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: MES	SHBED	
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, L = LINEAR POL ARIZATION
Orientation (XAZ)	XAZ = XAZ01 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN0.05 BEAMWIDTH240 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 ANGLE97.5, APOGEE IN KILOMETERS505, PERIGEE IN KILOMETERS505, ORBITAL PERIOD IN HOURS001.58_AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM1, ORB =	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 0IN02309AD005559E012 45H01NPD01
	97.5IN00505AP00505PE001.58H01NRT01	
Earth Station Data	a (Receiver)	<u> </u>
State (RSC)	RSC = NY	
City Name (RAL)	RAL = WINDHAM	
Latitude	Lat = 422011	
(DDMMSS)		
Longitude	Lon = 741537	
(DDDMMSS)		
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) FCC notes:	ANTENNA GAIN16, BEAMWIDTH27, AZIMUTHAL RANGE000-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS10 THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS4 RAD = RAD01 16G027B000- 360A00010H004	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
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 = XAZO2 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN17 BEAMWIDTH020 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 ANGLE97.5, APOGEE IN KILOMETERS505, PERIGEE IN KILOMETERS505, ORBITAL PERIOD IN HOURS _001.58_AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM1, 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	a (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 GAIN34, BEAMWIDTH3, AZIMUTHAL RANGE000-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS45 THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS20 RAD = RAD03 34G003B000- 360A000045H20	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes:		
1. Use S-Note S945.		
2. REM AGN, O	Cubesat, (MESHBED)	

F3DOWN

Transmit Frequency: 5.515 GHz		
Satellite Name: ME	SHBED	
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 = XAZO3 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN17 BEAMWIDTH013 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 ANGLE97.5, APOGEE IN KILOMETERS505, PERIGEE IN KILOMETERS505,	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	REM04 *ORB.98.0IN00510AP00510PE001.58H01NRT01.
	FRACTIONS OF HOURS IN	AND FOR SPACE TO SPACE
		COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN
	SYSTEM 1	ADDITIONAL
	,	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
	ORB =	
	97.5IN00505AP00505PE001.58H01NRT01	
Earth Station Dat	a (Receiver)	1
State (RSC)	RSC = MA	
City Name (RAL)	RAL = BEDFORD	
Latitude	Lat = 423019	
(DDMMSS)		
Longitude	Lon = 711405	
(DDDMMSS)		
Antenna	RAP = RAP03 J	POLARIZATIONS INCLUDE :
Polarization (RAP)		V = VERTICAL,
		S = HORIZONTAL AND VERTICAL,
		L = LEFT HAND CIRCULAR,
		T = RIGHT AND LEFT HAND CIRCULAR,
		J = LINEAR POLARIZATION
Antenna Azimuth	RAZ = RAZ03 V10	
(RAZ)		ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna	ANTENNA GAIN34,	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01_16G030B000-360A00357H006
Dimensions (RAD)	BEAMWIDTH3,	
	AZIMUTHAL RANGE000-360,	
	THE SITE ELEVATION ABOVE MEAN SEA	
	LEVEL IN METERS45	
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS20	
	RAD = RAD03 34G003B000-	
	360A000045H20	
FCC notes:		
1. Use S-Note	e \$945.	
2. REM AGN, Cubesat, (MESHBED)		

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

Earth Station Transmitter Data

UHFUP

Transmit Frequency	Transmit Frequency: 401.3		
State (XSC)	XSC = NY		
City Name (XAL)	XAL = WINDHAM		
Latitude	Lat = 422011		
(DDMMSS)			
Longitude	Lon = 741537		
(DDDMMSS)			
Antenna	XAP = XAP01 J	POLARIZATIONS INCLUDE : H = HORIZONTAL	
Polarization (XAP)		V = VERTICAL,	
		S = HORIZONTAL AND VERTICAL,	
		R = RIGHT HAND CIRCULAR,	
		T = RIGHT AND LEFT HAND CIRCULAR,	
Antenna Azimuth	XAZ - XAZ01 V05	J = LINEAR POLARIZATION THE EARTH STATION Transmitter ANTENNA	
(YA7)		AZIMUTH (XAZ), THE MINIMUM ANGLE OF	
		ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00	
Antenna	ANTENNA GAIN 16 ,	EXAMPLE ASSUMING NONGEOSTATIONARY,	
Dimensions (XAD)	BEAMWIDTH 27 ,	XAD01 16G030B000-360A00357H006	
	AZIMUTHAL RANGE 000-360 ,		
	THE SITE ELEVATION ABOVE MEAN SEA		
	LEVEL IN METERS10		
	THE ANTENNA HEIGHT ABOVE TERRAIN		
	IN METERS4		
	XAD = XAD01 16G027B000-		
	360A000010H004		
Satellite Receive Sp	pecifications		
Polarization (RAP)	RAP = RAP01 J	POLARIZATIONS INCLUDE :	
		H = HORIZONTAL,	
		V = VERTICAL, S = HORIZONTAL AND VERTICAL,	
		L = LEFT HAND CIRCULAR,	
		R = RIGHT HAND CIRCULAR,	
		J = LINEAR POLARIZATION	
Azimuth (RAZ)	RAZ = RAZ01 V05	STATION RECEIVER ANTENNA AZIMUTH (XAZ),	
		ELEVATION, VOO TO V90, EXAMPLE, RAZO1 VOO	
Dimension (RAD)	ANTENNA GAIN0	(NTIA format (RAD), EXAMPLE, RADOT 16G030B)	
	BEAMWIDTH240		
— () (1))	RAD = RAD01 00G240B	Chaosa aithar	
Type of satellite	Type = Non	Geostationary or	
(State = SP)		Nongeostationary	
City = G/NO	Lanaituda	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT	
For Geostationary	Longitude =	ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND	
-		REPORT ITS LONGITUDE (XLG AND/OR RLG).	
For	INCLINATION ANGLE97.5,	REPORT ITS INCLINATION ANGLE, APOGEE	
Nongeostationary	APOGEE IN KILOMETERS 505,	IN KILOMETERS, PERIGEE IN KILOMETERS,	
(Orbital Data)	PERIGEE IN KILOMETERS505,	ORBITAL PERIOD IN HOURS AND FRACTIONS OF	

ORBITAL PERIOD IN HOURS _001.58_AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM1, ORB = 97_51N00505AP00505PE001_58H01NBT01	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

F2UP

Transmit Frequency: 5.295 GHZ		
State (XSC)	XSC = MA	
City Name (XAL)	XAL = BEDFORD	
Latitude	Lat = 423019	
(DDMMSS)		
Longitude	Lon = 711405	
(DDDMMSS)		
Antenna	XAP = XAP02 J	POLARIZATIONS INCLUDE :
Polarization (XAP)		V = VERTICAL,
		S = HORIZONTAL AND VERTICAL,
		L = LEFT HAND CIRCULAR,
		T = RIGHT AND LEFT HAND CIRCULAR.
		J = LINEAR POLARIZATION
Antenna Azimuth	XAZ = XAZ02 V10	THE EARTH STATION Transmitter ANTENNA
(XAZ)		AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, VOO TO V90, EXAMPLE, XAZO1 VOO
Antenna	ANTENNA GAIN34,	EXAMPLE ASSUMING NONGEOSTATIONARY,
Dimensions (XAD)	BEAMWIDTH3,	XAD01 16G030B000-360A00357H006
	AZIMUTHAL RANGE000-360,	
	THE SITE ELEVATION ABOVE MEAN SEA	
	LEVEL IN METERS 45	
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS 20	
	XAD = XAD02 34G003B000-	
	360A000045H20	
Satellite Receive Sc	becifications	
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,
1		J = LINEAR POLARIZATION

Azimuth (RAZ)	RAZ = RAZ02 V10	STATION RECEIVER ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Dimension (RAD)	ANTENNA GAIN17 BEAMWIDTH20 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	Lat = 423019	
(DDMMSS)		
Longitude	Lon = 711405	
(DDDMMSS)		
Antenna Polarization (XAP) Antenna Azimuth (XAZ)	XAP = XAP03 J XAZ = XAZ03 V10	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 THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN34, BEAMWIDTH3, AZIMUTHAL RANGE000-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS45	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006

	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS 20	
	XAD = XAD03 34G003B000-	
	3600000005H20	
Cotallita Dessiva Cr		
Satellite Receive Sp	becincations	
Polarization (RAP)	RAP = RAPU3 J	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
Dimension (RAD)	ANTENNA GAIN 17	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
	BEAMWIDTH 13	
	RAD = RAD03 17G013B	
Type of satellite	Type = No	Choose either:
(State - SD)	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Geostationary or
(Slate - SP)		Nongeostationary
City = G/No		
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
		REPORT ITS LONGITUDE (XLG AND/OR RLG)
For		IE ANY SATELLITES ARE NONGEOSTATIONARY.
		REPORT ITS INCLINATION ANGLE, APOGEE
Nongeostationary	APOGEE IN KILOMETERS505,	IN KILOMETERS, PERIGEE IN KILOMETERS,
(Orbital Data)	PERIGEE IN KILOMETERS505,	ORBITAL PERIOD IN HOURS AND FRACTIONS OF
	ORBITAL PERIOD IN HOURS 001.58 AND	HOURS IN DECIMAL, THE NUMBER OF SATELLITES
	FRACTIONS OF HOURS IN	IN THE SYSTEM, THEN TO1, EXAMPLE,
	DECIMAL	*ORB.98.0IN00510AP00510PF001.58H01NRT01
		AND FOR SPACE-TO-SPACE
		COMMUNICATIONS WITH ANOTHER
	SYSIEM1,	NONGEOSTATIONARY SATELLITE ADD AN
		ADDITIONAL
	ORB =	*ORB FUR IT ENDING IN R01, EXAMPLE, REM05
	97.5IN00505AP00505PE001.58H01NRT01	UVP'' 5'3IN027034L00022LE013'40U01INKK01