

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

Application of Kuiper Systems LLC  
for Authority to Launch and Operate a  
Non-Geostationary Satellite Orbit  
System

Call Sign \_\_\_\_\_

File No. SAT-LOA-20260601-00224

**APPLICATION FOR AUTHORITY TO LAUNCH AND OPERATE  
A NON-GEOSTATIONARY SATELLITE ORBIT SYSTEM**

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## **EXECUTIVE SUMMARY**

With this application, Kuiper Systems LLC (“Amazon Leo”), a wholly owned subsidiary of Amazon.com Services LLC (collectively “Amazon”), seeks authority to launch and operate a new constellation of up to 5,105 low Earth orbit non-geostationary orbit (“NGSO”) satellites that will deliver direct-to-device (“D2D”) connectivity to consumer, enterprise, and government users (the “Amazon Leo D2D System”). The Amazon Leo D2D System will operate in the 1.6/2.4 GHz band and other available frequencies, following the closing of Amazon’s proposed transaction with Globalstar, Inc. (“Globalstar”), in concert with Amazon’s existing fixed-satellite service (“FSS”) operations, as well as with Globalstar’s existing and planned mobile-satellite service (“MSS”) constellations. The Amazon Leo D2D System will expand mobile connectivity to more people and more devices.

The Amazon Leo D2D System will comprise satellites specifically tailored for D2D service. These satellites will operate MSS service links in the United States and globally, including in L-band and S-band frequencies. Amazon will integrate the Amazon Leo D2D System with its existing FSS infrastructure and feeder link operations and the MSS systems acquired from Globalstar. This integrated architecture will further the core promise of D2D: reliability, availability, and capacity. And it will do so both effectively and efficiently. Amazon’s proposed digital beamforming and beam-hopping approach, paired with tight adjacent-channel performance, dual-polarization reception, and adaptive modulation and coding, will drive spectrum efficiency and support the leap from basic messaging to voice and data services. Amazon will also engage in good-faith frequency coordination and implement other practical measures to ensure coexistence with other spectrum users.

With these advanced technologies and operational strategies, the Amazon Leo D2D System will help accelerate the U.S. economy to the next phase of mobile connectivity: one where a device

is truly a lifeline, regardless of location. The Amazon Leo D2D System will expand access to customers that are currently unserved or underserved by terrestrial providers and support critical use cases like emergency messaging, in-vehicle, and industrial Internet of Things (“IoT”) applications. D2D provides a crucial fallback when terrestrial networks fail, adding an essential layer of connectivity to support search-and-rescue, maritime distress, and other emergency communications. D2D services can also extend connectivity to worksites, fleets, and supply chains that operate beyond consistent terrestrial reach for industrial and enterprise customers. Amazon’s D2D deployment will additionally support high-value jobs in U.S. engineering, manufacturing, and operations as the company scales satellite production and deployment.

Amazon looks forward to delivering on the promise of D2D connectivity, including to the millions of people living, traveling, and working in places beyond the reach of existing networks today. Accordingly, Amazon respectfully requests that the Commission expeditiously grant this application.

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With this application, Amazon<sup>1</sup> seeks authority to launch and operate a non-geostationary satellite orbit (“NGSO”) mobile-satellite service (“MSS”) system optimized for direct-to-device (“D2D”) communications (the “Amazon Leo D2D System”). This new system will incorporate 1.6/2.4 GHz band service links domestically and internationally, with additional L-band and S-band frequencies available for service links outside the United States, together with Ka-band and V-band feeder links and telemetry, tracking, and command (“TT&C”) links.

The Amazon Leo D2D System builds on Globalstar, Inc.’s (“Globalstar”) existing D2D offerings. Through its commercial relationship with Apple, Globalstar provides D2D connectivity for millions of Apple device users by enabling emergency messaging, location sharing, and roadside assistance beyond the reach of terrestrial networks. With the grant of this application, Amazon’s proposed transaction with Globalstar<sup>2</sup> will enable expanded D2D connectivity by

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<sup>1</sup> Kuiper Systems LLC (“Amazon Leo”) is a wholly owned subsidiary of Amazon.com Services LLC (collectively “Amazon”). On November 13, 2025, Amazon replaced the Project Kuiper code name with Amazon Leo, its permanent brand for its satellite broadband system.

<sup>2</sup> Amazon and Globalstar jointly sought the Federal Communications Commission’s approval for the assignment and transfer of control of these licenses and authorizations on May 26, 2026. *See Application for Consent to Assign and Transfer Control of Licenses and Authorizations*, ICFS File No. ITC-T/C 20260417-00114, GN Docket No. 26-134 (filed May 26, 2026) (“Globalstar Amazon Merger

combining Globalstar’s MSS capabilities and spectrum with Amazon Leo’s next-generation satellite architecture to yield expanded D2D service that reaches more consumers, businesses, and public safety agencies nationwide and around the globe. Amazon therefore respectfully asks the Commission to grant this application expeditiously.

## **I. BACKGROUND**

Amazon Leo is Amazon’s initiative to deploy a low-Earth orbit NGSO satellite network that will deliver fast, reliable broadband connectivity and other communications services to unserved and underserved communities in the United States and around the world. Since 2020, the Commission has authorized Amazon Leo to launch and operate three NGSO fixed satellite service (“FSS”) systems (the “Amazon Leo Systems”).<sup>3</sup> With these authorizations and its continued investment in state-of-the-art manufacturing facilities,<sup>4</sup> Amazon Leo is well on its way to making high-speed, low-latency broadband service available to millions of residential customers, schools,

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Application”). The Commission issued a Public Notice on June 4, 2026, establishing the pleading cycle for the application. *Globalstar, Inc. and Amazon.com, Inc. Seek FCC Consent and Approval of the Proposed Assignment and Transfer of Control of Licenses and Authorizations Held by Globalstar to Amazon*, Public Notice, DA 26-550, GN Docket No. 26-134 (rel. June 4, 2026).

<sup>3</sup> See *Kuiper Systems LLC, Application for Authority to Deploy and Operate a Ka-Band Non-Geostationary Satellite Orbit System*, Order and Authorization, 35 FCC Rcd 8324 (2020); *Kuiper Systems LLC, Request for Modification of the Authorization for the Kuiper NGSO Satellite System*, Order and Authorization, 38 FCC Rcd 1112 (SB 2023) (orbital debris modification); *Kuiper Systems LLC, Request for Modification of the Authorization for the Kuiper NGSO Satellite System*, Order and Authorization, 39 FCC Rcd 2180 (SB 2024) (orbital parameters modification); *Kuiper Systems LLC*, Grant Stamp, ICFS File No. SAT-MOD-20230201-00013 (granted Apr. 5, 2024) (Call Sign S3051) (processing round coordination modification); *Kuiper Systems LLC, Request for Modification of the Authorization for the Kuiper NGSO Satellite System*, Order and Authorization, 39 FCC Rcd 3987 (SB 2024) (EPFD modification); *Kuiper Systems LLC*, Grant Stamp, ICFS File Nos. SAT-LOA-20211104-00145, SAT-AMD-20250311-00068 (granted in part Feb. 10, 2026) (Call Sign S3105/S3051).

<sup>4</sup> See, e.g., *Inside Amazon Leo’s Florida Hub: Preparing Satellites for Amazon’s Space Network*, AmazonNews (July 24, 2025), <https://tinyurl.com/4bnxjvxd>; Florida Chamber of Commerce, *Amazon Opens High-Capacity Satellite Processing Facility to Accelerate Project Kuiper Deployment* (July 31, 2025), <https://tinyurl.com/5uj8925h>.

hospitals, businesses, government agencies, and other organizations, including those operating in places without reliable internet connectivity today.

On April 13, 2026, Amazon entered into an agreement to acquire Globalstar.<sup>5</sup> Globalstar has operated MSS NGSO satellites continuously in the 1.6/2.4 GHz band for nearly three decades.<sup>6</sup> The company currently operates the U.S.-notified HIBLEO-4 satellite system and the France-notified HIBLEO-X system, and has a pending application for U.S. authority to operate its next-generation C-3 system of 48 NGSO satellites.<sup>7</sup> Through its MSS spectrum and current and planned low-Earth orbit satellite constellations, Globalstar provides D2D connectivity to remote and unserved areas, and areas not fully served by terrestrial infrastructure. Its D2D services support a wide range of applications, including for certain Apple devices (iPhone 14 and newer models and Apple Watch Ultra 3), the Globalstar family of “SPOT” devices, and satellite Internet of Things (“IoT”) operators.<sup>8</sup> These services enable customers to send and receive SMS texts and iMessages, contact emergency services, request roadside assistance, share their location even when outside cellular and Wi-Fi coverage, and intelligently manage, monitor, and track mobile assets remotely.

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<sup>5</sup> See Globalstar Amazon Merger Application.

<sup>6</sup> See *Space Exploration Holdings LLC, Petition for Rulemaking of Iridium Communications Inc. to Optimize Mobile Satellite Service in the 1.6 GHz Band*, Order, ICFS File Nos. SAT-LOA-20200526-00055 *et al.*, DA-26-398, ¶ 17 (SB rel. Apr. 23, 2026) (“2026 D2D Clarification Order”) (“Globalstar, for its part, has provided evidence that it has made use of the spectrum, providing the first commercially available direct-to-device satellite services since 2022 through its partnership with Apple, the ‘SPOT’ family of devices that provide emergency services to those without terrestrial wireless services, and IoT for a range of industries” (footnote omitted)).

<sup>7</sup> Globalstar Licensee LLC, ICFS File No. SAT-PDR-20250214-00047 (Call Sign S3223), Narrative at 9 (June 25, 2025).

<sup>8</sup> See *Connect to a Satellite with Your iPhone*, Apple (Sept. 15, 2025), <https://support.apple.com/en-us/105097>; José Adorno, *Apple’s iPhone Satellite Messaging is ‘Literally Saving Lives’ Amid North Carolina Flooding*, BGR (Sept. 30, 2024), <https://tinyurl.com/44ku7rk6>.

Under the terms of the proposed transaction, Amazon will acquire Globalstar and its subsidiaries, assets, and facilities in a two-step merger. The transaction will add Globalstar as an affiliate to Amazon Leo and add Globalstar's MSS assets, including its spectrum licenses, planned and operational space stations, and ground infrastructure, to Amazon's FSS operations. This will allow Amazon to operate the companies' systems as global, affiliated systems for satellite connectivity. Following the close of this transaction, Amazon seeks to rapidly deploy the Amazon Leo D2D System to enhance Globalstar's existing and planned MSS offerings.

## **II. DESCRIPTION OF THE AMAZON LEO D2D SYSTEM**

The Amazon Leo D2D System will comprise 5,105 low-Earth orbit satellites (the "Amazon Leo D2D satellites") and will operate in concert with the existing Amazon Leo Systems and Globalstar's current and planned systems post-merger. *First*, Amazon Leo will deploy the Amazon Leo D2D satellites at altitudes of 510, 540, 560, 570, and 580 kilometers in five orbital shells that are optimized for MSS and D2D service. *Second*, Amazon Leo will establish service links to and from the Amazon Leo D2D satellites in MSS frequency bands, including in the 1.6/2.4 GHz band.<sup>9</sup> *Third*, Amazon Leo will maximize the efficiency of its systems by orchestrating traffic across the Amazon Leo Systems and Amazon Leo D2D System satellites, and by operating in concert with the HIBLEO and C-3 systems acquired from Globalstar. Together, these elements will create a satellite architecture designed to bring reliable connectivity directly to a variety of user devices. Amazon's vision for the combined operations of the Amazon Leo D2D System, the HIBLEO and C-3 systems, and the Amazon Leo Systems is to offer satellite-based connectivity solutions for FSS and MSS use.

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<sup>9</sup> Amazon Leo is not requesting authority for Supplemental Coverage from Space ("SCS") service within the United States at this time. *See* 47 C.F.R. § 25.125. Instead, Amazon is seeking to offer D2D MSS over frequency bands already allocated to MSS, including in the 1.6/2.4 GHz band.

The space and ground segments of the Amazon Leo D2D System will have the following parameters, which are discussed in greater detail in the Technical Attachment at Exhibit C (“Technical Attachment”).<sup>10</sup> 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.

**Table 1. Constellation Design Showing 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               |

Within the United States, the Amazon Leo D2D satellites will use service links in the 1.6/2.4 GHz band (1610–1618.725 MHz, 2483.5–2500 MHz), including in the frequency bands licensed exclusively to Globalstar that Amazon will acquire (1610–1617.775 MHz, 2483.5–2500 MHz); 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);<sup>11</sup> and TT&C links in the Ka-band (19.25–19.4 GHz, 27.5–28.05 GHz, 28.6–29.1 GHz) and V-band (40.0–40.1 GHz, 47.2–47.3 GHz).<sup>12</sup> Outside of the United States, Amazon Leo will seek to provide D2D service in additional frequency bands. These proposed operating frequencies are listed below.

<sup>10</sup> The currently authorized Amazon Leo Systems satellites will continue to operate under their existing constellation design and radiofrequency parameters.

<sup>11</sup> 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.

<sup>12</sup> Amazon requests feeder links, including for TT&C operations, in frequencies allocated to FSS use. The Commission has determined that the use of FSS frequencies to operate such feeder links in support of MSS operations is consistent with an FSS allocation. *Space Exploration Holdings, LLC, Request for Deployment and Operating Authority for the SpaceX Gen2 NGSO Satellite System*, Order and Authorization, 39 FCC Rcd 12550, 12579–80 ¶ 49 (SB 2024); *Lynk Global, Inc. Application to Deploy and Operate Space Stations*

**Table 2. Service Links For Which Authorization Is Sought<sup>13</sup>**

| <b>Type of Link and Transmission Direction</b>   | <b>Frequencies for Use Both Inside and Outside the United States</b> | <b>Additional Frequencies for Use Outside of the United States Only</b> |
|--------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------|
| Mobile Customer Terminal Downlink<br>2.4 GHz     | 2483.5–2500 MHz <sup>14</sup>                                        | N/A                                                                     |
| Mobile Customer Terminal Uplink<br>1.6 GHz       | 1610–1618.725 MHz                                                    | 1618.725–1621.35 MHz                                                    |
| Mobile Customer Terminal Downlink<br>1.5/1.6 GHz | N/A                                                                  | 1518–1525 MHz                                                           |
| Mobile Customer Terminal Uplink<br>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<br>18.8–20.2 GHz<br>37.5–42.0 GHz<br>42.0–42.5 GHz     | N/A                                                                     |
| Gateway Uplink                                   | 27.5–30.0 GHz<br>47.2–50.2 GHz                                       | N/A                                                                     |

*Filed under the FCC Streamlined Small Space Station Authorization Process, 47 CFR § 25.122, Order and Authorization, 37 FCC Rcd 10681, 10691–92 ¶ 30 (SB 2022) (permitting Lynk to operate feeder links, including TT&C links, in certain FSS frequencies to provide MSS and dismissing Lynk’s related waiver of the U.S. Table of Frequency Allocations as unnecessary); 47 C.F.R. § 2.1 (defining “feeder link” to include TT&C links). See also 47 C.F.R. § 2.1 (providing that “the fixed-satellite service may also include feeder links for other space radiocommunication services” and noting that TT&C will “normally be provided within the service in which the space station is operating”).*

<sup>13</sup> Outside the United States, Amazon Leo seeks authority to provide SCS using the 1427–2690 MHz and 3300–4200 MHz bands (excluding any overlap with the 1.6/2.4 GHz allocation), as well as 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.

<sup>14</sup> 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 of the United States Only |
|-----------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------|
|                                         | 50.4–51.4 GHz<br>51.4–52.4 GHz                                |                                                                  |
| TT&C Downlink & Beacon <sup>15</sup>    | 19.25–19.4 GHz<br>40.0–40.1 GHz                               | N/A                                                              |
| TT&C Uplink                             | 27.5–28.05 GHz<br>28.6–29.1 GHz<br>47.2–47.3 GHz              | N/A                                                              |

The ground segment of the Amazon Leo D2D System will consist of mobile customer terminals capable of transmitting/receiving in the 1.6/2.4 GHz band, and V-band and Ka-band gateway earth stations and TT&C earth stations.<sup>16</sup> In addition to deploying new ground equipment, Amazon plans to utilize its existing FSS ground infrastructure for its D2D offering. On the customer side, Amazon’s operations will serve commercially available mobile handsets compatible with 3rd Generation Partnership Project (“3GPP”) air interface protocols and eliminate the need for specialized terminals or ground infrastructure.

The proposed L- and S-band operating frequencies are fully consistent with the *2026 D2D Clarification Order*.<sup>17</sup> The *2026 D2D Clarification Order* confirmed Globalstar’s exclusive rights to the 1610-1617.775 MHz band and shared access to the 1617.775-1618.725 MHz band within

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<sup>15</sup> The Amazon Leo D2D System TT&C beams will primarily be used during launch and early operations, during satellite anomalies, and during satellite decommissioning. 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. *See* 47 C.F.R. § 25.202(g).

<sup>16</sup> *See supra* note 13.

<sup>17</sup> *See 2026 D2D Clarification Order* ¶ 2 (noting that the “Commission intends to support the renaissance in direct-to-device by fostering a predictable regulatory environment that protects investment-backed expectations and encourages secondary-market transactions”).

the United States.<sup>18</sup> Should Amazon’s proposed acquisition of Globalstar receive the required approvals, Amazon will hold Globalstar’s French satellite authorization, which includes authority to operate uplinks in the 1618.725–1621.35 MHz band outside the United States.<sup>19</sup> As Globalstar’s successor,<sup>20</sup> Amazon seeks to operate uplink transmissions in the 1618.725–1621.35 MHz band outside the United States in any jurisdiction where Iridium is not authorized to operate, and thus the spectrum would otherwise be unused by any U.S.-licensed system.<sup>21</sup> Amazon’s proposed use of the 1610-1621.35 MHz band is in the Earth-to-space direction only. Some administrations do not allow space-to-Earth operations in the spectrum below 1621.35 MHz because such use is allocated on a secondary basis worldwide,<sup>22</sup> and due to incompatibility between space-to-Earth transmissions and other primary services in the band. Amazon does not seek to operate in frequencies inside the United States where Iridium has exclusive access to the band. Granting Amazon continued access to the 1618.725-1621.35 MHz band internationally is consistent with the status quo, and will protect Amazon’s investment-backed expectations.

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<sup>18</sup> 2026 D2D Clarification Order ¶¶ 11- 14.

<sup>19</sup> See Globalstar Amazon Merger Application at 10-11; *Globalstar Licensee LLC Application for Modification of Non-geostationary Mobile Satellite Service Space Station License, et al.*, Order, 26 FCC Rcd 3948, 3951 ¶ 6 (IB 2021) (“*Globalstar 2011 Grant*”) (noting “the French license grants authority for the space stations to receive transmissions from MSS terminals throughout the 1610-1626.5 MHz band.”). In granting Globalstar’s market access application for its second-generation system in 2011, the Commission declined to impose conditions restricting the range of spectrum for uplink transmissions, noting that “[a]ny concern regarding the potential impact of transmissions to second-generation Globalstar satellites from earth stations outside the United States on Iridium’s global operations are properly addressed through the ITU international coordination process.” *Globalstar 2011 Grant*, 26 FCC Rcd at 3958-59 ¶ 25.

<sup>20</sup> See 2026 D2D Clarification Order ¶ 21 (confirming that applications for new or modified MSS systems in comparable bands are available only to “an incumbent operator or its assignee or transferee”).

<sup>21</sup> See 2026 D2D Clarification Order ¶ 31 (the Commission “acknowledge[s] the desire and capability of U.S.-licensed MSS operators to expand their coverage internationally. This interest was made evident through the extensive coordination history across borders for use of the L-band.”).

<sup>22</sup> See 47 C.F.R. § 2.106.

### III. GRANT OF THIS APPLICATION WILL SERVE THE PUBLIC INTEREST

The Amazon Leo D2D System will bring robust benefits to the public by expanding connectivity to customers that are currently unserved or underserved, supporting critical use cases like government, public safety, and emergency services, and powering a variety of IoT applications. Accordingly, and as discussed in more detail below, grant of the Amazon Leo D2D System will serve “the public interest, convenience, and necessity.”<sup>23</sup>

#### A. The Amazon Leo D2D System Will Provide Improved Data Coverage for Unserved and Underserved Customers

The Amazon Leo D2D System’s capabilities will help usher in a new era of communications services with improved access to connectivity for currently unserved and underserved communities. Access to quality communications and data services is critical to economic growth and vitality. The Commission has recognized the importance of D2D services in particular as the next technological frontier that will contribute to these public interests.<sup>24</sup> Granting

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<sup>23</sup> 47 U.S.C. § 309(a); *see also* 47 C.F.R. §§ 25.114, 25.143 (regulating applications for space station authorizations and licensing for 1.6/2.4 GHz band MSS and 2 GHz MSS). Expeditious grant of this application would also be consistent with the Commission’s policy of encouraging investment in next-generation satellite systems and services. *See* Applications of Spectrum Business Trust 2025-1, Space Exploration Technologies Corp., and EchoStar Corporation for Consent to Assign Spectrum and Earth Station Licenses, Memorandum Opinion and Order, GN Docket No. 25-302, DA 26-471 ¶ 40 (WTB, SB rel. May 12, 2026) (“*SpaceX-EchoStar Order*”) (“We credit SpaceX’s plans to use this spectrum to deploy a next generation D2D network that will ‘help[] to close coverage gaps’...We agree with the Applicants that this advanced and new iteration of D2D service has the potential to improve connectivity for mobile users across America and to ‘facilitate a leap in technology,’ leading to efficient and effective use of these valuable spectrum resources.” (citations omitted)).

<sup>24</sup> *See Single Network Future: Supplemental Coverage from Space*, Report and Order and Further Notice of Proposed Rulemaking, 39 FCC Rcd 2622, 2623 ¶ 2 (2024); *SpaceX-EchoStar Order* ¶¶ 40–41; *see also* Remarks of FCC Chairman Brendan Carr at the U.S. Chamber of Commerce Global Aerospace Summit (Sept. 9, 2025), <https://tinyurl.com/yc7wks3u> (“[T]he potential of direct-to-cell (D2C) technology promises a fundamental shift in how we think about competition, connectivity, and convergence”); *2026 D2D Clarification Order* ¶¶ 2, 4 (stating the Commission’s intent to “support the renaissance in direct-to-device by fostering a predictable regulatory environment that protects investment-backed expectations and encourages secondary-market transactions” and “give companies the clarity they need to deploy direct-to-device services intensively and invest in MSS spectrum confidently”).

this application will accelerate those benefits by allowing Amazon Leo to deliver reliable and accessible connectivity—including mobile data, text messaging, emergency communications, in-vehicle connectivity, and IoT applications—across geographies and service conditions.

Amazon’s D2D constellation will extend satellite connectivity well beyond the reach of the Globalstar HIBLEO and C-3 systems. Building on the 3GPP Non-Terrestrial Network (“NTN”) standards and the n254 frequency band, Amazon’s system will be capable of delivering service to any compatible handset, regardless of manufacturer or carrier. The Amazon Leo D2D System will therefore create a meaningful additional option for consumers and enterprises in locations, use cases, and conditions where terrestrial service is unavailable, degraded, or unreliable.<sup>25</sup> This means that more consumers, public safety agencies, and businesses across the world will have access to reliable communications services through their existing devices.

Improved D2D coverage will be particularly beneficial to users who are unserved or underserved by current terrestrial infrastructure, including those living and working in rural and remote areas. Mobile connectivity gaps persist along urban-rural divides<sup>26</sup> despite increasing demand for reliable service, limiting economic growth and innovation in these communities. Prompt approval of the Amazon Leo D2D System will accelerate Amazon’s ability to extend coverage to these areas.

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<sup>25</sup> See *SpaceX-EchoStar Order* ¶ 41 (noting that “D2D service has already proven effective in supplementing existing terrestrial service, particularly for hard-to-reach areas or in scenarios when terrestrial networks are unavailable—such as emergencies and natural disasters.”).

<sup>26</sup> See *GSMA Calls for Renewed Focus on Closing the Usage Gap as More Than 3 Billion People Remain Offline Despite Available Mobile Internet Services*, GSMA (Sept. 9, 2025), <https://tinyurl.com/4h43w86k>.

**B. The Amazon Leo D2D System Will Support Government, Public Safety, and Emergency Services**

Granting this application will augment Amazon’s ability to provide connectivity for essential government, public safety, and emergency services, even under disaster scenarios that typically render terrestrial network service unreliable or unavailable. The Amazon Leo D2D System will also ensure that critical government functions, such as rescue operations, distress signal response, and emergency communications, continue uninterrupted. Amazon expects these capabilities to become available on compatible handset devices as the service scales, limiting the need for specialized equipment.

**C. The Amazon Leo D2D System Will Support Growth in Industrial and Enterprise Data Services Like IoT, Driving Innovation and Job Creation**

The growth of IoT and other mobile use cases across the country that demand sufficient and quality network capacity has increased the need for reliable connectivity coverage.<sup>27</sup> The Amazon Leo D2D System will help meet this demand and fuel growth and innovation in the digital economy. The Amazon Leo D2D System will extend connectivity to worksites, fleets, and supply chains beyond consistent terrestrial reach, supporting productivity gains for industrial and enterprise customers that increasingly depend on connected sensors, logistics tracking, and remote operations to drive growth and efficiency.

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<sup>27</sup> There has been explosive growth in IoT, with billions of additional IoT connections over the past several years and projected double-digit growth for the foreseeable future, as well as persistent remote uses across the country. *See, e.g., Internet of Things (IoT)*, Nat’l Inst. of Standards & Tech., Nat’l Cybersecurity Ctr. of Excellence, <https://tinyurl.com/3a3cn2y8> (last visited July 24, 2026) (“[e]stimates suggest that there will be more than 75 billion IoT devices in use by 2025”); *IoT Connections Outlook*, Ericsson, <https://tinyurl.com/4rkspbu6> (last visited July 24, 2026) (projecting 22.3 billion total IoT connections, including 4.5 billion cellular IoT connections, by the end of 2025 and 47.1 billion total IoT connections, including 7.8 billion cellular IoT connections, by the end of 2031, a compound annual growth rate of approximately 13%).

Granting this application to deploy the Amazon Leo D2D System will also create opportunities for engineering, manufacturing, research and development, and operational jobs. Amazon's D2D deployments and operations will generate new skilled job opportunities for network engineers, radio-frequency specialists, operational technicians, customer support personnel, and many others throughout the space industry, and inject billions of additional dollars into the American economy over the lifetime of the Amazon Leo D2D System.

#### **IV. SPECTRUM EFFICIENCY AND SHARING**

The Amazon Leo D2D System presents no significant interference concerns to other operators. Amazon will protect other spectrum users by designing and operating the Amazon Leo D2D System to protect in-band users and carefully manage emissions to mitigate risks to adjacent-band operators.

As discussed in this application and in the attached Technical Attachment, Amazon has engineered its D2D satellites to limit excess emissions and contribute to a more spectrally efficient constellation. Amazon's phased-array antenna technology for global D2D services operating in the L- and S-bands, including the 1.6/2.4 GHz MSS band, will be highly efficient, with next-generation digital beamforming that uses time and space division multiplexing to support beam hopping and ensure comprehensive coverage while improving power usage. In turn, dual-polarization elements improve signal capture, band-pass filters expand interference tolerance in the relevant frequencies, and higher gain spacecraft receive antennas and adaptive modulation and coding optimize uplink capacity. The Amazon Leo D2D satellites will utilize tight spot beams to provide enhanced capacity and performance. Amazon Leo will also ensure tight adjacent channel performance with limited interference. Amazon Leo will further implement a regenerative satellite architecture for its D2D system by incorporating onboard signal processing and optical inter-satellite links, enabling intelligent traffic routing, reduced latency, and improved signal reliability.

In addition to its highly efficient satellite and constellation design, Amazon Leo is committed to good-faith frequency coordination and other practical measures to ensure coexistence with other spectrum users, and has a strong track record of avoiding interference concerns through active engagement with stakeholders.<sup>28</sup>

Within the United States, and subject to the limited waiver requested in Exhibit B, the Amazon Leo D2D System will operate in compliance with the U.S. Table of Frequency Allocations and all applicable footnote conditions.<sup>29</sup> The 1.6/2.4 GHz frequency bands that Amazon Leo proposes to use for MSS service links are already allocated domestically and internationally for MSS on a co-primary basis.<sup>30</sup> Similarly, with the exception of the 42.0–42.5 GHz and 51.4–52.4 GHz bands,<sup>31</sup> the Ka-band and V-band frequencies that Amazon Leo proposes to use for FSS feeder links, including TT&C links, are already allocated domestically and internationally for FSS on a primary or co-primary basis.<sup>32</sup> Outside of the United States, the Amazon Leo D2D System will comply with the International Telecommunication Union’s (“ITU”) Table of Frequency Allocations, any applicable footnote conditions, and any applicable frequency allocations adopted by affected national administrations.

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<sup>28</sup> See *Kuiper Systems LLC, Request for Modification of the Authorization for the Kuiper NGSO Satellite System*, Order and Authorization, 38 FCC Rcd 1112, 1119–20 ¶ 28 (SB 2023). To date, Amazon Leo has completed coordination agreements with a number of priority users. See, e.g., Letter from Julie Zoller, Global Head of Regulatory Affairs, Kuiper Systems LLC, an Amazon Subsidiary, and Kathleen A. Morgan, Chief Legal Officer, Iridium Communications, Inc. to Marlene H. Dortch, Secretary, FCC, ICFS File Nos. SAT-LOA-20190704-00057, *et al.* (May 30, 2023).

<sup>29</sup> 47 C.F.R. § 2.106.

<sup>30</sup> 47 C.F.R. § 2.106.

<sup>31</sup> As further described in Exhibit B, Amazon Leo requests a limited waiver of the U.S. Table of Frequency Allocations to conduct feeder link operations in the 42.0–42.5 GHz and 51.4–52.4 GHz bands on an unprotected and non-interference basis.

<sup>32</sup> 47 C.F.R. § 2.106. See *supra* note 13.

## **V. THE COMMISSION HAS GOOD CAUSE TO GRANT LIMITED WAIVERS**

Amazon Leo respectfully requests, to the extent necessary, limited waivers of sections 2.106, 25.102(a), 25.114(c)(4), 25.114(c)(6), 25.115(a)(1)(i), 25.115(d), 25.146(a)(1), 25.146(a)(2), 25.146(c), 25.156(d)(1), 25.156(d)(4), and 25.157(c) of the Commission's rules. Further discussion of the Amazon Leo waiver requests and the public interest considerations in favor of granting these requests accompany this application as Exhibit B. Granting these limited waivers will support deployment of next-generation D2D service by Amazon Leo and help realize the full potential of the 1.6/2.4 GHz frequency band.

## **VI. AMAZON LEO ACCEPTS RESPONSIBILITY FOR ITU COST-RECOVERY FEES**

Section 25.111(d) of the Commission's rules requires applicants to bear responsibility for any fees charged by the ITU related to filings for the applicant's space stations.<sup>33</sup> Amazon appreciates the role the Commission plays as the notifying and licensing administration for American satellite operators, as well as its partnership with American satellite operators before the ITU, and Amazon accepts full responsibility for any cost-recovery fees associated with ITU filings for the Amazon Leo D2D System.<sup>34</sup>

## **VII. CONCLUSION**

Amazon respectfully requests that the Commission grant this application. The Amazon Leo D2D System will combine Amazon's proven satellite infrastructure with Globalstar's 1.6/2.4 GHz spectrum to deliver connectivity that reaches millions of customers across carriers and devices

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<sup>33</sup> 47 C.F.R. § 25.111(d).

<sup>34</sup> Pursuant to ITU Resolution 88 (Rev. Marrakech, 2002) and ITU Council Decision 482, as modified, the ITU assesses processing fees for satellite system filings.

regardless of where they live, work, or travel. This is the promise of D2D technology, and Amazon is prepared to deliver it.

Respectfully submitted,

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