



File # SAT-STA-20200119-00011

Call Sign S2191 Grant Date 01/19/20
(or other identifier)

** verbal grant

Term Dates period of
From 01/19/20 To: 30 days

Approved by OMB
3060-0678

Approved: Stephen J. Duall

Stephen J. Duall
Chief, Satellite Policy Branch

Date & Time Filed: Jan 19 2020 12:55:05:633PM

File Number: SAT-STA-20200119-00011

Callsign:

*with conditions
** corrected 1/31/2020

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY

FOR OFFICIAL USE ONLY

APPLICANT INFORMATION

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

Request 30-day STA to de-orbit Spaceway-1 (S2191)

1. Applicant

Name:	DIRECTV Enterprises, LLC	Phone Number:	310-964-4996
DBA Name:		Fax Number:	
Street:	1120 20th Street, NW Suite 1000	E-Mail:	spdulac@att.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20036
Attention:	Steve Dulac		

ATTACHMENT TO GRANT
DIRECTV Enterprises, LLC
IBFS File No. SAT-STA-20200119-00011

IBFS File No(s):	SAT-STA-20200119-00011	GRANTED – With Conditions  International Bureau Satellite Division			
Licensee/Grantee:	DIRECTV Enterprises, LLC (DIRECTV)				
Call Sign:	S2191				
Satellite Name:	Spaceway-1				
Orbital Location: (required station- keeping tolerance)	138.9° W.L. (see Scope of Grant)				
Administration:	United States of America				
Nature of Service:	Telemetry, tracking, and command (TT&C)				
Scope of Grant:	Special Temporary Authority for a period of 30 days to conduct TT&C operations necessary to de-orbit the Spaceway-1 space station from its current location at 138.9° W.L. ¹				
Service Area(s):	n/a				
Frequencies:	19701.25 MHz and 19702.25 MHz (space-to-Earth) 28.35-28.60 and 29.25-30.00 GHz (Earth-to-space)				
Unless otherwise specified herein, operations under this grant must comport with the legal and technical specifications set forth by the applicant or petitioner and with Federal Communication Commission's rules not waived herein. This grant is also subject to the following conditions: - Operations pursuant to this special temporary authority must be on an unprotected and non-harmful interference basis, i.e., the space station must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating station. In the event of any harmful interference, DIRECTV must cease operations immediately upon notification of such interference, and must inform the Commission, in writing, immediately of such an event. - DIRECTV must coordinate the operations of Spaceway-1 with existing geostationary space stations to ensure that no unacceptable interference results from its operations during de-orbit maneuvers. - DIRECTV must operate only the TT&C frequencies authorized for Spaceway-1 during the space station's de-orbit maneuvers. - The request for waiver of section 25.283(c) of the Commission's rules, 47 CFR § 25.283(c), IS DEFERRED, pending additional information concerning possible additional ground station support and refinements to disposal strategy. This grant may be modified by subsequent action in order to address any such changes in operational plans.²					
Licensee/grantee is afforded thirty (30) days from the date of release of this action to decline the grant as conditioned. Failure to respond within this period will constitute formal acceptance of the grant as conditioned. This action is taken pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. §					

¹ In December 2019, Spaceway-1 suffered a major anomaly that resulted in significant and irreversible thermal damage to its batteries, which resulted in a decision to terminate payload operations and to decommission Spaceway-1. Narrative at 1-2. DIRECTV states that Spaceway-1 provides backup Ka-band capacity in Alaska, and that no customers were affected by the anomaly. DIRECTV is currently exploring plans to relocate on-orbit assets to replace the backup capacity lost by the decommissioning of Spaceway-1. Narrative at 1 n.5.

² On January 24, 2020, DIRECTV filed a letter providing additional information regarding ground station support and the target de-orbit altitude for Spaceway-1 (which is 500 km above the geostationary arc). Letter from Jennifer D. Hindin, Counsel to DIRECTV Enterprises, LLC, to Marlene H. Dortch, Secretary, FCC (dated Jan. 24, 2020). This additional information forms part of the basis of our grant of STA, but we continue to defer action on DIRECTV's request for a waiver of section 25.283(c) at this time.

ATTACHMENT TO GRANT
DIRECTV Enterprises, LLC
IBFS File No. SAT-STA-20200119-00011

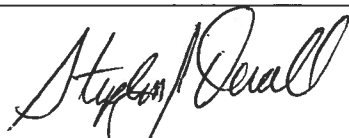
0.261, and is effective upon release.

Station licenses are subject to the conditions specified in Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. § 309(h).

Action Date:	January 19, 2020 (reissued January 30, 2020)
---------------------	--

Term Dates	From: January 19, 2020	To: period of 30 days
-------------------	-------------------------------	------------------------------

Approved:



Stephen J. Duall
Chief, Satellite Policy Branch

2. Contact			
Name:	Jennifer D. Hindin	Phone Number:	202-719-4975
Company:	Wiley Rein LLP	Fax Number:	202-719-7049
Street:	1776 K St. NW	E-Mail:	jhindin@wiley.law
City:	Washington	State:	DC
Country:	USA	Zipcode:	20006 -
Attention:		Relationship:	Legal Counsel
(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.) 3. Reference File Number SATMOD2017091200129 or Submission ID			
4a. 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):			
4b. Fee Classification CRY – Space Station (Geostationary)			
5. Type Request ☐ Change Station Location ☐ Extend Expiration Date ☒ Other			
6. Temporary Orbit Location		7. Requested Extended Expiration Date	

8. Description (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 a grant of special temporary authority for 30 days commencing January 20, 2020 to de-orbit its Spaceway-1 satellite (call sign S2191). See Narrative for additional details.

9. 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

10. Name of Person Signing
Steve Dulac

11. Title of Person Signing
Director, Content Technology & Regulatory Affairs

12. Please supply any need attachments.

Attachment 1: Narrative

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-PER, 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 PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember – You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

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.

EXHIBIT 1 REQUEST FOR SPECIAL TEMPORARY AUTHORITY

Pursuant to Section 25.120 of the Commission's rules,¹ DIRECTV Enterprises, LLC ("DIRECTV") herein requests Special Temporary Authority ("STA"), beginning no later than January 20, 2020 and lasting for a period of 30 days, to conduct emergency operations to de-orbit the Spaceway-1 satellite (Call Sign S2191) from its current location at 138.9° W.L.² and to perform telemetry, tracking, and command ("TT&C") functions with Spaceway-1 during this maneuver.³ DIRECTV also seeks waiver of Section 25.283(c) of the Commission's rules to the extent the rule requires DIRECTV to discharge all remaining propellant prior to decommissioning the satellite.⁴

In December, Spaceway-1 suffered a major anomaly that resulted in significant and irreversible thermal damage to its batteries. Boeing, the spacecraft manufacturer, concluded based on all available data that the batteries' cells cannot be guaranteed to withstand the pressures needed to support safe operation of the spacecraft in eclipse operations; rather, there is a significant risk that these battery cells could burst. As payload operations have been terminated,⁵ the spacecraft has had sufficient power margin to avoid use of the batteries during sunlight operations. However, use of the batteries during eclipse is unavoidable and there is no

¹ 47 C.F.R. § 25.120.

² See *Policy Branch Information; Actions Taken*, Report No. SAT-01313, File No. SAT-MOD-20170912-00129 (Apr. 25, 2018) ("*Spaceway-1 Stamp Grant*").

³ DIRECTV has filed this STA request, an FCC Form 159 and a filing fee electronically via the International Bureau's Filing System.

⁴ 47 C.F.R. § 25.283(c) ("[A] space station licensee shall ensure, unless prevented by technical failures beyond its control, that stored energy sources on board the satellite are discharged by venting excess propellant, discharging batteries, relieving pressure vessels, or other appropriate measures.").

⁵ Spaceway-1 provides backup Ka-band capacity in Alaska. No customers were affected by the anomaly. DIRECTV is currently exploring plans to relocate on-orbit assets to replace the backup capacity lost by the decommissioning of Spaceway-1.

ability to isolate damaged battery cells. The risk of a catastrophic battery failure makes it urgent that Spaceway-1 be fully de-orbited and decommissioned prior to the February 25th start of eclipse season.

While DIRECTV and Intelsat are still finalizing Spaceway-1's de-orbit plan, the objective is to expedite arrival of the satellite at the disposal orbit and maximize the time available to vent the remaining bipropellant prior to commencement of the spring eclipse season.⁶ DIRECTV and Intelsat are exploring feasible alternatives for TT&C ground stations that can maintain ground visibility as the satellite transits from its current orbital position at 138.9 W.L. to the disposal orbit at 300 km above the geostationary arc. In the absence of additional ground station solutions, Spaceway-1 will first need to increase its eastward drift before turning around and completing a near-continuous burn until it reaches its disposal orbit. This sequence will take approximately 21 days, leaving at least seven days for venting operations before the spacecraft is to be decommissioned.

DIRECTV estimates that in the available time for venting operations, it will be able to deplete only a nominal portion of the approximately 73 kg of bipropellant remaining onboard Spaceway-1. To the extent Section 25.283(c) of the Commission's rules requires DIRECTV to discharge Spaceway-1's remaining propellant upon de-orbiting, DIRECTV requests waiver of this rule. Pursuant to Section 1.3 of the Commission's rules, the Commission may grant a waiver of its rules "for good cause shown."⁷ Good cause exists if "special circumstances warrant a deviation from the general rule and such deviation will serve the public interest" better than adherence to the general rule.⁸ In determining whether waiver is appropriate, the Commission

⁶ See *infra* n.10.

⁷ 47 C.F.R. § 1.3; *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

⁸ *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

should “take into account considerations of hardship, equity, or more effective implementation of overall policy.”⁹ As shown below, there is good cause for the requested waiver.

Waiver is appropriate in this case because grant would not undermine the purpose of the rule, which is to reduce the risk of accidental explosion. Under normal de-orbit procedures, Spaceway-1 would complete its end-of-life maneuvers and then discharge all remaining bipropellant prior to decommissioning the spacecraft.¹⁰ The procedure from the manufacturer limits the effective rate at which bipropellant can be vented to ensure built up momentum is unloaded before subsequent operations occur. Other spacecraft of similar design have required two to three months of continuous operations to fully deplete their bipropellant systems.¹¹ However, given the anomaly to the battery pack and the impending spring eclipse season, DIRECTV does not have sufficient time to fully deplete the remaining bipropellant reserves before Spaceway-1 reaches its disposal orbit. While DIRECTV is formulating the Spaceway-1 de-orbit maneuver with the intention of discharging as much fuel as possible, the priority remains the complete decommissioning of the satellite prior to commencement of the spring eclipse season to limit the risk of an accidental explosion.

Grant of this waiver is also supported on hardship grounds. DIRECTV must de-orbit the Spaceway-1 satellite prior to commencement of the spring eclipse season. Delayed de-orbit maneuvers or prolonged propellant depletion strategies are not possible given the heightened

⁹ *WAIT Radio*, 418 F.2d at 1159.

¹⁰ Spaceway-1 is a Boeing 702HP model spacecraft that is not designed to vent the pressurant used during orbit raising (xenon and helium), and the pressurant was permanently isolated from the propulsion system soon after launch. As a result of this design specification, and the fact that Spaceway-1 was launched in April 2005 before Section 25.114(d)(14) became effective, the Commission previously granted a waiver of Sections 25.114(d)(14) and 25.283(c) with respect to these two pressurants. *See Spaceway-1 Stamp Grant*.

¹¹ The Boeing 702HP spacecraft design features a reaction wheel pointing control system. As all venting must occur within the capabilities of this pointing control system, the firing of thrusters for venting and to address momentum buildup must be of more limited duration and additional time is needed for the pointing control system to respond.

likelihood of catastrophic failure of the Spaceway-1 satellite should the damaged battery be recharged.

Furthermore, grant of this STA request is in the public interest. DIRECTV's emergency operations are in response to the extraordinary and unforeseen anomaly on Spaceway-1 and will reduce the potential for harm to other geostationary satellite operators. DIRECTV acted as soon as practicable to determine to de-orbit Spaceway-1 following the anomaly. Authorizing DIRECTV's emergency de-orbit operations will facilitate disposal of Spaceway-1 as safely as possible.

For the reasons set forth herein, DIRECTV respectfully requests that the Commission expeditiously grant this request for special temporary authority to de-orbit the Spaceway-1 satellite and for a waiver of the fuel venting requirement of Section 25.283(c).