EXHIBIT C

TECHNICAL ATTACHMENT

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Pursuant to Section 25.114 and other relevant provisions of the Federal Communications Commission's ("FCC" or "Commission") rules, this Technical Attachment provides an overall description of the facilities, operations, and services of Kuiper Systems LLC's ("Amazon Leo"), a wholly owned subsidiary of Amazon.com Services LLC (collectively "Amazon"), proposed non-geostationary satellite orbit ("NGSO") system; addresses compatibility with co-frequency terrestrial fixed services ("FS"), geostationary satellite orbit ("GSO"), and other NGSO fixed-satellite service ("FSS") operations; and details operational strategies and design for orbital debris mitigation and post-mission disposal.[1]

Amazon holds authority from the Commission to launch and operate a constellation of NGSO low Earth orbit satellites using FSS spectrum. Amazon now seeks to launch and operate a separate direct-to-device ("D2D") constellation using mobile-satellite service ("MSS") spectrum to communicate with mobile devices anywhere around the world. The Amazon Leo D2D System will consist of 5,105 satellites in multiple orbital planes to provide ubiquitous global coverage using MSS bands as well as mobile services ("MS") bands. Within the United States, the Amazon Leo D2D System will incorporate satellites optimized for D2D, with service links in the 1.6/2.4 GHz band, supporting feeder links and telemetry, tracking, and command ("TT&C") links in the Ka-band and V-band, as well as optical inter-satellite links to integrate the Amazon Leo D2D System with the existing Amazon Leo satellite systems. The system will work in close concert with the Globalstar, Inc. ("Globalstar") NGSO systems operating in the 1.6/2.4 GHz band following consummation of Amazon's pending merger with Globalstar.

[1] 47 C.F.R. § 25.114(d).

I. DESCRIPTION OF THE AMAZON LEO D2D SYSTEM

The Amazon Leo D2D System will comprise 5,105 low Earth orbit satellites utilizing service links in the 1.6/2.4 GHz band, with additional L-band and S-band frequencies available for service links outside the United States, and supporting feeder links and TT&C links in the Ka-band and V-band at five inclination and orbital altitude combinations. The Amazon Leo D2D System will provide global mobile network connectivity services and will supplement and expand on Amazon's authorized satellite systems by enabling service directly to users' mobile devices, including in areas where terrestrial coverage is unavailable. The Amazon Leo D2D System will deliver faster and more reliable mobile data and communications services to American consumers, businesses, and government agencies across the country, supporting critical use cases like emergency messaging, in-vehicle connectivity, and industrial Internet of Things ("IoT") applications.

A. Orbital Configuration

The Amazon Leo D2D System will consist of 5,105 satellites. Table 1, below, describes the distribution of the orbits in which the Amazon Leo D2D System satellites may be placed. While the total number of defined orbital slots in Table 1 exceeds 5,105, the Amazon Leo D2D System will not exceed 5,105 satellites. Detailed orbital parameters are provided in an attachment to this application.

Table 1. Constellation Design: Altitudes and Inclinations

Altitude (km)	Inclination (deg)	Number of Planes	Orbital Slots per Plane	Total Orbital Slots
510	56.3	2,970	1	2,970
540	84	17	35	595
560	58.2	2,970	1	2,970
570	73	22	70	1,540
580	55.7	2,970	1	2,970

The Amazon Leo D2D System's orbital architecture is designed to maximize capacity and coverage for customers at full constellation deployment. Thus, the Amazon Leo D2D System will use its authorized spectrum efficiently to maximize the number of customers it can serve.

The Amazon Leo D2D System will comply with all Commission regulations and any conditions and obligations imposed related to the safe operation of NGSO systems, including with respect to coordination of physical operations for the purpose of limiting collision risk, minimizing operational impacts, and helping to ensure space safety. The system will operate in compliance with International Telecommunication Union ("ITU") Resolution 8 and consistent with space safety principles both between constellations as well as with all other space objects that may intersect with the Amazon Leo D2D System's orbital shells.[2] Moreover, all satellites in the Amazon Leo D2D System will have a nominal operational lifetime of 6 to 8 years depending on the deployed orbit of the satellite. Amazon will actively deorbit the Amazon Leo D2D System satellites at the end of their operational lifetime.

B. Frequency and Polarization Plan

The Amazon Leo D2D System's overall spectrum usage plan is depicted below in Table 2. The system's ground segment will consist of 1.6/2.4 GHz band mobile customer terminals and V-band and Ka-band gateway earth stations and TT&C earth stations.[3] The Amazon Leo D2D

[2] ITU Resolution 8 (Rev. WRC-23).

[3] Outside the United States, Amazon seeks authority to provide supplemental coverage from space ("SCS") using the 1427–2690 MHz band (excluding any overlap with the 1.6/2.4 GHz allocation). The uplink and downlink directionality for SCS will depend on applicable frequency allocations and country-specific authorizations. Amazon also seeks authority to provide MSS in the 1518–1525 MHz, 1610–1621.35 MHz, 1668–1675 MHz, and 2483.5–2500 MHz bands, consistent with local laws and the Commission's orders. The uplink and downlink directionality for SCS will depend on applicable frequency allocations and country-specific authorizations. Amazon seeks to operate in the 1618.725–1621.35 MHz band as Globalstar's successor, consistent with the posture the Commission described in *Petition for Rulemaking to Optimize Mobile Satellite Service in the 1.6 GHz Band*, Order, DA-26-398 ¶ 21 (SB rel. Apr. 23, 2026)

System provides services both inside the U.S. as well as internationally. International use of MSS bands would be subject to the ITU and local rules in each country service is offered. Within the United States, the Amazon Leo D2D System will communicate directly to customer terminals in the 1.6/2.4 GHz band (1610–1618.725 MHz, 2483.5–2500 MHz)[4], with feeder links in the Ka-band (17.3–18.6 GHz, 18.8–20.2 GHz, 27.5–30.0 GHz) and V-band (37.5–42.0 GHz, 42.0–42.5 GHz, 47.2–50.2 GHz, 50.4–51.4 GHz, 51.4–52.4 GHz)[5], and TT&C links in the Ka-band (19.25–19.4, 27.5–28.05 GHz, 28.6–29.1 GHz) and V-band (40.0–40.1 GHz, 47.2–47.3 GHz). In the MSS bands, the Amazon Leo D2D System will employ dual orthogonal polarization through both vertical ("V") and horizontal ("H") linear polarization. In some instances, the V and H polarization components may be combined with appropriate phase offset to produce circular polarization, dependent on mobile customer terminal compatibility. In the Ka-band and V-band, the Amazon Leo D2D System will employ dual polarization through both Left-Hand Circular Polarization and Right-Hand Circular Polarization methods.

Table 2. Frequency Bands for Which Authorization Is Sought

Type of Link and Transmission Direction	**Frequencies for Use Both Inside and Outside the United States**	**Additional Frequencies for Use Outside the United States Only**
Mobile Customer Terminal Downlink 2.4 GHz	2483.5–2500 MHz[6]	N/A

(confirming that applications for new or modified MSS systems in comparable bands are available only to "an incumbent operator or its assignee or transferee"), where Iridium is currently not authorized to operate.

[4] *See* Legal Narrative at 7-8.

[5] *See* Exhibit B at 3. Amazon requests a limited waiver of Section 2.106 to permit the use of gateway downlinks in the 42.0–42.5 GHz band and gateway uplinks in the 51.4–52.4 GHz band to support the Amazon Leo MSS NGSO operations.

[6] Amazon acknowledges that its MSS operations in the 2495–2500 MHz band are on an unprotected basis with respect to non-Federal users in the Fixed and Mobile services. *See* 47 C.F.R. § 2.106(c)(391).

Type of Link and Transmission Direction	Frequencies for Use Both Inside and Outside the United States	Additional Frequencies for Use Outside the United States Only
Mobile Customer Terminal Uplink 1.6 GHz	1610–1618.725 MHz	1618.725–1621.35 MHz
Mobile Customer Terminal Downlink 1.5/1.6 GHz	N/A	1518–1525 MHz
Mobile Customer Terminal Uplink 1.5/1.6 GHz	N/A	1668–1675 MHz
Mobile Customer Terminal SCS	N/A	1427–2690 MHz
Gateway Downlink	17.3–18.6 GHz 18.8–20.2 GHz 37.5–42.0 GHz 42.0–42.5 GHz	N/A
Gateway Uplink	27.5–30.0 GHz 47.2–50.2 GHz 50.4–51.4 GHz 51.4–52.4 GHz	N/A
TT&C Downlink & Beacon[7]	19.25–19.4 GHz 40.0–40.1 GHz	N/A
TT&C Uplink	27.5–28.05 GHz 28.6–29.1 GHz 47.2–47.3 GHz	N/A

[7] The Amazon Leo D2D System TT&C beams will primarily be used during launch and early operations, during satellite anomalies, and during satellite de-commissioning. These beams will require no more protection than normal traffic in these frequencies and will not create interference beyond that reasonably associated with typical, authorized TT&C operations, in compliance with the requirements of Section 25.202(g) of the Commission's rules.

C. Space Station Beam Contours and Antenna Information

The Amazon Leo D2D System will operate feeder links and TT&C links in the Ka-band and V-band and service beams in the S- and L-bands outlined in Table 2. All Amazon Leo D2D System space station feeder and service beams are independently steerable within the satellite field-of-view. In compliance with Section 25.210(f), the Amazon Leo D2D System space stations will employ state-of-the-art full frequency reuse for feeder and service beams; TT&C beams will be low-gain and non-directional.[8] The Amazon Leo D2D System earth stations will only communicate with satellites when above the minimum elevation angle indicated in Table 3, below.

Table 3 summarizes the Amazon Leo D2D System space station domestic transmit and receive beams. These values represent the range of beams the Amazon Leo D2D System will employ within the U.S. and include the use of beams with gain values between the minimum and maximum values shown. Space station beam information and antenna gain contours are provided in Schedule S to this application.

Table 3. Amazon Leo D2D System Space Station Beams

Band	Link Type	Minimum Elevation Angle (deg)	Tx Gain (dBi)	Maximum Equivalent Isotropically Radiated Power ("EIRP") Density (dBW/MHz)	Rx Gain (dBi)	G/T (dB/K)
MSS	Mobile Customer Terminal	20	24.9–38.7	53.0	24.9–38.7	-0.5–13.3
Ka-band	Gateway	20	34.4–36.9	23.7	38.2–40.7	11.6–14.1
Ka-band	TT&C	5	13.5	16.5	13.5	-13.1
V-band	Gateway	20	35.7–42.0	23.7	37.5–43.7	9.7–16.6
V-band	TT&C	5	5	14.4	5	-22.1

[8] 47 C.F.R. § 25.210(f).

Amazon notes that, due to data entry limitations in Schedule S, Amazon supplies beams that are meant to be interpreted as bounding beams: for each beam type, Amazon submits minimum and maximum gain values which are not meant to preclude the use of beams with gain values in between the bounds.

The Amazon Leo D2D System can create uplink and downlink MSS beams operating within the L- and S-bands that are independently steerable and shapeable. These beams can be steered within a large field of regard defined by a minimum elevation angle of 20-degrees. The peak gain of the beams ranges between 24.9 dBi and 38.7 dBi at boresight. MSS beam contours provided in Schedule S include uplink and downlink beams, low and high gain antennas, and multiple scan angles from a satellite at 580-kilometer altitude. Contours are also included for the Ka-band and V-band gateway and TT&C beams. Figure 1 shows a notional MSS downlink beam for the 38.7 dBi peak gain case scanned to the edge of its field of regard at 580 kilometers. Figures 2 and 3 show notional Ka-band and V-band gateway downlink beams scanned to 59.5-degrees.

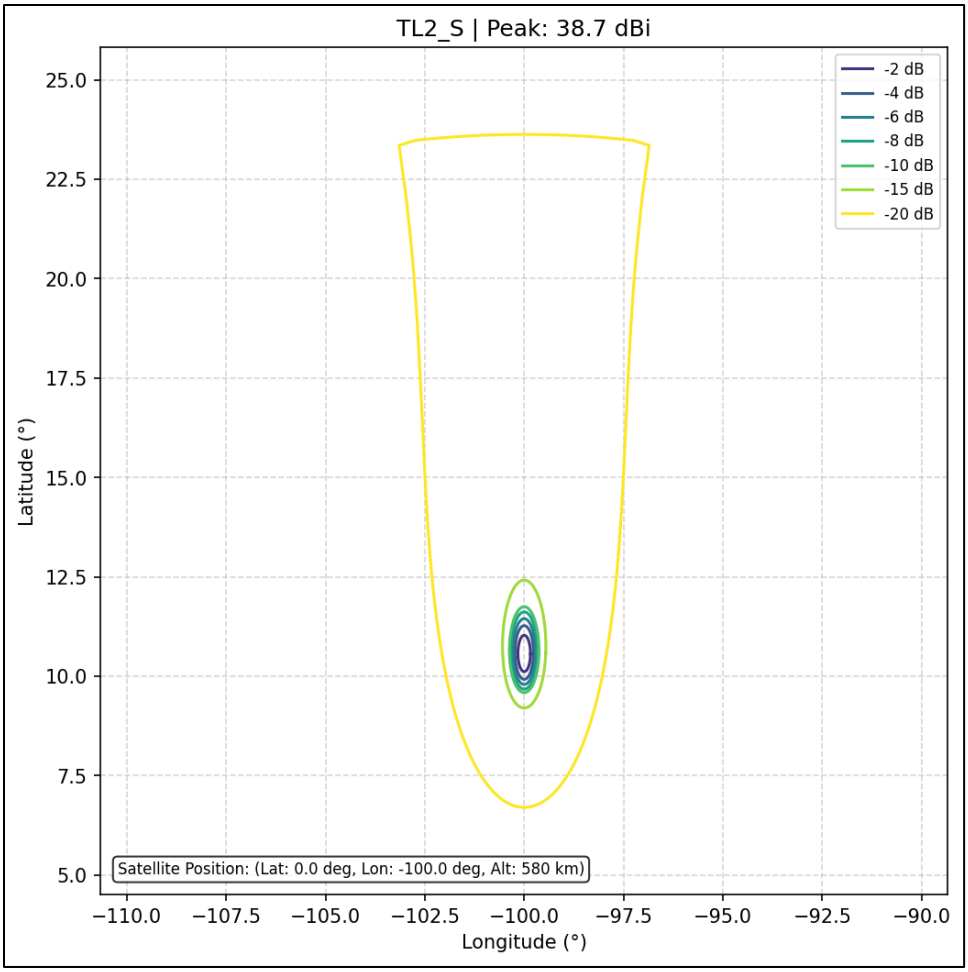

Figure 1: Notional Beam Contours for a 59.5-degree Scanned MSS Downlink Beam

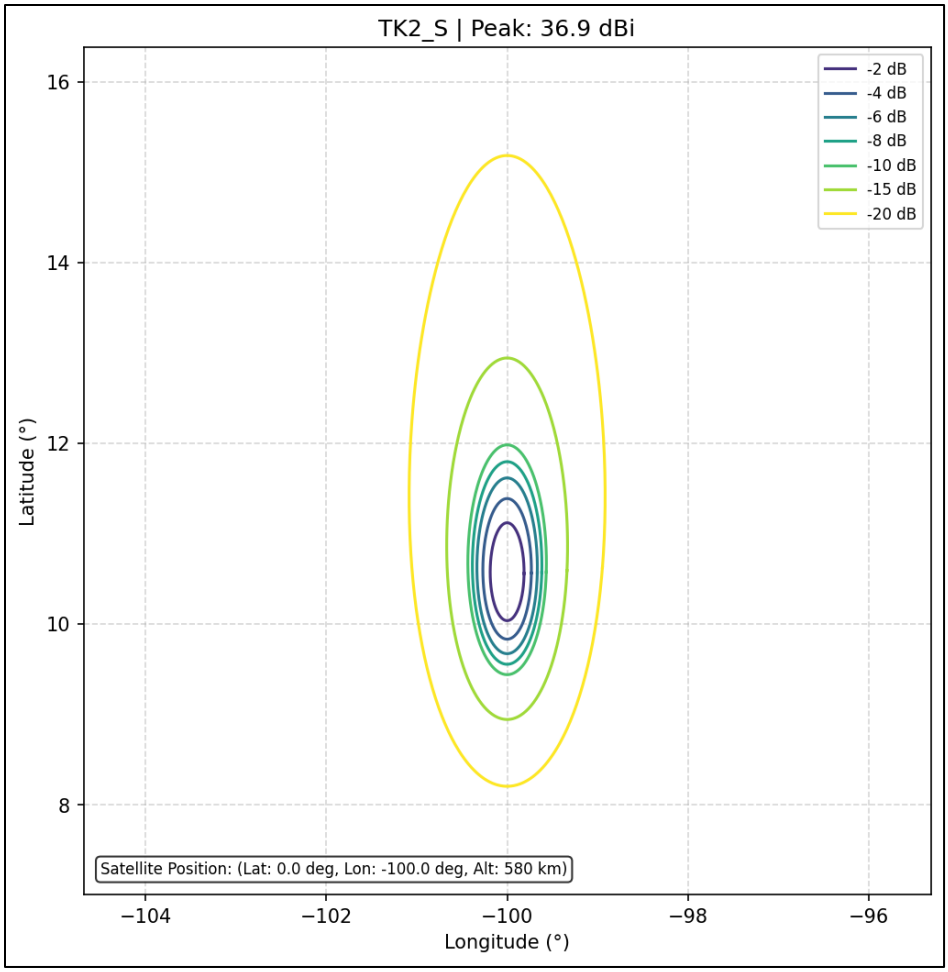

Figure 2: Notional Beam Contours for a 59.5-degree Scanned Ka-band Downlink Beam

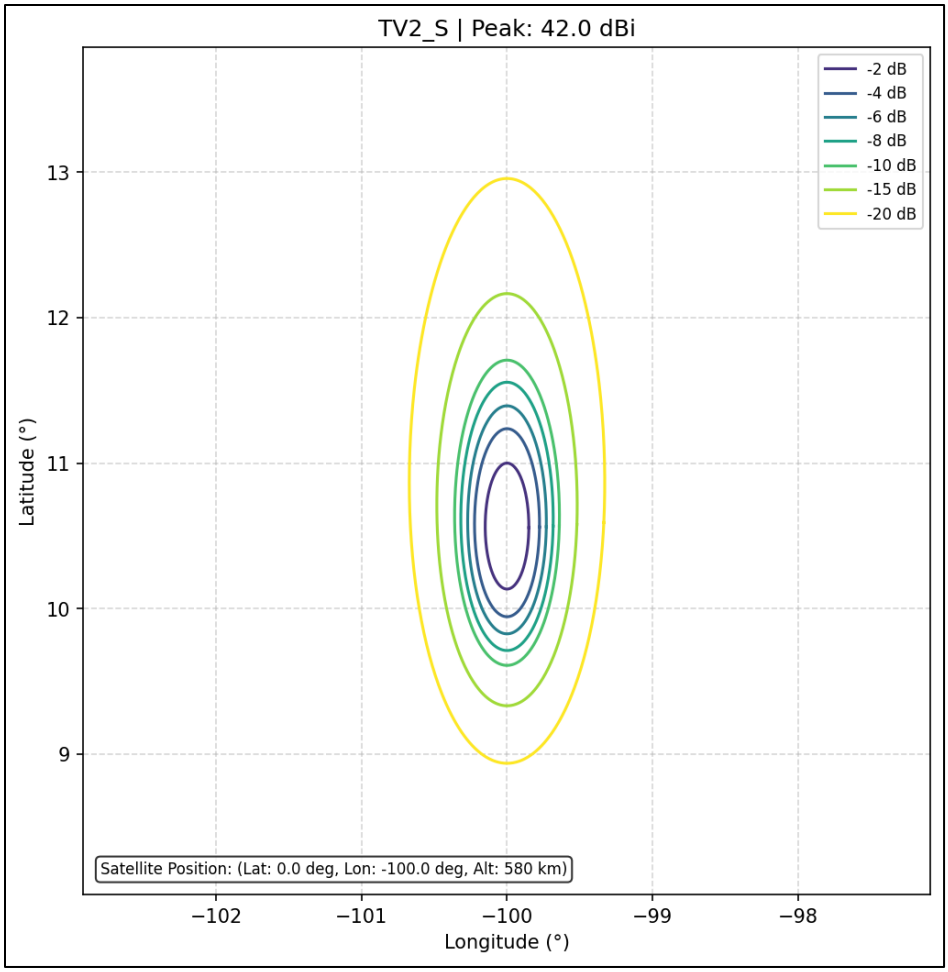

Figure 3: Notional Beam Contours for a 59.5-degree Scanned V-band Downlink Beam

D. Cessation of Emissions

To meet Section 25.207 requirements, the control of all antenna beams (sub-system and power amplifier) can be enabled or disabled individually via ground control commands sent over TT&C links under both on-orbit and deorbit conditions.[9] If all space station radio communications to ground stations cease for a pre-determined wait period, the satellite executes an automatic cease transmission to prevent the possibility of a satellite failing in a transmitting state.

[9] *See* 47 C.F.R. § 25.207.

II. SPECTRUM SHARING AND INTERFERENCE MITIGATION

A. Co-existence with MSS Systems

Following Amazon's merger with Globalstar, Amazon's operations of the Amazon Leo D2D System will maintain continuity within the 1.6/2.4 GHz band interference environment, where Globalstar has co-existed for decades with other users. Amazon will comply with the Commission's band plan for the 1.6/2.4 GHz band.[10] As described in Exhibit B, Amazon will also coordinate its gateway link operations in the Ka- and V-bands with other NGSO FSS systems in these frequencies and comply with relevant current and future sharing requirements adopted by the Commission.

Following the merger of Amazon and Globalstar, Amazon will avoid inter-system interference between the Amazon Leo D2D System and Globalstar's HIBLEO-4, HIBLEO-X, and the pending C-3 MSS operations through unified global management and network controls. Within the 1.6/2.4 GHz band, Amazon will employ dynamic frequency management to operate orthogonally and avoid assigning the same frequencies to the Amazon Leo D2D System and the Globalstar systems in overlapping service areas. Amazon will employ similar frequency management to avoid interference with any Globalstar terrestrial operations in the 1.6/2.4 GHz band.

B. Co-existence with Fixed Service Systems

Amazon has designed the Amazon Leo D2D System to co-exist with terrestrial FS operations. Amazon Leo D2D System earth stations and satellites operate at high elevation angles and angles of arrival, limiting the amount of radio frequency energy that is transmitted tangentially to the Earth's surface and fixed service operations. Both the Commission and the ITU have

[10] *See supra* note 3.

established limits on the Power Flux-Density ("PFD") of satellite downlink transmissions at the Earth's surface in order to protect terrestrial FS systems operating in the V-band and Ka-band.[11] As explained and demonstrated in Appendix 1, the Amazon Leo D2D System's PFD levels will comply with all applicable PFD limits with the exception of the Ka-band downlink TT&C beams which will, on rare occasions, produce PFD levels greater than the limits at low elevation angles. Amazon requests a waiver to the rule for this scenario as outlined in Appendix 1 and further discussed in Exhibit B.

C. Co-existence with GSO FSS Systems

The Amazon Leo D2D System can operate in the same frequency bands as GSO FSS systems. Amazon Leo D2D System satellite emissions are highly directional and efficiently place the directed energy at Amazon Leo receivers and not GSO receivers. In addition, Amazon Leo D2D System earth stations can reduce EIRP density levels for transmissions within a specified angular range of the GSO arc to minimize PFD levels toward GSO satellites. Similarly, Amazon Leo D2D System satellites can reduce EIRP density levels for transmissions within a specified angular range of the GSO arc to minimize PFD levels toward GSO earth stations. This ability facilitates the protection of GSO systems in both the uplink and downlink directions.

1. *Ka-band*

NGSO FSS applicants are required to comply with equivalent power flux-density ("EPFD") limits as set forth in Section 25.146(a)(2) and (c) of the Commission's rules, and Article 22 of the ITU Radio Regulations.[12] These limits were initially promulgated to protect GSO FSS satellite networks in the Ka-band frequencies from harmful interference due to NGSO FSS satellite

[11] 47 C.F.R. §§ 25.146(a)(1), 25.208(r).

[12] *See id.* §§ 25.146(a)(2), (c), 25.108(c)(3) (incorporating ITU Radio Regulations Article 22, Section II by reference); ITU RR Art. 22, Sec. II.

networks, but, in practice, significantly overprotect GSO incumbents, and—because they are decades old—do not reflect current satellite technology, particularly for downlink operations. Both the ITU and the Commission have recognized these issues in their recent efforts to modernize these EPFD limits. A recent Commission ruling will permit applicants to commence operations without strict compliance with the ITU EPFD limits as soon as the decision becomes effective.[13] As further discussed in Exhibit B, Amazon seeks a waiver of the Commission's rules in Section 25.146(a)(2) and (c) with respect to its Ka-band feeder link and TT&C downlink operations inside the United States. The Amazon Leo D2D System will comply with the Article 22 EPFD uplink limits as required by local laws and licensing requirements.

2. *V-band*

The ITU adopted requirements for NGSO systems to prevent single-entry and aggregate interference to GSO systems in the 37.5–42.5 GHz (space-to-Earth), 47.2–50.2 GHz (Earth-to-space) and 50.4–51.4 GHz (Earth-to-space) bands at WRC-19. These were codified in the ITU Radio Regulations as No. 22.5L and No. 22.5M of Article 22.9.[14] The ITU does not yet have software available with the capability to evaluate NGSO system compliance with these limits. Amazon has used its own software to evaluate compliance and certifies that the Amazon Leo D2D System will comply with the single-entry limits in No. 22.5L of Article 22. Amazon certifies that the Amazon Leo D2D System will comply with the aggregate limits in No. 22.5M of Article 22.

[13] *See Modernizing Spectrum Sharing for Satellite Broadband*, Report and Order, SB Docket No. 25-157, FCC 26-26 ¶¶ 1, 3 (rel. May 1, 2026) ("*2026 Spectrum Sharing Order*"). As an alternative to certifying compliance with the EPFD limits, an applicant may complete a coordination agreement with co-frequency GSO networks or obtain Commission approval of a compatibility showing for Ka-band downlink operations into GSO reference links. *See id.* The ITU Radio Regulations specify that EPFD limits "may be exceeded on the territory of any country whose administration has so agreed." ITU Radio Regulations, Article 22, No. 22.5CA (2024 ed.).

[14] *See* ITU RR Art. 22, Sec. II, Nos. 22.5L, 22.5M.

The Amazon Leo D2D System will use a variety of methods to meet these limits, including: (1) limiting the number of satellites transmitting to and from earth station areas simultaneously on the same frequency and channel; (2) using space station and earth station antennas with narrow beamwidths; (3) using a GSO arc avoidance angle to prevent main-beam coupling between Amazon Leo D2D System and GSO space station and earth station beams; and (4) limiting the PFD and EIRP of Amazon Leo D2D System downlinks and uplinks, respectively.

The Amazon Leo D2D System will meet the unwanted emissions limits specified in both footnote US156 to Section 2.106 of the Commission's rules and ITU Resolution 750 established during WRC-19 to avoid interference with any authorized GSO systems operating in the Earth exploration-satellite service ("EESS") (passive).[15]

D. Co-existence with NGSO FSS Systems

Amazon designed the Amazon Leo D2D System to be capable of flexibly controlling its spectrum use, including the ability to implement satellite avoidance angles and adjust the uplink EIRP and downlink PFD levels in selectable frequency bands. Amazon has participated in coordination discussions with NGSO FSS systems and can model the interference environment and perform reactive mitigation measures to protect the Amazon Leo D2D System and other systems from harmful interference. The Amazon Leo D2D System will comply with the NGSO FSS spectrum sharing rules outlined in Section 25.261, and with any sharing rules the Commission may adopt for NGSO FSS operations in the Ka-band or V-band through future processing rounds. Amazon will coordinate the Amazon Leo D2D System with other operational Ka-band and V-band NGSO FSS systems in prior processing rounds or otherwise submit a compatibility showing demonstrating its operations will not cause harmful interference into those systems.

[15] *See* 47 C.F.R. § 2.106 (US156); ITU Resolution 750 (Rev. WRC-19).

As discussed in Section II.D above, the Amazon Leo D2D System also complies with the applicable unwanted emissions requirements designed to protect passive EESS operations, including those reflected in footnote US156 to Section 2.106 of the Commission's rules and ITU Resolution 750.[16]

E. Co-existence with Other Co-frequency and Adjacent Band Users

In addition to the measures discussed above for the benefit of other Ka-band and V-band users, the Amazon Leo D2D System will take all required and practical steps to avoid harmful interference for the benefit of currently authorized co-frequency users in the 1610–1618.725 MHz and 2483.5–2500 MHz bands and adjacent band users. Amazon will ensure that its system complies with the Commission's band plan for the 1.6/2.4 GHz band where applicable, and the Amazon Leo D2D System will work in close concert with Globalstar to incorporate Globalstar's longstanding mitigation strategies in the band. The Amazon Leo D2D System's steerable antenna, regenerative processing, and advanced beamforming will avoid harmful interference to other services that are currently in or adjacent to these frequency bands.

1. *Radio Astronomy Service ("RAS")*

The Amazon Leo D2D System will comply with Section 25.213's procedures for protecting RAS users within the 1.6/2.4 GHz band.[17] Amazon will respect active protective zones, PFD limits, and any other applicable technical parameters set by the Commission, and, by extension, the ITU. The Amazon Leo D2D System's operations in the 40.5–42.5 GHz band will comply with footnote US211 and operations in the 81.0–86.0 GHz band will comply with footnote

[16] *See* 47 C.F.R. § 2.106(c)(156); ITU Resolution 750 (Rev. WRC-19).

[17] 47 C.F.R. § 25.213(a).

US161 by coordinating with the listed radio astronomy observatories and with footnote US342 by taking all practical steps to avoid causing harmful interference to radio astronomy users.[18]

2. *Radio Navigation Satellite System ("RNSS")*

Amazon will ensure that its operations in the 1610–1618.725 MHz band avoid causing harmful interference to RNSS operations in the adjacent 1559–1610 MHz band. Amazon recognizes the importance of RNSS operations and is committed to engaging proactively with RNSS stakeholders to address interference concerns.

3. *Broadband Radio Service ("BRS") and Broadcast Auxiliary Service ("BAS")*

The Amazon Leo D2D System will comply with Section 25.208(v)'s limits on PFD levels in the 2496–2500 MHz band to protect operations in the BRS.[19] Amazon certifies that downlink transmissions from its D2D satellites will comply with these limits and that Amazon will attenuate these transmissions as needed to remain within the limits adopted at Section 25.208(v)(1)–(2).[20] The Amazon Leo D2D System will also take all other required and practical steps to avoid harmful interference to co-channel BRS and grandfathered BAS stations.[21]

III. ORBITAL DEBRIS AND POST-MISSION DISPOSAL PLAN

Amazon has prioritized space safety and sustainability from day one, and these principles continue to influence every aspect of its satellite network, from satellite design and operational plans to the architecture of the constellation itself. Consistent with Section 25.114(d)(14) of the Commission's rules, a description of how Amazon has designed the satellites for its Amazon Leo

[18] 47 C.F.R. § 2.106(c)(161), (342).

[19] *See id.* § 25.208(v).

[20] *See id.* § 25.208(v)(1)–(2).

[21] *See id.* § 2.106(d)(147).

D2D System and its operational strategies to mitigate orbital debris risks is set forth in this Technical Attachment.

A. Debris Release[22]

Amazon does not plan to release any debris during normal operations. To limit the possibility of accidental debris release during normal deployment, the Amazon Leo D2D System does not rely on mechanical release bands, breakaway mechanisms, or mechanical cutaway devices to release the satellite from the launch vehicle or to actuate deployable structures on the satellite.

B. Small Debris[23]

Consistent with the Commission's rules, Amazon has also assessed and limited the probability that an Amazon Leo D2D System satellite will become a source of debris by collisions with small debris or meteoroids that could cause loss of control and prevent post-mission disposal. This probability is computed, on a per-satellite basis, for the corresponding orbits in Table 4, below, using version 3.2.0 of the National Aeronautics and Space Administration's ("NASA") Orbital Debris Engineering Model ("ORDEM"). The results for all orbits demonstrate compliance with the required limit of 0.01 (1 in 100) or less.

Table 4: Probability of Loss of Control due to Small Debris

Altitude (km)	**Inclination (degrees)**	**Probability of Loss of Control Due to Small Debris**
580	55.7°	0.00281
570	73.0°	0.00321
560	58.2°	0.00231

[22] *See id.* § 25.114(d)(14)(i).

[23] *Id.* § 25.114(d)(14)(ii).

Altitude (km)	Inclination (degrees)	Probability of Loss of Control Due to Small Debris
540	84.0°	0.00311
510	56.3°	0.00150

C. Accidental Explosions[24]

Amazon has designed the Amazon Leo D2D System to limit the probability of accidental explosions and release of liquids that will persist in droplet form, both during and after completion of mission operations. Amazon has ensured that any conversion of energy sources (chemical, pressure, and kinetic) onboard the spacecraft will not result in debris generation. Amazon has designed each satellite propellant tank to leak rather than burst in most failure mode conditions, even if the failure is caused by micrometeoroid orbital debris impact, and has tested the tank's failure characteristics under high-velocity impact to verify this result. Amazon has designed the satellites' battery systems to ensure that a battery cell failure will be contained to a single cell, further limiting the chance of thermal runaway, and in turn, accidental explosion. As described in Section III.D, the Amazon Leo D2D System satellites are designed to maintain collision avoidance and maneuverability capabilities until reentry where possible in order to minimize collision risk and decrease time on-orbit. To minimize the amount of stored energy onboard during the disposal process, the Amazon Leo D2D System satellites use inert Krypton propellant and vent this propellant just before reentry.

D. Collision Risks with Large Objects[25]

Amazon has assessed and limited the probability that an Amazon Leo D2D System satellite becomes a source of debris due to collisions with large debris, other operational space stations, or

[24] *Id.* § 25.114(d)(14)(iii).

[25] *Id.* § 25.114(d)(14)(iv).

other large objects across each satellite's total orbital lifetime. Like the satellites that comprise Amazon's other systems, all Amazon Leo D2D System satellites have "full lifecycle" collision avoidance, from early operations until reentry, and thus the risk of collision with large objects may be considered to be zero while maneuverable, consistent with the Commission's rules.[26] Nonetheless, using NASA's Debris Assessment Software ("DAS") version 3.2.7, ORDEM 3.2.0, and the latest solar flux model (April 10, 2026), Amazon has computed the probability of collision between any space station of the system and other large objects to be less than 0.001 (1 in 1,000). Results were computed both for the nominal disposal case, where an Amazon satellite maintains maneuverability down to its maximum disposal altitude of 350 km (*see* Table 5a), as well as for the unlikely worst-case scenario where an Amazon Leo D2D System satellite loses maneuverability in its operational orbit (*see* Table 5b). In all cases, the probability of collision is compliant with the Commission's rules.

Table 5a: Large Debris Collision Probability (Nominal Case – Maneuverable down to a Maximum Disposal Altitude of 350 km)

Altitude (km)	**Inclination (degrees)**	**Probability of Collision**
580	55.7º	3.9928E-07
570	73.0º	5.0491E-07
560	58.2º	4.0682E-07
540	84.0º	5.8784E-07
510	56.3º	4.0096E-07

[26] *See id.* § 25.114(d)(14)(iv)(A)(1).

Table 5b: Large Debris Collision Probability (Worst-Case – Failure at Operational Altitude)

Altitude (km)	Inclination (degrees)	Probability of Collision
580	55.7º	4.5055E-04
570	73.0º	4.8433E-04
560	58.2º	3.4370E-04
540	84.0º	1.8270E-04
510	56.3º	4.8393E-05

During operations, Amazon will ensure continued compliance with this standard through a comprehensive, multi-factor approach that includes: (1) constellation and spacecraft design features that support successful disposal; (2) active collision-avoidance and deorbit maneuvers using onboard propulsion; (3) continuous tracking, screening, and coordination under a full-lifecycle debris-avoidance program; (4) rigorous testing and analysis pre-launch and at injection; and (5) incorporation of operational lessons learned over time. Together, these measures help ensure that orbital debris risks are actively managed and post-mission disposal is reliably achieved.

1. *Orbital Risk*[27]

Certain current or planned systems may operate in the same or intercepting orbits as the Amazon Leo D2D System. Accordingly, Amazon will implement and launch early-operations procedures that mitigate space debris risks from the outset. Prior to launch, for example, Amazon will analyze whether Amazon Leo D2D System satellites will be deployed into or operated within orbits similar to those of other space stations and, where relevant, will evaluate the potential risk of collision and planned mitigation measures. Following successful on-orbit checkout, each

[27] *Id.* § 25.114(d)(14)(iv)(A)(2).

satellite will initiate collision-avoidance procedures that will continue throughout on-orbit operations, thereby protecting previously launched space vehicles through active conjunction assessment and maneuvering as necessary.

Specifically, Amazon will continuously monitor and limit the probability that an Amazon Leo D2D System satellite will become a source of debris by collision with large debris or other operational space stations through a comprehensive space debris avoidance program. Each satellite will be equipped with an onboard propulsion system that allows the spacecraft to remediate conjunction risks larger than 1 in 100,000 throughout mission life. Amazon will use this propulsion capability for the active avoidance of other spacecraft and tracked inert objects, including during deorbiting and at the post-mission disposal stage. Each Amazon Leo D2D System satellite has been designed to retain maneuverability at minimum until reaching the disposal altitude of 350 km to support collision avoidance and to ensure mission disposal within less than one year. To further reduce collision risks, Amazon will coordinate in real-time during operations with systems whose orbital altitudes the Amazon Leo D2D System satellites will transit.

In addition to these active mitigation measures, Amazon's comprehensive space debris avoidance program will include: (1) timely and effective responses to conjunction risk-data messages from the 18th Space Defense Squadron; (2) use of a third-party debris tracking service to improve conjunction warning response; and (3) "full lifecycle" conjunction avoidance, from early operations after dispensing, to disposal. Amazon will further mitigate collision risk through continuous monitoring of all other space objects that may intersect with the Amazon Leo D2D System's orbital shells.

2. *International Space Station Protection*[28]

Consistent with the recommendations of NASA's Trajectory Operations and Planning Office with respect to inhabitable spacecraft, the Amazon Leo D2D System satellites will adhere to NASA's International Space Station collision-screening and keep-out envelope restrictions, defined as ±2 kilometers in the radial direction and ±25 kilometers in the local horizontal. In addition to maneuvering, Amazon's operational practices will include deorbit-timing selection to de-conflict planar conjunctions with inhabitable spacecraft. Amazon will also collaborate with U.S. Space Command to develop information sharing protocols regarding space situational awareness. Additionally, Amazon and NASA maintain regular communication and collaboration to ensure safe space operations.

3. *Orbital Parameters*[29]

Amazon Leo D2D System satellites will be inserted at an altitude of approximately 440 km, above the altitudes of current inhabitable spacecraft. Amazon will continuously monitor space weather, the altitudes of inhabitable spacecraft, and the deployment of new constellations. This information may result in variations in the insertion altitude to minimize space safety risks and maximize the probability of successful deployment. In all cases, Amazon will continually coordinate with other operators to minimize the space safety impacts of any newly launched satellites.

After early operations are complete, Amazon Leo D2D System satellites will raise to their operational altitudes. During ongoing operations at these altitudes, the satellites will operate consistent with ITU Resolution 8 by maintaining an operational orbital tolerance of ± 30 km for

[28] *Id.* § 25.114(d)(14)(iv)(A)(3).

[29] *Id.* § 25.114(d)(14)(iv)(A)(4).

altitude and ± 2 degrees in relevant angular orbital parameters.[30] The Amazon Leo D2D System will operate within this ± 2-degree tolerance for both inclination and right ascension of the ascending node ("RAAN"). These tolerances provide flexibility to adjust plane geometry within the authorized envelope to minimize collision risks with other systems in similar orbits. This flexibility will also allow Amazon to lower the altitude of an Amazon Leo D2D System satellite to preserve low passive-deorbit times in contingency scenarios.

In short, the Amazon Leo D2D System satellites' propulsion capability will support station-keeping to maintain the reference orbit, collision-avoidance maneuvers as needed, and controlled orbit-lowering maneuvers during disposal. At the end of life, Amazon will actively deorbit the Amazon Leo D2D System satellites to an altitude of 350 km or lower using onboard propulsion. From this target orbit of 350 km or lower, rapid, natural, uncontrolled decay will occur in less than two months.

4. *Space Situational Awareness*[31]

Upon receipt of a space situational awareness conjunction warning, Amazon certifies that it will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary, taking the following steps:

i. Utilize all available sources of space situational awareness data for the secondary object, either from the U.S. Space Surveillance Network, commercial data providers, or the owner/operator of the secondary object, if available, and assess the data quality of the orbit station of the secondary object.

[30] ITU Resolution 8 (Rev. WRC-23).

[31] 47 C.F.R. § 25.114(d)(14)(iv)(A)(5).

ii. Calculate the probability of collision associated with the conjunction using secondary owner/operator data supplied to the 18th Space Defense Squadron's Space-Track data portal or the U.S. Traffic Coordination System for Space ("TraCSS"), if available, as well as using Amazon data.

iii. Monitor and trend subsequent Conjunction Data Messages ("CDMs") of the same conjunction to assess collision risk.

iv. Assess the probability of collision risk based on the best quality data available. If the probability of collision exceeds the Amazon risk threshold for conjunctions (1 in 100,000), planning and screening of a risk-mitigation maneuver ("RMM") will immediately begin. This RMM data will then be provided to Space-Track for spaceflight operators and space situational awareness monitors to assist in maintaining track custody of the Amazon Leo D2D System satellite. When a secondary object is a satellite, Amazon will provide the owner/operator of that satellite with the RMM information.

v. Upon determining that a maneuver is necessary, Amazon will attempt to contact the operator of the second satellite directly to coordinate response and will modify satellite operations, potentially including trajectory changes by propulsive maneuver, as necessary.

Amazon will also share ephemeris data and other appropriate operational information with spaceflight operators via portals such as Space-Track or TraCSS. Traditional methods of communication include email and voice call, and, for future efforts, Amazon is advancing machine-to-machine communication interface protocols to help scale these communications based on the constellation traffic levels expected.

In addition to automated data sharing, maneuver planning, and ephemeris exchange protocols, Amazon will promote and engage in manual interaction to support the flight dynamics

activities of other active spacecraft. Again, each Amazon Leo D2D System satellite will typically keep collision risk below 1 in 100,000 by maneuvering against all trackable debris and spacecraft, throughout all mission phases.

E. Space Station Trackability[32]

Amazon will track each of the Amazon Leo D2D System satellites. After orbital insertion, Amazon will identify the Amazon Leo D2D System satellites from the ground. Following signal acquisition, Amazon will actively track these satellites through onboard telemetry, which will include identification and navigation data. Each satellite will be registered with the 18th Space Defense Squadron prior to launch, and each satellite is >10 cm in all dimensions to ensure trackability. Amazon will also provide injection orbit parameters, launch location, target date, and time of launch to the 18th Space Defense Squadron prior to launch to aid in detection, tracking, and custody of Amazon Leo D2D System satellites by the U.S. Space Command Space Surveillance Network. In addition, Amazon's active tracking technique will produce updated satellite predictive ephemerides for the 18th Space Defense Squadron to assist with United States Space Command catalog updates. In the unlikely event that any Amazon Leo D2D System satellite becomes incapable of maintaining its orbital positioning, a "Non-Maneuverable" status for that satellite will be reported to 18th Space Defense Squadron via Space-Track, which is available to registered satellite owners and operators, like Amazon.

F. Proximity Operations[33]

The Amazon Leo D2D System satellites will not engage in planned proximity operations of any kind, including rendezvous, inspection, servicing, or co-orbital station-keeping activities.

[32] *Id.* § 25.114(d)(14)(v).

[33] *Id.* § 25.114(d)(14)(vi).

G. Post-Mission Disposal[34]

1. *Disposal Plans*[35]

The Amazon Leo D2D System has been designed and will be operated to further reduce orbital debris by actively de-commissioning and deorbiting in a timely manner after the active mission lifetime. Specifically, Amazon Leo D2D System satellites will retain roughly 40% of each satellite's propellant for disposal operations. This is sufficient to allow for a fifth percentile performance propulsion system to deorbit under nominal solar cycle conditions and includes a 10% margin. Amazon will monitor the available propellant to ensure sufficient reserves to safely transit through crewed space to a target orbit of 350 km or lower, from where a rapid, natural, uncontrolled decay will occur in less than 2 months, as computed using DAS 3.2.7 with the latest solar flux model (April 10, 2026). As stated above, from the target orbit, any additional remaining propellant will be used to continue lowering altitude until the point where the satellites can no longer maintain attitude control and therefore cannot execute maneuvers. At that juncture, the satellites will vent propellant before proceeding towards uncontrolled reentry and rapid demise. The entire post-mission disposal process—from the start of active deorbit to reentry—will conclude in less than 1 year. A number of safeguards will promote safety during the de-commissioning process. For example, the satellites will continue to perform avoidance maneuvers consistent with ongoing conjunction assessment plans for as long as it is technically feasible to do so and will maintain the same high standards as during the mission's operations phase in an effort to ensure space safety after mission life. Amazon will maintain active collision avoidance during the orbit-lowering process through the publication of predictive ephemerides, ongoing screening,

[34] *Id.* § 25.114(d)(14)(vii).

[35] *Id.* § 25.114(d)(14)(vii)(B), (d)(14)(vii)(D)(2)(i).

and adjusted burn plans to respond to identified risks above the maneuver threshold, among other things.

2. *Probability of Success*[36]

Amazon's approach to post-mission disposal success for the Amazon Leo D2D System is based on a three-layered approach: (1) operational monitoring for early deorbit, (2) active deorbit to 350 km using propulsion at end of life, and (3) a rapid natural decay for satellites that fail at operational altitude. Each of these methods is capable of independently ensuring that the satellite will deorbit in fewer than five years. The post-mission disposal success probability can therefore be computed based on the likelihood of any of these three events occurring: (1) the likelihood that Amazon Leo will be able to preemptively deorbit a satellite prior to the occurrence of disposal failure (i.e., the success of Amazon Leo's operational rules for deorbiting satellites) ($P_{preemptive}$); (2) the likelihood that the satellite will retain active deorbit capability at end of life ($P_{maneuverable,EOL}$); and (3) the likelihood that the satellite will naturally decay from its operational altitude within 5 years in the event of a failure ($P_{natural\_decay<5}$). Expressed as a formula:

$$PMD\ Success = 1 - ((1 - P_{maneuverable,EOL}) * (1 - P_{natural\ decay<5}) * (1 - P_{preemptive}))$$

For the Amazon Leo D2D system satellites:

- **$P_{maneuverable,EOL} \geq 0.9$.** By design and as validated through rigorous testing, the Amazon Leo D2D System satellites will achieve an end-of-life maneuver reliability of at least 90 percent. Amazon Leo will ensure this degree of reliability through a combination of factors, including component design, rigorous on-ground testing, testing in-flight at insertion altitude, and agile implementation of lessons learned through heritage flight data.

[36] *Id.* § 25.114(d)(14)(vii)(D)(1).

- **$P_{natural\_decay<5} \geq 0.754$.** Even if an individual Amazon Leo D2D System satellite is unable to actively deorbit down to 350 km (the preferred and nominal method), the Amazon Leo D2D System satellites are expected to achieve sub-five year natural decay at least 75.4% of the time.[37] This is a lower bound that represents the values for the mission start year with the worst-case solar cycle conditions at the highest (worst-case) altitude of 580 km. Satellites orbiting at the lower altitude shells or launched at a different time will experience higher likelihoods of sub-five-year passive decay than the worst-case probability described above.[38]
- **$P_{preemptive} \geq 0$.** Amazon Leo will continuously monitor satellite performance and propellant levels and will consider satellites for a preemptive deorbit prior to end of mission in cases where the satellite is at risk of losing active deorbit capability.

Taken together, the probability of post-mission disposal success exceeds 0.9 for each individual satellite, even without assuming any probability of preemptive deorbit:

$$PMD\ Success \geq 0.975$$

With the continued application of rules for preemptive deorbit and improvements in satellite reliability through testing and continuous learning, Amazon LEO expects post-mission disposal success to continue improving, consistent with a goal of reaching a post-mission disposal success rate of 99% or higher.

[37] Computed using NASA's Debris Assessment software and April 10, 2026 Solar Flux data.

[38] The worst-case probability of passive decay within 5 years is 75.4% for the 580 km shell, 78.7% for the 570 km shell, 82.0% for the 560 km shell, 100% for the 540 km shell, and 100% for the 510 km shell.

3. *Casualty Risk*[39]

Amazon has designed its Amazon Leo D2D System satellites to comply with the U.S. Government Orbital Debris Mitigation Standard Practices and the NASA Technical Standard for debris reentry. Using NASA's DAS, Amazon has assessed that no components of the Amazon Leo D2D System satellites will survive atmospheric reentry with greater than 15 J of energy, and that the computed human casualty risk is less than 1 in 10,000.[40]

[39] 47 C.F.R. § 25.114(d)(14)(vii)(D)(2)(ii).

[40] The DAS activity log is included as Confidential Appendix 2 to this Technical Attachment.

REDACTED, FOR PUBLIC INSPECTION

ENGINEERING CERTIFICATION

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/ David Kaufman

David Kaufman
Senior Manager
Regulatory Policy and Analysis
Kuiper Systems LLC

Date: July 24, 2026

APPENDIX 1 – COMPLIANCE WITH POWER FLUX-DENSITY LIMITS

Amazon has designed the Amazon Leo D2D System to co-exist with terrestrial FS operations. D2D System earth stations and satellites operate at high elevation angles and angles of arrival, limiting the amount of radio frequency energy that is transmitted tangentially to the Earth's surface and FS operations. Both the Commission and the ITU have established limits on the PFD of satellite downlink transmissions at the Earth's surface in order to protect terrestrial FS systems operating in the V-band and Ka-band. As explained and demonstrated below, the Amazon Leo D2D System's PFD levels will comply with all applicable PFD limits with the exception of the Ka-band downlink TT&C beams, which will, on rare occasions, produce PFD levels greater than the limits at low elevation angles. Amazon requests a waiver to the rule for this scenario as further discussed in Exhibit B.

1. *Ka-band PFD Limit Compliance*

Section 25.146(a)(1) of the Commission's rules and Article 21, Section V, Table 21-4 of the ITU Radio Regulations provide PFD limits for emissions from NGSO FSS space stations in the 17.7–19.3 GHz and 19.3–19.7 GHz bands.[1] The PFD limits for NGSO FSS systems in the Ka-band frequencies are described below in Table 6. Section 25.146(a)(1)(i) directs applicants to comply with the 17.7–19.3 GHz limits for the 19.3–19.4 GHz and 19.6–19.7 GHz bands.[2] Section 25.146(a)(1)(ii) also directs applicants to comply with the 17.7–17.8 GHz band limits for the 17.3–17.7 GHz band.

[1] 47 C.F.R. §§ 25.146(a)(1), 25.108(c)(2) (incorporating ITU Radio Regulations Article 21, Section V by reference); Int'l Telecomm. Union, Radio Regulations Art. 21, sec. V, table 21-4 (2016) ("ITU RR Art. 21").

[2] 47 C.F.R. § 25.146(a)(1).

Table 6: NGSO FSS Ka-band PFD Limits from Article 21, Table 21-4

ITU Frequency Band	FCC Frequency Band(s)	Limit in dB(W/m^2) for Angles of Arrival (δ) Above the Horizontal Plane			Reference Bandwidth
		0° - 5°	5° - 25°	25° - 90°	
17.7–19.3 GHz	17.3–17.8 GHz 17.8–19.3 GHz 19.3–19.4 GHz 19.6–19.7 GHz	-115 – X	-115 – X + ((10 + X)/20)(δ – 5)	-105	1 MHz
19.3–19.7 GHz	19.4–19.6 GHz	-115	-115 + 0.5(δ – 5)	-105	1 MHz

Where X is a constant defined as a function of N, the number of satellites in the Constellation, and is calculated as follows:

Number of Satellites, N	N ≤ 50	50 < N ≤ 288	288 < N ≤ 1000	1000 < N ≤ 6000	N > 6000
X [dB]	0	(5/119)*(N-50)	(1/69)*(N+402)	max {20.3, 10*LOG$_{10}$(N$_v$)}	10*LOG$_{10}$(N$_v$) + 1

Where N_v is the maximum number of visible space stations—considering a minimum elevation angle equal to 0 degrees—from any location on the surface of the Earth and within the service area of the NGSO system.

The Amazon Leo D2D System gateways operating in the 17.3–19.7 GHz bands will operate at or below a PFD of -110 dBW/m^2/MHz for angles of arrival greater than 30 degrees. For angles of arrival between 20 and 30 degrees, the PFD generated by the Amazon Leo D2D System will not exceed a log-linear level that results in -118 dBW/m^2/MHz at 20 degrees. For angles of arrival below 20 degrees, the PFD generated by the Amazon Leo D2D System downlinks will be a function of the Amazon Leo D2D System satellites' off-axis EIRP. Figure 4, below, demonstrates compliance with these PFD limits for all D2D Kuiper System transmit beam types operating in the Ka-band.

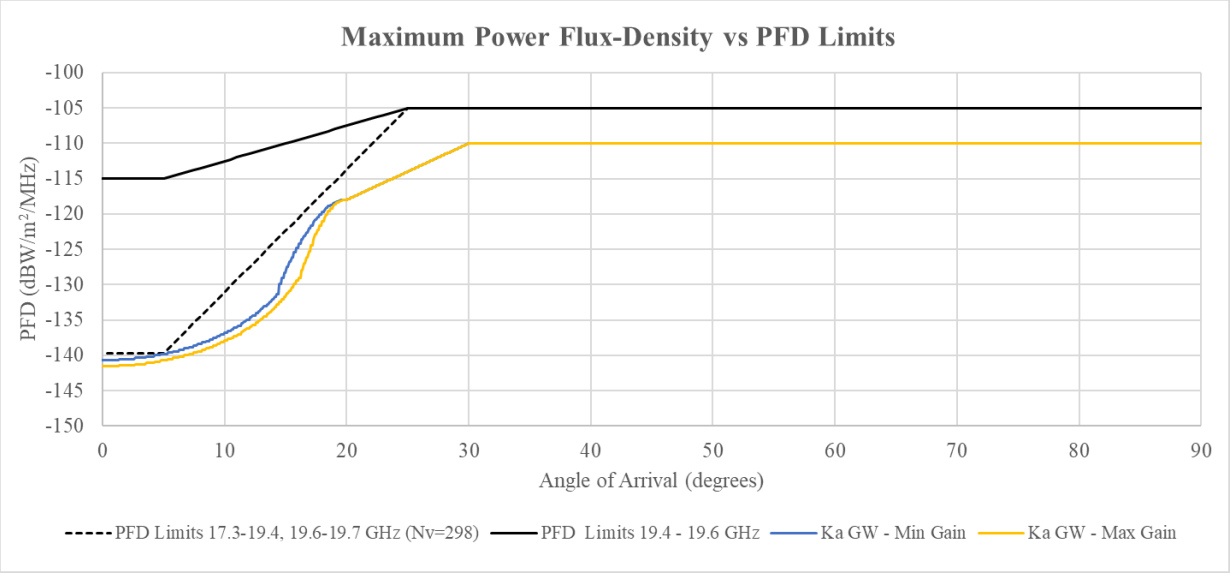

Figure 4: Amazon Leo D2D System Satellite GW and CT Downlink Power Flux-Density Levels in the 17.3–19.7 GHz Band

The Ka-band downlink TT&C PFD levels in the 19.25–19.4 GHz band are probabilistic in nature as they depend on the orientation of the spacecraft relative to the TT&C downlink earth station. These beams will operate with TT&C earth stations at a minimum elevation angle of 5˚ regardless of satellite altitude and produce a maximum EIRP density of -57.7 dBW/Hz in typical orientations and up to -43.5 dBW/Hz in limited situations.

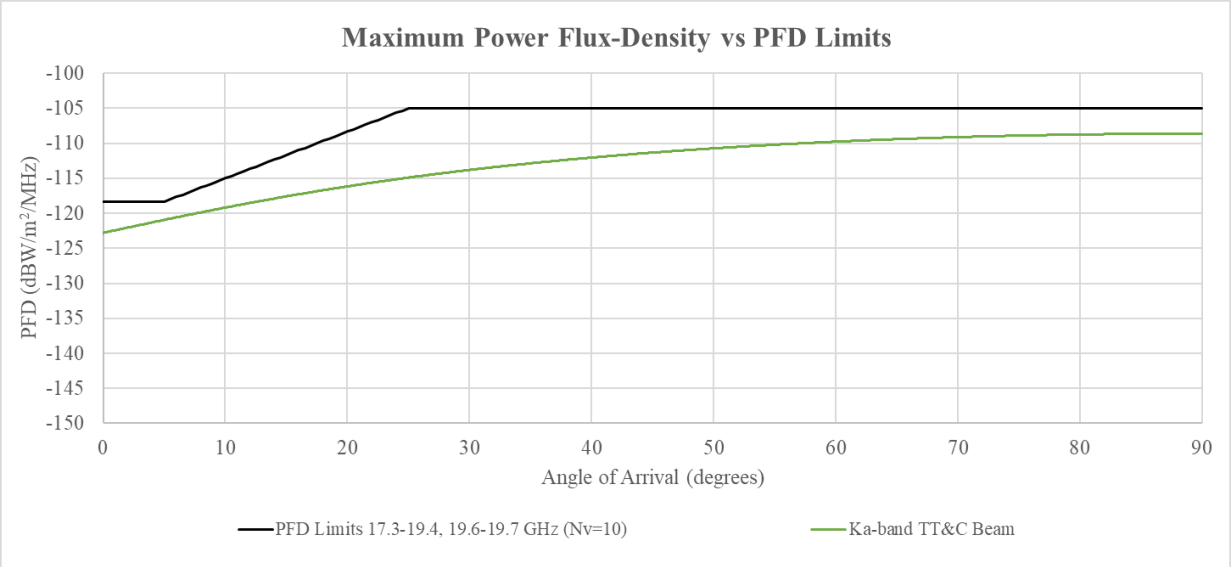

Figure 5: Amazon Leo D2D System Satellite TT&C Downlink Power Flux-Density Levels in the 19.25–19.4 GHz Band

As shown in Figure 5 above, emissions remain below the applicable PFD limits for elevation angles above 25°. For elevation angles below 25°, the maximum PFD levels exceed the ITU PFD limits described in Table 6. However, these limits factor in an Nv term used to compute the PFD limits below 25° elevation angles. An "Nv term is an ITU-defined aggregation factor that represents the number of satellites simultaneously visible to a given point on the Earth's surface, with larger values resulting in more restrictive PFD limits.

During typical operations, TT&C downlink operations are not continuous because routine command and control is conducted primarily using standard gateway links. Thus, the number of simultaneous satellites operating TT&C downlinks represents only a small fraction of the number of visible satellites in any given direction. For this reason, it is unnecessary to require TT&C downlink emissions at low elevation angles to comply with Nv-based PFD limits in order to protect FS systems. FS systems will remain protected from harmful interference due to the limited and intermittent nature of TT&C downlink operations.[3]

2. *V-band PFD Limit Compliance*

The Amazon Leo D2D System emissions in the 37.5–40.0 GHz band will comply with the PFD limits outlined in Sections 25.208(r)(1) and 25.208(r)(2) of the Commission's rules.[4] The Amazon Leo D2D System emissions in the 40.0–42.0 GHz band will comply with the PFD limits outlined in Sections 25.208(s) and 25.208(t). For operation in the 42.0–42.5 GHz band, the Amazon Leo D2D System emissions will comply with the PFD limits outlined in the ITU Radio Regulations Article 21, Table 21-4. The PFD limits for V-band are outlined in Table 6, below.

[3] As detailed in Exhibit B, Amazon requests a waiver of Section 25.146(a)(1) of the Commission's rules as it applies to the above-described Ka-band TT&C downlink operations of the Amazon Leo D2D System, to the extent necessary. 47 C.F.R. § 25.146(a)(1).

[4] 47 C.F.R. § 25.208(r)(1)–(2).

Table 6: NGSO FSS V-band PFD Limits

Frequency Band(s)	Limit in dB(W/m^2) for Angles of Arrival (δ) Above the Horizontal Plane			Reference Bandwidth	Source
	0° - 5°	5° - 25°	25° - 90°		
37.5–40.0 GHz (Clear Sky)	-132	-132 + 0.75(δ – 5)	-117	1 MHz	25.208(r)(1)
37.5–40.0 GHz (Rain Fade)	-120	-120 + 0.75(δ – 5)	-105	1 MHz	25.208(r)(2)
40.0–42.0 GHz	-115	-115 + 0.5(δ – 5)	-105	1 MHz	25.208(s), 25.208(t)
42.0–42.5 GHz	-120	-120 + 0.75(δ – 5)	-105	1 MHz	ITU RR Article 21, Table 21-4

Figure 6, below, demonstrates that the V-band downlink PFD levels will comply with Section 25.208(r)(1) under clear-sky conditions. The Amazon Leo D2D System downlinks in the 37.5–40.0 GHz band will maintain a nominal PFD of -118 dBW/m^2/MHz for angles of arrival above 40 degrees. When operating at angles of arrival between 20 degrees and 40 degrees, the PFD generated by the Amazon Leo D2D System will not exceed a log-linear level that results in -122 dBW/m^2/MHz at 20 degrees. For angles of arrival below 20 degrees, the PFD generated by the Amazon Leo D2D System downlinks in the 37.5–40.0 GHz band will be a function of the Amazon Leo D2D System satellites' off-axis EIRP, as shown in Figure 6, below. The Amazon Leo D2D System will modify its maximum PFD limits when under rain fade conditions to comply with Section 25.208(r)(2).[5]

[5] *Id.* § 25.208(r)(2).

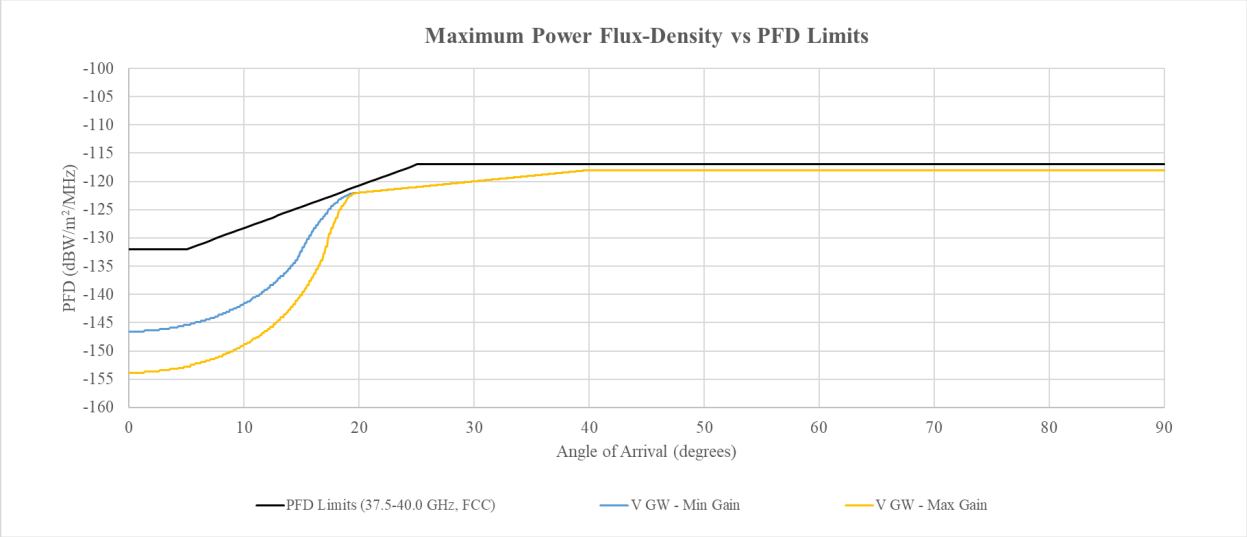

Figure 6: Amazon Leo D2D System Satellite GW Downlink Power Flux-Density Levels in the 37.5–40.0 GHz Band

Sections 25.208(s) and 25.208(t) provide PFD limits for emissions from space stations in the 40.0–40.5 GHz and 40.5–42.0 GHz bands, respectively.[6] Figure 7, below, demonstrates that the Amazon Leo D2D System V-band downlink PFD levels will comply with the limits in Sections 25.208(s) and 25.208(t). Section 25.208 does set forth PFD limits for NGSO satellite systems in the 42.0–42.5 GHz band. However, the Amazon Leo D2D System downlinks in the 42.0–42.5 GHz band will comply with the PFD limits listed in No. 21.16, Table 21-4, of Article 21 in the ITU Radio Regulations, as demonstrated in Figure 7, below.[7] The Amazon Leo D2D System downlinks in the 40.0–42.5 GHz band will maintain a nominal PFD of -110 dBW/m^2/MHz for elevation angles above 20 degrees. For angles of arrival below 20 degrees, the PFD generated by the Amazon Leo D2D System downlinks in the 40.0–42.5 GHz band will be a function of the Amazon Leo D2D System satellites' off axis EIRP, as also shown in Figure 7, below.

[6] *See id.* § 25.208(s), (t).

[7] *See* ITU RR Art. 21.

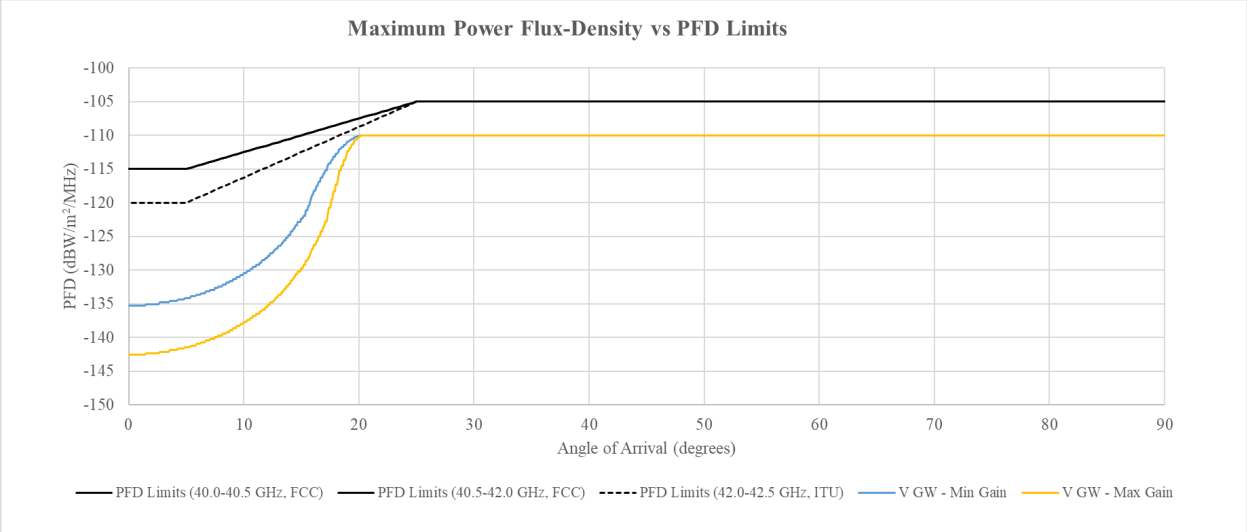

Figure 7: Amazon Leo D2D System Satellite GW Downlink Power Flux-Density Levels in the 40.0–42.5 GHz Band

The Amazon Leo D2D System V-band TT&C beams will operate with a maximum fixed EIRP density of 14.4 dBW/MHz. This produces a maximum PFD of -110.7 dBW/m^2/MHz at a 90-degree angle of arrival and the lowest operational altitude of 510 kilometers. The PFD at low angles of arrival is lower because the signal travels a longer distance and experiences greater path attenuation. The Amazon Leo D2D System V-band TT&C downlink PFD will comply with the Section 25.208(s) limits, as demonstrated in Figure 8, below.

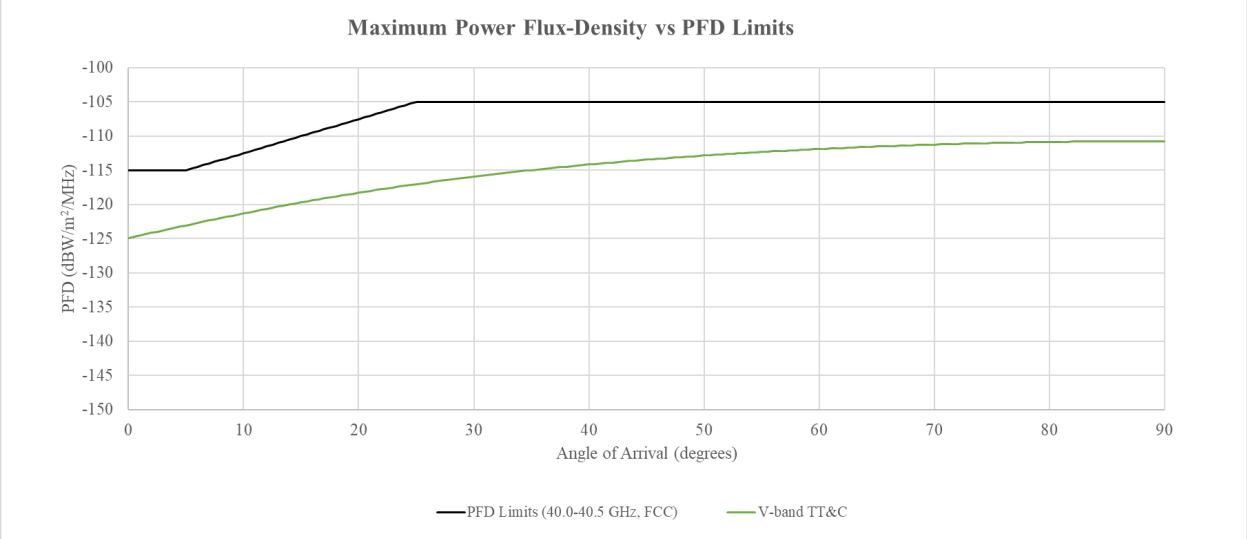

Figure 8: Amazon Leo D2D System Satellite TT&C Downlink Power Flux-Density Levels in the 40.0–40.1 GHz Band

CONFIDENTIAL APPENDIX 2 – DAS ACTIVITY LOG

REDACTED