REQUESTS FOR SPECIAL TEMPORARY AUTHORITY

Spaceflight Inc. ("Spaceflight"), pursuant to Section 25.120 of the Commission's Rules, hereby requests Special Temporary Authority ("STA") to permit it to communicate with a spacecraft, known as SHERPA, and corresponding earth stations for a duration of up to twelve (12) hours to take place in a single occurrence between January 15, 2016 and April 15, 2016.[1]

As described in greater detail in the attached Technical Annex, SHERPA is a non-propulsive, free-flying spacecraft intended to deploy auxiliary spacecraft from each of five ports. SHERPA itself is proposed to be affixed to the payload on a Falcon 9 launch that is currently scheduled to occur within above-stated launch period. SHERPA will be placed in a sun synchronous elliptical orbit of 720 x 450 km, 97.4 degree inclination. After its deployment from the launch vehicle, SHERPA will initiate a sequence of procedures to begin the deployment of its own payload and the communication that is the subject of the instant requests will commence.

Spaceflight seeks authority to permit it to establish communications between SHERPA and three earth stations during the twelve-hour operational of the SHERPA payload.[2] The communications links, which will consist of two-way data transmissions, will permit the Spaceflight technical crew to track the launch and download status information from SHERPA. The proposed frequencies for communication to and from SHERPA are UHF frequencies authorized under the FCC's Table of Frequency Allocations for space operations.

The payload of SHERPA will consist of small spacecraft that are owned and to be operated by Spaceflight's customers. Each customer is expressly required under its agreement with Spaceflight to obtain all licenses, authorization, clearances, and permits that may be necessary to operate its individual spacecraft.

Spaceflight asserts that grant of the instant requests for Special Temporary Authority will be in the public interest. Such grant will permit Spaceflight to initiate a new and innovative deployment technology for small spacecraft, thereby providing a cost-efficient means for placing them into their designed orbits.

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[1] Recent developments in the spacecraft launch industry have resulted in a number of launch delays and uncertainties as to when future launches will occur. The timeframe set forth above reflects the current launch period assigned for the Spaceflight launch. Spaceflight has not yet been assigned an exact date of the SHERPA launch. Accordingly, Spaceflight is herein seeking STA to cover a period of three (3) months. However, as described herein, the actual communications for which STA is sought will occur over a period of only twelve (12) hours. Spaceflight will notify the Commission as its launch period is narrowed to a particular day as soon as that information is confirmed to it by the launch provider.

[2] Spaceflight is submitting concurrently unique applications for space station STA to cover the communications of SHERPA and earth station STA to cover the ground station locations.

Technical Annex: Spaceflight SHERPA Spacecraft Description

The Spaceflight SHERPA spacecraft is a non-propulsive, free-flying spacecraft intended to deploy auxiliary spacecraft from each of five ports. The spacecraft is primarily composed of commercial off the shelf (COTS) hardware, with the core structure being a custom ESPA Grande ring. Auxiliary satellites are integrated to each port using simple plates and separated using proven separation systems, such as the Planetary Systems Corporation (PSC) Motorized Lightband (MLB) and the Innovative Solutions in Space (ISIS) QuadPack. The configuration, shown in Figure 1, is intended to deploy three microsatellites using MLBs as well as several CubeSats and nanosatellites from twenty-one (21) QuadPack dispensers. Each QuadPack holds 12U worth of CubeSat payload. A CubeSat, based on the Cal Poly CubeSat standard, has nominal dimensions 10 x 10 x 10 cm. SHERPA runs flight software on COTS Andrews Space CORTEX avionics and it is equipped with its own power and power distribution system to deploy each auxiliary spacecraft in a pre-programmed sequence. The primary mission is satisfied by successful deployment of each auxiliary payload. The confirmation of successful payload deployment is given by the transmission of telemetry containing SHERPA state vectors taken upon each discrete deployment event.

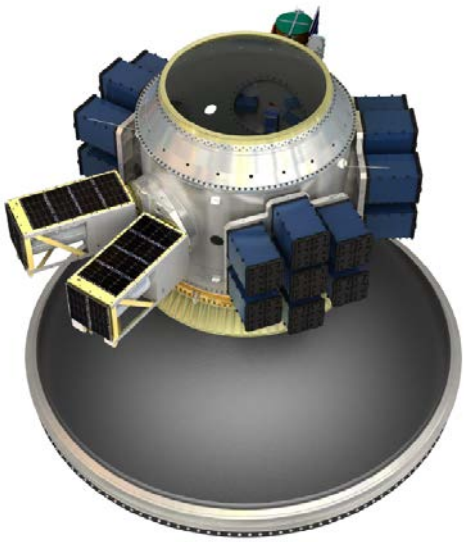

Figure 1. SHERPA Spacecraft shown integrated with the Payload Attach Fitting (below) and the Primary Payload Adapter (above)

The SHERPA mission itself is expected to last approximately twelve (12) hours. At launch, SHERPA is integrated beneath the primary payload. The primary payload is launched into 720 km circular sun synchronous orbit and then separated. The upper stage, with SHERPA attached, executes a maneuver to lower the perigee of the orbit to 450 km and change the inclination to 97.4 degrees. At this orbit, SHERPA is separated from the upper stage. The separation event activates the SHERPA spacecraft through the closing of separation switches, which will turn on for the first time. After initialization, SHERPA begins a pre-programmed sequence of deployments. No uplink is necessary to begin deployments. For each deployment event time, position, and velocity (determined via GPS receiver) are logged in the form of a state vector to be transmitted. Upon completion of deployments, SHERPA transmits the telemetry to a ground station. SHERPA's communication system utilizes an onboard UHF radio with 4 antenna.

SHERPA batteries are expected to last for duration less than 20 hours until they're expended. Ultimately, SHERPA de-orbits through orbital decay due to atmospheric drag approximately 20 years after launch.

Location	SHERPA (space segment)	North Pole, Alaska	Tukwila, Washington	NASA Wallops
Link direction	Downlink	Uplink	Uplink	Uplink
Antenna Manufacturer	Spaceflight Systems Inc	M2 Antenna Systems Inc	M2 Antenna Systems Inc	MIT Lincoln Labs
Antenna Model	n/a	450CP34	450CP34	n/a
Antenna Size	n/a	3.05-m boom length	3.05-m boom length	18.3-m diameter
Number of Antennas	1	1	1	1
Address, City, State	Mobile, LEO Orbit: 720 x 450 km, 97.4° inclination	1625 Richardson Highway, North Pole, Alaska	3415 S 116th St #123, Tukwila, WA	Building U-25, Mainland Road Wallops Island, VA 23337
Lat/Long coordinates in minutes,seconds	Mobile, LEO	64° 47' 37.0" N, 147° 32' 10.8" W	47° 29' 55.44" N, 122° 17' 23.64" W	37° 51' 18'' N 75° 30' 47'' W
Site Elevation AMSL	Mobile, LEO	144 m AMSL	15.9 m AMSL	12.6 m AMSL
Frequencies	401.5 MHz	450.2 MHz	450.2 MHz	450.2 MHz
Output Power (W)	2 W	5 W	5 W	8 W
ERP (W)	2.07 W	63 W	63 W	15,310 W
Frequency tolerance	*	*	*	*
Emissions (bandwidth of signal plus emission type)	825KG1D	27K6G1D	27K6G1D	27K6G1D
Modulating Signal	A single channel containing digital information	A single channel containing digital information	A single channel containing digital information	A single channel containing digital information

*In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set