

S2834 SAT-MOD-20141210-00127 IB2014002389  
Hughes Network Systems, LLC  
JUPITER 97W



File # SAT-MOD-20141210-00127

Call Sign S2834 Grant Date 06/23/15  
(or other identifier)

Term Dates

From \_\_\_\_\_ To: \_\_\_\_\_

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

Approved by OMB  
3060-0678

Date & Time Filed: Dec 10 2014 7:50:21:140PM  
File Number: SAT-MOD-20141210-00127

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:  
December 2014 Modification of Letter of Intent for 97.1 W.L. (S2834)

1-8. Legal Name of Applicant

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

**Hughes Network Systems, LLC**  
**IBFS File No. SAT-MOD-20141210-00127**  
**Call Sign S2834**

The Letter of Intent of Hughes Network Systems, LLC (Hughes), IBFS File No. SAT-MOD-20141210-00127, requesting modification of the grant of access<sup>1</sup> to the United States market for the Jupiter 97W space station, IS GRANTED. Jupiter 97W will operate at the 97.1° W.L. orbital location under the authority of Papua New Guinea. Hughes is granted access to the U.S. market to provide Fixed-Satellite Service (FSS) using the 18.3-18.8 GHz and 19.7-20.2 GHz frequency bands (space-to-Earth) and the 28.35-28.6 GHz and 29.25-30.0 GHz frequency bands (Earth-to-space) on a primary basis; the 27.85-28.35 GHz and 28.6-29.1 GHz frequency bands (Earth-to-space) on a secondary basis; and the 18.8-19.3 GHz frequency band (space-to-Earth) on a non-interference basis. Hughes will perform telemetry, tracking, and command operations using the following center frequencies: 19701 MHz and 19703 MHz (space-to-Earth) and 28351.5 MHz and 28353.5 MHz (Earth-to-space). In addition, Jupiter 97W will transmit a beacon signal on the center frequency 20199 MHz (space-to-Earth) and will receive transmissions for autotracking on the center frequency 29998.5 MHz (Earth-to-space). This grant is subject to compliance with the terms, conditions, and technical specifications set forth in Hughes's Letter of Intent, the Federal Communications Commission's rules not waived herein, and the following conditions:

1. This grant does not include provision of any Direct-to-Home service to, from, or within the United States.
2. Jupiter 97W must be maintained with an east-west longitudinal station-keeping tolerance of  $\pm 0.05$  degrees of the 97.1° W.L. orbital location.
3. Hughes's operations must comply with all coordination agreements reached between Papua New Guinea and other Administrations.
4. 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.
5. 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 C.F.R. § 2.106.
6. The power flux-density (PFD) at the Earth's surface produced by the emissions from the Jupiter 97W 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

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<sup>1</sup> Hughes's grant of U.S. market access, through a Letter of Intent filing, is in the form of a reservation of spectrum and orbital position for eventual use to communicate with U.S. earth stations. *See Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States*, IB Docket No. 96-111, Report and Order, 12 FCC Rcd 24094, 24173-74, ¶¶ 184-85, 188 (1997).

<sup>2</sup> Footnote US255 to the United States 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 Jupiter 97W space station with a maximum PFD of -121.1 dBW/m<sup>2</sup>/MHz in this band. This level corresponds to a

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29.25-30.0 GHz frequency bands must comport with the applicable power density limits set forth in Section 25.138 of the Commission's rules, 47 C.F.R. § 25.138. These uplink limits must not be exceeded unless Hughes coordinates the non-conforming operation with the 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° W.L. involving approved communications with U.S. earth stations.

7. Hughes's operations in the 27.85-28.35 GHz frequency band must be on a secondary basis and limited to gateway earth station operations only.<sup>3</sup> This band is designated on a primary basis to the Local Multipoint Distribution Service (LMDS). Accordingly, Hughes must accept any interference from authorized LMDS operations in the 27.85-28.35 GHz frequency band. In addition, Hughes must not cause harmful interference to LMDS stations authorized in the 27.85-28.35 GHz frequency band, and must immediately cease operations upon notification of such harmful interference.

8. 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.

9. Hughes, when designing its Jupiter 97W satellite network, is reminded to take into consideration the earth station coordination obligations for shared bands. *See* 47 C.F.R. §§ 25.203, 25.258.

10. Hughes's request for a waiver of Sections 25.114(c)(4)(i), (ii), and (v) of the Commission's rules, 47 C.F.R. §§ 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 C.F.R. § 25.114(c)(4)(vii)(C), is sufficient to fulfill the relevant informational requirements.

11. Hughes's request for a waiver of Section 25.210(i)(1) of the Commission's rules, 47 C.F.R. § 25.210(i)(1), IS GRANTED. Section 25.210(i)(1) 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 97W antennas that will communicate with end users are designed to provide a minimum cross-polarization isolation of 21.5 dB for both transmit and receive beams.<sup>4</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>5</sup> We agree that non-compliance with Section 25.210(i)(1) in this instance

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maximum PFD of -98.1 dBW/m<sup>2</sup>/200 MHz. Consequently, Jupiter 97W's proposed operations meet the PFD limit in US255. Jupiter 97W'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), 25.208(e).

<sup>3</sup> *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, CC Docket No. 92-297, First Report and Order, 11 FCC Rcd 19005, 19025, ¶ 45 (1996).

<sup>4</sup> Narrative at 14 n.28.

<sup>5</sup> *See* Narrative at 14-15, Technical Exhibit at 21.

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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).


12. This grant will be null and void with no further action on the Commission's part if the Jupiter 97W satellite is not constructed, launched, and placed into operation at the 97.1° W.L. orbital location in accordance with the remaining milestone deadlines set forth in the original Jupiter 97W grant:<sup>6</sup>

a. Commence construction by July 27, 2015;

b. Launch and begin operations by July 27, 2017.

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

14. This action is taken pursuant to 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, 1.115, may be filed within 30 days of the date of the public notice indicating that this action was taken.

 <b>GRANTED*</b> International Bureau *with conditions	<b>File #</b> <u>SAT-MOD-20141210-00127</u>
	<b>Call Sign</b> <u>S2834</u> <b>Grant Date</b> <u>06/23/15</u> (or other identifier)
	<b>Term Dates</b> <b>From</b> _____ <b>To:</b> _____
	<b>Approved:</b> <u>Stephen J. Duall</u> Stephen J. Duall Chief, Satellite Policy Branch

<sup>6</sup> See *Hughes Network Systems, LLC*, Stamp Grant, IBFS File No. SAT-LOI-20110809-00148, Condition 13 (granted July 27, 2012). The Satellite Division previously determined that Hughes had met the first two milestone requirements associated with its grant for the Jupiter 97W space station. See *Policy Branch Information, Actions Taken*, Public Notice, DA 14-1443, 29 FCC Rcd 11758 (rel. Oct. 3, 2014). We note that Condition 10 of the original grant for Jupiter 97W was added in error. Hughes has not requested that we include the Jupiter 97W space station on the Commission's Permitted Space Station List, and we have not done so.

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>	301-775-1449
<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>	Jennifer A. Manner	<b>Relationship:</b>	Other

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



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 checked="" type="radio"/> Common Carrier    <input checked="" type="radio"/> Non-Common Carrier</p>	<p>22. If earth station applicant, check all that apply. <input type="checkbox"/> Using U.S. licensed satellites <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: <input checked="" 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.

- 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.	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Exhibit E

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

Exhibit B

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 C

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.

Exhibit D

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

Technical Exhibit

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? Papua New Guinea

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.)

See attachment.

Narrative

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

JUPITER 97W GXT

File

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  
Steven Doiron

→

46. Title of Person Signing  
Senior Director, 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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