

Explanation of Request for STAs – VCC Cubesats

Three Virginia universities (see table below) each have launched a 1U Cubesat. They were carried to the International Space Station (ISS) on NG-11 resupply mission, launched April 17, 2019. They were deployed from the ISS on July 3.

Since then, despite ongoing attempts, there has been no communication established between the ground stations and the satellites. The current concept of operation is for each university ground station to communicate with the cubesat from that university.

We request Special Temporary Authority to enable each of the three university ground stations to transmit to each of the cubesats, and enable each of the cubesats to transmit to each of the ground stations.

Also, we request Special Temporary Authority for the cubesats to communicate with the Wallops Flight Facility 11 meter diameter antenna. It is thought that a larger antenna may have a better chance of communicating if performance of the cubesats is somehow impaired.

All of this is expected to take place only for a limited time. One of the cubesats will deorbit in the next two months.

The following table summarizes the cubesats, the ground stations, the issued Experimental License numbers, and the STA application file numbers.

Satellite and File Number Table

Operator	Cubesat Name	Cubesat Frequency Up/Down	Experimental License Number	STA File Number
U of VA	Libertas	401.04 MHz	0263-EX-CM-2018	1644-EX-ST-2019
VA Tech	Ceres VT	401.12 MHz	0252-EX-CN-2018	TBD
Old Dominion U	Aeternitas	401.08 MHz	0255-EX-CN-2018	TBD
Wallops Ground	None	None	None	Licensed by Wallops

The existing experimental license grants are shown on the next pages.

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE

EXPERIMENTAL

(Nature of Service)

WJ2XMR

(Call Sign)

XT FX MO

(Class of Station)

0263-EX-CM-2018

(File Number)

NAME University of Virginia

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(h) of the Commission's Rules

Station Locations

- (1) MOBILE: Nongeostationary, SP
- (2) Charlottesville (ALBEMARLE), VA - NL 38-01-57; WL 78-30-40

Frequency Information

MOBILE: Nongeostationary, SP

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.03-401.05 MHz	MO	20K0G1D	2 W (ERP)	0.00025 %

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

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.03-401.05 MHz	FX	20K0G1D	688.3 W (ERP)	0.00025 %

This authorization effective March 05, 2019 and
will expire 3:00 A.M. EST October 01, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**



Special Conditions:

- (1) 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.
- (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 assignments has been brought into use, or that its use has been suspended or permanently discontinued.
- (3) Licensee should be aware that other stations may be licensed on these frequencies and if any interference occurs, the licensee of this authorization will be subject to immediate shut down.
- (4) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (5) 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.
- (6) Point-of-Communication: Libertas satellite.
- (7) Operation is subject to prior coordination with The National Radio Quiet Zone coordinator (NRQZ).
- (8) The designated point-of-contact to terminate the system if interference occurs is Christopher P. Goyne at 434-227-2737.

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE**

EXPERIMENTAL

(Nature of Service)

WJ2XMS

(Call Sign)

XT FX MO

(Class of Station)

0252-EX-CN-2018

(File Number)

NAME Virginia Polytechnic Institute of Technology

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(h) of the Commission's Rules

Station Locations

- (1) MOBILE: Nongeostationary, SP
- (2) Blacksburg (MONTGOMERY), VA - NL 37-13-48; WL 80-26-22

Frequency Information

MOBILE: Nongeostationary, SP

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.11-401.13 MHz	MO	20K0G1D	2 W (ERP)	0.00025 %

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

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
401.11-401.13 MHz	FX	20K0G1D	543 W (ERP)	2.5E-6 %

This authorization effective October 04, 2018 and
will expire 3:00 A.M. EST October 01, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**



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.
- (2) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (3) Licensee should be aware that other stations may be licensed on these frequencies and if any interference occurs, the licensee of this authorization will be subject to immediate shut down.
- (4) 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.
- (5) 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 assignments has been brought into use, or that its use has been suspended or permanently discontinued.
- (6) Point-of-Communications: CERES satellite.

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE**

EXPERIMENTAL

(Nature of Service)

WJ2XOH

(Call Sign)

XT FX MO

(Class of Station)

0255-EX-CN-2018

(File Number)

NAME Old Dominion University

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(J) of the Commission's Rules

Station Locations

- (1) MOBILE: Low Earth Orbit 400 km
- (2) Norfolk, VA - NL 36-53-08; WL 76-18-17

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 %

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

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

This authorization effective October 09, 2018 and
will expire 3:00 A.M. EST October 01, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**



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.
- (2) 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.
- (3) 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 assignments has been brought into use, or that its use has been suspended or permanently discontinued.
- (4) Point of communications: Aeternitas satellite