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.

Polylingual Experimental Terminal (PExT) is a non-geostationary satellite that will be in LEO conducting a flight demonstration of inter-satellite relay capabilities with existing satellites in LEO, MEO, and GEO. The bus by York Space Systems is equipped with communication system to facilitate TT&C communication with the ground station. For completeness, Part C was added to include PExT's inter-satellite relay transmitter. The transmitters at the other end of the inter-satellite links are existing equipment for separate fixed-satellite systems that are coordinated to support this experiment, therefore will not be defined in this data form.

Satellite Transmitter Data				
Transmit Frequency: 2257.5 MHz				
Satellite Name: PEx	Satellite Name: PExT TTNC			
Data Field	Data Answer	Description/Comments		
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		
Orientation (XAZ)	XAZ = EC	NB= NARROWBEAM EC = EARTH COVERAGE		
Antenna Dimension (XAD)	ANTENNA GAIN = 6.11 dBi BEAMWIDTH = 136°	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)		
Type of satellite	Type -Nongeostationary	Choose either:		
(State = SP) (City = geo or		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 = 97.5, APOGEE IN KILOMETERS = 515, PERIGEE IN KILOMETERS = 515, ORBITAL PERIOD IN HOURS = 1 AND FRACTIONS OF HOURS IN DECIMAL = 0.6, THE NUMBER OF SATELLITES IN THE SYSTEM = 1, ORB = 97.5IN00515AP00515PE0001.6H01NRT01 ORB = 97.5IN00515AP00515PE0001.6H01NRR01	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:

Earth Station Data	(Receiver)	
State/Country	RSC01 = G	
(RSC)	RSC02 = NZL	
	RSC03 = UAE	
	RSC04 = GUM	
	RSC05 = S	
	RSC06 = AUS	
City Name (RAL)	RAL01 = DUNDEE	
	RAL02 = AWARUA	
	RAL03 = DUBAI	
	RAL04 = HARMON	
	RAL05 = OJEBYN	
	RAL06 = MINGENEW	
Latitude	LAT01 = 562360N	
(DDMMSS)	LAT02 = 463112S	
	LAT03 = 245624N	
	LAT04 = 133036N	
	LAT05 = 652013N	
	LAT06 = 290036S	
Longitude	LON01 = 0031012W	
(DDDMMSS)	LON02 = 1682248E	
	LON03 = 0552100E	
	LON04 = 1444912E	
	LON05 = 0212534E	
	LON06 = 1152024E	
Antenna	RAP = R	POLARIZATIONS INCLUDE :
Polarization (RAP)		H = HORIZONTAL,
		S = HORIZONTAL AND VERTICAL,
		L = LEFT HAND CIRCULAR,
		R = RIGHT HAND CIRCULAR,
		J = LINEAR POLARIZATION
Antenna	RAZ = V10	THE EARTH STATION RECEIVER ANTENNA
Orientation (RAZ)		ORIENTATION (RAZ), THE MINIMUM ANGLE OF FLEVATION, VOO TO V90, EXAMPLE, RAZOL V00
Antenna	ANTENNA GAIN	EXAMPLE ASSUMING NONGEOSTATIONARY,
Dimensions (RAD)	BEAMWIDTH	RAD01 16G030B000-360A0035H006
	AZIMUTHAL RANGE	
	THE SITE ELEVATION ABOVE MEAN SEA	
	LEVEL IN METERS	
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS	
	RAD01 = 36G003B000-360A0115H002	
	RAD02 = 35G003B000-360A0013H002	
	RAD03 = 35G003B000-360A0029H025	
	RAD04 = 35G003B000-360A0072H007	
	RAD05 = 41G002B000-360A0012H005	
	RAD06 = 37G003B000-360A0270H005	

SUP	To test a wideband Ka-band user terminal	
	from LEO with multiple commercial relay	
	services and backwards comp0atibility to	
	TDRSS service. RFA for PExT TT&C	
	communication with Earth station as part	
	of bus service by York Space Systems.	
	Contract Agency NASA, contract number	
	80MSFC22F0103.	
FCC notes:		
1. Use S-Note S945		
2. Use P-Note P032		

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

Earth Station Transmitter Data Transmit Frequency: 2037.5 MHz Data Field Data Answer **Description/Comments** State/Country XSC01 = G(XSC) XSC02 = NZLXSC03 = UAE XSC04 = GUMXSC05 = SXSC06 = AUS City Name (XAL) XAL01 = DUNDEE SCOTLAND XAL02 = AWARUA NEW ZEALAND XAL03 = DUBAI UNITED ARAB EMIRATES XAL04 = HARMON GUAM XAL05 = OJEBYN SWEDEN XAL06 = MINGENEW AUSTXALIA Latitude LAT01 = 562360N (DDMMSS) LAT02 = 463112SLAT03 = 245624N LAT04 = 133036N LAT05 = 652013N LAT06 = 290036S Longitude LON01 = 0031012W (DDDMMSS) LON02 = 1682248E LON03 = 0552100E LON04 = 1444912E LON05 = 0212534E LON06 = 1152024E POLARIZATIONS INCLUDE : Antenna XAP = RH = HORIZONTAL, Polarization (XAP) V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION

Antenna	XAZ = V10	THE EARTH STATION Transmitter ANTENNA
Orientation (XAZ)		ORIENTATION (XAZ), THE MINIMUM ANGLE OF
Antenna	ΔΝΤΕΝΝΑ GAIN	EXAMPLE ASSUMING NONGEOSTATIONARY,
Dimensions (XAD)	BEAMWIDTH	XAD01 16G030B000-360A0035H006
	AZIMUTHAL BANGE	
	THE SITE ELEVATION ABOVE MEAN SEA	
	THE ANTENNIA HEIGHT ABOVE TERRAIN	
	IN METERS	
	XAD01 = 366003B000-360A0115H002	
	XAD02 = 356003B000 - 360A0013H002	
	XAD02 = 356003B000 300A00131002	
	XAD03 = 350003B000-300A00231023	
	XAD04 = 3300030000-300A00721007	
	XAD05 = 4100020000-300A001210005	
	XXD00 - 3700030000-300X027011003	
Satellite Receive Sr	pecification	
Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE :
		H = HORIZONTAL,
		V = VERTICAL,
		L = LEFT HAND CIRCULAR,
		R = RIGHT HAND CIRCULAR,
		T = RIGHT AND LEFT HAND CIRCULAR,
Antenna	BA7 = FC	STATION RECEIVER ANTENNA ORIENTATION (XAZ),
Orientation (RAZ)		THE MINIMUM ANGLE OF ELEVEATION, V00 TO
		V90, EXAMPLE, RAZ01 V00
Dimension (RAD)		
	BEAMIWIDTH = 136	
Tuno of cotollito	RAD = RADUI 00G	Choose either:
Type of satellite	Type = Nongeostationary	Geostationary or
(State = SP)		Nongeostationary
(City = G/NO)		
For Geostationary	Longitude =	ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND
		REPORT ITS LONGITUDE (XLG AND/OR RLG).
For	INCLINATION ANGLE = 97.5, APOGEE IN	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	KILOMETERS = 515, PERIGEE IN	IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL
(Orbital Data)	KILOMETERS = 515, ORBITAL PERIOD IN	PERIOD IN HOURS AND FRACTIONS OF HOURS IN
	HOURS = 1 AND FRACTIONS OF HOURS IN	DECIMAL, THE NUMBER OF SATELLITES IN THE
	DECIMAL = 0.6, THE NUMBER OF	REM04
	SATELLITES IN THE SYSTEM = 1,	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
		AND FOR SPACE-TO-SPACE
	ORB =	NONGEOSTATIONARY SATELLITE ADD AN
	97.5IN00515AP00515PE0001.6H01NRT01	ADDITIONAL
	ORB =	*ORB.72 9IN03209AP00655PF013 46H01NRR01
	97.5IN00515AP00515PE0001.6H01NRR01	

SUP	To test a wideband Ka-band user terminal	
	from LEO with multiple commercial relay	
	services and backwards comp0atibility to	
	TDRSS service. RFA for PExT TT&C	
	communication with space station as part	
	of bus service by York Space Systems.	
	Contract Agency NASA, contract number	
	80MSFC22F0103.	
FCC notes:		
1. Use S-Note S945		
2. Use P-Note P032		

Part C: Space to Space link data:

Satellite Transmitte	er Data	
Transmit Frequency	y: 28.3 GHz	
Satellite Name: PEx	(T RELAY	
Data Field	Data Answer	Description/Comments
Polarization (SAP)	SAP = 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)	Space-to-space XAZ =	NB= NARROWBEAM EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Antenna	ANTENNA GAIN = 40.3 dBi	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Dimension (XAD)	BEAMWIDTH = 1.1° (3-dB beamwidth)	
	XAD = XAD01 40G001B	
Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude = N/A	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 = 97.5, APOGEE IN KILOMETERS = 515, PERIGEE IN KILOMETERS = 515, ORBITAL PERIOD IN HOURS = 1 AND FRACTIONS OF HOURS IN DECIMAL = 0.6, THE NUMBER OF SATELLITES IN THE SYSTEM = 1, ORB = 97.5IN00515AP00515PE0001.6H01NRT01 ORB = 97.5IN00515AP00515PE0001.6H01NRR01	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

Space Station Data	(Receiver)	
Polarization (SAP)	SAP = T Space-to-space	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 NB= NARROWBEAM
Orientation (RAZ)	RAZ =	EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = dBW BEAMWIDTH =° (3-dB beamwidth) RAD = RAD01	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
Type of satellite (State = SP) City = G/No	Type = Nongeostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude = N/A	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 = ?, APOGEE IN KILOMETERS = ?, PERIGEE IN KILOMETERS = ?, ORBITAL PERIOD IN HOURS = ? AND FRACTIONS OF HOURS IN DECIMAL = ?, THE NUMBER OF SATELLITES IN THE SYSTEM = ?, ORB = 0.04IN08079AP08067PE0004.8H13NRT01 0.05IN08081AP08065PE0004.8H13NRT01 0.17IN08078AP08063PE0004.8H13NRT01 ORB = 0.04IN08079AP08067PE0004.8H13NRT01 0.05IN08081AP08065PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 0.06IN08568AP07522PE0004.8H13NRR01 0.06IN08568AP07522PE0004.8H13NRR01 0.06IN08568AP07522PE0004.8H13NRR01 0.17IN08078AP08063PE0004.8H13NRR01	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
SUP	To test a wideband Ka-band user terminal from LEO with multiple commercial relay services and backwards compatibility to TDRSS service. RFA for PExT transmission to O3b mPOWER satellite system. Contract Agency NASA, contract number 80MSFC22F0103.	
FCC notes: 1. Use S-Note S945 2. Use P-Note P032	·	

Satellite Transmitte	er Data	
Transmit Frequency	/: 30.35 GHz	
Satellite Name: PEx	T RELAY	
Data Field	Data Answer	Description/Comments
Polarization (SAP)	SAP = 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)	Space-to-space XAZ =	NB= NARROWBEAM EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Antenna	ANTENNA GAIN = 40.3 dBi	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Dimension (XAD)	BEAMWIDTH = 1.1° (3-dB beamwidth)	
	XAD = XAD01 40G001B	
Type of satellite (State = SP) (City = geo or non)	Type =Nongeostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude = N/A	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 = 97.5, APOGEE IN KILOMETERS = 515, PERIGEE IN KILOMETERS = 515, ORBITAL PERIOD IN HOURS = 1 AND FRACTIONS OF HOURS IN DECIMAL = 0.6, THE NUMBER OF SATELLITES IN THE SYSTEM = 1, ORB = 97.5IN00515AP00515PE0001.6H01NRT01 ORB =	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, 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
Space Station Data	(Receiver)	
Polarization (SAP)	SAP = 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
Antenna	Space-to-space	
Orientation (RAZ)	RAZ =	LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = dBW	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006

	BEAMWIDTH =° (3-dB beamwidth)	
	RAD = RAD01	
Type of satellite (State = SP)	Type = Geostationary	Choose either: Geostationary or Nongeostationary
City = G/No		
For Geostationary	Latitude = $0^{\circ} 0' 0''$	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
(RLA, RLG)	Longitude = 62° 3′ 0″	AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
	RLA = 000000N RLG = 0620300E	
For	INCLINATION ANGLE =, APOGEE IN	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	KILOMETERS =, PERIGEE IN	IN KILOMETERS, PERIGEE IN KILOMETERS,
(Orbital Data)	KILOMETERS =, ORBITAL PERIOD IN	ORBITAL PERIOD IN HOURS AND FRACTIONS OF
	HOURS = AND FRACTIONS OF HOURS	IN THE SYSTEM, THEN TO1, EXAMPLE,
	IN DECIMAL =, THE NUMBER OF	REM04
	SATELLITES IN THE SYSTEM =,	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
		COMMUNICATIONS WITH ANOTHER
	ORB =	NONGEOSTATIONARY SATELLITE ADD AN
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
		*ORB,72.9IN03209AP00655PE013.46H01NRR01
SUP	To test a wideband Ka-band user terminal	
	from LEO with multiple commercial relay	
	services and backwards compatibility to	
	IDRSS service. Unwanted emissions into	
	31.3-31.5 GHz will not exceed -20 dBW	
	Into the 31.3-31.5 GHz Earth exploration-	
	satellite service. RFA for PEXT transmission	
	to Inmarsat IS-F1. Contract Agency NASA,	
ECC notos:		
1 Use S-Note SOAE		
2 Use P-Note P022		
2.0301 NOLET 032	•	

Satellite Transmitter Data		
Transmit Frequency: 27.11 GHz, 27.45 GHz		
Satellite Name: PEx	T RELAY	
Data Field	Data Answer Description/Comments	
Polarization (SAP)	SAP = 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)	Space-to-space XAZ =	NB= NARROWBEAM EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS

Antenna	ANTENNA GAIN = 40.3 dBi	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Dimension (XAD)	BEAMWIDTH = 1.1° (3-dB beamwidth)	
	XAD = XAD01 40G001B	
Type of satellite	Type = Nongeostationary	Choose either:
(State = SP)		Geostationary or
(City = geo or		Nongeostationary
non)		
For Geostationary	Longitude = N/A	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
		ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG)
For	INCLINATION ANGLE = 97.5. APOGEE IN	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	KILOMETERS = 515. PERIGEE IN	REPORT ITS INCLINATION ANGLE, APOGEE
(Orbital Data)	KILOMETERS = 515, ORBITAL PERIOD IN	ORBITAL PERIOD IN HOURS AND FRACTIONS OF
(orbital bata)	HOURS = 1 AND FRACTIONS OF HOURS IN	HOURS IN DECIMAL, THE NUMBER OF SATELLITES
	DECIMAL = 0.6. THE NUMBER OF	IN THE SYSTEM, THEN T01, EXAMPLE,
	SATELLITES IN THE SYSTEM = 1.	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
		AND FOR SPACE-TO-SPACE
	OBB =	COMMUNICATIONS WITH ANOTHER
	97.5IN00515AP00515PE0001.6H01NBT01	ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
	97.5IN00515AP00515PE0001.6H01NRR01	*ORB,72.9IN03209AP00655PE013.46H01NRR01
Space Station Data	(Receiver)	
Polarization (SAP)	SAP = T	POLARIZATIONS INCLUDE :
		H = HORIZONTAL,
		V = VERTICAL, S = HORIZONTAL AND VERTICAL
		L = LEFT HAND CIRCULAR,
		R = RIGHT HAND CIRCULAR,
		J = LINEAR POLARIZATION
Antenna	Space-to-space	NB= NARROWBEAM
Orientation (RAZ)	RAZ =	EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE-
		TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = dBW	EXAMPLE ASSUMING NONGEOSTATIONARY,
	BEAMWIDTH =° (3-dB beamwidth)	RAD01 16G030B000-360A00357H006
	RAD = RAD01 46G0.6B	
	RAD02 46G0.6B	
	RAD03 46G0.6B	
Type of satellite	Type = Geostationary	Choose either:
(State = SP)		Geostationary or Nongeostationary
City = G/No		,
For Geostationary	Longitude = N/A	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
		ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG)
	RI 401 00000N	
	RLG01 0410000W	
	RLG01 0410000W RLA02 000000N	

	RLA03 000000N	
	RLG03 1740000W	
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 = ORB =	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
SUP	To test a wideband Ka-band user terminal from LEO with multiple commercial relay services and backwards compatibility to TDRSS service. RFA for PExT transmission to O3b mPOWER satellite system. Contract Agency NASA, contract number 80MSFC22F0103.	
FCC notes: 1. Use S-Note S945.		
2. Use P-Note P032		

Satellite Transmitte	er Data	
Transmit Frequency: 19.0 GHz		
Satellite Name: O3b mPOWER		
Data Field	Data Answer	Description/Comments
Polarization (SAP)	SAP = 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)	Space-to-space XAZ =	NB= NARROWBEAM EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Antenna Dimension (XAD)	ANTENNA GAIN = dBW BEAMWIDTH =° (3-dB beamwidth) XAD = XAD01	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude = N/A	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 = ?, APOGEE IN KILOMETERS = ?, PERIGEE IN KILOMETERS = ?, ORBITAL PERIOD IN HOURS = ? AND FRACTIONS OF HOURS IN DECIMAL = ?, THE NUMBER OF SATELLITES IN THE SYSTEM = ?, ORB = 0.04IN08079AP08067PE0004.8H13NRT01 0.05IN08081AP08065PE0004.8H13NRT01 0.17IN08078AP08063PE0004.8H13NRT01 ORB = 0.04IN08079AP08067PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NRR01 0.05IN08078AP08065PE0004.8H13NR	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
Space Station Data	(Receiver)	
Polarization (SAP)	SAP = 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
Antenna	Space-to-space	NB= NARROWBEAM
Orientation (RAZ)	RAZ =	EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = 40.3 dBi BEAMWIDTH = 1.1° (3-dB beamwidth)	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
	RAD = RAD01 40G001B	
Type of satellite (State = SP) City = G/No	Type = Nongeostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude = N/A	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For	INCLINATION ANGLE = 97.5, APOGEE IN	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	KILOMETERS = 515, PERIGEE IN	REPORT ITS INCLINATION ANGLE, APOGEE
(Orbital Data)	KILOMETERS = 515, ORBITAL PERIOD IN	PERIOD IN HOURS AND FRACTIONS OF HOURS IN
	HOURS = 1 AND FRACTIONS OF HOURS IN	DECIMAL, THE NUMBER OF SATELLITES IN THE
	DECIMAL = 0.6, THE NUMBER OF	REM04
	SATELLITES IN THE SYSTEM = 1,	*ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE
	ORB =	NONGEOSTATIONARY SATELLITE ADD AN
	97.5IN00515AP00515PE0001.6H01NRT01	ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01

	ORB =	
	97.5IN00515AP00515PE0001.6H01NRR01	
SUP	To test a wideband Ka-band user terminal	
	from LEO with multiple commercial relay	
	services and backwards compatibility to	
	TDRSS service. RFA for O3b mPOWER	
	transmission to PExT satellite system.	
	Contract Agency NASA, contract number	
	80MSFC22F0103.	
FCC notes:		
1. Use S-Note S945.		
2. Use P-Note P032		

Satellite Transmitte	er Data	
Transmit Frequence	y: 20.55 GHz	
Satellite Name: Inmarsat I5-F1		
Data Field	Data Answer	Description/Comments
Polarization (SAP)	SAP = 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)	Space-to-space XAZ =	NB= NARROWBEAM EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Antenna Dimension (XAD)	ANTENNA GAIN = dBW BEAMWIDTH =° (3-dB beamwidth) XAD = XAD01	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Geostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Latitude = 0° 0' 0" Longitude = 62° 3' 0" XLA = 000000N XLG = 0620300E	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 =, APOGEE IN KILOMETERS =, PERIGEE IN KILOMETERS =, ORBITAL PERIOD IN HOURS = AND FRACTIONS OF HOURS IN DECIMAL =, THE NUMBER OF SATELLITES IN THE SYSTEM =,	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

	ORB =	NONGEOSTATIONARY SATELLITE ADD AN
	OBB =	ADDITIONAL
		*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
		OKB,72.91105209AP000555PE015.40H011NKK01
Space Station Data	(Pacaivar)	
Delarization (SAD)		POLARIZATIONS INCLUDE :
Polarization (SAP)	SAP = I	H = HORIZONTAL,
		V = VERTICAL,
		S = HORIZONTAL AND VERTICAL,
		R = RIGHT HAND CIRCULAR.
		T = RIGHT AND LEFT HAND CIRCULAR,
		J = LINEAR POLARIZATION
Antenna	Space-to-space	NB= NARROWBEAM EC = EARTH COVERAGE
Orientation (RAZ)	RAZ =	LEAVE THE FIELD BLANK FOR THE CASE OF SPACE-
		TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = 40.3 dBi	EXAMPLE ASSUMING NONGEOSTATIONARY,
	BEAMWIDTH = 1.1° (3-dB beamwidth)	RAD01 16G030B000-360A00357H006
	RAD = RAD01 40G001B	
Type of satellite	Type = Nongeostationary	Choose either:
(State = SP)		Geostationary or
City = G/No		Nongeostational y
For Geostationary	Longitude = N/A	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
		ITS LATITUDE AS 000000N (XLA AND/OR RLA)
For		IF ANY SATELLITES ARE NONGEOSTATIONARY.
Nongoostationary		REPORT ITS INCLINATION ANGLE, APOGEE
(Orbital Data)	KILOWETERS - 515, PERIGEE IN	IN KILOMETERS, PERIGEE IN KILOMETERS,
(Orbital Data)	KILOWETERS = 515, ORBITAL PERIOD IN	ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL THE NUMBER OF SATELLITES
	HOURS = 1 AND FRACTIONS OF HOURS IN	IN THE SYSTEM, THEN TO1, EXAMPLE,
	DECIMAL = 0.6, THE NUMBER OF	REM04
	SATELLITES IN THE SYSTEM = 1,	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
		COMMUNICATIONS WITH ANOTHER
	ORB =	NONGEOSTATIONARY SATELLITE ADD AN
	97.5IN00515AP00515PE0001.6H01NRT01	ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REMOS *ORB.72.9IN03209AP00655PE013.46H01NRR01
	97.5IN00515AP00515PE0001.6H01NRR01	
SUP	To test a wideband Ka-band user terminal	
	from LEO with multiple commercial relay	
	services and backwards compatibility to	
	TDRSS service. RFA for Inmarsat I5-F1	
	transmission to PExT satellite system.	
	Contract Agency NASA, contract number	
	80MSFC22F0103.	
FCC notes:	1	
1. Use S-Note S945.		
2. Use P-Note P032		

Satellite Transmitter Data

Transmit Frequency: 23.15 GHz

Satellite Name: TDRSS		
Data Field	Data Answer	Description/Comments
Polarization (SAP)	SAP = 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,
Orientation (XAZ)	Space-to-space XAZ =	I = LINEAR POLARIZATION NB= NARROWBEAM EC = EARTH COVERAGE LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Antenna Dimension (XAD)	ANTENNA GAIN = dBW BEAMWIDTH =° (3-dB beamwidth) XAD = XAD01 46G0.6B XAD02 46G0.6B XAD03 46G0 6B	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Geostationary	Choose either: Geostationary or Nongeostationary
For Geostationary	Latitude = 0° 0′ 0″ Longitude = 62° 3′ 0″ XLA01 000000N XLG01 0410000W XLA02 000000N XLG02 1710000W XLA03 00000N XLG03 1740000W	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 =, APOGEE IN KILOMETERS =, PERIGEE IN KILOMETERS =, ORBITAL PERIOD IN HOURS = AND FRACTIONS OF HOURS IN DECIMAL =, THE NUMBER OF SATELLITES IN THE SYSTEM =, ORB = ORB =	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
Encer Station Data (Deceiver)		
Polarization (SAP)	SAP = 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

Antenna	Space-to-space	NB= NARROWBEAM
Orientation (RAZ)	RAZ =	EC = EARTH COVERAGE
		TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = 40.3 dBi	EXAMPLE ASSUMING NONGEOSTATIONARY,
	BEAMWIDTH = 1.1° (3-dB beamwidth)	RAD01 16G030B000-360A00357H006
	RAD = RAD01 40G001B	
Type of satellite	Type = Nongeostationary	Choose either:
(State = SP)		Geostationary or Nongeostationary
City = G/No		itongeostationally
For Geostationary	Longitude = N/A	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
		ITS LATITUDE AS 000000N (XLA AND/OR RLA)
For	INCLINATION ANGLE = 97.5. APOGEE IN	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	KILOMETERS = 515. PERIGEE IN	REPORT ITS INCLINATION ANGLE, APOGEE
(Orbital Data)	KILOMETERS = 515. ORBITAL PERIOD IN	ORBITAL PERIOD IN HOURS AND FRACTIONS OF
(************	HOURS = 1 AND FRACTIONS OF HOURS IN	HOURS IN DECIMAL, THE NUMBER OF SATELLITES
	DECIMAL = 0.6. THE NUMBER OF	IN THE SYSTEM, THEN TO1, EXAMPLE,
	SATELLITES IN THE SYSTEM = 1	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
		AND FOR SPACE-TO-SPACE
	OBB =	COMMUNICATIONS WITH ANOTHER
	97 5IN00515AP00515PE0001 6H01NBT01	ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
	97 5IN00515AP00515PE0001 6H01NBR01	*ORB,72.9IN03209AP00655PE013.46H01NRR01
SUP	To test a wideband Ka-band user terminal	
	from LEO with multiple commercial relay	
	services and backwards compatibility to	
	TDRSS service. RFA for Inmarsat I5-F1	
	transmission to PExT satellite system.	
	Contract Agency NASA, contract number	
	80MSFC22F0103.	
FCC notes:	L	1
1. Use S-Note S945		
2. Use P-Note P032		