



Rev 1.0, 01/23/2023

Request for Special Temporary Authority

Virgin Orbit, LLC

Virgin Orbit designs and manufactures satellite launch vehicle ("Launcher One") that is air launched from a modified 747 airplane ("Cosmic Girl"). Launcher One is an expendable launch vehicle, designed to place small satellites into a wide range of Low Earth Orbits (LEO). STA License is requested to operate an S-Band Transmitter on Launcher One at 2215.5 MHz for the upcoming launch. STA is necessary to authorize the use of S-Band transmitter for telemetry and video transmissions. The transmitter is located on 2nd stage, it will be turned ON before launch and will stay ON until the end of the mission. The transmitter will also be turned ON for RF checkouts at Mojave Air and Space Port. Data rate will be reduced at some point in time during the mission.



Figure 1: Cosmic Girl (747) with Launcher One under the wing

747 will take-off from Air and Space Port in Mojave, California with Launcher One in captive carry. Launcher One will be dropped and launched from the Western Sea Range restricted airspace off Point Mugu, California. Details of captive carry phase, launch and trajectory are being coordinated with FAA Commercial Space Transportation Office (AST). Launch license to be provided by FAA-AST. Virgin Orbit is coordinating with FAA-ATO (FAA-Air Traffic Control Organization) and LA Air Traffic Control Center (ZLA) for use of air space.

Captive carry flight and orbital trajectory details will be provided to the NTIA.



	Data Rate	
Transmitter Output Power	20 Watts	20 Watts
EIRP	49 dBm	44 dBm
Bandwidth	4.99 MHz	2.73 MHz
Modulation Scheme	SOQPSK-TG	SOQPSK-TG
Emissions Designator	4M99G1W	2M73G1W
Carrier Frequency Tolerance	+/- 20 ppm	+/- 20 ppm
Transmitter Manufacturer	Quasonix	
Antenna Manufacturer	Haigh Farr	

Table 1: Transmitter Specs

	Latitude	Longitude
Air and Space Port Mojave, Mojave, CA	35° 3' 24.4188"	-118° 9' 28.1304"

Table 2: Takeoff Location

Stop Buzzer Point of Contact:

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