

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

EXPERIMENTAL

(Nature of Service)

WO9XPU

(Call Sign)

XT MO

(Class of Station)

2342-EX-ST-2019

(File Number)

NAME Cornell 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:**

Downlink data from CORNELL PAN Project experiment.

**Station Locations**

- (1) MOBILE: LEO, 500 km (A)
- (2) MOBILE: LEO, 500 km (A)
- (3) MOBILE: LEO, 500 km (B)
- (4) MOBILE: LEO, 500 km (B)

**Frequency Information**

MOBILE: LEO, 500 km (A)

| Frequency   | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|-------------|---------------|---------------------|------------------|---------------------------|
| 915-928 MHz | MO            | 250KF1D             | 0.025 W (ERP)    | 0.0084 %                  |

This authorization effective August 01, 2020 and  
will expire 3:00 A.M. EST February 01, 2021

**FEDERAL  
COMMUNICATIONS  
COMMISSION**



## Frequency Information

MOBILE: LEO, 500 km (A)

| Frequency           | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|---------------------|---------------|---------------------|------------------|---------------------------|
| 1618.725-1626.5 MHz | MO            | 41K7Q7W             | 1.28 W (ERP)     | 0.000159 %                |

MOBILE: LEO, 500 km (B)

| Frequency   | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|-------------|---------------|---------------------|------------------|---------------------------|
| 915-928 MHz | MO            | 250KF1D             | 0.025 W (ERP)    | 0.0084 %                  |

MOBILE: LEO, 500 km (B)

| Frequency           | Station Class | Emission Designator | Authorized Power | Frequency Tolerance (+/-) |
|---------------------|---------------|---------------------|------------------|---------------------------|
| 1618.725-1626.5 MHz | MO            | 41K7Q7W             | 1.28 W (ERP)     | 0.000159 %                |

## 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.

## Special Conditions:

- (5) Following conclusion of the rendezvous and proximity operations mission, propellant remaining on the spacecraft must be used to lower spacecraft altitude for purposes of minimizing the satellite's remaining time in orbit.
- (6) POINT OF COMMUNICATION: Pan A and Pan B CubeSat satellites.
- (7) Cornell University must obtain the appropriate licensing of the link from the Iridium satellites to the PAN Project CubeSats.
- (8) This concurrence is only valid for a planned orbit of 500 km altitude using an orbital inclination of 45 degrees. Any changes to the planned orbit shall require a new application to the FCC to be re-coordinated with the NTIA.
- (9) During the test process, while transmitting, the antenna elevation is required to be set to 90 degrees in order to minimize the potential of radiating toward the horizon or any GEO satellites.
- (10) Cornell University must provide AFSMO (Jimmy Nguyen, 301-225-3729, jimmy.nguyen@us.af.mil) and HQ USSF (David Pooley, 719 554-6400, david.pooley@us.af.mil) with specific test frequencies and schedule prior to testing.
- (11) Cornell University 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 24 hours prior to any operations.