

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION**

EXPERIMENTAL

(Nature of Service)

WS9XQG

(Call Sign)

XT MO

(Class of Station)

0983-EX-ST-2021

(File Number)

NAME Space Exploration Holdings, LLC

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:

Operation of satellite user terminals on an experimental basis.

Station Locations

- (1) MOBILE: Boca Chica, TX: orbital test using flight profile in exhibit, centered around NL 26-00-00; WL 97-09-36

Frequency Information

MOBILE: Boca Chica, TX: orbital test using flight profile in exhibit, centered around NL 26-00-00; WL 97-09-36

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
14000-14500 MHz	MO	60M0D7W	4.06 W (Output Power)	0.001 %

Special Conditions:

- (1) 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.
- (2) Operation in the 14.0-14.2 and 14.47-14.5 GHz band within radio line-of-sight of the coordinates specified in 47 CFR 25.228(j)(1) are subject to prior coordination with the NASA GSFC Spectrum Management Office (NASA-DL-GSFC-SPECTRUM-MANAGEMENT@MAIL.NASA.GOV).

This authorization effective September 03, 2021 and
will expire 3:00 A.M. EST October 01, 2021

**FEDERAL
COMMUNICATIONS
COMMISSION**



Special Conditions:

- (3) Licensee is authorized to conduct tests on six 0.48m SpaceX UTA-201 earth stations (Starlink satellite terminals) on the ground at the launch site in Starbase, TX, and mounted on the Super Heavy booster and orbital Starship for Starship's first orbital test flight in the 14.0-14.5 GHz frequency band via SpaceX's NGSO satellites.
- (4) POINT OF COMMUNICATION: Space Exploration Technologies Corp. ("SpaceX")'s Ku-band non-geostationary- orbit (NGSO) satellites (S2983/S3018).
- (5) The authorized Starlink satellite terminals on ground and mounted on the Super Heavy booster and orbital Starship for Starship's first orbital test flight must operate in accordance with its ITU filings that are cover these activities.
- (6) Operations in the 14.0-14.5 GHz frequency band must be compliance with the equivalent power flux-density limit (-160 dBW/m²/40 kHz) of Article 22.5D of the ITU Radio Regulations.
- (7) The authorized SpaceX's Starlink satellite terminals must not transmit signals until SpaceX's NGSO satellites in view at an elevation angle of at least 25 degrees.
- (8) Operations in the Ku-band (14-14.5 GHz) must maintain +&- 18° of avoidance angle (exclusion zone) with the GSO arc. Therefore, as the Starlink satellite terminal is tracking SpaceX's NGSO satellites, it must not radiate within +&- 18° of the GSO arc
- (9) The Starlink satellite terminals must be self-monitoring and, should a condition occur that causes it to exceed EIRP, EIRP density or EIRP mask limits, the Starlink satellite terminals will automatically cease transmissions within 100 milliseconds and not resume transmissions until the condition that caused the experimental Starlink satellite terminals to exceed those limits is corrected.
- (10) Operations of the authorized Starlink satellite terminals 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), Starlink satellite terminals authorized to communicate with SpaceX's non-geostationary satellites must not cause unacceptable interference to, or claim protection from, geostationary-satellite networks.
- (11) Operations of the authorized Starlink satellite terminals operating in the 14.14.5 GHz band must be compliance with the following additional conditions:
 - a. Licensee's Starlink satellite terminals 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 Starlink satellite terminals 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.