Approved by OMB
3060–0678

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATIONEnter a description of this application to identify it on the main menu:
Loring ME Ka Gateway STA Extension Request

1. Applicant

Name:	SpaceX Services, Inc.	**Phone Number:**	202–649–2700
DBA Name:		**Fax Number:**	
Street:	1155 F Street, N.W.	**E–Mail:**	patricia.cooper@spacex.com
City:	Washington	**State:**	DC
Country:	USA	**Zipcode:**	20004 –
Attention:	Ms Patricia Cooper		

FEDERAL COMMUNICATIONS COMMISSION
GRANTED
International Bureau

File # SES-STA-20191209-01678
Call Sign E190649 Grant Date 01/06/2020
(or other identifier)
Term Dates
From 01/06/2020 To 03/04/2020
Approved: Paul E Blais
See attached conditions

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 SESSTA2019092501230 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 CGX − Fixed Satellite Transmit/Receive Earth Station

5. Type Request

● Use Prior to Grant ○ Change Station Location ○ Other

6. Requested Use Prior Date 01/04/2020	
7. CityLimestone	8. Latitude (dd mm ss.s h) 46 54 53.7 N

9. State ME	10. Longitude (dd mm ss.s h) 67 55 10.3 W

11. Please supply any need attachments.

Attachment 1: STA Extension Reques Attachment 2: Attachment 3:

12. 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 Services seeks a 60-day extension of special temporary authority for communications between its gateway earth station and SpaceX NGSO satellites.

13. 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

14. Name of Person Signing Patricia Cooper	15. Title of Person Signing Vice President, Satellite Government Affairs

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.

Applicant: SpaceX Services, Inc.

Call Signs: E190649
File Nos.: SES-STA-20191209-01678

SpaceX Services, Inc. ("SpaceX Services") is granted special temporary authority , beginning January 6, 2020 for 60 days, to operate its fixed earth stations located in Loring, ME to provide telemetry, tracking and command ("TT&C") services to its non-geostationary orbit ("NGSO") Starlink satellites (Call Signs S2983/3018) during the orbit-raising and on-orbit operations. Orbit raising operations are limited to center frequencies 13925 MHz (Earth-to-space) and 12221 MHz (space-to-Earth). Payload test operations are permitted in frequency bands: 14000-14500 MHz (Earth-to-space), 10700-12700 MHz (space-to-Earth); 28350-29100 MHz and 29500-30000 MHz (Earth-to-space), 17800-18600 MHz, 18800-19300 MHz (space-to-Earth), 19700-20200 MHz (space-to-Earth) under the following conditions:

1. Operations will not exceed the operational power limits and parameters requested and coordinated.

2. Operations in the 14470-14500 MHz are subject to footnote US342 to the U.S. Table of Frequency Allocations, 47 C.F.R. §2.106, US342, and all practicable steps must be taken to protect the radio astronomy service from harmful interference.

3. All operations under this grant of STA shall be on an unprotected, non-harmful interference basis. SpaceX Services shall not cause harmful interference to and shall not claim protection from interference caused to it by, any other lawfully operating radio communication system.

4. In the event of any harmful interference SpaceX Services shall cease operations immediately upon notification of such interference, and shall immediately inform the Commission, in writing, of such an event.

5. The use of space-to-Earth operations in the 17800-18600 MHz, 18800-19300 MHz, 19700- 20200 MHz frequency bands must be in accordance with any signed coordination agreement between SpaceX and U.S. Federal operators in accordance with footnote US334 to the United States Table of Frequency Allocations, 47 CFR §2.106, prior to being used.

6. Current 24x7 contact information for the NGSO Starlink satellite mission is phone: 1+ (251) 257-0464.

7. The licensee shall take all necessary measures to ensure that the antenna does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure

limits defined in 47 CPR l.1307(b) and 1.1310 wherever such exposures might occur. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alert signs and protective equipment for workers.

8. Grant of this STA is without prejudice to any determination that the Commission may make regarding SpaceX Services pending applications.

9. Any action taken, or expense incurred as a result of operations pursuant to this STA is solely at SpaceX Services' risk.

10. SpaceX's payload-frequency operations must be limited to testing and must not include provision of commercial services.

11. During LEOP operations SpaceX must operate only the TT&C frequencies and test frequencies specified above.

12. Operations authorized in this grant of STA must comport with any conditions contained in the SpaceX Second Modification Order.

FEDERAL COMMUNICATIONS COMMISSION

GRANTED

International Bureau

File # SES-STA-20191209-01678

Call Sign E190149 Grant Date 01/06/2020

(or other identifier)

Term Dates

From 01/06/2020 To: 03/24/2020

Approved: Paul E. Hoeb

REQUEST FOR EXTENSION OF SPECIAL TEMPORARY AUTHORITY

Last month, the Commission granted SpaceX Services, Inc. ("SpaceX Services") Special Temporary Authority ("STA") to allow communications between its earth stations and satellites that were launched on November 11, 2019 by its sister company, Space Exploration Holdings, LLC ("SpaceX"), into its non-geostationary orbit ("NGSO") Starlink constellation.[1] SpaceX Services respectfully requests that the Commission extend those STAs for an additional 60 days for the reasons discussed below.

Earlier this year, the Commission authorized SpaceX to relocate 1,584 of the satellites in its Ku/Ka-band NGSO system to an altitude of 550 km.[2] SpaceX recently continued the process of deploying its system by launching another 60 satellites. Although SpaceX Services has applied for regular authority to operate a number of gateway earth stations, those application remain pending.[3] Accordingly, SpaceX Services sought and obtained STAs for its earth stations to communicate with the Starlink satellites during the orbit-raising process and through early operation at their assigned positions.[4]

These operations fall into three categories. First, SpaceX Services would operate a TT&C earth station to conduct telemetry, tracking, and control ("TT&C") functions during orbit raising[5] and on-orbit operations while its earth station application is pending. These transmissions would occur in the following frequencies: 12.221 GHz (downlink) and 13.925 GHz (uplink). Second, SpaceX Services would operate Ku-band earth stations to communicate with the payload on each of the Starlink satellites. These operations would take place throughout the 10.7-12.7 GHz (downlink) and 14.0-14.5 GHz (uplink) bands. Third, SpaceX Services would operate five Ka-band gateway earth stations to communicate with the payload on each of the Starlink satellites. These operations would take place throughout the 27.5-29.1 GHz and 29.5-30.0 GHz (uplink) and 17.8-18.6 GHz, 18.8-19.3 GHz, and 19.7-20.2 GHz (downlink) bands.

The Commission has good cause to approve this request to enhance the safety of space. Specifically, the requested STA extension 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 continue to operate the communications payloads of its

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1 *See* Public Notice, Rep. No. SES-02215 (rel. Nov. 6, 2019).

2 *See Space Exploration Holdings, LLC*, 34 FCC Rcd. 2526 (IB 2019).

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); one Ku-band TT&C earth station (located in Brewster, WA); and five Ka-band gateway earth stations (located in Conrad, MT; Loring, ME; Redmond, WA; Greenville, PA; and Merrillan, WI). *See* Public Notice, Rep. No. SAT-01388 (rel. May 10, 2019); IBFS File Nos. SES-LIC-20190816-01062 and -01063, SES-LIC-20190827-01110, SES-LIC-20190906-01170 and -01171.

4 SpaceX obtained a complementary STA for its NGSO constellation. *See* Public Notice, Rep. No. SAT-01426 (rel. Nov. 8, 2019).

5 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*, 33 FCC Rcd. 11352, ¶ 70 (2018).

satellites as they are being deployed and in the initial phases of on-orbit functions. This would enable SpaceX to constantly monitor the health of its spacecraft and act quickly in the unlikely event of a performance issue with one of them to identify and correct the problem. By continuing communications even after the satellites have reached their intended orbits, SpaceX will ensure ongoing capabilities and be better able to prepare for accelerated launch of service. Accordingly, extension of the STA will continue serve the public interest by enhancing space safety and promoting the health and safety of SpaceX's NGSO constellation.

SpaceX Services will operate on a non-interference basis. Consistent with SpaceX's authorization, SpaceX Services 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, against harmful interference. Nonetheless, in the extremely unlikely event that harmful interference should occur due to transmissions to or from its spacecraft, SpaceX Services will take all reasonable steps to eliminate the interference. Should an issue arise, SpaceX Services can be reached at satellite-operators-pager@spacex.com, which links to the pagers of appropriate technical personnel 24/7.

Accordingly, SpaceX Services requests that the Commission extend the STA for these gateways for up to an additional 60 days.