

S2834 SAT-MOD-20171204-00163 IB2017003348  
Hughes Network Systems, LLC  
EchoStar 19

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File Number: SAT-MOD-20171204-00163



File # SAT-MOD-20171204-00163

Call Sign S2834 Grant Date 01/18/18

(or other identifier)

Term Dates see

From 01/18/18

To: conditions

Approved:

*Stephen J. Duall*

Stephen J. Duall  
Chief, Satellite Policy Branch

Approved by OMB  
3060-0678

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:

Modification of Jupiter 2 to Extend Coverage to USVI

#### 1-8. Legal Name of Applicant

Name:	Hughes Network Systems, LLC	Phone Number:	301-428-5893
DBA Name:		Fax Number:	301-428-2818
Street:	11717 Exploration Lane	E-Mail:	jennifer.manner@echostar.com
City:	Germantown	State:	MD
Country:	USA	Zipcode:	20876 -
Attention:	Jennifer A. Manner		

**ATTACHMENT TO GRANT**  
 Hughes Network Systems, LLC  
 IBFS File No. SAT-MOD-20171204-00163

<b>IBFS File No(s):</b>	SAT-MOD-20171204-00163	<div>GRANTED With Conditions</div> <div></div> <div>International Bureau Satellite Division</div>
<b>Licensee/Grantee:</b>	Hughes Network Systems, LLC	
<b>Call Sign:</b>	S2834 <sup>1</sup>	
<b>Satellite Name:</b>	Jupiter 2 (aka Jupiter 97W and Hughes XIX)	
<b>Orbital Location: (required station-keeping tolerance)</b>	97.1° W.L. (+/- 0.05 degrees)	
<b>Administration:</b>	United States of America	
<b>Nature of Service:</b>	Fixed-Satellite Service	
<b>Scope of Grant:</b>	Extend coverage of Jupiter 2 to include the United States Virgin Islands	
<b>Previous Grant(s):</b>	Authority to construct, deploy, and operate Jupiter 2 (also known as Jupiter 97W and Hughes XIX) to provide fixed satellite service from the 97.1° W.L. orbital location. IBFS File No. SAT-LOA-20160624-00061 (granted Sept. 15, 2016)	
<b>Service Area(s):</b>	See IBFS File No. SAT-MOD-20171204-00163 (Exhibit 1 at 2-3); See also IBFS File No. SAT-MOD-20141210-00127 (Sched S Tech Report at Item S6; Attachment at A.2)	
<b>Frequencies:</b>	<div>18.3-18.8 GHz and 19.7-20.2 GHz (space-to-Earth) 28.35-28.6 GHz and 29.25-30.0 GHz (Earth-to-space) 27.85-28.35 GHz and 28.6-29.1 GHz (Earth-to-space) on secondary basis 18.8-19.3 GHz (space-to-Earth) on non-interference basis</div> <div>Telemetry, Tracking &amp; Command: 19701 MHz and 19703 MHz (space-to-Earth) and 28351.5 MHz and 28353.5 MHz (Earth-to-space) 20199 MHz (space-to-Earth) transmission of beacon signal 29998.5 MHz (Earth-to-space) received transmissions for autotracking</div>	
<b>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:</b>		
<div>1. Hughes must prepare all necessary information as may be required for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, coordination, due diligence, and notification procedures of this space station, in or other appropriate procedures under the ITU Radio Regulations. Hughes will be held responsible for all cost recovery fees associated with ITU filings. No protection from interference caused by radio stations authorized by administrations is guaranteed unless coordination, notification, or other appropriate procedures are timely completed or, with respect to individual administrations, coordination agreements are successfully completed. Any radio station authorization for which coordination or other appropriate procedures have not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments of other administrations, 47 CFR § 25.111(b).</div> <div>2. In connection with the provision of service in any particular country, Hughes is obliged to comply with the applicable laws, regulations, rules, and licensing procedures of that country.</div> <div>3. Hughes’s operations must comply with all coordination agreements reached between the United States and other administrations.</div> <div>4. Jupiter 2 must be maintained with an east/west longitudinal station-keeping tolerance of ±.05 degrees of the</div>		

<sup>1</sup> IBFS generated a new call sign, S2968, for this application. Since the application is for the same space station as previously authorized under call sign S2834, we have changed the call sign associated with this application and authorization to S2834 in order to facilitate tracking of the licensing history of the space station.

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Hughes Network Systems, LLC  
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97.1° W.L. orbital location.

5. As a non-conforming user in the 18.8-19.3 GHz frequency band, Hughes must accept any interference from any Federal geostationary-satellite orbit (GSO) FSS system, Federal non-GSO (NGSO) FSS system, or non-Federal NGSO FSS system authorized to use the 18.8-19.3 GHz frequency band. In addition, Hughes must not cause harmful interference to any Federal GSO FSS system, Federal NGSO FSS system, or non-Federal NGSO FSS system authorized in this band, and must immediately cease operations upon notification of such harmful interference.
6. Hughes must coordinate its operations in the 18.3-19.3 GHz and 19.7-20.2 GHz frequency bands with U.S. Federal systems, including Federal operations to earth stations in foreign countries, in accordance with footnote US334 to the United States Table of Frequency Allocations, 47 CFR § 2.106.
7. The power flux-density (PFD) at the Earth's surface produced by the emissions from the Jupiter 2 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 must not exceed a level of -121.1 dBW/m<sup>2</sup>/MHz at any angle of arrival.<sup>2</sup> In addition, the operation of associated U.S.-licensed earth stations in the 28.35-28.6 GHz and 29.25-30.0 frequency bands must comport with the applicable power density limits set forth in Sections 25.138 of the Commission's rules, 47 CFR § 25.138. These uplink limits must not be exceeded unless Hughes coordinates the non-conforming operations of U.S.-licensed GSO FSS space stations within 6 degrees of 97.1° W.L. as provided in Section 25.138. Non-conforming operation must also be coordinated with respect to those operations of non-U.S.-licensed space stations within 6 degrees of 97.1° involving approved communications with U.S. earth stations.
8. Hughes's operations in the 27.85-28.35 GHz frequency band are on a secondary basis with respect to LMDS until the provisions adopted in FCC 16-89 go into force. After that, communications between U.S.-licensed earth stations and Jupiter 2 in this band are secondary with respect to Upper Microwave Flexible Use Service (UMFUS) operations, except for FSS operations associated with earth stations authorized pursuant to 47 CFR § 25.136.
9. Hughes's operations in the 28.6-29.1 GHz frequency band must not cause harmful interference to any non-Federal station authorized to operate in this band on a primary basis, must accept any interference from these systems, and must terminate operations immediately upon notification of harmful interference.
10. The Jupiter 2 satellite network must take into consideration the earth station coordination obligations for shared bands. *See* 47 CFR §§ 25.203, 25.258.
11. Hughes's request for a waiver of Sections 25.114(c)(4)(i), (ii), and (v) of the Commission's rules, 47 CFR §§ 25.114(c)(4)(i), (ii), (v), to the extent necessary to provide antenna beam information for representative beams in lieu of replicating the beam information for additional, identical beams, IS GRANTED. We conclude that a waiver is warranted in this instance because the representative beam information, when combined with the antenna gain contour information Hughes provided under Section 25.114(c)(4)(vii)(C) of the Commission's rules, 47 CFR § 25.114(c)(4)(vii)(C), is sufficient to fulfill the relevant informational requirements.
12. Hughes's request for a waiver of Section 25.210(i)(I) of the Commission's rules, 47 CFR § 25.210(i)(I), IS GRANTED. Section 25.210(i)(I) requires space station antennas used for FSS operation to provide cross-polarization isolation of at least 30 dB within the primary coverage area. The Jupiter 2 antennas that will

<sup>2</sup> Footnote US255 to the United States Table of Frequency Allocations, 47 CFR § 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>/MHz in this band. This level corresponds to a maximum PFD of -98.1 dBW/m<sup>2</sup>/200 MHz. Consequently, Jupiter 2's proposed operations meet the PFD limit in US255. Jupiter 2's operations also meet other PFD limits for transmitting Ka-band space stations. *See* 47 CFR § 25.138(a)(5), 25.208(c), 25.208(d), and 25.208(e).

**ATTACHMENT TO GRANT**  
Hughes Network Systems, LLC  
IBFS File No. SAT-MOD-20171204-00163

communicate with end users are designed to provide a minimum cross-polarization isolation of 21.5 dB for both transmit and receive beams.<sup>3</sup> Hughes states that this shortfall will not impact the interference to systems other than its own, and that it has taken this factor into account in its link budget calculations.<sup>4</sup> We agree that non-compliance with Section 25.210(i)(1) in this instance will not result in a significant increase in interference to other systems. Consequently, we grant the requested waiver. As a condition of this waiver, Hughes must not claim greater protection from interference from other radiocommunication systems operating in accordance with the Commission's rules than if its antennas complied with Section 25.210(i)(1).

13. Nothing in this grant changes the expiration date for the license term of Jupiter 2, Call Sign S2834, which is March 24, 2032.

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.

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.

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).

<b>Action Date:</b>	January 18, 2018
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<b>Term Dates</b>	<b>From:</b> January 18, 2018	<b>To:</b> see conditions
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**Approved:**



Stephen J. Duall  
Chief, Satellite Policy Branch

<sup>3</sup> IBFS File No. SAT-MOD-20141210-00127, Space Station Modification Application at 14 n.28.

<sup>4</sup> *Id.* at 14-15.

9-16. Name of Contact Representative

<b>Name:</b>	Jennifer A. Manner	<b>Phone Number:</b>	301-428-5893
<b>Company:</b>	Hughes Network Systems, LLC	<b>Fax Number:</b>	301-428-2818
<b>Street:</b>	11717 Exploration Lane	<b>E-Mail:</b>	jennifer.manner@echostar.com
<b>City:</b>	Germantown	<b>State:</b>	MD
<b>Country:</b>	USA	<b>Zipcode:</b>	20876-
<b>Attention:</b>		<b>Relationship:</b>	

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 checked="" 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 type="radio"/> Other (please explain):</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: S2834</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:</p> <p>   SATLOA2016062400061</p>

# 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</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 type="checkbox"/> g. Other (please specify)</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: 18300      Frequency Upper: 30000      (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?  
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.

☐ Yes ☒ No

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>	<input type="radio"/> Yes <input checked="" type="radio"/> No
<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>	<input type="radio"/> Yes <input checked="" type="radio"/> No
<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>	<input type="radio"/> Yes <input checked="" type="radio"/> No
<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.)

Seeking minor modification to permit EchoStar XIX aka JUPITER 2 to extend service coverage to the US Virgin Islands. 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

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  
Jennifer A. Manner

—>

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

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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