

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

EXPERIMENTAL

(Nature of Service)

WF9XGI

(Call Sign)

XT FX MO

(Class of Station)

1095-EX-ST-2015

(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:

Capsule communications for SpX-8 mission. ISS commercial re-supply run for NASA customer.

Station Locations

- (1) Cape Canaveral AFS (BREVARD), FL - NL 28-33-42; WL 80-34-38; MOBILE: Space: Dragon S-Band Directional Array
- (2) Cape Canaveral AFS (BREVARD), FL - NL 28-33-42; WL 80-34-38; MOBILE: Space: Dragon S-Band Omni
- (3) Cape Canaveral AFS (BREVARD), FL - NL 28-33-42; WL 80-34-38; MOBILE: Space: Dragon CUCU Patch Hemispherical
- (4) Kennedy Space Center (BREVARD), FL - NL 28-37-25; WL 80-41-11
- (5) Truth or Consequence (SIERRA), NM - NL 32-59-13; WL 106-58-37

Frequency Information

Cape Canaveral AFS (BREVARD), FL - NL 28-33-42; WL 80-34-38; MOBILE: Space: Dragon S-Band Directional Array

| Frequency | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|-----------|---------------|---------------------|------------------|---------------------------|
| 2216 MHz | MO | 546KG1D | 167 W (ERP) | |

This authorization effective February 15, 2016 and will expire 3:00 A.M. EST August 15, 2016

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

Cape Canaveral AFS (BREVARD), FL - NL 28-33-42; WL 80-34-38; MOBILE: Space: Dragon S-Band Omni

| Frequency | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|------------|---------------|---------------------|------------------|---------------------------|
| 2205.5 MHz | MO | 567KF1D 2M45F1D | 30 W (ERP) | |
| 2216 MHz | MO | 12K4G1D | 33 W (ERP) | |

Cape Canaveral AFS (BREVARD), FL - NL 28-33-42; WL 80-34-38; MOBILE: Space: Dragon CUCU Patch Hemispherical

| Frequency | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|-----------|---------------|---------------------|------------------|---------------------------|
| 400.5 MHz | MO | 338KG1D | 2.5 W (ERP) | |

Kennedy Space Center (BREVARD), FL - NL 28-37-25; WL 80-41-11

| Frequency | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|---------------|---------------|---------------------|----------------------|---------------------------|
| 2040.5675 MHz | FX | 5K40G2D | 100 W (Output Power) | |

Truth or Consequence (SIERRA), NM - NL 32-59-13; WL 106-58-37

| Frequency | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|---------------|---------------|---------------------|------------------|---------------------------|
| 2040.5675 MHz | FX | 5K40G2D | 6100 W (ERP) | |

Special Conditions:

- (1) Operation is subject to prior coordination with the Society of Broadcast Engineers, Inc. (SBE); ATTN: Executive Director; 9102 North Meridian Street, Suite 305; Indianapolis, IN 46260; telephone, (866) 632-4222; FAX, (317) 846-9120; e-mail, executivedir@sbe.org; information, www.sbe.org.
- (2) All SpaceX operations granted on an experimental basis shall be on an unprotected, noninterference basis to authorized federal stations. All spacecraft transmission to the ground shall be pre-coordinated for clearance for operation in accordance with each conditions specified below.
- (3) SpaceX shall be aware that future non-federal launches will be considered on a case-by-case basis, especially for requests in the band 2200-2290 MHz, and SpaceX shall have no expectations that future launches will be approved.
- (4) As soon as possible, but no later than 14 business days prior to the planned launch, SpaceX is required to provide, as a minimum, planned launch date/time/window/duration/trajectory/communications frequencies and modes to Jimmy Nguyen (jimmy.nguyen@us.af.mil, AFSMO), Navy/Eric Lee (eric.p.lee1@navy.mil), NASA/Scott Galbraith (vincent.s.galbraith@nasa.gov), Farzin Manshadi (Farzin.manshadi-1@nasa.gov), Rich Rood (richard.l.rood@nasa.gov), Cathy Sham (catherine.c.sham@nasa.gov) and Alfredo Mistichelli (alfredo.mistichelli@noaa.gov), 301-713-1647. In the event of last minute changes, 48-hour notice is required.
- (5) Prior to transmitting (both the spacecraft and ground station operation) at Cape Canaveral AFS, Florida or Kennedy Space Center, Florida, SpaceX shall coordinate their operations by contacting the following:
Steven Schindler (steven.f.schindler@nasa.gov, 321-867-2520, NASA KSC SMO)
Ashley Stockbridge (ashley.n.stockbridge@nasa.gov, 321.867.0218, NASA KSC SMO)
Scott Galbraith (vincent.s.galbraith@nasa.gov, 301-286-5089, NASA GSFC SMO)
Steve Parish (Stephen.Parish.1@us.af.mil, 321-853-2012)
- (6) The STOP BUZZER POC information, for launch operations shall be provided to Brandon Mitchell at bmitchell@ntia.doc.gov. This phone shall be manned 24/7.
- (7) SpaceX shall keep a log of all transmissions in the band 2200-2290 MHz that shall be provided to NTIA after the mission. This log should include, at a minimum, the date, time, frequency, e.i.r.p density, and pointing direction of the antennae. The log must be provided to the following no later than 30 days after completion of the mission:
Brandon Mitchell at bmitchell@ntia.doc.gov
Edward Drocella at edrocella@ntia.doc.gov
- (8) Due to potential harmful interference to naval activities, SpaceX/Dragon RF operations plan shall be submitted, at least 30-days prior to planned launch date, to the Naval Surface Warfare Center, Dahlgren Division (NSWCDD), Mr. James Moneyhon (540)653-3477, or james.moneyhon@navy.mil, for assessment. A blackout zone of 1500 nautical mile radius centered at 22N160W shall be assumed unless otherwise coordinated and agreed by the NSWCDD.
- (9) This STA is limited to no earlier than 15 February 2016, to support the Dragon capsule telemetry, tracking, and command, for the upcoming SpX-8 mission to the International Space Station. This STA will expire as soon as the Dragon capsule completes its re-entry/splashdown operation or by 15 August 2016, whichever occurs first. Applications for any future launches will need to be submitted to the FCC to be re-coordinated with NTIA.

Special Conditions:

- (10) All transmissions in the band 2200-2290 MHz shall comply with national and international power flux-density limits, except in cases where expected exceedance are pre-coordinated and agreed.
- (11) During Dragon on-orbit mission phase (free flight or attached to the International Space Station), downlink operation is coordinated with NASA JSC SMO (Cathy Sham, catherine.c.sham@nasa.gov, 281.483-0124) at least 4 business days prior to any planned transmission operation. For departure/re-entry support, coordination will be initiated at least 14 business days prior to the communications activation for departure and re-entry/splashdown support. Planned communication timeline with start/end time, receiving ground station locations, transmit parameters/power/bandwidth and spacecraft trajectory/orbital locations shall be provided at the time of initiating coordination request.
- (12) Due to harmful interference expected to U.S. Government systems and operation, SpaceX Dragon downlink (2205.5 MHz and 2216 MHz) is prohibited to Sierra, NM (NL 32-59-13; WL 106-58-37) or any other western U.S. ground stations such as Navy Air Warfare Center San Nicolas Island, Western Range Telemetry Asset CA, Telemetry Asset Hawaii, the Pacific Missile Range in Kauai, Hawaii, and the AFSCN ground station at Vandenberg AFB, CA.
- (13) Due to harmful interference expected to U.S. Government systems and operation, SpaceX uplink (2040.5675 MHz) is prohibited from SIERRA, NM- NL 32-59-13; WL 106-58-37, NM.
- (14) This authorization SUPERSEDES the previously issued authorization with the same call sign and file number: changes some special conditions and adds two more.