

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

EXPERIMENTAL

(Nature of Service)

WH9XHM

(Call Sign)

XT MO

(Class of Station)

1054-EX-ST-2013

(File Number)

NAME Orbital Sciences Corporation

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:

Cygnus spacecraft operations

Station Locations

(1) MOBILE: Spacecraft-350km altitude-52.5 degrees inclination

Frequency Information

MOBILE: Spacecraft-350km altitude-52.5 degrees inclination

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2202.9-2207.1 MHz	MO	4M20G1D	1.52 W (ERP)	0.00045 %
2213-2219 MHz	MO	6M00G1D	3.32 W (ERP)	0.0001 %
2214.5-2217.5 MHz	MO	3M00G1D	3.32 W (ERP)	0.0001 %

This authorization effective April 15, 2014 and
will expire 3:00 A.M. EST October 16, 2014

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

MOBILE: Spacecraft-350km altitude-52.5 degrees inclination

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2215.984-2216.016 MHz	MO	32K0G1D	3.32 W (ERP)	0.0001 %
2215.992-2216.008 MHz	MO	16K0G1D	3.32 W (ERP)	0.0001 %

Special Conditions:

- (1) All OSC operations are granted on an experimental basis and shall be conducted on an unprotected, non-interference basis to authorized federal stations.
- (2) Use of this STA is limited to this single mission, launch of the demonstration mission of OSC Cygnus cargo vehicle to the International Space Station (ISS). This STA is limited to the single Cygnus launch scheduled, as of 6 December 2013, for no earlier than April 15, 2014 and ending October 15, 2014. This STA will expire as soon as this Cygnus mission has been completed, e.g., recovering of the Cygnus capsule, nominally within 24 hours of splashdown. Any future launches will need to submit applications to the FCC to be re-coordinated with NTIA.
- (3) OSC 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 OSC shall have no expectations that future non-federal launches will be approved.
- (4) OSC shall coordinate and schedule their operations at least 24 hours prior to planned operation with Jimmy.Nguyen@pentagon.af.mil (301-225-3729) and Philip.L.Whaley@noaa.gov (757-824-7331) .
- (5) During prelaunch/launch operations at Wallops Flight Facility, OSC shall coordinate and schedule their operations through NASA POC's as specified in NASA/OSC service agreements and copy WFF Spectrum Manager, Felipe Arroyo, felipe.arroyo-1@nasa.gov, 757-824-1623.
- (6) For on-orbit/reentry/splashdown with Jimmy.Nguyen@pentagon.af.mil (301-225-3729), Philip.L.Whaley@noaa.gov (757-824-7331) , vincent.s.galbraith@nasa.gov, mbielucki@mail.wsc.nasa.gov and catherine.c.sham@nasa.gov.
- (7) The STOP BUZZER POC information, for both for ground testing and for launch/on-orbit/reentry operations, is:
Operations Director (OD) Phone numbers: 703-948 -2029, 703-948 -2031 (alternate #1), 703-948-2032 (alternate #2).
Email: missiondirector@orbital.com.

This phone shall be manned by the staff communications coordinator 24/7.

- (8) When docked to the ISS, the operations plan for Cygnus following operations shall be provide to NASA/JSC Spectrum Manager, Catherine Sham, Catherine.c.sham@nasa.gov, 281-222-1117

Special Conditions:

- (9) Operation of Cygnus-to-Earth communications on 2216 MHz must be immediately terminated if a federal station advises that it requires use of the frequency. Usage schedule information shall be provided at least 24 hours prior to activation of link to Jimmy Nguyen at jimmy.nguyen@pentagon.af.mil, Vincent Galbraith at vincent.s.galbraith@nasa.gov and Catherine Sham at catherine.c.sham@nasa.gov.
- (10) All transmissions in the band 2200-2290 MHz will comply with national and international power flux-density limits.
- (11) The 2216 MHz mode 2 (narrowband) operation is limited to a declared spacecraft emergency; notification to the FCC and the NTIA shall be provided as soon as practical upon an declared emergency.
- (12) Operations of the Cygnus 2 GHz space-to-Earth transmission are limited to transmission when a fixed ground station is within line of sight of the spacecraft.
- (13) OSC shall keep a log of all transmissions in the band 2200-2290 MHz that would be provided to NTIA after the mission. This log should include at least date, time, frequency, eirp density, and pointing direction of the antenna. The log should be provided to the following people at NTIA: skotler@ntia.doc.gov and edrocella@ntia.doc.gov.
- (14) Orbital Sciences Corp 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 30-days prior to any operations to mitigate harmful interference to Navy and Marine Corps operations. Orbital Sciences Corp must also comply with any and all restrictions that may be levied by the Naval Surface Warfare Center, Dahlgren Division (NSWCDD).
- (15) Orbital Sciences Corp must coordinate Wallops operations with NOAA Philip L. Whaley@noaa.gov, 757-824-7331, ext 331.