

S2439 SAT-STA-20170427-00067 IB2017001169
EchoStar Satellite Operating Corporation
EchoStar 8



File # SAT-STA-20170427-00067

Call Sign S2439 Grant Date 04/27/17

(or other identifier)

Term Dates period of
From 04/27/17 To: 30 days

Approved by OMB
3060-0678

Approved: Stephen J. Dwall

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

Date & Time Filed: Apr 27 2017 12:19:20:833PM
File Number: SAT-STA-20170427-00067
Callsign:

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
STA to Deorbit EchoStar 8

1. Applicant

Name:	EchoStar Satellite Operating Corporation	Phone Number:	301-428-5893
DBA Name:		Fax Number:	
Street:	100 Inverness Terrace East	E-Mail:	jennifer.manner@echostar.com
City:	Englewood	State:	CO
Country:	USA	Zipcode:	80112 -
Attention:	Jennifer A Manner		

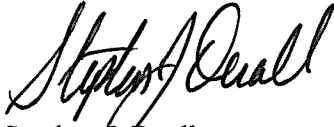
ATTACHMENT TO GRANT
 EchoStar Satellite Operating Corporation
 IBFS File No. SAT-STA-20170427-00067

IBFS File No(s):	SAT-STA-20170427-00067	<p>GRANTED – With Conditions</p>  <p>International Bureau Satellite Division</p>
Licensee/Grantee:	EchoStar Satellite Operating Corporation	
Call Sign:	S2439 ¹	
Satellite Name:	EchoStar 8	
Orbital Location: (required station-keeping tolerance)	See Scope of Grant	
Administration:	United States of America	
Nature of Service:	Telemetry, tracking and command (TT&C) only	
Scope of Grant:	Special temporary authority to conduct TT&C operations necessary to remove the EchoStar 8 space station to a disposal orbit	
Frequencies:	TT&C center frequencies: 14.003 GHz, 14.016 GHz (Earth-to-space) 12.207 GHz, 12.206 GHz (space-to-Earth)	
<p>Unless otherwise specified herein, operations under this grant must comport with the legal and technical specifications set forth by the applicant or petitioner and with Federal Communication Commission's rules not waived herein. This grant is also subject to the following conditions:</p> <ol style="list-style-type: none"> 1. Operations pursuant to this special temporary authority must be on an unprotected and non-harmful interference basis, <i>i.e.</i>, the EchoStar 8 space station must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating station. In the event of any harmful interference, EchoStar must cease operations immediately upon notification of such interference, and must inform the Commission, in writing, immediately of such an event. 2. EchoStar must coordinate the operations of EchoStar 8 with existing geostationary space stations to ensure that no unacceptable interference results from its operations under this grant of STA. 3. EchoStar must operate only the TT&C frequencies on EchoStar 8. 4. Within 30 days of completion of the end-of-life maneuvers, EchoStar shall send a letter to the Chief, Satellite Division, International Bureau, indicating the apogee, perigee and eccentricity of the EchoStar 8 disposal orbit. 		
<p>Licensee/grantee is afforded thirty (30) days from the date of release of this action to decline the grant as conditioned. Failure to respond within this period will constitute formal acceptance of the grant as conditioned.</p> <p>This action is taken pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 CFR § 0.261, and is effective upon release.</p> <p>Station licenses are subject to the conditions specified in Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. § 309(h).</p>		
Action Date:	April 27, 2017	
Term Dates	From: April 27, 2017	To: period of 30 days

¹ EchoStar 8 was initially licensed in 2002 under call sign S2439. See IBFS File No. SAT-LOA-20020329-00042, SAT-AMD-20020430-00085 (granted June 20, 2002). Operations under this grant of STA will resume use of call sign S2439.

ATTACHMENT TO GRANT
EchoStar Satellite Operating Corporation
IBFS File No. SAT-STA-20170427-00067

Approved:



Stephen J. Duall
Chief, Satellite Policy Branch

2. Contact

Name:	Jennifer A. Manner	Phone Number:	(301)428-5893
Company:	EchoStar	Fax Number:	(301)428-2818
Street:	11717 Exploration Lane	E-Mail:	jennifer.manner@echostar.com
City:	Germantown	State:	MD
Country:	USA	Zipcode:	20876 -
Attention:		Relationship:	

(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)

3. Reference File Number or Submission ID

4a. 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):

4b. Fee Classification CRY – Space Station (Geostationary)

5. Type Request

- Change Station Location Extend Expiration Date Other

6. Temporary Orbit Location

7. Requested Extended Expiration Date

8. Description (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

Seeking special temporary authority to deorbit EchoStar 8. See Exhibit 1.

9. 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

10. Name of Person Signing
Jennifer A. Manner

11. Title of Person Signing
Senior Vice President, Regulatory Affairs

12. Please supply any need attachments.

Attachment 1: Exhibit 1

Attachment 2:

Attachment 3:

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.

EXHIBIT 1

APPLICATION FOR SPECIAL TEMPORARY AUTHORITY

Pursuant to 47 C.F.R. § 25.120(b), EchoStar Satellite Operating Corporation (together with its affiliates, “EchoStar”) requests 30-day special temporary authority (“STA”) to deorbit the EchoStar 8 satellite (Call Sign 2439).

As EchoStar previously informed the Satellite Division staff, the EchoStar 8 satellite experienced an anomaly on April 18, 2017. Despite attempts to resolve the anomaly, EchoStar experienced difficulties maintaining EchoStar 8 within its station-keeping box. Consequently, on April 25, the Commission granted EchoStar’s request for a 30-day STA to operate the satellite under Commission jurisdiction to facilitate orderly retirement of the satellite.¹

As of April 27, the EchoStar 8 satellite is orbiting at approximately 79° W.L. at a westward drift rate of approximately 0.3 degree per day, and EchoStar expects to commence maneuvers to deorbit the satellite late in the day of April 27, 2017. EchoStar will use existing licensed earth stations in Cheyenne, WY (Call Signs E980127 and E980047), and Gilbert, AZ (Call Signs E030168 and E070015) for telemetry, tracking, and control (“TT&C”) communications required to deorbit the satellite on the same frequencies authorized under the existing STA grant, as follows:

EchoStar 8 Uplink Frequency/Polarization	EchoStar 8 Downlink Frequency/Polarization
TC1 14.003 GHz = (RHCP) In use	TM1 – 12.207 GHz = (LHCP)
TC2 14.016 GHz = (RHCP)	TM2 – 12.206 GHz = (LHCP)

¹ See EchoStar, Application for STA, IBFS File No. SAT-STA-20170421-00066 (Call Sign 2439) (granted Apr. 25, 2017). EchoStar 8 was previously operating under Mexican authority. However, the letters exchanged between the Federal Communications Commission (“FCC”) and the Comisión Federal de Telecomunicaciones of Mexico stated that EchoStar 8 would be subject to FCC licensing, “including any operations as a result of equipment failure in the satellite that results in the inability to maintain the satellite within ± 0.1 degrees of its assigned position at the 77° W.L. orbital location.” *Id.*

End-of-life disposal of the satellite is expected to be performed through a series of multiple controlled burns using normal station-keeping thruster sets. Due to multiple thruster anomalies, the satellite is incapable of performing large maneuvers, and thus is expected to require two drift correction maneuvers per day for approximately 22 days. These drift correction maneuvers are expected to be completed by approximately May 20, and will result in placing the satellite at a disposal perigee altitude of approximately 400 km above the geostationary satellite orbit (“GSO”), which meets the minimum perigee altitude (*i.e.*, 357 km. above GSO) required under 47 C.F.R. § 25.283(a). At the end of the deorbit maneuvers, the satellite is expected to achieve a Sun-synchronous eccentricity of approximately 0.0004. EchoStar’s calculation for the minimum deorbit perigee is as follows:

EchoStar 8	
Min. perigee = 36,021 km + 1000 x Cr x A/M	
Cr	2
A	112 m ²
M	1833.7 kg
	36143 km
GSO	35786 km
	357 km above GSO

EchoStar 8 is a bi-propellant system requiring use of both fuel and oxidizer. The following chart illustrates the propellant amounts that will be used for the deorbit.

EchoStar 8 Propellant Estimates	Fuel	Oxidizer
Estimated Remaining Usable Propellant as of April 20, 2017	26.23 kg	>15 kg (minimum)
Propellant Needed for Deorbit	6.5 kg	12.4 kg

Consistent with 47 C.F.R. § 25.283(b), EchoStar will conduct TT&C operations using authorized frequencies to remove the satellite from GSO at the end of its useful on a non-harmful interference basis, subject to compliance with the minimum perigee altitude required for end-of-life disposal, and further subject to coordination with any potentially affected satellite networks.

Furthermore, consistent with 47 C.F.R. § 25.283(c), EchoStar expects that all stored energy sources on board the satellite will be depleted upon completion of deorbit maneuvers. The batteries will be left in a permanent state of discharge, chemical propulsion systems will be depleted, and the electrical propulsion system will be disabled.