



Rev 1.1, 5/7/2018

## 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"). STA License is requested to operate an S-Band Transmitter on Launcher One at 2262MHz for the upcoming first launch. STA is necessary to authorize the use of S-Band transmitter for telemetry and video transmission. The transmitter is located on 2<sup>nd</sup> stage, it will be turned on few minutes before launch and will stay ON until the 2<sup>nd</sup> stage battery is depleted. Data rate will be switched from 5.4Mbps to 2.7Mbps at some point in time after the launch.



**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 will be shared with NASA, NTIA, NOAA, WAFC and other Government agencies through FAA or directly if necessary.

Virgin Orbit has also shared the details of this application with Western Area Frequency Coordinator. We are currently in contact with Mr. Andrew Foltz at DOD Western Area Frequency Coordinator (WAFC), [andrew.foltz@navy.mil](mailto:andrew.foltz@navy.mil).



	Data Rate	
<b>Output Power</b>	20 Watts	20 Watts
<b>EIRP</b>	49 dBm	43 dBm
<b>Bandwidth</b>	7.02 MHz	3.51 MHz
<b>Modulation Scheme</b>	SOQPSK-TG	SOQPSK-TG
<b>Emissions Designator</b>	7M02G1W	3M51G1W
<b>Carrier Frequency Tolerance</b>	+/- 20 ppm	+/- 20 ppm
<b>Transmitter Manufacturer</b>	Quasonix	
<b>Transmitter Partnumber</b>	QSX-VSR4-1111-20-80-04AB-VP-WV	
<b>Antenna Manufacturer</b>	Haigh Farr	
<b>Antenna Part Number</b>	13155	

**Table 2: Transmitter Specs**

**Stop Buzzer Point of Contact:**

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