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	0656-EX-ST-2019
(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 capsule communications for SpaceX Commercial Crew vehicle in-flight abort demonstration mission.

Station Locations

(1) Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15; MOBILE: Space: Dragon2 S-Band Directional Array, centered around NL 28-36-30; WL 80-36-15
(2) Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15
(3) Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-17
(4) Cape Canaveral (BREVARD), FL - NL 28-32-37; WL 80-35-24
(5) Cape Canaveral (BREVARD), FL - NL 28-37-27; WL 80-41-12

Frequency Information

Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15; MOBILE: Space: Dragon2 S-Band Directional Array, centered

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2203.2 MHz	MO	4M20G1D 4M15G1D	193 W (ERP)	0.001 %
2216 MHz	MO	2M73F1D	193 W (ERP)	0.001 %

This authorization effective October 01, 2019 and
will expire 3:00 A.M. EST April 01, 2020

FEDERAL COMMUNICATIONS COMMISSION

Frequency Information

Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15; MOBILE: Space: Dragon2 S-Band Directional Array, centered

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2216 MHz	MO	4M65F1D	193 W (ERP)	0.001 %
2287.5 MHz	MO	4M80G1D	193 W (ERP)	0.001 %

Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-15

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2106.40625 MHz	FX	4M31G1D	3 W (ERP)	0.00003 %

Cape Canaveral (BREVARD), FL - NL 28-36-30; WL 80-36-17

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2106.40625 MHz	FX	4M31G1D	3 W (ERP)	3.0E-6 %

Cape Canaveral (BREVARD), FL - NL 28-32-37; WL 80-35-24

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2106.40625 MHz	FX	4M31G1D	5400 W (ERP)	3.0E-6 %

Frequency Information

Cape Canaveral (BREVARD), FL - NL 28-37-27; WL 80-41-12

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2106.40625 MHz	FX	4M31G1D	5400 W (ERP)	3.0E-6 %

Special Conditions:

(1) Operation is subject to prior coordination with the local Society of Broadcast Engineers, Inc. (SBE) frequency coordinator. Consult the list at https://www.sbe.org/sections/freq_local.php to find the appropriate coordinator.

(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, Dragon 2 trajectory from launch to splashdown, and transmission frequencies with associated duration/cut-off time to Jimmy Nguyen (jimmy.nguyen@us.af.mil, AFSMO), Felipe Arroyo (felipe.arroyo-1@nasa.gov, NASA/WFF), Scott Galbraith (vincent.s.galbraith@nasa.gov, NASA/GSFC), Kevin Vipavetz (kevin.g.vipavetz@nasa.gov, NASA/LaRC), Stephen Horan (stephen.j.horan@nasa.gov, NASA/LaRC), NOAA Satellite Operations Control Center (philip.l.whaley@noaa.gov), Richard Ontiveros, (richard.ontiveros1@navy.mil, NMSC), and Cathy Sham (catherine.c.sham@nasa.gov, NASA/JSC). In the event of last-minute changes, 48-hour notice is required.

(3) This STA is limited to vehicle telemetry, tracking, and command operations for a single Dragon 2 in-flight abort demonstration mission. This STA will expire when the Dragon completes its re-entry/splashdown operation or 10 December 2019, whichever occurs first. Any future missions shall submit new applications to the FCC to be re-coordinated with the NTIA.

(4) All transmissions in the band 2200-2290 MHz shall comply with national and international power flux density limits, unless otherwise coordinated and agreed to by Federal Agencies.

(5) Prior to transmitting at Cape Canaveral AFS, Florida, SpaceX shall coordinate and schedule their operations with Range Scheduling, COMM: (321) 853-5941, email: 1ropschd@us.af.mil and provide a copy of FCC license 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, NASA KSC SMO, Jamie Bjornbak James.P.Bjornbak@nasa.gov, 321.867.6905, and NASA GSFC SMO, Scott Galbraith vincent.s.galbraith@nasa.gov, 301-286-5089.

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

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

Special Conditions:

(8) SpaceX must coordinate with the Naval Surface Warfare Center, Dahlgren Division (NSWCDD), Mr. James Moneyhon, (540)653-3477, or james.moneyhon@navy.mil, a minimum of 60-days prior to any operations, to mitigate harmful interference to Navy and Marine Corps operations. The launch vehicle provider must also comply with any and all restrictions that may be levied by the Naval Surface Warfare Center, Dahlgren Division (NSWCDD).

(9) At least three weeks prior to the Dragon 2 in-flight abort demonstration mission, SpaceX shall provide the radio frequency operation plan to the NASA JSC SMO Catherine Sham at Catherine.c.sham@nasa.gov for coordination of operations with authorized users. The radio frequency operation plan shall include, at a minimum, planned communication timelines with start/end time, transmit/receiving station locations and antenna pointing orientations, transmit parameters (power/bandwidth/antenna gain/EIRP), and spacecraft trajectory.