FOR REFERENCE ONLY

As required by the Commission, the following technical parameters are provided for BRIO satellite communications using S-Band Earth stations located outside the United States, its territories and possessions. The S-Band receive/transmit Earth Stations, operated and licensed by the Swedish Space Corporation (SSC), are located in Esrange, Sweden and Inuvik, Canada. This information is also included in the NTIA Space record data form submitted separately which gives the full picture of both ends of the transmit receive link.

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Part A: Space to Earth Downlink Data

Satellite Transmitter Data

Transmit Frequency: 2288.50 MHz (2200 – 2290 MHz)		
Satellite Name: **BRIO**		
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 = NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN 7.0 dBi BEAMWIDTH 30 degrees XAD01 = 07G030B	(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 97.52, APOGEE IN KILOMETERS 575 km, PERIGEE IN KILOMETERS 575 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL .60, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB= 97.5IN00575AP00575PE001.60H01NRT01	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

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Earth Station Data (Receiver)		
State (RSC)	RSC = Sweden	
City Name (RAL)	RAL = Esrange	
Latitude (DDMMSS)	Lat = 675322N	
Longitude (DDDMMSS)	Lon = 0210615E	
Antenna Polarization (RAP)	RAP = 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 Azimuth (RAZ)	RAZ = V00	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN 40 dB, BEAMWIDTH 1.5 degrees, AZIMUTHAL RANGE 0 - 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 372, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5 RAD = 40G002B000-360A00372H005	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006

FCC notes:
  1. Use S-Note S945.
  2. REM AGN, Cubesat, BRIO		

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Earth Station Data (Receiver)		
State (RSC)	RSC = Canada Northwest Territories	
City Name (RAL)	RAL = Inuvik	
Latitude (DDMMSS)	Lat = 682400N	
Longitude (DDDMMSS)	Lon = 1333000W	
Antenna Polarization (RAP)	RAP = 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 Azimuth (RAZ)	RAZ = V00	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN 40 dB, BEAMWIDTH 1.5 degrees, AZIMUTHAL RANGE 0 - 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 147, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5 RAD = 40G002B000-360A00147H005	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, BRIO		

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

Earth Station Transmitter Data:

Transmit Frequency: 2045.50 MHz (2025-2110 MHz)		
State(XSC)	XSC = Canada Northwest Territories	
City Name (XAL)	XAL = Inuvik	
Latitude (DDMMSS)	Lat = 682400N	
Longitude (DDDMMSS)	Lon = 1333000W	
Antenna Polarization (RAP)	RAP = 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 Azimuth (RAZ)	RAZ = V00	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN 40 dB, BEAMWIDTH 1.5 degrees, AZIMUTHAL RANGE 0 - 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 147, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5 RAD = 40G002B000-360A00147H005	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, BRIO		

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Transmit Frequency: 2045.50 MHz (2025-2110 MHz)		
State (RSC)	XSC = Sweden	
City Name (RAL)	XAL = Esrange	
Latitude (DDMMSS)	Lat = 675322N	
Longitude (DDDMMSS)	Lon = 0210615E	
Antenna Polarization (RAP)	XAP = 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 Azimuth (RAZ)	XAZ = V00	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN 40 dB, BEAMWIDTH 1.5 degrees, AZIMUTHAL RANGE 0 - 360 degrees, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS 372, THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS 5 RAD = 40G002B000-360A00372H005	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006

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Satellite Receive Specifications:

Receive Frequency: 2045.50 MHz (2025-2110 MHz)		
Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE: H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Azimuth (RAZ)	RAZ = V00	STATION RECEIVER ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Dimension (RAD)	ANTENNA GAIN 7.0 dBi BEAMWIDTH 30 degrees RAD = 07G030B	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
Type of satellite (State = SP) City = G/No	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 97.52, APOGEE IN KILOMETERS 575 km, PERIGEE IN KILOMETERS 575 km, ORBITAL PERIOD IN HOURS 1 AND FRACTIONS OF HOURS IN DECIMAL .60, THE NUMBER OF SATELLITES IN THE SYSTEM 1, ORB= 97.5IN00575AP00575PE001.60H01NRT0	√ 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

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