

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

EXPERIMENTAL

(Nature of Service)

WP9XTR

(Call Sign)

XT MO

(Class of Station)

0212-EX-ST-2020

(File Number)

NAME Astra Space

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:

The operation is to launch a small satellite into low earth orbit. This will be a launch from the Pacific Spaceport America in Kodiak, AK.

Station Locations

- (1) MOBILE: Launch vehicle stages 1 & 2, within 2000 km, centered around NL 57-25-52;
WL 152-21-16

Frequency Information

MOBILE: Launch vehicle stages 1 & 2, within 2000 km, centered around NL 57-25-52; WL 152-21-16

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
2209.84-2212.16 MHz	MO	2M32F1D	6.31 W (ERP)	0.00002 %
2212.68-2217.32 MHz	MO	4M64F1D	6.31 W (ERP)	0.00002 %

Special Conditions:

- (1) This authorization SUPERSEDES the previously issued authorization with the same call sign and file number: amended condition

This authorization effective March 03, 2020 and
will expire 3:00 A.M. EST April 01, 2020

**FEDERAL
COMMUNICATIONS
COMMISSION**



Special Conditions:

- (2) Operations shall be limited to telemetry, tracking and launch vehicle communications for a single Astra Space launch from Kodiak, AK. This STA will expire as soon as the launch has been completed or 31 March 2020, whichever occurs first.
- (3) All transmissions in the band 2200-2290 MHz shall comply with national and international power flux density limits, unless otherwise coordinated and agreed to. PFD analysis and exceedances shall be provided in the FCC application and provided to the NTIA for US Government review.
- (4) Astra Space shall be aware that future non-federal launches will be considered on a case-by-case basis for requests in the band 2200-2290 MHz, and Astra Space shall have no expectations that future launches will be approved for operation in this band.
- (5) Notification of the specific launch date, launch time, and the latest estimated launch trajectory shall be provided to the NASA GSFC Spectrum Office at NASA-DL-GSFC-SPECTRUM-MANAGEMENT@MAIL.NASA.GOV, at least 3 days prior to operation.
- (6) As soon as possible, but no later than 30 business days prior to the planned launch, Astra Space is required to provide, as a minimum, launch date/time/window, and transmission frequencies with associated duration/cut-off time to Jimmy Nguyen (jimmy.nguyen@us.af.mil, AFSMO), Felipe Arroyo (felipe.arroyo-1@nasa.gov, NASA/WFF), NASA GSFC Spectrum Office (NASA-DL-GSFC-Spectrum-Management@nasa.gov, Stephen Horan (stephen.j.horan@nasa.gov, NASA/LaRC), Kenneth Dudley (kenneth.l.dudley@nasa.gov, NASA/LaRC), NOAA Satellite Operations Control Center (Matt.G.Sullivan@noaa.gov), and Cathy Sham (catherine.c.sham@nasa.gov). In the event of last-minute changes, 48-hour notice is required.
- (7) Astra Space must pre-coordinate with and provide a "STOP BUZZER" to the Naval Surface Warfare Center, Dahlgren Division (NSWCDD), group email box; W_DLGR_NSWC_FTMA_FM@navy.mil.
- (8) Astra Space must pre-coordinate prior to operation in order to mitigate harmful interference to Navy/Marine Corps/DoD operations with Primary frequency coordination: Mr. James Moneyhon, (540)-653-3477- james.moneyhon@navy.mil or Secondary frequency coordination with Mr. A. Jason Verdugo, (540)-653-9590 - anthony.J.Verdugo@navy.mil, Mrs. Lory Santiago, (540)-653-0096 - lory.santiago@navy.mil.

Special Conditions:

- (9) To mitigate the potential for interference to NOAA satellite network, Astra Space must generate blackout windows to protect these NOAA satellite networks when they downlink to Fairbanks. The list of NOAA satellite networks which have frequency overlaps with the two Astra Space emissions at 2211 MHz and 2215 MHz is listed in the table below.

NOAA Satellite	Other Satellite Name	NORAD ID
DMSP	5D-2 F15	25991
DMSP	5D-3 F16	28054
DMSP	5D-3 F17	29522
DMSP	5D-3 F18	35951
COSMIC	FORMOSAT-3A	29047
COSMIC	FORMOSAT-3B	29048
COSMIC	FORMOSAT-3C	29049
COSMIC	FORMOSAT-3D	29050
COSMIC	FORMOSAT-3E	29051
COSMIC	FORMOSAT-3F	29052
JASON-3	JASON-3	41240