

**FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPECIAL TEMPORARY AUTHORITY**

Applicant Name

Name of Applicant: United Launch Alliance

Address

Attention:

Street Address:

P.O. Box:

City:

State:

Zip Code:

Country:

E-Mail Address:

Best Contact

Give the following information of person who can best handle inquiries pertaining to this application:

Last Name:

First Name:

Title:

Phone Number:

Explanation

Please explain in the area below why an STA is necessary:

This STA is being sought for the CFT launch at Cape Canaveral Space Force Station Launch Complex 41. This launch is part of certifying that the Atlas V rocket and the Boeing Starliner capsule are ready to carry commercial crew to the ISS. During this launch, the vehicle will be using our standard S-Band telemetry transmitter and our standard S-Band GPS transmitter. The launch is currently planned for July 30, 2021. Start of launch vehicle testing, which includes open loop RF transmissions, can begin as early as 4/1/2023. The nominal mission profile has the Centaur second stage performing a controlled re-entry and ocean splashdown approximately 2,287 seconds after liftoff.

Purpose of Operation

Please explain the purpose of operation: Launch vehicle communications for the launch of the Atlas V vehicle with the Boeing Starliner crew capsule from Space Launch Complex 41 (LC-41) at Cape Canaveral Space Force Station.

Information

Callsign: To be assigned

Class of Station: MO

Nature of Service: Experimental Test Flight

Requested Period of Operation

CFT Launch

Operation Start Date: 4/1/2023

Operation End Date: 5/30/2023

Manufacturer

List below transmitting equipment to be installed (if experimental, so state) if additional rows are required, please submit equipment list as an exhibit:

Manufacturer	Model Number	No. Of Units	Experimental
L3 Communications (Cincinnati Electronics)	T-740	1	No
Microwave Innovations	GPS Transmitter	1	No

Certification

Neither the applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. The applicant hereby waives any claim to the use of any particular frequency or electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended.) The applicant acknowledges that all statements made in this application and attached exhibits are considered material representations, and that all the exhibits part hereof and are incorporated herein as if set out in full in this application; undersigned certifies that all statements in this application are true, complete and correct to the best of his/her knowledge and belief and are made in good faith. Applicant certifies that construction of the station would NOT be an action which is likely to have a significant environmental effect. See the Commission's Rules, 47 CFR1.1301-1.1319.

Signature of Applicant (Authorized person filing form):

Title of Applicant (if any):

Date: -----

Station Location

City	State	Latitude	Longitude	Mobile	Radius of Operation
Cape Canaveral SFS	Florida	279.4 deg East	28.6 deg North	Launch Vehicle	

Datum: NAD 83

Is a directional antenna (other than radar) used? No

Exhibit submitted: No

(a) Width of beam in degrees at the half-power point:

(b) Orientation in horizontal plane:

(c) Orientation in vertical plane:

Will the antenna extend more than 6 meters above the ground, or if mounted on an existing building, will it extend more than 6 meters above the building, or will the proposed antenna be mounted on an existing structure other than a building? Yes

(a) Overall height above ground to tip of antenna in meters:

T740: 48.415

GTX: 48.415

(b) Elevation of ground at antenna site above mean sea level in meters: 7

(c) Distance to nearest aircraft landing area in kilometers: 10

(d) List any natural formations of existing man-made structures (hills, trees, water tanks, towers, etc.) which, in the opinion of the applicant, would tend to shield the antenna from aircraft:

Nearest air field is CCSFS Skid Strip, all test activity coordinated with Air Force.

T-740 Transmitter

Action	Frequency	Station Class	Output Power/ERP	Mean Peak	Frequency Tolerance (+/-)	Emission Designator	Modulating Signal
New	2232.5 MHz	MO	60.0 W Xmtr Output Pwr 174.2 W ERP <small>(based on 1.52 dB cable loss & 8.3 dBIC ant gain)</small>	P	0.0017%	9M60G7D	QPSK
New	2232.5 MHz	MO	60.0 W Xmtr Output Pwr 174.2 W ERP <small>(based on 1.52 dB cable loss & 8.3 dBIC ant gain)</small>	P	0.0017%	1M60G7D	QPSK
New	2232.5 MHz	MO	60.0 W Xmtr Output Pwr 174.2 W ERP <small>(based on 1.52 dB cable loss & 8.3 dBIC ant gain)</small>	P	0.0017%	1M23G1D	BPSK

GPS Transmitter

Action	Frequency	Station Class	Output Power/ERP	Mean Peak	Frequency Tolerance (+/-)	Emission Designator	Modulating Signal
New	2255.5 MHz	MO	10.0 W Xmtr Output Pwr 10.6 W ERP <small>(based on 3.49 dB cable loss & 5.9 dBIC ant gain)</small>	P	0.002%	161KG2D	BPSK

Required Supplemental Information

The following additional information is provided pursuant to the Office of Engineering and Technology's Public Notice, "Guidance on Obtaining Experimental Authorizations for Commercial Space Launch Activities," DA: 13-446 (OET, released March 15, 2013):

a. Technical information including frequency, power, emission, latitude and longitude coordinates of the launch site or test operations.

See foregoing STA Form for technical parameters. The S-Band TDRSS telemetry transmitter will be operating through the entire mission profile. The liftoff QPSK mode (9M60G7D) will be used through approximately 285 seconds after liftoff. Past that point, the TDRSS transmitter will use the BPSK mode (1M23G1D) while periodically switching to the QPSK mode (1M60G7D) to play back recorded wideband instrumentation and video data. The GPS S-Band transmitter will operate through Main Engine Cutoff 1 (MECO1) + 300 seconds (Approx. 1018 seconds after launch). Coordinates for SLC-41 launch site are: Latitude 28° 35' 00.4414" North; longitude 80° 34' 58.3806" West. The launch pad altitude is 22.2 feet above mean sea level.

b. An overview of the proposed launch or testing including, if appropriate, identifying the launch facility and the overall mission.

See "Purpose of Operation" on Main STA Form.

c. The anticipated orbital parameters or range of orbital parameters (altitude, inclination) in which the launch vehicle or related spacecraft will operate.

The Atlas V N22 / CST-100 mission will be launched on a northerly trajectory from Eastern Range (ER) Launch Complex 41 (SLC-41). A single Centaur main engine burn with a Guidance Commanded Shutdown (GCS) will place the CST-100 spacecraft into a sub-orbital Low Earth Orbit (39.2nmi by 98.1nmi at 51.6 deg inclination). Spacecraft separation will occur at approximately 15 minutes after liftoff. After separation, the CST-100 spacecraft will perform a burn maneuver to its ISS rendezvous and the Centaur will perform a Collision and Contamination Avoidance Maneuver (CCAM). Since the Centaur will be sub-orbital, it will naturally de-orbit after it passes apogee. The Centaur will be disposed of in the ocean Southwest of Australia, with an expected perigee of -3.7nmi and an expected ocean impact time of 58 minutes after liftoff.

d. A 24-hour contact for interference issues.

TBD – Launch and Range Operations
Office @ CCAFS: xxx-xxx-xxxx
Mobile: xxx-xxx-xxxx

e. If the applicant is also requesting authorization to operate an earth station to communicate with the launch vehicle or spacecraft, it should provide the frequency, power, emission, latitude and longitude coordinates for the earth station. If the applicant is planning to communicate with an earth station operated by another company, the United States government, or one located outside the United States, its territories and possessions, the applicant should include technical parameters of the earth station in an exhibit to the application for reference purposes only.

Eastern Range (ER) TLM ground stations, located at and down range from CCAFS, the Air Force Satellite Control Network (AFSCN), and TDRSS will provide coverage throughout the flight.

Station	Geodetic Latitude (deg N)	Geodetic Longitude (deg E)	Geodetic Altitude (ft)	Antenna Gain (dB)	Noise Temperature (K)	G/T (dB/K)
<u>CCSFS & Vicinity</u>						
TEL-4	28.46	80.65	-35.17	41.6	257	
JDMTA	26.98	80.11	-36.48	48.9	202	
BOSS A	42.95	71.63	653.27			23.5
BOSS B	42.95	71.63	653.43			25.5
LION A	51.12	0.906	471.78			23.5
LION B	51.12	0.906	468.57			21.5
LION C	51.12	0.906	478.26			25.5