NTIA Space record data form

Cubesat Mission CURIE A and B

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: 916 MHz		
Satellite Name: CURIE A, CURIE B		
Data Field	Data Answer	Description/Comments
Transmit Power (PWR)	PWR = 1.95 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	200 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	GFSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	87 kbps	INFORMATION DATA RATE
Forward Error Correction Coding	Is FEC used? Yes ⊠ No □ FEC Type: _Reed-Solomon, FEC Rate:0.87,	
Total Symbol Rate	100 ksps	DATA RATE COMBINED WITH FEC AND FRAME OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL MAPPER/MODULATOR.
Does transmitter have a beacon mode?	Yes ⊠ No □	BEACON MODE IS NORMALLY CONSIDERED A 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 the real to the	V 57	
If transmitter has	Yes ⊠	
a beacon mode,	No □	
can the beacon be		
commanded off? Transmit Antenna 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
Transmit Antenna Orientation (XAZ)	XAZ = XAZO1 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Transmit Antenna Dimension (XAD)	ANTENNA GAIN5, BEAMWIDTH80, XAD = XAD01 05G080B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
Type of satellite (State = SPCE) (City = Geo or Nongeo)	Type = SPCE 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	INCLINATION ANGLE 62 ,	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	APOGEE IN KILOMETERS580,	REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS,
(Orbital Data)	PERIGEE IN KILOMETERS580,	ORBITAL PERIOD IN HOURS AND FRACTIONS OF
	ORBITAL PERIOD IN HOURS1AND	HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM, THEN TO1, EXAMPLE,
	FRACTIONS OF HOURS IN	REM04
	DECIMAL_6,	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
	THE NUMBER OF SATELLITES IN THE	AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER
	SYSTEM2,	NONGEOSTATIONARY SATELLITE ADD AN
	000	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
	ORB =	*ORB,72.9IN03209AP00655PE013.46H01NRR01
	ORB,62.0IN00580AP00580PE001.6H02N RT02	
For	Mean Local Time of Ascending Node	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S
SunSynchronous	(MLTAN) =	ASCENDING NODE AND THE MEAN SUN, OFTEN
Nongeostationary	(WE17314) =	EXPRESSED AS UNIT OF TIME (HH:MM)
Orbits		
Earth Station Dat	a (Receiver) at Each Earth Station Location	on
State (RSC)	RSC = CA	
City Name (RAL)	RAL = Berkeley	
Latitude (DDMMSS)	Lat = 375250	

Longitudo	Lon = 1221437	
Longitude (DDDMMSS)	LUII - 122143/	
Receive Antenna Polarization (RAP)	RAP = RAP01 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 = RAZ01 V10	THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00
Receive Antenna Dimensions (RAD)	ANTENNA GAIN25.3, BEAMWIDTH6, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS400, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS25, RAD = RAD01 25G006B001- 360A00400H025	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 DIAMETER3, ANTENNA EFFICIENCY65%,	
Number of Satellite Contacts Supported Per Day	2	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	5 minutes	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
	Cubesat, (insert name)	
Earth Station Data	a (Receiver) at Each Earth Station Location	on
State (RSC)	RSC = DE	
City Name (RAL)	RAL = Greenville	
Latitude (DDMMSS)	Lat = 394704	
Longitude (DDDMMSS)	Lon = 753758	

Receive Antenna	RAP = RAP02 R	POLARIZATIONS INCLUDE: H = HORIZONTAL,
Polarization (RAP)		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	RAZ = RAZ02 V10	THE EARTH STATION RECEIVER ANTENNA
Orientation (RAZ)		MINIMUM OPERATING ANGLE OF
		ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01
		V00
Receive Antenna	ANTENNA GAIN25.3,	EXAMPLE ASSUMING NONGEOSTATIONARY, 16
Dimensions (RAD)	BEAMWIDTH 6 ,	DBI GAIN, 30 DEGREE BEAMWIDTH, AZIMUTHAL RANGE FROM 001-360, SITE ELEVATION OF 357
	AZIMUTHAL RANGE 001-360 ,	METERS, AND ANTENNA HEIGHT ABOVE TERRAIN
	THE SITE ELEVATION ABOVE MEAN SEA	OF 6 METERS:
	LEVEL IN METERS 80 ,	RAD01 16G030B001-360A00357H006
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS 1 ,	
	1 11 11 12 12 13	
	RAD = RAD02 25G006B001-	
	360A00080H001	
Receive Antenna	ANTENNA DIAMETER 3 ,	
Additional	ANTENNA EFFICIENCY 65%,	
Information (For		
Parabolic		
Antennas)		
Number of	2	NUMBER OF TIMES THE SATELLITE WILL
Satellite Contacts	_	COMMUNICATE WITH THE EARTH STATION IN THE
Supported Per		SPACE TO EARTH DIRECTION (DOWNLINKS) EACH DAY
Day		
Expected	5	AVERAGE DURATION OF EACH CONTACT
Duration of Each		
Contact		
Supported	Satellite Health and Status Data ⊠	SATELLITE HEALTH AND STATUS TELEMETRY
Operations	Mission Payload Data 🗵	AND/OR MISSION PAYLOAD DATA
FCC notes:		·

- 1. Use S-Note S945.
- 2. REM AGN, Cubesat, CURIE A; CURIE B

Transmit Frequency: 2395 MHz		
Satellite Name: CURIE A		
Data Field	Data Answer	Description/Comments
Transmit Power (PWR)	PWR = 0.95 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	1620 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	FSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	708 kbps	INFORMATION DATA RATE
Forward Error Correction Coding	Is FEC used? Yes ⊠ No □ FEC Type: _Reed-Solomon, FEC Rate:0.87,	
Total Symbol Rate	810 ksps	DATA RATE COMBINED WITH FEC AND FRAME OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL MAPPER/MODULATOR.
Does transmitter have a beacon mode?	Yes □ No ⊠	BEACON MODE IS NORMALLY CONSIDERED A 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 a beacon mode, can the beacon be commanded off?	Yes □ No □	
Transmit 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
Transmit Antenna Orientation (XAZ)	XAZ = XAZ02 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Transmit Antenna Dimension (XAD)	ANTENNA GAIN6.7, BEAMWIDTH80, XAD = XAD02 07G080B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B

Type of satellite (State = SPCE) (City = Geo or Nongeo)	Type = SPCE 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 ANGLE 62 , APOGEE IN KILOMETERS 580 , PERIGEE IN KILOMETERS 580 , ORBITAL PERIOD IN HOURS 1 _ AND FRACTIONS OF HOURS IN DECIMAL 56 , THE NUMBER OF SATELLITES IN THE SYSTEM 2 , ORB = ORB,62.0IN00580AP00580PE001.6H02N RT02	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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
	a (Receiver) at Each Earth Station Locatio	on I
State (RSC) City Name (RAL)	RSC = CA	
Latitude (DDMMSS)	RAL = Berkeley Lat = 375250	
Longitude (DDDMMSS)	Lon = 1221437	
Receive Antenna Polarization (RAP)	RAP = RAP03 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 = RAZ03 V10	THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00

Receive Antenna Dimensions (RAD)	ANTENNA GAIN33.7, BEAMWIDTH3, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS400, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS25, RAD = RAD03 34G003B001-	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
	360A00400H025	
Receive Antenna Additional Information (For Parabolic Antennas)	ANTENNA DIAMETER3, ANTENNA EFFICIENCY65%,	
Number of Satellite Contacts Supported Per Day	2	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	5	AVERAGE DURATION OF EACH CONTACT
Supported	Satellite Health and Status Data ☐	SATELLITE HEALTH AND STATUS TELEMETRY
Operations	Mission Payload Data ⊠	AND/OR MISSION PAYLOAD DATA
	S945. Cubesat, (insert name) a (Receiver) at Each Earth Station Locatio	nn
State (RSC)	RSC = DE	
City Name (RAL)	RAL = Greenville	
Latitude (DDMMSS)	Lat = 394704	
Longitude (DDDMMSS)	Lon = 753758	
Receive Antenna Polarization (RAP)	RAP = RAP04 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 = RAZ04 V10	THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00

Receive Antenna Dimensions (RAD)	ANTENNA GAIN33.7, BEAMWIDTH3, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS80, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS1, RAD = RAD04 34G003B001- 360A00080H001	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	ANTENNA DIAMETER 3	
Additional	ANTENNA EFFICIENCY65%,	
Information (For		
Parabolic		
Antennas)		AND ADED OF THE SECTION OF THE SECTI
Number of	2	NUMBER OF TIMES THE SATELLITE WILL COMMUNICATE WITH THE EARTH STATION IN THE
Satellite Contacts		SPACE TO EARTH DIRECTION (DOWNLINKS) EACH
Supported Per		DAY
Day		
Expected	5	AVERAGE DURATION OF EACH CONTACT
Duration of Each		
Contact		
Supported	Satellite Health and Status Data \square	SATELLITE HEALTH AND STATUS TELEMETRY AND/OR MISSION PAYLOAD DATA
Operations	Mission Payload Data ⊠	AND/ON MISSION PATEOAD DATA
FCC notes:		
3. Use S-Note	e S945.	
4. REM AGN, 0	Cubesat, CURIE A	

Transmit Frequency: 2397 MHz		
Satellite Name: CURIE B		
Data Field	Data Answer	Description/Comments
Transmit Power (PWR)	PWR = 0.95 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	1620 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	FSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	708 kbps	INFORMATION DATA RATE
Forward Error Correction Coding	Is FEC used? Yes ⊠ No □ FEC Type: _Reed-Solomon, FEC Rate:0.87,	
Total Symbol Rate	810 ksps	DATA RATE COMBINED WITH FEC AND FRAME OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL MAPPER/MODULATOR.
Does transmitter have a beacon mode?	Yes □ No ⊠	BEACON MODE IS NORMALLY CONSIDERED A 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 a beacon mode, can the beacon be commanded off?	Yes □ No □	
Transmit Antenna Polarization (XAP)	XAP = XAP03 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
Transmit Antenna Orientation (XAZ)	XAZ = XAZO3 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Transmit Antenna Dimension (XAD)	ANTENNA GAIN6.7, BEAMWIDTH80, XAD = XAD03 07G080B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B

Type of satellite (State = SPCE) (City = Geo or Nongeo)	Type = SPCE 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 ANGLE 62 , APOGEE IN KILOMETERS 580 , PERIGEE IN KILOMETERS 580 , ORBITAL PERIOD IN HOURS 1 _ AND FRACTIONS OF HOURS IN DECIMAL 56 , THE NUMBER OF SATELLITES IN THE SYSTEM 2 , ORB = ORB,62.0IN00580AP00580PE001.6H02N RT02	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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Earth Station Data	□ a (Receiver) at Each Earth Station Locatio	on
State (RSC)	RSC = CA	
City Name (RAL)	RAL = Berkeley	
Latitude (DDMMSS)	Lat = 375250	
Longitude (DDDMMSS)	Lon = 1221437	
Receive Antenna Polarization (RAP)	RAP = RAP05 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 = RAZ05 V10	THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00

Receive Antenna Dimensions (RAD)	ANTENNA GAIN33.7, BEAMWIDTH3, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS400, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS25, RAD = RAD05 34G003B001-	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
Dani' a Aalaaa	360A00400H025	
Receive Antenna Additional Information (For	ANTENNA DIAMETER3, ANTENNA EFFICIENCY65%,	
Parabolic Antennas)		
Number of Satellite Contacts Supported Per Day	2	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	5	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
	S945. Cubesat, CURIE B	
	a (Receiver) at Each Earth Station Location	on
State (RSC)	RSC = DE	
City Name (RAL)	RAL = Greenville	
Latitude (DDMMSS)	Lat = 394704	
Longitude (DDDMMSS)	Lon = 753758	
Receive Antenna Polarization (RAP)	RAP = RAP05 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 = RAZ05 V10	THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00

Receive Antenna Dimensions (RAD)	ANTENNA GAIN33.7, BEAMWIDTH3, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS80, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS1, RAD = RAD05 34G003B001- 360A00080H001	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	ANTENNA DIAMETER 3 ,	
Additional	ANTENNA EFFICIENCY 65%,	
Information (For		
Parabolic		
Antennas)		
Number of	2	NUMBER OF TIMES THE SATELLITE WILL
Satellite Contacts		COMMUNICATE WITH THE EARTH STATION IN THE SPACE TO EARTH DIRECTION (DOWNLINKS) EACH
Supported Per		DAY
Day		
Expected	5	AVERAGE DURATION OF EACH CONTACT
Duration of Each		
Contact		
Supported	Satellite Health and Status Data \square	SATELLITE HEALTH AND STATUS TELEMETRY
Operations	Mission Payload Data 🗵	AND/OR MISSION PAYLOAD DATA
FCC notes:		
5. Use S-Note	· S945.	
6. REM AGN, O	Cubesat, CURIE B	

Transmit Frequency: 2397 MHz		
Satellite Name: CUI	RIE A, CURIE B	
Data Field	Data Answer	Description/Comments
Transmit Power (PWR)	PWR = 0.95 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	1000 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	FSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.

Data Rate	437 kbps	INFORMATION DATA RATE
Forward Error Correction Coding	Is FEC used? Yes ⊠ No □ FEC Type: _Reed-Solomon, FEC Rate:0.87,	
Total Symbol Rate	500 ksps	DATA RATE COMBINED WITH FEC AND FRAME OVERHEAD RESULTING IN THE TOTAL SYMBOL RATE AT THE INPUTE TO THE SYMBOL MAPPER/MODULATOR.
Does transmitter have a beacon mode?	Yes □ No ⊠	BEACON MODE IS NORMALLY CONSIDERED A 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 a beacon mode, can the beacon be commanded off?	Yes □ No □	
Transmit Antenna Polarization (XAP)	XAP = XAP04 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
Transmit Antenna Orientation (XAZ)	XAZ = XAZ04 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Transmit Antenna Dimension (XAD)	ANTENNA GAIN6.7, BEAMWIDTH80, XAD = XAD04 07G080B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
Type of satellite (State = SPCE) (City = Geo or Nongeo)	Type = SPCE 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 ANGLE 62 , APOGEE IN KILOMETERS 580 , PERIGEE IN KILOMETERS 580 , ORBITAL PERIOD IN HOURS 1 _ AND FRACTIONS OF HOURS IN DECIMAL 56 , THE NUMBER OF SATELLITES IN THE SYSTEM 2 , ORB = ORB,62.0IN00580AP00580PE001.6H02N RT02	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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Fauth Ctation Dat	(Doorings) at Each Fauth Chatian Locati	
	a (Receiver) at Each Earth Station Location	on I
State (RSC) City Name (RAL)	RSC = CA	
	RAL = Berkeley	
Latitude (DDMMSS)	Lat = 375250	
Longitude (DDDMMSS)	Lon = 1221437	
Receive Antenna Polarization (RAP)	RAP = RAP06 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 = RAZ06 V10	THE EARTH STATION RECEIVER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00
Receive Antenna Dimensions (RAD)	ANTENNA GAIN33.7, BEAMWIDTH3, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS400, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS25, RAD = RAD03 34G003B001- 360A00400H025	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	ANTENNA DIAMETER3,	
Additional	ANTENNA EFFICIENCY65%,	
Information (For		
Parabolic		
Antennas)		
Number of	2	NUMBER OF TIMES THE SATELLITE WILL COMMUNICATE WITH THE EARTH STATION IN THE
Satellite Contacts		SPACE TO EARTH DIRECTION (DOWNLINKS) EACH
Supported Per		DAY
Day		
Expected	5	AVERAGE DURATION OF EACH CONTACT
Duration of Each		
Contact		CATELLITE LIFALTILIAND STATUS TELEMETRY
Supported	Satellite Health and Status Data	SATELLITE HEALTH AND STATUS TELEMETRY AND/OR MISSION PAYLOAD DATA
Operations	Mission Payload Data	
FCC notes:		
7. Use S-Note		
	Cubesat, (insert name)	
	a (Receiver) at Each Earth Station Location	on T
State (RSC)	RSC = DE	
City Name (RAL)	RAL = Greenville	
Latitude	Lat = 394704	
(DDMMSS)		
Longitude	Lon = 753758	
(DDDMMSS)	DAD DADOT D	POLARIZATIONS INCLUDE:
Receive Antenna	RAP = RAP07 R	H = HORIZONTAL,
Polarization (RAP)		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	RAZ = RAZ07 V10	THE EARTH STATION RECEIVER ANTENNA
Orientation (RAZ)	10.12 - 10.1207 VIO	MINIMUM OPERATING ANGLE OF
()		ELEVATION (RAZ), V00 TO V90, EXAMPLE, RAZ01 V00
Receive Antenna	ANTENNA GAIN33.7,	EXAMPLE ASSUMING NONGEOSTATIONARY, 16 DBI GAIN, 30 DEGREE BEAMWIDTH, AZIMUTHAL
Dimensions (RAD)	BEAMWIDTH3,	RANGE FROM 001-360, SITE ELEVATION OF 357
	AZIMUTHAL RANGE001-360,	METERS, AND ANTENNA HEIGHT ABOVE TERRAIN
	THE SITE ELEVATION ABOVE MEAN SEA	OF 6 METERS: RAD01 16G030B001-360A00357H006
	LEVEL IN METERS80,	
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS1,	
	DAD DADOZ 246002004	
	RAD = RAD07 34G003B001-	
	360A00080H001	

Receive Antenna Additional	ANTENNA DIAMETER, ANTENNA EFFICIENCY 65% .	
Information (For	ANTENNA ETTICIENCI	
Parabolic		
Antennas)		
Number of	2	NUMBER OF TIMES THE SATELLITE WILL
Satellite Contacts		COMMUNICATE WITH THE EARTH STATION IN THE SPACE TO EARTH DIRECTION (DOWNLINKS) EACH
Supported Per		DAY
Day		
Expected	5	AVERAGE DURATION OF EACH CONTACT
Duration of Each		
Contact		
Supported	Satellite Health and Status Data □	SATELLITE HEALTH AND STATUS TELEMETRY
Operations	Mission Payload Data 🗵	AND/OR MISSION PAYLOAD DATA
FCC notes:		
7. Use S-Note	· \$945.	
8. REM AGN, 0	Cubesat, CURIE A, CURIE B	

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

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

Transmit Frequency	v: 916 MHz	
State (XSC)	XSC = CA	
City Name (XAL)	XAL = Berkeley	
Latitude (DDMMSS)	Lat = 375250	
Longitude (DDDMMSS)	Lon = 1221437	
Transmit Power (PWR)	PWR = 3.77 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	200 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	GFSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	89 kbps	INFORMATION DATA RATE

		T
Forward Error	Is FEC used? Yes $oxtimes$ No $oxtimes$	
Correction Coding	FEC Type: _Reed-Solomon,	
	FEC Rate:89,	
Total Symbol Rate	100 ksps	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 = XAP01 R	POLARIZATIONS INCLUDE:
Polarization (XAP)	70 11 70 11 02 11	H = HORIZONTAL,
		V = VERTICAL, S = HORIZONTAL AND VERTICAL,
		L = LEFT HAND CIRCULAR,
		R = RIGHT HAND CIRCULAR,
		T = RIGHT AND LEFT HAND CIRCULAR,
T	VAT. VAT04.140	J = LINEAR POLARIZATION THE EARTH STATION TRANSMITTER ANTENNA
Transmit Antenna	XAZ = XAZ01 V10	MINIMUM OPERATING ANGLE OF
Orientation (XAZ)		ELEVATION (XAZ), V00 TO V90, EXAMPLE, XAZ01
		V00
Transmit Antones	ANTENNA CAIN 25.2	EXAMPLE ASSUMING NONGEOSTATIONARY, 16
Transmit Antenna	ANTENNA GAIN25.3,	DBI GAIN, 30 DEGREE BEAMWIDTH, AZIMUTHAL
Dimensions (XAD)	BEAMWIDTH6,	RANGE FROM 001-360, SITE ELEVATION OF 357
	AZIMUTHAL RANGE001-360,	METERS, AND ANTENNA HEIGHT ABOVE TERRAIN OF 6 METERS:
	THE SITE ELEVATION ABOVE MEAN SEA	XAD01 16G030B001-360A00357H006
	LEVEL IN METERS400,	
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS,	
	XAD = XAD01 25G006B001-	
	360A00400H025	
Transmit Antenna	ANTENNA DIAMETER3,	
Additional	ANTENNA	
Information (For	EFFICIENCY 65% ,	
Parabolic		
Antennas)		NUMBER OF TIMES THE EARTH STATION WILL
Number of	2	COMMUNICATE WITH THE STATELLITE IN THE
Satellite Contacts		EARTH TO SPACE DIRECTION (UPINKS) EACH DAY
Supported Per		
Day		
Expected	5	AVERAGE DURATION OF EACH CONTACT
Duration of Each		
Contact		
Satellite Receive Sp	pecifications	,
Receive Antenna	RAP = RAP01 R	POLARIZATIONS INCLUDE:
Polarization (RAP)		H = HORIZONTAL,
1 Sidilization (NAF)		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 = RAZ 01 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Receive Antenna Dimension (RAD)	ANTENNA GAIN5, BEAMWIDTH80, RAD = RAD01 05G080B	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 = SPCE 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 ANGLE	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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)

Transmit Frequency	/: 916 MHz	
State (XSC)	XSC = DE	
City Name (XAL)	XAL = Greenville	
Latitude (DDMMSS)	Lat = 394704	
Longitude (DDDMMSS)	Lon = 753758	
Transmit Power (PWR)	PWR = 3.77 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	200 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	GFSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	89 kbps	INFORMATION DATA RATE
Forward Error Correction Coding	Is FEC used? Yes ⊠ No □ FEC Type: _Reed-Solomon, FEC Rate:0.89,	
Total Symbol Rate	100 ksps	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 = XAP02 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 = XAZ02 V10	THE EARTH STATION TRANSMITTER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (XAZ), V00 TO V90, EXAMPLE, XAZ01 V00

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Transmit Antenna Dimensions (XAD)	ANTENNA GAIN25.3, BEAMWIDTH6, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS80, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS1, XAD = XAD02 25G006B001- 360A00080H001	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 DIAMETER3, ANTENNA EFFICIENCY65%,	
Number of Satellite Contacts Supported Per Day	2	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	5	AVERAGE DURATION OF EACH CONTACT
Satellite Receive Sp	pecifications	
Receive Antenna Polarization (RAP)	RAP = RAP02 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 = RAZ 02 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Receive Antenna Dimension (RAD)	ANTENNA GAIN5, BEAMWIDTH80, RAD = RAD02 05G080B	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 = SPACE 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 ANGLE62	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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)

Transmit Frequency	v: 2397 MHz	
State (XSC)	XSC = CA	
City Name (XAL)	XAL = Berkeley	
Latitude (DDMMSS)	Lat = 375250	
Longitude (DDDMMSS)	Lon = 1221437	
Transmit Power (PWR)	PWR = 4.46 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	200 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	GFSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.
Data Rate	89 kbps	INFORMATION DATA RATE
Forward Error	Is FEC used? Yes $oxtimes$ No $oxtimes$	
Correction Coding	FEC Type: _Reed-Solomon,	
	FEC Rate:89,	
Total Symbol Rate	100 ksps	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 = XAP03 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 = XAZ03 V10	THE EARTH STATION TRANSMITTER ANTENNA MINIMUM OPERATING ANGLE OF ELEVATION (XAZ), V00 TO V90, EXAMPLE, XAZ01 V00
Transmit Antenna Dimensions (XAD)	ANTENNA GAIN33.7, BEAMWIDTH3, AZIMUTHAL RANGE001-360, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS400, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS25, XAD = XAD03 34G003B001- 360A00400H025	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	ANTENNA DIAMETER3,	
Additional Information (For Parabolic Antennas)	ANTENNA EFFICIENCY65%,	
Number of Satellite Contacts Supported Per Day	2	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	5	AVERAGE DURATION OF EACH CONTACT
Satellite Receive Sp	pecifications	
Receive Antenna Polarization (RAP)	RAP = RAP03 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 = RAZ 03 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Receive Antenna Dimension (RAD)	ANTENNA GAIN6.7, BEAMWIDTH80, RAD = RAD03 06.7G080B	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 = SPACE 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 ANGLE 62 , APOGEE IN KILOMETERS 580 , PERIGEE IN KILOMETERS 580 , ORBITAL PERIOD IN HOURS 1 _ AND FRACTIONS OF HOURS IN DECIMAL 56 , THE NUMBER OF SATELLITES IN THE SYSTEM 2 . ORB = ORB,62.0IN00580AP00580PE001.6H02N RR02	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 TO1, EXAMPLE, REMO4 *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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)

Transmit Frequency: 2397 MHz		
State (XSC)	XSC = DE	
City Name (XAL)	XAL = Greenville	
Latitude (DDMMSS)	Lat = 394704	
Longitude (DDDMMSS)	Lon = 753758	
Transmit Power (PWR)	PWR = 4.46 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	200 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	N/A	2-SIDED EMISSION BANDWIDTH VALUES
-3 dB bandwidth		
-20 dB bandwidth		
-40 dB bandwidth		
-60 dB bandwidth		
Modulation Type	GFSK	THE METHOD USED TO SUPERIMPOSE DATA ON THE CARRIER, EXAMPLE, BPSK, QPSK, GMSK.

Data Rate	89 kbps	INFORMATION DATA RATE
Forward Error	Is FEC used? Yes ⊠ No □	
Correction Coding	FEC Type: _Reed-Solomon,	
	FEC Rate:,	
	, 120 Mater	
Total Symbol Rate	100 ksps	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 = XAP04 R	POLARIZATIONS INCLUDE:
Polarization (XAP)	7011 7011 0111	H = HORIZONTAL,
1 Glarization (70 til)		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 = XAZ04 V10	THE EARTH STATION TRANSMITTER ANTENNA
Orientation (XAZ)	AAZ - AAZO4 VIO	MINIMUM OPERATING ANGLE OF
Offeritation (XAZ)		ELEVATION (XAZ), V00 TO V90, EXAMPLE, XAZ01
		V00
Transmit Antenna	ANTENNA GAIN33.7,	EXAMPLE ASSUMING NONGEOSTATIONARY, 16
Dimensions (XAD)	BEAMWIDTH3,	DBI GAIN, 30 DEGREE BEAMWIDTH, AZIMUTHAL
,	AZIMUTHAL RANGE 001-360 ,	RANGE FROM 001-360, SITE ELEVATION OF 357 METERS, AND ANTENNA HEIGHT ABOVE TERRAIN
	THE SITE ELEVATION ABOVE MEAN SEA	OF 6 METERS:
	LEVEL IN METERS 80 ,	XAD01 16G030B001-360A00357H006
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS1	
	IN WILLIERS	
	XAD = XAD01 34G003B001-	
	360A00080H001	
Transmit Antenna	ANTENNA DIAMETER 3 ,	
Additional	ANTENNA	
Information (For	EFFICIENCY 65%,	
Parabolic		
Antennas)		
Number of	2	NUMBER OF TIMES THE EARTH STATION WILL
Satellite Contacts	2	COMMUNICATE WITH THE STATELLITE IN THE
Supported Per		EARTH TO SPACE DIRECTION (UPINKS) EACH DAY
1 ' '		
Day	5	AVERAGE DURATION OF EACH CONTACT
Expected Duration of Each	, , , , , , , , , , , , , , , , , , ,	
Contact	a sifications	
Satellite Receive Sp	ecifications	
Receive Antenna	RAP = RAP04 R	POLARIZATIONS INCLUDE:
Polarization (RAP)	10.0011	H = HORIZONTAL,
. 3.0.1.20.0011 (10.11)		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 = RAZ 04 NB	NB= NARROWBEAM EC = EARTH COVERAGE
Receive Antenna Dimension (RAD)	ANTENNA GAIN6.7, BEAMWIDTH80, RAD = RAD02 06.7G080B	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 = SPACE 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 ANGLE	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) =	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)