

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

|                                         |   |                                     |
|-----------------------------------------|---|-------------------------------------|
| In the Matter of                        | ) |                                     |
|                                         | ) |                                     |
| Starfish Space, Inc.                    | ) | Call Sign: _____                    |
|                                         | ) |                                     |
| Application for Authority to Launch and | ) | File Number: SAT-LOA-20260814-00341 |
| Operate the Otter 25A                   | ) |                                     |
| Satellite Servicing Spacecraft          | ) |                                     |

**APPLICATION**

## **Table Of Contents**

|                                                                                                       |           |
|-------------------------------------------------------------------------------------------------------|-----------|
| <b>I. BACKGROUND AND SYSTEM DESCRIPTION</b>                                                           | <b>2</b>  |
| a. FREQUENCY BANDS                                                                                    | 5         |
| (i) S-Band Uplink (2025-2110 MHz)                                                                     | 6         |
| (ii) SRS Band Downlink (8450-8500 MHz)                                                                | 6         |
| <b>II. AUTHORITY REQUESTED FOR OTTER 25A</b>                                                          | <b>7</b>  |
| a. Phase 1 – LEOP and Transit to 4-F2                                                                 | 8         |
| b. Phase 2 – Docking with 4-F2 and Long-Term Station-Keeping and Life Extension Services              | 8         |
| c. Phase 3 – End of Life                                                                              | 10        |
| <b>III. GROUND STATION NETWORK</b>                                                                    | <b>10</b> |
| <b>IV. ITU Filing</b>                                                                                 | <b>10</b> |
| <b>V. PUBLIC INTEREST STATEMENT</b>                                                                   | <b>11</b> |
| <b>VI. WAIVER REQUESTS</b>                                                                            | <b>13</b> |
| a. Section 25.123(b)(1) - Consideration of application for streamlined small spacecraft authorization | 14        |
| b. Sections 25.157 - Consideration of applications for NGSO-like satellite operations                 | 17        |
| c. Sections 25.164 and 25.165 – Milestone and Bond Requirements                                       | 18        |
| d. Section 2.106 - Table of Allocations                                                               | 19        |
| a. 2025-2110 MHz                                                                                      | 20        |
| b. 8450-8500 MHz                                                                                      | 22        |
| <b>VII. POST-MISSION DISPOSAL AND ORBITAL DEBRIS MITIGATION</b>                                       | <b>23</b> |
| <b>VIII. OWNERSHIP INFORMATION</b>                                                                    | <b>24</b> |
| <b>IX. CONCLUSION</b>                                                                                 | <b>24</b> |
| <b>Attachment A</b>                                                                                   | <b>1</b>  |
| <b>Attachment B</b>                                                                                   | <b>1</b>  |
| <b>Attachment C</b>                                                                                   | <b>1</b>  |

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

|                                         |   |                                 |
|-----------------------------------------|---|---------------------------------|
| In the Matter of                        | ) |                                 |
|                                         | ) |                                 |
| Starfish Space, Inc.                    | ) | Call Sign: _____                |
|                                         | ) |                                 |
| Application for Authority to Launch and | ) | File Number: SAT-LOA-2025 _____ |
| Operate the Otter 25A                   | ) |                                 |
| Satellite Servicing Spacecraft          | ) |                                 |

**APPLICATION FOR AUTHORITY TO LAUNCH AND OPERATE THE OTTER 25A  
SATELLITE SERVICING SPACE CRAFT**

Starfish Space, Inc. (“Starfish”), a United States company, respectfully requests authority under the Federal Communications Commission’s (“Commission”) rules,<sup>1</sup> to (1) launch and operate the Otter 25A spacecraft and (2) conduct a satellite life extension mission in geosynchronous orbit (“GEO”) for the global communications company, Viasat, headquartered in Carlsbad, California. Otter 25A is expected to launch no earlier than May 1, 2027. Note that Starfish recently received a license grant for the Otter 24A mission, which is a nearly identical mission to Otter 25A (i.e., life extension for a commercial customer). The Otter 24A license grant<sup>2</sup> authorizes the same radiofrequency bands that are being proposed in this Otter 25A application. The Otter 24B<sup>3</sup> mission for the Space Force and Otter 24C<sup>4</sup> mission for NASA have also recently received license grants from the Commission.

Otter 25A is a versatile and resilient servicing vehicle that can perform satellite life extension and disposal services for multiple satellites. It leverages an off-the-shelf, flight-proven

---

<sup>1</sup> See 47 CFR §§ 25.114, 25.123.

<sup>2</sup> See Grant, Otter 24A (aka Otter-1), ICFS File No. SAT-LOA-20250212-00043, call sign S3221

<sup>3</sup> See Grant, Otter 24B (aka Otter-2), ICFS File No. SAT-LOA-20250523-00123, call sign S3231

<sup>4</sup> See Grant, Otter 24C (aka Otter-3), ICFS File No. SAT-LOA-20251230-00413, call sign S00782

satellite bus, enhanced with proprietary and custom modifications, to create a flexible and safe satellite servicing spacecraft. The use of a heritage bus will help ensure reliable on-orbit performance and facilitate efficient, rapid production to meet the growing demand for in-orbit satellite servicing.

The Starfish spacecraft is seeking authority to conduct Space Operations Service (“SOS”) and Space Research Services (“SRS”) in the 2025-2110 MHz (“S-band”) and SRS in the 8450-8500 MHz (“SRS band”) bands.

## **I. BACKGROUND AND SYSTEM DESCRIPTION**

Otter 25A incorporates innovative technologies enabling autonomous Rendezvous, Proximity Operations, and Docking (“RPOD”) missions. Otter 25A’s life extension and station-keeping mission ostensibly fits within the Commission’s classification of certain spacecraft as providing “In-space Servicing, Assembly, and Manufacturing” (“ISAM”) service though the Commission has not yet defined ISAM.

Otter 25A will transit from its launch injection altitude into a GTO Transfer Orbit to rendezvous with the Viasat satellite for life extension services, Inmarsat 4-F2 (“4-F2”). 4-F2 is a UK-registered satellite, originally owned and operated by the British company Inmarsat before Viasat, a US-based company, acquired it in 2023. 4-F2 is located at the 143.5° East orbital location. During this transit ascent, Otter 25A will conduct in-orbit testing, and upon reaching 4-F2’s location, Starfish will dock with 4-F2 and provide life extension services over the course of a four to five year period.

Upon completion of this mission, Otter 25A will de-dock with 4-F2, reaching end-of-life six years post-launch and self-disposing in GSO graveyard orbit.

Starfish has already taken its first steps towards its mission: to maintain and uplift the ecosystem of space, supporting its growth, health, and long-term viability for human expansion. As part of this effort, Starfish has successfully launched and operated two test satellite servicing spacecrafts, the “Otter Pup” and “Otter Pup 2,” under experimental authorizations from the Commission.<sup>5</sup> The Otter Pup mission was a success and Otter Pup 2 is currently testing on orbit. The technical and operational insights gained from these test missions have been used to refine Starfish’s satellite service spacecraft design. In addition, Starfish has received a Commercial Part 25 license grant from the Commission for its Otter 24A mission, which like Otter 25A, is a life extension mission for a global telecommunication customer, and it authorizes the same radiofrequency bands proposed in this Otter 25A application. The Otter 24B mission for the Space Force and Otter 24C mission for NASA have also recently received license grants from the Commission.

Following the successful execution of its test missions, Starfish has developed a small and economical satellite servicing spacecraft called the “Otter.” The Otter is a satellite servicing vehicle that can perform satellite life extension and end-of-life disposal. Otter is capable of autonomous RPOD and conjoined operations using only electric propulsion, enabling efficient servicing in both Low-Earth Orbit (“LEO”) and GEO. Additionally, Otter’s ability to dock with client spacecraft that are not designed for RPOD means that customers do not need to make any engineering or design changes to their spacecraft to utilize Otter’s services. Otter’s hardware-agnostic approach means it can serve nearly any spacecraft already flying today.

---

<sup>5</sup> See Otter Pup Grant, Office of Engineering and Technology, File Number: 1117-EX-CN-2022, Call Sign: WN2XEL. *See also*, “Starfish Space executes rendezvous between Otter Pup and D-Orbit’s ION, a finale for the Otter Pup mission,” Press Release (May 7, 2024). Available at: <https://www.starfishspace.com/press-release/starfish-space-executes-rendezvous-between-otter-pup-and-d-orbits-ion-a-finale-for-the-otter-pup-mission/>.

*See* Otter Pup 2 Grant, Office of Engineering and Technology, File Numbers: 0288-EX-CN-2024 and 0018-EX-CM-2026, Call Sign: WO2XST.

Starfish leverages four proprietary, modular technologies which enable a uniquely efficient architecture: CEPHALOPOD, CETACEAN, Nautilus, and Manta:

- The guidance and control software package, **CEPHALOPOD**, is optimized for low thrust electric propulsion, enabling autonomous RPOD with calculations and trajectories generated and optimized fully onboard.
  - **CETACEAN** is Starfish's relative navigation software package. It uses onboard computer processing to fuse data across a flexible suite of onboard sensors (compatible with a variety of sensor types) to characterize Resident Space Objects and feed navigation estimates to CEPHALOPOD.
  - The **Nautilus** docking mechanism is a non-destructive capture system for docking with unprepared objects in all orbits. For the Otter 25A mission (as with the preceding Otters), Nautilus will employ a mechanical gripper. In all cases, Nautilus allows Otter to perform its mission without requiring a proprietary docking plate or fiducial to be installed on its client, and without the need for a specific hardpoint feature like an apogee kick motor or separation ring.
  - **Manta** is a lightweight, articulating boom that enables servicing vehicles like the Otter to efficiently maneuver much larger clients. Once Otter is docked, Manta enables greater efficiency by directing the thrust vector through the combined center of mass of Otter and its client, while also providing flexibility to direct the thruster plume away from sensitive components on the client spacecraft. Manta also contains a radio, which allows Otter to maintain line of sight communications without compromising ideal docking geometry.
- By using exclusively electric propulsion, Starfish can maintain the Otter's small size

while packing sufficient  $\Delta V$ <sup>6</sup> onboard the vehicle to transit between customer satellites and conduct station-keeping operations for larger GEO satellites.

Otter 25A will be equipped with four cameras to image the local space environment and residential space objects. Therefore, Starfish will submit an Initial Contact Form to the National Oceanic and Atmospheric Administration (“NOAA”) for its review<sup>7</sup> and determination as to whether Starfish will require a remote sensing license application.<sup>8</sup>

#### a. FREQUENCY BANDS

Starfish requests authority to operate Otter 25A in the following frequency bands in order to conduct its mission.

| Frequency Band, Center Frequency (MHz) | Frequency Band (MHz) | Link Direction | Purpose                                                       |
|----------------------------------------|----------------------|----------------|---------------------------------------------------------------|
| 2025-2110, 2048.5, 2103                | 2025-2110            | Earth-to-space | Payload and Telemetry, Telecommand, & Command (“TT&C”) Uplink |
| 8450-8500, 8490                        | 8450-8500            | space-to-Earth | Payload and TT&C Downlink                                     |

<sup>6</sup>  $\Delta V$  is a measure of the change of velocity produced by reaction engines, such as rocket engines, and is proportional to the thrust per unit mass and the burn time.

<sup>7</sup> NOAA has previously determined that some on-orbit sensing equipment does not require a remote sensing license. *See e.g.*, Office of Engineering and Technology, File Number: 1117-EX-CN-2022, Letter dated July 19, 2022. (“Under the authority of the Secretary of Commerce under 51 U.S.C. § 60121 et seq. and 15 CFR Part 960, delegated to NOAA, we have determined that the proposed system as described in your Initial Contact Form does not fall within the Secretary’s jurisdiction and therefore will not be required to apply for a NOAA license.”).

<sup>8</sup> NOAA previously determined that Otters 24A and 24B, which have an identical sensor suite as Otter 25A, did not require a remote sensing license. *See* Letter, from Doctor Sarah Brothers, Director, Commercial Remote Sensing Regulatory Affairs, NOAA to Nicole Brown, Mission Manager, Starfish. File Number: SAT-LOA-20250212-00043, Call sign S3221 (Apr. 20, 2025).

*Table 1: Otter 25A Frequency Band Plan*

**(i) S-Band Uplink (2025-2110 MHz)**

Otter 25A will receive command signals in the S-band from earth. The S-band is allocated on a primary basis for federal use in the SRS and SOS.<sup>9</sup> The S-band is authorized for non-federal SOS use related to pre-launch testing and space launch operations.<sup>10</sup> The S-band is allocated internationally for SRS and SOS.

Starfish understands that all operations in this band will require a waiver of the Commission's rules, which it requests below, and understands that its use of this band will be on a non-interference basis. Starfish will coordinate its planned use of the band around a center frequency of 2048.5 MHz with U.S. federal agencies to ensure that it does not cause harmful interference.

**(ii) SRS Band Downlink (8450-8500 MHz)**

Otter 25A plans to use the SRS band to downlink payload and TT&C data. The SRS band is domestically allocated on a primary basis for SRS for both federal and non-federal use.<sup>11</sup> The SRS band is allocated for SRS on a primary basis internationally. The Commission has previously noted that ISAM missions could be consistent with an SRS allocation<sup>12</sup> but out of an abundance of caution, Starfish requests a waiver below.

---

<sup>9</sup> See 47 CFR § 2.106.

<sup>10</sup> *Id.* at n. U.S. 94.

<sup>11</sup> *Id.*

<sup>12</sup> ISAM NPRM at ¶ 34.

Starfish will coordinate its planned use of the band around a center frequency of 8490 MHz with U.S. federal agencies to ensure that it does not cause harmful interference to in-band and adjacent band users.

## **II. AUTHORITY REQUESTED FOR OTTER 25A**

The three phases detailed below describe Otter 25A's transition from its injection orbit to 4-F2 in GEO. Post LEOP and GTO transfer to GEO, this mission will include extended operations only in GEO. As Starfish explains below, Otter 25A's spectrum use will comply with the Commission's rules for NGSO and GEO operations depending on which operational orbit it is in. Throughout its mission, Starfish will utilize S-band and the SRS band. The transit from GTO to GEO will take approximately six months. Otter 25A will transit directly to 143.5° E.L. along the GSO arc to conduct a multi-year station-keeping mission. Starfish requests authority for the entirety of its mission as described.

As Starfish will further explain in this application, the intensity of its spectrum use will fluctuate depending on the phase of its mission. Generally, during station-keeping and life extension operations, Starfish will rely on low bandwidth, low data rate links with its ground station network. However, during rendezvous and docking maneuvers, Otter 25A will require more intensive spectrum usage to meet increased data demands. These phases, along with the corresponding technical characteristics for each phase of the mission, are detailed further in the technical appendix.

Throughout all phases of its missions, Starfish will comply with the applicable Power Flux Density ("PFD") limits and applicable International Telecommunications Union ("ITU") recommendations during its operations in its transmit bands (space-to-Earth).<sup>13</sup> Starfish will also

---

<sup>13</sup> *International Telecommunication Union Radio Regulations*, Art. 21 (2024).

coordinate operations in Otter 25A's receive band (Earth-to-space) to ensure that its operations will protect existing commercial and federal users of the band in both GEO and NGSO.

**a. Phase 1 – LEOP and Transit to 4-F2**

Otter 25A will be launched into a geosynchronous transfer orbit (“GTO”) and will perform a low-thrust spiral-out maneuver to reach GEO and begin operations. This orbit-raising period is expected to last approximately 180 days. Otter 25A will do a nominal systems check upon injection and complete its launch and early orbit phase (“LEOP”) while transiting to GEO.

During this period, Otter 25A will conduct in-orbit testing and will intermittently transmit and receive signals to confirm nominal operations and trajectory while testing its onboard equipment. The limited duty cycle and use of spectrum will enable Starfish to coordinate Otter 25A's spectrum use as it ascends through its spiral out.

After completing its transit from GTO, Otter 25A will arrive at the Inmarsat 4-F2 spacecraft in GEO at 143.5° longitude. Starfish will coordinate all transiting maneuvers in and around the GSO arc. Otter 25A will then prepare for the next phase of its mission: rendezvousing and docking with 4-F2.

**b. Phase 2 – Docking with 4-F2 and Long-Term Station-Keeping and Life Extension Services**

After completing orbit matching with 4-F2, Otter 25A will initiate its RPOD maneuvers. Otter 25A will take an iterative course, charting a conservative flight path designed to ensure a safe rendezvous without risk of collision. This conservative approach, supported by Otter 25A's relative navigation sensors, will enable a reliable and safe approach to 4-F2. Starfish will have the ability to issue an abort command and instruct Otter 25A to conduct emergency maneuvers

away from 4-F2 if necessary, and Otter 25A's sophisticated autonomous flight algorithms provide additional abort capability.

Before Otter 25A's final approach, Starfish will halt its progression toward 4-F2 to perform final positioning and internal system state of health checks. Once these final checks are completed, Starfish will send Otter 25A a command to approach 4-F2 for docking. Otter 25A will then dock with 4-F2 in its operational slot. The entire rendezvous and docking concept of operations is expected to take multiple weeks to execute and complete.

The onboard sensors, including cameras and an illuminating light, will be managed by the onboard CETACEAN navigation system. As Otter approaches its client spacecraft it will activate its mechanical gripper in preparation for docking.

Throughout the approach, docking, detachment and separation operation, Otter 25A's use of spectrum will increase, requiring short term periods of higher duty cycles and larger bandwidths. Given the short duration of these operations (less than one month), Starfish will be able to successfully coordinate this more intensive use. Additionally, for the entire intensive-use period, Otter 25A will never leave the vicinity of 4-F2. As outlined in this technical appendix, Otter 25A will be equipped with autonomous systems, including a robust abort framework, to ensure safe RPOD maneuvers in the event that spectrum access is limited or interrupted.

Once docked, Otter 25A will remain attached to 4-F2 inside of GSO and will conduct a multi-year station-keeping and life extension mission. During station-keeping, Otter 25A's spectrum and bandwidth requirements will again be reduced and should facilitate the protection of other in-band operators through its sporadic use of spectrum over the course of its long-term station-keeping mission.

Otter 25A will communicate with a ground station network designed to provide coverage throughout the three phases of its mission. Further information detailing the operator, location, frequency bands and technical characteristics of the ground station network is provided in the technical appendix.

### **c. Phase 3 – End of Life**

When Otter 25A approaches its end-of-life stage within six years after launch, it will undock from 4-F2, maneuver to GSO graveyard orbit, and passivate itself.

## **III. GROUND STATION NETWORK**

Otter 25A will communicate with a ground station network designed to provide coverage throughout the three phases of its mission. Further information detailing the operator, location, frequency bands and technical characteristics of the ground station network is provided in the technical appendix.

Starfish will control the Otter 25A spacecraft from its Mission Operations Center in Tukwila, WA.

## **IV. ITU Filing**

Starfish has prepared and submitted the necessary ITU Filings for its proposed mission. As affirmed in its ITU Cost Recovery Letter,<sup>14</sup> Starfish will pay any ITU cost recovery fees associated with any ITU filings that the Commission may make on its behalf. Starfish's ITU filing will be for an NGSO system per guidance from the ITU's Radiocommunication Bureau.

---

<sup>14</sup> Starfish has provided a draft ITU Cost Recovery Letter as Attachment B here. It will submit a final copy to the Commission once this application has been assigned a file number and call sign.

## **V. PUBLIC INTEREST STATEMENT**

Grant of this application will serve the public interest by first, extending the service life of the 4-F2 satellite, ensuring continuity of service to customers,<sup>15</sup> including maintaining largely uninterrupted service throughout the RPOD process. Second, strengthening U.S. leadership in commercial ISAMs, and third, supporting orbital debris mitigation efforts.

Life extension services for commercial satellites offer meaningful benefits for both U.S. satellite operators and U.S. consumers. Otter 25A's life-extension capabilities enable its customer to maximize the value of their investment in its on-orbit satellite fleet while maintaining the high quality of service that U.S. consumers rely upon. Life extension missions provide meaningful cost reductions for both consumers and satellite operators when compared to manufacturing and deploying new satellites. These capabilities enhance flexibility for satellite operators in managing assets and planning new satellite development, offering new paths to providing better service at lower costs. The Commission has previously recognized the "huge costs of building and operating satellite space stations" and has purposefully adopted policies that enhance the value of deployed satellite systems.<sup>16</sup> Therefore, authorizing Otter 25A's mission is consistent with the Commission's previous determinations that extending the life of on-orbit satellite systems will further the public interest.

Second, the grant of this application and authorization of the Otter 25A mission will safely advance U.S. policy objectives related to the development of commercial ISAMs and

---

<sup>15</sup> See, e.g., Amendment of the Commission's Space Station Licensing Rules & Policies, 18 FCC Rcd. 12507, 12519 ¶ 8 n.16 (2003) ("2003 Space Station Order") ("Commission policy favors continuity of service.") (citing Loral Spacecom Corp., Memorandum Opinion and Order, 16 FCC Rcd. 12490, 12490 ¶ 1 (Int'l Bur., Sat. and Rad. Div., 1995)); 2015 Satellite Service Order at 14878, Appendix C (listing "ensuring continuity of service" among the objectives of its rule revisions).

<sup>16</sup> Loral Spacecom at 12492 ¶ 7; see also 2003 Space Station Order at 12509-10 ¶ 7. 21 See ISAM NPRM at ¶ 2.

satellite servicing capabilities. Otter 25A will offer life extension services, including RPOD and station-keeping while docked with the client satellite. These services will expand operational flexibility for both military and commercial satellite operators. By enabling satellite life extension, Otter 25A demonstrates innovative and robust capabilities that will reduce costs for taxpayers and satellite operators, offering a more sustainable and cost-effective alternative to manufacturing and deploying replacement satellites.

Third, this mission supports U.S. leadership in space sustainability and debris mitigation. Otter 25A is specifically designed to demonstrate advanced technologies that facilitate safe satellite servicing and responsible end-of-life disposal, consistent with the objectives outlined in the Commission's ISAM NPRM,<sup>17</sup> supporting the development of the Commercial ISAM industry, which is a U.S. Space policy objective.<sup>18</sup> The Commission has recognized that ISAM spacecraft,<sup>19</sup> such as Otter 25A, have the potential to play a role in ensuring spacecraft in LEO and GEO are able to be properly de-orbited or disposed of at the end of their missions, in compliance with the Commission's rules.<sup>20</sup>

Finally, to ensure safety and reliability, Starfish is utilizing a range of operational and technological measures with rigorous safety protocols, leveraging reliable and flight-proven

---

<sup>17</sup> See ISAM NPRM at ¶ 2.

<sup>18</sup> See e.g., In-Space Servicing, Assembly, and Manufacturing Interagency Working Group, National In-Space Servicing, Assembly, and Manufacturing Implementation Plan (2022), <https://www.whitehouse.gov/wp-content/uploads/2022/12/NATIONAL-ISAM-IMPLEMENTATION-PLAN.pdf>.

<sup>19</sup> Starfish has already contracted for a number of additional, similar missions and is well-positioned to scale these operations into routine activities.

<sup>20</sup> See ISAM NPRM at ¶ 28. “[The Commission] agree[s] that acknowledging third-party services as an option for post-mission disposal will likely further our goals of promoting innovation and growth of ADR and will also likely provide additional flexibility to applicants when considering their end-of-life disposal options.”

technology from the Otter Pup missions,<sup>21</sup> adherence to rigorous industry-standard testing, and comprehensive coordination to prevent conjunction risks. Starfish will also incorporate best practices from the Otter 24A and Otter 24C missions, which are scheduled to begin their on-orbit missions several months before Otter 25A's launch window. These measures reflect Starfish's commitment to operational safety and align with the Commission's emphasis on innovative solutions that mitigate orbital debris risks.

For these reasons, grant of this application clearly serves the public interest and supports the Commission's longstanding commitment to enhancing space operations, reducing costs, and promoting sustainability in orbit.

## **VI. WAIVER REQUESTS**

Starfish respectfully requests waivers of specific Commission rules within the framework of this Application. The Commission has authority to grant waivers of its rules upon demonstration of "good cause." and that a waiver request warrants deviation from the rules due to special circumstances.<sup>22</sup> In general, good cause exists if granting such a waiver would not undermine the intended objectives of the rule and would otherwise serve the public interest. As discussed below, there are compelling justifications for granting the requested waivers in association with Starfish's Application.

---

<sup>21</sup> See generally Office of Engineering and Technology, Call Sign WN2XEL, File No. 1117-EX-CN-2022; Also See generally Office of Engineering and Technology, Call Sign: WO2XST, File No's. 0288-EX-CN-2024 and 0018-EX-CM-2026.

<sup>22</sup> See 47 CFR § 1.3; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

**a. Section 25.123(b)(1) - Consideration of application for streamlined small spacecraft authorization**

Starfish requests a waiver of Section 25.123(b)(1) of the Commission's rules to permit this application to be processed under the Commission's streamlined small spacecraft licensing procedures. Section 25.123(b)(1) requires, among other criteria, that a small spacecraft be operated and disposed of beyond Earth's orbit in order to qualify for the streamlined process. Grant of this waiver is in the public interest because Starfish intends to operate and dispose of Otter 25A in a manner that is otherwise fully consistent with the intent of the rule. Otter 25A's end-of-life disposal plan adheres to established best practices applicable to its operational orbit, ensuring a safe and responsible conclusion to its mission.

The Commission implemented sections 25.122 and 25.123 in an effort to streamline the processing for space stations applications that would present relatively limited concerns regarding spectrum use and orbital debris mitigation.<sup>23</sup> In doing so, the Commission considered two use cases: NGSO systems in lower-Earth orbit and for spacecraft operating beyond Earth's gravity.<sup>24</sup> While the Otter 25A mission does not fall squarely within either category, it meets the threshold of nearly all the substantive criteria in Section 25.123 that justify streamlined processing. A comparison table demonstrating Otter 25A's alignment with these criteria is provided below.

---

<sup>23</sup> See e.g., *Streamlining Licensing Procedures for Small Satellites*, Report and Order, 34 FCC Rcd 13077 (2019) (Small Sat R&O"), ¶ 10. "The goal of this small satellite process is to enable satellites that have shorter missions, less intensive spectrum use, and lower risk of producing orbital debris to be licensed on a streamlined basis."

<sup>24</sup> See Small Sat R&O at ¶ 15-16. "The goal of this small satellite process is to enable satellites that have shorter missions, less intensive spectrum use, and lower risk of producing orbital debris to be licensed on a streamlined basis."

| <b>Streamlined Rules Requirements<sup>25</sup></b>                                                                                                                                                                                                              | <b>Starfish Certifications</b>                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (1) The space station(s) will operate and be disposed of beyond Earth's orbit                                                                                                                                                                                   | No, Otter 25A will be safely disposed of in the geostationary graveyard orbit in a safe manner consistent with the Commission's rules for space stations that operate in and around GSO. <sup>26</sup>                                                     |
| (2) The total in-orbit lifetime for any individual space station will be six years or less.                                                                                                                                                                     | Otter 25A will be operational for no longer than six years.                                                                                                                                                                                                |
| (3) Each space station will be identifiable by a unique signal-based telemetry marker distinguishing it from other space stations or space objects.                                                                                                             | Otter 25A will have a unique transmitting telemetry channel, allowing it to be identifiable during commissioning and in-orbit activities.                                                                                                                  |
| (4) The space station(s) will release no operational debris.                                                                                                                                                                                                    | Otter 25A will not release any operational debris.                                                                                                                                                                                                         |
| (5) The space station operator has assessed and limited the probability of accidental explosions, including those resulting from the conversion of energy sources on board the space station(s) into energy that fragments the spacecraft.                      | Starfish has assessed and limited the probability of accidental explosions.                                                                                                                                                                                |
| (6) The probability of a collision between each space station and any other large object (10 centimeters or larger) during the orbital lifetime of the space station is 0.001 or less as calculated using current NASA software or other higher fidelity model. | Otter 25A has a 1.55E-5 probability of collision with any other large object during its orbital lifetime, less than a 0.001.                                                                                                                               |
| (7) Operation of the space station(s) will be compatible with existing operations in the authorized frequency band(s). Operations will not materially constrain future space station entrants from using the authorized frequency band(s).                      | Otter 25A will be compatible with existing operations due to sporadic and narrow use of the band, coordinated by Starfish's ground-station-as-a-service partner.                                                                                           |
| (8) The space station(s) can be commanded by command originating from the ground to immediately cease transmissions and the licensee will have the capability to eliminate harmful interference when required under the                                         | Otter 25A can be commanded by command originating from the ground to immediately cease transmissions and Starfish will have the capability to eliminate harmful interference when required under the terms of the license or other applicable regulations. |

<sup>25</sup> See 47 C.F.R. 25.123.

<sup>26</sup> See 47 C.F.R. 25.283.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| terms of the license or other applicable regulations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                             |
| (9) Each space station is 10 cm or larger in its smallest dimension.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Otter 25A is 10 cm or larger in its smallest dimension.                                                                                                                                                                                     |
| (10) Each space station will have a mass of 500 kg or less, including any propellant.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Otter 25A will have a mass of 500kg or less, including any propellant.                                                                                                                                                                      |
| (11) Upon receipt of a space situational awareness conjunction warning, the operator will review and take all possible steps to assess the collision risk, and will mitigate the collision risk if necessary. As appropriate, steps to assess and mitigate the collision risk should include, but are not limited to: Contacting the operator of any active spacecraft involved in such a warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying space station attitude and/or operations. | Upon receipt of a space situational awareness conjunction warning Starfish will review and take all possible steps to assess the collision risk, and will operate Otter 25A in a manner that will mitigate the collision risk if necessary. |

*Table 2: 25.123 Checklist*

The Commission established 25.123 (and 25.122) with specific use cases in mind and, at the time, perceived no need to develop a streamlined process for space stations operating between low-Earth-orbit and beyond Earth’s gravity. However, grant of this waiver request would be consistent with the principles and policy objectives underlying that rulemaking. Starfish is proposing a mission that will adhere to long-standing orbital debris mitigation and end-of-life disposal best practices.

Starfish’s inability to comply with Section 25.123(b)(1) stems solely from the fact that Otter 25A will be safely disposed of in a location different from that articulated in the rule. When developing these rules, the Commission emphasized the importance of operators being able to safely remove spacecraft from operational orbits.<sup>27</sup> Starfish’s proposed operation and disposal of

---

<sup>27</sup> See e.g., Small Sat R&O at ¶ 66. “While we will not require a qualifying certification related to spacecraft disposal by atmospheric re-entry, we will ask that applicants for a streamlined small

Otter 25A is consistent with the Commission requirements for end-of-life disposal applicable to operators in and around GSO orbit,<sup>28</sup> and otherwise reflects the same underlying policy goals of the streamlined process.

Aside from 25.123(b)(1), the Otter 25A spacecraft satisfies all other criteria for eligibility under the streamlined small spacecraft process. Because Starfish's planned disposal is consistent with the best practices of Otter 25A's operational orbit and with the intent of Section 25.123(b)(1), grant of this waiver would serve the public interest. It would also facilitate the timely authorization of a mission that advances commercial satellite servicing and orbital debris mitigation objectives.

**b. Sections 25.157 - Consideration of applications for NGSO-like satellite operations**

Starfish requests a waiver of Section 25.157(c) of the Commission's rules to permit it to conduct operations in NGSO without triggering a processing round. Sections 25.127 set forth procedural requirements for the filing and consideration of NGSO space station applications. However, spacecraft that seek authority to operate pursuant to Section 25.123<sup>29</sup> are exempt from processing round requirements. Accordingly, this waiver may be unnecessary if the Commission grants Starfish's related request for a waiver of Section 25.123(b)(1).

In the alternative, if the Commission does not grant the request, Starfish submits that a waiver of Section 25.157(c) is still appropriate and consistent with the Commission's precedent and evolving policy. In the ISAM NPRM, the Commission proposed waiving NGSO processing

---

spacecraft license provide a brief description of their disposal plan, since there are multiple potential disposal scenarios.”

<sup>28</sup> See 47 C.F.R. 25.283(b).

<sup>29</sup> See 47 C.F.R. 25.157(i).

round and first-come-first-served queue rules for ISAM operators<sup>30</sup> and has previously waived this rule for proposed ISAM missions.<sup>31</sup> The Commission proposed applying such an exemption when an applicant demonstrates that its operations “will be compatible with existing operations in the authorized frequency bands and submit a narrative description to demonstrate spectrum sharing capabilities are technically possible, and that the operations will not materially constrain future space station entrants from using the authorized frequency band(s).”<sup>32</sup>

In line with the proposed framework, Starfish provides the requisite demonstration in its Technical Appendix. This includes narrative and technical analysis affirming that Otter 25A’s operations will be compatible with existing operations in the authorized frequency bands and will not materially constrain future space station entrants from using the authorized frequency band(s).

Therefore, whether under the Commission’s existing small spacecraft framework, the proposed rules for ISAMs, or a separate grant based on the public interest and technical compatibility, Starfish respectfully requests a waiver of Section 25.157(c) of the Commission’s rules. Grant of this waiver would align with the Commission’s objectives and serve the public interest by enabling a mission that advances national security, commercial servicing, and orbital debris mitigation objectives.

**c. Sections 25.164 and 25.165 – Milestone and Bond Requirements**

Starfish requests a limited waiver of Sections 25.164 and 25.165 of the Commission’s rules, which govern milestone and bond requirements in a manner consistent with the treatment

---

<sup>30</sup> See ISAM NPRM at ¶ 17.

<sup>31</sup> See e.g., Grant, Spaceflight Inc., File No. SAT-LOA-20220111-00007, Call Sign S3133 (May 10, 2022) at Condition 7.

<sup>32</sup> *Id.* See also 47 CFR § 25.157(i).

afforded to satellites and spacecraft authorized pursuant to Section 25.123. This request is made in the event that the Commission does not grant Starfish's earlier waiver request to treat Otter 25A as a Section 25.123 eligible spacecraft.<sup>33</sup>

The Commission has previously determined that deferring milestone and bond obligations for certain space stations, particularly those likely to deploy quickly, serves the public interest. Such deferrals help the Commission strike a balance between the need to deter spectrum speculators with the need to incentivize new missions with less intensive and more accommodating spectrum uses.

In the ISAM NPRM, the Commission proposed deferring the posting of surety bonds by one year after the grant of a license, consistent with its treatment of small satellites and small spacecraft.<sup>34</sup> While the Commission tentatively concluded that such a deferral would be appropriate for ISAM missions, it has yet finalized a rule to that effect, and ISAM operators are not explicitly exempt from the Commission's bond and milestone requirements.

Accordingly, Starfish requests that the Commission waive Sections 25.164 and 25.165 of its rules and grant a one-year deferral of the associated bond and milestone obligations for Otter 25A, consistent with the Commission's ISAM NPRM proposal. Granting this waiver would align with Commission policy objectives and support the growth of the ISAM sector during the interim period before formal rules for ISAM bond and milestone requirements are adopted.

**d. Section 2.106 - Table of Allocations**

Starfish requests a waiver of the United State Table of Frequency Allocations set forth in Section 2.106 of the Commission's rules. Note that Starfish recently received a license grant for the Otter 24A mission, which is a nearly identical mission to Otter 25A (i.e., life extension for a

---

<sup>33</sup> See 47 C.F.R. 25.165(a).

<sup>34</sup> See ISAM NPRM at ¶ 18. See also Smallsat R&O at ¶ 97.

commercial customer). The Otter 24A license grant authorizes the same radiofrequency bands that are being proposed in this Otter 25A application. The Otter 24B mission for the Space Force and Otter 24C mission for NASA have also recently received license grants from the Commission.

The Commission applies a specific waiver standard to requests involving non-conforming spectrum uses. As the Commission has previously stated, “may grant a waiver of the Table of Frequency Allocations for non-conforming uses of spectrum when there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the non-conforming operator accepts any interference from authorized services.”<sup>35</sup> This standard has been consistently applied in cases involving operations that do not conform to the U.S. Table of Allocations, as well as those that diverge from the International Telecommunication Union (ITU) Radio Regulations.<sup>36</sup>

**a. 2025-2110 MHz**

Starfish requests a waiver of the U.S. Table of Allocations in the 2025-2110 MHz bands to the extent necessary to execute the Otter 25A mission.

Special circumstances justify a waiver to permit Otter 25A to conduct SOS and SRS operations in the 2025-2110 MHz band. Otter 25A’s SOS operations in this band are consistent with the international table of allocations. Similarly, Otter 25A’s operations align with the

---

<sup>35</sup> *Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation by Iridium Constellation LLC*, Order and Authorization, 31 FCC Rcd 8676 (IB 2016) (“Iridium Order and Authorization”). See also, *Applications by Orbcomm License Corp. For Authority to Modify its Non-Voice, Non-Geostationary Satellite System et al.*, Order and Authorization, 23 FCC Rcd 4804, 4809, para. 15 (IB/OET 2008).

<sup>36</sup> See *Iridium Order and Authorization* at paras 21-22.

technical parameters typically consistent with SRS operations. However, the Commission's rules do not definitively state that ISAM missions fall within the scope of the SRS allocation.

While the Commission has not formally affirmed that ISAM operations qualify as SRS, it has suggested that such an interpretation is under consideration. Additionally, the NTIA has proposed that the SRS allocation may be suitable for supporting the current state of ISAM development.<sup>37</sup> Starfish's proposed uses of the band for command, spacecraft telemetry, mission telemetry and tracking are consistent with Recommendation ITU-R SA.364-6.<sup>38</sup>

As demonstrated in the Technical Annex, Otter 25A will receive signals from earth stations located at only one U.S. site. Most transmissions in this band will originate from foreign earth stations, where such transmissions are consistent with the international table of allocations. At all ground station sites, Otter 25A's spectrum use will be infrequent and limited in scope, which will facilitate the protection of and coordination with other in-band operations.

Starfish will further coordinate its limited use of this band with in-band primary federal spectrum users, ensuring Otter 25A's operations will not interfere with critical U.S. government missions. Starfish will also coordinate its operations with all commercial and foreign systems. As such, Otter 25A's utilization of the 2025-2110 MHz band will not undermine the Commission's policy of preserving this spectrum for federal communications, and granting this waiver would be consistent with both domestic and international spectrum management objectives.

---

<sup>37</sup> See Reply Comment of National Telecommunications and Information Administration, IB Docket No. 22-271, 22-272 (Nov. 21, 2023), 5. "The Space Research Service (SRS) is an appropriate service category for missions involving scientific or technical research. This allocation could support early demonstration programs."

<sup>38</sup> See Recommendation ITU-R SA.364-6Annex, (2) "Space research missions use frequency bands allocated to the SRS to provide the space operation functions as well as the mission telemetry within a single radio system. This allows for more efficient use of the radio-frequency spectrum, as well as less stringent requirements for spacecraft power, component space, and weight."

**b. 8450-8500 MHz**

Starfish believes that its proposed use of Otter 25A spacecraft falls within the existing SRS allocation in the 8450-8500 MHz band. However, given that the Commission is actively evaluating whether ISAM missions qualify under the SRS allocation in an ongoing rulemaking,<sup>39</sup> Starfish respectfully requests a waiver for its proposed use of the SRS band.

The 8450-8500 MHz band is allocated on a co-primary basis to both federal and non-federal SRS users. While Otter 25A's intended operations, command telemetry, tracking and mission data communications are consistent with the technical parameters outlined in Recommendation ITU-R SA.364-6,<sup>40</sup> the Commission's rules do not definitively state that ISAM missions constitute SRS operations. That said, both the Commission and the NTIA have suggested that such a classification may be appropriate given the current state of ISAM development and operational needs.<sup>41</sup>

Starfish will coordinate all of its operations in-band with both in-band and adjacent band federal spectrum users to ensure protection of existing and planned services. As noted in the Technical Appendix, Otter 25A's use of this band is relatively limited in scope and duration, and there are limited deployments in the band from other operators, which will further facilitate coordination.

To the extent that the Commission does not determine that Otter 25A's proposed mission qualifies as an SRS operation, Starfish requests a waiver of the U.S. Table of Allocations for

---

<sup>39</sup> ISAM NPRM at ¶ 34.

<sup>40</sup> See Recommendation ITU-R SA.364-6, Annex, (2) "Space research communication and tracking functions and their technical requirements."

<sup>41</sup> See Reply Comment of National Telecommunications and Information Administration, IB Docket No. 22-271, 22-272 (Nov. 21, 2023), 5. "The Space Research Service (SRS) is an appropriate service category for missions involving scientific or technical research. This allocation could support early demonstration programs."

non-conforming use. Such a waiver would be appropriate given that Otter 25A's proposed operations pose minimal risk of harmful interference and will not constrain future authorized operations in the band.

## **VII. POST-MISSION DISPOSAL AND ORBITAL DEBRIS MITIGATION**

Starfish has designed the Otter 25A spacecraft to comply with the Commission's orbital debris regulations. In its Technical Appendix, Starfish provides a more detailed overview of how Otter 25A will meet the Commission's orbital debris mitigation regulations and will not exceed any of the limits set forth by the Commission rules.

Here Starfish affirms that Otter 25A will be identifiable through a unique signal-based telemetry marker, distinguishing it from other space stations, and will employ active tracking. Additionally, Starfish commits to registering Otter 25A prior to deployment with the 18th and 19th Space Defense Squadrons via their Satellite Registration Form and Space Situational Awareness Sharing Agreement to facilitate ongoing coordination and space safety efforts.

To enhance space situational awareness and improve the accuracy of conjunction analysis, Starfish intends to provide the 18th Space Defense Squadron information regarding initial deployment, owner/operator ("O/O") ephemeris, and planned maneuvers. Starfish will share information in a manner consistent with the 18th and 19th Space Defense Squadron's Spaceflight Safety Handbook for Satellite Operators. By sharing higher accuracy O/O ephemeris data, Starfish aims to improve the quality of CA, reduce the frequency of Conjunction Data Messages, and contribute to a safer orbital environment.

Additionally, Starfish intends to share ephemeris data with other operators through Space-Track.org, further promoting transparency and collaboration in maintaining space safety.

## **VIII. OWNERSHIP INFORMATION**

Starfish's ownership structure is attached as Attachment A.

## **IX. CONCLUSION**

For the reasons set forth above, Starfish respectfully requests that the Commission grant this Application.

Respectfully submitted,

/s/ Jonathan Kneller  
Jonathan Kneller  
Mission Manager  
Starfish Space Inc.  
665 Andover Park W  
Tukwila, Washington 98188

September 10, 2026

**Attachment A**  
**Starfish Ownership Information**

Starfish Space Inc. (“Starfish”) is a privately held corporation. The following individuals and entities hold 10% or more of the equity and/or voting interests in Starfish

| <b>Shareholder</b>                       | <b>Citizenship or Country of Incorporation</b> | <b>Equity and/or Voting Interest Percentage</b>                        |
|------------------------------------------|------------------------------------------------|------------------------------------------------------------------------|
| <b>Point72 Ventures Investments, LLC</b> | USA                                            | 12.291% Equity Interest / 16.66% Voting Interest on Board of Directors |
| <b>Munich Re Fund II, LP</b>             | USA                                            | 11.531% Equity Interest                                                |
| <b>Shield Capital Fund II, LP</b>        | USA                                            | 10.637% Equity Interest / 16.66% Voting Interest on Board of Directors |
| <b>NFX Capital Fund III, LP</b>          | USA                                            | 16.66% Voting Interest on Board of Directors                           |
| <b>Steven Layne</b>                      | USA                                            | 16.66% Voting Interest on Board of Directors                           |
| <b>Austin Link</b>                       | USA                                            | 16.66% Voting Interest on Board of Directors                           |
| <b>Trevor Bennett</b>                    | USA                                            | 16.66% Voting Interest on Board of Directors                           |

The following individuals are on Starfish’s board of directors.

| <b>Name</b>           | <b>Citizenship</b>   |
|-----------------------|----------------------|
| <b>Austin Link</b>    | USA                  |
| <b>Trevor Bennett</b> | USA                  |
| <b>Pete Flint</b>     | USA & United Kingdom |
| <b>Chris Morales</b>  | USA                  |
| <b>Letitia Long</b>   | USA                  |
| <b>Steven Layne</b>   | USA                  |

The following individuals are Starfish’s officers.

| Name           | Citizenship or Country of Incorporation | Title                 |
|----------------|-----------------------------------------|-----------------------|
| Austin Link    | USA                                     | Co-Founder, CEO       |
| Trevor Bennett | USA                                     | Co-Founder, Secretary |

**Attachment B**  
**Draft ITU Cost Recovery Letter**

Starfish Space Inc.  
665 Andover Park West  
Tukwila, WA 98188

September 10, 2026

Secretary  
Office of the Secretary  
Federal Communications Commission  
45 L Street, N.E.  
Washington, D.C. 20554

Subject: ITU Cost Recovery Declaration for the Otter 25A  
Satellite Network Operating in “Non-geostationary Orbit” in the “Non-planned”  
Frequency Bands. (Otter 25A)

Reference: FCC Application File No. SAT-LOA-20260814-00341; Callsign           

Dear FCC Secretary,

Starfish Space Inc. is aware that in accordance with Resolution 88 of the International Telecommunication Union’s (ITU) Plenipotentiary Conference (Marrakech, 2002), and ITU Council Decision 482, as modified, cost-recovery fees will apply to satellite network filings received by the Radiocommunications Bureau after November 7, 1998. As a consequence, Commission applicants are responsible for any and all fees charged by the ITU to process their satellite network filings. Starfish Space, Inc. hereby states that it is aware of this requirement and unconditionally accepts all cost recovery responsibilities associated with the ITU filings for the Otter 25A satellite network. Please address all cost-recovery inquiries, and ITU correspondence and filings, related to the Otter 25A satellite network to the following point of contact. We understand that should there be any change in the point of contact information, we will inform the Commission within 30 days of the foreseen event.

Point of Contact Name: Jonathan Kneller, Mission Manager  
Organization Name: Starfish Space Inc.  
Address: 665 Andover Park West, Tukwila WA. 98188  
E-Mail: [itu-coordination@starfishspace.com](mailto:itu-coordination@starfishspace.com)  
Telephone Number: 516-661-0225

Starfish Space Inc. understands that it must remit payment of any resultant cost-recovery fee to the ITU by the due date specified in the ITU invoice, unless an appeal filed prior to the due date is pending with the ITU. We fully understand that a license granted in reliance on such a commitment will be conditioned upon discharge of any such cost-recovery obligation. We also acknowledge that, in accordance with 47 CFR §25.111, should we have an overdue ITU cost-recovery fee and have no appeal pending with the ITU, the Commission may dismiss any application associated with that satellite network.

Sincerely,

/s/ Jonathan Kneller  
Jonathan Kneller  
Mission Manager  
Starfish Space Inc.

**Attachment C**  
**47 C.F.R. 25.114 Checklist**

| <b>Rule/Requirement</b>                                                                                                                                      | <b>Location in Draft</b>                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>Introduction and Overview</b>                                                                                                                             | Legal Narrative, I.                      |
| <b>Space Station Description</b>                                                                                                                             | Legal Narrative, I.                      |
| <b>Public Interest Statement</b>                                                                                                                             | Legal Narrative, V.                      |
| <b>Technical Description</b>                                                                                                                                 |                                          |
| <b>47 CFR 25.114(c)(4)(i)</b>                                                                                                                                | Technical Appendix, IV.A.; Schedule S    |
| <b>47 CFR 25.114(c)(4)(ii)</b>                                                                                                                               | Schedule S                               |
| <b>47 CFR 25.114(c)(4)(ii)</b>                                                                                                                               | Schedule S                               |
| <b>Antenna Gain Contour Specifications</b>                                                                                                                   |                                          |
| <b>47 CFR 25.114(c)(4)(vi)(B)</b>                                                                                                                            | Technical Appendix, VII.                 |
| <b>47 CFR 25.114(c)(4)(vi)(D)</b>                                                                                                                            | Technical Appendix, VII.                 |
| <b>Orbital Parameters and Spacecraft Characteristics</b>                                                                                                     |                                          |
| <b>47 CFR 25.114(c)(6)</b>                                                                                                                                   | Technical Appendix, III.C.; Schedule S   |
| <b>47 CFR 25.114(c)(7)</b>                                                                                                                                   | Technical Appendix, IV.A.                |
| <b>47 CFR 25.114(c)(8)</b>                                                                                                                                   | Technical Appendix, IX; Annex C.         |
| <b>47 CFR 25.114(c)(10)</b>                                                                                                                                  | Legal Narrative, I.                      |
| <b>47 CFR 25.114(c)(11)</b>                                                                                                                                  | Form 312                                 |
| <b>47 CFR 25.114(c)(13)</b>                                                                                                                                  | Schedule S                               |
| <b>Orbital Debris Rule Compliance to satisfy the Commission's orbital debris mitigation rules outlined in its rules, including 47 C.F.R § 25.114(d)(14).</b> |                                          |
| <b>25.114(d)(14)</b>                                                                                                                                         | Technical Appendix, XI.                  |
| <b>25.114(d)(14)(i)</b>                                                                                                                                      | Technical Appendix, XI.D.                |
| <b>25.114(d)(14)(ii)</b>                                                                                                                                     | Technical Appendix, XI.C.                |
| <b>25.114(d)(14)(iii)</b>                                                                                                                                    | Technical Appendix, XI.C.                |
| <b>25.114(d)(14)(iv)</b>                                                                                                                                     | Technical Appendix, XI.D.                |
| <b>25.114(d)(14)(iv)(A) - Where the application is for an NGSO space station or system, the following information must also be included:</b>                 |                                          |
| <b>25.114(d)(14)(iv)(A)(1)</b>                                                                                                                               | Technical Appendix, XI.C.                |
| <b>25.114(d)(14)(iv)(A)(2)</b>                                                                                                                               | Technical Appendix, XI.C.                |
| <b>25.114(d)(14)(iv)(A)(4)</b>                                                                                                                               | Technical Appendix, III. C.; Schedule S. |
| <b>25.114(d)(14)(iv)(A)(5)</b>                                                                                                                               | Technical Appendix XI. D. iv.            |
| <b>25.114(d)(14)(v)</b>                                                                                                                                      | Technical Appendix III. A. iv.           |
| <b>Where the application is for an NGSO space station or system, the statement shall also disclose the following:</b>                                        |                                          |

|                                                              |                                             |
|--------------------------------------------------------------|---------------------------------------------|
| <b>25.114(d)(14)(v)(A)</b>                                   | Technical Appendix III., C.                 |
| <b>25.114(d)(14)(v)(B)</b>                                   | Legal Narrative VII                         |
| <b>25.114(d)(14)(v)(C)</b>                                   | Legal Narrative VII; Technical Appendix XI. |
| <b>25.114(d)(14)(vi)</b>                                     | Technical Appendix XI                       |
| <b>25.114(d)(14)(vii)</b>                                    | Technical Appendix XI. E.                   |
| <b>In addition, the following specific provisions apply:</b> |                                             |
| <b>25.114(d)(14)(vii)(C)</b>                                 | Technical Appendix XI F.                    |