Date & Time Filed: Jun 30 2004 10:10:16:246PM
File Number: SAT-MOD-20040630-00128

GRANTED
International Bureau

File # SAT-MOD-20040630-00128 with attached conditions
Call Sign S2132 Grant Date Nov 4, 2004
(or other identifier)
Approved by OMB 3060-0678
From See Conditions See conditions
Approved: Chief Satellite Robert G. Nelson Engineering Branch

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD – MAIN FORM FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only

APPLICANT INFORMATION
Enter a description of this application to identify it on the main menu:
Spaceway Ka-Band Minor Modification 101 WL

1-8. Legal Name of Applicant

Name:	DIRECTV Enterprises, LLC	**Phone Number:**	310-726-4993
DBA Name:		**Fax Number:**	310-535-5323
Street:	2230 E. Imperial Hwy	**E-Mail:**	dapattillo@directv.com
City:	El Segundo	**State:**	CA
Country:	USA	**Zipcode:**	90245 –
Attention:	David A. Patillo		

Attachment
Conditions of Authorization
November 4, 2004

1. DIRECTV Enterprises LLC's ("DIRECTV") application, SAT-MOD-20040630-00128, Call Sign S2132, IS GRANTED.[1] Accordingly, DIRECTV is authorized to launch and operate its DIRECTV 8 Ka-band Fixed Satellite Service ("FSS") space station at the 100.85° W.L. orbit location, in the 18.3-18.8 GHz, 19.7-20.2 GHz, 28.35-28.6 GHz, 29.25-30.0 GHz frequency bands in accordance with the terms, conditions, and technical specifications set forth in its application, this Attachment, and the Federal Communications Commission's ("Commission") Rules.

2. DIRECTV's Ka-band system authorization is MODIFIED to reflect the orbital location assignment of 100.85° W.L. DIRECTV's DIRECTV 8 Ka-band FSS space station authorization[2] IS MODIFIED to reflect the deletion of authority to operate inter-satellite links also.

3. The DIRECTV 8 Ka-band FSS space station must be constructed, launched, and placed into operation in accordance with the technical parameters and terms and conditions of this authorization. Therefore, DIRECTV must launch and begin operations by June 25, 2005. Failure to meet this date shall render this authorization null and void. Hughes Communications Galaxy Inc. Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed Satellite Service and a Ku-band, Order and Authorization, 16 FCC Rcd 2470 (2001) ("*Hughes ISL/Milestone Authorization Order*").

4. Pursuant to Section 1.3 of the Commission's rules, 47 C.F.R. § 1.3, DIRECTV IS GRANTED a waiver of Section 25.202(g) of the Commission's rules, 47 C.F.R. § 25.202(g), to use the 14002-14004 MHz and 14496-14498 MHz bands for telecommand operations during transfer orbit for no longer than a 15-day period from the time that DIRECTV 8 is launched until it is established in a geostationary satellite orbit. Grant of this waiver is consistent with previous Commission actions.[3]

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[1] DIRECTV 8 will be a hybrid satellite, combining DBS and Ka-band payloads. *See* DIRECTV Enterprises, Application to Launch and Operate the DIRECTV 8 satellite, File No. SAT-RPL-20040630-00127, Call Sign S2632, granted November 4, 2004.

[2] *See* In the Matter of Hughes Communications Galaxy Inc. Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed Satellite Service and a Ku-band Broadcast Communications Satellite System, *Order and Authorization,* 13 FCC Rcd 1351 (1997) ("*Hughes Authorization Order*"); *See also* In the Matter of Hughes Communications Galaxy Inc. Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed Satellite Service and a Ku-band, *Order and Authorization,* 16 FCC Rcd 2470 (2001) ("*Hughes ISL/Milestone Authorization Order*"); and *See* also In the Matter of Hughes Communications Galaxy Inc. Application for Authority to Construct, Launch, and Operate a Ka-band Satellite System in the Fixed Satellite Service and a Ku-band, *Order and Authorization*, 16 FCC Rcd 12627 (2001).

[3] *See* In the Matter of DIRECTV Enterprises, LLC Application for Authority to Launch and Operate DIRECTV 7S (USABSS-18), *Order and Authorization*, 19 FCC Rcd 7754 (2004).

5. DIRECTV shall coordinate the frequency and power usage with all existing satellites in orbit, which use frequencies in the 14002-14004 MHz and 14496-14498 MHz bands, and which could be adversely affected by the TT&C operations of this space station.

6. DIRECTV shall coordinate all transfer orbit Telemetry, Tracking, and Control operations with other potentially affected in-orbit DBS or FSS operators.

7. We DISMISS DIRECTV's request for waiver of the full-frequency reuse requirements contained in Section 25.210(d)[4] of the Commission's rules with respect to two of its receive beams (Seattle and Atlanta) using right hand circular polarization ("RHCP") and two of its other receive beams (Castle Rock and New York) using left hand circular polarization ("LHCP"). The rule requires the use of orthogonal polarizations within the same beam and/or through the use of spatially independent beams. According to DIRECTV, the proposed DIRECTV 8 Ka-band FSS space station has a configuration of transmit and receive antennas that cover geographically separated areas. The Seattle and Castle Rock receive beams operate in the 29.5-30.0 GHz band and the Atlanta and New York beams operate in the 28.35-28.6 GHz and 29.25-29.5 GHz bands. With this configuration, DIRECTV claims any given 250 MHz uplink channel can be received in RHCP or LHCP; however, due to the limitations on beam to beam interconnectivity, the same uplink channel cannot be re-used between uplink beams. Based on the receive antenna patterns that DIRECTV has provided in Exhibit C of FCC Form 312, a waiver request was found to be unnecessary because spatially independent beams are utilized.

8. DIRECTV's request for a waiver of the cross-polarization isolation requirements, contained in Section 25.210(i) of the Commission's rules is GRANTED. Section 25.210(i) of the Commission's rules require the ratio of the on-axis co-polar gain to the cross-polar gain of the antenna in the assigned frequency band be at least 30 dB within its primary coverage area.[5] DIRECTV states that the DIRECTV 8 Ka-band FSS space station transmit and receive antennas have been designed to meet a cross-polarization requirement of 27 dB, however current predictions indicate an actual minimum cross-polarization isolation of 24 dB for receive antennas and 21 dB for transmit antennas. DIRECTV states that its design does not technically provide 30 dB cross-polarization over the entire coverage area. 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 Ka-band satellite systems. DIRECTV plans to employ digital modulation with forward error correction coding on both polarization senses to reduce system sensitivity to cross-polarization interference. Based on DIRECTV's representations that it is using digital, rather than analog modulation, and that other Ka-band satellite systems will not be affected by its operation, we find that it is in the public interest to waive Section 25.210(i).[6] We find that this authorization is consistent with previous Commission actions and will permit DIRECTV to optimize the design of DIRECTV 8 Ka-band FSS space station without causing unacceptable losses of signal quality or unduly adding to the spacecraft's weight, complexity or cost.[7]

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[4] 47 C.F.R. § 25.210(d).

[5] 47 C.F.R. § 25.210(i).

[6] 47 C.F.R. § 25.210(i).

[7] *See, e.g.*, New Skies Satellites, N.V., Petition for Declaratory Ruling, *Order*, 17 FCC Rcd 10369 at para. 19 (2002) and SES Americom, Inc., Application to Launch and Operate the Americom-23 hybrid C/Ku/Extended Ku-Band Satellite, File No. SAT-LOA-20031218-00358, granted July 13, 2004.

9. We GRANT DIRECTV's request for waiver of Item S7(p) of Section S7 of Schedule S.[8] The information provided by DIRECTV in its Schedule S Form is sufficient for us to determine whether the system meets the Commission's technical requirements.

10. DIRECTV shall prepare the necessary information, as may be required, for submission to the ITU to initiate and complete the advance publication, international coordination, due diligence, and notification process of 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. We also note that no protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments of other administrations. *See* 47 C.F.R. § 25.111(b).

11. DIRECTV must coordinate its downlink operations in the 18.3-18.8 GHz and 19.7-20.2 GHz bands with U.S. Government systems, including Government operations to earth stations in foreign countries, in accordance with footnote US334 to the Table of Frequency Allocations, 47 C.F.R. § 2.106.

12. DIRECTV must conduct its operations pursuant to this authorization in a manner consistent with the power flux-density requirements of footnote US255 to the Table of Frequency Allocations, 47 C.F.R. § 2.106, 47 C.F.R. § 25.138(a)(6), and 47 C.F.R. § 25.208, of the Commission's Rules.

13. This authorization does not in any way constitute an approval of DIRECTV's post-mission disposal plans for the DIRECTV 8 Ka-band FSS space station.

14. DIRECTV must provide a written statement to the Commission within 60 days of the date of this authorization that identifies any known satellites located at, or planned to be located at, DIRECTV's assigned orbital location, or assigned in the vicinity of that location such that the station-keeping volume of the respective satellites might overlap, and that states the measures that will be taken to prevent in-orbit collisions with such satellites. This statement should address any licensed FCC systems, or any systems applied for and under consideration by the FCC. The statement need not address every filing with the ITU that meets these criteria, but should assess and address any systems reflected in ITU filings that are in operation or that DIRECTV believes may be progressing toward launch, *e.g.*, by the appearance of the system on a launch vehicle manifest. If DIRECTV elects to rely on coordination with other operators to prevent in-orbit collisions, it shall provide a statement as to the manner in which such coordination will be effected.

15. The license term for the DIRECTV 8 Ka-band FSS space station, Call Sign S2132, is fifteen years and will begin to run on the date that DIRECTV certifies to the Commission that the satellite has been successfully placed into orbit and its operation fully conforms to the terms and conditions of this authorization.

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[8] This section contains information regarding the minimum saturation power flux-density for space station receive beams.

16. 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.

17. This grant 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.

9–16. Name of Contact Representative (If other than applicant)

Name:	William M. Wiltshire	**Phone Number:**	202–730–1350
Company:	Harris, Wiltshire & Grannis LLP	**Fax Number:**	202–730–1301
Street:	1200 Eighteenth Street, NW	**E–Mail:**	
City:	Washington	**State:**	DC
Country:	USA	**Zipcode:**	20036–
Contact Title:		**Relationship:**	Legal Counsel

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b. ○ 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 ○ (N/A) b3. Amendment to a Pending Application ◉ (N/A) b4. Modification of License or Registration b5. Assignment of License or Registration 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 (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)

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):

17d.

Fee Classification A BFY – Space Station Modification(Geostationary)

18. If this filing is in reference to an existing station, enter:	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:	
(a) Call sign of station: S2132	(a) Date pending application was filed:	(b) File number: SATLOA1993120300040

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:

- [x] a. Fixed Satellite
- [ ] b. Mobile Satellite
- [ ] c. Radiodetermination Satellite
- [ ] d. Earth Exploration Satellite
- [x] 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 providng 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)
- [x] c.Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: 18300 Frequency Upper: 30000 (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 ○ N/A
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 C
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 explination 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 explination 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 attemptiing 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 exhinit, 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 B	

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.)

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The applicant seeks to modify its existing license to operate a Ka-band satellite system
at 101 WL to (1) combine onto a single satellite the individual Ka-band payloads
originally authorized for deployment on two satellites at 101 WL;  (2) combine the Ka-band
payload with a Direct Broadcast Satellite payload on a high-power hybrid satellite; and
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Exhibit D

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	46. Title of Person Signing
Romulo Pontual	Executive Vice President

47. Please supply any need attachments.

Attachment 1:	Attachment 2:	Attachment 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).

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD–PERM, Paperwork Reduction Project (3060–0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to jboley@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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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.

43. Description. (Summarize the nature of the application and the services to be provided).

The applicant seeks to modify its existing license to operate a Ka-band satellite system at 101 WL to (1) combine onto a single satellite the individual Ka-band payloads originally authorized for deployment on two satellites at 101 WL; (2) combine the Ka-band payload with a Direct Broadcast Satellite payload on a high-power hybrid satellite; and (3) relinquish spectrum no longer needed for inter-satellite links. See Exhibit D.