

**FILING NUMBER:**

Application for New Experimental Radio Station Authorization (FCC Form 442)

**QUESTION 6: STATEMENT OF RESEARCH PROJECT**

(a) Blue Origin is an aerospace research and development company developing commercial space launch vehicle technology. Blue Origin conducts flight testing of these vehicles at its private test facility in Culberson County, Texas. This test facility is in the sparsely-populated desert of Western Texas, approximately 25 miles north of the small town of Van Horn.

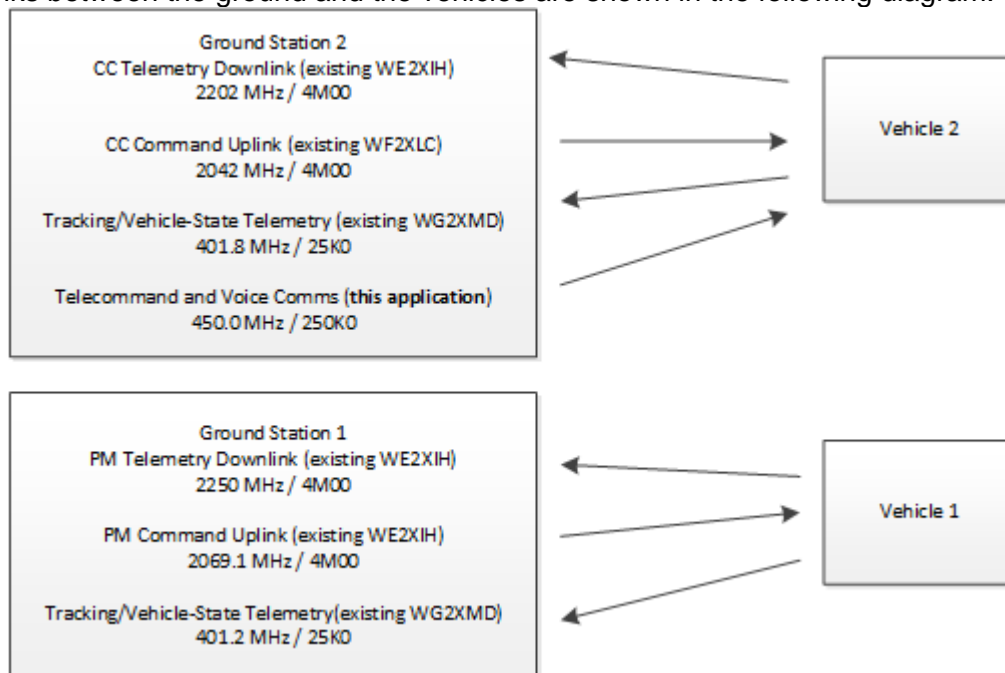
(b) The FCC license sought in this application will be used for flight testing vehicles under development. A telecommand and voice communications radio link is required to send instructions to vehicles in real time and to communicate with astronauts while they are in flight and while undergoing ground testing. This application is for one uplink frequency for one of two vehicles.

**ADDITIONAL INFORMATION**

The aerial vehicles fly a predominantly vertical trajectory before returning to land. During the flight, the vehicle lateral position will vary from directly over the landing pad up to approximately a 5-mile radius. The vehicles will employ real-time communications systems to provide telemetry to the ground and to receive commands. The frequencies will also be used to provide voice communications between the ground and the vehicle.

The frequencies sought in this application will be used with transceivers located on the aerial vehicles and transceivers located on the ground. The ground antennas will be non-directional to assist with maintaining other, directional antennas pointing at the vehicles during flight.

These links between the ground and the vehicles are shown in the following diagram:



The telecommand and voice communications uplink system has the following characteristics:

1. Digital data source with up to 200 kilobit/second data stream
2. RF transmitter
  - a. 450.0 MHz carrier frequency
  - b. 20W RF output
  - c. Phase-shift-key modulation
  - d. 250 kHz bandwidth
3. Antennas
  - a. One ground transmit antenna, omnidirectional
  - b. One vehicle receive antenna, omnidirectional
  - c. Either RHCP (right-hand circular polarization) or linear polarization (TBD)

**QUESTION 8: LENGTH OF TIME THAT WILL BE REQUIRED TO COMPLETE THE PROGRAM OF EXPERIMENTATION**

Blue Origin is developing a series of launch vehicles. Extensive flight testing is planned for multiple vehicles for more than a 5-year period. Blue Origin plans to use the telemetry and telecommand equipment on multiple test vehicles over the course of a 5-year period following receipt of the license sought in this application.

**QUESTION 12: TYPE OF APPLICANT**

Blue Origin Texas, LLC is a limited liability corporation formed under the laws of the State of Texas.