

S2983/3018 SAT-STA-20190405-00023
Space Exploration Holdings, LLC
SpaceX

IB2019001011



File # SAT-STA-20190405-00023

Call Sign S2983/3108 Grant Date 05/09/19

(or other identifier)

From see conditions Term Dates period of 60 days Approved by OMB
To: Stephen J. Dull 3060-0678

Approved: Stephen J. Dull

Stephen J. Dull
Chief, Satellite Policy Branch

Date & Time Filed: Apr 5 2019 4:56:44:580PM
File Number: SAT-STA-20190405-00023
Callsign:

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY

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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
First LEOP STA Request

1. Applicant

Name: Space Exploration Holdings, LLC Phone Number: 202-649-2700

DBA Name: Fax Number: 202-649-2701

Street: 1155 F Street, N.W. E-Mail: patricia.cooper@spacex.com
Suite 475

City: Washington State: DC

Country: USA Zipcode: 20004 -

Attention: Ms Patricia Cooper

ATTACHMENT TO GRANT
 Space Exploration Holdings, LLC
 IBFS File No. SAT-STA-20190405-00023

IBFS File No(s):	SAT-STA-20190405-00023	G R A N T E D – With Conditions  International Bureau Satellite Division
Licensee/Grantee:	Space Exploration Holdings, LLC	
Call Sign:	S2983/S3018	
Satellite Name:	SpaceX Ku/Ka-band Constellation	
Orbital Location: (required station-keeping tolerance)	Non-geostationary orbit (NGSO)	
Administration:	United States of America	
Nature of Service:	Telemetry, Tracking, and Command (TT&C); Testing	
Scope of Grant:	Special temporary authority (STA) for a period of 60 days for Launch and Early Orbit-Phase (LEOP) operations necessary to (1) perform TT&C necessary for orbit-raising; and (2) communicate with seven Ku-band earth stations to test the communications payload on each of the up to 75 satellites to be imminently launched. ¹	
Service Area(s):	Not Applicable	
Frequencies:	TT&C Frequencies 12.221 GHz (space-to-Earth) and 13.925 GHz (Earth-to-space) Payload Testing Frequencies 10.7-12.7 GHz (space-to-Earth) 14.0-14.5 GHz (Earth-to-space).	
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:		
<ol style="list-style-type: none"> 1. All operations under this grant of special temporary authority must be on an unprotected and non-harmful interference basis, <i>i.e.</i>, SpaceX must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating station. 		
<ol style="list-style-type: none"> 2. In the event of any harmful interference under this grant of special temporary authority, SpaceX must cease operations immediately upon notification of such interference and must inform the Commission, in writing, immediately of such an event. 		
<ol style="list-style-type: none"> 3. SpaceX's payload-frequency operations must be limited to testing and must not include the provision of commercial services. 		
<ol style="list-style-type: none"> 4. During LEOP operations SpaceX must operate only the TT&C frequencies and test frequencies specified above. 		
<ol style="list-style-type: none"> 5. Operations authorized here must comport with the conditions imposed in DA 19-342.² 		
<ol style="list-style-type: none"> 6. The term of this authorization commences on the date of launch of the up to 75 satellites covered by this grant. SpaceX must notify the Chief of the Satellite Division, in writing, of the date of launch and the commencement of this grant of special temporary authority. 		

¹ See Basis for Grant, set forth on pages 3-4 of this Attachment.

² Space Exploration Holdings, LLC, Order and Authorization, DA 19-342 (IB rel. Apr. 26, 2019) (SpaceX Modification Order).

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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 CFR § 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:	May 9, 2019	
Term Dates	From: see conditions	To: period of 60 days

Approved:



Stephen J. Duall
Chief, Satellite Policy Branch

ATTACHMENT TO GRANT
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Basis for Grant

On April 18, 2019, WorldVu Satellites Limited (OneWeb) submitted a letter opposing SpaceX's request for special temporary authority (STA).¹ On April 23, 2019, SpaceX responded to OneWeb's letter.² On April 25, 2019, EchoStar Satellite Operating Corporation and Hughes Network Systems, LLC (together with their affiliates, "EchoStar"), and Intelsat License LLC (Intelsat) submitted a written *ex parte* presentation in response to developments in the above-referenced proceedings concerning, *inter alia*, the SpaceX modification application and the space station STA request.³

OneWeb raises concerns that SpaceX fails to present "extraordinary circumstances" necessitating temporary operations, as required by Section 309(f) of the Communications Act and Section 25.120(b) of the Commission's rules.⁴ In this instance, SpaceX seeks authority for special operations (launch and early operations and testing) of a temporary nature (for brief period of time prior to commencement of commercial operations). Such operations have been granted through STAs routinely in the past for similar in-orbit testing (IOT) operations for geostationary satellites prior to commencing operations,⁵ and for LEOP operations for NGSO satellites.⁶ The ability to communicate with satellites during the orbit-raising phases, as requested in this application, is important to ensure proper functioning and to identify and correct any issues before satellites reach operational orbit. Accordingly, grant of the requested STA for SpaceX's non-geostationary satellites serves the public interest.

OneWeb also argues that SpaceX is attempting to shortcut the Commission's review of SpaceX's modification application that was pending before the Commission at the time SpaceX filed its space station special temporary authority.⁷ OneWeb further asserts that the requests for STA were incomplete as filed.⁸ As an initial matter, SpaceX's modification application was granted on April 26, 2019,⁹ and thus the argument regarding shortcircuiting the review of then-pending modification application is moot. In addition, we find that SpaceX's

¹ Letter from Brian D. Weimer, Counsel to OneWeb, to Marlene H. Dortch, Secretary, FCC, dated April 18, 2019 (OneWeb Opposition).

² See Letter from William M. Wiltshire, Counsel to SpaceX, to Marlene H. Dortch, Secretary, FCC, dated April 23, 2019.

³ See Letter from Jennifer A. Manner, Senior Vice President, Regulatory Affairs, EchoStar Satellite Operating Company and Hughes Network Systems, LLC; and Susan H. Crandall, Associate General Counsel, and Cynthia J. Grady, Senior Counsel, Intelsat US LLC, to Marlene H. Dortch, Secretary, FCC, dated April 23, 2019.

⁴ OneWeb Opposition at 1-2 (citing 47 U.S.C. § 309(f) and 47 CFR § 25.120(b)).

⁵ See, e.g., IBFS File Nos. SAT-STA-20170302-00032, SAT-STA-20170314-00050, SAT-STA-20170526-00080, SAT-STA-20170718-00105, SAT-STA-20170921-00135, SAT-STA-20180118-00007, SAT-STA-20171218-00173, SAT-STA-20180214-00016, & SAT-STA-20180905-00066. Certain temporary operations (except in-orbit testing) are already permitted by rule, without the need to seek further Commission authorization, for satellites authorized to operate in the geostationary orbit. 47 CFR § 25.282 ("A space station authorized to operate in the geostationary satellite orbit under the part is also authorized in connection with short-term, transitory maneuvers directly related to post-launch, orbit-raising maneuvers, provided [certain conditions are met].") There is no similar rule automatically authorizing the temporary operations of satellites authorized to operate in non-geostationary orbits.

⁶ The Satellite Division has previously granted special temporary authority for launch and early operation phase (LEOP) for NGSO space stations. See, e.g., IBFS File No. SAT-STA-20170726-00109 & SAT-STA-20180724-00055 (granting 180-day STAs to Terra Bella for LEOPs).

⁷ OneWeb Opposition at 3-4.

⁸ *Id.* at 5.

⁹ *Space Exploration Holdings, LLC*, Order and Authorization, DA 19-342 (IB rel. Apr. 26, 2019) (*SpaceX Modification Order*).

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request for STA provides, as required by our rule governing STA requests, “the full particulars of the proposed operation including all facts sufficient to justify the temporary authority sought and the public interest therein.”

¹² The information provided in the STA request, in conjunction with the information in its modification application that was incorporated by reference, is fully consistent with the information provided in other requests for STA in connection with LEOP and in-orbit testing operations.

Finally, EchoStar and Intelsat argue in their *ex parte* filing that the STA request made an insufficient showing to grant a waiver of a condition on SpaceX’s previous license grant that required, prior to the launch of SpaceX’s system, the International Telecommunication Union to issue a “favorable” or “qualified favorable” finding that SpaceX’s proposed operations will meet equivalent isotropically radiated power (EIRP) limits. This issue was addressed by the International Bureau in the grant of SpaceX’s modification application and is not a basis for denial of grant of SpaceX’s request for STA.¹³

¹² 47 CFR § 25.120(a).

¹³ *SpaceX Modification Order* at para.28.

2. Contact

Name:	William M. Wiltshire	Phone Number:	202-730-1350
Company:	Harris, Wiltshire & Grannis LLP	Fax Number:	202-730-1301
Street:	1919 M Street, NW Suite 800	E-Mail:	wwiltshire@hwglaw.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20036 -
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 SATMOD2018110800083 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 CXW - Space Station (Non-Geostationary)

5. Type Request

Change Station Location Extend Expiration Date Other

6. Temporary Orbit Location
NGSO

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.)

SpaceX requests special temporary authority for the first tranche of its NGSO satellites to communicate with Ku-band gateway and TT&C earth stations for 60 days after orbital injection.

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
Patricia Cooper

11. Title of Person Signing
Vice President, Satellite Government Affairs

12. Please supply any need attachments.

Attachment 1: LEOP STA Request

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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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.

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

Space Exploration Holdings, LLC (“SpaceX”), pursuant to Section 25.120 of the Commission’s rules, hereby requests Special Temporary Authority (“STA”) for the first tranche of its non-geostationary orbit (“NGSO”) satellites to communicate with seven earth stations operated by its sister company, SpaceX Services, Inc. (“SpaceX Services”). SpaceX has been authorized to launch and operate a constellation of 4,425 (“NGSO”) satellites (call sign S2983/S3018) using Ku- and Ka-band spectrum.¹ It intends to launch its first tranche of satellites in early May 2019, and seeks authority for operations during the orbit-raising phase.

These operations fall into two categories. First, SpaceX would communicate with a TT&C earth station to conduct telemetry, tracking, and control (“TT&C”) functions during orbit raising.² These transmissions would occur in the following frequencies: 12.221 GHz (downlink) and 13.925 GHz (uplink). Second, SpaceX would communicate with six Ku-band gateway earth stations to test the communications payload on each of its satellites.³ These operations would take place throughout the 10.7-12.7 GHz (downlink) and 14.0-14.5 GHz (uplink) bands.

The Commission has good cause to approve this request to enhance the safety of space. Specifically, the requested STA would cover TT&C functions that are essential to commanding the spacecraft and ensuring the health and safety of SpaceX’s nascent constellation. The STA would also allow SpaceX to confirm the operational status of its satellites immediately upon insertion, rather than waiting weeks while the satellites are orbit raising to ensure proper functioning. This testing would yield a number of public interest benefits. For instance, SpaceX could act quickly in the unlikely event of a performance issue with one of its spacecraft to identify and correct the problem even before the satellite reaches operational orbit. Accordingly, the STA will serve the public interest by enhancing space safety and promoting the health and safety of SpaceX’s NGSO constellation.

SpaceX will operate on a non-interference basis. Consistent with its authorization, SpaceX will observe the applicable equivalent power flux-density (“EPFD”) limits set forth in Article 22 and Resolution 76 of the ITU Radio Regulations and the applicable power flux-density (“PFD”) limits set forth in the Commission’s rules and Article 21 of the ITU Radio Regulations, which the Commission has found sufficient to protect GSO systems and terrestrial systems, respectively,

¹ See *Space Exploration Holdings, LLC*, 33 FCC Rcd. 148 (2018). SpaceX recently filed a modification application in which it proposes to relocate 1,584 satellites previously authorized to operate at an altitude of 1,150 km to an altitude of 550 km, and to make related changes to the operations of the satellites in this new lower shell of the constellation. See Application, IBFS File No. SAT-MOD-20181108-00083 (Nov. 8, 2018). Those applications contain all relevant operational characteristics and are hereby incorporated herein to the extent necessary.

² Although the Commission by rule authorizes TT&C operations for GSO satellites during the orbit-raising phase, it has not yet adopted a similar rule for NGSO systems (though one is currently under consideration). See 47 C.F.R. § 25.282; *Mitigation of Orbital Debris in the New Space Age*, FCC 18-159, ¶ 70 (rel. Nov. 19, 2018).

³ SpaceX Services currently has applications pending for six Ku-band gateway earth stations (located in North Bend, WA; Conrad, MT; Merrillan, WI; Greenville, PA; Redmond, WA; and Hawthorne, CA) and one TT&C earth station (located in Brewster, WA). See IBFS File Nos. SES-LIC-INTR2019-00877 through -00882, -00966. SpaceX Services is filing complementary STA requests for these earth stations.

against harmful interference. In the extremely unlikely event that harmful interference should occur due to transmissions to or from its spacecraft, SpaceX will take all reasonable steps to eliminate the interference. Should an issue arise, SpaceX can be reached at satellite-operators-pager@spacex.com, which links to the pagers of appropriate technical personnel 24/7.

The first tranche of SpaceX satellites is scheduled to be launched in early May 2019. Accordingly, SpaceX Services requests that the Commission issue an STA structured to begin on the launch date and remain in force for up to 60 days thereafter.