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

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION

EXPERIMENTAL	WF9XGI
(Nature of Service)	(Call Sign)
XT FX MO	1038-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:
STA is required for Dragon capsule communications for SpaceX Commercial Crew vehicle mission.

Station Locations
(1) Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15; MOBILE: Space: Dragon S-Band Directional Array, centered around NL 28-36-30; WL 80-36-15

Frequency Information

Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15; MOBILE: Space: Dragon S-Band Directional Array, centered a

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2216 MHz	MO	2M73F1D 4M65F1D	77 W (ERP)	0.001 %
2287.5 MHz	MO	4M80G1D	77 W (ERP)	0.001 %

This authorization effective August 28, 2021 and will expire 3:00 A.M. EST February 28, 2022

FEDERAL COMMUNICATIONS COMMISSION

Special Conditions:

(1) SpaceX shall be aware that future non-federal on-orbit operations 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 on-orbit operations will be approved.

(2) As soon as possible, but no later than 60 business days prior to the planned launch, SpaceX is required to provide, as a minimum, launch date/time/window and planned Dragon 2 trajectory from launch to landing, and transmission frequencies with associated duration/cut-off time to Jimmy Nguyen (jimmy.nguyen@us.af.mil, AFSMO), Shaobei Xu (shaobei.xu.1@us.af.mil, AFSMO), Pedro Mendoza (pedro.mendoza.1@us.af.mil, AFSMO), Felipe Arroyo (felipe.arroyo-1@nasa.gov, NASA WFF), NASA GSFC Spectrum Office (NASA-DL-GSFC-Spectrum-Management@mail.nasa.gov), Stephen Horan (stephen.j.horan@nasa.gov, NASA LaRC), NOAA Satellite Operations Control Center (Matt.G.Sullivan@noaa.gov), and NASA JSC Spectrum Office (JSC-DL-Spectrum-Management@mail.nasa.gov). In the event of last-minute changes, 48-hour notice is required.

(3) SpaceX shall keep a log of all transmissions in the band 2200-2290 MHz that shall be provided to the NTIA after the mission. This log shall include, at a minimum, the date, time, frequency, e.i.r.p density, pointing direction of the antennae. The log shall be provided to the following NTIA personnel no later than three (3) weeks after completion of the mission: Rob Avery at ravery@ntia.gov , Ed Drocella at edrocella@ntia.gov

(4) All transmissions in the band 2200-2290 MHz shall comply with national and international power flux density limits (PFD), except in cases where expected exceedance are pre-coordinated and agreed. PFD analysis and exceedances shall be included in the FCC STA application and provided in the request to the NTIA for US Government review and assessment.

(5) Prior to transmitting at Cape Canaveral SFS, Florida, SpaceX shall coordinate and schedule their operations with Range Scheduling, COMM: (321) 853-5941, email: 1ropschd@us.af.mil, NASA KSC Spectrum Management Office, Jamie Bjornbak at 321.867.6905 or James.P.Bjornbak@nasa.gov, and NASA GSFC Spectrum Office (nasa-dl-gsfc-spectrum-management@mail.nasa.gov). SpaceX shall provide a copy of all FCC licenses supporting operations to the 45th Space Wing Spectrum Management Office, (321)-853-8408, email: 45sw.erfmo@us.af.mil with Cc'ing DoD EAFC (321)-853-8426, email: 45sw.dodeafc@us.af.mil.

(6) Due to potential harmful interference to the Deep Space Network (DSN) ground stations, Dragon2 transmissions using 2216 MHz or 2287.5 MHz shall not occur when the Dragon 2 is in view of the following deep space earth stations from horizon to horizon: Goldstone Deep Space Communications Complex (GDSCC) [35° 25' 32.84" N, 116° 53' 22.09" W], Madrid Deep Space Communications Complex (MDSCC) [40° 25' 52.37" N, 04° 14' 52.8" W], Canberra Deep Space Communications Complex (CDSCC) [35° 24' 08.96" S, 148° 58' 52.93" E], and New Norcia Station [31° 02' 53.61" S, 116° 11' 29.4" E].

(7) The STOP BUZZER POC information for all operations shall be provided to NTIA (ravery@ntia.gov). This phone shall be manned 24/7.

(8) Transmission using a frequency of 2216.0 MHz and an emission designator of 4M65F1D shall be limited to ascent and re-entry mission phases. Transmission using a frequency of 2216.0 MHz and an emission designator of 4M65F1D is strictly prohibited for use during on-orbit operations.

Special Conditions:

(9) Transmission using a frequency of 2216.0 MHz and emission designators 2M73F1D or 4M65F1D shall not occur during NASA Orion spacecraft operations (including launch preparation testing and entire mission duration).

(10) This STA is limited to a single Dragon2 capsule telemetry, tracking, and command operations for the upcoming SpaceX Inspriation-4 private spacefarer mission. This STA will expire when the Dragon2 completes its re-entry/splashdown operation or 28 February 2022, whichever occurs first. Any future missions shall submit new applications to the FCC for coordination with the NTIA.

(11) During Dragon2 lift-off/ascent (from launch to launch + 13 minutes), on-orbit mission phases (after lift-off/ascent, free flight), and deorbit/re-entry/landing SpaceX shall provide the radio frequency operation plan to NASA JSC Spectrum Manager, Cathy Sham (catherine.c.sham@nasa.gov) for situational awareness. The radio frequency operation plan for lift-off/ascent communications shall be provided at least 30 days prior to launch, and the radio frequency operational plan for on-orbit and deorbit through landing operations shall be provided at least 7 business days prior to any planned transmission operation.

(12) All SpaceX operations granted on an experimental basis shall be on an unprotected, non-interference basis to authorized federal stations.

(13) Transmission using a frequency of 2216.0 MHz and emission designators 2M73F1D or 4M65F1D shall not occur when the Dragon2 and the NASA International Space Station (NORAD designation 25544, International Spacecraft ID 1998-067A) are both simultaneously within view of the supporting earth station.

(14) As soon as possible, but no later than 60 business days prior to the planned launch, SpaceX is required to provide operations and spaceflight trajectories to the Naval Surface Warfare Center, Dahlgren Division (NSWCDD). One (1) or more of five (5) blackout zones (BOZs) MAY be imposed as follows: (1) 1500 nautical mile radius centered at 22N160W; (2) 1500 nautical mile radius centered at 33.25N119.57W; (3) 1500 nautical mile radius centered at 4.11N175.2W; (4) 1500 nautical mile radius centered at 57.46N152.38W; and (5) 1500 nautical mile radius centered at 32.37N106.47W. The final launch schedule for this SpaceX mission will ultimately determine which, if any BOZ will be implemented. The primary contacts for frequency coordination: Mr. James Moneyhon, (540) 653-3477- james.moneyhon@navy.mil, Mr. A. Jason Verdugo, (540) 653-9590 – Anthony.J.Verdugo@navy.mil, and/or Mr. Phillip B. Scyphers, (540) 653-6071 – Phillip.scyphers@navy.mil. Group email box - W_DLGR_NSWC_FTMA_FM@navy.mil.

(15) SpaceX shall have no expectation of priority scheduling over other federal missions when negotiating Dragon2 support from the NASA Space Network.

(16) SpaceX shall be aware that FCC Part 15 devices are certified for terrestrial usage only and use of FCC Part 15 devices in space should be licensed through the FCC.

(17) Commercial launch service providers should be aware that a satellite integrated into a launch vehicle or deployment device without a current FCC authorization may need to be removed from that vehicle or deployment device if the satellite operator’s application for an FCC authorization is not acted upon favorably, or for various reasons cannot be granted within a time frame consistent with the launch schedule. Commercial launch providers should exercise due diligence to verify satellite operator's regulatory approvals prior to launch (FCC Enforcement Advisory DA 18-368).