

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

SpaceX Services, Inc. (“SpaceX Services”), pursuant to Section 25.120 of the Commission’s rules, hereby requests Special Temporary Authority (“STA”) for 60 days to allow communications between its earth stations and satellites soon to be launched by its sister company, Space Exploration Holdings, LLC (“SpaceX”), into its non-geostationary orbit (“NGSO”) Starlink constellation. Applications for all of those earth stations are currently pending.¹ For the reasons discussed below, the Commission should find that these temporary operations during early phases of satellite deployment would serve the public interest and grant both aspects of this request.

Earlier this year, the Commission authorized SpaceX to relocate 1,584 of the satellites in its NGSO system to an altitude of 550 km, where they would be able to achieve better performance and orbital debris mitigation characteristics without increasing interference to any other licensed user of the relevant spectrum.² SpaceX has begun the process of deploying its system by launching 60 satellites in May. Recently, SpaceX proposed an incremental modification that will adjust the orbital spacing of its satellites as currently authorized in a way that will accelerate its timetable for providing high speed, low latency, competitively priced consumer broadband service throughout more of the United States.³ Notably, that application does not request any change in the number of satellites, their orbital altitude or inclination, or their operational characteristics in order to achieve more rapid coverage of U.S. consumers, and also will not present any significant interference issues for any other licensed user of the Ku/Ka-band spectrum.

SpaceX currently anticipates that the next Starlink launch will take place before the end of October. In order to achieve the public interest benefits of accelerated deployment, SpaceX needs to be able to start populating the new orbital plane structure proposed in the pending modification application as soon as possible. Accordingly, SpaceX Services requests a 60-day STA for its earth stations to communicate with the Starlink satellites during the orbit-raising and early operation phases under its authorization as modified.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 raising⁵

¹ 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.

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

³ See IBFS File No. SAT-MOD-20190830-00087 (Aug. 30, 2019). The Commission has accepted that application for filing. See Public Notice, Rep. No. SAT-01412 (Sep. 13, 2019).

⁴ SpaceX will file a complementary STA request to place spacecraft in these new planes while the Commission is considering that application.

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).

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 test the communications 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 test the communications payload on each of the Starlink satellites. These operations would take place throughout the 28.35-29.1 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 at all sites, and also in the 27.5-28.35 GHz (uplink) band at the Conrad, MT and Loring, ME sites.

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. By continuing testing 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, the STA will serve the public interest by enhancing space safety and promoting the health and safety of SpaceX's NGSO constellation.

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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.

The next tranche of SpaceX satellites is currently scheduled to be launched by the end of October 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.