

FRN: 0014817662

**EXHIBIT #1:**

Blue Origin, LLC

**DATE:** April 26, 2010

**FRN:** 0014817662

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

**TYPE OF APPLICANT:**

Blue Origin, LLC is a limited liability company formed under the laws of the State of Washington.

**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 applies to telemetry between ground stations and aerial vehicles that are being built by Blue Origin. A telemetry and command radio link is required to send instructions to and receive data from the aerial vehicles in real time while they are on the ground and in flight undergoing testing. This application is for the addition of one uplink frequency to support two vehicles that will separate. The prior frequency supported only one vehicle; the new frequency sought in this application will support the second vehicle.

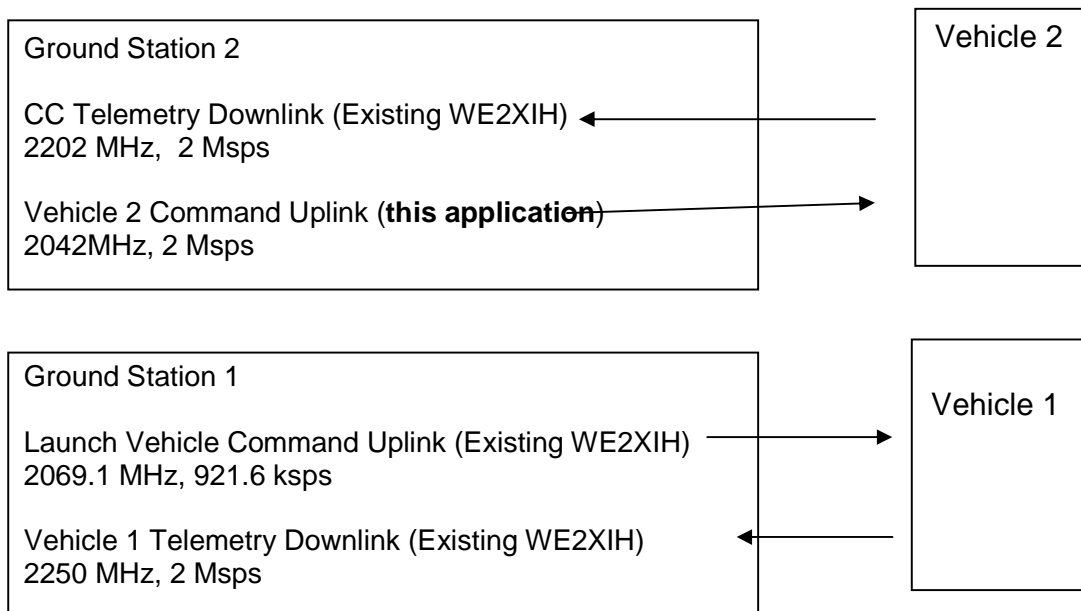
**NOMINAL MISSION**

The New Shepard system consists of two vehicles. The two vehicles are attached at launch, but separate during flight. The primary landing zone for one vehicle is a circular area with a radius two miles from the north landing pad (NLP). The other vehicle completes a post-separation trajectory and lands vertically at the NLP.

**ADDITIONAL INFORMATION**

The aerial vehicles take off and fly a vertical trajectory before returning to land. During the flight, the vehicle lateral position will vary from directly over the landing pad up to a 5-mile radius. In addition, the vehicle attitude will vary from pure vertical by approximately +/- 30 degrees and will vary around the vertical axis by approximately +/- 60 degrees. A GS (Ground Station) site will be used during flight testing. Blue Origin will experiment with the location of the GS antenna, within a 24 mile radius of the launch site in the Texas desert.

The vehicles will employ real-time communications systems in order to provide telemetry to the launch operations team. Telemetry data is used to analyze the flight of the vehicle, while commands are used in order to control the flight sequence. The existing FCC licenses cover the three telemetry and command links shown below. In total, there will be four real-time links between the ground and the vehicle as shown in the following diagram:



The first application and award (0265-EX-PL-2007) covered the first three S-Band telemetry and command channels. This application is for one additional command uplink to support stand alone vehicle operations.

The command uplink system is located at the launch site. The command uplink system has the following characteristics:

1. Ethernet source
2. Comtech CDM-570 modem that provides modulation with a 2 MHz bandwidth (Carrier Frequency +/- 1 MHz) See picture below.
3. HD Communications RF Transmitter with a maximum of 12 Watts output
4. One tracking antenna with an 8 degree beamwidth and RHCP or Linear polarization (TBD)
5. System Effective Isotropic Radiated Power (EIRP) 2400W

**DESCRIPTION OF DIRECTIONAL ANTENNA OPERATION**

The transmit signal for the Blue Origin vehicle 2 uplink at 2042 MHz is sent by a 6-foot tracking parabolic dish antenna. At 2042 MHz, the beamwidth of this antenna is eight degrees. For a given flight, this antenna will be located within 24 miles of the launch pad, which is at 31 25' 22.99" N, 104 45' 26.01" W. (See West Texas Launch below)The parabolic dish antenna will slew during the flight in order to track the current location of the crew capsule. Therefore, the orientation of the antenna throughout the flight of the launch vehicle will vary depending on the crew capsule's location.

**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 (see #6, above). Blue Origin plans to use the telemetry equipment on multiple test vehicles over the course of a 5-year period following receipt of the license sought in this application.

**West Texas Launch Site**

