

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of	)				
	)				
Space Logistics, LLC	)	File	No.	SAT-LOA	_____
	)				
Authority to Launch and Operate a Mission	)				
Robotic Vehicle	)				
	)				
	)				

APPLICATION

Emma Marion
DLA Piper LLP (US)
500 8th Street, NW
Washington, DC 20004
+1 (212) 335-4626
Counsel for Space Logistics, LLC

Robert Hauge
President
Space Logistics, LLC
45101 Warp Drive
Dulles, VA 20166

Dated: September 30, 2025

TABLE OF CONTENTS

	Page
I. Background and System Description	3
A. Services Provided	6
B. Concept of Operations	8
C. Communication System	9
1. S-band	9
2. C-band	10
II. Authority Requested for MRV-1	11
III. Waiver Requests	14
A. Bond and Milestone Requirements	15
B. Requested Orbital Location	15
C. C-Band Frequency Use	16
D. S-band Frequency Use	18
IV. Public Interest	20
V. International Telecommunication Union (“ITU”) Compliance	23
VI. Conclusion	23

Exhibits

Exhibit 1 – Company Leadership & Ownership Information

Exhibit 2 – ITU Cost-Recovery Letter

Exhibit 3 – Technical Annex

Exhibit 4 – Sample Notification

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of	)				
	)				
Space Logistics, LLC	)	File	No.	SAT-LOA	_____
	)				
Authority to Launch and Operate a Mission	)				
Robotic Vehicle	)				
	)				
	)				

**APPLICATION FOR AUTHORITY TO LAUNCH AND OPERATE A MISSION
ROBOTIC VEHICLE-1**

Space Logistics, LLC (SpaceLogistics), a Northrop Grumman Company, hereby applies for authority to operate the telemetry and commanding systems of our MRV-1 spacecraft to conduct servicing missions in and around GSO orbit within the enumerated parameters discussed herein. MRV-1 is a Mission Robotic Vehicle (MRV), which is SpaceLogistics' second generation on-orbit servicing vehicle. The MRV leverages the heritage of the Mission Extension Vehicle (MEV) design but replaces the MEV docking system with a robotics payload provided by the DARPA Robotic Servicing of Geosynchronous Satellites (RSGS) program. The MRV provides on-orbit augmentation, inspection, repair, and relocation capabilities, in geosynchronous orbit (GSO or GEO). The MRV-1 is scheduled for launch in 1H2026.

I. Background and System Description

SpaceLogistics was established to help make space sustainable through in-orbit servicing. SpaceLogistics provides in-orbit satellite servicing to geosynchronous satellite operators using its fleet of commercial servicing vehicles. This fleet consists of two on-orbit Mission Extension Vehicles (MEV-1 and MEV-2), and soon the second-generation systems (launching in 2026) consisting of the MRV and small propulsion augmentation systems known as Mission Extension

Pods (MEPs). The MRV installs these MEPs onto client satellites in GEO orbit extending the fuel life of the client satellite by an average of six years. The MEPs themselves are not part of this license application and represent one of several servicing mission types that the MRV will perform over its 11-year design life.¹

Operationally, SpaceLogistics will use experienced personnel and organizations for manufacturing, integration, testing, and operations. The MRV-1 design itself is firmly based on flight-proven equipment with extensive heritage, as discussed above, and all manufacturing will be subject to industry standard requirements review and verification, including extensive ground testing and demonstrations. SpaceLogistics will incorporate a mission safety oversight committee to review each rendezvous, proximity operations, and docking (RPOD) mission. SpaceLogistics will conduct a thorough compatibility verification and validation for each future client vehicle (CV) and will conduct functional in-orbit tests for MRV-1 prior to docking or capturing events.

All of SpaceLogistics' missions and activities will be conducted cooperatively with the operator of the CV and pursuant to commercial arrangements. To be clear, there will be no uncoordinated near approaches to other known resident space objects. All resolvable imaging will be restricted per a National Oceanic and Atmospheric Administration (NOAA) remote sensing license. For the avoidance of doubt, SpaceLogistics will cease transmissions and/or disengage from any CV with which MRV-1 is servicing to comply with any U.S. statute or Commission regulation or order, including but not limited to any direction under Section 706(c) of the Communications Act of 1934, as amended.²

¹ MEPs will be licensed by either SpaceLogistics or the owner of the MEP.

² 47 U.S.C. § 606(c).

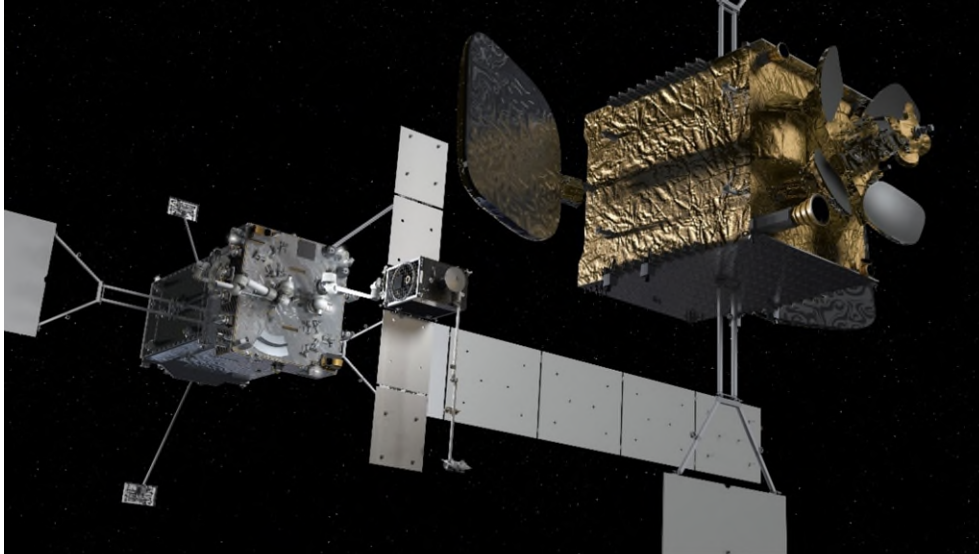


Figure 1: Illustration of the MRV-1 Installing a MEP onto a Typical Client Satellite

The MRV-1 is being designed and built by Northrop Grumman and is largely based on the two MEV spacecraft that are currently in orbit. As of June 2025, these two spacecraft have now safely delivered more than a combined 9 years of life extension. The MEV is, in turn, based on the Northrop Grumman GEOSTar bus, which has been used as the bus for more than 40 GEO communication satellites.³

The MRV is derived by replacing the docking system of the MEV with the integrated robotics payload (IRP) provided to SpaceLogistics by the DARPA Robotic Servicing of Geosynchronous Satellites (RSGS) program through an Other Transaction Authority (OTA) partnership. Additional evolutions of the MRV-1, from MEV, include increasing the power system performance, increasing the xenon propellant load, improving uplink and downlink data rates, and including an S-band telemetry, tracking, and command (TT&C) system with government furnished KI-55 encryption funded by the U.S. Space Force. The baseline

³ See Application of Space Logistics, LLC, File No. SAT-LOA-20191210-00144, at p. 3 (granted March 25, 2020) (describing GEOSTar bus).

architecture adopted from MEV includes fully cross-strapped and redundant avionics and a structure designed for dual launch. Other design features include 11-kilowatt end-of-life solar array power, a dual C-band flexible frequency communications system, and a hydrazine propulsion system as well as an electric propulsion system. The RPOD subsystem, like the MEV before it, uses visible, infra-red, and LIDAR (light detection and ranging)-based sensing systems.

The MRV has an 11-year design life inclusive of the approximately one-year of orbit raising (largely limited by electronics of the robotics payload).⁴ It will launch with sufficient fuel to perform over 100 rendezvous, proximity operations and servicing missions including sufficient fuel to perform over 4000 m/s of delta-V maneuvers (following the orbit raising). The MRV is estimated to be capable of performing up to six servicing missions per year in and around GEO orbit.

A. Services Provided

With the flexible robotics payload that consists of two seven-degree-of-freedom robotic arms, the MRV will be capable of performing several types of services in-orbit including:

- **OAC Installation:** After retrieving an Orbital Attachment Capability (OAC), the MRV will perform rendezvous and proximity operations (RPO) with a CV and install the OAC onto the CV. The method of installation will depend on the OAC features. The MEP is one type of OAC that the MRV can install. Some OACs may be installed directly to the CV without the MRV grappling the CV. Alternatively, some OAC installations may require the MRV to first grapple the CV with one robotic arm and then install the OAC using the second robotic arm.

⁴ See *infra* Section I.B, Concept of Operations.

- **OAC Removal & Relocation:** If an OAC is installed onto a CV and must be removed, for example, due to contract terms or anomaly, MRV will perform RPO with the Augmented Vehicle Stack (AVS), remove the OAC from the CV, then depart the CV's GEO slot. The OAC may be installed onto another CV or taken to the GEO Graveyard for disposal.
- **CV Fly-By Inspection:** MRV will perform RPO with a CV to collect images of the CV for ground operators, typically for diagnostics in the event of an anomaly, without making physical contact.
- **CV Detailed Inspection & Diagnosis:** MRV will perform RPO with a CV, including grabbing the CV's separation ring using the Marman Ring Tool (MRT) with one of the two robotic arms. The second robotic arm will then be used to inspect the CV with the End-of-Arm (EoA) cameras for anomaly diagnostics.
- **CV Repair / Anomaly Resolution & Mitigation:** MRV will perform RPO and grapple a CV with one of the two robotic arms. The second robotic arm will then use tools to repair or otherwise resolve CV anomalies. For example, a closed MRT would be used for force application. This service typically dovetails with the CV Detailed Inspection & Diagnosis. The tool(s) used will depend on the specific operations to be performed and any new tools will be retrieved by the MRV in advance of the repair service similar to an OAC capture.
- **CV Relocation:** MRV will perform RPO and grapple a CV. The MRV will then use its propulsion system to perform one of several types of relocations, including but not limited to: change of orbital longitude, orbit raising to graveyard, or inclination reduction.

- **CV Station Keeping:** MRV will perform RPO and grapple a CV. The MRV will then perform orbit maintenance maneuvers to maintain the CV's GEO orbit.
- **Space Situational Awareness Imaging:** While transiting between CVs, the MRV may use its imaging systems for collecting "dots and streaks" of other orbital objects which may be provided to the USG or other approved users for the purpose of space situation awareness.

B. Concept of Operations

MRV-1 is currently scheduled for launch into a geo-transfer orbit in the first half of 2026 on a SpaceX Falcon 9 together with the first three separately licensed MEPs. Following separation from the launch vehicle, the MRV and each MEP will perform their deployments, conduct initial in-orbit testing, and then begin their orbit raising to geosynchronous orbit. Once achieving GEO, each MEP will temporarily position itself in the vicinity of the CV it is assigned to. The MRV will retrieve the MEP and then install it onto its CV. The MRV will then relocate to its next MEP servicing mission. We estimate that the MRV could perform as many as 5-6 servicing missions per year. Information on future servicing missions will be provided to the FCC pursuant to the service notification described in section II below. SpaceLogistics customers are expected to include both U.S. and non-U.S. satellite owner/operators. MRV servicing contracts will require the client vehicle owner/operator to obtain any licenses and approvals from their State authorization and supervision authority and provide SpaceLogistics with evidence of said approvals.

A depiction of a generalized mission concept for MRV-1 is provided in Figure 2 below.

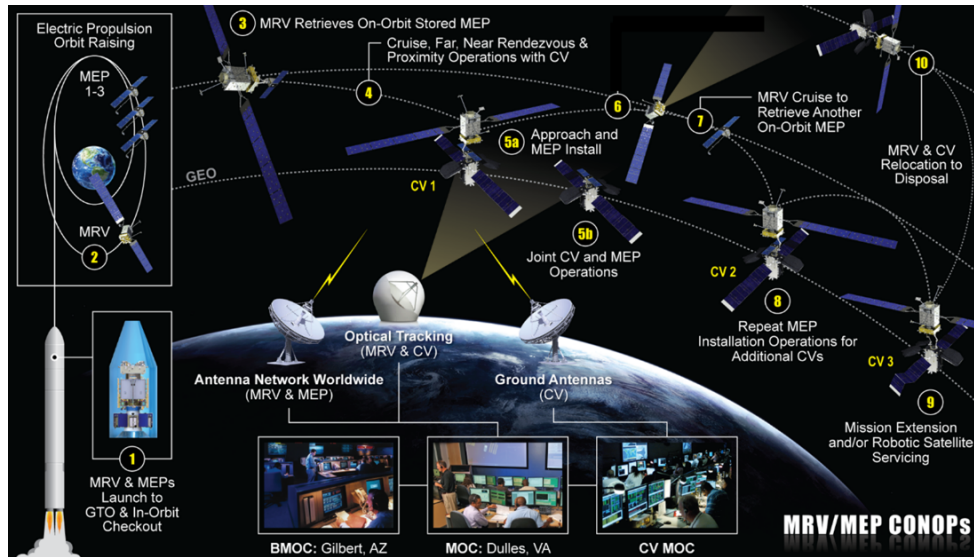


Figure 2: Generalized Mission Concept for MRV-1.

C. Communication System

As discussed in more detail in the Technical Appendix, MRV-1 will only conduct TT&C communications. SpaceLogistics requests authority to operate MRV-1 in the C-band or S-band frequencies identified in Table 1.

	Command - Uplink		Telemetry - Downlink	
	Tunable Frequency Range (MHz)	Polarization	Tunable Frequency Range (MHz)	Polarization
C-Band	5925 – 6425	LHCP or RHCP	3700 – 4200	LHCP or RHCP
S-Band	2025 – 2110	LHCP	2200 – 2290	RHCP

Table 1: MRV-1 TT&C Tunable Frequency Ranges and Polarizations

1. S-band

The S-band uplink and downlink are allocated internationally for space research service and space operations and in the U.S. for Federal space research and space operations, *inter alia*.⁵ The S-band uplink is also allocated in the U.S. for non-Federal space research use, subject to

⁵ See 47 C.F.R. § 2.106.

conditions as may be applied on a case-by-case basis and the limitation that any use may not cause harmful interference to authorized Federal and non-Federal operations.⁶ The S-band system has been included for, and was funded by, the United States Government through a contract with the U.S. Space Force. This frequency band also includes government furnished KI-55 encryption units that will allow the MRV to be used for classified services to the U.S. and allied government satellites. The S-band system will be primarily used to conduct government servicing missions and is not intended for commercial use. SpaceLogistics intends to operate the MRV S-band system within the licensed federal spectrum of its government customers while conducting such services. However, to the extent necessary, SpaceLogistics requests waiver of the U.S. Table of Frequency Allocations to conduct limited in-orbit testing following deployment and to serve as a backup TT&C system.

2. C-band

The C-band uplink and downlink is allocated to the Fixed-Satellite Service (FSS) internationally and in the U.S.⁷ However, in the U.S. Table of Frequency Allocations, C-band downlink FSS operations from 3700-4000 MHz are limited to operations outside the contiguous United States and to continued operations by already authorized space stations and replacements thereto for operations within the contiguous United States.⁸ If a commercial customer is licensed or otherwise coordinated to operate in the C-band, then SpaceLogistics intends to operate the MRV C-band system within their licensed spectrum while within their operational longitudes. If the commercial customer does not have rights to C-band spectrum, then SpaceLogistics will

⁶ See 47 C.F.R. § 2.106 n.US347.

⁷ See 47 C.F.R. § 2.106.

⁸ See 47 C.F.R. § 2.106 n.NG182. The contiguous United States includes the contiguous 48 states, the District of Columbia, and areas within 12 nautical miles of the U.S. Gulf coastline. *Id.*

work with the customer to acquire coordination and rights to use sufficient C-band spectrum to perform our services for the customer. In all situations, including while drifting, or parked, the MRV will utilize the C-band for TT&C on a non-interference, non-protected basis. In all cases, if the MRV is operating in longitudes with visibility of CONUS, the C-band downlink will utilize receive stations with either (1) grandfathered C-band CONUS earth stations, or (2) earth stations outside of CONUS. As discussed below, SpaceLogistics requests a waiver of the U.S. Table of Frequency Allocations and 47 C.F.R. § 25.147 for operations within CONUS.

3. Mission Operations

The primary Mission Operations Center (MOC) for MRV-1 will be located in Northrop Grumman's Dulles, Virginia facilities. The MOC will provide monitoring and control and on-call engineering support around the clock including a team of full-time engineering support staff. A backup operations facility will be in Gilbert AZ. Both MOC's are co-located with the MEV primary and backup MOCs.

During orbit raising and drift, MRV-1 will be supported by a network of ground stations operating in the C-band or S-Band frequencies through a commercially contracted ground network service. The ground segment is described in further detail in the Technical Annex.

II. Authority Requested for MRV-1

By this application, SpaceLogistics requests FCC authority to launch and operate the command and telemetry communication systems of the MRV-1 spacecraft. The requested authority, described below, includes the operations during launch, separation, initialization and check out, in-orbit testing, orbit raising, and throughout its service life in, around, and near geosynchronous orbit (GEO +/- 1000 km and from 0 to 14 degrees of inclination) to conduct various servicing missions throughout its design life. When conducting servicing missions, the MRV will operate within frequencies and technical parameters that are either: 1) authorized to

the CV while at its approved GEO location(s); or 2) coordinated with the GEO operator that has the frequency rights at the operational location(s). These steps ensure that the MRV servicing missions do not cause interference with other potentially affected operators.

Telemetry and Command Operations During Launch Through Orbit Raising

As described in Section I.C above, SpaceLogistics plans to utilize the C-band system for the launch and orbit raising period of MRV standalone operations. After the first few weeks of spacecraft deployments, checkout & in-orbit testing, SpaceLogistics anticipates utilizing 4-hour contact periods once a day for six days a week during the majority of the Electric Propulsion Orbit Raising (EPOR) period, which is expected to last 12-13 months. The seventh day each week is expected to include an 8-hour contact period to allow time to upload the upcoming weeks' maneuver burn profile and associated attitude control plan. SpaceLogistics will typically upload a two-week plan and update this plan each week so if the upload is not successful, for any reason, the Company can continue with EPOR with several days remaining to update the next two-week plan. During each daily contact, stored telemetry is downloaded for evaluation by the engineering team, and during the non-contact periods no commanding or telemetry transmitting is performed. The ground system support during these phases will be through a commercial ground network.

Additionally, following launch, SpaceLogistics intends to perform limited S-band TCR In-Orbit Testing (IOT) from our MOC in Dulles and a third-party S-band antenna. The IOT will consist of a telemetry EIRP and a command threshold test. Telemetry EIRP will be measured at both low and high-power modes of the MRV-1 S-band transmitter at a representative and pre-coordinated frequency. The command threshold test will be performed by setting an initial ground station uplink power level at a representative and pre-coordinated frequency. EIRP will

be reduced in small increments until the ground station command EIRP threshold is reached. This testing will be executed on the primary and redundant on-board hardware to verify full functionality is available.

Telemetry and Command Operations During Drift or Parking Orbit

SpaceLogistics anticipates operations during a drift or parking orbit period to be the same as conducted during the EPOR period with daily contact periods using the C-band system, with the S-band system serving as a back-up to the extent necessary. The ground network to be utilized in these phases will be dependent on the longitudinal location and the drift rate, if any.

C-band Telemetry and Command Operations During Servicing of Commercial Vehicles

When conducting a servicing mission with a commercial CV, SpaceLogistics expects to conduct TT&C communications using C-band frequencies that are within the existing, licensed or otherwise coordinated band of the CV. The center frequencies will be selected to minimize interference concerns between MRV and the CV. Servicing mission periods will likely have full-time (24/7) TT&C communications established.

S-band Telemetry and Command Operations During Servicing of Government Vehicles

When conducting a servicing mission with a government CV, SpaceLogistics expects to conduct TT&C communications using S-band frequencies that are within the existing, licensed band of the CV. The center frequencies will be selected to minimize interference concerns between MRV and the CV. The center frequencies will be selected to minimize all possible interference concerns with any nearby spacecraft. Servicing mission periods will likely have fulltime (24/7) TT&C communications established.

Service Notifications

SpaceLogistics will conduct our servicing operations using the frequencies identified above. In addition to the conditions placed by the FCC, SpaceLogistics will apply operating constraints as described in the Public Interest section below, and SpaceLogistics will provide advanced notification to FCC for each service performed to include the following information:

- Name of the customer,
- Name of the satellite,
- Orbital location,
- Center frequencies,
- Licensing authority of client,
- Type of service to be provided,
- Expected period of service performance,
- Plans to ensure operational safety including details of any expected separable items (e.g. deployments/releases into the GEO graveyard)

An example advanced notification is provided in Exhibit 4. Should the scope of any service exceed the scope of this application, SpaceLogistics will file a request to modify its license or an application for special temporary authority (STA) prior to execution of the service.

III. Waiver Requests

The Commission may waive any of its rules if there is “good cause” to do so.⁹ In general, waiver is appropriate if (1) special circumstances warrant a deviation from the general rule; and (2) such deviation would better serve the public interest than would strict adherence to the rule.¹⁰ Generally, the Commission will grant a waiver of its rules in a particular case if the relief requested would not undermine the policy objective of the rule in question and would otherwise

⁹ See 47 C.F.R. § 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).

¹⁰ See *Northeast Cellular*, 897 F.2d at 1166.

serve the public interest.¹¹ Here, the development of in-space service capabilities for satellites in GEO orbit will make space more sustainable, including by mitigating orbital debris risk and extending the life of satellites in-orbit, promote efficient use of resources, and help maximize value of investments by satellite operators, warranting waiver of FCC rules.

A. Bond and Milestone Requirements

SpaceLogistics requests waiver of the FCC's bond requirement¹² and satellite construction milestone requirements.¹³ As the Bureau previously concluded with respect to MEV-1 and MEV-2,¹⁴ no "new" spectrum is effectively being requested for use by MRV-1 because the MRV-1 and customer vehicles will operate on frequencies already authorized by an existing satellite. Accordingly, there can be no risk or threat of spectrum warehousing by MRV-1, the prevention of which is the underlying purpose of the bond requirement and milestone requirement.¹⁵

B. Requested Orbital Location

SpaceLogistics requests waiver of the requirement to specify an operating GSO orbital location for MRV-1 in this application.¹⁶ At present MRV-1 has no plans to remain in any one orbital slot beyond the few weeks that are required to retrieve and install MEPs or perform other

¹¹ See *WAIT Radio*, 418 F.2d at 1157.

¹² 47 C.F.R. § 25.165(a).

¹³ 47 C.F.R. § 25.164.

¹⁴ See Stamp Grant, File Nos. SAT-LOA-20170224-00021, SAT-AMD-20190207-00008, ¶ 11 (granted Jun. 20, 2019); Stamp Grant, File No. SAT-LOA-20191210-00144, ¶ 11 (granted March 25, 2020).

¹⁵ See, e.g., *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Further Notice of Proposed Rulemaking, 29 FCC Rcd. 12116, 12123-24 ¶ 19 (2014).

¹⁶ 47 C.F.R. § 25.114(c)(5).

services. The MRV-1 is expected to perform up to six servicing missions per year with different client vehicles throughout the GEO orbital arc. When not conducting a servicing mission, SpaceLogistics plans to drift above or below GEO orbit or, if needed, park the MRV-1 at 141 W.L.¹⁷ However, SpaceLogistics intends on conducting Space Situational Imaging operations between servicing missions, and accordingly, for the majority of its operational life SpaceLogistics does not intend on parking the MRV-1. Accordingly, because the MRV-1 will not remain at the identified parking orbit, SpaceLogistics requests waiver of this requirement to the extent necessary.

C. C-Band Frequency Use

SpaceLogistics believes that this application for use of C-band frequencies already licensed by CVs, and for use outside of CONUS can be processed without waiver of the Commission's rules.¹⁸ Our customers are or will be authorized to operate in those frequencies at the service orbital location. MRV-1 will coordinate with customers and operate on a subset of the frequencies authorized to and coordinated for the client vehicle. Thus, the use of frequencies pursuant to this application are not mutually exclusive with and will not cause harmful interference to or request protection from interference from the client vehicle or other users of the requested frequencies. SpaceLogistics accepts that its license will be conditioned on a requirement to operate within frequencies and technical parameters authorized to our client vehicles when conducting operations with such customers. For the same reasons, the operations of MRV-1 on the requested frequencies do not violate the FCC's two-degree spacing

¹⁷ SpaceLogistics has selected 141 W.L. because there are no other pending applications before the Commission requesting authorization to use an orbital location within $\pm 0.05^\circ$ of 141° W.L. or ITU networks registered to use such location.

¹⁸ 47 C.F.R. §§ 25.112, 25.155, 25.158.

requirement.¹⁹ As the Bureau previously concluded with respect to MEV-1 and MEV-2,²⁰ these operations are effectively behaving as a temporary replacement satellite using the existing C-band frequencies authorized to SpaceLogistics' customer and, as such, are exempt from the filing freeze.²¹ Further, the operations of MRV-1 in the C-band communicating with ground stations outside CONUS are similarly not subject to the freeze.²²

Accordingly, for the limited C-band operations within CONUS outside of servicing missions with customer vehicles licensed in the C-band, SpaceLogistics requests waiver of the U.S. Table of Frequency Allocations, 47 C.F.R. § 2.106, and Commission's filing freeze on C-band space station applications.²³ The purpose of the filing freeze to "preserve the landscape of authorized operations in the 3.7-4.2 GHz band"²⁴ will not be undermined by MRV-1's operations. SpaceLogistics requests waiver of the C-band filing freeze only for temporary,

¹⁹ 47 C.F.R. §§ 25.114(d)(7), 25.140(a).

²⁰ See Stamp Grant, File Nos. SAT-LOA-20170224-00021, SAT-AMD-20190207-00008, ¶ 11 (granted Jun. 20, 2019); Stamp Grant, File No. SAT-LOA-20191210-00144, ¶ 11 (granted March 25, 2020).

²¹ See, e.g., *Notification of Temporary Filing Freeze on New Fixed-Satellite Service Space Station Applications in the 3.7-4.2 GHz band*, 83 Fed. Reg. 40155 (Aug. 14, 2018). ("The freeze does not apply ... to applications for replacement space stations."); 47 C.F.R. § 2.106, NG183 ("In the band 3700-4200 MHz...Applications for extension, cancellation, replacement, or modification of existing space station authorizations in the band will continue to be accepted and processed normally.).

²² 47 C.F.R. § 25.147(c) ("Applications for new or modified space station licenses or petitions for market access for space-to-Earth operations in the 3.7-4.2 GHz band outside CONUS will continue to be accepted.").

²³ 47 C.F.R. § 25.147.

²⁴ *Notification of Temporary Filing Freeze on New Fixed-Satellite Service Space Station Applications in the 3.7-4.2 GHz band*, 83 Fed. Reg. 40155 (Aug. 14, 2018); See also *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket No. 18-122, Report and Order and Order of Proposed Modification, 35 FCC Rcd. 2343 (3), para. 152 (rel. Mar. 3, 2020) (codifying the 2018 freeze).

limited operations with licensed C-band TT&C earth stations within CONUS. During these limited, temporary periods, spectrum use will be minimal and only pursuant to communications with earth stations within CONUS for TT&C when earth stations are not available outside of the CONUS, and in such situations, only communicating with antennas that are already licensed for C-band use.²⁵ Because of MRV-1's frequency tunability, these operations can be conducted at the upper-most edge of the C-band downlink near the 4.2 GHz, well away from the priority spectrum near 3.98 GHz. As these are TT&C operations, a single already authorized antenna at a time is adequate to receive telemetry and operational data. This ensures that no further geographic areas will be excluded from terrestrial wireless auction opportunities because no additional earth stations will be required. Accordingly, MRV-1's spectrum use will not undermine the current C-band landscape that the filing freeze is intended to preserve, and waiver is appropriate.

D. S-band Frequency Use

As discussed above, SpaceLogistics requests to use the S-band frequencies to conduct government servicing missions using the licensed federal spectrum of its government customers while conducting such services. However, to the extent necessary, SpaceLogistics requests waiver of the U.S. Table of Frequency Allocations to conduct limited in-orbit testing following deployment and to serve as a backup TT&C system. Such frequency use will be very limited, and in all circumstances will be coordinated with Federal spectrum managers. Grant of the waiver for limited use of these frequencies will support safe operations in-space and support development of capabilities to securely service government assets. For these reasons, grant of a waiver to allow limited use of these frequencies, as proposed in this application, is warranted.

²⁵ See *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, GN Docket No. 18-122, Report and Order and Order of Proposed Modification, 35 FCC Rcd. 2343 (3), para., 374 (rel. Mar. 3, 2020).

E. Schedule S

SpaceLogistics clarifies certain of its responses to the Schedule S and, to the extent necessary, requests a limited waiver of the Commission's rules, which requires certain information to be provided in the Schedule S.²⁶

- In response to the Schedule S question regarding "Orbital Longitude Information," SpaceLogistics entered the 141 W.L. latitude to reflect SpaceLogistics' identified parking spot when not conducting a servicing mission or drifting above or below the GEO orbit. However, as discussed above, SpaceLogistics notes that it does not plan on parking unless needed between missions. As discussed above, SpaceLogistics requests a waiver of the requirement to specify an operating orbital location for MRV-1 in this application to the extent necessary.²⁷
- The Schedule S requests channel width and center frequency information for each transmit and receive channel. As discussed in more detail in the Technical Appendix, the MRV-1 TT&C system is tunable in increments of 100 kHz. Accordingly, providing this information would require thousands of entries and would be burdensome. Instead, SpaceLogistics has provided a representative sample in the Schedule S using the center of S-band frequencies and the upper-most edge of the C-band downlink near the 4.2 GHz for each data mode.²⁸
- In response to the Schedule S questions requiring minimum and maximum saturation flux density for the command beams, SpaceLogistics entered "-1" and "0," respectively, because the program would not permit completion of the Schedule S form without entries in those fields. The provision of this information is not applicable to command beams, and MRV-1 has no other receiving beams.²⁹
- The polarization for the C-band beams is switchable. However, the Schedule S form would not permit such an entry in that field, and, accordingly, an arbitrary circular polarization was selected.

Further, strict application of the rules here is unnecessary to serve the purposes of the rules, which is to ensure that the Commission has all the relevant information to evaluate the

²⁶ 47 C.F.R. § 25.114(c).

²⁷ *Supra* Part III.B.

²⁸ *See* Technical Annex at Section 5.2.

²⁹ 47 C.F.R. § 25.114(c)(v).

application. Because SpaceLogistics has provided all relevant information in the Narrative, Technical Appendix and Schedule S, waiver of these Schedule S requirements is appropriate.³⁰

IV. Public Interest

Grant of this application will serve the public interest by helping make space more sustainable through enabling support and maintenance services for satellites in GEO orbit.³¹ MRV-1's servicing ability makes efficient use of resources and maximizes the value of investments by satellite operators. Further, the use of an MRV generally allows operators to better manage in-orbit satellite assets and increases flexibility with respect to the timing of construction of new replacement satellites. The Commission has consistently recognized the "huge costs of building and operating satellite space stations" and has historically adopted policies that enhance the value of those investments.³² Moreover, grant of this application will facilitate the development of innovative technologies, help maintain U.S. leadership in the satellite industry, and support the growth of U.S. jobs.

MRV Service Operational Constraints

In addition to the conditions provided within the authorization for conducting TT&C communications, SpaceLogistics intends to operate our services under the constraints identified below.

³⁰ 47 C.F.R. § 1.3; *see, e.g.*, Stamp Grant, ViaSat, Inc., SAT-LOI-20140204-00013 (granted Jun. 18, 2014) (waiving Schedule S requirements because they were found to be unnecessary for the space station application).

³¹ *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).

³² *Loral Spacecom* at 12492 ¶ 7; *see also* *2003 Space Station Order* at 12509-10 ¶ 7.

Generally applicable constraints

- SpaceLogistics will seek to provide notification three months ahead of servicing mission, but urgent services may not permit for such lead time of notification.
- The MRV will only service a vehicle owned by the contracting party.
- MRV services will be controlled by appropriate ITAR, EAR, and any other applicable U.S. Trade Controls.
- MRV services will be performed in compliance with ISO Standard 24330 (Space systems — Rendezvous and Proximity Operations (RPO) and On Orbit Servicing (OOS) — Programmatic principles and practices).
- MRV servicing contracts will require the client vehicle owner/operator to obtain any licenses and approvals from their State authorization and supervision authority and provide SpaceLogistics with evidence of said approvals.
- The MRV services may be performed at any orbit or inclination within 1000 km and +/- 14 deg inclination of geosynchronous altitude.
- Images or data collected during the service will be per prior written consent from the Client and controlled in accordance with contractual agreements with the Client and all applicable licenses and regulations, including a 15 C.F.R. § 960.
- Any debris removed from GEO orbit pursuant to a servicing mission will be disposed of in the graveyard orbit in an altitude sufficiently above GEO and conducted in a manner to reduce risk of debris generation, collision risk, and risk of accidental explosions. Accordingly, operations will be conducted in compliance with the USG Orbital Debris Mitigation Standard Practices, NASA-STD-8719.14C, and 47 C.F.R. § 25.114(d)(14)(vi).

OAC Installation

- OACs may be retrieved directly from space (free-flier) or from a contracted delivery vehicle (delivery vehicle).
- Anticipated applications include but are not limited to propulsion augmentation, power augmentation, control augmentation, thermal augmentation, telecommunications, space situational awareness.
- OACs may not include the capability to undock by themselves to perform other missions and may not have RPO capability of their own.
- The OACs will be decommissioned along with their intended CV, in accordance with the CV licensing authority requirements, unless removed and relocated to the GEO Graveyard per the service below.
- Any communications licensing of an OAC, including any required modification of the CV authorization after MEP attachment, is the responsibility of the intended owner of the OAC in accordance with the intended owner's State licensing requirements.

OAC Removal & Relocation

- OACs that had been previously installed on a CV may be detached by the MRV and relocated by the MRV to either (1) the GEO graveyard orbit where it will be deployed and decommissioned in accordance with the CV licensing authority requirements, or (2) re-installed onto a different CV.

CV Fly-By Inspection

- The MRV may perform a rendezvous and proximity operations to within one meter of a CV (same distance as the capture box hold prior to docking) for the purpose of obtaining resolved imagery of the CV.
- The MRV may use any cameras or sensing devices it has available to perform the inspection.

CV Detailed Inspection & Diagnosis

- MRV will perform RPO with a CV, including capturing the CV's separation ring using the Marman Ring Tool (MRT) with one of the two RAS.
- The second RAS and proximity cameras will then be used to inspect the CV with the End-of-Arm (EoA) cameras for anomaly diagnostics.

CV Repair / Anomaly Resolution & Mitigation

- These services typically dovetail with the CV Detailed Inspection & Diagnosis.
- MRV will perform RPO with a CV, including capturing the CV's separation ring using the MRT with one of the two RAS.
- The second RAS will then use tools to repair or otherwise resolve CV anomalies. For example, a closed MRT would be used for force application.
- Note that the tool(s) used will depend on the specific operations to be performed and any new tools will be retrieved by the MRV similar to an OAC.

CV Relocation

- MRV will perform RPO with a CV followed by capture of the CV's separation ring using the MRT.
- The MRV will then use its propulsion system to perform one of several types of relocation including but not limited to: change of orbital longitude, orbit raising to graveyard, or inclination reduction.

CV Station Keeping

- MRV will perform RPO with a CV followed by capture of the CV's separation ring using the MRT.
- The MRV will then perform orbit maintenance maneuvers to maintain the CV's GEO orbit.

Space Situational Awareness Imaging

- SpaceLogistics may use the MRV sensors to collect and provide unresolved space situational awareness images to third parties.

V. International Telecommunication Union (“ITU”) Compliance

At its various operational orbits, MRV-1 will operate under the ITU filing(s) of the satellite to be serviced. However, while MRV-1 is parked at 141 degrees west longitude, MRV-1 will operate under its own ITU filing. SpaceLogistics is aware that processing fees are currently charged by the ITU for satellite filings, and that Commission applicants are responsible for any and all fees charged by the ITU.³³ SpaceLogistics is aware of and unconditionally accepts this requirement and responsibility to pay any ITU cost recovery fees associated with any ITU filings that the Commission may make on behalf of SpaceLogistics for MRV-1 in the future and, accordingly, attaches as Exhibit 2 to this application an ITU Cost Recovery Letter.

VI. Conclusion

Based on the foregoing, Space Logistics respectfully requests that the Commission grant the request for authority to launch and operate the MRV-1 spacecraft.

Respectfully submitted,

/s/ Robert Hauge

Emma Marion
DLA Piper LLP (US)
500 8th Street, NW
Washington, DC 20004
+1 (212) 335-4626
Counsel for Space Logistics, LLC

Robert Hauge
President
Space Logistics, LLC
45101 Warp Drive
Dulles, VA 20166

Dated: September 30, 2025

³³ *Implementation of ITU Cost Recovery Charges for Satellite Network Filings*, Public Notice, DA 01-2435 (Oct. 19, 2001).