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~~

Space to Earth direction is not included

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

Earth Station Transmitter Data (Required for Each Frequency at Each Earth Station Location)

Earth Station Overview

City (XAL)/ State (XSC)	Lat, Lon	Height [m]	Number of devices
Bellevue/ WA	47.6145, -122.1887	25	Up to 25 (nomadic)
Yakima/ WA	46.6023, -120.5272	335	Up to 25 (nomadic)
Lompoc/ CA	34.6417, -120.4400	36	Up to 25 (nomadic)
San Francisco/ CA	37.7577, -122.4454	140	Up to 25 (nomadic)

Transmit Frequency: 902-928 MHz range (not specified yet)		
State (XSC)	XSC = various	
City Name (XAL)	XAL = various	
Latitude (DDMMSS)	Lat = various	
Longitude (DDDMMSS)	Lon = various	
Transmit Power (PWR)	PWR = 1W (max)	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	1523 kHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
RF Emissions Data		2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth	180 Hz (per Hopping Channel)	
-20 dB bandwidth	550 Hz (per Hopping Channel)	
-40 dB bandwidth	1200 Hz (per Hopping Channel)	
-60 dB bandwidth	1950 Hz (per Hopping Channel)	
Modulation Type	FHSS	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	162 b/s or 325 b/s	INFORMATION DATA RATE

Forward Error Correction Coding	Is FEC used? Yes ☒ No ☐ FEC Type: ________Conv________________, FEC Rate: ____________1/3 or 2/3_______,	
Total Symbol Rate	488 Hz	DATA RATE COMBINED WITH FEC AND FRAME OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL MAPPER/MODULATOR.
Transmit Antenna Polarization (XAP)	XAP = 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
Transmit Antenna Orientation (XAZ)	XAZ = XAZ01 V30	THE EARTH STATION TRANSMITTER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (XAZ), V00 TO V90, EXAMPLE, XAZ01 V00
Transmit Antenna Dimensions (XAD)	ANTENNA GAIN____2.15 dBi_______, BEAMWIDTH____120_______, AZIMUTHAL RANGE__001-360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS ___0-100______, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS _____0-10________, XAD = XAD01 2G120B001-3600357H006	EXAMPLE ASSUMING NONGEOSTATIONARY, 16 DBI GAIN, 30 DEGREE BEAMWIDTH, AZIMUTHAL RANGE FROM 001-360, SITE ELEVATION OF 357 METERS, AND ANTENNA HEIGHT ABOVE TERRAIN OF 6 METERS: XAD01 16G030B001-360A00357H006
Transmit Antenna Additional Information (For Parabolic Antennas)	ANTENNA DIAMETER________________, ANTENNA EFFICIENCY_______________,	
Number of Satellite Contacts Supported Per Day	~~5~~ max 3 per satellite	NUMBER OF TIMES THE EARTH STATION WILL COMMUNICATE WITH THE STATELLITE IN THE EARTH TO SPACE DIRECTION (UPINKS) EACH DAY
Expected Duration of Each Contact	300 s	AVERAGE DURATION OF EACH CONTACT
Satellite Receive Specifications		
Receive Antenna Polarization (RAP)	RAP = 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
Receive Antenna Orientation (RAZ)	RAZ = EC	NB= NARROWBEAM EC = EARTH COVERAGE

Receive Antenna Dimension (RAD)	ANTENNA GAIN____7____, BEAMWIDTH ___70_____, RAD =	NTIA FORMAT(RAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH RAD01 16G030B
Type of satellite (State = SPCE) City = Geo or Nongeo	Type = Nongeo	CHOOSE EITHER: GEOSTATIONARY OR NONGEOSTATIONARY
For Geostationary Satellites	Longitude = N/A	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE IN DDDMMSS FORMAT (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	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_________, ORB,97.7IN00573AP00550PE001.60H01NRT01 ORB,36.6IN00566AP00582PE001.60H02NRT02 ORB,97.6IN00539AP00570PE001.60H03NRT03 ORB,97.5IN00520AP00547PE001.59H04NRT04	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
For SunSynchronous Nongeostationary Orbits	Mean Local Time of Ascending Node (MLTAN) =_______________ T01: 13:23 T02: N/A T03: 10:57 T04: 02:06	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)