

NTIA Space record data for MESHBED

FCC STA Application 0306-EX-ST-2019

NTIA requires the following data for space related experiments using government shared spectrum. For each transmit frequency, please provide the data for both ends of the transmit-receive link. Use Part A to describe the satellite to ground information. Part B is for all ground to space transmit links.

Part A: Space to Earth Downlink Data

Satellite Transmitter Data

UHFDOWN

Transmit Frequency: 401.3 MHz		
Satellite Name: MESHBED		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = XAP01 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Orientation (XAZ)	XAZ = XAZ01 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN __-0.05____ BEAMWIDTH __ 240____ XAD = XAD01 00G240B	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Non	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).

For Nongeostationary (Orbital Data)	INCLINATION ANGLE <u>97.5</u> , APOGEE IN KILOMETERS <u>505</u> , PERIGEE IN KILOMETERS <u>505</u> , ORBITAL PERIOD IN HOURS <u>001.58</u> AND FRACTIONS OF HOURS IN DECIMAL _____, THE NUMBER OF SATELLITES IN THE SYSTEM <u>1</u> , ORB = 97.5IN00505AP00505PE001.58H01NRT01	IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
Earth Station Data (Receiver)		
State (RSC)	RSC = NY	
City Name (RAL)	RAL = WINDHAM	
Latitude (DDMMSS)	Lat = 422011	
Longitude (DDDMMSS)	Lon = 741537	
Antenna Polarization (RAP)	RAP = RAP01 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (RAZ)	RAZ = RAZ01 V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN <u>16</u> , BEAMWIDTH <u>27</u> , AZIMUTHAL RANGE <u>000-360</u> , THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS <u>10</u> THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS <u>4</u> RAD = RAD01 16G027B000-360A00010H004	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, (MESHBED)		

F2DOWN

Transmit Frequency: 5.295 GHz

Satellite Name: MESHBED		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = XAP02 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Orientation (XAZ)	XAZ = XAZ02 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN__17____ BEAMWIDTH __020____ XAD = XAD02 17G020B	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Non	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__97.5____, APOGEE IN KILOMETERS__505____, PERIGEE IN KILOMETERS__505____, ORBITAL PERIOD IN HOURS _001.58_ AND FRACTIONS OF HOURS IN DECIMAL____, THE NUMBER OF SATELLITES IN THE SYSTEM__1____, ORB = 97.51N00505AP00505PE001.58H01NRT01	IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE TO SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
Earth Station Data (Receiver)		
State (RSC)	RSC = MA	
City Name (RAL)	RAL = BEDFORD	
Latitude (DDMMSS)	Lat = 423019	
Longitude (DDDMMSS)	Lon = 711405	
Antenna Polarization (RAP)	RAP = RAP02 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION

Antenna Azimuth (RAZ)	RAZ = RAZ02 V10	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN <u>34</u> , BEAMWIDTH <u>3</u> , AZIMUTHAL RANGE <u>000-360</u> , THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS <u>45</u> THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS <u>20</u> RAD = RAD03 34G003B000-360A000045H20	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, (MESHBED)		

F3DOWN

Transmit Frequency: 5.515 GHz		
Satellite Name: MESHBED		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = XAP03 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Orientation (XAZ)	XAZ = XAZ03 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN <u>17</u> BEAMWIDTH <u>013</u> XAD = XAD03 017G013B	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Non	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE <u>97.5</u> , APOGEE IN KILOMETERS <u>505</u> , PERIGEE IN KILOMETERS <u>505</u> ,	IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE,

	ORBITAL PERIOD IN HOURS _001.58_ AND FRACTIONS OF HOURS IN DECIMAL_____, THE NUMBER OF SATELLITES IN THE SYSTEM ___1___, ORB = 97.5IN00505AP00505PE001.58H01NRT01	REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE TO SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
Earth Station Data (Receiver)		
State (RSC)	RSC = MA	
City Name (RAL)	RAL = BEDFORD	
Latitude (DDMMSS)	Lat = 423019	
Longitude (DDDMMSS)	Lon = 711405	
Antenna Polarization (RAP)	RAP = RAP03 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (RAZ)	RAZ = RAZ03 V10	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN___34_____, BEAMWIDTH___3_____, AZIMUTHAL RANGE___000-360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS ___45_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS ___20_____ RAD = RAD03 34G003B000-360A000045H20	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, (MESHBED)		

Part B: Ground Stations, Earth to Space link data:

Earth Station Transmitter Data

UHFUP

Transmit Frequency: 401.3		
State (XSC)	XSC = NY	
City Name (XAL)	XAL = WINDHAM	
Latitude (DDMMSS)	Lat = 422011	
Longitude (DDDMMSS)	Lon = 741537	
Antenna Polarization (XAP)	XAP = XAP01 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (XAZ)	XAZ = XAZ01 V05	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN____16_____, BEAMWIDTH____27_____, AZIMUTHAL RANGE__000-360____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS ____10_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS ____4_____ XAD = XAD01 16G027B000-360A000010H004	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006
Satellite Receive Specifications		
Polarization (RAP)	RAP = RAP01 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Azimuth (RAZ)	RAZ = RAZ01 V05	STATION RECEIVER ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Dimension (RAD)	ANTENNA GAIN__0_____ BEAMWIDTH____240_____ RAD = RAD01 00G240B	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
Type of satellite (State = SP) City = G/No	Type = Non	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE____97.5_____, APOGEE IN KILOMETERS____505_____, PERIGEE IN KILOMETERS____505_____,	IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF

	<p>ORBITAL PERIOD IN HOURS _001.58_ AND FRACTIONS OF HOURS IN DECIMAL_____, THE NUMBER OF SATELLITES IN THE SYSTEM ___1___,</p> <p>ORB = 97.5IN00505AP00505PE001.58H01NRT01</p>	<p>HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01</p>

F2UP

Transmit Frequency: 5.295 GHZ		
State (XSC)	XSC = MA	
City Name (XAL)	XAL = BEDFORD	
Latitude (DDMMSS)	Lat = 423019	
Longitude (DDDMMSS)	Lon = 711405	
Antenna Polarization (XAP)	XAP = XAP02 J	<p>POLARIZATIONS INCLUDE :</p> <p>H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION</p>
Antenna Azimuth (XAZ)	XAZ = XAZ02 V10	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	<p>ANTENNA GAIN ___34___, BEAMWIDTH ___3___, AZIMUTHAL RANGE ___000-360___, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS ___45___ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS ___20___</p> <p>XAD = XAD02 34G003B000-360A000045H20</p>	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006
Satellite Receive Specifications		
Polarization (RAP)	RAP = RAP02 J	<p>POLARIZATIONS INCLUDE :</p> <p>H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION</p>

Azimuth (RAZ)	RAZ = RAZ02 V10	STATION RECEIVER ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Dimension (RAD)	ANTENNA GAIN__17____ BEAMWIDTH__20____ RAD = RAD02 17G020B	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
Type of satellite (State = SP) City = G/No	Type = No	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__97.5____, APOGEE IN KILOMETERS__505____, PERIGEE IN KILOMETERS__505____, ORBITAL PERIOD IN HOURS _001.58_ AND FRACTIONS OF HOURS IN DECIMAL____, THE NUMBER OF SATELLITES IN THE SYSTEM__1____, ORB = 97.5IN00505AP00505PE001.58H01NRT01	IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01

F3UP

Transmit Frequency: 5.515 GHZ		
State (XSC)	XSC = MA	
City Name (XAL)	XAL = BEDFORD	
Latitude (DDMMSS)	Lat = 423019	
Longitude (DDDMMSS)	Lon = 711405	
Antenna Polarization (XAP)	XAP = XAP03 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (XAZ)	XAZ = XAZ03 V10	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN__34____, BEAMWIDTH__3____, AZIMUTHAL RANGE__000-360____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS__45____	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006

	THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS ____20_____ XAD = XAD03 34G003B000- 360A000045H20	
Satellite Receive Specifications		
Polarization (RAP)	RAP = RAP03 J	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Azimuth (RAZ)	RAZ = RAZ03 V10	STATION RECEIVER ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Dimension (RAD)	ANTENNA GAIN__17_____ BEAMWIDTH ____13_____ RAD = RAD03 17G013B	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
Type of satellite (State = SP) City = G/No	Type = No	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__97.5_____, APOGEE IN KILOMETERS__505_____, PERIGEE IN KILOMETERS__505_____, ORBITAL PERIOD IN HOURS _001.58_ AND FRACTIONS OF HOURS IN DECIMAL_____, THE NUMBER OF SATELLITES IN THE SYSTEM__1_____, ORB = 97.5IN00505AP00505PE001.58H01NRT01	IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01