

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

EXPERIMENTAL

(Nature of Service)

WJ9XCU

(Call Sign)

XT MO

(Class of Station)

0338-EX-ST-2015

(File Number)

NAME Orbital ATK , Inc.

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:

Spacecraft telemetry links for monitoring of Cygnus spacecraft state of health.

Station Locations

(1) MOBILE: Spacecraft-350km altitude-51.6 degrees inclination

Frequency Information

MOBILE: Spacecraft-350km altitude-51.6 degrees inclination

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2202.9-2207.1 MHz	MO	4M20G1D	3.5 W (ERP)	0.00045 %
2216 MHz	MO	3M00G1D 6M00G1D	6.24 W (ERP)	0.00003 %
2287.5 MHz	MO	6M16G1D	10.6 W (ERP)	0.00003 %

This authorization effective November 30, 2015 and
will expire 3:00 A.M. EST May 31, 2016

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

MOBILE: Spacecraft-350km altitude-51.6 degrees inclination

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2287.5 MHz	MO	4M98G1D	10.6 W (ERP)	0.00003 %
2287.5 MHz	MO	3M00G1D	10.6 W (ERP)	0.00003 %

Special Conditions:

(1)

1. All Orbital Sciences operations are granted on an experimental basis and shall be conducted on an unprotected, non-interference basis to authorized federal stations.
2. Cygnus 2287.5 MHz transmission (to the TDRS or direct to a supporting ground station) is not permitted when in view of the following deep space earth stations: Goldstone Deep Space Communications Complex (GDSCC), Madrid DSCC, Canberra DSCC and New Norcia Station, from horizon to horizon.
3. Use of this STA is limited to this single Orb-4 Cygnus spacecraft mission to perform Orb-4 orbit and orbit raising maneuvers, approach and berthing with the international Space Station (ISS), un-berthing and departure from the ISS, orbit maneuvering, and destructive re-entry into the Earth atmosphere. This STA is limited to a single Orb-4 Cygnus spacecraft mission scheduled no earlier than December 3, 2015 for a nominal 60-day stay at the ISS. This STA will expire as soon as this Cygnus mission (OrbA-4) is completed, typically 8 hours after separation from the ISS as the Cygnus spacecraft burns up during its reentry to the Earth's atmosphere. The Cygnus spacecraft is not reusable and does not return to the Earth for retrieval. Any future launches will need to submit applications to the FCC to be re-coordinated with NTIA.
4. Orbital Sciences shall be aware that future non-federal launches and in orbit operations will be considered on a case-by-case basis, especially for requests in the band 2200-2290 MHz, and Orbital Sciences shall have no expectations that future non-federal launches will be approved.
5. For on-orbit operation, a communications plan which precludes use of 2287.5 MHz transmission when in view of the deep space stations, as specified under condition #2, shall be provided, at least 96 hours prior to launch and updated 2 hours after orbit insertion to farzin.manshadi-1@nasa.gov (818-354-0068), and catherine.c.sham@nasa.gov (281-222-1117). Updates to this communications plan shall be provided at least 3 business days before a planned flight trajectory deviation from the post orbit insertion plan.
6. When docked to the ISS, the radio frequency plan for Cygnus shall be provided to NASA/JSC Spectrum Manager, Catherine Sham, catherine.c.sham@nasa.gov, 281-222-1117, for coordination with authorized users prior to scheduling. Requests shall be provided at least 10 business days prior to commencing the events.
7. The STOP BUZZER POC information, both for ground testing and for launch/on-orbit/reentry operations, is:
Operations Director (OD) Phone number: 703-948 -2029,
703-948-2031 (alternate #1)
703-948-2032 (alternate #2)
Email: missiondirector@orbital.com.
These phones shall be manned by the staff communications coordinator 24/7.
8. All transmissions in the band 2200-2290 MHz will comply with national and international power flux-density limits.
9. 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.

Speci:

10.Orbital Sciences shall keep a log of all transmissions in the band 2200-2290 MHz that will 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 will be provided to the following people at NTIA: Bmitchell@ntia.doc.gov and edrocella@ntia.doc.gov.

11.Orbital Sciences Corporation 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 5-days prior to any operations to mitigate harmful interference to Navy and Marine Corps operations. Orbital Sciences Corporation must also comply with any and all restrictions that may be levied by the Naval Surface Warfare Center, Dahlgren Division (NSWCDD).