HOL	00007440	-125	27,29,31	0.593	NSS-10 BSS
HOL	00007441	-125	27,29,31	0.348	NSS-10 BSS
HOL	00007442	-125	27,29,31	0.371	NSS-10 BSS
HOL	00007444	-125	27,29,31	0.302	NSS-10 BSS
HOL	00007445	-125	27,29,31	0.728	NSS-10 BSS
HOL	00007446	-125	27,29,31	0.55	NSS-10 BSS
HOL	00007447	-125	27	0.272	NSS-10 BSS
HOL	00007448	-125	27,29,31	0.36	NSS-10 BSS
HOL	00007451	-125	27	0.329	NSS-10 BSS
HOL	00007453	-125	27,29,31	0.293	NSS-10 BSS
HOL	00007457	-125	27	0.32	NSS-10 BSS
HOL	00007475	-125	3,5,11,13,17,19,25,27,29,31	0.822	NSS-10 BSS
HOL	00007476	-125	27,29,31	0.696	NSS-10 BSS
HOL	00007477	-125	27,29,31	0.35	NSS-10 BSS
HOL	00007478	-125	27,29,31	0.48	NSS-10 BSS
HOL	00007480	-125	27,29,31	0.32	NSS-10 BSS
HOL	00007481	-125	27,29,31	0.762	NSS-10 BSS
HOL	00007482	-125	27,29,31	0.636	NSS-10 BSS
HOL	00007483	-125	27	0.273	NSS-10 BSS
HOL	00007484	-125	27,29,31	0.461	NSS-10 BSS
HOL	00007486	-125	27	0.251	NSS-10 BSS
HOL	00007487	-125	4,12,18,26,28,30	0.518	NSS-10 BSS
HOL	00007488	-125	4,12,18,26,28,30	0.582	NSS-10 BSS
HOL	00007489	-125	4,12,18,26	0.305	NSS-10 BSS
HOL	00007490	-125	26	0.312	NSS-10 BSS
HOL	00007492	-125	26	0.272	NSS-10 BSS
HOL	00007493	-125	4,12,18,26,30	0.427	NSS-10 BSS
HOL	00007494	-125	4,12,18,26,28,30	0.531	NSS-10 BSS
HOL	00007496	-125	26	0.277	NSS-10 BSS
HOL	00009839	-114	18,26	3.593	SF_BSS5
HOL	00009840	-114	17,25	0.873	SF_BSS5
HOL	00009841	-114	4,12,20,28	3.538	SF_BSS5
HOL	00009842	-114	3,11,19,27	4.844	SF_BSS5
HOL	00009843	-114	18,26	4.32	SF_BSS5
HOL	00009844	-114	17,25	3.474	SF_BSS5
HOL	00009845	-114	4,12,28	2.831	SF_BSS5
HOL	00009846	-114	3,11,19,27	2.754	SF_BSS5
HOL	00009847	-114	26	1.064	SF_BSS5
HOL	00009848	-114	25	1.776	SF_BSS5
HOL	00009850	-114	3,11,27	1.858	SF_BSS5
HOL	00009851	-114	26	0.837	SF_BSS5
HOL	00009852	-114	17	0.771	SF_BSS5
HOL	00009854	-114	3,19	0.647	SF_BSS5
HOL	00009855	-114	22,30	3.818	SF_BSS5

HOL	00009856	-114	5,13,21,29	2.924	SF_BSS5
HOL	00009857	-114	24,32	4.362	SF_BSS5
HOL	00009858	-114	23,31	1.952	SF_BSS5
HOL	00009859	-114	22,30	6.193	SF_BSS5
HOL	00009860	-114	5,13,21,29	2.064	SF_BSS5
HOL	00009861	-114	24,32	1.032	SF_BSS5
HOL	00009863	-114	22,30	1.468	SF_BSS5
HOL	00009864	-114	5,13	0.821	SF_BSS5
HOL	00009865	-114	24,32	1.362	SF_BSS5
HOL	00009867	-114	22,30	1.452	SF_BSS5
HOL	00009868	-114	5,13,21	0.708	SF_BSS5
HOL	00009869	-114	24,32	2.097	SF_BSS5
HOL	00009871	-114	22,30	2.185	SF_BSS5
HOL	00009872	-114	5,13,21	0.556	SF_BSS5
HOL	00009873	-114	24	2.279	SF_BSS5
HOL	00009875	-114	4,12,20,28	3.334	SF_BSS5
HOL	00009876	-114	3,11,19,27	4.924	SF_BSS5
HOL	00009877	-114	18,26	5.702	SF_BSS5
HOL	00009878	-114	17,25	3.805	SF_BSS5
HOL	00009879	-114	4,12,20,28	5.403	SF_BSS5
HOL	00009880	-114	3,11,19,27	4.954	SF_BSS5
HOL	00009881	-114	26	1.327	SF_BSS5
HOL	00009882	-114	17,25	1.711	SF_BSS5
HOL	00009883	-114	4,12,28	1.753	SF_BSS5
HOL	00009884	-114	3,11,27	1.785	SF_BSS5
HOL	00009885	-114	26	1.38	SF_BSS5
HOL	00009886	-114	17,25	0.982	SF_BSS5
HOL	00009887	-114	28	2.159	SF_BSS5
HOL	00009888	-114	3,11,19,27	1.881	SF_BSS5
HOL	00009889	-114	26	1.484	SF_BSS5
HOL	00009890	-114	17,25	0.79	SF_BSS5
HOL	00009891	-114	4,12,28	1.757	SF_BSS5
HOL	00009892	-114	3,11,19,27	1.766	SF_BSS5
HOL	00009893	-114	18,26	1.733	SF_BSS5
HOL	00009894	-114	17,25	1.285	SF_BSS5
HOL	00009895	-114	4,12,20,28	0.617	SF_BSS5
HOL	00009896	-114	3,11,19,27	2.389	SF_BSS5
HOL	00009897	-114	24,32	3.913	SF_BSS5
HOL	00009898	-114	23,31	2.219	SF_BSS5
HOL	00009899	-114	22,30	4.867	SF_BSS5
HOL	00009900	-114	5,13,21,29	3.696	SF_BSS5
HOL	00009901	-114	24,32	2.553	SF_BSS5
HOL	00009902	-114	31	1.208	SF_BSS5
HOL	00009903	-114	30	1.929	SF_BSS5
HOL	00009904	-114	5,13,21	1.32	SF_BSS5
HOL	00009905	-114	24,32	1.416	SF_BSS5
HOL	00009907	-114	22,30	1.516	SF_BSS5
HOL	00009908	-114	5,13,21	0.984	SF_BSS5

HOL	00009909	-114	24,32	1.767	SF_BSS5
HOL	00009911	-114	22,30	1.691	SF_BSS5
HOL	00009912	-114	5,13,21	1.008	SF_BSS5
HOL	00009913	-114	24,32	2.787	SF_BSS5
HOL	00009915	-114	22,30	1.471	SF_BSS5
HOL	00009916	-114	5,13,21	0.87	SF_BSS5
HOL	00009917	-114	20,28	2.688	SF_BSS5
HOL	00009918	-114	19	3.851	SF_BSS5
HOL	00009919	-114	26	0.97	SF_BSS5
HOL	00009920	-114	25	0.388	SF_BSS5
HOL	00009921	-114	12,28	0.501	SF_BSS5
HOL	00009922	-114	11,19,27	1.153	SF_BSS5
HOL	00009923	-114	26	1.698	SF_BSS5
HOL	00009924	-114	17	0.621	SF_BSS5
HOL	00009925	-114	4,12,28	1.355	SF_BSS5
HOL	00009926	-114	3,11,19,27	1.457	SF_BSS5
HOL	00009927	-114	26	1.049	SF_BSS5
HOL	00009928	-114	17,25	0.879	SF_BSS5
HOL	00009929	-114	28	1.769	SF_BSS5
HOL	00009930	-114	3,11,19,27	1.962	SF_BSS5
HOL	00009931	-114	24	1.528	SF_BSS5
HOL	00009933	-114	22,30	1.79	SF_BSS5
HOL	00009934	-114	5,13	1.078	SF_BSS5
HOL	00009935	-114	32	7.294	SF_BSS5
HOL	00009936	-114	31	3.963	SF_BSS5
HOL	00009937	-114	4,12,20,28	7.197	SF_BSS5
HOL	00009938	-114	3,11,19,27	3.35	SF_BSS5
HOL	00009941	-114	30	8.583	SF_BSS5
HOL	00009942	-114	5,13,29	4.687	SF_BSS5

**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 application, 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 application and that it is complete and accurate to the best of my knowledge and belief.

/s/
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