



Rev 2.3, 01/03/2020

Request for Special Temporary Authority

Virgin Orbit, LLC

Virgin Orbit is designing a satellite launch vehicle ("Launcher One") that will be air launched from a modified 747 airplane ("Cosmic Girl"). LauncherOne 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 first 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 Mojave Air and Space Port in California with Launcher One in captive carry. Launcher One will be dropped and launched in 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 have been 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	
Transmitter Partnumber	QSX-VSR4-1111-20-80-04AB-VP-WV	
Antenna Manufacturer	Haigh Farr	
Antenna Part Number	13155	

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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