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.

Part A: Space to Earth Downlink Data:

Satellite Transmitter Data

Transmit Frequency	/: 2257.5 MHz	
Satellite Name: PEx	T DEMO	
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° XAD = XAD01 06G136B	(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 =	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

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, V = VERTICAL,
		S = HORIZONTAL AND VERTICAL,
		L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR,
		T = RIGHT AND LEFT HAND CIRCULAR,
		J = LINEAR POLARIZATION
Antenna	RAZ = V10	THE EARTH STATION RECEIVER ANTENNA ORIENTATION (RAZ), THE MINIMUM ANGLE OF
Orientation (RAZ)		ELEVATION, VOO TO V90, EXAMPLE, RAZ01 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	
	RAD01 = 35G003B000-360A0113H002 RAD02 = 35G003B000-360A0013H002	
	RAD02 = 35G003B000-360A0013H002 RAD03 = 35G003B000-360A0029H025	
	RAD03 = 35G003B000-360A0029H025 RAD04 = 35G003B000-360A0072H007	
	RAD04 = 35G005B000-560A0072H007 RAD05 = 41G002B000-360A0012H005	
	RAD05 = 41G002B000-360A0012H005 RAD06 = 37G003B000-360A0270H005	
	NADUO - 3700030000-300A02700005	

	I	
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	5.	
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2. Use P-Note P032.

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

Earth Station Transmitter Data

Transmit Frequency	y: 2037.5 MHz	
Data Field	Data Answer	Description/Comments
State/Country	XSC01 = G	
(XSC)	XSC02 = NZL	
	XSC03 = UAE	
	XSC04 = GUM	
	XSC05 = S	
	XSC06 = 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 = 463112S	
	LAT03 = 245624N	
	LAT04 = 133036N	
	LAT05 = 652013N	
	LAT06 = 290036S	
Longitude	LON01 = 0031012W	
(DDDMMSS)	LON02 = 1682248E	
	LON03 = 0552100E	
	LON04 = 1444912E	
	LON05 = 0212534E	
	LON06 = 1152024E	
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

A . I	VA7 - V40	THE EARTH STATION Transmitter ANTENNA
Antenna	XAZ = V10	ORIENTATION (XAZ), THE MINIMUM ANGLE OF
Orientation (XAZ)		ELEVATION, VOO TO V90, EXAMPLE, XAZ01 V00
Antenna	ANTENNA GAIN,	EXAMPLE ASSUMING NONGEOSTATIONARY,
Dimensions (XAD)	BEAMWIDTH,	XAD01 16G030B000-360A0035H006
	AZIMUTHAL RANGE,	
	THE SITE ELEVATION ABOVE MEAN SEA	
	LEVEL IN METERS ,	
	THE ANTENNA HEIGHT ABOVE TERRAIN	
	IN METERS	
	XAD01 = 36G003B000-360A0115H002	
	XAD02 = 35G003B000-360A0013H002	
	XAD03 = 35G003B000-360A0029H025	
	XAD04 = 35G003B000-360A0072H007	
	XAD05 = 41G002B000-360A0012H005	
	XAD06 = 37G003B000-360A0270H005	
	7/1000 - 37/0003B000-300A027011003	
Satellite Receive S	pecification	
Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE :
Polarization (RAP)	KAP = K	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	RAZ = EC	STATION RECEIVER ANTENNA ORIENTATION (XAZ), THE MINIMUM ANGLE OF ELEVEATION, V00 TO
Orientation (RAZ)		V90, EXAMPLE, RAZ01 V00
Dimension (RAD)	ANTENNA GAIN = 6.11 dBi	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
	BEAMWIDTH = 136°	
	RAD = RAD01 06G	
Type of satellite	Type = Nongeostationary	Choose either:
(State = SP)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Geostationary or
(City = G/No)		Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT
. Si Geostationary	20.15.1440	ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND
Гои	INCLINATION ANGLE 07.5 ADOCTOR	REPORT ITS LONGITUDE (XLG AND/OR RLG). IF ANY SATELLITES ARE NONGEOSTATIONARY,
For	INCLINATION ANGLE = 97.5, APOGEE IN	REPORT ITS INCLINATION ANGLE, APOGEE
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 SYSTEM, THEN TO1, EXAMPLE,
	DECIMAL = 0.6, THE NUMBER OF	REM04
	SATELLITES IN THE SYSTEM = 1,	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
		AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER
	ORB =	NONGEOSTATIONARY SATELLITE ADD AN
	97.5IN00515AP00515PE0001.6H01NRT01	ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
i .	1	OUP'LE'SHAOSEONU OOODDLEDTO'HOHOTIAUUOT

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 Frequence	y: 28.3 GHz	
Satellite Name: PExT DEMO		
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 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

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 EC = EARTH COVERAGE
Orientation (RAZ)	RAZ =	LEAVE THE FIELD BLANK FOR THE CASE OF SPACE- TO-SPACE OPERATIONS
Dimensions (RAD)	ANTENNA GAIN = dBW BEAMWIDTH = ° (3-dB beamwidth)	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
	RAD = RAD01	
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 ORB = 0.04IN08079AP08067PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 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		

	2 .	
Satellite Transmitte		
Transmit Frequency	•	
Satellite Name: PEx	T DEMO	
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	NB= NARROWBEAM
, ,	XAZ =	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	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 = dBW	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006

	BEAMWIDTH = ° (3-dB beamwidth)	
	RAD = RAD01	
Type of satellite (State = SP) City = G/No	Type = Geostationary	Choose either: Geostationary or Nongeostationary
For Geostationary (RLA, RLG)	Latitude = 0° 0′ 0″ Longitude = 62° 3′ 0″ RLA = 000000N	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)	RLG = 0620300E 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 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
SUP	To test a wideband Ka-band user terminal from LEO with multiple commercial relay services and backwards compatibility to TDRSS 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 I5-F1. Contract Agency NASA, contract number 80MSFC22F0103.	
FCC notes: 1. Use S-Note S945 2. Use P-Note P032		

Satellite Transmitter Data		
Transmit Frequence	y: 27.11 GHz, 27.45 GHz	
Satellite Name: PEx	CT DEMO	
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)	(······, ····, ····, ····
Difficition (AAD)	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	IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF
(Orbital Data)	HOURS = 1 AND FRACTIONS OF HOURS IN	HOURS IN DECIMAL, THE NUMBER OF SATELLITES
		IN THE SYSTEM, THEN TO1, EXAMPLE,
	DECIMAL = 0.6, THE NUMBER OF	REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01,
	SATELLITES IN THE SYSTEM = 1,	AND FOR SPACE-TO-SPACE
	ODD	COMMUNICATIONS WITH ANOTHER
	ORB =	NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL
	97.5IN00515AP00515PE0001.6H01NRT01	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
	ORB =	*ORB,72.9IN03209AP00655PE013.46H01NRR01
	97.5IN00515AP00515PE0001.6H01NRR01	
Space Station Data	i i	DOLARIZATIONS INCLUDE
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,
A . I	6	J = LINEAR POLARIZATION NB= NARROWBEAM
Antenna	Space-to-space	EC = EARTH COVERAGE
Orientation (RAZ)	RAZ =	LEAVE THE FIELD BLANK FOR THE CASE OF SPACE-
D: : (DAD)	ANITENNA CAMA IRVA	TO-SPACE OPERATIONS EVANDLE ASSUMING NONGEOSTATIONARY
Dimensions (RAD)	ANTENNA GAIN = dBW	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
	BEAMWIDTH = (3-dB beamwidth)	
	PAD - PADO1 46C0 6P	
	RAD = RAD01 46G0.6B	
	RAD02 46G0.6B	
T C	RAD03 46G0.6B	Choose either:
Type of satellite	Type = Geostationary	Geostationary or
(State = SP)		Nongeostationary
City = G/No	Langituda N/A	IE ANY SATELLITES ADE GEOSTATIONIADY DEPORT
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).
	RLA01 000000N	
	RLG01 0410000W	
	RLA02 000000N	
	RLG02 1710000W	1

	T	
	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
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.	*ORB,72.9IN03209AP00655PE013.46H01NRR01
FCC notes:		
1. Use S-Note S945		

2. Use P-Note P032.

Satellite Transmitte	yr Data	
Transmit Frequency	y: 19.0 GHz	
Satellite Name: O3l	o 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 = 0.04IN08079AP08063PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 0.05IN08081AP08065PE0004.8H13NRR01 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
	0.17IN08078AP08063PE0004.8H13NRR01	
Cara Clatica Data	(0)	
Space Station Data	i ,	POLARIZATIONS INCLUDE :
Polarization (SAP)	SAP = T	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) RAD = RAD01 40G001B	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 = 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	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

	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 P03	32.
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Satellite Transmitte	er Data		
	Transmit Frequency: 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	ANTENNA GAIN = dBW	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)	
Dimension (XAD)	BEAMWIDTH =° (3-dB beamwidth) XAD = XAD01		
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
	ORB =	*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	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
	BEAMWIDTH = 1.1° (3-dB beamwidth)	RAD01 100030B000-300A0033711000
	RAD = RAD01 40G001B	
Type of satellite	Type = Nongeostationary	Choose either: Geostationary or
(State = SP)		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).
For	INCLINATION ANGLE = 97.5, APOGEE IN	IF ANY SATELLITES ARE NONGEOSTATIONARY,
Nongeostationary	KILOMETERS = 515, PERIGEE IN	REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS,
(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, REMO4
	SATELLITES IN THE SYSTEM = 1,	*ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE
	ORB =	COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN
	97.5IN00515AP00515PE0001.6H01NRT01	ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01
	97.5IN00515AP00515PE0001.6H01NRR01	0.12,7,213.11.022037.11.01.02.11.11.02
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. 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, 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)	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)	
	XAD = XAD01 46G0.6B XAD02 46G0.6B XAD03 46G0.6B		
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 000000N 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, 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	
Polarization (SAP)	(Receiver) 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
Onemation (10.12)		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
	DE MINISTER THE (O ab Scanning)	
	RAD = RAD01 40G001B	
Type of satellite	Type = Nongeostationary	Choose either:
(State = SP)		Geostationary or Nongeostationary
City = G/No		The ingestationary
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	IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF
(0.0000000)	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, REM04
	SATELLITES IN THE SYSTEM = 1,	*ORB,98.0IN00510AP00510PE001.58H01NRT01,
	,	AND FOR SPACE-TO-SPACE
	ORB =	COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN
	97.5IN00515AP00515PE0001.6H01NRT01	ADDITIONAL
	ORB =	*ORB FOR IT ENDING IN R01, EXAMPLE, REM05
	97.5IN00515AP00515PE0001.6H01NRR01	*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:	1	1
1 Use S-Note S945		

- 1. Use S-Note S945.
- 2. Use P-Note P032.