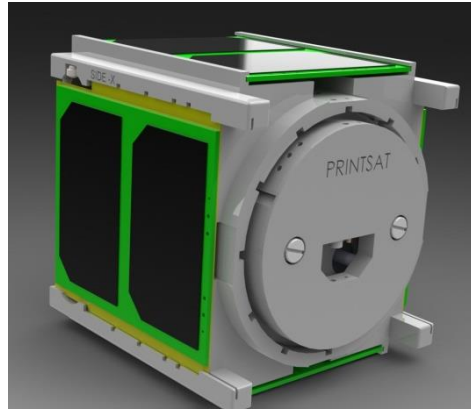


PrintSat



NTIA Coordination

Doc #: PS-A-5004 Rev 1.0

Prepared By: Nathan Fite

Date: 4/23/2013

Montana State University
Colorado Satellite Services
Project Starshine
Kentucky Space

THIS PAGE LEFT INTENTIONALLY
BLANK

1.0 Spacecraft Orbital Parameters

The PrintSat spacecraft is a 1U CubeSat (10x10x10cm) currently destined for a 410 x 485km at 91 deg inclination orbit.

	Perigee (km)	Apogee (km)	Inclination (deg)	Orbit Class	Period (H:MM)	Number of Satellites
Intended Orbit	410	485	91	LEO	1.49	1
Minimal Orbit	410	410	91	LEO	1.55	1

Table 1: Spacecraft Orbital Parameters

2.0 Spacecraft Transmitter Characteristics

PrintSat utilizes a mode-J, GMSK transmitter with a dedicated monopole antenna for both VHF and UHF.

	Antenna Gain (dBi)	HPBW (deg)	Antenna Azimuth
VHF	2	180	180
UHF	2.4	120	120

Table 2: Spacecraft Antenna/Transmitter Characteristics

3.0 Ground Station Characteristics

The ground station for PrintSat is located at the Montana State University Space Science and Engineering Laboratory Space Operations Center. There are two dedicated antennas, one for VHF and one for UHF. Both sets of antennas are cross-dipoles on 20ft booms. See Figure 1 for illustration.

	Antenna Gain (dBi)	HPBW (deg)	Antenna Azimuth (deg)	Site Elevation (m)	Antenna Height (m)	Antenna Height (rad)
VHF (Transmitter)	12	35	360	1550	1555	0.79
UHF (Receiver)	16	20	360	1550	1555	0.79

Table 3: Space Science and Engineering Lab Ground Station Characteristics 1

	Antenna Minimum Elevation (deg)	Antenna Maximum Elevation (deg)	Polarization
VHF (Transmitter)	3	90	Circular
UHF (Receiver)	3	90	Circular

Table 4: Space Science and Engineering Lab Ground Station Characteristics 2

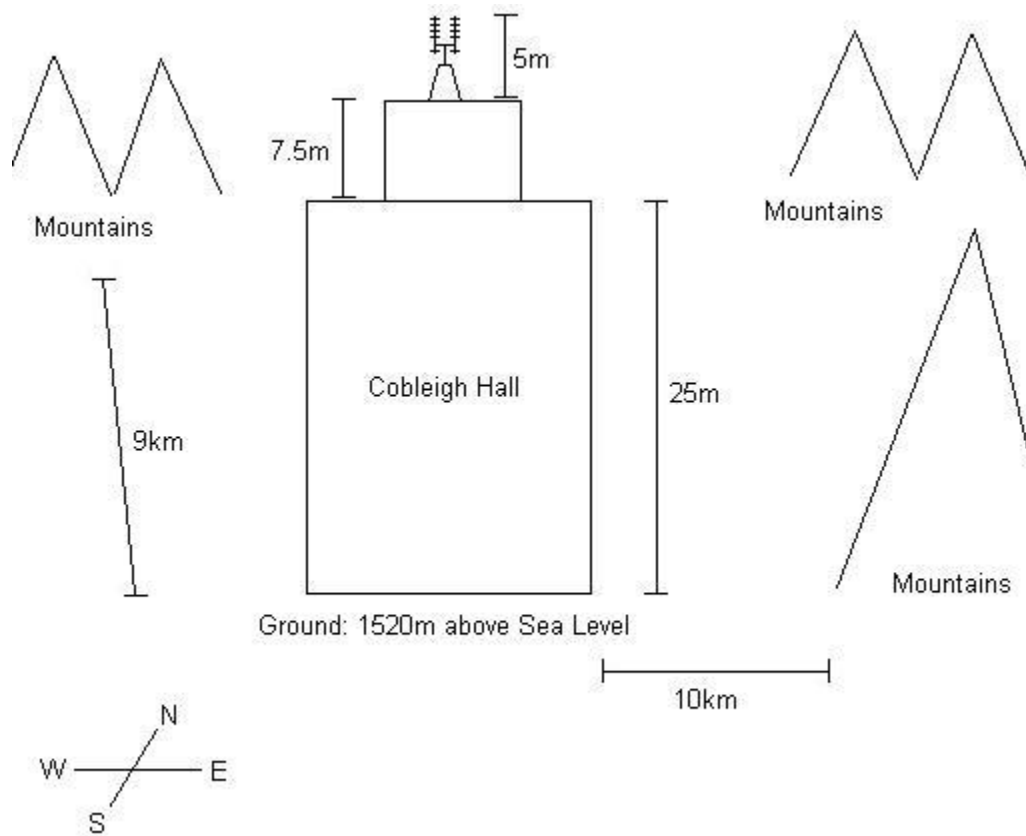


Figure 1: SSEL Ground Station