Kristi Key, 1 Rocket Road, Hawthorne, CA 90250,

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION

EXPERIMENTAL	WL2XCN
(Nature of Service)	(Call Sign)
XC FX	1149-EX-ST-2020
(Class of Station)	(File Number)

NAME Space Exploration Technologies Corp.

This Special Temporary Authorization is granted upon the express condition that it may be terminated by the Commission at any time without advance notice or hearing if in its discretion the need for such action arises. Nothing contained herein shall be construed as a finding by the Commission that the authority herein granted is or will be in the public interest beyond the express terms hereof.

This Special Temporary Authorization shall not vest in the grantee any right to operate the station nor any right in the use of the frequencies designated in the authorization beyond the term hereof, nor in any other manner than authorized herein. Neither the authorization nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This authorization is subject to the right of use of control the Government of the United States conferred by Section 706 of the Communications Act of 1934.

Special Temporary Authority is hereby granted to operate the apparatus described below:

Purpose Of Operation:
Early testing of the Ball Aerospace Antenna communications with SpaceX Starlink satellites to support the project and narrative described in FCC license 0430-EX-CN-2020.

Station Locations
(1) Westminster (JEFFERSON), CO - NL 39-53-56; WL 105-06-22

Frequency Information

Westminster (JEFFERSON), CO - NL 39-53-56; WL 105-06-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
14000-14500 MHz	FX	240MD7W	5.1 kW (ERP)	0.001 %

Special Conditions:
(1) The station identification requirements of Section 5.115 of the Commission's Rules are waived.
(2) Licensee should be aware that other stations may be licensed on these frequencies and if any interference occurs, the licensee of this authorization will be subject to immediate shut down.

This authorization effective October 06, 2020 and
will expire 3:00 A.M. EST April 06, 2021

FEDERAL COMMUNICATIONS COMMISSION

Special Conditions:

(3) This authorization is issued for the express purpose of conducting experimental operations described in the related application and required by US Air Force contract no. FA8650-19-9-9320. The use of this radio station in any other manner or for any other purpose will constitute a violation of the privileges herein authorized. Except as subsequently authorized by the Commission, this radio station shall not be operated after the expiration date of the contract designated in the related application and enumerated above.

(4) Stop buzzer: Kristi Key
Phone Number: 3109708116
E-Mail Address: kristina.key@spacex.com

(5) POINT OF COMMUNICATION: Space Exploration Technologies Corp. ("SpaceX")'s Ku-band non-geostationary- orbit (NGSO) satellites (Call Sign S2983) .

(6) Operations in the 14.0-14.5 GHz (Ku-band) frequency band must be in compliance with Section 25.146(a)(2) of the Commission's rules and Article 22, Section II, and Resolution 76 of the ITU Radio Regulations. In the 14.0-14.5 GHz frequency band, the equivalent power flux-density (EPFD) limit in the Earth-to-space direction (EPFDup) must not exceed -160 dBW/m2 in 40 kHz bandwidth.

(7) The authorized Ball Aerospace earth station (12.2" x 12.2" square) transmitter must be turned off whenever (1) there is no SpaceX satellite in view at an elevation angle of at least 25 degrees, or (2) the direction of the SpaceX earth station transmit beam and the GSO arc is separated by less than 18°. Operations in the 14.0-14.5 GHz frequency band must maintain +/-18° of avoidance angle (exclusion zone) with the GSO arc at all times. As the earth station is tracking SpaceX's NGSO satellites, it must not radiate within +/- 18° of the GSO arc.

(8) The authorized earth station transmitter must be turned off whenever (1) there is no SpaceX satellite in view at an elevation angle of at least 25 degrees, or (2) the direction of the SpaceX earth station transmit beam and the GSO arc is separated by less than 18°. Operations in the 14.0-14.5 GHz frequency band must maintain +18° of avoidance angle (exclusion zone) with the GSO arc at all times. As the earth station is tracking SpaceX's NGSO satellites, it must not radiate within + 18° of the GSO arc.

(9) The authorized airborne antenna on board aircraft (ESAAs) in aircraft on the ground must not transmit at elevation angles less than three degrees. There is no minimum angle of antenna elevation for ESAAs while airborne.

Special Conditions:

(10) Operations of the authorized airborne antenna on board aircraft (ESAA) operating in the 14.14.5 GHz band must be in compliance with the following additional conditions:

a. Licensee's ESAA must employ a tracking algorithm that is resistant to capturing and tracking adjacent satellite signals, and each station must be capable of inhibiting its own transmission in the event it detects unintended satellite tracking.

b. Licensee's ESAA must be monitored and controlled by a ground-based network control and monitoring center. Such stations must be able to receive "enable transmission" and "disable transmission" commands from the network control center and must cease transmission immediately after receiving a "parameter change" command until receiving an "enable transmission" command from the network control center. The network control center must monitor operation of each earth station to determine if it is malfunctioning, and each earth station must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed satellite service network.

c. Licensee must maintain a point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein, for discussing interference concerns with other licensees, and must submit a letter to be included in its license file with the name and telephone number of the point of contact prior to commencing operation.