

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

EXPERIMENTAL

(Nature of Service)

XT MO

(Class of Station)

WS9XMZ

(Call Sign)

0031-EX-TC-2021

(File Number)

NAME Virgin Orbit, LLC

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.

Station Locations

(1) MOBILE: Orbital Trajectory, Mojave, CA, centered around NL 35-03-24; WL 118-09-28

Frequency Information

MOBILE: Orbital Trajectory, Mojave, CA, centered around NL 35-03-24; WL 118-09-28

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2215.5 MHz	MO	4M99G1W	80 W (ERP)	0.002 %
2215.5 MHz	MO	2M73G1W	25 W (ERP)	0.002 %

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) Virgin Orbit shall be aware that future non-federal launch requests for the use of the 2200-2290 MHz band will be considered on a case-by-case basis

This authorization effective September 28, 2021 and
will expire 3:00 A.M. EST April 10, 2022

**FEDERAL
COMMUNICATIONS
COMMISSION**



Special Conditions:

- (4) This STA is limited to launch vehicle communications for the telemetry transmissions and reception of the Launcher One satellite launch vehicle. This STA will expire as soon as the launch has been completed or 9 April 2022, whichever occurs first. Applications for any future launches shall be submitted to the FCC for coordination with NTIA.
- (5) All transmissions in the band 2200-2290 MHz shall comply with national and international power flux density limits (PFD), except in cases where expected exceedance is pre-coordinated and agreed. PFD analysis and exceedances shall be included in the FCC STA application and provided in the request to the NTIA for US Government review and assessment.
- (6) As soon as possible, but no later than 60 business days prior to commencing flight operations, Virgin Orbit shall provide, as a minimum, launch date/window, planned aircraft flight path, and planned Launcher One trajectory, transmission frequencies with associated duration/cut-off time to Jimmy Nguyen (jimmy.nguyen@us.af.mil, AFSMO), Shaobei Xu (shaobei.xu.1@us.af.mil, AFSMO), Pedro Mendoza (pedro.mendoza.1@us.af.mil, AFSMO), Felipe Arroyo (felipe.arroyo-1@nasa.gov, NASA WFF), NASA GSFC Spectrum Office (NASA-DL-GSFC-Spectrum-Management@mail.nasa.gov), Stephen Horan (stephen.j.horan@nasa.gov, NASA LaRC), NOAA Satellite Operations Control Center (Matt.G.Sullivan@noaa.gov), and NASA JSC Spectrum Office (JSC-DL-Spectrum-Management@mail.nasa.gov). In the event of last-minute changes, 48-hour notice is required.
- (7) Virgin Orbit shall notify the NASA GSFC Spectrum Management Office at NASA-DL-GSFC-SPECTRUM-MANAGEMENT@MAIL.NASA.GOV of the specific launch date and time once it is finalized. In the event of last-minute changes, notification shall be provided as soon as possible.
- (8) Operations and spaceflight trajectories to be submitted NLT 60 days prior to launch to the Naval Surface Warfare Center, Dahlgren Division (NSWCDD). One (1) or more of five (5) blackout zones (BOZs) MAY be imposed as follows: (1) 1500 nautical mile radius centered at 22N160W; (2) 1500 nautical mile radius centered at 33.25N119.57W; (3) 1500 nautical mile radius centered at 4.11N175.2W; and (4) 1500 nautical mile radius centered at 57.46N152.38W; (5) 1500 nautical mile radius centered at 32.37N106.47W. The final launch schedule for this Virgin Orbit mission will ultimately determine which, if any BOZ will be implemented. In addition, Virgin Orbit MUST also comply with any and all restrictions that may be levied by NSWCDD. The primary contacts for frequency coordination: Mr. James Moneyhon, (540) 653-3477- james.moneyhon@navy.mil, Mr. A. Jason Verdugo, (540) 653-9590 – Anthony.J.Verdugo@navy.mil, and/or Mr. Phillip B. Scyphers, (540) 653-6071 – Phillip.scyphers@navy.mil. Group email box. W_DLGR_NSWC_FTMA_FM@navy.mil
- (9) The STOP BUZZER POC information for all operations shall be provided to Rob Avery (ravery@ntia.gov), NTIA. This phone shall be manned 24/7.
- (10) Commercial launch service providers should be aware that a satellite integrated into a launch vehicle or deployment device without a current FCC authorization may need to be removed from that vehicle or deployment device if the satellite operator's application for an FCC authorization is not acted upon favorably, or for various reasons cannot be granted within a time frame consistent with the launch schedule. Commercial launch providers should exercise due diligence to verify satellite operator's regulatory approvals prior to launch (FCC Enforcement Advisory DA 18-368).