Kristi Key, 1 Rocket Rd., Hawthorne, CA 90250

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION

EXPERIMENTAL	WS9XBI
(Nature of Service)	(Call Sign)
XT MO	0562-EX-ST-2021
(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:
The tests requested are designed to demonstrate the ability to transmit and receive information from a moving vehicle on the ground.

Station Locations
(1) MOBILE: Redmond, WA, within 300 km, centered around NL 47-41-39; WL 122-01-58

Frequency Information

MOBILE: Redmond, WA, within 300 km, centered around NL 47-41-39; WL 122-01-58

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
14-14.5 GHz	MO	62M5D7W	4.06 W (Output Power)	0.001 %
14-14.5 GHz	MO	62M5D7W	5.1 kW (ERP)	0.001 %

Special Conditions:
(1) ESIM operation in the 14.0-14.5 GHz band may not cause unacceptable interference to, or claim protection from, geostationary-satellite networks in accordance with Footnote NG527A.

This authorization effective May 18, 2021 and
will expire 3:00 A.M. EST October 27, 2021

FEDERAL COMMUNICATIONS COMMISSION

Special Conditions:

(2) SpaceX must coordinate with the Brewster, WA VLBA point of contact, prior to operations: Dan "Mert" Mertely, nrao-rfi@nrao.edu,phone: (575) 835-7128.

Special Conditions:

(3) Licensee is authorized to conduct tests on 2 (one 0.48m and one 12.2" X 12.2" square antenna) vehicle-mounted earth station (VMES) in the 14.0-14.5 GHz frequency band via SpaceX's NGSO satellites. Operations of VMES are subject to the following :

() POINT OF COMMUNICATION: Space Exploration Technologies Corp. ("SpaceX")'s Ku-band non-geostationary- orbit (NGSO) satellites (S2983/S3018).

() Operations of VMES in the 14.0-14.5 GHz frequency band must be in compliance with the equivalent power flux-density limit (-160 dBW/m2/40 kHz) of Article 22.5D of the ITU Radio Regulations.

() The authorized VMES earth stations must not transmit signals until SpaceX's NGSO satellites in view at an elevation angle of at least 25 degrees.

() Operations of VMES in the Ku-band (14-14.5 GHz) must maintain +&- 18° of avoidance angle (exclusion zone) with the GSO arc at all times. As the VMES earth station is tracking SpaceX's NGSO satellites, it must not radiate within +&-18° of the GSO arc.

() When a VMES transmits to SpaceX's NGSO satellite more than 18 degrees from the GSO arc, the power spectral density of transmissions from the VMES toward GSO satellites must not exceed the limits of the submitted EIRP mask in dBW/40KHz that included the 10 dB sidelobe suppression level in the nulling zone.

() The VMES must be self-monitoring and, should a condition occur that causes it to exceed EIRP, EIRP density or EIRP mask limits, the VMES will automatically cease transmissions within 100 milliseconds and not resume transmissions until the condition that caused the experimental VMES to exceed those limits is corrected.

() Operations of the authorized VMES are subject to the footnote NG527A(c) of Section 2.106 of the Commission rules. In the band 14.0-14.5 GHz (Earth-to-space), VMES authorized to communicate with SpaceX's non-geostationary satellites must not cause unacceptable interference to, or claim protection from, geostationary-satellite networks.

() Operations of the authorized VMES operating in the 14.14.5 GHz band must be in compliance with the following additional conditions:

a. Licensee's VMES 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 VMES 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.

Speci

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.