

NTIA Space record data form

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

Transmit Frequency: 400.48 – 400.52 MHz		
Satellite Name: Varuna (Transmitter 1)		
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 EC	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN 2.1 dBi BEAMWIDTH@ ½ Power 180 degrees XAD = XAD01 02G1180B0	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = NONGEOSTATIONARY	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 54 degrees, APOGEE IN KILOMETERS 1056 km, PERIGEE IN KILOMETERS 1056 km, ORBITAL PERIOD IN HOURS 1AND FRACTIONS OF HOURS IN DECIMAL 77, THE NUMBER OF SATELLITES IN THE SYSTEM 1 ORB = 54IN01056AP01056PE001.58H01NRT01	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 1)		
State (RSC)	RSC = California	
City Name (RAL)	RAL = Santa Clara	
Latitude (DDMMSS)	Lat = 372248 N	
Longitude (DDDMMSS)	Lon = 1215740 W	
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 V00	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN 21.5 dBi, BEAMWIDTH 12 degrees, AZIMUTHAL RANGE 0 – 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 23 meters THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 13 meters RAD = RAD01 21G512B000-360A00023H013	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, Varuna		

Earth Station Data (Receiver 2)		
State (RSC)	RSC = Colorado	
City Name (RAL)	RAL = Littleton	
Latitude (DDMMSS)	Lat = 393424	
Longitude (DDDMMSS)	Lon = 1050801 W	
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 V00	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00

<p>Antenna Dimensions (RAD)</p>	<p>ANTENNA GAIN 20.8 dBi, BEAMWIDTH 13.4 degrees, AZIMUTHAL RANGE 0 – 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1773 meters THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 10.5 meters</p> <p>RAD = RAD02 20G813B400- 360A01773H011</p>	<p>EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006</p>
<p>FCC notes:</p> <ol style="list-style-type: none"> 1. Use S-Note S945. 2. REM AGN, Cubesat, Varuna 		

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

Earth Station Transmitter Data 1

Transmit Frequency: 402.88-402.92 MHz		
State (XSC)	XSC = California	
City Name (XAL)	XAL = Santa Clara	
Latitude (DDMMSS)	Lat = 372248	
Longitude (DDDMMSS)	Lon = 1215740	
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 V00	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN 21.5 dB, BEAMWIDTH 12 degrees, AZIMUTHAL RANGE 0 – 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 23 THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 13 XAD = XAD01 21G512B000-360A00023H013	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, Varuna		
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 EC	NB= NARROWBEAM EC = EARTH COVERAGE
Dimension (RAD)	ANTENNA GAIN 1.8 dB BEAMWIDTH@ ½ Power 180 degrees	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)

	RAD = RAD01 01G8180B0	
Type of satellite (State = SP) City = G/No	Type = NONGEOSTATIONARY	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 54 degrees, APOGEE IN KILOMETERS 1056 km, PERIGEE IN KILOMETERS 1056 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL 77, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB = 54IN01056AP01056PE001.58H01NRT01	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 Transmitter Data 2

Transmit Frequency: 402.88-402.92 MHz		
State (XSC)	XSC = Colorado	
City Name (XAL)	XAL = Littleton	
Latitude (DDMMSS)	Lat = 39424 N	
Longitude (DDDMMSS)	Lon = 1050801 W	
Antenna 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
Antenna Azimuth (XAZ)	XAZ = XAZ02 V00	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN 20.8 dB, BEAMWIDTH 13.4 degrees, AZIMUTHAL RANGE 0 – 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1773 THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 10.5 XAD = XAD02 20G813B400-360A01773H011	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006

<p>FCC notes:</p> <ol style="list-style-type: none"> 1. Use S-Note S945. 2. REM AGN, Cubesat, Varuna 		
<p>Satellite Receive Specifications</p>		
Polarization (RAP)	RAP = RAP01 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 = RAZ01 EC	NB= NARROWBEAM EC = EARTH COVERAGE
Dimension (RAD)	<p>ANTENNA GAIN 1.8 dB BEAMWIDTH@ ½ Power 180 degrees RAD = RAD01 01G8180B0</p>	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
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