

S2888 SAT-MOD-20150415-00022 IB2015000699  
DIRECTV Enterprises, LLC  
DIRECTV KU-76W



\*with conditions

File # SAT-MOD-20150415-00022

Call Sign S2888 Grant Date 09/17/15

(or other identifier)

Term Dates

From 09/17/15

To:

Approved:

*Stephen J. Duall*

Stephen J. Duall

Chief, Satellite Policy Branch

Approved by OMB  
3060-0678

Date & Time Filed: Apr 15 2015 10:41:12:230AM  
File Number: SAT-MOD-20150415-00022

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD – MAIN FORM

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FCC 312 MAIN FORM FOR OFFICIAL USE ONLY

#### APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

DIRECTV KU-76W Minor Mod

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

Name: DIRECTV Enterprises, LLC

Phone Number:

301-663-0053

DBA  
Name:

Fax Number:

240-358-0569

Street: 2230 E. Imperial Hwy  
CA/LAI/N340

E-Mail:

jwengryniuk@directv.com

City: El Segundo

State:

CA

Country: USA

Zipcode:

90245

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Attention: Mr Jack M Wengryniuk

**Attachment to Grant**  
**DIRECTV Enterprises, LLC**  
**IBFS File No. SAT-MOD-20150415-00022**  
**Call Sign S2888**

The application of DIRECTV Enterprises, LLC (DIRECTV), IBFS File No. SAT-MOD-20150415-00022, as supplemented,<sup>1</sup> to modify the authorization for its DIRECTV KU-76W geostationary-satellite orbit space station (Call Sign S2888) is GRANTED. Accordingly, DIRECTV is authorized to construct, launch, and operate DIRECTV KU-76W, as modified, to provide Fixed-Satellite Service (FSS) in the 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space) frequency bands at the 76.2° W.L. orbital location instead of its previously authorized 76.0° W.L. orbital location. DIRECTV is also authorized to conduct Telemetry, Tracking, and Command (TT&C) functions necessary to operate DIRECTV KU-76W at the 76.2° W.L. orbital location using the following center frequencies: 11.70175 GHz and 11.70275 GHz (space-to-Earth); and 14.0025 GHz and 14.498 GHz (Earth-to-space). This authorization must be in accordance with the technical specifications set forth in DIRECTV's application, as supplemented, Federal Communication Commission rules not waived herein, and the following conditions:

1. Except to the extent modified herein, DIRECTV must operate DIRECTV KU-76W pursuant to the terms and conditions contained in IBFS File No. SAT-LOA-20121101-00190 (granted April 18, 2013).
2. DIRECTV'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 FSS space station antennas to be designed to meet a cross-polarization isolation of 30 dB within the primary coverage area of the antenna. The DIRECTV KU-76W antennas have been designed to meet a minimum cross-polarization requirement of 27 dB. DIRECTV states that its cross-polarization interference is an intra-system design issue that does not affect inter-system coordination and therefore will not affect other Ku-band satellite systems, and that use of digital modulation with forward error correction coding on both polarization senses reduces the system sensitivity to cross-polarization interference. DIRECTV further states that polarization isolation, directivity and antenna implementation losses have been jointly optimized to yield the best overall performance, and that the expected level of cross-polarization isolation and resulting cross-polarization interference accounts for a small fraction of the overall total link noise. DIRECTV also states that a minimum isolation of 27 dB is more than sufficient to avoid excessive levels of intra-system interference. This waiver is based upon a finding that this shortfall will not produce a significant increase in interference, except to the space station itself, and will not adversely affect any other operator. As a condition to the grant of this waiver, DIRECTV must claim no more protection from interference from other licensed radio-communication systems operating in accordance with the Commission's rules than if its antennas met Section 25.210(i) of the rules.
3. *17/24 GHz Broadcasting-Satellite Service (BSS) Capacity.* DIRECTV is also granted authority to construct and launch this space station with the capability of operating in the 24.75-25.25 GHz (Earth-to-space) and 17.3-17.8 GHz (space-to-Earth) frequency bands. DIRECTV has not sought and is not authorized to operate the 17/24 GHz BSS payload at the 76.2° W.L. orbital location. Grant of construction and launch authority for this 17/24 GHz BSS capacity

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<sup>1</sup> See Letter to Marlene H. Dortch, Secretary, F.C.C., from William M. Wiltshire, Counsel for DIRECTV Enterprises, LLC (June 15, 2015) (June 15 Letter).

**Attachment to Grant**  
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**IBFS File No. SAT-MOD-20150415-00022**  
**Call Sign S2888**

does not convey to DIRECTV any status under the Commission's first-come, first-served processing framework with respect to the 17/24 GHz BSS capacity on this satellite.


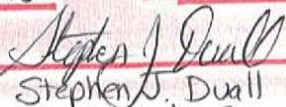
- a. Construction and launch of the satellite without obtaining operational authority for the 17/24 GHz BSS capacity is at DIRECTV's own risk.
- b. Grant of authority to construct and launch the 17/24 GHz BSS payload is subject to the rules adopted in the Commission's rulemaking in IB Docket No. 06-123 and any requirements subsequently adopted therein.
- c. DIRECTV's request for a partial waiver of the requirement to provide interference analyses, pursuant to Section 25.140(b) of the Commission's rules, 47 C.F.R. § 25.140(b), is granted as conditioned. Section 25.140(b) requires an applicant for a 17/24 GHz network to demonstrate the compatibility of its proposed network with any current or future authorized 17/24 GHz BSS space station within four degrees of the applicant's proposed 17/24 GHz BSS space station. Because DIRECTV is not seeking operational authority for the 17/24 GHz payload at this time, it did not provide an analysis tailored to a specific orbital location. DIRECTV did, however, submit a set of worst-case calculations, which show that the maximum PFD on the Earth's surface from the transmission in the 17 GHz frequency band is lower than the lowest value specified in the regional PFD limitations set forth in Section 25.208(w), and lower than the lowest values specified for the 17.7-17.8 GHz band in 25.208(c), of the Commission's rules. In view of these circumstances, we find that waiver would not undermine the policy objective of the rule and that requiring DIRECTV to provide the requisite interference analyses at this time, would not serve the public interest. If DIRECTV seeks operational authority for the 17/24 GHz payload, DIRECTV will be required to submit an interference analysis that is specific to the requested orbital location, as required by the rule.
- d. DIRECTV's request for partial waiver of the requirement to provide predicted transmitting antenna off-axis gain information and associated PFD calculations pursuant to Sections 25.264(a)-(b) of the Commission's rules, 47 C.F.R. § 25.264(a)-(b), is granted as conditioned. Sections 25.264(a)-(b) require each applicant for a 17/24 GHz BSS space station license to submit with its application predicted transmitting antenna off-axis gain information and associated power flux density (PFD) calculations based on this information to show that its proposed operations would not exceed the applicable coordination trigger at the location of any prior-filed U.S. DBS space station. Sections 25.264(a)-(b) are designed to mitigate the potential for space path interference to DBS operations. Because DIRECTV is not seeking operational authority for the 17/24 GHz payload at this time, it did not provide an analysis tailored to a specific orbital location. Further, DIRECTV states that although it did not provide the predicted transmitting antenna off-axis gain information required by the rule at this time, it did submit a set of worst-case calculations demonstrating that for any orbital separation of 0.074 degrees or greater, the satellite's far off-axis PFD is below the

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coordination trigger established under the Commission's rules. DIRECTV further committed to undertaking tests of the 17 GHz antenna prior to launch that are necessary prerequisite to supplying measured transmitting antenna off-axis gain information and associated PFD calculations required under other provisions of Sections 25.264. In view of these circumstances, we find that waiver would not undermine the policy objective of the rule and that requiring DIRECTV to provide predicted transmitting antenna off-axis gain information and associated PFD calculations at this time, would not serve the public interest. In the event DIRECTV seeks operational authority for the 17/24 GHz payload, DIRECTV will be required to fully comply with the information requirements of Section 25.264.<sup>2</sup>

4. DIRECTV is afforded thirty days from the date of release of this grant and authorization to decline this authorization as conditioned. Failure to respond within this period will constitute formal acceptance of the authorization as conditioned.

5. 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 upon release. 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> SAT-MOD-20150415-00022
	<b>Call Sign</b> S2888 <b>Grant Date</b> 09/17/15 (or other identifier)
	<b>Term Dates</b> <b>From</b> 09/17/15 <b>To:</b>
	<b>Approved:</b>  Stephen J. Duall Chief, Satellite Policy Branch

<sup>2</sup> This information will include the measured data and associated PFD calculations required by Sections 25.264(c)-(d) and, depending upon when such a future application is filed, may also include the predicted data and associated PFD calculations required by Sections 25.264(a)-(b). DIRECTV states that it understands that the present waiver would not extend to the requirement for measured data and related calculations that would apply should DIRECTV ever seek operational authority for this payload, and that in any case it fully intends to conduct such measurements prior to launch of the space station. See June, 2015 Letter.

9-16. Name of Contact Representative

<b>Name:</b>	William M. Wiltshire	<b>Phone Number:</b>	202-730-1350
<b>Company:</b>	Harris, Wiltshire & Grannis LLP	<b>Fax Number:</b>	202-730-1301
<b>Street:</b>	1919 M Street NW Suite 800	<b>E-Mail:</b>	wwiltshire@hwglaw.com
<b>City:</b>	Washington	<b>State:</b>	DC
<b>Country:</b>	USA	<b>Zipcode:</b>	20036-
<b>Attention:</b>	William M. Wiltshire	<b>Relationship:</b>	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.

- ☐ 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: S2888</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:</p> <p>(b) File number: SATLOA2012110100190</p>



# TYPE OF SERVICE

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:

- ☒ a. Fixed Satellite
- ☐ b. Mobile Satellite
- ☐ c. Radiodetermination Satellite
- ☐ d. Earth Exploration Satellite
- ☒ e. Direct to Home Fixed Satellite
- ☐ f. Digital Audio Radio Service
- ☐ g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.

- ☐ Common Carrier
- ☒ Non-Common Carrier

22. If earth station applicant, check all that apply.

- ☐ Using U.S. licensed satellites
- ☐ Using Non-U.S. licensed satellites

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

- ☐ Connected to a Public Switched Network
- ☐ Not connected to a Public Switched Network
- ☒ N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- ☐ a. C-Band (4/6 GHz)
- ☒ b. Ku-Band (12/14 GHz)
- ☐ c. Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower:      Frequency Upper: (Please specify additional frequencies in an attachment)

#### 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

Waiver Request

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

<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>	<p><input type="radio"/> Yes    <input checked="" type="radio"/> No</p>
<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>	<p><input type="radio"/> Yes    <input checked="" type="radio"/> No</p>
<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>	<p><input type="radio"/> Yes    <input checked="" type="radio"/> No</p>
<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.</p> <p style="text-align: right;">Ownership Info</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.)

DIRECTV Enterprises, LLC requests modification of its existing authorization for a Ku-band space station at 76 WL to conform to the parameters of the satellite currently under construction.

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

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  
Romulo Pontual

—>

46. Title of Person Signing  
Executive Vice President Chief Technology Officer

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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