INCA 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 (Required for Each Frequency)

Transmit Frequency	r: 437.125 MHz	
Satellite Name: INC	A	
Data Field	Data Answer	Description/Comments
Transmit Power (PWR)	PWR = = 1.43 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary	100 kHz	THE WIDTH OF FREQUENCY BAND WHICH IS
Bandwidth		JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
RF Emissions Data	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	GMSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	9600 bits/sec	INFORMATION DATA RATE
Forward Error	Is FEC used? Yes \square No \boxtimes	
Correction Coding	FEC Type:,	
	FEC Rate:,	
Total Symbol Rate	9600 symbols / sec	DATA RATE COMBINED WITH FEC AND FRAME OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL MAPPER/MODULATOR.
Does transmitter	Yes □	BEACON MODE IS NORMALLY CONSIDERED A
have a beacon mode?	No □ ⊠	REGULAR AND PERIODIC SHORT DURATION TRANSMISSION THAT IS OFTEN USED TO ASSIST WITH TRACKING, DOPPLER COMPENSATION, OR SMALL SATELLITE IDENTIFICATION WHOSE TRANSMISSIONS ARE NOT LIMITED TO DURATIONS WHEN SUPPORTING GROUND STATIONS ARE VISIBLE.
If transmitter has	Yes □	
a beacon mode,	No □	
can the beacon be		
commanded off?	N/A	

T	VAD D	POLARIZATIONS INCLUDE:
Transmit Antenna	XAP = R	H = HORIZONTAL,
Polarization (XAP)		V = VERTICAL,
		S = HORIZONTAL AND VERTICAL,
		L = LEFT HAND CIRCULAR,
		R = RIGHT HAND CIRCULAR,
		T = RIGHT AND LEFT HAND CIRCULAR,
Tuesday it Australia	VA7 FC	J = LINEAR POLARIZATION NB= NARROWBEAM
Transmit Antenna	XAZ = EC	EC = EARTH COVERAGE
Orientation (XAZ)		
Transmit Antenna	ANTENNA GAIN_2,	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI
Dimension (XAD)	BEAMWIDTH 156 ,	ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
	XAD = 02G156B	AAD01 100030B
Type of satellite	Type = Nongeo	CHOOSE EITHER:
(State = SPCE)	Type - Nongeo	GEOSTATIONARY OR NONGEOSTATIONARY
, ,		
(City = Geo or		
Nongeo)		
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY,
Satellites	<u> </u>	REPORT ITS LATITUDE AS 000000N (XLA AND/OR
Satemes		RLA) AND REPORT ITS LONGITUDE IN DDDMMSS
Гои	INICURATION ANGLE 44	FORMAT (XLG AND/OR RLG). IF ANY SATELLITES ARE NONGEOSTATIONARY,
For	INCLINATION ANGLE41,	REPORT ITS INCLINATION ANGLE, APOGEE
Nongeostationary	APOGEE IN KILOMETERS500,	IN KILOMETERS, PERIGEE IN KILOMETERS,
(Orbital Data)	PERIGEE IN KILOMETERS500,	ORBITAL PERIOD IN HOURS AND FRACTIONS OF
	ORBITAL PERIOD IN HOURS 1 AND	HOURS IN DECIMAL, THE NUMBER OF
	FRACTIONS OF HOURS IN	SATELLITES IN THE SYSTEM, THEN T01, EXAMPLE,
	DECIMAL57,	REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01,
		AND FOR SPACE-TO-SPACE
	THE NUMBER OF SATELLITES IN THE	COMMUNICATIONS WITH ANOTHER
	SYSTEM1,	NONGEOSTATIONARY SATELLITE ADD AN
		ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
	ORB,41.0IN00500AP00500PE001.57H01NRT01	ONB,72.91N03209AF00033FE013.40H01NNN01
For	Mean Local Time of Ascending Node	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S
SunSynchronous	(MLTAN) =	ASCENDING NODE AND THE MEAN SUN, OFTEN
	(WETAN)	EXPRESSED AS UNIT OF TIME (HH:MM)
Nongeostationary		
Orbits		
Earth Station Data	a (Receiver) at Each Earth Station Locatio	n
State (RSC)	RSC = NM	
City Name (RAL)	RAL = LAS CRUCES	
Latitude	Lat = 321652 N	
(DDMMSS)		
Longitude	Lon = 1063228 W	
(DDDMMSS)		
(55514114133)		

Receive Antenna Polarization (RAP) Receive Antenna Orientation (RAZ)	RAP = R RAZ = V05	POLARIZATIONS INCLUDE: H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, T = RIGHT HAND CIRCULAR, J = LINEAR POLARIZATION THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), VOO TO V90, EXAMPLE, RAZ01 VOO
Receive Antenna Dimensions (RAD)	ANTENNA GAIN21.7, BEAMWIDTH16, AZIMUTHAL RANGE000-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS1189, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS18, RAD =22G016B001-360A01189H018	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: RAD01 16G030B001-360A00357H006
Receive Antenna Additional Information (For Parabolic Antennas)	ANTENNA DIAMETER, ANTENNA EFFICIENCY,	
Number of Satellite Contacts Supported Per Day	5	NUMBER OF TIMES THE SATELLITE WILL COMMUNICATE WITH THE EARTH STATION IN THE SPACE TO EARTH DIRECTION (DOWNLINKS) EACH DAY
Expected Duration of Each Contact	7	AVERAGE DURATION OF EACH CONTACT
Supported Operations	Satellite Health and Status Data ⊠ Mission Payload Data ⊠	SATELLITE HEALTH AND STATUS TELEMETRY AND/OR MISSION PAYLOAD DATA
FCC notes: 1. Use S-Note	· S945.	

- 1. Use S-Note S945.
- 2. REM AGN, Cubesat, INCA

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

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

Transmit Frequency	/: 437.125 MHz	
State (XSC)	XSC = NM	
City Name (XAL)	XAL = LAS CRUCES	
Latitude	Lat = 321652 N	
(DDMMSS)		
Longitude	Lon = 1063228 W	
(DDDMMSS)		
Transmit Power	PWR = 32.6 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA
(PWR)		INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE:
		W = WATT,
		K = KILOWATT,
Necessary	100 kHz	M = MEGAWATT THE WIDTH OF FREQUENCY BAND WHICH IS JUST
•	100 KHZ	SUFFICIENT TO SUCCESSFULLY TRANSFER DATA.
Bandwidth		FORMULAS CAN BE FOUND IN ANNEX J OF THE
DE Emissions Data	N1/A	NTIA MANUAL. 2-SIDED EMISSION BANDWIDTH VALUES
RF Emissions Data	N/A	-
-3 dB bandwidth		-
-20 dB bandwidth		-
-40 dB bandwidth		4
-60 dB bandwidth		THE METHOD HEED TO SURFAM ADOSE DATA ON
Modulation Type	GMSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	9600 bits/sec	INFORMATION DATA RATE
Forward Error	Is FEC used? Yes □ No ⊠	
Correction Coding	FEC Type:,	
	FEC Rate:,	
Total Symbol Rate	9600 Symbols/sec	DATA RATE COMBINED WITH FEC AND FRAME
		OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL
		MAPPER/MODULATOR.
Transmit Antenna	XAP = R	POLARIZATIONS INCLUDE:
Polarization (XAP)		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	XAZ = V05	THE EARTH STATION TRANSMITTER ANTENNA MINIMUM OPERATING ANGLE OF
Orientation (XAZ)		ELEVATION (XAZ), VOO TO V90, EXAMPLE, XAZ01
		V00

Transmit Antenna Dimensions (XAD)	ANTENNA GAIN21.7, BEAMWIDTH16	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	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	7 minutes	AVERAGE DURATION OF EACH CONTACT
Satellite Receive Sp	pecifications	
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_2, BEAMWIDTH156, RAD = 02G156B	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 =	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 ANGLE41, APOGEE IN KILOMETERS500, ORBITAL PERIOD IN HOURS1AND FRACTIONS OF HOURS IN DECIMAL57, THE NUMBER OF SATELLITES IN THE IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE 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
Nongeostationary (Orbital Data) PERIGEE IN KILOMETERS_500, ORBITAL PERIOD IN HOURS _1AND FRACTIONS OF HOURS IN DECIMAL57, THE NUMBER OF SATELLITES IN THE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE **ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE **ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE
(Orbital Data) PERIGEE IN KILOMETERS_500, ORBITAL PERIOD IN HOURS _1_AND FRACTIONS OF HOURS IN DECIMAL57, THE NUMBER OF SATELLITES IN THE PERIGEE IN KILOMETERS, PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN TO1, EXAMPLE, REMO4 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE
ORBITAL PERIOD IN HOURS _1AND FRACTIONS OF HOURS IN DECIMAL57, THE NUMBER OF SATELLITES IN THE HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN TO1, EXAMPLE, REMO4 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE
FRACTIONS OF HOURS IN DECIMAL57, THE NUMBER OF SATELLITES IN THE IN THE SYSTEM, THEN TO1, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE
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COMMUNICATIONS WITH ANOTHER
SYSTEM1, NONGEOSTATIONARY SATELLITE ADD AN
ADDITIONAL
ORB = *ORB FOR IT ENDING IN R01, EXAMPLE, REM05
*ORB,72.9IN03209AP00655PE013.46H01NRR01
ORB,41.0IN00500AP00500PE001.57H01NRR01
For Mean Local Time of Ascending Node MLTAN IS THE ANGLE BETWEEN AN ORBIT'S
ASCENDING NODE AND THE MEAN SLIN OFTEN
SunSynchronous (MLTAN) = EXPRESSED AS UNIT OF TIME (HH:MM)
Nongeostationary
Orbits