David Goldman, 1155 F Street, NW, Washington, DC 20004,

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION

EXPERIMENTAL	WW9XOX
(Nature of Service)	(Call Sign)
XT MO	2398-EX-ST-2023
(Class of Station)	(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:
Test NGSO Gen2 satellites with direct-to-cellular communications payloads to connect unmodified cellular phones directly to SpaceX Gen2 satellites.

Station Locations

(1) MOBILE: non-geostationary orbit
(2) MOBILE: Mountain View, CA, within 100 km, centered around NL 37-24-55; WL 122-04-18
(3) MOBILE: Mountain View, CA, within 100 km, centered around NL 37-23-27; WL 121-29-15
(4) MOBILE: Kansas City, KS, within 100 km, centered around NL 38-54-55; WL 94-39-26
(5) MOBILE: Kansas City, KS, within 100 km, centered around NL 39-55-19; WL 96-21-07
(6) MOBILE: Redmond, WA, within 100 km, centered around NL 48-29-28; WL 120-49-29
(7) MOBILE: Redmond, WA, within 100 km, centered around NL 47-21-14; WL 121-27-04
(8) MOBILE: Redmond, WA, within 100 km, centered around NL 47-40-31; WL 122-07-42
(9) MOBILE: San Diego, CA, within 100 km, centered around NL 32-53-08; WL 117-12-41
(10) MOBILE: San Diego, CA, within 100 km, centered around NL 33-18-13; WL 116-15-20
(11) MOBILE: Dallas, TX, within 100 km, centered around NL 33-06-30; WL 96-49-16
(12) MOBILE: Reston, VA, within 100 km, centered around NL 38-57-01; WL 77-22-40
(13) MOBILE: Reston, VA, within 100 km, centered around NL 38-29-32; WL 79-41-16
(14) MOBILE: Bethel, OK, within 100 km, centered around NL 34-21-33; WL 94-48-44
(15) MOBILE: Green Bank Telescope, WV, within 100 km, centered around NL 38-25-59; WL 79-50-23
(16) MOBILE: VLA-Socorro, NM, within 100 km, centered around NL 34-04-44; WL 107-37-06

This authorization effective December 14, 2023 and will expire 3:00 A.M. EST December 20, 2023

FEDERAL COMMUNICATIONS COMMISSION

Station Locations

(17) MOBILE: VLBA-Brewster, WA, within 100 km, centered around NL 48-07-52; WL 119-41-00
(18) MOBILE: VLBA-Kitt Peak, AZ, within 100 km, centered around NL 31-57-23; WL 111-36-45
(19) MOBILE: VLBA-Los Alamos, NM, within 100 km, centered around NL 35-46-30; WL 106-14-44
(20) MOBILE: VLBA-Mauna Kea, HI, within 100 km, centered around NL 19-48-05; WL 155-27-20
(21) MOBILE: VLBA-North Liberty, IA, within 100 km, centered around NL 41-46-17; WL 91-34-27
(22) MOBILE: VLBA-Owens Valley, CA, within 100 km, centered around NL 37-13-54; WL 118-16-37
(23) MOBILE: VLBA-Pie Town, NM, within 100 km, centered around NL 34-18-04; WL 108-07-09
(24) MOBILE: VLBA-Fort Davis, TX, within 100 km, centered around NL 30-38-06; WL 103-56-41
(25) MOBILE: VLBA-Hancock, NH, within 100 km, centered around NL 42-56-01; WL 71-59-12

Frequency Information

MOBILE: non-geostationary orbit

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1990-1995 MHz	MO	1M08D7W 4M50D7W	384591.8 W (ERP)	0.002 %

MOBILE: Mountain View, CA, within 100 km, centered around NL 37-24-55; WL 122-04-18

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Frequency Information

MOBILE: Mountain View, CA, within 100 km, centered around NL 37-23-27; WL 121-29-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Kansas City, KS, within 100 km, centered around NL 38-54-55; WL 94-39-26

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Kansas City, KS, within 100 km, centered around NL 39-55-19; WL 96-21-07

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Redmond, WA, within 100 km, centered around NL 48-29-28; WL 120-49-29

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Frequency Information

MOBILE: Redmond, WA, within 100 km, centered around NL 47-21-14; WL 121-27-04

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Redmond, WA, within 100 km, centered around NL 47-40-31; WL 122-07-42

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: San Diego, CA, within 100 km, centered around NL 32-53-08; WL 117-12-41

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: San Diego, CA, within 100 km, centered around NL 33-18-13; WL 116-15-20

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Frequency Information

MOBILE: Dallas, TX, within 100 km, centered around NL 33-06-30; WL 96-49-16

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Reston, VA, within 100 km, centered around NL 38-57-01; WL 77-22-40

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Reston, VA, within 100 km, centered around NL 38-29-32; WL 79-41-16

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: Bethel, OK, within 100 km, centered around NL 34-21-33; WL 94-48-44

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Frequency Information

MOBILE: Green Bank Telescope, WV, within 100 km, centered around NL 38-25-59; WL 79-50-23

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLA-Socorro, NM, within 100 km, centered around NL 34-04-44; WL 107-37-06

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-Brewster, WA, within 100 km, centered around NL 48-07-52; WL 119-41-00

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-Kitt Peak, AZ, within 100 km, centered around NL 31-57-23; WL 111-36-45

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Frequency Information

MOBILE: VLBA-Los Alamos, NM, within 100 km, centered around NL 35-46-30; WL 106-14-44

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-Mauna Kea, HI, within 100 km, centered around NL 19-48-05; WL 155-27-20

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-North Liberty, IA, within 100 km, centered around NL 41-46-17; WL 91-34-27

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-Owens Valley, CA, within 100 km, centered around NL 37-13-54; WL 118-16-37

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Frequency Information

MOBILE: VLBA-Pie Town, NM, within 100 km, centered around NL 34-18-04; WL 108-07-09

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-Fort Davis, TX, within 100 km, centered around NL 30-38-06; WL 103-56-41

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

MOBILE: VLBA-Hancock, NH, within 100 km, centered around NL 42-56-01; WL 71-59-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1910-1915 MHz	MO	5M00W7D	199.526 mW (ERP)	0.0001 %

Special Conditions:

(1) Following launch of each satellite, the licensee must notify the FCC through electronic submission to the license file, of the status of the satellite (transmissions commenced, etc.), not later than 7 days after commencement or expected commencement of transmissions, and of termination of transmissions, not later than three months after such termination.

(2) All operations of the Gen2 Starlink satellites must also comport with the Commission's decision in the SpaceX Gen2 Partial Grant, Order and Authorization, FCC 22- 91 (rel. Dec. 1, 2022), and the terms and conditions in the SpaceX Gen2 V-band Grant, ICFS File No. SAT-MOD-20230322-00062 (granted-in-part/dismissed-in-part Oct. 13, 2023, reissued Nov. 9, 2023). Except for the addition of testing authority specifically addressed in this grant of STA, operations must also comport with all terms and conditions of the SpaceX Gen2 modification, ICFS File No. SAT-MOD-20230207-00021 (granted-in-part/deferred-in-part December 1, 2023).

Special Conditions:

(3) This STA grant is limited to testing in the continental United States with earth stations at the specific locations identified. Although SpaceX's satellites are capable of operating in the 1429 MHz to 2690 MHz frequencies, testing is limited to the 1910-1915 MHz and 1990-1995 MHz bands. SpaceX may not conduct any commercial operations. SpaceX must obtain additional approval from the Commission before operating its satellites in the 1429 MHz to 2690 MHz frequency range with any locations outside the United States.

(4) Prior to commencing any operations in the 1910-1915 MHz and 1990-1995 MHz bands, the applicant must obtain consent from T-Mobile, the licensee in this band.

(5) Operations of earth stations are permissible only in SpaceX/T-Mobile controlled environments, and are not permitted to public consumer devices. Notice will be given to any users that E911 functionality may not be available during test periods.

(6) Prior to commencing any operations SpaceX must notify any potentially affected operators, including those with operations adjacent to the 1910-1915 MHz and 1990-1995 MHz bands. The notice must include the name and contact information of the stop buzzer personnel that will be available to cease operations in the event of reported interference. The notification should include the testing parameters (specific earth station location(s), antenna gain(s), EIRP, EIRP density) and day and times of each test.

(7) The 24/7 point of contact in the United States, with authority and ability to cease all emissions, for this operation is satellite-operators-pager@spacex.com, which links to the pagers of appropriate technical personnel.

(8) All operations under this grant of STA must be on an unprotected and non-interference basis (NIB), i.e., SpaceX must not cause harmful interference to and must not claim protection from interference caused to it by any other lawfully operating station.

(9) In the event of any harmful interference caused under this grant of STA, SpaceX must immediately cease operations upon notification of such interference. SpaceX must immediately inform the Commission, in writing, of such an event.

(10) SpaceX shall maintain full control of its satellites at all times and shall operate its satellites in accordance with any existing coordination agreements.

(11) All operations under this grant must stay within the minimum power level, as codified in part 24 of the Commission's rules, to close the link.

(12) Earth station operations must not exceed the operational power levels and parameters requested and coordinated. Operations must comply with the parameters below:
ParametersEarth Stations
Max Power0.2 W
Max ERP23 dBm
Frequency Tolerance0.0001%
Emission Designator5M00W7D
Bandwidth5 MHz

(13) SpaceX shall submit the appropriate advance publication and information to the International Telecommunications Union (ITU) prior to any operations. SpaceX must comply with any cross-border agreement(s) relevant to this band.

Special Conditions:

(14) Any action taken or expense incurred as a result of operations pursuant to this grant is solely at SpaceX's own risk. Grant of this Experimental STA does not imply grant or denial of any other pending application and is without prejudice to any determination that the Commission may make regarding pending or future SpaceX applications.

(15) This authorization is subject to modification to bring it into conformance with any rules or policies adopted by the Commission in the future. Accordingly, in making any investments relating to operations authorized in this grant, SpaceX assumes the risk that it may be subject to additional conditions or requirements as a result of any future Commission actions.

(16) Within 60 days following each launch of the modified Starlink Gen2 satellites addressed in ICFS File No. SAT-MOD-20230207-00021 (granted-in-part/deferred-in-part December 1, 2023), please submit a test report.