GRANTED
International Bureau

File # SAT-MOD-20040614-00114
with attached conditions

Call Sign S2191 Grant Date Nov 4, 2004
(or other identifier)

Approved by OMB
3060-0678

Term Dates
From See Conditions To: See Conditions

Approved: Chief Satellite Division
Robert G. Nelson Engineering Branch

Date & Time Filed: Jun 14 2004 2:32:14:700PM
File Number: SAT-MOD-20040614-00114

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 First Modification 103 WL

1–8. Legal Name of Applicant

Name:	The DIRECTV Group, Inc.	**Phone Number:**	310–964–0725
DBA Name:		**Fax Number:**	310–964–0843
Street:	2250 E. Imperial Highway	**E–Mail:**	
City:	El Segundo	**State:**	CA
Country:	USA	**Zipcode:**	90245 –
Attention:			

Attachment
Conditions of Authorization
November 4, 2004

1. DIRECTV Group, Inc.'s ("DIRECTV")(*formerly* Hughes Electronics, Inc.)("Hughes") application, SAT-MOD-20040614-00114, Call Sign S2191, IS GRANTED. Accordingly, DIRECTV is authorized to launch and operate its SPACEWAY-1 Ka-band satellite at the 103.05° W.L. orbit location, in the 18.365-18.53 GHz, 18.57-18.735 GHz, 19.7-20.2 GHz, 28.36-28.525 GHz, 29.26-29.425 GHz, and 29.5-30.0 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 103.05° W.L. DIRECTV's Ka-band system authorization[1] IS MODIFIED to reflect the deletion of authority to operate inter-satellite links. DIRECTV's Ka-band system authorization IS MODIFIED at 103.05° W.L. to reflect its service links in the following Ka-band frequencies: 18.365-18.53 GHz, 18.57-18.735 GHz, 19.7-20.2 GHz, 28.36-28.525 GHz, 29.26-29.425 GHz and 29.5-30.0 GHz.[2] All such frequency bands can use either left-hand circular polarization ("LHCP") or right-hand circular polarization ("RHCP"), except for the 28.36-28.525 GHz band which can only use LHCP.

3. The SPACEWAY-1 satellite 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. *See* PanAmSat Corporation 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 2490 (2001) ("*PanAmSat ISL/Milestone Authorization Order*").

4. We GRANT DIRECTV's request for waiver of Section 25.210(c)[3] of the Commission's rules requiring satellites in the fixed-satellite service to have the capability to change transponder saturation flux density by ground command in 4dB increments over a range of 12dB. For the SPACEWAY-1 satellite, DIRECTV satisfies this requirement in the 29.5-30.0 GHz band, but not in the 28.36-28.525 GHz and 29.26-29.425 GHz bands. DIRECTV states that the range for the

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[1] *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*"); PanAmSat Corporation 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 2490 (2001) ("*PanAmSat ISL/Milestone Authorization Order*").

[2] This amounts to an overall reduction of 340 megahertz in bandwidth from what the Commission previously authorized for Hughes's Ka-band service links (Call Sign 2191). Previously, Hughes was authorized to operate in the following frequencies: service uplinks in 28.35-28.6 GHz, 29.25-30.0 GHz bands for uplink transmissions and service downlinks in 18.3-18.8 and 19.7-20.2 GHz band. *See id.*

[3] 47 C.F.R. § 25.210(c).

28.35-28.6 GHz band is 8 dB and for the 29.25-29.5 band is 6 dB. The main intent of the gain step requirement is to limit the potential for uplink interference to or from adjacent satellites, where power levels may be significantly different. In the concerned bands, DIRECTV employs automatic level control circuitry ("ALC") that maintains a constant input to the final spacecraft amplifier over a range of receive signal levels. DIRECTV states that it will adhere to the Ka-band blanket licensing of earth stations (47 C.F.R. §25.138) which serve to ensure that Ka-band satellites spaced as close as 2 degrees can operate if the Earth stations operate within the allowable off-axis EIRP density. The combination of these methods meet the intent of the rule. Therefore, the Commission finds sufficient reason to grant a waiver of Section 25.210(c) in the 28.36-28.525 GHz and 29.26-29.425 GHz bands.

5. 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 a single uplink beam using the 28.36-28.525 GHz band. 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 SPACEWAY-1 satellite will comply with this requirement in all 133 uplink beams except one: the uplink beam in the 28.35-28.6 GHz band, which operates using only left hand circular polarization. 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.

6. 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] The SPACEWAY-1 multi-spot beam receive antenna that operates in the 29.25-30 GHz range has been designed to meet a cross-polarization requirement of 18.8 dB. The wide area beam transmit antenna, which operates on specific authorized frequencies in the 18.3-18.8 GHz band, is designed to meet the cross-polarization requirement of 19 dB. 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 not to mention polarization isolation, directivity and antenna implementation losses have also been optimized for best performance. 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 grant is consistent with previous Commission actions and will permit DIRECTV to optimize the design of SPACEWAY-1 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.

7. We GRANT DIRECTV's request for waiver of Sections S6,[8] S7,[9] S8,[10] S10[11] and S13[12] of Schedule S. Considering the complexity of the SPACEWAY-1 satellite design, the amount of information that would need to be provided in these Sections of the Schedule S Form would be extensive and, in many ways, redundant. 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.

8. 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).

9. DIRECTV must coordinate its downlink operations for the specific frequencies authorized 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.

10. 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.

11. This authorization does not in any way constitute an approval of DIRECTV's post-mission disposal plans for SPACEWAY-1.

12. 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

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[8] This section contains information regarding service areas for the satellite system.

[9] This section contains information regarding space station antenna beam characteristics for each beam of a satellite system.

[10] This section contains information regarding antenna beam diagrams.

[11] This section contains information regarding space station transponders.

[12] This section contains information regarding typical emissions.

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.

13. The license term for the SPACEWAY-1 satellite, Call Sign S2191, 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.

14. 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.

15. 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: S2191	(a) Date pending application was filed:	(b) File number: SATLOA1995092900130

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
- [ ] 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.)

The DIRECTV Group, Inc. seeks to modify its existing license to operate a Ka-band satellite system at 103 WL to (1) update the system's design to incorporate state-of-the-art technology; and (2) relinquish spectrum no longer needed for intersatellite links. See Exhibit D.

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	Exec. VP & Chief Technology Officer

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).

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