

S2796 SAT-LOA-20090807-00085 IB2009002962
DIRECTV Enterprises, LLC
DIRECTV RB-2A

Approved by OMB
3060-0678

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Callsign/Satellite ID: S2796

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:
SAT-LOA-New Reverse Band 17/24GH RB2A

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
Attention:	Jack Wengryniuk		-

GRANTED IN PART (CONSTRUCTION + LAUNCH) ; DEFERRED IN PART (OPERATION)



File # SAT-LOA-20090807-00085

Call Sign S2796 Grant Date 12/15/09
(or other identifier)

Term Dates

From To:

Approved:

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

* subject to conditions

DIRECTV Enterprises LLC
IBFS File Nos. SAT-LOA-20090807-00086, Call Sign S2797
SAT-LOA-20090807-00085, Call Sign S2796
Attachment – Conditions of Authorization
December 15, 2009

The application of DIRECTV Enterprises LLC (DIRECTV), IBFS File No SAT-LOA-20090807-00086,¹ to construct, launch, and operate a Ka-band geostationary orbit (GSO) space station, DIRECTV 12, Call Sign S2797, at the 102.765° W.L. orbital location IS GRANTED. Accordingly, DIRECTV is authorized to operate the DIRECTV 12 space station at the 102.765° W.L. orbital location using the 18.3-18.8 GHz and 19.7-20.2 GHz (space-to-Earth), and the 28.35-28.6 GHz, 29.25-29.5 GHz, and 29.5-30.0 GHz (Earth-to-space) frequency bands to provide Fixed-Satellite Service (FSS), in accordance with the terms, conditions, and technical specifications set forth in its application, this Attachment, and the Federal Communications Commission's (Commission's) Rules.

The application of DIRECTV, IBFS File No. SAT-LOA-20090807-00085,² to construct, launch, and operate a 17/24 GHz Broadcasting-Satellite Service (BSS) GSO space station, DIRECTV RB-2A, Call Sign S2796, at the 102.765° W.L. orbital location, which is offset 0.235° from the 103° W.L. location specified in Appendix F to the *17/24 GHz BSS Report and Order*, FCC 07-76, 22 FCC Rcd 8842 (rel. May 4, 2007), IS GRANTED in part and DEFERRED in part. The Ka-band (Call Sign S2797) and 17/24 GHz BSS (Call Sign S2796) space stations are contained on the same satellite. In light of the imminent launch of the DIRECTV 12/RB-2A satellite scheduled for the end of December 2009, we grant construction and launch authority for Call Sign S2796 and defer action on DIRECTV's request for operating authority for DIRECTV RB-2A (Call Sign S2796). Our grant of construction and launch authority is without prejudice to any action on DIRECTV's request for operating authority and any other remaining portions of its application. In addition, this partial grant is subject to conditions 1, 4, 5, 12, and 13 of this Attachment:

1. DIRECTV shall maintain the DIRECTV 12/RB-2A satellite within an east/west longitudinal station-keeping tolerance of ± 0.025 degrees of the assigned 102.765° W.L. orbital location.
2. DIRECTV 12 (Call Sign S2797) must begin providing service at the 102.765° W.L. orbital location in the Ka-band frequencies before the satellites it is replacing, DIRECTV 10 and SPACEWAY 1, discontinue service at that location.
3. DIRECTV's request for waiver of Section 25.210(i), of the Commission's rules, 47 C.F.R. § 25.210(i) with respect to the Ka-band frequencies on DIRECTV 12 (Call Sign

¹ The application was placed on public notice as accepted for filing on October 2, 2009. Policy Branch Information, Satellite Space Applications Accepted for Filing, *Public Notice*, Report No. SAT-00636 (rel. Oct. 2, 2009). No comments were filed.

² This application was placed on public notice as accepted for filing on October 2, 2009. Policy Branch Information, Satellite Space Applications Accepted for Filing, *Public Notice*, Report No. SAT-00636 (rel. Oct. 2, 2009). Comments were filed.

S2797), IS GRANTED as conditioned herein. Section 25.210(i) provides that, "Space station antennas in the Fixed-Satellite Service must be designed to provide cross-polarization isolation such that the ratio of the on axis co-polar gain to the cross-polar gain of the antenna in the assigned frequency band shall be at least 30 dB within its primary coverage area." The DIRECTV 12 antennas have been designed to meet a minimum cross-polarization requirement of 27 dB. We find that waiver in this instance will not produce a significant increase in interference, except to the applicant itself, and will not adversely affect any other operator. As a condition of the waiver, DIRECTV shall claim no more protection from interference from other licensed radiocommunication systems operating in accordance with the Commission's rules than if its antennas met Section 25.210(i) of the rules.

4. DIRECTV is granted a partial waiver of Section 25.283(c) of the Commission's rules, 47 C.F.R. § 25.283(c), for the DIRECTV 12/RB-2A satellite. Section 25.283(c) specifies that satellites must discharge all stored energy sources at end of life of the space station. DIRECTV states that four vessels aboard the DIRECTV 12/RB-2A satellite will not be fully depressurized at end of life. Two of the vessels are helium tanks used to maintain pressure in propellant tanks during the launch of the spacecraft. DIRECTV states that, at the end of the launch phase, these tanks and associated fuel lines will be permanently sealed, but will retain 200 grams of helium at a pressure of 1600 kilopascals (kPa) after sealing. The other two vessels contain the xenon propellant for the XIPS drives, which maneuver the satellite to a storage orbit at end of life. At end of life, approximately 2 kilograms of xenon will remain in each tank at a pressure of 150 kPa. DIRECTV argues that completely depressurizing the tanks presents a higher risk of accidental explosion than retaining low residual pressure in them. We find that the information submitted by DIRECTV is not sufficient to support a finding that the underlying purpose of Section 25.283(c) would be served by retaining pressure in the four vessels, rather than through a complete depressurization. However, given the imminent launch of the DIRECTV 12/RB-2A satellite, we grant a partial waiver of the rule because an undue hardship would result from either requiring modification of the satellite prior to launch, or from requiring the submission of additional documentation concerning available design options and the steps to be taken to review and implement those options. This action is without prejudice to possible future license requirements in connection with other spacecraft of the same manufacturing series.
5. DIRECTV is authorized to conduct telecommand functions of the DIRECTV 12/RB-2A satellite on the center frequencies of 29255 MHz and 29497 MHz, using left-hand circular polarization, within an assigned bandwidth of 1300 kHz at each frequency. DIRECTV is also authorized to transmit telemetry signals from the DIRECTV 12/RB-2A satellite on the center frequencies of 18302.25 MHz using right-hand circular polarization and 18302.75 MHz using left-hand circular polarization, within an assigned bandwidth of 106 kHz at each frequency. DIRECTV is further authorized to transmit a beacon signal from the DIRECTV 12/RB-2A satellite on the center frequency of 18302.25 MHz, using left-hand circular polarization, within an assigned bandwidth of 106 kHz.

6. DIRECTV is authorized to operate all of the Ka-band spot beams on DIRECTV 12 (Call Sign S2797) listed in its application at the 102.765° W.L. orbital location, except for the following five beams: A1B8, A2B3, A2B7, A4B9, and A4BD.³
7. With respect to its Ka-band (Call Sign S2797) space station, DIRECTV shall prepare all necessary information that may be required for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, international coordination, due diligence, and notification procedures for this space station, in accordance with the ITU Radio Regulations. DIRECTV shall be held responsible for all cost recovery fees associated with these ITU filings. 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 assignment with other Administrations. 47 C.F.R. § 25.111(b).
8. DIRECTV must coordinate all of its Ka-band downlink operations on DIRECTV 12 (Call Sign S2797) within the 18.3-18.8 GHz and 19.7-20.2 GHz frequency bands with U.S. Government systems, including Government operations to earth stations in foreign countries, in accordance with footnote US334 to the United States Table of Frequency Allocations (Table of Allocations), 47 C.F.R. § 2.106. Absent a coordination agreement pursuant to footnote US334 to the Table of Allocations, DIRECTV shall operate its Ka-band downlinks on a non-harmful interference basis with regards to operating U.S. Government systems within the 18.3-18.8 GHz and 19.7-20.2 GHz bands, and DIRECTV shall terminate immediately its Ka-band downlink operations in the event that such operations cause harmful interference into operating U.S. Government systems, and DIRECTV must accept interference from U.S. Government systems.
9. The power flux-density (PFD) at the Earth's surface produced by emissions from the DIRECTV 12 Ka-band space station (Call Sign S2797) for all atmospheric conditions, and for all methods of modulation shall not exceed a level of $-118 \text{ dBW/m}^2/\text{MHz}$.
10. DIRECTV's operations of its DIRECTV 12 Ka-band space station (Call Sign S2797) in the 18.3-18.8 GHz band (space-to-Earth) are not entitled to protection from co-primary terrestrial services until the period during which terrestrial Fixed Service stations remain co-primary has expired. 47 C.F.R. § 25.145(g).
11. The license term for DIRECTV's Ka-band FSS space station (Call Sign S2797) is 15 years, and will begin to run on the date that DIRECTV certifies to the Commission that the space station has been successfully placed into orbit and its operation fully conforms to the terms and conditions of this authorization. 47 C.F.R. § 25.121(a). DIRECTV shall file this certification with the Chief, Satellite Division, International Bureau, within ten business days of the space station commencing operations at its assigned orbital location.

³ These five beams are optimized for another orbital location. DIRECTV does not seek authority to operate these beams at this orbital location.

12. DIRECTV is afforded 30 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.
13. This action 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, 1.115, may be filed within 30 days of the date of the public notice indicating that this action was taken.

GRANTED IN PART (CONSTRUCTION+ LAUNCH); DEFERRED IN PART (OPERATION)



*subject to conditions

File # SAT-LOA-20090807-00085

Call Sign S2796 Grant Date 12/15/09
(or other identifier)

Term Dates

From _____ To: _____

Approved: _____

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

9-16. Name of Contact Representative

Name:	William M. Wiltshire	Phone Number:	202-730-1350
Company:	Wiltshire & Grannis LLP	Fax Number:	202-730-1301
Street:	1200 18th Street, NW	E-Mail:	wwiltshire@wiltshiregrannis.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20036
Attention:	William M. Wiltshire	Relationship:	Legal Counsel

CLASSIFICATION OF FILING

17. Choose the buttonnext to the classification that applies to thisfiling 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

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) Broadcast Satellite Service

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.
Not Applicable

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: 17300

Frequency Upper: 25150

(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.

- (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.

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.	Exhibit A

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
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.	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.	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.	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?
	☒ Yes ☐ No	☐ Yes ☒ No	

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 seeks authority to launch and operate DIRECTV RB-2A, the 17/24 GHz BSS portion of a new hybrid satellite to be located at the 102.765 WL orbital position.

Exhibit C

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 James Butterworth	46. Title of Person Signing Senior VP
47. Please supply any need attachments.	
1:	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).	

Completed Schedule S

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.