

S2811 SAT-MOD-20131030-00126 IB2013002283
EchoStar Satellite Operating Corporation
EHOSTAR-15



File # SAT-MOD-20131030-00126

Call Sign S2811 Grant Date 07/30/14
(or other identifier)

Term Dates see
From 07/30/14 To: conditions

Approved by OMB
3060-0678

Approved: Stephen J. Dwall
Stephen J. Dwall
Chief, Satellite Policy Branch

Date & Time Filed: Oct 30 2013 4:22:32:413PM
File Number: SAT-MOD-20131030-00126

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

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
EchoStar 15 Modification

1-8. Legal Name of Applicant			
Name:	EchoStar Satellite Operating Corporation	Phone Number:	202-293-0981
DBA Name:		Fax Number:	
Street:	100 Inverness Terrace East	E-Mail:	
City:	Englewood	State:	CO
Country:	USA	Zipcode:	80112 -
Attention:			

EchoStar Satellite Operating Corporation
IBFS File No. SAT-MOD-20131030-00126
Call Sign S2811

The application of EchoStar Satellite Operating Corporation (EchoStar), IBFS File No. SAT-MOD-20131030-00126, as supplemented, to modify the authorization for its EchoStar 15 space station (Call Sign S2811) is GRANTED. Specifically, EchoStar is authorized to continue to provide service via EchoStar 15 from the 45.1° W.L. orbital location using the 12.2-12.7 GHz (space-to-Earth) and 17.3-17.8 GHz (Earth-to-space) frequency bands pursuant to its the authorization granted in IBFS File No. SAT-MOD-20130503-00066 (grant stamp, June 20, 2013) until such time as it chooses to repoint EchoStar 15 as described in the current application. EchoStar is also authorized to continue to conduct telemetry, tracking and command (TT&C) operations necessary to maintain EchoStar 15 at the 45.1° W.L. orbital location using the following center frequencies: 17.7915 GHz and 17.7935 GHz (Earth-to-space); and 12.6920 GHz, 12.6930 GHz, 12.6945 GHz, and 12.6985 GHz (space-to-Earth). Operations under this authorization must be in accordance with the terms and conditions contained in EchoStar's application, as supplemented, and the Federal Communications Commission's rules not waived herein, and are subject to the following conditions:

1. EchoStar must notify the Chief, Satellite Division, in writing at least 30 days prior to commencing satellite operations on a repointed basis.
2. We grant EchoStar's request for a waiver of Section 25.114 of the Commission's rules, 47 C.F.R. § 25.114,¹ to allow it to submit relative gain isoline contour information for the re-pointing of EchoStar 15's steerable beams in GIMS-readable format, consistent with new Section 25.114(c)(4)(vi)(D) of the Commission's rules, which has been adopted but is not yet in effect.² Section 25.114(d)(3) of the Commission's rules requires space station applicants to submit predicted antenna gain contours at specified intervals for each transmit and receive antenna beam in .gxt files.³ EchoStar seeks to take advantage of the provisions of new Section 25.114(c)(4)(vi)(D) that allow applicants for geostationary-orbit space stations with steerable, but not shapeable beams, to specify the applicable contours as defined in new Section 25.114(c)(4)(vi)(A), and describe the area that the steerable beam(s) is expected to serve, or to provide certain contour information.⁴ The International Bureau has previously notified its intent to grant partial waivers of Section 25.114(d)(3) to allow applicants to submit gain contours in GIMS-readable format.⁵ Although the EchoStar's request goes beyond the scope of this notice, the Commission has previously determined that providing information in the format specified by new Section 25.114(c)(4)(vi)(D), instead of in the format required by existing Section 25.114(d)(3), serves the public interest and will reduce administrative burdens on applicants and Commission

¹ EchoStar does not specify which specific part of Section 25.114 it seeks to be waived, but Section 25.114(d)(3) of the Commission's rules, 47 C.F.R. § 25.114(d)(3), appears to be the intended section.

² See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, IB Docket No. 12-267, 28 FCC Rcd 12403, 12434-47, ¶¶ 95-99 (2013) (*Part 25 Order*).

³ Section 25.114(d)(3) requires that space station applicants submit predicted space station antenna gain contour(s) for each transmit and receive antenna beam and nominal orbital location requested. These contours must be plotted on a map at 2dB intervals down to 10dB below the peak values of the parameter and at 5dB intervals between 10dB and 20dB below the peak values, with the peak value and sense of polarization clearly specified on each plotted contour. See 47 C.F.R. § 25.114(d)(3).


⁴ Section 25.114(c)(4)(vi)(A) states that applications for geostationary-orbit space stations with steerable beams must specify predicted space station antenna gain contour(s) for each transmit and receive antenna beam, except for beams where the contour at 8 dB below peak falls entirely beyond the edge of the visible Earth. These contour(s) should be plotted on an area map at 2 dB intervals down to 10 dB below the peak gain and at 5 dB intervals between 10 dB and 20 dB below the peak gain. Section 25.114(c)(4)(vi)(A) also requires the applicant to provide the contour information in GIMS-readable format. See *Part 25 Order*, 28 FCC Rcd 12481-82, Appendix B.

⁵ See *International Bureau Adopts Policy of Granting Interim Waiver of Certain Requirements for Space Station Applications*, Public Notice, 29 FCC Rcd 664 (Int'l Bur., Jan. 28, 2014).

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staff.⁶ Accordingly, we grant a limited waiver in this situation where the new section is adopted, but not yet effective.

3. This authorization is issued with the understanding that, to the extent EchoStar and its affiliated companies, pursuant to any arrangement with the Brazilian Administration, conforms its operations to any parameters agreed to in coordination agreements between the Brazilian Administration and other Administrations, responsibility for both compliance with, and enforcing compliance with, those arrangements and agreements is a matter that would arise under private law.
4. The United States remains the licensing administration of the EchoStar 15 space station and its communications payloads for purposes of International Telecommunication Union (ITU) Radio Regulation 18.1 and is the administration responsible for the operations of EchoStar 15. The U.S. Administration will not object to use of the EchoStar 15 satellite by the Brazilian Administration for claiming bringing into use or continuing the use of orbital assignments at 45.1° W.L. This grant does not in any way express a view concerning, or agreement as to, the validity or lack of validity of any ITU filing at or within the vicinity of the 45.1° W.L. orbital location.
5. In connection with the provision of service in any particular country, EchoStar is obliged to comply with the applicable laws, regulations, rules, and licensing procedures of that country.
6. Grant of this authorization does not convey to EchoStar any authority to operate a space station at the 45.1° W.L orbital location beyond the term granted herein, nor any status in the United States satellite licensing process relative to applications for authority to operate a regularly authorized satellite at this orbital position.
7. Grant of this modification application does not change the expiration date of the authorization for EchoStar 15, which is August 6, 2020.
8. EchoStar is afforded 30 days from the date of release of this action to decline this authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.
9. This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106 of the Commission's rules 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 public notice indicating that this action was taken.

 GRANTED* International Bureau *with conditions	File # <u>SAT-MOD-20131030-00126</u>
	Call Sign <u>S2811</u> Grant Date <u>07/30/14</u> (or other identifier)
	From <u>07/30/14</u> Term Dates <u>See</u> To: <u>conditions</u>
	Approved: <u>Stephen J. Duall</u> <u>Stephen J. Duall</u> Chief, Satellite Policy Branch

⁶ See Part 25 Order, 28 FCC Rcd at 12434-47, ¶¶ 95-99.

9-16. Name of Contact Representative

Name:	Phuong Pham	Phone Number:	202-383-3395
Company:	Wilkinson Barker Knauer, LLP	Fax Number:	202-783-5851
Street:	2300 N Street, NW Suite 700	E-Mail:	PPham@wbklaw.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20037-
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
- b3. Amendment to a Pending Application
- b4. Modification of License or Registration
- b5. Assignment of License or Registration
- b6. Transfer of Control of License or Registration
- 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)
- (N/A) b11. Application for Earth Station to Access a Non-U.S. satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States
- (N/A) b12. Application for Database Entry
- b13. Amendment to a Pending Database Entry Application
- b14. Modification of Database Entry

17c. Is a fee submitted with this application?

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity Noncommercial educational licensee
- Other (please explain):

17d.

Fee Classification BFY – Space Station Modification (Geostationary)

18. If this filing is in reference to an existing station, enter:

(a) Call sign of station:
S2811

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:

(b) File number:

SATMOD2013050300066

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</p> <p><input type="checkbox"/> b. Mobile Satellite</p> <p><input type="checkbox"/> c. Radiodetermination Satellite</p> <p><input type="checkbox"/> d. Earth Exploration Satellite</p> <p><input type="checkbox"/> e. Direct to Home Fixed Satellite</p> <p><input type="checkbox"/> f. Digital Audio Radio Service</p> <p><input checked="" type="checkbox"/> g. Other (please specify) Broadcasting-Satellite Service</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</p> <p><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)</p> <p><input checked="" type="checkbox"/> c. Other (Please specify upper and lower frequencies in MHz.)</p> <p> Frequency Lower: 12200 Frequency Upper: 17800 (Please specify additional frequencies in an attachment)</p>	

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station
- b. Temporary-Fixed Earth Station
- c. 12/14 GHz VSAT Network
- d. Mobile Earth Station
- e. Geostationary Space Station
- f. Non-Geostationary Space Station
- g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY:

- Transmit/Receive Transmit-Only Receive-Only N/A

"For Space Station applications, select N/A."

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.

Yes No

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?

Yes No

30. Is the applicant an alien or the representative of an alien?

Yes No N/A

31. Is the applicant a corporation organized under the laws of any foreign government?

Yes No 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?

Yes No 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.

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

Exhibit 3

<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>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. Exhibit 2</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

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.)

EchoStar seeks a minor modification to repoint the EchoStar 15 satellite. See Exhibit 1.

Exhibit 1

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.

A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.

B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.

C

Technical Annex

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
Jaime Londono

—>

46. Title of Person Signing
VP, Advanced Programs & Spectrum Management

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).

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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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.

EHOSTAR-15

Technical Annex

A.1 Scope and Purpose

EchoStar Satellite Operating Corporation (with its affiliates, “EchoStar”) has Commission authorization to operate the EHOSTAR-15 satellite at 45.1° W.L.¹ EHOSTAR-15 will provide Broadcasting-Satellite Service (“BSS”) to Brazil pursuant to Brazilian authorization. EchoStar now seeks a minor modification of its existing Commission authorizations in order to permit the satellite to be repointed. Repointing the satellite will further optimize service coverage of Brazil and will result in the following changes:

- 1) Downlink beam contours. The satellite’s two downlink beams will remain pointed towards Brazil, but the downlink beam contours will change, as set forth in the associated Schedule S.
- 2) Feeder uplink spot beams. The satellite’s two feeder uplink spot beams will be centered over Brazil, as described in the associated Schedule S. Thus, feeder link communications with U.S. earth stations will no longer be required.²

¹ See EchoStar, *Stamp Grant*, IBFS File No. SAT-MOD-20130503-00066 (granted June 20, 2013).

² Telemetry, tracking, and command (“TT&C”) operations will continue to be performed from existing authorized U.S. earth stations. To the extent that TT&C operations may be performed from non-U.S. earth stations in the future, control of these operations will remain in the United States through dedicated lines to and from EchoStar’s U.S. control facilities.

Given the proposed repointing, the analyses with respect to Annex 1 of Appendices 30 and 30A of the ITU Radio Regulations have also been updated.

This Attachment provides the technical information relating to the proposed modification. Any Part 25 requirements regarding operation of the ECHOSTAR-15 satellite that are not included in this Attachment have been previously provided to the Commission and have not changed. A completed Schedule S accompanies this application.

A.2 TT&C Characteristics

The ECHOSTAR-15 TT&C sub-system provides for communications during transfer orbit and on-station operations, as well as during spacecraft emergencies. The TT&C sub-system operates at the edges of the communications uplink and downlink frequency ranges during all phases of the mission. A summary of the TT&C subsystem characteristics is given in Table A2-1.

Table A2-1: TT&C Performance Characteristics.

Command/Ranging Frequencies	17,791.5 MHz 17,793.5 MHz
Uplink Flux Density (Minimum)	Omni Rx antenna: -83 dBW/m ² (Command) -78 dBW/m ² (Ranging) Comms Rx antenna: -93 dBW/m ² (Command) -87 dBW/m ² (Ranging)
Satellite Receive Antenna Types	Omni antenna and communications antennas.
Polarization of Satellite Rx/Tx Antennas	RHCP for omni antenna RHCP for communications antennas
Telemetry/Ranging Frequencies	12,692.0 MHz 12,693.0 MHz 12,694.5 MHz 12,698.5 MHz
Satellite Transmit Antenna Types	Omni antenna and communications antennas.
Maximum Downlink EIRP	15.2 dBW (Omni antenna) 18 dBW (Communications antennas)

A.3 Interference Analyses - Annex 1 to Appendices 30 and 30A

The EHOSTAR-15 satellite will operate at 45.1° W.L. under the International Telecommunication Union filing submitted by the Administration of Brazil for the B-SAT-3A-3 network. The Brazilian administration will be responsible for coordinating the operation of the EHOSTAR-15 satellite following the Appendix 30 and 30A ITU procedures.

Annex 1 to Appendices 30 and 30A provide criteria to determine if another administration is affected by a proposed modification to the Region 2 BSS Plan. The attached Appendix 1 provides the results of the analyses required by Annex 1 to Appendices 30 and 30A using the transmission parameters of the EHOSTAR-15 satellite network as opposed to those of the B-SAT-3A-3

network. The transmission parameters of the ECHOSTAR-15 satellite network are less interference-producing than those of the B-SAT-3A-3 ITU network.

As demonstrated in the attached Appendix 1, the ECHOSTAR-15 satellite network can be operated at 45.1° W.L., as proposed herein, without causing unacceptable interference to any Region 2 Plan network or to any operational BSS network.

**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/_____

Stephen D. McNeil
Telecomm Strategies Canada, Inc.
Ottawa, Ontario, Canada
(613) 270-1177

Appendix 1 to Technical Annex

Analysis of Annex 1 of Appendix 30

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

Not Applicable to Region 2.

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 margin 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 EHOSTAR-15 satellite will operate under Brazil's B-SAT-3A-3 network. Using the transmission parameters of the EHOSTAR-15 satellite network, an MSPACE analysis was performed utilizing the Region 2 BSS Plan as contained in IFIC 2754. The results of the analysis are contained in Annex 1 to this Appendix. As shown, there are two affected networks that were filed on behalf of Holland and Russia. These networks are modifications to the Region 2 BSS Plan. The results are discussed below for each of these networks:

- Holland's NSS-BSS 47.5W network at 47.5°W.L. is deemed to be affected. We can find no evidence that this network is under construction or scheduled for launch. Further, Holland's network is required to be coordinated with Brazil's Plan networks at the nominal 45° W.L. location.
- Russia's INTERSPUTNIK-47.5W-B network at 47.5°W.L. is deemed to be affected. We can find no evidence that this network is under construction or scheduled for launch. Further, the Russian network is required to be coordinated with Brazil's Plan networks at the nominal 45° W.L. location.

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

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. (WRC-03)

The analysis shows that there are no affected adjacent networks.

4 Limits to the power flux-density to protect the terrestrial services of other administrations

With respect to § 4.1.1 d) of Article 4, an administration in Region 1, 2 or 3 is considered as being affected if the consequence of the proposed modified assignment in the Regions 1 and 3 List 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 that frequency assignment in the Plan or List for Regions 1 and 3 as established by WRC-2000. 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 § 4.2.3 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 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 analysis shows that there are no affected adjacent networks.

5 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 GHz 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-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.

The analysis shows that the PFD levels produced by the ECHOSTAR-15 satellite are less than those 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.

6 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)*

The analysis shows that there are no affected adjacent networks.

Annex 1 to Appendix 1 to Attachment A

ECHOSTAR-15 MSPACE Results

Admin	Orbital Position (°W)	Network	Max. OEPM Degradation (dB)
HOL	47.5	NSS-BSS 47.5W	9.318
RUS	47.5	INTERSPUTNIK-47.5W-B	4.991

Appendix 2 to
Attachment A (Technical Information to Supplement Schedule S)

Analysis of ANNEX 1 of Appendix 30A

1 Limits to the change in the overall equivalent protection margin with respect to frequency assignments in conformity with the Region 2 feeder-link Plan (WRC-2000)

With respect to the modification to the Region 2 feeder-link Plan and when it is necessary under this Appendix to seek the agreement of any other administration of Region 2, except in cases covered by Resolution 42 (Rev.WRC-03), an administration is considered as being affected if the overall equivalent protection margin corresponding to a test point of its entry in that 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 feeder-link Plan as established by the 1983 Conference; or*
- a modification of the assignment in accordance with this Appendix; or*
- a new entry in the feeder-link Plan under Article 4; or*
- any agreement reached in accordance with this Appendix except for Resolution 42 (Rev.WRC-03). (WRC-03)*

See the results described under Section 2 of the Appendix 30 Annex 1 Analysis.

2 Limits to the interference into frequency assignments in conformity with the Regions 1 and 3 feeder-link Plan or with the Regions 1 and 3 feeder-link List or proposed new or modified assignments in the Regions 1 and 3 feeder-link List (WRC-03)

Not Applicable to Region 2.

3 Limits applicable to protect a frequency assignment in the bands 17.3-18.1 GHz (Regions 1 and 3) and 17.3-17.8 GHz (Region 2) to a receiving space station in the fixed-satellite service (Earth-to-space)

An administration in Region 1 or 3 is considered as being affected by a proposed modification in Region 2, with respect to § 4.2.2 a) or 4.2.2 b) of Article 4, or an administration in Region 2 is considered as being affected by a proposed new or modified assignment in the Regions 1 and 3 feeder-link List, with respect to § 4.1.1 c) of Article 4, when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link would cause an increase in the noise temperature of the feeder-link space station which exceeds the threshold value of $\Delta T/T$ corresponding to 6%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix 8, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the necessary bandwidth of the feeder-link carriers. (WRC-03)

The analysis shows that there are no affected adjacent networks.

4 Limits applicable to protect a frequency assignment in the band 17.8-18.1 GHz (Region 2) to a receiving feeder-link space station in the fixed-satellite service (Earth-to-space) (WRC-03)

With respect to § 4.1.1 d) of Article 4, an administration is considered affected by a proposed new or modified assignment in the Regions 1 and 3 feeder-link List when the power flux-density arriving at the receiving space station of a broadcasting-satellite feeder-link in Region 2 of that administration would cause an increase in the noise temperature of the receiving feeder-link space station which exceeds the threshold value of $\Delta T/T$ corresponding to 6%, where $\Delta T/T$ is calculated in accordance with the method given in Appendix 8, except that the maximum power densities per hertz averaged over the worst 1 MHz are replaced by power densities per hertz averaged over the necessary bandwidth of the feeder-link carriers. (WRC-03)

Not Applicable to Region 2.



February 24, 2014

By eFile

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Re: IBFS File No. SAT-MOD-20131030-00126
Call Sign S2811

Dear Ms. Dortch:

EchoStar Satellite Operating Corporation (“EchoStar”) submits this supplemental letter to request that the Commission grant the above-referenced application (“Application”) so as to allow some flexibility in implementing the proposed modification. Specifically, the Commission should permit EchoStar flexibility to continue operating the EchoStar 15 satellite as currently authorized (*i.e.*, pursuant to the Commission’s June 20, 2013 grant of IBFS File No. SAT-MOD-20130503-00066), until such time as EchoStar elects to commence repointing the satellite as proposed in the Application. EchoStar will notify the Commission in writing of its election within 30 days prior to commencing satellite operations on a repointed basis. If EchoStar later seeks to change back to the prior mode of operations, it will obtain additional Commission authorization prior to doing so.

Additionally, EchoStar requests a waiver of Section 25.114 of the Commission’s rules¹ to permit the flexibility afforded under new Section 25.114(c)(4)(vi)(D), which allows applicants, with respect to space stations with non-shapeable steerable beams, either to specify the applicable contours with a description of the area that the steerable beam is expected to serve or to provide certain contour information.² This new rule was adopted on August 9, 2013, as part of the Commission’s comprehensive revisions to the Part 25 rules, but the revisions are awaiting approval by the Office of Management and Budget to become effective.³ The Commission may waive its rules upon a showing of “good

¹ 47 C.F.R. § 25.114.

² See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, 28 FCC Rcd 12403, App. B (Final Rules) (2013) (“*Satellite Comprehensive Review Order*”).

³ See 79 Fed. Reg. 8308 (2013).

cause,”⁴ which may be found when a waiver would not undermine the underlying purposes of the rule and otherwise would serve the public interest.⁵ Here, the requested waiver will serve the public interest and is consistent with the underlying purposes of Section 25.114 to ensure that applicants provide sufficient information to the Commission and the public regarding their proposed systems, while imposing a minimal burden upon applicants.⁶ Specifically, the requested waiver will minimize the burden upon EchoStar and allow it flexibility in providing contour information, while ensuring that the Commission and the public have sufficient information regarding the proposed modification. The Commission similarly has waived the application of its existing rules pending the effective date of new rules expected to be adopted in the near future.⁷

Consequently, subject to grant of the requested waiver, EchoStar is submitting relative gain isoline contour information, consistent with new Section 25.114(c)(4)(vi)(D) of the Commission’s rules, regarding its proposed satellite operations on a reappointed basis. Additional technical information is provided in the Attachment.

Please direct any questions regarding this matter to the undersigned.

Sincerely,

/s/ Jennifer A. Manner

Jennifer A. Manner

Vice President of Regulatory Affairs

Attachment

cc: Karl Kensinger
Kathryn Medley
Stephen Duall
Chip Fleming

⁴ 47 C.F.R. § 1.3.

⁵ See *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969), *cert. denied*, 409 U.S. 1027 (1972); *Northeast Cellular Telephone Co., L.P. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

⁶ See *Satellite Comprehensive Review Order* ¶¶ 74, 93.

⁷ See *International Bureau Adopts Policy of Granting Interim Waiver of Certain Requirements for Space Station Applications*, Public Notice, 29 FCC Rcd 664 (IB 2014); *The Merger of MCI Communications Corp. and British Telecommunications plc*, 12 FCC Rcd 15351, ¶¶ 286-87 (1997).

ATTACHMENT

1. General

This attachment provides additional technical information regarding the pending modification application to repoint the EHOSTAR-15 satellite (IBFS File No. SAT-MOD-20131030-00126), including the results of an updated analysis with respect to section 25.114(d)(13)(ii) of the FCC's rules.

Any Part 25 requirements regarding operation of the EHOSTAR-15 satellite that are not included in this Attachment have been previously provided to the Commission and have not changed.

2. Antenna Beam Relative Gain Isoline Contours

EchoStar is providing the Commission with relative gain isoline contours for each of the EHOSTAR-15 satellite's uplink and downlink beams in GXT format. These contours encompass the potential repointing positions of the various beams of the satellite.

3. Analyses with respect to the limits in Annex 1 to Appendices 30 and 30A.

The analyses with respect to the limits in Annex 1 to Appendices 30 and 30A have previously been provided to the Commission and have not changed, except with respect to section 2 of Annex 1 of Appendix 30 (i.e., MSPACE analysis).

Using the relative gain isoline contours of the EHOSTAR-15 satellite network and the satellite's associated transmission parameters, an MSPACE analysis was performed using the Region 2 BSS Plan as contained in IFIC 2761. The results of the analysis are provided in Table 1 below. As shown, there are four affected networks that were filed on behalf of France, Holland

and Russia. These networks are modifications to the Region 2 BSS Plan. Each of these networks is discussed below:

- France's CD-SAT BSS 123.1W network at 123.1° W.L. is deemed to be affected. We can find no evidence that this network is under construction or scheduled for launch although it is expected that coordination could be achieved given the very large orbital between 123.1° W.L. and 45.1° W.L. Further, France's network is required to be coordinated with Brazil's networks at the nominal 45° W.L. location.
- Holland's NSS-BSS 58W network at 58° W.L. is deemed to be affected. We can find no evidence that either network is under construction or scheduled for launch although it is expected that coordination could be achieved given the large orbital separation between the networks and the low OEPM degradation into Holland's network. Further, Holland's network is required to be coordinated with Brazil's Plan networks at the nominal 45° W.L. location.
- Holland's NSS-BSS 47.5W network at 47.5°W.L. is deemed to be affected. We can find no evidence that this network is under construction or scheduled for launch. Further, Holland's network is required to be coordinated with Brazil's Plan networks at the nominal 45° W.L. location.
- Russia's INTERSPUTNIK-47.5W-B network at 47.5°W.L. is deemed to be affected. We can find no evidence that this network is under construction or scheduled for launch. Further, the Russian network is required to be coordinated with Brazil's Plan networks at the nominal 45° W.L. location.

Based on the preceding, EchoStar concludes that the ECHOSTAR-15 satellite network can be operated at 45.1° W.L., as proposed herein, without causing unacceptable interference to any Region 2 Plan network or to any operational BSS network.

Table 1. ECHOSTAR-15 MSPACE Results

Adm. Symbol	Orbital Position (°W)	Network	Maximum OEPM Degradation (dB)
F	123.10	CD-SAT BSS 123.1W	1.019
HOL	58.00	NSS-BSS 58W	0.291
HOL	47.50	NSS-BSS 47.5W	13.221
RUS	47.50	INTERSPUTNIK-47.5W-B	6.448

**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/ Stephen D. McNeil
Stephen D. McNeil
Telecomm Strategies Canada, Inc.
Ottawa, Ontario, Canada
(613) 270-1177