

Approved by OMB  
3060-0678

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File Number: SAT-STA-20060303-00023  
Callsign: **S2232**

**EchoStar 6 relocate to 110.4°W.L.**

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:  
Application for Special Temporary Authority to Move EchoStar 6 to 110.4W

I. Applicant

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

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File # **SAT-STA-20060303-**  
**00023**  
Callsign **S2232** Grant Date **4/28/06**  
(or other identifier) **S2232**  
Term Dates **4/28/06** To: **180 days**  
*David K. Moskowitz*

*w/conditions* Policy Branch Chief

corrected copy

ATTACHMENT

Conditions of Authorization: SAT-STA-20060303-00023

SAT- STA-20060425-00049

Call Sign: S2232

Grant Date: April 28, 2006

EchoStar Satellite Operating Corporation's (EchoStar) request for special temporary authority (STA), File No. SAT-STA-20060303-00023,<sup>1</sup> IS GRANTED. Accordingly, EchoStar is authorized on a non harmful interference basis for a period of 180 days, commencing on April 28, 2006, (1) to conduct Telemetry, Tracking and Control (TT&C) operations related to the relocation of the direct broadcast satellite (DBS), EchoStar 6 (Call Sign: S2232) from the 110.35° W.L. orbital location to the 110.4° W.L. orbital location and (2) to continue TT&C operations at the 110.4° W.L. orbital location sufficient to maintain the EchoStar 6 satellite as an in-orbit spare with +/- 0.05 longitudinal stationkeeping, in accordance with the terms, conditions, and technical specifications set forth in its application, Federal Communication Commission (Commission) rules, and this Attachment.

1. During the drift to the 110.4° W.L. orbital location, and while maintaining an orbit at the 110.4° W.L. orbital location, EchoStar shall not operate the main communications payload on EchoStar 6.
2. EchoStar shall coordinate all drift orbit operations with other potentially affected in orbit operators.
3. During the drift to and while operating at the 110.4° W.L. orbital location, no harmful interference shall be caused by EchoStar 6 to any other lawfully operating space station or other radiocommunication system.
4. In the event of any harmful interference as a result of EchoStar 6's operations during the relocation to or while operating at the 110.4° W.L. orbital location, EchoStar shall cease operations immediately upon notification of such interference and shall inform the Commission, in writing, immediately of such an event.
5. EchoStar is required to accept interference from other lawfully operating space stations or other radiocommunication systems.
6. Any action taken or expense incurred as a result of operations pursuant to this special temporary authority is solely at EchoStar's own risk.

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<sup>1</sup> This application was accepted for filing and placed on public notice on March 10, 2006. Satellite Space Applications Accepted for Filing, Policy Branch Information, *Public Notice*, Report No. SAT-00347 (rel. March 10, 2006). No comments were filed.

7. EchoStar's request, File No. SAT- STA-20060425-00049, for a 30-day extension of the previously granted authority<sup>2</sup> to operate at 110.35° W.L. orbital location IS GRANTED, to the extent necessary subject to the same conditions as those attached to SAT-STA-20060303-00022 and is otherwise dismissed as moot.
8. EchoStar is afforded thirty 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 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.



File # SAT-STA-20060303-00023

Call Sign S2232 Grant Date 4/28/06  
(or other identifier)

From 4/28/06 Term Dates To: + 180 days

Approved: [Signature]  
Policy Branch Chief

<sup>2</sup> On March 28, 2006, the Satellite Division granted with conditions EchoStar's application, File No. SAT-STA-20060303-00022, for a period of 30 days commencing on March 29, 2006, to (1) relocate its EchoStar 6 satellite from the 110.2° W.L. orbital location to the 110.35° W.L. orbital location and (2) operate the satellite at 110.35° W.L. with +/- 0.05 longitudinal stationkeeping.

2. Contact

<b>Name:</b>	Pantelis Michalopoulos	<b>Phone Number:</b>	202-429-6494
<b>Company:</b>	Step toe & Johnson LLP	<b>Fax Number:</b>	202-429-3902
<b>Street:</b>	1330 Connecticut Ave., NW	<b>E-Mail:</b>	pmichalo@step toe.com
<b>City:</b>	Washington	<b>State:</b>	DC
<b>Country:</b>	USA	<b>Zipcode:</b>	20036 -1795
<b>Attention:</b>		<b>Relationship:</b>	Legal Counsel

(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  
110.4W

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.)

See attached narrative and technical appendix.

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  
David K. Moskowitz

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

12. Please supply any need attachments.

Attachment 1: STA Narrative

Attachment 2: Attachment A

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.**

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

\_\_\_\_\_ )  
In the Matter of )

ECHOSTAR SATELLITE OPERATING )  
CORPORATION )

For Special Temporary Authority to Relocate )  
EchoStar 6 to 110.4° W.L. as an In-orbit Spare )  
\_\_\_\_\_ )

File No. SAT-STA-2006\_\_\_\_\_

**APPLICATION FOR SPECIAL TEMPORARY AUTHORITY**

By this application, EchoStar Satellite Operating Corporation ("EchoStar") respectfully requests a special temporary authority ("STA") to move EchoStar 6 to 110.4° W.L., where EchoStar will store the satellite as an in-orbit spare for 180 days starting on or about April 4, 2006. Today, EchoStar has also applied to move EchoStar 6 from its current position at 110.2° W.L. to 110.35° W.L., where it will operate temporarily while traffic is being transferred to the new EchoStar 10 satellite. The instant application is a request to move the EchoStar 6 satellite from 110.35° W.L. to 110.4° W.L. once traffic transfer is complete, where it will be operated only on its TT&C frequencies as an in-orbit spare. The proposed move to 110.4° W.L. and the maintenance of the satellite at that location as an in-orbit spare will not cause harmful interference to any authorized spectrum user. EchoStar will also coordinate all drift orbit operations with other potentially affected in-orbit operators.

**I. DISCUSSION**

EchoStar is currently operating two satellites at 110° W.L. EchoStar 8 is a spot- and CONUS-beam satellite operating on 20 of EchoStar's 29 assigned channels at the 110.0° W.L.



orbital location.<sup>1</sup> EchoStar 6 is a CONUS-beam satellite operating on nine of those frequencies at the 110.2° W.L. orbital location.<sup>2</sup> EchoStar has requested authority to provide DBS service from the nominal 110° W.L. orbital position using the EchoStar 10 satellite, and plans to locate the satellite at the 110.2° W.L. orbital location. On February 3, 2006, EchoStar received Special Temporary Authority to launch EchoStar 10 and to test it at the 138.5° W.L. orbital location.<sup>3</sup> Testing is due to be completed on March 21, 2006.

Once EchoStar 10 moves to the 110.2° W.L. orbital location with the Commission's approval, EchoStar plans to transition spot beam operations from EchoStar 8 to EchoStar 10. This will free up capacity on EchoStar 8 for CONUS operations, and in turn will permit EchoStar to transfer the EchoStar 6 traffic to EchoStar 8. EchoStar has separately applied for an STA to operate EchoStar 6 at 110.35° W.L. during traffic transfer. EchoStar expects that traffic transfer operations will take no more than 30 days. Upon completion of traffic transfer, EchoStar 6 will cease operation of its communications payload. The instant application is for temporary authority to move the satellite to 110.4° W.L. and to maintain it there as an in-orbit spare once traffic transfer is complete.

EchoStar recognizes that its plan will result in operating EchoStar 6 outside of the 110° W.L. DBS "cluster" allotted to the United States by the International Telecommunication Union

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<sup>1</sup> *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 11326 (2002).

<sup>2</sup> *EchoStar Satellite Corporation, Application for Minor Modification of Four DBS Space Station Authorizations To Operate on 11 Channels at 119° W.L., To Operate on 10 Channels at 119° W.L., To Operate on 28 Channels at 110° W.L., To Operate on 1 Channel at 110° W.L., Application for Renewal of Special Temporary Authority to Operate a Direct Broadcast Satellite at the 110° W.L. Orbital Location*, Memorandum Opinion and Order, 18 FCC Rcd 15211 (2003).

<sup>3</sup> See Stamp Grant, File No. SAT-STA-20060104-00004 (granted Feb. 3, 2006).



("ITU").<sup>4</sup> Under the current ITU Region 2 BSS Plan, the United States has the authority to allow satellite operators to provide Broadcast Satellite Service ("BSS") (*i.e.*, DBS service in the United States) at orbital locations within plus/minus 0.2° of the designated orbital location, known as clusters.<sup>5</sup> Under this plan, the United States has sole authority over the BSS frequencies located at the 110° W.L. cluster.<sup>6</sup> This cluster consists of orbital locations from 109.8° W.L. to 110.2° W.L. In order to operate its satellite permanently outside of the authorized cluster, an operator must seek to modify the ITU Region 2 BSS Plan.<sup>7</sup>

However, EchoStar is not seeking to operate permanently on the DBS frequencies at 110.4° W.L. Rather, it is only seeking authority to relocate the satellite to 110.4° W.L. for a period of 180 days, where it will operate as an in-orbit spare with its communications payload turned off, utilizing only its TT&C frequencies.

The Commission has previously granted temporary authority to operate outside of an orbital location cluster on the condition that operations do not cause harmful interference to lawfully operating satellite systems and that the satellite system operate without protection from lawful systems.<sup>8</sup> In fact, in very similar circumstances, the Bureau recently approved a similar

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<sup>4</sup> See ITU Regulations, Appendix 30, Annex 7, Section B.

<sup>5</sup> *Id.*

<sup>6</sup> ITU Regulations, Appendix 30, Art. 10.

<sup>7</sup> ITU Regulations, Appendix 30, Art. 4.2.

<sup>8</sup> See Letter from Thomas S. Tycz, Chief, Satellite and Radio Communications Division, FCC, to David K. Moskowitz, Senior Vice President and General Counsel for EchoStar Satellite Corporation, at 2, dated Jan. 14, 2000 (granting authority to operate the EchoStar 4 satellite at 119.35° W.L., outside of the 119° W.L. cluster).

request by DIRECTV for relocation of the DIRECTV 6 satellite outside of the 110° W.L. cluster (east of the cluster).<sup>9</sup>

For the reasons set forth below, the temporary operation of EchoStar 6 at 110.4° W.L. will not cause harmful interference to any authorized user of the spectrum, and would be in the public interest. Accordingly, the Commission should grant the requested temporary authority.

## II. GRANT OF THIS APPLICATION IS IN THE PUBLIC INTEREST

The Commission has a long-standing policy of granting Special Temporary Authority where such authorization will not cause harmful interference and will serve the public interest, convenience and necessity. *See e.g., In the Matter of Newcomb Communications, Inc.*, 8 FCC Rcd. 3631, 3633 (1993); *In the Matter of Columbia Communications Corp.*, 11 FCC Rcd. 8639, 8640 (1996); *In the Matter of American Telephone & Telegraph Co.*, Order, 8 FCC Rcd. 8742 (1993). The requested operations meet both of these tests.

Temporary operation of the EchoStar 6 at 110.4° W.L. as an in-orbit spare will not cause harmful interference to any other U.S.-licensed satellite operator. Moving EchoStar 6 to this orbital location and limiting operations to TT&C would, if anything, reduce any potential for interference with DIRECTV 5 at 109.8° W.L. and any BSS satellites further east. In addition, the closest operational BSS satellites to the west of EchoStar 6's proposed location (except other EchoStar satellites) are two DIRECTV satellites located at 119° W.L. Locating the EchoStar 6 satellite with only its TT&C beams operating a mere 0.2° closer to 119° W.L. will not appreciably increase the interference experienced by the satellites located at that orbital location. This is demonstrated in the technical showing in *Attachment A*.

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<sup>9</sup> *See, e.g., DIRECTV Enterprises, LLC*, DA-05-2654, Order and Authorization, File Nos. SAT-A/O-20050504-00093 and SAT-STA-20050518-00105, at ¶¶ 10, 15-16 (rel. Oct. 5, 2005) ("DIRECTV 6 STA").

Finally, EchoStar notes again that the International Bureau recently granted temporary authority to DIRECTV for a similar move for the same purpose, subject to certain conditions, which are acceptable to EchoStar.<sup>10</sup>

EchoStar accordingly seeks authority to move EchoStar 6 to the 110.4° W.L. orbital location and to maintain the satellite at that location as an in-orbit spare, subject to the following conditions:

- a) During the drift to the 110.4° W.L. orbital location, and while maintaining an orbit at that location, EchoStar shall not operate the main communications payload on EchoStar 6.
- b) EchoStar shall coordinate all drift orbit TT&C operations with other potentially affected in-orbit operators.
- c) During relocation of the EchoStar 6 satellite, operations shall be on a non-harmful interference basis, meaning that EchoStar shall not cause interference to, and shall not claim protection from interference caused to it by any other lawfully operating satellites.
- d) In the event that any harmful interference is caused as a result of operations during the relocation of the EchoStar 6 satellite or while the satellite is at 110.4° W.L., EchoStar shall cease operations immediately upon notification of such interference and shall inform the Commission immediately, in writing, of such event.

EchoStar requests that the STA begin on or about April 4, 2006 for a period of 180 days.

### **III. SECTION 304 WAIVER**

In accordance with Section 304 of the Communications Act of 1934, 47 U.S.C. § 304, EchoStar hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum because of the previous use of the same, whether by license or otherwise.

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<sup>10</sup> See DIRECTV 6 STA at ¶¶ 15-16.



**ATTACHMENT A**  
**Technical Appendix**

**Potential Interference Issues**

The EchoStar-6 satellite operates in the frequency bands covered by Appendices 30 and 30A of the Radio Regulations. These bands are 12.2 – 12.7 GHz (space-to-Earth) and 17.3 – 17.8 GHz (Earth-to-space). Operational co-frequency satellites within 10 degrees of the 110°W orbital location, aside from EchoStar's, are the DIRECTV DBS satellites at 101°W and 119°W.<sup>1, 2</sup>

The result of the requested shift for the EchoStar-6 satellite from 110.2°W to 110.35°W and then to 110.4°W provides a greater orbital separation from the DIRECTV satellites at the 101°W location and therefore there is no negative impact to these operations. With the proposed shift, the EchoStar-6 satellite will move closer to the US-assigned 119°W orbital location where both EchoStar and DIRECTV satellites operate within a ± 0.2 degree cluster. Currently, there are two operational satellites at the 119°W cluster - EchoStar-7 located at 118.9°W and DIRECTV-7S located at 119.2°W. Currently the orbital separation between the EchoStar-6 satellite and the DIRECTV-7S satellite is therefore nominally 9 degrees, or 8.9 degrees taking into account station-keeping tolerances of both satellites. With the requested shift of EchoStar-6 to 110.35°W and then 110.4°W the orbital separation would be nominally 8.85 to 8.8 degrees, or 8.75 to 8.7 degrees taking into account the station-keeping tolerances of both satellites. Taking the worst case of EchoStar 6 at 110.4°W, the result of the shift in terms of receive earth station off-axis gain is a difference of less than 0.25 dB and the off-axis discrimination of the receiving earth station is still greater than 29 dB. Similarly the large feeder link earth stations used by EchoStar provide sufficient isolation at these orbital separations to prevent any uplink interference effects. Therefore, the proposed shift of EchoStar-6 from 110.2°W to 110.35 and then to 110.4°W will result in negligible impact to the DIRECTV operations at the 119°W location.

In addition to these operational satellites, a search using the ITU's on-line databases show there are several AP30/30A BSS filings at "tweener" orbital locations, e.g. 105.5°W and 114.5°W. There is no indication, however, that these satellites will be operational in the time-frame of the requested temporary operation of EchoStar-6 satellite at the 110.35°W orbital location. At the 110.4°W orbital location, the EchoStar 6 satellite will be closer to the 114.5°W orbital location. However, the EchoStar 6 satellite will not be providing service from this location so only its TT&C frequencies will be operating. If in the future

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<sup>1</sup> Other operational co-frequency DBS satellites, e.g. the Canadian network at 91°W are further removed. The off-axis discrimination of the receive earth stations at separations greater than 10 degrees is 31 dB or greater (assuming an equivalent 45 cm dish antenna that meets ITU-R BO.1213 reference pattern). Thus, the requested shift of 0.2 degrees for the EchoStar-6 satellite would have an even more attenuated impact on operations of DBS satellites operating more than 10 degrees away than what will be seen to be a negligible effect on the satellites at 119°W.

<sup>2</sup> This annex covers both the proposed transitional operation of EchoStar 6 at 110.35° W.L. and the subsequent proposed temporary operation at 110.4° W.L. For simplicity, we will use the 110.4° W.L. position in this analysis.



a satellite is located at the 114.5°W orbital location, successful coordination of the TT&C frequencies should be possible given the narrow bandwidths and the larger earth station used by EchoStar for its TT&C operations. There are also many filings for use of the Region 2 17.3 – 17.8 GHz BSS downlink allocation. These satellites cannot be brought into use until 1 April 2007. Moreover, the issue with these networks is 17 GHz feeder link earth station interference into receiving earth stations, and this would be unaffected by the precise orbital location of the EchoStar 6 satellite. Similarly, there are FSS Ka-band filings that include the 17 GHz spectrum in the space-to-Earth direction. The ITU databases also includes FSS filings for the 12 GHz band in Regions 1 and 3. Because of the large geographic separation of the service areas the up to 0.2° shift of EchoStar 6 would not impact these networks either.

### **Collision Avoidance Issues**

In considering current and planned satellites that may have a station-keeping volume that overlapping the EchoStar-6 satellite's new proposed locations at 110.35°W and 110.4°W, we have reviewed the lists of FCC licensed satellite networks, as well as those that are currently under consideration by the FCC. In addition, non-USA networks for which a filing has been submitted to the ITU in the vicinity of 110° W have also been reviewed.

Only those networks that either operate, or are planned to operate, and have an overlapping station-keeping volume with the EchoStar-6 satellite, have been taken into account in the analysis. For purposes of calculating potential station-keeping volume overlap, US satellites have been assumed to have a maximum east-west excursion of  $\pm 0.05^\circ$  from their nominal location, while non-US satellite networks have been assumed to have a maximum excursion of  $\pm 0.1^\circ$  from their nominal location.

Currently there are four operational US licensed satellites within  $\pm 0.5^\circ$  of 110°W.L. These are the DIRECTV-6 satellite at 109.5°W, the DIRECTV-5 satellite at 109.8°W, the EchoStar-6 satellite at 110.2°W and the EchoStar-8 satellite at 110.0°W. Additionally, EchoStar has requested authority to provide DBS service from the nominal 110° W.L. orbital position using the EchoStar-10 satellite, and plans to locate the satellite at the 110.2° W.L. orbital location. Taking into account the maximum east-west excursion of  $\pm 0.05^\circ$ , none of these satellites have the potential to overlap with the station-keeping volume of the EchoStar-6 satellite at the 110.35°W or 110.4°W orbital locations.

In addition to these operational satellites a review of the ITU on-line databases include the following non-USA filings at the 110°W orbital location: EMARSAT-5B/M from the United Arab Emirates, INMARSAT-S7 from the United Kingdom and PAS-ENDEAVOUR-110W from Australia. A review of the FAA Quarterly Launch Report does not indicate that these satellites will be launched in the near future. In addition to these filings there are US filings for Region 2 17 GHz BSS operations. The earliest these networks can be brought into use is 1 April 2007, however. It is noted that, with the assumed station-keeping maximum excursions stated above, there would be no overlapping station-keeping volume with the EchoStar 6 satellite at 110.35°W and 110.4°W orbital locations.



**CERTIFICATION OF PERSON RESPONSIBLE**  
**FOR PREPARING ENGINEERING INFORMATION**

I hereby declare under penalty of perjury that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing submission, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this pleading, and that it is true and correct to the best of my knowledge and belief.

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

Dated: March 3, 2006