Exhibit B – Technical Annex

1. Scope

This Annex contains additional information regarding the Yet Another Mission 8 (YAM-8) non-geostationary satellite orbit ("NGSO") spacecraft, required by Section 25.114 and other sections of the Part 25 rules.

2. General Description (Section 25.114(d)(1))

The YAM-8 mission is comprised of a single satellite. The satellite bus on the YAM-8 spacecraft will be manufactured and supplied by Airbus. The bus design is derived from the heritage design that Airbus originally produced for OneWeb, a broadband telecommunications company, that was customized for Loft's YAC-1 mission. The spacecraft is 3-axis stabilized, maintains a nadir pointing configuration (no beam steering), and includes a Xenon Hall Effect thruster to support station keeping, collision avoidance, and post-mission disposal. The YAM-8 spacecraft has an expected 7-year operational life (with a goal of 10 years).

The spacecraft will operate in the frequencies listed below.

Table 1 Frequencies

Usage	Link Direction	Spectrum Range
S-band RX	Uplink (Earth-space)	2064-2072 MHz
S-band TX	Downlink (space-Earth)	2243-2256 MHz
S-band SDR RX	Uplink (Earth-space)	2072-2110 MHz
S-band SDR TX	Downlink (space-Earth)	2250-2290 MHz
Payload Downlink	Downlink (space-Earth)	8039-8327 MHz

3. Orbital Parameters

The spacecraft is expected to operate at the following target orbital parameters:

- Apogee: 540 km nominal ± 5 km
- Perigee: 540 km nominal ± 5 km
- Target Inclination: 97.7° ± 1.0°
- LTAN: 10:30 ± 5 minutes

YAM-8 has on-board propulsion and therefore does actively change its orbit. During the mission, station keeping will be employed to maintain the orbital configuration. Loft Orbital expects the YAM-8 spacecraft to be launched into an approximate SSO orbit, but does not intend to strictly maintain SSO throughout the spacecraft lifetime. Accordingly, Loft Orbital expects the LTDN to drift over time. At end of mission, the YAM-8 spacecraft will be deorbited as much as possible but no lower than 350 km circular orbit.The deployment parameters and transition to the target operating orbital parameters are discussed in the Orbital Debris Assessment Report ("ODAR"), attached as Exhibit C.

4. Telemetry, Tracking and Control and Payload Links

The YAM-8 spacecraft includes an S-band subsystem that supports both bus communications (the "S-band Bus") and payload communications (the "S-band Hub").

The S-band Bus telecommand uplink and telemetry downlink are the primary means of TT&C for the YAM-8 spacecraft. S-band telecommand transmissions are received by the spacecraft through patch antennas with near-omni directional patterns during all phases of spacecraft operation. The S-band Bus uplink channels and downlink channels both have a bandwidth of 120 kHz. The S-band receive beam has a peak gain of 6.5 dBiC, and the S-band transmit beam also has a peak gain of 6.5 dBiC. Pursuant to Section 25.114(c)(4)(vi)(A) of the Commission's rules, contours for these beams are provided in Section 12, below, as well as in the associated GXT files included in Schedule S.

The S-band Bus TT&C channels will be used primarily for LEOP, commissioning, and anomaly resolution operations. The S-band Bus telemetry downlink will transmit during one pass per orbit for a maximum duty cycle of 10%. Only one set of S-band uplink/downlink channels will be operational at the same time. During each ground station contact, the S-band uplink will also be active.

The S-band Hub uplink channels have a bandwidth of 600 kHz and downlink channels have a bandwidth of 964 kHz. The S-band Hub channels will be used during nominal operations. The S-band Hub telemetry downlink will transmit during up to two passes per orbit for a maximum duty cycle of 20%. During each ground station contact, the S-band uplink will also be active.

The specific S-band commanding channel and telemetry channels are listed in the Schedule S and reproduced below for convenience. Planned command channel information is provided below in Table 2 and planned telemetry channel information is provided below in Table 3. All planned Bus and Payload communications will be conducted from the ground stations identified in Exhibit D.

The X-band space-Earth link is used for payload downlink only. The X-band space-Earth channel has a bandwidth of 288 MHz, a carrier frequency of 8183 MHz, and a peak EIRP of 16.0 dBW. The X-band payload downlink beam has an iso-flux pattern with peak gain of 6.0 dBiC. Pursuant to Section 25.114(c)(4)(vi)(A) of the Commission's rules, contours for these beams are provided in Section 12, below, as well as in the associated GXT files included in Schedule S. The X-band downlink is expected to transmit during two passes per orbit for a maximum duty cycle of 20%.

The YAM-8 spacecraft will also include an S-band software defined radio (SDR) developed by Loft Orbital. The SDR radio was flown on Loft Orbital's YAM-7 spacecraft. The SDR S-band uplink channels have a bandwidth of up to 5 MHz, as listed in Table 2. The SDR S-band uplink channels will transmit up to twenty times per day.[1] Limited payload data will also be transmitted via the SDR S-band downlink. The downlink channels have a bandwidth of up to 5 MHz, as listed in Table 3, and will transmit up to twenty times per day. The SDR S-band receive beam has a peak gain of 6.5 dBiC, and the S-band SDR transmit beam has a peak gain of 6.5 dBiC. Pursuant to Section 25.114(c)(4)(vi)(A) of the Commission's rules, contours for these beams are provided in Section 11, below, as well as in the associated GXT files included in Schedule S.

The YAM-8 spacecraft will use a sufficiently unique telemetry marker at deployment to assure that its telemetry streams can be unambiguously identified.

[1] Only the 1 MHz uplink carrier will be used 20 times per day. The 3 MHz and 5 MHz carriers will not be used more frequently than once per week to support software updates.

Contact details for the control center are provided below:

Alexander B. Greenberg
Co-Founder and Chief Operating Officer
Loft Orbital Solutions Inc.
321 11th Street
San Francisco, CA 94103
917-744-4718

5. Frequency Plan

A. S-Band

The following tables list the uplink S-band channels and the downlink S-band channels planned for the YAM-8 spacecraft. This information is also provided in the accompanying Schedule S but is included here for completeness.

Table 2 S-Band Uplink Frequency Plan

Channel ID	Uplink Link Type	Bandwidth (MHz)	Center Frequency (MHz)	Polarization
SU11	Bus	0.120	2065.35	L/R
SU12	Bus	0.120	2067.35	L/R
SU13	Bus	0.120	2069.35	L/R
SU14	Bus	0.120	2071.35	L/R
SU21	Hub	0.600	2064.35	R
SU22	Hub	0.600	2066.35	R
SU23	Hub	0.600	2069.35	R
SU24	Hub	0.600	2071.35	R
SU31	SDR	5.0	2075.0	R
SU32	SDR	5.0	2097.5	R
SU33	SDR	5.0	2107.5	R
SU41	SDR	3.0	2075.0	R
SU42	SDR	3.0	2097.5	R
SU43	SDR	3.0	2107.5	R
SU51	SDR	1.0	2075.0	R
SU52	SDR	1.0	2097.5	R
SU53	SDR	1.0	2107.5	R

Table 3 S-Band Downlink Frequency Plan

Channel ID	Downlink Link Type	Bandwidth (MHz)	Center Frequency (MHz)	Polarization
SD11	Bus	0.120	2245.35	L/R
SD12	Bus	0.120	2247.35	L/R

SD13	Bus	0.120	2249.35	L/R
SD14	Bus	0.120	2251.35	L/R
SD15	Bus	0.120	2253.35	L/R
SD16	Bus	0.120	2255.35	L/R
SD21	Hub	0.964	2244.35	R
SD22	Hub	0.964	2246.35	R
SD23	Hub	0.964	2248.35	R
SD24	Hub	0.964	2250.35	R
SD25	Hub	0.964	2253.35	R
SD26	Hub	0.964	2255.35	R
SD31	SDR	5.0	2253.1	R
SD32	SDR	5.0	2277.3	R
SD33	SDR	5.0	2287.5	R
SD41	SDR	3.0	2253.1	R
SD42	SDR	3.0	2277.3	R
SD43	SDR	3.0	2287.5	R
SD51	SDR	1.0	2253.1	R
SD52	SDR	1.0	2277.3	R
SD53	SDR	1.0	2287.5	R

B. X-Band

The following table lists the downlink X-band channel planned for the YAM-8 spacecraft. This information is also provided in the accompanying Schedule S but is included here for completeness.

Table 4 X-Band Downlink Frequency Plan

Channel ID	**Bandwidth (MHz)**	**Center Frequency (MHz)**	**Polarization**
XD1H	288	8183	L/R

6. Frequency Tolerance

The frequency tolerance requirements of Section 25.202(e) that the carrier frequency of each space station transmitter be maintained within 0.002% of the reference frequency will be met.

7. Out of Band Emissions

The out-of-band emission limits of Section 25.202(f)(1), (2), and (3) will be met.

8. Frequency Reuse

The YAM-8 spacecraft does not operate in any frequency bands where Section 25.210(f) applies.

9. Cessation of Emissions

All downlink transmissions can be turned on and off by ground telecommand, thereby achieving cessation of emissions from the satellite, as required by Section 25.207 of the FCC's rules.

10. ITU Filings

Concurrent with this filing, Loft Orbital is submitting an ITU API and filing for the YAM-8 network, named USASAT-30L-5.

11. Power Flux Density ("PFD") Analysis

A. 2200-2290 MHz

The Commission's rules do not specify a PFD limit in the 2200–2290 MHz band; however, there are PFD limits specified in rule No. 21.16 of the International Telecommunication Union (ITU) Radio Regulations. The maximum PFD levels for YAM-8 spacecraft transmissions were calculated for the 2200–2290 MHz band, and the results are provided in Schedule S and demonstrate that the downlink PFD levels of YAM-8 spacecraft carriers do not exceed the limits specified in rule No. 21.16 of the ITU Radio Regulations.

Figure 1 below illustrates the S-band Bus downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 120 kHz, the EIRP is -4.28 dBW, and the perigee altitude of the primary operational orbit is 540 km. Figure 2 below illustrates the S-band Bus downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 120 kHz, the EIRP is -8.28 dBW, and the orbit altitude is 350 km (the lowest planned operational altitude).

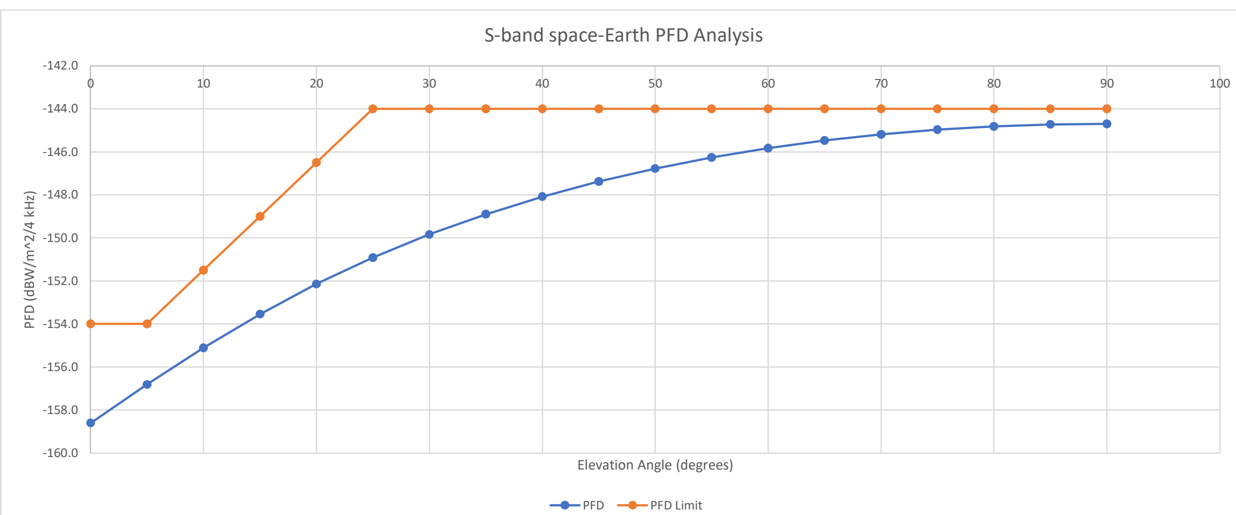


Figure 1 S-band Bus Downlink PFD Analysis – 120 kHz Emission, -4.28 dBW EIRP, and 540 km orbit altitude

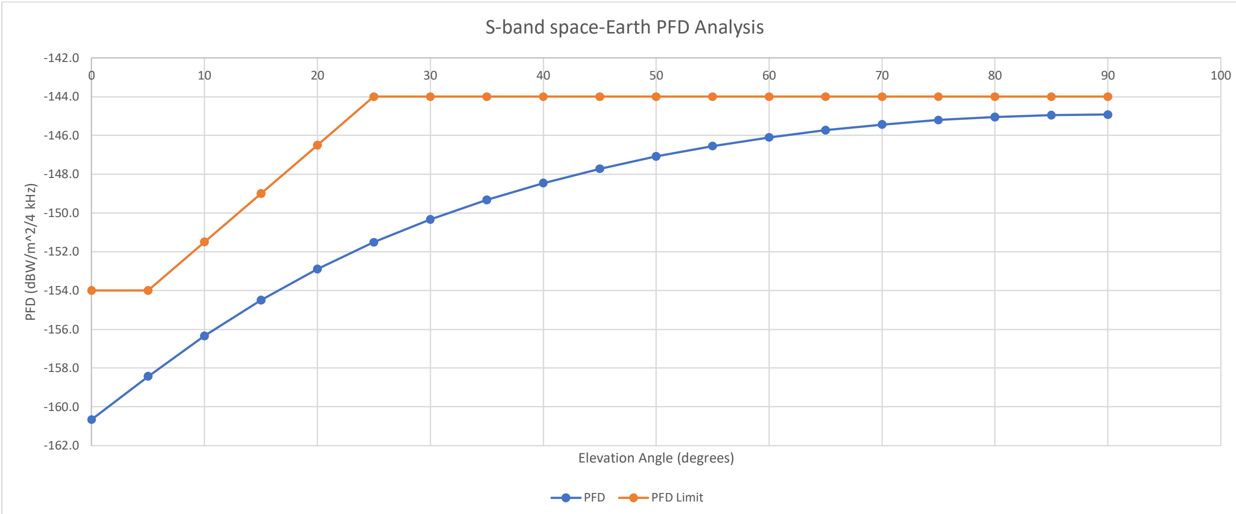


Figure 2 S-band Bus Downlink PFD Analysis – 120 kHz Emission, -8.28 dBW EIRP, and 350 km orbit altitude

Figure 3 below illustrates the S-band Hub downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 964 kHz, the EIRP is 2.33 dBW, and the perigee altitude of the primary operational orbit is 540 km. Figure 4 below illustrates the S-band Hub downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 964 kHz, the EIRP is 1.33 dBW, and the orbit altitude is 350 km (the lowest planned operational altitude).

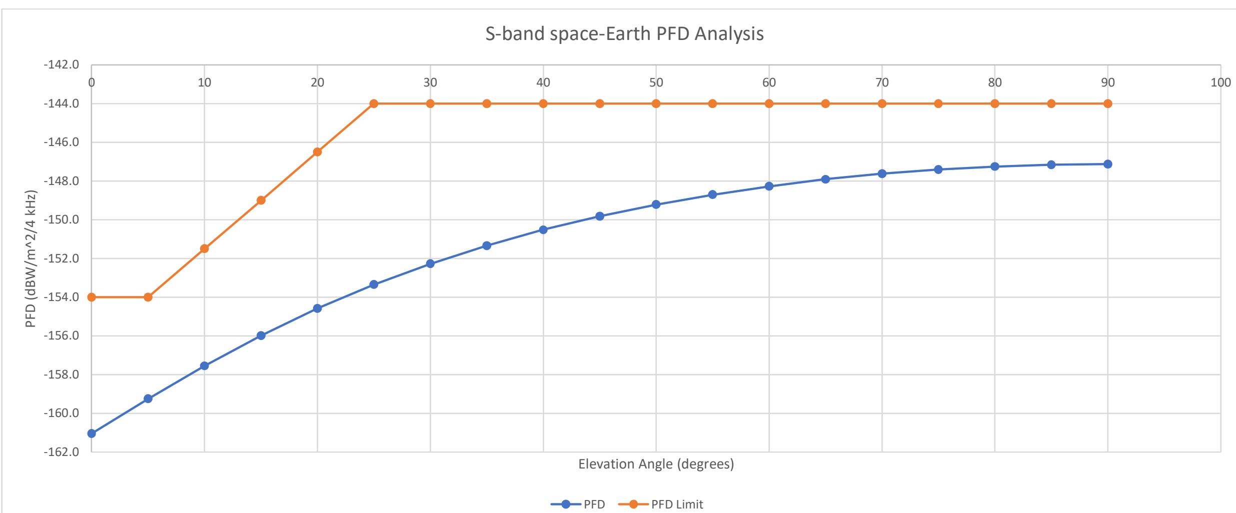


Figure 3 S-band Hub Downlink PFD Analysis – 964 kHz Emission,2.33 dBW EIRP, and 540 km orbit altitude

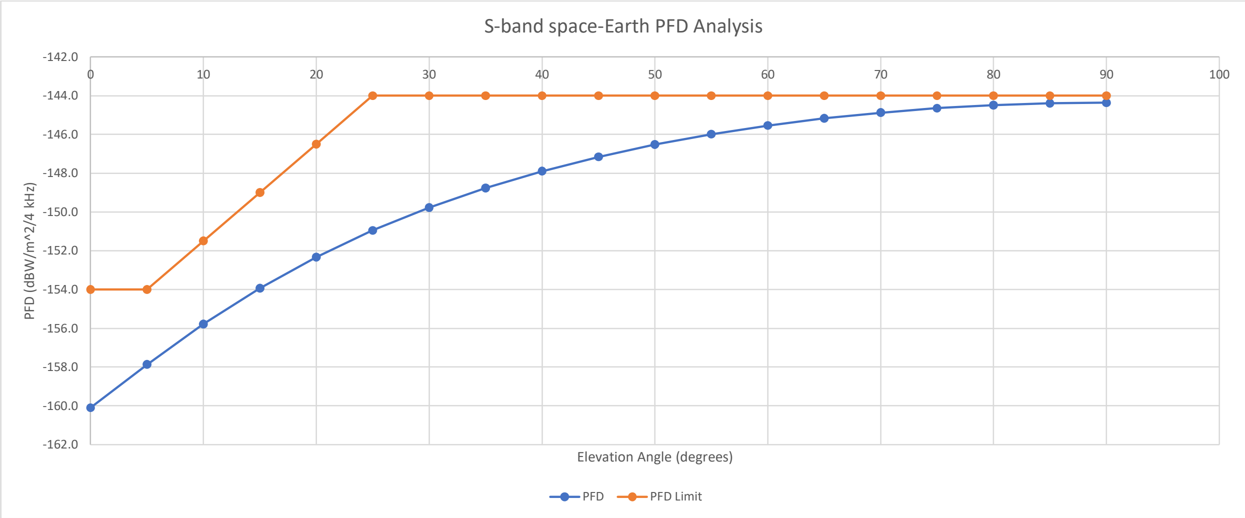


Figure 4 S-band Hub Downlink PFD Analysis – 964 kHz Emission, 1.33 dBW EIRP, and 350 km orbit altitude

Figure 5 below illustrates the S-band Hub downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 1.0 MHz, the EIRP is 5.0 dBW, and the perigee altitude of the primary operational orbit is 540 km. Figure 6 below illustrates the S-band Hub downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 1.0 MHz, the EIRP is 1.7 dBW, and the orbit altitude is 350 km (the lowest planned operational altitude).

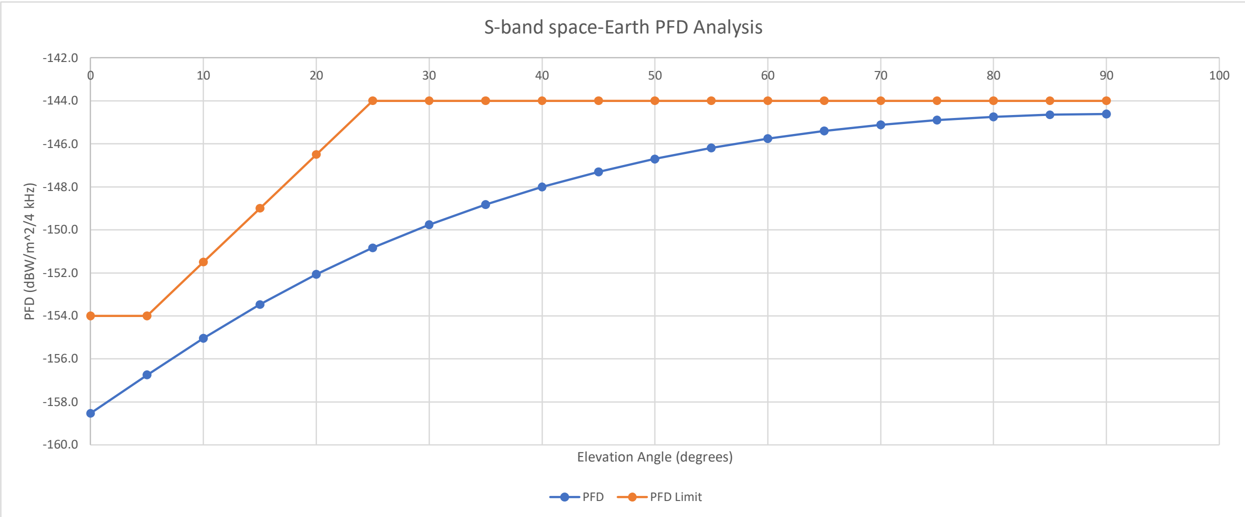


Figure 5 S-band SDR Downlink PFD Analysis – 1 MHz Emission,5.0 dBW EIRP, and 540 km orbit altitude

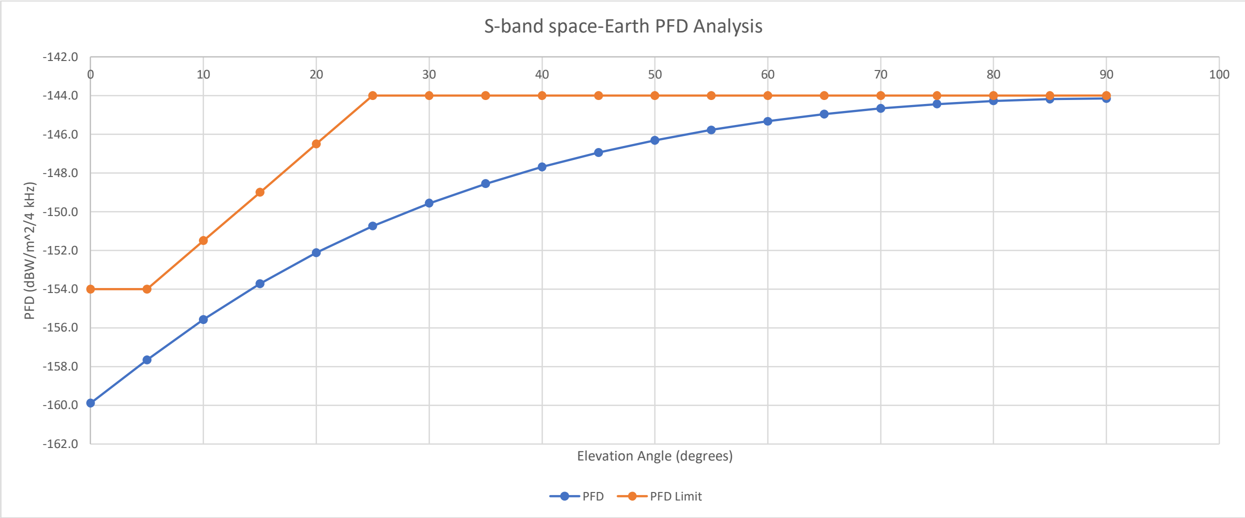


Figure 6 S-band SDR Downlink PFD Analysis – 1 MHz Emission, 1.7 dBW EIRP, and 350 km orbit altitude

B. 8025-8400 MHz

The Commission's rules do not specify a PFD limit in the 8025–8400 MHz band; however, there are PFD limits specified in rule No. 21.16 of the International Telecommunication Union (ITU) Radio Regulations. The maximum PFD levels for YAM-8 spacecraft transmissions were calculated for the 8025–8400 MHz band, and the results are provided in Schedule S and demonstrate that the downlink PFD levels of YAM-8 spacecraft carriers do not exceed the limits specified in rule No. 21.16 of the ITU Radio Regulations.

Figure 7 below illustrates the X-band downlink PFD values in comparison with the ITU PFD limits in No. 21.16 when the emission bandwidth is 288 MHz, the EIRP is 16 dBW, and the orbit altitude is 350 km (the lowest planned operational altitude). Since we are able to operate at peak EIRP down to the lowest operational altitude, a PFD curve is not provided for the operational orbit altitude.

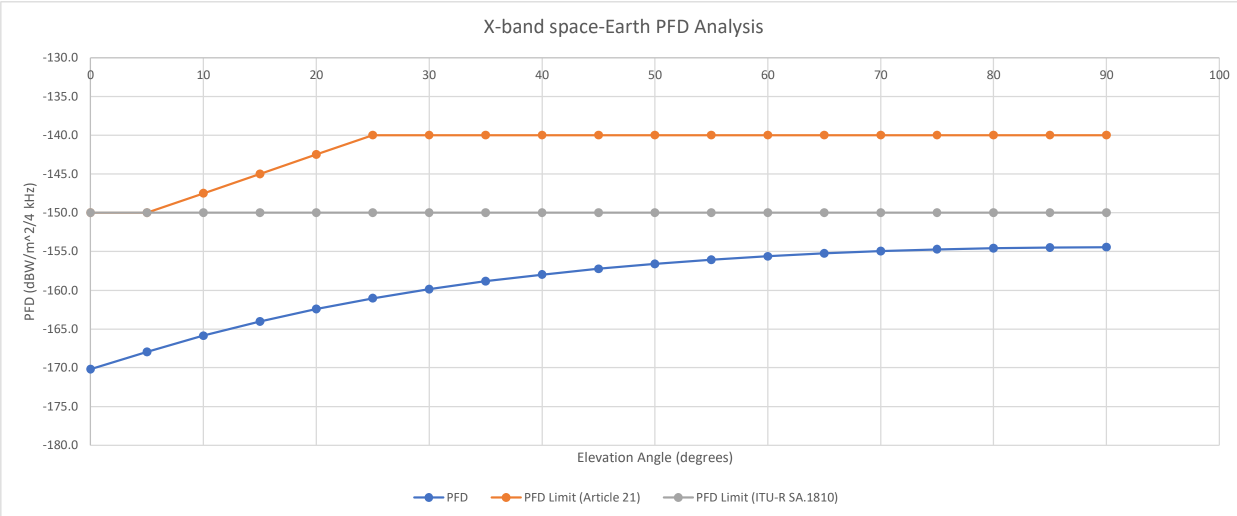


Figure 7 X-band Downlink PFD Analysis – 288 MHz Emission, 16 dBW EIRP, and 350km orbit altitude

C. PFD at the Geostationary-Satellite Orbit

ITU RR 22.5 states that in 8025-8400 MHz band "the maximum power flux-density produced at the geostationary-satellite orbit by any Earth exploration-satellite service space station shall not exceed −174 dB(W/m^2) in any 4 kHz band." At the maximum 610 km altitude for YAM-8 spacecraft, assuming the spacecraft is pointed directly at geostationary orbit, the PFD would be approximately -194.5 dBW/m^2, which complies with the limit.

PFD Calculation
===============

EIRP = 16 dBW

EIRP Density = -32.5 dBW per 4.0 kHz Ref BW

θ = 0°

D = 35176.0 km

PFD = -194.5 dBW/m^2 @ 4.0 kHz Ref BW

D. Out-of-band emissions in the 8400-8450 MHz band

ITU-R Recommendation SA-1157-1 specifies a maximum allowable interference power spectral flux density level ("PSFD") at the Earth's surface to protect ground receivers in the deep-space research band operating in the 8400-8450 MHz frequencies.[2] The YAM-8 spacecraft comply with this requirement by using a combination of baseband digital filtering and hardware radio frequency (RF) filtering, which is projected to provide 80 dB of out of band attenuation. Moreover, Loft Orbital's highest band edge is approximately 70 megahertz below the lowest band edge for the 8400–8450 MHz band, which would result in further attenuation.

[2] *See* Recommendation ITU-R SA.1157-1 (Protection criteria for deep-space research) (2006).

Loft Orbital calculates a maximum PSFD at the Earth's surface of -272.4 dB(W/m^2 / Hz), which is below the maximum allowable interference power spectral flux-density level at the Earth's surface of -255.1 dB(W/m^2/Hz) at 8.4-8.45 GHz.[3] The maximum interference PSFD was calculated as follows:

YAM-8 maximum PFD (at 350 km altitude) = -154.4 dB(W/m^2*4 kHz)

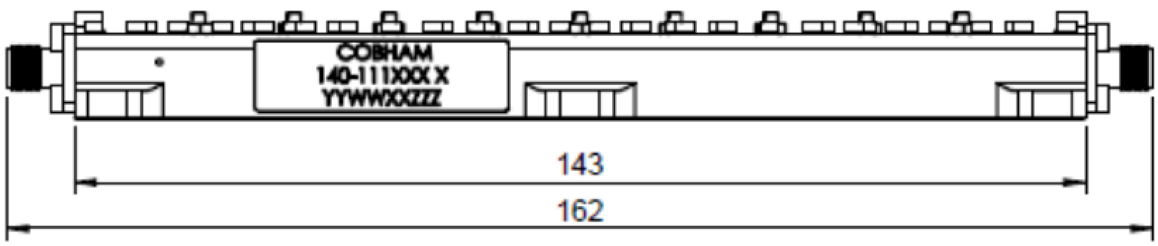
Total Minimum Attenuation from 8.4 GHz to 8.45 GHz (DSN filtering – 55 dB and Baseband digital filtering – 25 dB) = 80 dB

PSFD = PFD - 10*log(4000) – Attenuation

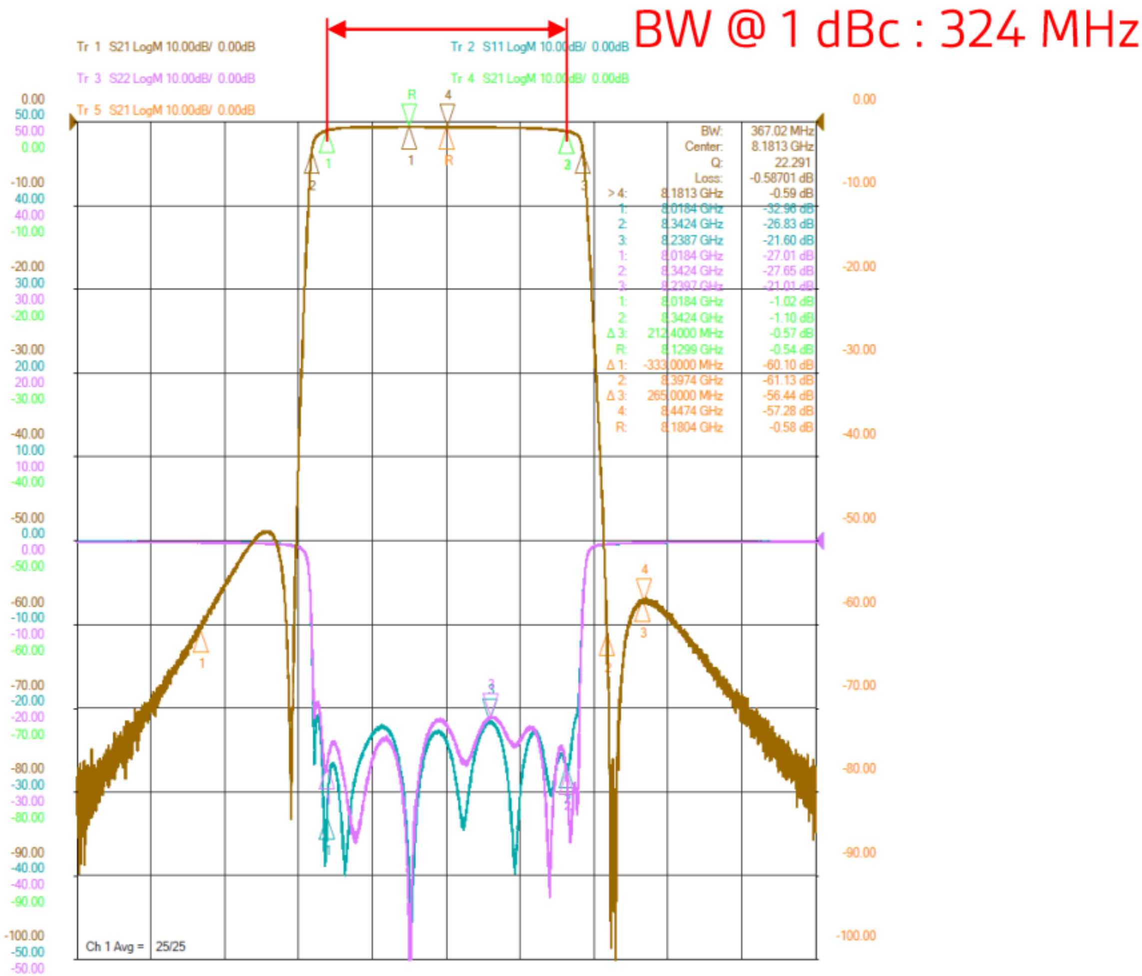
PSFD = -154.4 dB(W/m^2/4000 Hz) - 10*log(4000) dB - 80 dB

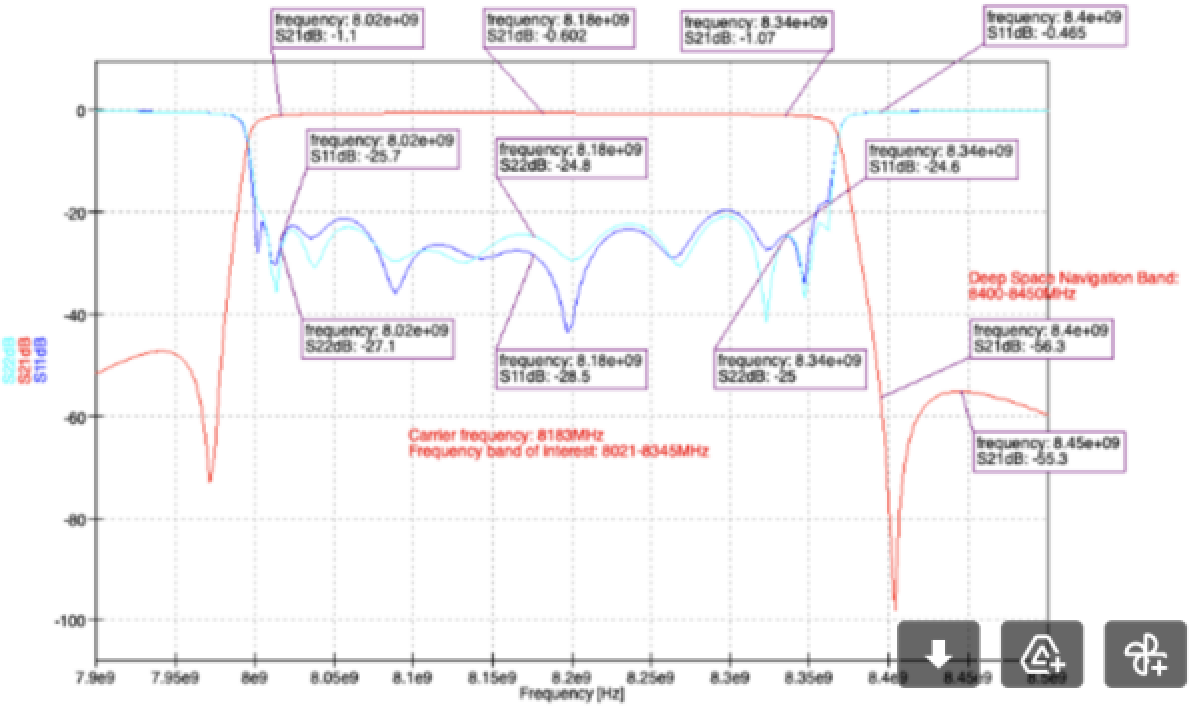
PSFD = -270.4 dB(W/m^2/Hz)

Below is a diagram showing the 55 dB OOB filtering capability of the included Cobham DSN filter.



[3] *Id*.


BW @ 1 dBc : 324 MHz
Tr 1 S21 LogM 10.00dB/ 0.00dB
Tr 2 S11 LogM 10.00dB/ 0.00dB
Tr 3 S22 LogM 10.00dB/ 0.00dB
Tr 4 S21 LogM 10.00dB/ 0.00dB
Tr 5 S21 LogM 10.00dB/ 0.00dB
BW: 367.02 MHz
Center: 8.1813 GHz
Q: 22.291
Loss: -0.58701 dB
Ch 1 Avg = 25/25



12. Satellite Antennas

The S-band uplink employs patch receive antennas for both the Bus and the Hub. An antenna pattern cut for the antenna in the vicinity of the planned uplink carriers, 2072 MHz, is shown in Figure 8. Projections of the TT&C S-band uplink antenna pattern, pointed towards Nadir, are illustrated in Figure 9 and Figure 10. The peak uplink antenna gain is 6.5 dBi towards Nadir. The S-band downlink employs patch transmit antennas for both the Bus and the Hub. An antenna pattern cut for the antenna in the vicinity of the planned downlink carriers, 2252 MHz, is shown in Figure 11. Projections of the S-band downlink antenna pattern, pointed towards Nadir, are illustrated in Figure 12 and Figure 13. The peak downlink antenna gain is 6.5 dBi towards Nadir. The X-band downlink antenna is an isoflux tri-filar helix antenna with maximum gain of 6.0 dBi. The antenna pattern for the downlink X-band antenna is illustrated in Figure 14 and a projections of the X-band downlink antenna pattern, pointed towards Nadir, are illustrated in Figure 14 and Figure 15.

The antenna projections provided below and in the accompanying Schedule S reflect the beam projection towards Nadir from an NGSO satellite with nominal orbital altitude of 540 km and lowest operational altitude of 350 km. Projection contours for beams with peak gain of less than 4 dB in some instances and 6 dB in some instances are beyond the horizon and, accordingly, are not depicted in the images.

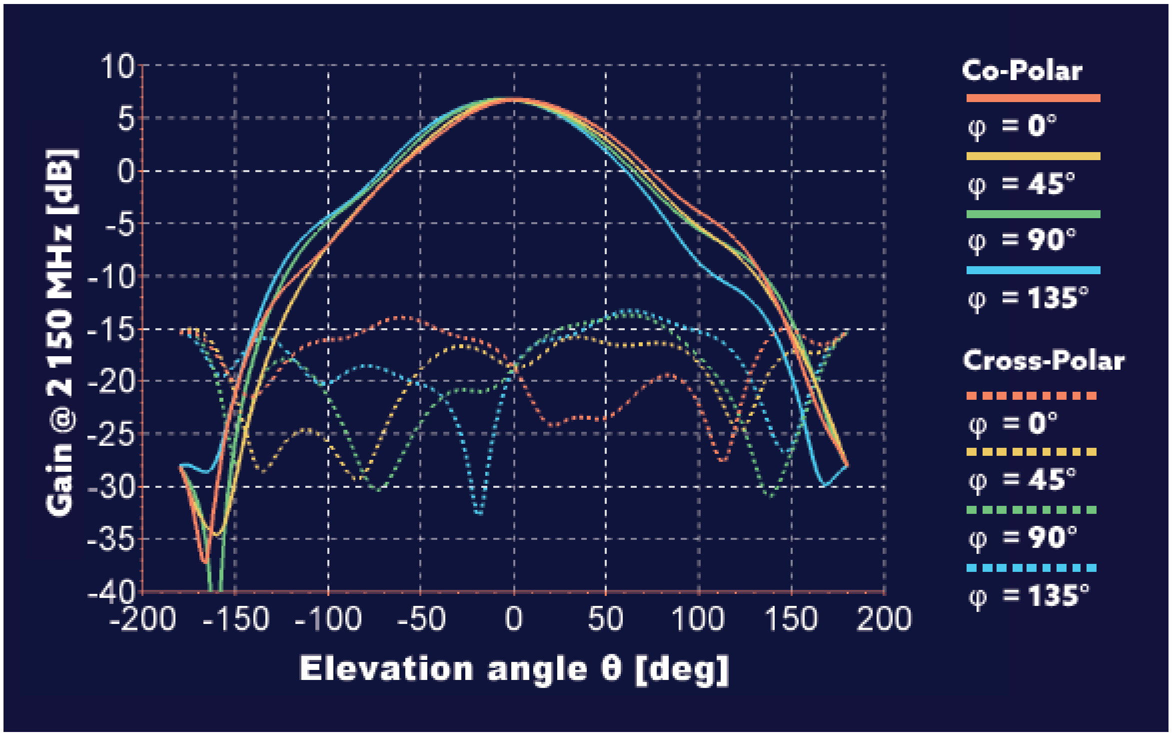


Figure 8 S-band Uplink (SRX/SRX2) – Antenna Pattern

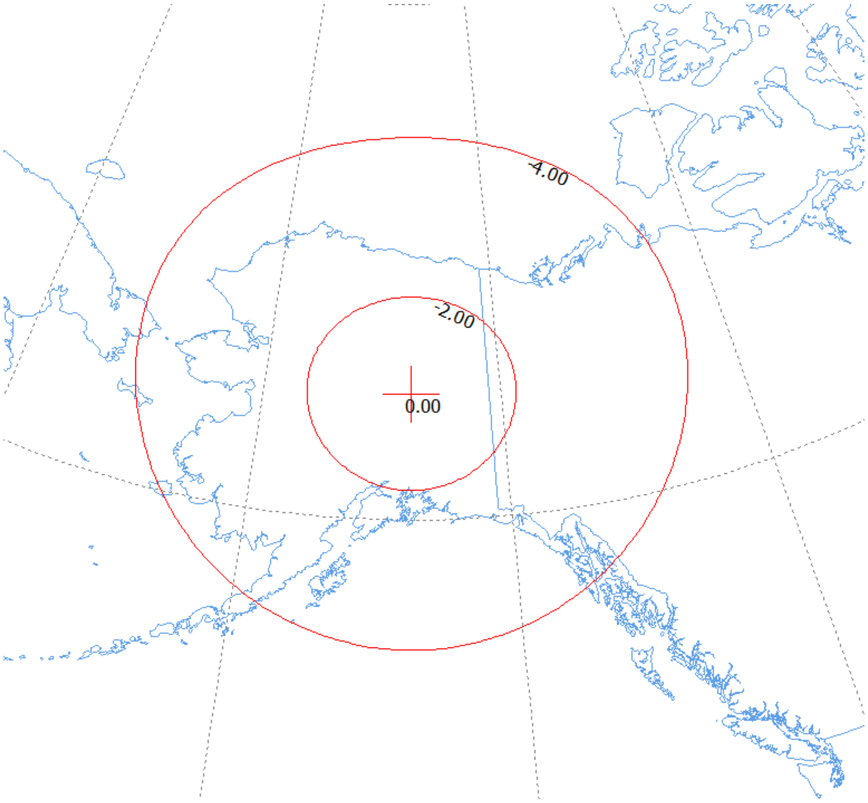


Figure 9 Projection of Nadir S-band Uplink Beam (SRX/SRX2) 540 km over Fairbanks, Alaska, USA

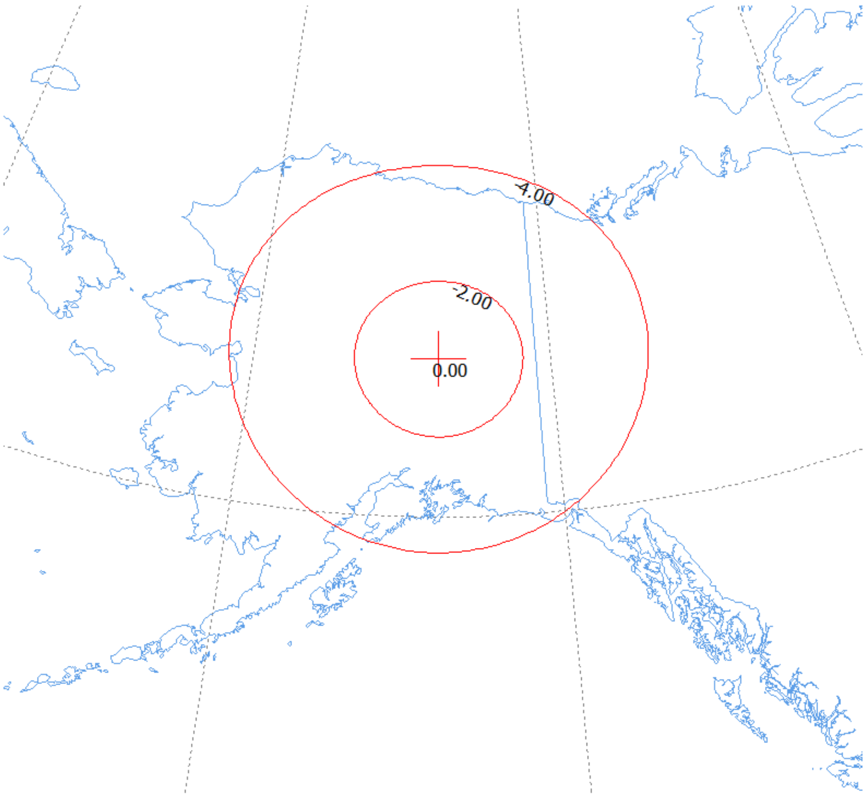


Figure 10 Projection of Nadir S-band Uplink Beam (SRX/SRX2) 350 km over Fairbanks, Alaska, USA

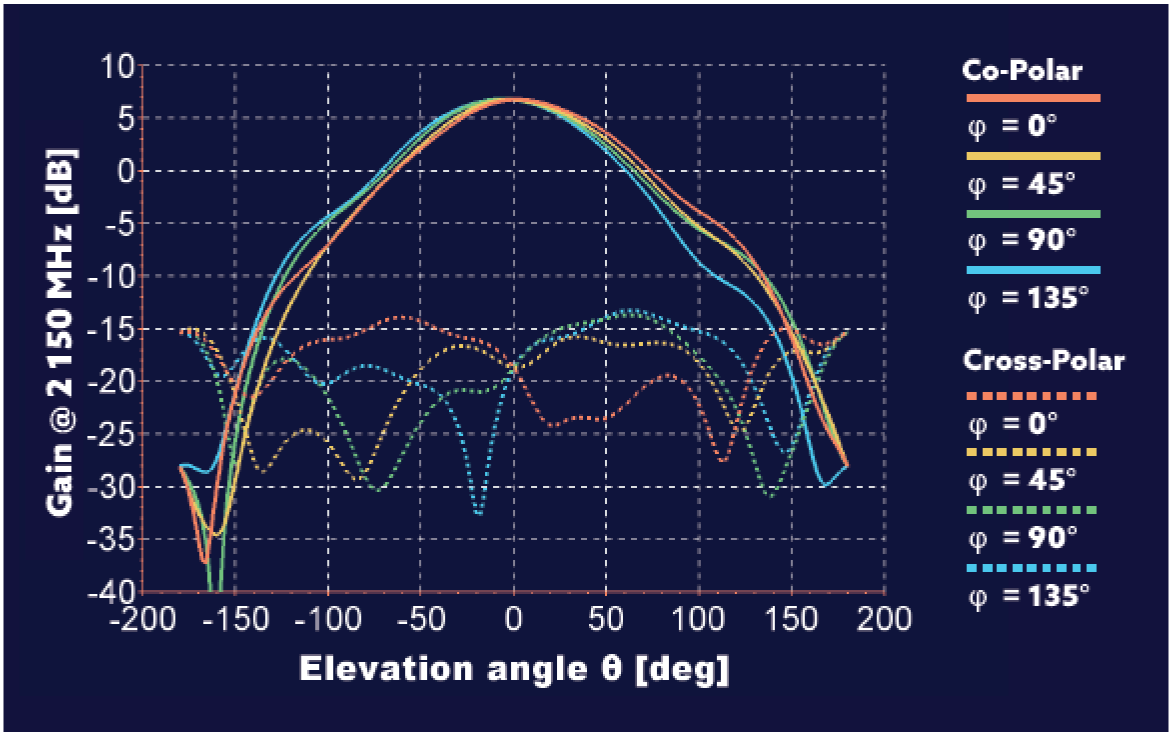


Figure 11 S-band Downlink (STX/STX2) – Antenna Pattern

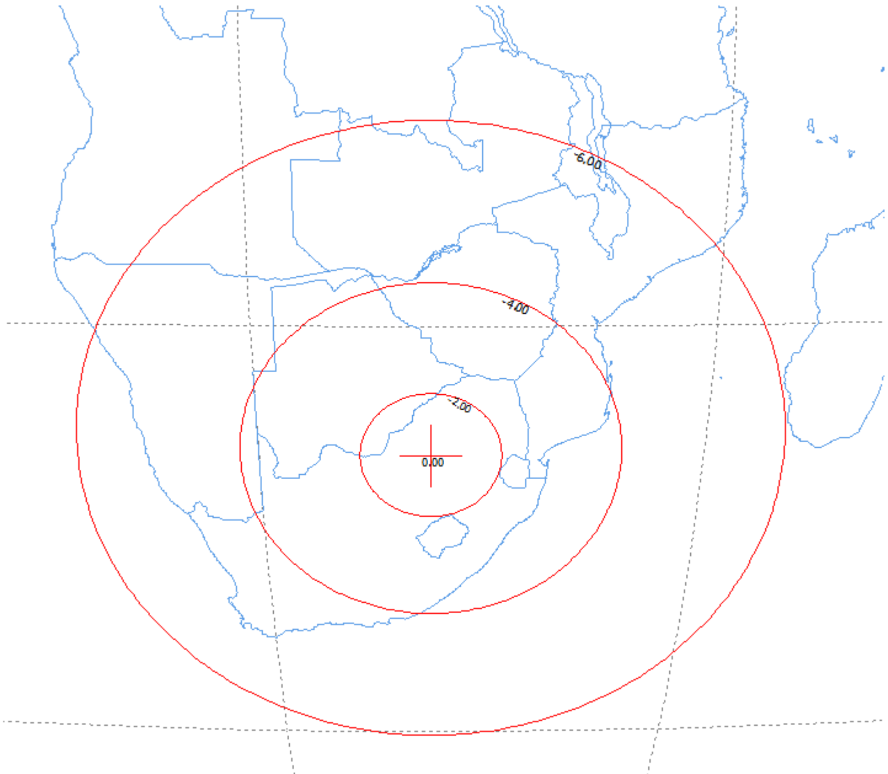


Figure 12 Projection of Nadir S-band Downlink Beam (STX/STX2) 540 km over Hartesbeesthoek, South Africa

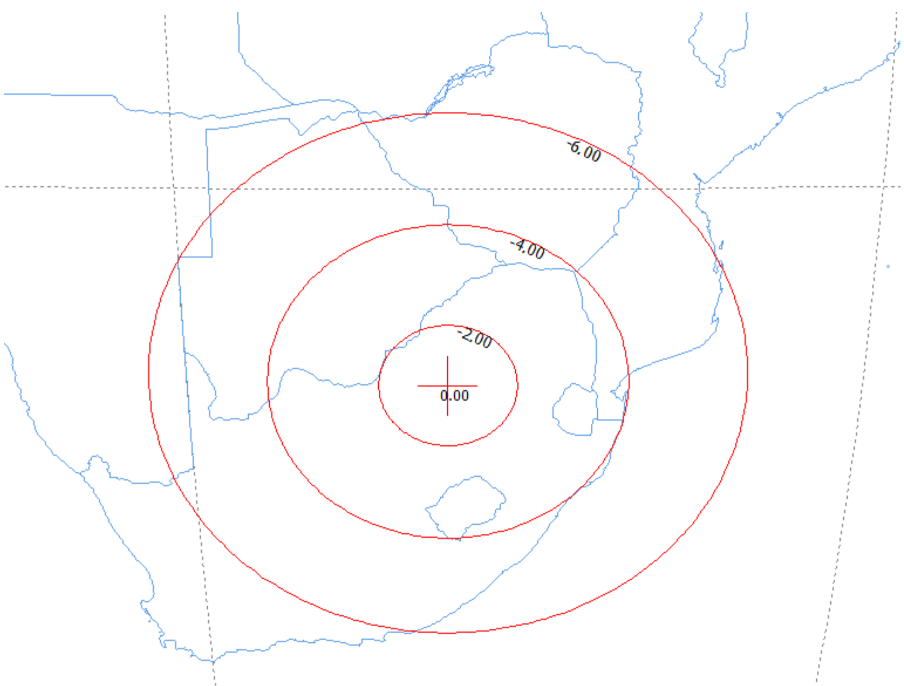


Figure 13 Projection of Nadir S-band Downlink Beam (STX/STX2) 350 km over Hartesbeesthoek, South Africa

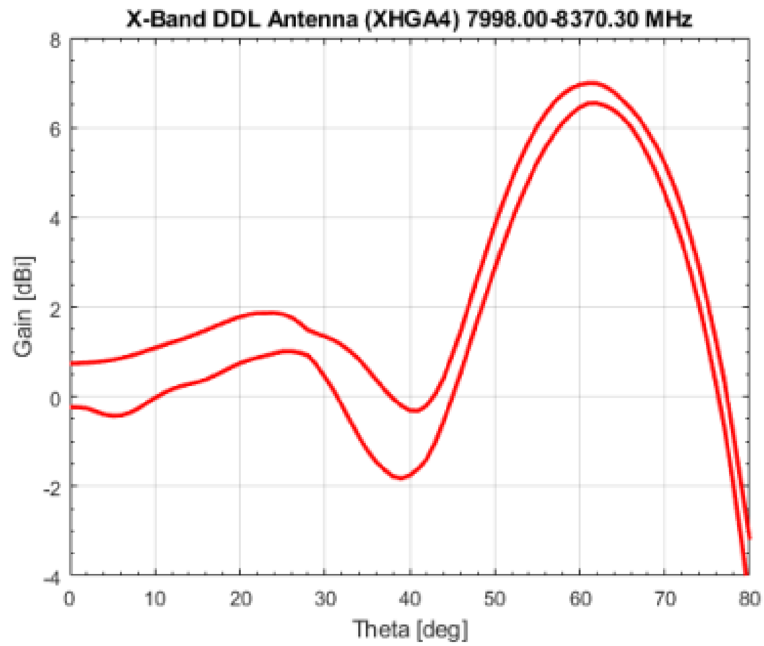


Figure 14 X-band Downlink Mission Data - Antenna Pattern

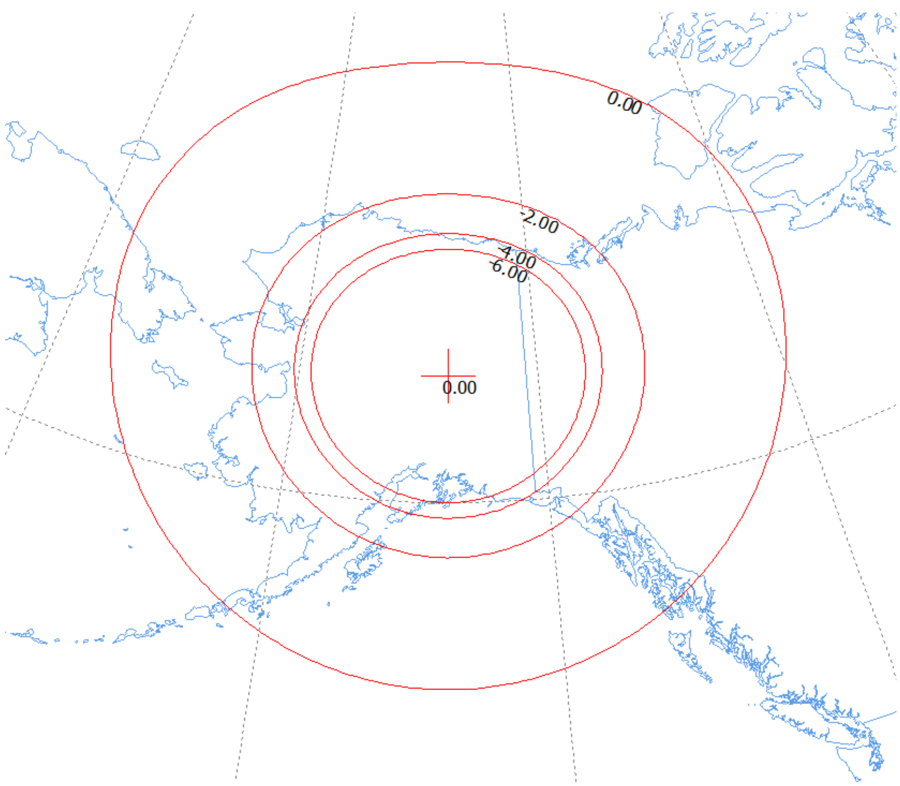


Figure 15 Projection of Nadir X-band Downlink Beam (XTX) 540 km over Fairbanks, Alaska, USA

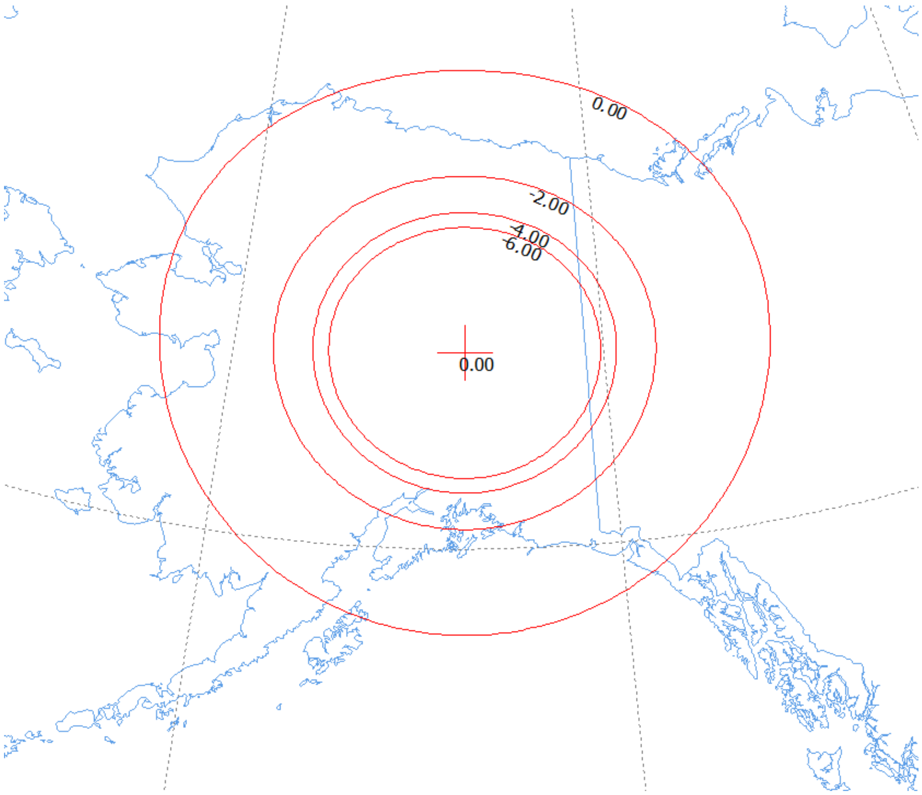


Figure 16 Projection of Nadir X-band Downlink Beam (XTX) 350 km over Fairbanks, Alaska, USA

13. Earth Stations

The characteristics of the KSAT Lite network of 3.7m antennas are summarized in Table 5 below. The characteristics of the ATLAS network of gateway Earth stations are summarized in Table 6 below.

Table 5 KSAT Antenna Characteristics

	S-band (RX)	S-band (TX)	X-band (RX)
Reflector Size	3.7m	3.7m	3.7m
Downlink Band	NA	2240-2290 MHz	8025-8400 MHz
G/T (20-deg elevation)	NA	11.7 dB/K	26.5 dB/K
Polarization	LHCP/RHCP	LHCP/RHCP	LHCP/RHCP
Uplink Band	2025-2110 MHz	NA	NA
EIRP	44.8 dBW	NA	NA

Table 6 ATLAS Antenna Characteristics

	S-band (RX)	S-band (TX)	X-band (RX)
Reflector Size	3.7m	3.7m	3.7m
Downlink Band	NA	2240-2290 MHz	8025-8400 MHz
G/T (20-deg elevation)	NA	12.8 dB/K	25.4 dB/K
Polarization	LHCP/RHCP	LHCP/RHCP	LHCP/RHCP
Uplink Band	2025-2110 MHz	NA	NA

EIRP	50 dBW	NA	NA

Loft Orbital plans to use the ground stations identified in Exhibit D.

14. Orbital Debris Risk Mitigation Plan

Loft Orbital confirms that the YAM-8 spacecraft will not undergo any planned release of debris during normal operations.[4] In addition, all separation and deployment mechanisms, and any other potential source of debris, will be retained by the spacecraft. Loft Orbital has also assessed the probability of the spacecraft becoming a source of debris by collision with small debris or meteoroids of less than one centimeter in diameter that could cause loss of control and prevent post-mission disposal. Loft Orbital has taken steps to limit the effects of such collisions through shielding, the placement of components, and the use of redundant systems.

Loft Orbital has assessed and limited the probability of accidental explosions during and after completion of mission operations through a failure-mode verification analysis.[5] As part of the satellite manufacturing process, Loft Orbital has taken steps to ensure that debris generation will not result from the conversion of energy sources on board the satellite into energy that fragments the satellite. All sources of stored energy onboard the spacecraft will have been depleted or safely contained when no longer required for mission operations or post-mission disposal.

Loft Orbital has assessed and limited the probability of the space station becoming a source of debris by collisions with large debris or other operational spacecraft.[6] Loft Orbital will work closely with its launch providers to ensure that the spacecraft is deployed in such a way as to minimize the potential for in-plane collision. This specifically includes minimizing the potential for collision with crewed spacecraft.

Loft Orbital participates in a sharing agreement with the Combined Space Operations Center ("CSpOC") to better coordinate collision avoidance measures and receive conjunction threat reports. YAM-8 will carry onboard GPS receivers that provide for precise orbital position determination. Loft Orbital also receives from CSpOC updated two-line element sets, or "TLEs," which facilitate the identification and tracking of YAM-8. CSpOC will be able to reach Loft Orbital's satellite operations team that is accessible twenty-four hours per day/seven days per week to ensure that Loft Orbital can take immediate action to coordinate collision avoidance measures.

The YAM-8 spacecraft will not maintain its inclination angle, apogee, perigee, and right ascension of the ascending node to any specified degrees of accuracy. Additionally, Loft Orbital expects the YAM-8 spacecraft to be launched into an approximate SSO orbit but does not intend to strictly maintain SSO throughout the spacecraft lifetime. Accordingly, Loft Orbital expects the LTDN to drift over time.

Loft Orbital's detailed Orbital Debris Assessment Report is attached as Exhibit C.[7]

15. Schedule S Data Exceptions

For the uplink beams, SFD values are generally not applicable for regenerative links. However, the values provided reflect the range of SFD expected at the spacecraft based upon the range of gateway

[4] *See* 47 C.F.R. § 25.114(d)(14)(i).
[5] *See* 47 C.F.R. § 25.114(d)(14)(ii).
[6] *See* 47 C.F.R. § 25.114(d)(14)(iii).
[7] *See* 47 C.F.R. § 25.114(d)(14)(iv).

Earth stations EIRP, the range of link distances, and the maximum RF backoff provided by the Earth stations.

CERTIFICATION OF PERSON RESPONSIBLE FOR PREPARING ENGINEERING INFORMATION

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this application and that it is complete and accurate to the best of my knowledge and belief.

/s/

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Date: May 17, 2024