

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_____400_____, PERIGEE IN KILOMETERS_____400_____, ORBITAL PERIOD IN HOURS __1____AND FRACTIONS OF HOURS IN DECIMAL_.55____, THE NUMBER OF SATELLITES IN THE SYSTEM____1_____, ORB = ORB,51.6IN00400AP00400PE001.55H01NRT01 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

Iridium Satellite Receiver Data

Satellite Name: IRIDIUM CONSTELLATION		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = XAP01 R	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_____23_____ BEAMWIDTH ____12____ XAD = XAD01 23G012B	(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_____86.4_____, APOGEE IN KILOMETERS_____781_____, PERIGEE IN KILOMETERS_____781_____, ORBITAL PERIOD IN HOURS __1__AND FRACTIONS OF HOURS IN DECIMAL_.73__, THE NUMBER OF SATELLITES IN THE SYSTEM____66_____, ORB = 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
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, ALPHA		

(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_____400_____, PERIGEE IN KILOMETERS_____400_____, ORBITAL PERIOD IN HOURS __1____AND FRACTIONS OF HOURS IN DECIMAL_.55____, THE NUMBER OF SATELLITES IN THE SYSTEM_____1_____, ORB = ORB,51.6IN00400AP00400PE001.55H01NRT01	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 = 442637	
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:

3. Use S-Note S945.
4. 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 (DDDMMSS)	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)	Min Elevation is 10 degrees XAZ = XAZ01 V10	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___400___, PERIGEE IN KILOMETERS___400___, ORBITAL PERIOD IN HOURS __1__AND FRACTIONS OF HOURS IN DECIMAL_.55___, THE NUMBER OF SATELLITES IN THE SYSTEM___1___, ORB = ORB,51.6IN00400AP00400PE001.55H01NRR01	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)