

S2866 SAT-LOA-20120424-00075 IB2012001099  
 Hughes Network Systems, LLC  
 EchoStar XVII



File # SAT-LOA-20120424-00075  
 Call Sign S2753 Grant Date 06/12/12  
 (or other identifier)  
 From <sup>see</sup> conditions Term Dates <sup>see</sup> conditions To: conditions  
 Approved: *Stephen J. Duall*

Approved by OMB  
 3060-0678

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 Callsign/Satellite ID: S2866

APPLICATION FOR SATELLITE SPACE STATION AUTHORIZATIONS FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:  
 April 2012 FCC License Application for EchoStar XVII -- 107.1 W.L.

1-8. Legal Name of Applicant			
Name:	Hughes Network Systems, LLC	Phone Number:	301-428-5506
DBA Name:		Fax Number:	301-428-2802
Street:	11717 Exploration Lane	E-Mail:	Steven.Doiron@hughes.com
City:	Germantown	State:	MD
Country:	USA	Zipcode:	20876 -
Attention:	Mr. Steven Doiron		

Hughes Network Systems, LLC.  
IBFS File No. SAT-LOA-20120424-00075  
Call Sign S2753  
Attachment to Grant

The application of Hughes Network Systems, LLC (Hughes), IBFS File No. SAT-LOA-20120424-00075, is GRANTED.<sup>1</sup> Accordingly, Hughes is authorized to construct, launch, and operate its geostationary orbit (GSO) space station, EchoStar XVII, Call Sign S2753, at the 107.1° W.L. orbital location. Specifically, Hughes is authorized to provide Fixed-Satellite Service (FSS) using the 28.35-28.6 GHz, 29.25-29.5 GHz, 29.5-30.0 GHz frequency bands (Earth-to-space), and the 18.3-18.8 GHz and 19.7-20.2 GHz frequency bands (space-to-Earth). Hughes is also authorized to provide FSS using the 18.8-19.3 GHz frequency bands (space-to-Earth) on a non-harmful interference basis, and the 28.6-29.1 GHz frequency bands (Earth-to-space) on a secondary basis. In addition, Hughes is authorized to use the following center frequencies for telemetry, tracking, and control (TT&C) operations for EchoStar XVII: 28351 MHz, 28353 MHz, and 29998 MHz (Earth-to-space); 19700.5 MHz, 19702.5 MHz, and 20199.5 MHz (space-to-Earth). This authorization is subject to the technical specifications set forth in Hughes' application, the Federal Communication Commission's rules not waived herein, and the conditions of this Attachment:

1. Hughes shall prepare the necessary information as may be required, for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, international coordination, due diligence, and notification process of this space station, in accordance with ITU Radio Regulations. Hughes shall be held responsible for all cost recovery fees associated with these ITU filings. We also note that no protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments with other administrations. *See* 47 C.F.R. § 25.111(b).

2. Hughes shall maintain the EchoStar XVII space station with an east/west longitudinal station-keeping tolerance of  $\pm 0.05$  degrees at the 107.1° W.L. orbital location.

3. Hughes' request for a waiver of Footnote NG165 to Section 2.106 of the United States Table of Frequency Allocations, 47 C.F.R. § 2.106, to permit Hughes to operate its GSO FSS EchoStar XVII space station in the 18.8-19.3 GHz (space-to-Earth) frequency band on a non-conforming basis is GRANTED. In the United States, the 18.8-19.3 GHz frequency band is designated for non-Federal, non-geostationary orbit (NGSO) FSS operations on a primary basis, with no designation for non-Federal GSO operations. The 18.8-19.3 GHz band is also allocated to Federal GSO and NGSO FSS operations on a primary basis. As a non-conforming user, Hughes must accept any interference from any non-Federal NGSO FSS system, any Federal GSO FSS or NGSO FSS system, or any grandfathered co-primary fixed service stations authorized to use the 18.8-19.3 GHz frequency band. In addition, Hughes shall not cause harmful interference to any authorized non-Federal NGSO FSS system, any authorized Federal GSO FSS or NGSO FSS system, or any grandfathered co-primary fixed service stations, and shall immediately cease operations upon notification of such harmful interference resulting from its operations.

4. Hughes must coordinate its space-to-Earth operations in the 18.3-18.8 GHz and 19.7-20.2 GHz frequency bands with the U.S. Federal systems, including Federal operations to earth stations in

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<sup>1</sup> Hughes' application for EchoStar XVII was placed on Public Notice. *See* Policy Branch Information, *Public Notice*, Report No. SAT-00862 (April 17, 2012). No comments were received in response to the Notice. EchoStar XVII was previously known as SPACEWAY 4, and was assigned the call sign S2753. In connection with this grant, we modify the call sign associated with this application from S2866 to S2753.

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foreign countries, in accordance with footnote US334 to the United States Table of Frequency Allocations, 47 C.F.R. § 2.106. In addition to meeting the terms of the coordination agreement, the non-conforming Hughes GSO operations at 18.8-19.3 GHz, shall not cause harmful interference to, nor claim protection from, present and future Federal GSO and NGSO systems, non-Federal NGSO systems, or any non-conforming services previously authorized on a non-harmful interference basis.

5. The power flux-density (PFD) at the Earth's surface produced by the emissions from the EchoStar XVII space station for all atmospheric conditions, and for all methods of modulation, in the 18.3-19.3 GHz and 19.7-20.2 GHz frequency bands (space-to-Earth), shall not exceed a level of -119 dBW/m<sup>2</sup>/MHz at any angle of arrival.<sup>2</sup>

6. EchoStar XVII's operations in the 18.3-19.3 GHz frequency band (space-to-Earth) are not entitled to protection from co-primary terrestrial services until the period during which the terrestrial Fixed Service stations remain co-primary has expired. 47 C.F.R. § 25.145(g).

7. We grant Hughes a partial waiver of Section 25.114(c)(4)(iii) of the Commission's rules. Section 25.114(c)(4)(iii) requires applicants to identify which antenna beams are connected or switchable to each transponder and TT&C function. In its application, Hughes states that its EchoStar XVII satellite network has fifteen primary gateways and two backup gateways.<sup>3</sup> Hughes has provided information on the interconnectivity between the fifteen primary gateway beams, for a total of 500 interconnections. Although we generally require applicants to provide technical information regarding interconnectivity for all antenna beams in its systems, Hughes has stated that providing information on the remaining beams in its system would be unduly burdensome. Hughes also states that such information is unnecessary for purposes of beam interconnectivity analysis because these beams are associated with spare/redundant capacity associated with two backup gateways.<sup>4</sup> In order to show the beam interconnectivity for the two backup gateway beams in the Schedule S form, there would be 1,000 additional beam interconnections. We have reviewed the information Hughes provided in its application and determined that it is sufficient to allow us to analyze Hughes' beam capacity. Accordingly, we grant Hughes a partial waiver of Section 25.114(c)(4)(iii) of our rules. 47 C.F.R. § 25.114(c)(4)(iii). If Hughes brings the two backup gateways into use, Hughes must file with the Commission within 10 business days the interconnectivity information for these two gateways.

8. EchoStar XVII's operations shall not cause harmful interference to any non-Federal station authorized to operate on a primary basis in the 28.6-29.1 GHz frequency band, must accept any interference from these systems, and must terminate operations immediately upon notification of harmful interference. Further, such operations are subject to any rules the Commission adopts governing GSO FSS satellite operations in spectrum designated for NGSO FSS primary use.

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<sup>2</sup> Footnote US255 to the Table of Frequency Allocations, 47 C.F.R. § 2.106, requires that the PFD across the 200 megahertz of the 18.6-18.8 GHz band not exceed -95 dBW/m<sup>2</sup>. Hughes proposes to operate the EchoStar XVII space station with a maximum PFD of -119 dBW/m<sup>2</sup>/MHz in this band. This level corresponds to a maximum PFD of -95.99 dBW/m<sup>2</sup>/200 MHz. Consequently, EchoStar XVII's proposed operations meet the PFD limit in US255. EchoStar XVII's operations also meet other PFD limits for transmitting Ka-band space stations. *See* 47 C.F.R. §§ 25.138(a)(6), 25.208(c), 25.208(d) and 25.208(e).

<sup>3</sup> SAT-LOI-20091110-00119, Narrative at 13, incorporated by reference.

<sup>4</sup> *Id.* at 13-14.

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9. The EchoStar XVII space station is added to the Ka-band Permitted List at the 107.1° W.L. orbital location for the 28.35-28.6 GHz and 29.25-30.0 GHz (Earth-to-space), and the 18.3-18.8 GHz and 19.7-20.2 GHz (space-to-Earth) frequency bands; however, until Hughes has completed coordination pursuant to Footnote US334 to the United States Table of Frequency Allocations, 47 C.F.R. § 2.106, and both the FCC and the National Telecommunications and Information Administration have approved the coordination, U.S.-licensed earth stations shall not communicate with the EchoStar XVII space station in the 18.3-18.8 GHz and the 19.7-20.2 GHz frequency bands. *See* Revision of Part 25 Establishment of a Permitted List Procedure for Ka-band Space Stations, *Declaratory Order*, 25 FCC Rcd 1542 (2010).


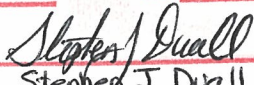
10. The EchoStar XVII space station must be constructed, launched, and placed into operation in accordance with the milestone schedule in Section 25.164 of the Commission's rules. 47 C.F.R. § 25.164. The Commission has previously determined that Hughes met the first three implementation milestones for the EchoStar XVII space station. *See* Policy Branch Information, *Public Notice*, Report No. SAT-00746, DA 10-2427 (released Dec. 29, 2010) (stating Hughes satisfied the first milestone for EchoStar XVII); and *Public Notice*, Report No. SAT-00750, DA 11-75 (stating Hughes satisfied the second and third implementation milestones for EchoStar XVII). Accordingly, Hughes must launch and operate the space station by May 5, 2015. Failure to meet this date renders this authorization null and void.

11. Within 30 days of the grant of this authorization, Hughes must meet one of the following conditions: 1) file a bond with the Commission in the amount of \$750,000 pursuant to the procedures set forth in Section 25.165 of the Commission's rules; or 2) file a statement from the International Fidelity Insurance Company that it will be bound for this license under the bond previously submitted for EchoStar XVII, bond number ILIFSU0531957; or 3) submit a certification that Hughes has satisfied the launch and operation milestone for EchoStar XVII. Failure to do so renders this authorization null and void.

12. The license term for the EchoStar XVII space station, Call Sign S2753, is 15 years and will begin to run on the date that Hughes certifies to the Commission that the satellite has been successfully placed into orbit and its operation fully conforms to the terms and conditions of this authorization. Hughes is directed to file this certification within 5 business days of the EchoStar XVII commencing operations at the 107.1° W.L. orbital location.

13. Hughes is afforded 30 days from the date of the release of this authorization to decline it, as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization, as conditioned.

14. This authorization 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 public notice indicating this action was taken.

 <b>GRANTED*</b> International Bureau 3 *with conditions	<b>File #</b> SAT-LOA-20120424-00075
	<b>Call Sign</b> S2753 <b>Grant Date</b> 06/12/12 (or other identifier)
	<b>From</b> see conditions <b>Term Dates</b> see conditions <b>To:</b> conditions
	<b>Approved:</b>  Stephen J. Duall Chief, Satellite Policy Branch

9-16. Name of Contact Representative

Name:	Stephen D. Baruch/David S. Keir	Phone Number:	202-429-8970
Company:	Lerman Senter PLLC	Fax Number:	202-293-7783
Street:	2000 K Street, NW Suite 600	E-Mail:	sbaruch@lermansenter.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20006 -
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.

- a.  
(N/A) a1. Earth Station  
 a2. Space Station

- b.  
 b1. Application for License of New Station  
(N/A) b2. Application for Registration of New Domestic Receive-Only Station  
(N/A) b3. Amendment to a Pending Application  
(N/A) b4. Modification of License or Registration  
(N/A) b5. Assignment of License or Registration  
(N/A) b6. Transfer of Control of License or Registration  
(N/A) b7. Notification of Minor Modification  
(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite  
  
 b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States  
 b10. Replacement Satellite Application - no new frequency bands  
 b11. Replacement Satellite Application - new frequency bands (Not eligible for streamlined processing)  
 b12. Petition for Declaratory Ruling to be Added to the Permitted List  
(N/A) b13. Other (Please specify)

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):

17c. Fee Classification    BNY – Space Station (Geostationary)

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

(a) Call sign of station:  
Not Applicable

19. If this filing is an amendment to a pending application enter:

(a) Date pending application was filed:

Not Applicable

(b) File number of pending application:

Not Applicable

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 checked="" type="checkbox"/> a. Fixed Satellite <input type="checkbox"/> b. Mobile Satellite <input type="checkbox"/> c. Radiodetermination Satellite <input type="checkbox"/> d. Earth Exploration Satellite <input type="checkbox"/> e. Direct to Home Fixed Satellite <input type="checkbox"/> f. Digital Audio Radio Service <input type="checkbox"/> g. Other (please specify)</p>	
<p>21. STATUS: Choose the button next to the applicable status. Choose only one. <input type="radio"/> Common Carrier    <input checked="" type="radio"/> Non-Common Carrier</p>	<p>22. If earth station applicant, check all that apply. Not Applicable</p>
<p>23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities: <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). <input type="checkbox"/> a. C-Band (4/6 GHz)    <input type="checkbox"/> b. Ku-Band (12/14 GHz) <input checked="" type="checkbox"/> c. Other (Please specify upper and lower frequencies in MHz.) Frequency Lower: 18300.0000    Frequency Upper: 30000.0000    (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.

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

26. TYPE OF EARTH STATION FACILITY: Not Applicable

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an "X" in the box(es) next to all that apply.) Not Applicable

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.



<p>29. Is the applicant a foreign government or the representative of any foreign government?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>30. Is the applicant an alien or the representative of an alien?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>31. Is the applicant a corporation organized under the laws of any foreign government?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>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.</p>	

**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

Question 35

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

Question 36

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.

Yes  No

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

Yes  No

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.

Yes  No

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. Question 40

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.)

Application for launch/operate authorization for EchoStar XVII (f/k/a/ SPACEWAY 4 and Jupiter 1) Ka-band FSS operations. The technical proposal is unchanged from LOI authorization issued for EchoStar XVII in File No. SAT-LOI-20091110-00119 (Stamp Grant May 5, 2010). See Exhibit Q43.

Exhibit Q43

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)      Limited Liability Company

45. Name of Person Signing  
Steven Doiron

46. Title of Person Signing  
Senior Director, Regulatory Affairs

47. Please supply any need attachments.

1: Question 24

2:

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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