

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

EXPERIMENTAL

(Nature of Service)

WK9XHU

(Call Sign)

XT FX MO

(Class of Station)

0017-EX-ST-2017

(File Number)

NAME Millennium Space Systems, 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:

On orbit demonstration, risk reduction, test, and characterization of key avionics and components for the Millennium ALTAIR spacecraft prototype.

Station Locations

- (1) MOBILE: Low Earth Orbit
- (2) Naalehu (HAWAII), HI - NL 19-00-50; WL 155-39-47

Frequency Information

MOBILE: Low Earth Orbit

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2249.43-2250.93 MHz	MO	1M50G1D	3.3 W (ERP)	

This authorization effective May 17, 2017 and
will expire 3:00 A.M. EST November 17, 2017

**FEDERAL
COMMUNICATIONS
COMMISSION**



Frequency Information

Naalehu (HAWAII), HI - NL 19-00-50; WL 155-39-47

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2071.991-2072.031 MHz	FX	40K0G1D	3.8 MW (ERP)	

Special Conditions:

- (1) Operation is subject to prior coordination with the local Society of Broadcast Engineers, Inc. (SBE) frequency coordinator. Consult the list at http://freq.sbe.org/pdf_files/coordinators.pdf to find the appropriate coordinator.
- (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) Operations are granted on an experimental, unprotected, and non-interference basis to authorized federal users.
- (5) Prior to operation in 2071.991-2072.031 MHz band, licensee must successfully coordinate with the local Society of Broadcast Engineer Inc.
- (6) 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.
- (7) 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.
- (8) POINT OF COMMUNICATION: ALTAIR CubeSat.
- (9) Operation of the ALTAIR spacecraft downlink transmitter shall be limited to periods of time when the spacecraft is within view of the associated Hawaiian ground station.
- (10) Due to potential harmful interference to International Space Station (ISS) operations, Millennium Space Systems, Inc. uplink from Naalehu, Hawaii ground station to the ALTAIR spacecraft shall be prohibited from operation while the ISS is in view of the Naalehu, Hawaii ground station unless otherwise coordinated and agreed by the NASA Johnson Space Center (JSC) Spectrum Manager, Cathy Sham (Catherine.c.sham@nasa.gov). Requests for coordination shall be provided to Cathy Sham (catherine.c.sham@nasa.gov) and NASA JSC Deputy Spectrum Manager, Alan Chu (alan.h.chu@nasa.gov), at least 14 business days prior to planned transmission and should include, as a minimum, current ALTAIR trajectory and planned uplink event start and end times.

Special Conditions:

- (11) Millennium Space Systems should be aware that the band 2200-2290 MHz is allocated for federal satellite and fixed line-sight operations.
- (12) Non-federal use is on a case-by-case basis. Millennium Space Systems should have no expectations of automatic approval in this band in future submissions.