

S2844 SAT-MOD-20120829-00144 IB2012002011
EchoStar Satellite Operating Corporation
EchoStar 16



File # SAT-MOD-20120829-00144

Call Sign S2844 Grant Date 11/19/12

(or other identifier)

Term Dates

From 11/19/12

To:

Approved:

Stephen J. Duall
Stephen J. Duall
Chief, Satellite Policy Branch

Approved by OMB
3060-0678

Date & Time Filed: Aug 29 2012 4:44:33:643PM
File Number: SAT-MOD-20120829-00144

*with conditions

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:
Request for Partial Waiver of Section 25.215

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:	Ms Alison Minea		

Attachment to Grant
EchoStar Satellite Operating Corporation
IBFS File No. SAT-MOD-20120829-00144
Call Sign S2844

The request of EchoStar Satellite Operating Corporation (EchoStar) for modification of its license for the EchoStar 16 Direct Broadcast Service space station (Call Sign S2844), IBFS File No. SAT-MOD-20120829-00144, is GRANTED. Accordingly, EchoStar is authorized to operate antenna beams SP20, SP32, SP52, SP 67, SP68, and R02, R03, R04, R05, R06 on EchoStar 16 with less than 30 dB cross-polarization isolation. Echostar's operations of these beams are subject to the technical specifications set forth in its application and the Federal Communications Commission's rules not waived herein, the terms of its authorization granted on June 22, 2012 (IBFS File No. SAT-LOA-20110902-00172), except as expressly modified in this grant, and are subject to the following conditions.

1. EchoStar's request for a waiver of Section 25.215 of the Commission's rules, 47 C.F.R. § 25.215, with respect to transmit beams SP20, SP32, SP52, SP67, and SP68, is GRANTED. Section 25.215 requires DBS space station antennas to meet a cross-polarization isolation of 30 dB within the primary coverage area of the antenna.¹ EchoStar states that the cross-polarization isolation for 5 out of 71 transmit spot beams do not, in the worst case, meet the 30dB requirement. The Commission has, however, allowed DBS licensees to use cross-polarization isolation less than 30 dB, if the non-compliant operations do not result in increased interference to other operational or planned systems, including U.S.-licensed systems. In its application, EchoStar demonstrates that the increase in interference to another DBS satellite network operating on the opposite polarization to EchoStar 16 resulting from its non-compliant transmit beams would be negligible.² As a condition of this waiver, EchoStar must coordinate

¹ 47 C.F.R. § 25.215.

² EchoStar Satellite Operating Corporation, Application for Waiver of Section 25.215, IBFS File No. SAT-MOD-20120829-00144, Attachment 1, Technical Annex, at A-3 – A-4.

Attachment to Grant
EchoStar Satellite Operating Corporation
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EchoStar 16's non-compliant operations with other potentially affected DBS satellite networks, and must operate on a non-harmful-interference basis with respect to any DBS satellite networks that comply with the cross-polarization requirement. EchoStar may not claim any more protection from interference from other radiocommunication systems operating in accordance with the Commission's rules than if Echostar met Section 25.215's requirements. Further, EchoStar must cease operations on the non-compliant transmit beams immediately upon notification that such operations have caused harmful interference to any DBS satellite networks that comply with the cross-polarization requirement and must immediately inform the Commission, in writing, of such an event.

2. We grant EchoStar a waiver of Section 25.210(i) of the Commission's rules, 47 C.F.R. § 25.201(i), for its R02, R03, R04, R05, and R06 receive spot beams (operating with left-hand and right-hand circular polarization) on our own motion. Section 25.210(i) requires space station antennas in the Fixed-Satellite Service to meet a cross-polarization isolation of 30 dB within the primary coverage area of the antenna.³ The purpose of this rule is to promote efficient uplink spectrum reuse by ensuring that space station receivers are adequately protected from interference from cross-polarized signals. EchoStar maintains that the R02, R03, R04, R05, and R06 spot beams provide a minimum cross-polarization isolation of 26.5 dB. In this case, the only operator that will be affected by the non-compliant receive beams will be EchoStar itself. As a condition of this waiver, EchoStar may not claim protection from interference to its operations caused by earth stations communicating with other lawfully authorized space stations


³ 47 C.F.R. § 25.210(i).

Attachment to Grant
EchoStar Satellite Operating Corporation
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to the extent that such interference is due to the operation of EchoStar 16's non-compliant receive beams.

3. EchoStar is afforded 30 days from the date of release of this action to decline the authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

4. 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 immediately. 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 and 1.115, may be filed within 30 days of the date of the public notice indicating that this action was taken.

 GRANTED* International Bureau *with conditions	File # <u>SAT-MOD-20120829-00144</u>
	Call Sign <u>S2844</u> Grant Date <u>11/19/12</u> (or other identifier)
	Term Dates From <u>11/19/12</u> To: _____
	Approved: <u>Stephen J. Duall</u> Stephen J. Duall Chief, Satellite Policy Branch

9-16. Name of Contact Representative

Name:	Pantelis Michalopoulos	Phone Number:	202-429-6494
Company:	Stephoe & Johnson LLP	Fax Number:	
Street:	1330 Connecticut Avenue NW	E-Mail:	
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
- 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

<p>17c. Is a fee submitted with this application?</p> <p><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).</p> <p><input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee</p> <p><input checked="" type="radio"/> Other (please explain): minor modification for DBS station – no fee required</p>	
<p>17d.</p> <p>Fee Classification BFY – Space Station Modification (Geostationary)</p>	
<p>18. If this filing is in reference to an existing station, enter:</p> <p>(a) Call sign of station: S2844</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:</p> <p>(a) Date pending application was filed: (b) File number: SATLOA2011090200172</p>

TYPE OF SERVICE

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:

- a. Fixed Satellite
- b. Mobile Satellite
- c. Radiodetermination Satellite
- d. Earth Exploration Satellite
- e. Direct to Home Fixed Satellite
- f. Digital Audio Radio Service
- g. Other (please specify) Direct Broadcast Satellite

21. STATUS: Choose the button next to the applicable status. Choose only one.

- Common Carrier Non-Common Carrier

22. If earth station applicant, check all that apply.

- Using U.S. licensed satellites
- Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

- Connected to a Public Switched Network Not connected to a Public Switched Network N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- a. C-Band (4/6 GHz) b. Ku-Band (12/14 GHz)
- c. Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: 12200

Frequency Upper: 17800

(Please specify additional frequencies in an attachment)

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?
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.

Yes No

Narrative

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

Q36

<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.</p>	<p>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

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 Satellite Operating Corporation seeks waiver of Section 25.215. See attached narrative.

Technical Annex

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

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
Alison Minea

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46. Title of Person Signing
Corporate Counsel

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.

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

_____)	
)	
In the Matter of)	
)	
ECHOSTAR SATELLITE OPERATING)	File No. SAT-MOD-2012 ____ - ____
CORPORATION)	Call Sign S2844
)	
Application for Waiver of Section 25.215)	
)	
_____)	

APPLICATION FOR MINOR MODIFICATION AND REQUEST FOR WAIVER

I. INTRODUCTION AND SUMMARY

EchoStar Satellite Operating Corporation (“ESOC”) respectfully requests minor modification of its authority for its Direct Broadcast Satellite (“DBS”) satellite, EchoStar 16, to reflect the results of the actual antenna tests that were recently conducted by ESOC’s satellite manufacturer. These tests largely confirmed the specifications in ESOC’s application for launch and operating authority for EchoStar 16. The tests revealed, however, minor variances in the satellite’s cross-polarization isolation performance in certain transmit and receive beams. ESOC therefore requests a waiver of Section 25.215 of the Commission’s rules,¹ to the extent necessary, to permit these beams to be operated with less than 30 dB cross-polarization isolation. These variances do not increase the potential for harmful interference to any other operational or planned DBS satellite.

¹ 47 C.F.R. § 25.215.

After successful launch, which is currently scheduled for September of this year,² EchoStar 16 will provide DBS service to households in the United States from 61.5° W.L. in accordance with the service parameters set forth by the Commission.³ For the reasons set forth herein, grant of this application will serve the public interest and will not cause any harmful interference.

II. MODIFICATION AND WAIVER REQUEST

Although the beams on EchoStar 16 were designed to perform at the 30 dB cross-polarization level (with the exception of certain areas over Bermuda, the Caribbean, and Mexico, as explained in EchoStar's original launch and operating authority application),⁴ testing has revealed that certain beams will perform with cross-polarization isolation levels just below 30 dB. Specifically, five transmit spot beams perform at cross-polarization isolation levels between 26.8 and 30 dB, and eight uplink beams perform with cross-polarization isolation levels between 26.4 and 30 dB. In addition, the continental United States ("CONUS") beam has a cross-polarization isolation of between 28 and 30 dB over approximately 3% of its coverage area when operated on channel 21, between 29 and 30 dB over 2% of its coverage area when operated on channel 23, and between 29 and 30 dB over 1% of its coverage area when operated on channel

² EchoStar 16 is currently scheduled to launch on the Proton M/Briz M launch vehicle following the launch of the Intelsat 23 satellite. In light of the recent failure of the Briz M upper stage, however, EchoStar anticipates that the September launch window will be pushed back to accommodate the failure investigation and associated remedial work. EchoStar will keep the Commission informed of updates to the launch schedule.

³ See Stamp Grant, File No. SAT-LOA-20110902-00172 (granted June 22, 2012) ("EchoStar 16 Grant").

⁴ EchoStar requested, and received, waiver of Section 25.215 to the extent necessary to permit operations over these regions with cross-polarization isolation of less than 30 dB as described in the application. See EchoStar 16 Grant.

27. None of these differentials will have a material effect on the satellite's provision of service or its potential for interference.

Commission rules may be waived if there is good cause to do so.⁵ Here, there is good cause, and the International Bureau has already granted similar waivers when the impact on neighboring satellite networks is negligible, and/or the only party suffering increased interference is the satellite operator itself.⁶ The Bureau explained in one case, “[l]icensees may use cross-polarization isolation 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.”⁷

This is the case here. All beams on EchoStar 16 have cross-polarization isolation performance that meets or exceeds 30 dB over most of the broadcast coverage area. The attached Technical Annex details those limited beams and regions where the cross-polarization isolation falls below 30 dB in a portion of the coverage area.⁸ The slight uplink shortfalls create insubstantial amounts of self-interference. The ECHOSTAR-16 satellite's link budgets are sufficiently robust to compensate for the negligible degradation caused by the reduced uplink cross-polarization isolation performance. Most importantly, and as demonstrated in the

⁵ See 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

⁶ DIRECTV Enterprises LLC, *Order and Authorization*, 20 FCC Rcd. 15778, 15779 ¶ 7 (2005) (“*DIRECTV Waiver Order*”) (waiving Section 25.215 when the cross-polarization isolation of DIRECTV 5's DBS antennas was typically 27 dB over the satellite's primary coverage area); see also EchoStar Satellite Operating Corporation, *Order and Authorization*, 21 FCC Rcd. 14780 ¶ 8 (2006); Star One S.A., *Order*, 19 FCC Rcd. 16334 ¶ 12 (2004); New Skies Satellites N.V., *Order*, 17 FCC Rcd. 10369 ¶ 19 (2002).

⁷ *DIRECTV Waiver Order*, 20 FCC Rcd. at 15779 ¶ 7.

⁸ ESOC hereby incorporates by reference its application for launch and operating authority for the EchoStar 16 satellite, including the narrative, Form 312, Schedule S, and Technical Annex (collectively, the “EchoStar 16 Application”). Except as set forth in this modification request, the information contained in the EchoStar 16 Application remains accurate.

Technical Annex, the cross-polarization isolation downlink shortfall negligibly increases interference to adjacent DBS satellites. Moreover, the level of increase is insignificant considering that the dominant interference source arises from the co-polar interference component.

Accordingly, consistent with past precedent, a waiver of Section 25.215 of the Commission's rules is warranted here.

III. CONCLUSION

For the foregoing reasons, ESOC respectfully requests that the Commission waive the cross-polarization isolation requirements set forth in Section 25.215 of the Commission's rules to the extent requested herein.

Respectfully submitted,

/s/

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August 29, 2012