

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

EXPERIMENTAL

(Nature of Service)

WJ2XUF

(Call Sign)

XT FX MO

(Class of Station)

0800-EX-CN-2018

(File Number)

NAME Virginia Tech Electrical and Computer Engineering

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(i) of the Commission's Rules

Station Locations

- (1) Blacksburg (MONTGOMERY), VA - NL 37-13-53; WL 80-25-21; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centered around NL 37-13-53; WL 80-25-21
- (2) Blacksburg (MONTGOMERY), VA - NL 37-13-54; WL 80-25-25; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centered around NL 37-13-54; WL 80-25-25

Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-53; WL 80-25-21; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centered

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
138-144 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	
138-144 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	
150.8-154 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	

This authorization effective November 28, 2018 and
will expire 3:00 A.M. EST December 01, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-53; WL 80-25-21; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centerer

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
150.8-154 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	
220-222 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	
220-222 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	
410-420 MHz	FX	12K5F3E 12K5F1D 12K5D1D	0.4 W (ERP)	
410-420 MHz	MO	12K5F3E 12K5F1D 12K5D1D	0.4 W (ERP)	
450-470 MHz	FX	25K0F3E 25K0F1D 25K0D1D	0.4 W (ERP)	
450-470 MHz	MO	25K0F3E 25K0F1D 25K0D1D	0.4 W (ERP)	
809-824 MHz	FX	25K0F3E	0.4 W (ERP)	

Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-53; WL 80-25-21; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, center

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
809-824 MHz	FX	25K0D1D	0.4 W (ERP)	
809-824 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	
824-849 MHz	MO	200KF1D 10M0DXD	0.4 W (ERP)	
869-894 MHz	FX	200KF1D 10M0DXD	0.4 W (ERP)	
902-928 MHz	FX	10M0DXD	0.4 W (ERP)	
902-928 MHz	MO	10M0DXD	0.4 W (ERP)	
1850-2000 MHz	MO	250KF1D 10M0DXD 25K0D1D	0.4 W (ERP)	
1850-2000 MHz	FX	250KF1D 10M0DXD 25K0D1D	0.4 W (ERP)	

Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-53; WL 80-25-21; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centerer

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
3550-3700 MHz	FX	20M0DXD	0.4 W (ERP)	
3550-3700 MHz	MO	20M0DXD	0.4 W (ERP)	
5725-5850 MHz	MO	40M0DXD	0.4 W (ERP)	
5725-5850 MHz	FX	40M0DXD	0.4 W (ERP)	

Blacksburg (MONTGOMERY), VA - NL 37-13-54; WL 80-25-25; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centerer

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
138-144 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	
138-144 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	
150.8-154 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	
150.8-154 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	

Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-54; WL 80-25-25; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, centerer

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
220-222 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	
220-222 MHz	MO	25K0F3E 25K0D1D	0.4 W (ERP)	
410-420 MHz	FX	12K5F3E 12K5F1D 12K5D1D	0.4 W (ERP)	
410-420 MHz	MO	12K5F3E 12K5F1D 12K5D1D	0.4 W (ERP)	
450-470 MHz	FX	25K0F3E 25K0F1D 25K0D1D	0.4 W (ERP)	
450-470 MHz	MO	25K0F3E 25K0F1D 25K0D1D	0.4 W (ERP)	
809-824 MHz	FX	25K0F3E 25K0D1D	0.4 W (ERP)	
809-824 MHz	MO	25K0F3E	0.4 W (ERP)	

Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-54; WL 80-25-25; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, center

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
809-824 MHz	MO	25K0D1D	0.4 W (ERP)	
824-849 MHz	MO	200KF1D 10M0DXD	0.4 W (ERP)	
869-894 MHz	FX	200KF1D 10M0DXD	0.4 W (ERP)	
902-928 MHz	FX	10M0DXD	0.4 W (ERP)	
902-928 MHz	MO	10M0DXD	0.4 W (ERP)	
1850-2000 MHz	MO	250KF1D 10M0DXD 25K0D1D	0.4 W (ERP)	
1850-2000 MHz	FX	250KF1D 10M0DXD 25K0D1D	0.4 W (ERP)	
3550-3700 MHz	FX	20M0DXD	0.4 W (ERP)	
3550-3700 MHz	MO	20M0DXD	0.4 W (ERP)	

Frequency Information

Blacksburg (MONTGOMERY), VA - NL 37-13-54; WL 80-25-25; MOBILE: Virginia Tech, Blacksburg, VA, within 1 km, center

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
5725-5850 MHz	MO	40M0DXD	0.4 W (ERP)	
5725-5850 MHz	FX	40M0DXD	0.4 W (ERP)	

Special Conditions:

- (1) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (2) 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.
- (3) Operation 410-420 MHz, the bandwidth of the emission designator must not exceed 12.5 KHz.
- (4) The authorized station must be in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules.
- (5) The authorized station must be in compliance with environmental requirement set forth in Section 1.1307 of the Commission's Rules.
- (6) Experimental station shall use the minimum power level necessary to establish communications links to minimize potential interference to licensed users.
- (7) This authorization is without prejudice to any determination that the Commission may make regarding pending or future experimental satellite earth station applications.
- (8) Operations are on a non-interference basis (NIB) and shall not cause harmful interference to, and shall not claim protection from, interference caused to it by any other lawfully operating station and it shall cease transmission(s) immediately upon notice of such interference and notify the FCC in writing.
- (9) The applicant must obtain consent from the following within 50 miles of the contours of the testing area:
 - Paging Service licensees in 152 MHz
 - Paging Service licensees in 152 MHz/158 MHz
 - 220-222 MHz Service licensees
 - Paging Service licensees in 454 MHz/459 MHz
 - General Aviation Air-Ground Service in 454 MHz/459 MHz
 - SMR licensees (809-824 MHz/854-869 MHz)
 - B/ILT licensees (809-824 MHz/854-869 MHz)
 - Cellular licensees (824-849 MHz/869-894 MHz)
 - Location & Monitoring Service licensees (902-928 MHz)
 - Broadband PCS licensees (1850-1910 MHz/1930-1990 MHz)

Special Conditions:

- (10) Licensee shall maintain operation separation from the grandfathered earth stations as defined in Part 90, Sub-part Z, or coordinate an agreement with the grandfathered earth station licensees prior to operation in 3550-3700 MHz band.
- (11) Licensee shall consult the ULS database to ensure that the operation will not cause harmful interference to any existing registered stations in the 3650-3700 MHz band, and notify the registered users in the proposed geographic areas.
- (12) Licensee must obtain consents from the Advance Wireless Service licensees prior to accessing to 1850-2000 MHz band.
- (13) Operation is subject to prior coordination with the local Society of Broadcast Engineer frequency coordinator prior to operation in 150.8-154 MHz, 450-470 MHz bands.