

ALPHA 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.

The satellite contains a RockBlocks transceiver, using an Iridium 9602 modem to operate with the Iridium satellite constellation which orbits at 781 km. It also contains four transmitters (ChipSat-A, -B, -C, -D) providing mission data at 915 MHz, communicating with the Cornell campus ground station.

(Part A: Space to Earth Space Downlink Data)

Satellite Iridium Transmitter Data

Transmit Frequency: 1621 MHz		
Satellite Name: ALPHA		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = XAP01 L	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 ____ 1.5 ____ BEAMWIDTH ____ 160 ____ XAD = XAD01 02G160B	(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_____51.6_____, APOGEE IN KILOMETERS_____431_____, PERIGEE IN KILOMETERS_____405_____, ORBITAL PERIOD IN HOURS _1_ AND FRACTIONS OF HOURS IN DECIMAL_.55____, THE NUMBER OF SATELLITES IN THE SYSTEM_____1_____, ORB = ORB,51.6IN00431AP00405PE001.55H01NRT01 ORB,86.4IN00781AP00781PE001.73H66NRR01	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

(Part A: Space to Earth Downlink Data)

Chipsat Transceivers A, B, C and D Transmitter Data

Transmit Frequency: 915 MHz		
Satellite Name: ALPHA		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = XAP02 T	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 EC	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN_____ -6 _____ BEAMWIDTH _____ 360 _____ XAD = XAD01 -06G360B	(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_____51.6_____, APOGEE IN KILOMETERS_____431_____, PERIGEE IN KILOMETERS_____405_____, ORBITAL PERIOD IN HOURS _1_ AND FRACTIONS OF HOURS IN DECIMAL_.55_, THE NUMBER OF SATELLITES IN THE SYSTEM____1_____, ORB = ORB,51.6IN00431AP00405PE001.55H01NRT01	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

Cornell Earth Station Data (Receiver)		
State (RSC)	RSC = NY	
City Name (RAL)	RAL = ITHACA	
Latitude (DDMMSS)	Lat = 422637	
Longitude (DDDMMSS)	Lon = 0762854	
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 V10	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN_____12_____, BEAMWIDTH_____36_____, AZIMUTHAL RANGE___0 - 360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS _123_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS _____6_____ RAD = RAD01 12G036B000-360A00123H006	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, ALPHA		

Part B: Ground Station, Earth to ALPHA ChipSat Receiver link data:

Cornell Earth Station Transmitter Data

Transmit Frequency: 915 MHz		
State (XSC)	XSC = NY	
City Name (XAL)	XAL = ITHACA	
Latitude (DDMMSS)	Lat = 422637	
Longitude (DDMMSS)	Lon = 0762854	
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)	Elevation is 10 to 90 degrees XAZ = XAZ01 V1090	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN____12_____, BEAMWIDTH____36_____, AZIMUTHAL RANGE____0 - 360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS _123_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS _____6_____ XAD = XAD01 12G036B000-360A00123H006	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006
Satellite Receive Specifications		
Polarization (RAP)	RAP = RAP 01 T	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 = NB	NB= NARROWBEAM EC = EARTH COVERAGE

Dimension (RAD)	ANTENNA GAIN____-6____ BEAMWIDTH ____360____ RAD = RAD01 -6G360B	(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____51.6____, APOGEE IN KILOMETERS____431____, PERIGEE IN KILOMETERS____405____, ORBITAL PERIOD IN HOURS __1____AND FRACTIONS OF HOURS IN DECIMAL_.55____, THE NUMBER OF SATELLITES IN THE SYSTEM____1____, ORB = ORB,51.6IN00431AP00405PE001.55H01NRR01	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

FCC notes:

1. Use S-Note S945.
2. REM AGN, Cubesat, (ALPHA)