

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

EXPERIMENTAL

(Nature of Service)

WJ2XOH

(Call Sign)

XT FX MO

(Class of Station)

1703-EX-ST-2019

(File Number)

NAME Old Dominion University

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:

The purpose of operation is to troubleshoot communications systems on the 3 cubesats, restore function if possible, and send commands and receive data to carry out the experiments as was

Station Locations

- (1) MOBILE: Low Earth Orbit 400 km
- (2) Norfolk, VA - NL 36-53-08; WL 76-18-17
- (3) Charlottesville, VA - NL 38-01-57; WL 78-30-40
- (4) Blacksburg (MONTGOMERY), VA - NL 37-13-48; WL 80-26-22

Frequency Information

MOBILE: Low Earth Orbit 400 km

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.08 MHz	MO	20K0G1D	2 W (ERP)	0.00025 %

This authorization effective September 21, 2019 and
will expire 3:00 A.M. EST March 21, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

Norfolk, VA - NL 36-53-08; WL 76-18-17

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.04 MHz	FX	20K0G1D	380 W (ERP)	0.0001 %
401.08 MHz	FX	20K0G1D	380 W (ERP)	0.0001 %
401.12 MHz	FX	20K0G1D	380 W (ERP)	0.00001 %

Charlottesville, VA - NL 38-01-57; WL 78-30-40

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.08 MHz	FX	20K0G1D	688.3 W (ERP)	0.00025 %

Blacksburg (MONTGOMERY), VA - NL 37-13-48; WL 80-26-22

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.08 MHz	FX	20K0G1D	543 W (ERP)	2.5E-6 %

Special Conditions:

- (1) Upon receipt of a conjunction warning from the JSpOC or other source, the licensee must review the warning and take all possible steps to assess and, if necessary, to mitigate collision risk, including, but not limited to: contacting the operator of any active spacecraft involved in such warning; sharing ephemeris data and other appropriate operational information with any such operator; modifying spacecraft attitude and/or operations.

Special Conditions:

- (2) The licensee shall provide the Commission with all information required for the Advance Publication, Coordination and Notification of frequency assignments pursuant to the International Radio Regulations. This includes the preparation of draft materials, to be provided to the Commission prior to submission to the International Telecommunication Union. The authorized operations require notification of frequency assignments pursuant to Article 11 of the ITU Radio Regulations. Licensee shall provide the FCC, not later than 30 days after a frequency assignment is brought into use, the documents required for notification (including SpaceCap Notification MDB file) of such frequency assignments. The licensee shall also prepare materials for informing the ITU that a frequency assignment has been brought into use, or that its use has been suspended or permanently discontinued.
- (3) Following launch of the satellite, the licensee must notify the FCC through electronic submission to the license file, of the status of the satellite (transmissions commenced, etc.), not later than 7 days after commencement or expected commencement of transmissions, and of termination of transmissions, not later than three months after such termination.
- (4) Old Dominion University must pre-coordinate all operations with the NASA JSC Spectrum Manager, Cathy Sham at 281-222-1117 or catherine.c.sham@nasa.gov, or the JSC Deputy Spectrum Manager, Alan Chu at 218-520-9036 or alan.h.chu@nasa.gov, at least 7 days prior to operation due to potential harmful interference to NASA International Space Station (ISS) operations. A communications blackout shall be assumed when the ISS (NORAD designation 25544 or international spacecraft ID 1998-67A) is within horizon to horizon view of the Blacksburg, VA, Charlottesville, VA, or Norfolk, VA ground stations, unless otherwise coordinated with and agree to by the NASA JSC Spectrum Manager. Requests for coordination shall include, at a minimum, planned communication timelines with start/end time, transmit station operational characteristics, receive station location, CubeSat trajectory/orbital locations, NORAD designation or international spacecraft ID for each CubeSat, and Stop Buzzer POC.
- (5) Point of communications: Aeternitas satellite, Libertas satellite, and Ceres VT satellite