NTIA Space Record Data Form

Mission: TITAN | Regulatory Agency: FCC | Launch Date: Nov 01 2026 | Number of Satellites: 1 | Lifetime: 2 years

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 C is for all space to space transmit links.

Part A: Space to Earth Downlink Data

Data Field	Data Answer	Description/Comments
Transmit Frequency: 2230 MHz		
Satellite Name: TITAN (Transmitter 1)		
Polarization (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
Orientation (XAZ)	XAZ01 = EC	NB = NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN(dBi) 5dBi BEAMWIDTH@ ½ Power 65 degrees XAD = XAD01 05G065B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	CHOOSE EITHER: GEOSTATIONARY OR NONGEOSTATIONARY
For Nongeostationary (Orbital Data)	INCLINATION ANGLE 88.0 degrees, APOGEE IN KILOMETERS 500 km, PERIGEE IN KILOMETERS 500 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL 58, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB = 88.0IN00500AP00500PE001.58H01NRT01	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,97.5.0IN00510AP00510PE001.58H01NRT01, 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 Sun-Synchronous Nongeostationary Orbits	Mean Local Time of Ascending Node (MLTAN) = 22:30 minutes	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Transmit Power (PWR)	PWR = 0.25 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	0.25 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY

		TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Pretoria, South Africa (Receiver 1)		
State (RSC)	RSC = South Africa	Country or State
City Name (RAL)	RAL = Pretoria	City or location name
Latitude (DDMMSS)	Lat = 255139 S	
Longitude (DDDMMSS)	Lon = 0282712 E	
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ01 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 40.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1389 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD01 40G002B001-360A01389H005	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
Earth Station Data – Boden, Sweden (Receiver 2)		
State (RSC)	RSC = Sweden	Country or State
City Name (RAL)	RAL = Boden	City or location name
Latitude (DDMMSS)	Lat = 652014 N	
Longitude (DDDMMSS)	Lon = 0212530 E	
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ02 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 40.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 13 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD02 40G002B001-360A00013H005	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
Earth Station Data – Punta Arenas, Chile (Receiver 3)		
State (RSC)	RSC = Chile	Country or State

City Name (RAL)	RAL = Punta Arenas	City or location name
Latitude (DDMMSS)	Lat = 525628 S	
Longitude (DDDMMSS)	Lon = 0705059 W	
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ03 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 40.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 12 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD03 40G002B001-360A00012H005	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

Data Field	**Data Answer**	**Description/Comments**
Transmit Frequency: 2250 MHz		
Satellite Name: TITAN (Transmitter 2)		
Polarization (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
Orientation (XAZ)	XAZ02 = EC	NB = NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN(dBi) 5dBi BEAMWIDTH@ ½ Power 65 degrees XAD = XAD02 05G065B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	CHOOSE EITHER: GEOSTATIONARY OR NONGEOSTATIONARY
For Nongeostationary (Orbital Data)	INCLINATION ANGLE 88.0 degrees, APOGEE IN KILOMETERS 500 km, PERIGEE IN KILOMETERS 500 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL 58, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB = 88.0IN00500AP00500PE001.58H01NRT01	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,97.5.0IN00510AP00510PE001.58H01NRT01, 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 Sun-Synchronous Nongeostationary Orbits	Mean Local Time of Ascending Node (MLTAN) = 22:30 minutes	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Transmit Power (PWR)	PWR = 2 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	2 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Pretoria, South Africa (Receiver 4)		
State (RSC)	RSC = South Africa	Country or State
City Name (RAL)	RAL = Pretoria	City or location name
Latitude (DDMMSS)	Lat = 255139 S	
Longitude (DDDMMSS)	Lon = 0282712 E	
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ04 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 40.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1389 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD04 40G002B001-360A01389H005	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
Earth Station Data – Boden, Sweden (Receiver 5)		
State (RSC)	RSC = Sweden	Country or State
City Name (RAL)	RAL = Boden	City or location name
Latitude (DDMMSS)	Lat = 652014 N	
Longitude (DDDMMSS)	Lon = 0212530 E	
Antenna Polarization (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

Antenna Azimuth (RAZ)	RAZ05 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 40.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 13 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD05 40G002B001-360A00013H005	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
Earth Station Data – Punta Arenas, Chile (Receiver 6)		
State (RSC)	RSC = Chile	Country or State
City Name (RAL)	RAL = Punta Arenas	City or location name
Latitude (DDMMSS)	Lat = 525628 S	
Longitude (DDDMMSS)	Lon = 0705059 W	
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ06 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 40.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 12 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD06 40G002B001-360A00012H005	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

Data Field	**Data Answer**	**Description/Comments**
Transmit Frequency: 8125 MHz		
Satellite Name: TITAN (Transmitter 3)		
Polarization (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
Orientation (XAZ)	XAZ03 = NB	NB = NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN(dBi) 26dBi BEAMWIDTH@ ½ Power 6 degrees XAD = XAD03 26G006B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B

Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	CHOOSE EITHER: GEOSTATIONARY OR NONGEOSTATIONARY
For Nongeostationary (Orbital Data)	INCLINATION ANGLE 88.0 degrees, APOGEE IN KILOMETERS 500 km, PERIGEE IN KILOMETERS 500 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL 58, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB = 88.0IN00500AP00500PE001.58H01NRT01	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,97.5.0IN00510AP00510PE001.58H01NRT01, 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 Sun-Synchronous Nongeostationary Orbits	Mean Local Time of Ascending Node (MLTAN) = 22:30 minutes	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Transmit Power (PWR)	PWR = 0.5 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	170 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Deadhorse, Alaska, United States of America (Receiver 7)		
State (RSC)	RSC = Alaska, United States Of America	Country or State
City Name (RAL)	RAL = Deadhorse	City or location name
Latitude (DDMMSS)	Lat = 701243 N	
Longitude (DDDMMSS)	Lon = 1482615 W	
Antenna Polarization (RAP)	RAP07 = 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
Antenna Azimuth (RAZ)	RAZ07 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 15 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD07 51G000B001-360A00015H005	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

Earth Station Data – Pretoria, South Africa (Receiver 8)		
State (RSC)	RSC = South Africa	Country or State
City Name (RAL)	RAL = Pretoria	City or location name
Latitude (DDMMSS)	Lat = 255139 S	
Longitude (DDDMMSS)	Lon = 0282712 E	
Antenna Polarization (RAP)	RAP08 = 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
Antenna Azimuth (RAZ)	RAZ08 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1389 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD08 51G000B001-360A01389H005	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
Earth Station Data – Boden, Sweden (Receiver 9)		
State (RSC)	RSC = Sweden	Country or State
City Name (RAL)	RAL = Boden	City or location name
Latitude (DDMMSS)	Lat = 652014 N	
Longitude (DDDMMSS)	Lon = 0212530 E	
Antenna Polarization (RAP)	RAP09 = 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
Antenna Azimuth (RAZ)	RAZ09 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 13 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD09 51G000B001-360A00013H005	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
Earth Station Data – Punta Arenas, Chile (Receiver 10)		
State (RSC)	RSC = Chile	Country or State
City Name (RAL)	RAL = Punta Arenas	City or location name
Latitude (DDMMSS)	Lat = 525628 S	

Longitude (DDDMMSS)	Lon = 0705059 W	
Antenna Polarization (RAP)	RAP10 = 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
Antenna Azimuth (RAZ)	RAZ10 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 12 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD10 51G000B001-360A00012H005	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

Data Field	**Data Answer**	**Description/Comments**
Transmit Frequency: 8125 MHz		
Satellite Name: TITAN (Transmitter 4)		
Polarization (XAP)	XAP04 = L	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)	XAZ04 = NB	NB = NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN(dBi) 26dBi BEAMWIDTH@ ½ Power 6 degrees XAD = XAD04 26G006B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	CHOOSE EITHER: GEOSTATIONARY OR NONGEOSTATIONARY
For Nongeostationary (Orbital Data)	INCLINATION ANGLE 88.0 degrees, APOGEE IN KILOMETERS 500 km, PERIGEE IN KILOMETERS 500 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL 58, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB = 88.0IN00500AP00500PE001.58H01NRT01	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,97.5.0IN00510AP00510PE001.58H01NRT01, 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 Sun-Synchronous Nongeostationary Orbits	Mean Local Time of Ascending Node (MLTAN) = 22:30 minutes	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Transmit Power (PWR)	PWR = 0.5 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	170 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Deadhorse, Alaska, United States of America (Receiver 11)		
State (RSC)	RSC = Alaska, United States Of America	Country or State
City Name (RAL)	RAL = Deadhorse	City or location name
Latitude (DDMMSS)	Lat = 701243 N	
Longitude (DDDMMSS)	Lon = 1482615 W	
Antenna Polarization (RAP)	RAP11 = L	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 Azimuth (RAZ)	RAZ11 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 15 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD11 51G000B001-360A00015H005	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
Earth Station Data – Pretoria, South Africa (Receiver 12)		
State (RSC)	RSC = South Africa	Country or State
City Name (RAL)	RAL = Pretoria	City or location name
Latitude (DDMMSS)	Lat = 255139 S	
Longitude (DDDMMSS)	Lon = 0282712 E	
Antenna Polarization (RAP)	RAP12 = L	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 Azimuth (RAZ)	RAZ12 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90

Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1389 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD12 51G000B001-360A01389H005	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
Earth Station Data – Boden, Sweden (Receiver 13)		
State (RSC)	RSC = Sweden	Country or State
City Name (RAL)	RAL = Boden	City or location name
Latitude (DDMMSS)	Lat = 652014 N	
Longitude (DDDMMSS)	Lon = 0212530 E	
Antenna Polarization (RAP)	RAP13 = L	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 Azimuth (RAZ)	RAZ13 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 13 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD13 51G000B001-360A00013H005	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
Earth Station Data – Punta Arenas, Chile (Receiver 14)		
State (RSC)	RSC = Chile	Country or State
City Name (RAL)	RAL = Punta Arenas	City or location name
Latitude (DDMMSS)	Lat = 525628 S	
Longitude (DDDMMSS)	Lon = 0705059 W	
Antenna Polarization (RAP)	RAP14 = L	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 Azimuth (RAZ)	RAZ14 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN 51.0 dBi, BEAMWIDTH 0 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 12 m,	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:

	THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, RAD = RAD14 51G000B001-360A00012H005	RAD01 16G030B001-360A00357H006

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

The proposed system will receive transmissions from Ground Stations on the following frequencies. Because the system will not transmit on these frequencies, operator is not seeking corresponding experimental authorization. These receive-only frequencies are listed here for informational purposes only.

Data Field	Data Answer	Description/Comments
Transmit Frequency: 2030 MHz		
Earth Station Data – Deadhorse, Alaska, United States of America (Transmitter 1)		
State (XSC)	XSC = Alaska, United States Of America	Country or State
City Name (XAL)	XAL = Deadhorse	City or location name
Latitude (DDMMSS)	Lat = 701243 N	
Longitude (DDDMMSS)	Lon = 1482615 W	
Antenna Polarization (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
Antenna Azimuth (XAZ)	XAZ01 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 15 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD01 39G002B001-360A00015H005	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
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	0.25 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.

Earth Station Data – Pretoria, South Africa (Transmitter 2)		
State (XSC)	XSC = South Africa	Country or State
City Name (XAL)	XAL = Pretoria	City or location name
Latitude (DDMMSS)	Lat = 255139 S	
Longitude (DDDMMSS)	Lon = 0282712 E	
Antenna Polarization (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
Antenna Azimuth (XAZ)	XAZ02 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1389 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD02 39G002B001-360A01389H005	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
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	0.25 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Boden, Sweden (Transmitter 3)		
State (XSC)	XSC = Sweden	Country or State
City Name (XAL)	XAL = Boden	City or location name
Latitude (DDMMSS)	Lat = 652014 N	
Longitude (DDDMMSS)	Lon = 0212530 E	
Antenna Polarization (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
Antenna Azimuth (XAZ)	XAZ03 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90

Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 13 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD03 39G002B001-360A00013H005	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
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	0.25 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Punta Arenas, Chile (Transmitter 4)		
State (XSC)	XSC = Chile	Country or State
City Name (XAL)	XAL = Punta Arenas	City or location name
Latitude (DDMMSS)	Lat = 525628 S	
Longitude (DDDMMSS)	Lon = 0705059 W	
Antenna Polarization (XAP)	XAP04 = 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
Antenna Azimuth (XAZ)	XAZ04 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 12 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD04 39G002B001-360A00012H005	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
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT

Necessary Bandwidth	0.25 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Satellite Receiver Data – TITAN (Receiver 1)		
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ01 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN(dBi) 5dBi BEAMWIDTH@ ½ Power 70 degrees RAD = RAD01 05G070B	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 Noise Temperature	469 K	Satellite system noise temperature

Data Field	**Data Answer**	**Description/Comments**
Transmit Frequency: 2080 MHz		
Earth Station Data – Deadhorse, Alaska, United States of America (Transmitter 5)		
State (XSC)	XSC = Alaska, United States Of America	Country or State
City Name (XAL)	XAL = Deadhorse	City or location name
Latitude (DDMMSS)	Lat = 701243 N	
Longitude (DDDMMSS)	Lon = 1482615 W	
Antenna Polarization (XAP)	XAP05 = 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
Antenna Azimuth (XAZ)	XAZ05 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 15 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD05 39G002B001-360A00015H005	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

Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	2 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Pretoria, South Africa (Transmitter 6)		
State (XSC)	XSC = South Africa	Country or State
City Name (XAL)	XAL = Pretoria	City or location name
Latitude (DDMMSS)	Lat = 255139 S	
Longitude (DDDMMSS)	Lon = 0282712 E	
Antenna Polarization (XAP)	XAP06 = 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
Antenna Azimuth (XAZ)	XAZ06 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 1389 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD06 39G002B001-360A01389H005	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
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	2 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Boden, Sweden (Transmitter 7)		
State (XSC)	XSC = Sweden	Country or State
City Name (XAL)	XAL = Boden	City or location name
Latitude (DDMMSS)	Lat = 652014 N	
Longitude (DDDMMSS)	Lon = 0212530 E	

Antenna Polarization (XAP)	XAP07 = 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
Antenna Azimuth (XAZ)	XAZ07 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 13 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m, XAD = XAD07 39G002B001-360A00013H005	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
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	2 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Earth Station Data – Punta Arenas, Chile (Transmitter 8)		
State (XSC)	XSC = Chile	Country or State
City Name (XAL)	XAL = Punta Arenas	City or location name
Latitude (DDMMSS)	Lat = 525628 S	
Longitude (DDDMMSS)	Lon = 0705059 W	
Antenna Polarization (XAP)	XAP08 = 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
Antenna Azimuth (XAZ)	XAZ08 = NB	THE EARTH STATION TRANSMITTER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Antenna Dimensions (XAD)	ANTENNA GAIN 39.0 dBi, BEAMWIDTH 2 deg, AZIMUTHAL RANGE 001 – 360 deg, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 12 m, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5.0 m,	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:

	XAD = XAD08 39G002B001-360A00012H005	XAD01 16G030B001-360A00357H006
Transmitter Power (PWR)	PWR = 40 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	2 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Satellite Receiver Data – TITAN (Receiver 2)		
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ02 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN(dBi) 5dBi BEAMWIDTH@ ½ Power 70 degrees RAD = RAD02 05G070B	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 Noise Temperature	469 K	Satellite system noise temperature

Part C: Space to Space Link Data:

The proposed system will receive transmissions from other Satellites on the following frequencies. These receive-only crosslink frequencies are listed here for informational purposes only.

Data Field	Data Answer	Description/Comments
Transmit Frequency: 1622.4375 MHz		
Satellite Name: TITAN (Crosslink Transmitter 1)		
Polarization (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
Orientation (XAZ)	XAZ01 = EC	NB = NARROWBEAM EC = EARTH COVERAGE

Antenna Dimension (XAD)	ANTENNA GAIN(dBi) 4dBi BEAMWIDTH@ ½ Power 100 degrees XAD = XAD01 04G100B	NTIA FORMAT (XAD), EXAMPLE, FOR 16 DBI ANTENNA GAIN AND 30 DEGREE BEAMWIDTH XAD01 16G030B
Type of satellite (State = SP) (City = geo or non)	Type = Nongeostationary	CHOOSE EITHER: GEOSTATIONARY OR NONGEOSTATIONARY
For Nongeostationary (Orbital Data)	INCLINATION ANGLE 88.0 degrees, APOGEE IN KILOMETERS 500 km, PERIGEE IN KILOMETERS 500 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL 58, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB = 88.0IN00500AP00500PE001.58H01NRT01	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,97.5.0IN00510AP00510PE001.58H01NRT01, 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 Sun-Synchronous Nongeostationary Orbits	Mean Local Time of Ascending Node (MLTAN) = 22:30 minutes	MLTAN IS THE ANGLE BETWEEN AN ORBIT'S ASCENDING NODE AND THE MEAN SUN, OFTEN EXPRESSED AS UNIT OF TIME (HH:MM)
Transmit Power (PWR)	PWR = 1.3 W	TRANSMIT POWER SUPPLIED TO THE ANTENNA INPUT TERMINAL, EXAMPLE, PWR01 W2 TRANSMIT POWER UNITS INCLUDE: W = WATT, K = KILOWATT, M = MEGAWATT
Necessary Bandwidth	41.7 MHz	THE WIDTH OF FREQUENCY BAND WHICH IS JUST SUFFICIENT TO SUCCESSFULLY TRANSFER DATA. FORMULAS CAN BE FOUND IN ANNEX J OF THE NTIA MANUAL.
Receive Network	Iridium	
Satellite Receiver Data – TITAN (Crosslink Receiver 1)		
Antenna Polarization (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
Antenna Azimuth (RAZ)	RAZ01 = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH, MINIMUM ANGLE OF ELEVATION, V00 TO V90
Receive Antenna Dimensions (RAD)	ANTENNA GAIN(dBi) 4dBi BEAMWIDTH@ ½ Power 100 degrees RAD = RAD01 04G100B	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 Noise Temperature	150 K	Satellite system noise temperature