

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of	)	
	)	
LAUNCHER INC.	)	File No. SAT-LOA-2023 _____
	)	
Application for Authority to Launch and	)	Call Sign: _____
Operate a Non-Geostationary Orbit Spacecraft	)	
in the Space Operation Service and Space	)	
Research Service	)	

APPLICATION

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APPLICATION

Launcher Inc. (“Launcher”) requests authority to launch and operate one non-geostationary orbit (“NGSO”) spacecraft, Orbiter SN3. The spacecraft is an orbital transfer vehicle that deploys customer payloads and hosts an experimental testbed for non-deploying customer payloads. Given Orbiter SN3’s no-earlier-than launch date of June 10, 2023, the requested licensing issue date is April 26, 2023.

I. BACKGROUND AND SYSTEM DESCRIPTION

Orbiter SN3 will provide in-space deployment and hosting services for third parties. Table 1 identifies the customer payloads onboard Orbiter SN3 at launch.

Payload Name	Owner	Payload Deployment?	Licensing/Documenting and Space Object Registering Administration
MDQSAT-1C	Innova Space	Yes	Argentina
MDQSAT-1D	Innova Space	Yes	Argentina
Pleiades-Squared	Bronco Space (Cal Poly Pomona)	Yes	United States of America (Call Sign KN6NAQ) ¹

¹ The call sign holder has emailed the required information to amsat.spacecap@fcc.gov for documentation in the FCC universal licensing system. *See Guidance on Obtaining Licenses for Small Satellites*, Public Notice, 28 FCC Rcd 2555 n.1 (2013).

Payload Name	Owner	Payload Deployment?	Licensing/Documenting and Space Object Registering Administration
Otter Pup	Starfish Space	Yes ²	United States of America (File No. 1117-EX-CN-2022)
Nightingale 1 ³	CesiumAstro	No ⁴	N/A
TRL11-SN3-Demo ⁵	TRL11	No ⁶	N/A
Remora ⁷	Millennium Space Systems	No ⁸	N/A

Table 1: Orbiter SN3 Customer Payloads⁹

For clarity, no other customer payloads or radiofrequency equipment will launch, deploy, remain onboard, or return to Orbiter SN3.

The spacecraft provides space operations service and space research service.

² Small satellite will deploy from Orbiter SN3, maneuver and dock with Orbiter SN3, and complete deorbit independent of Orbiter SN3.

³ Payload will prove a Ka-band communications system computer.

⁴ Payload will remain onboard Orbiter SN3 for entire mission. It has no radiofrequency transmit or receive capabilities of its own and will receive power and data from the Orbiter SN3 host spacecraft.

⁵ Payload will prove data recorder, camera system, and reaction wheel prototype.

⁶ Payload will remain onboard Orbiter SN3 for entire mission. It has no radiofrequency transmit or receive capabilities of its own and will receive power and data from the Orbiter SN3 host spacecraft.

⁷ Payload will prove guidance navigation and control subsystem.

⁸ Payload will remain onboard Orbiter SN3 for entire mission. It has no radiofrequency transmit or receive capabilities of its own and will receive power and data from the Orbiter SN3 host spacecraft.

⁹ Launcher replaced two satellites, Skyline-A and Skyline-B, from its manifest with a non-deploying mass simulator on Orbiter SN3. The ODAR accounts for the non-deploying mass simulator.

- The space operation service is concerned “exclusively with the operation of spacecraft, in particular space tracking, space telemetry and space telecommand.”¹⁰ Launcher will command and receive telemetry from Orbiter SN3 to ensure safe space operations and permit in-space equipment testing. As a result, Orbiter SN3 qualifies as a space operation service.
- *Space research service.* The space research service covers spacecraft that participate in “scientific or technological research purposes.”¹¹ Orbiter SN3 will host space hardware testing for its customers. As a result, Orbiter SN3 qualifies as a space research service.

Both services are permissible in the frequencies for which Launcher seeks access. Table 2 captures Orbiter SN3’s frequency plan.

Frequency Band (MHz)	Link Direction	Activity
2025-2110	Earth-to-space	command uplink
2200-2290	space-to-Earth	telemetry and payload downlink (outside the United States only)

Table 2: Frequency Plan

2025-2110 MHz. The band hosts primary space research service and space operation service allocations (Earth-to-space) in the international frequency allocation table and primary space research service allocation (Earth-to-space) on a case-by-case basis in the U.S. frequency allocation table.¹² Orbiter SN3’s proposed band use meets the international service allocation, as discussed in the above text. The satellite will uplink commands necessary to operate the satellite

¹⁰ 47 C.F.R. § 2.1.

¹¹ 47 C.F.R. § 2.1.

¹² See 47 C.F.R. § 2.106 and n.US347. Launcher requests to use the band only outside the United States consistent with the international frequency allocation and, therefore, does not seek any waiver of the U.S. frequency allocation table.

and complete space research (equipment testing) only outside the United States after completing coordination with co-frequency spectrum users.

2200-2290 MHz. The band hosts primary space operation service and space research service allocations (space-to-Earth) in the international frequency allocation table but omits similar allocations in the U.S. frequency allocation table.¹³ Orbiter SN3's proposed use of this band meets the international service allocation requirement, as discussed in the above text. The satellite will downlink vital Orbiter SN3 and customer payload health data only outside the United States after completing coordination with co-frequency spectrum users.

II. WAIVER REQUESTS

The Commission may waive any of its rules for “good cause.”¹⁴ Waiver is appropriate when: (i) special circumstances warrant a deviation from the general rule; and (ii) such deviation will serve the public interest better than strict adherence to the rule.¹⁵ In general, the Commission will grant a waiver of its rules if the relief requested would not undermine the policy objective of the rule in question and would otherwise serve the public interest.¹⁶ Good cause exists in this case to waive the following rules to the extent necessary to consider and grant the application because, as was explained above, the project will benefit the public by: (i) deploying spacecraft, hosting payloads, and conducting a docking mission that will help enhance

¹³ See 47 C.F.R. § 2.106. Launcher requests to use the band only outside the United States consistent with the international frequency allocation and, therefore, does not seek any waiver of the U.S. frequency allocation table.

¹⁴ See 47 C.F.R. § 1.3; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); see also *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

¹⁵ *Northeast Cellular*, 897 F.2d at 1166.

¹⁶ *WAIT Radio*, 418 F.2d at 1157.

the space environment; and (ii) support the FCC’s goal of enhancing space safety and sustainability.

A. 47 C.F.R. §§ 25.156, 25.157 (NGSO Processing Round)

Launcher requests a waiver of the FCC rules that stipulate the processing of “NGSO-like satellite systems” under a processing round framework.¹⁷ Instead, Launcher requests application of the first-come, first-served procedure adopted for “GSO-like satellite systems.”¹⁸ The Commission has accepted such requests previously. On those occasions, applicants demonstrated that their systems would avoid interference events through means such as transmission scheduling and would not preclude future entrants from using the same spectrum unlike the NGSO-like systems that require full-time system availability and processing rounds.¹⁹

Spectrum sharing is possible here with existing and future operators. Orbiter SN3 does not require full-time system availability. It will transmit and receive only in short periods of time while visible to limited receiving/transmitting earth stations. For harmful interference to occur, both Orbiter SN3 and another satellite would have to be visible to the earth station and transmitting or receiving using the same frequencies at the exact same time. In such an unlikely event, the resulting inline interference could be avoided by coordinating the satellite transmissions so that they do not occur simultaneously.

Waiving the rules would not undermine the public interest. Orbiter SN3’s spectrum use would be limited in time and location, and Launcher is capable of both sharing the spectrum it

¹⁷ 47 C.F.R. §§ 25.156, 25.157

¹⁸ *Id.* § 25.158.

¹⁹ See e.g., *Space Imaging, LLC*, Order et al., 20 FCC Rcd 11964 ¶ 10 (IB 2005) (“*Space Imaging Order*”); Stamp Grant, Spaceflight, Inc., IBFS File No. SAT-LOA-20220111-00007 (granted May 10, 2022); Stamp Grant, Loft Orbital Solutions, Inc., IBFS File No. SAT-LOA-20220606-00057 (granted Nov. 15, 2022).

proposes to use and operating on a noninterference basis. A grant of the requested authorization would not preclude subsequent grants for the same spectrum.

B. 47 C.F.R. §§ 25.164, 25.165 (Milestone and Surety Bond)

The milestone and bond requirements prevent FCC space station authorization holders from warehousing spectrum. As discussed above, Launcher’s proposed spectrum use would not be mutually exclusive and would not preclude other parties from seeking authorization for similar frequency bands. No basis exists to impose such milestone or bond requirements.

A second consideration is the anticipated time period for mission implementation and operations.²⁰ Orbiter SN3, a single spacecraft, is expected to complete its mission in less than two years.

A third factor is the bond cost should not be disproportionate to the overall mission cost.²¹ The Commission has found “that the cost of maintaining a \$3 million or \$5 million final bond during satellite construction is nominal in comparison with the cost to implement licensed space stations, which generally cost several hundred million dollars each to launch and operate.”²² The same is not true, however, for a single satellite with an extremely limited mission duration. For Orbiter SN3, the bond and associated fee, even for a short period of time, would be excessive, disproportionate, and unfair. As a result, waiving the milestone and bond requirements is justified. Should the Commission apply the milestone and bond obligations, however, the Orbiter SN3 bond

²⁰ See *Streamlining Licensing Procedures for Small Satellites*, Notice of Proposed Rulemaking, 33 FCC Rcd 4152 ¶ 51 (2019). The Commission determined that an individual small satellite should have an orbital lifetime of six years or less. See 47 C.F.R. § 25.123(b)(2).

²¹ See *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Order on Reconsideration and Fifth Report and Order, 19 FCC Rcd 12637 ¶¶ 28-31 (2004).

²² *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Second Report and Order, 30 FCC Rcd 14713 ¶ 60 (2016).

posting deadline should occur 90 days after the grant consistent with similarly situated recent FCC authorizations.²³

C. 47 C.F.R. § 1.1156 (Annual Regulatory Fee)

The Commission assesses an annual regulatory fee for authorized and operational NGSO systems. For the same reasons stated above, Launcher requests that the FCC waive in advance Orbiter SN3's annual NGSO regulatory fee. Given the brief mission duration, the potential six-figure fee would be excessive, disproportionate, and unfair.²⁴ And it would be premature, as the Commission recently concluded.²⁵

D. 47 C.F.R. § 25.217 (Default Service Rules)

The Commission has not adopted band-specific rules for the services Launcher proposes to provide, and the default service rules apply.²⁶ The Commission has waived this requirement when finding that compliance with the technical requirements in Part 2 of the FCC rules and applicable ITU Radio Regulations are sufficient to prevent harmful interference.²⁷ Launcher requests waiver of this rule and commits to satisfying the FCC technical requirements and applicable ITU Radio Regulations. Further, Launcher will coordinate with other operators to prevent harmful interference.

²³ See, e.g., Momentus, Stamp Grant, IBFS File No. SAT-LOA-20220504-00047 (granted Nov. 15, 2022).

²⁴ See *generally* *Assessment and Collection of Regulatory Fees for Fiscal Year 2022*, Report and Order and Notice of Proposed Rulemaking, ET Docket No. 22-223, FCC 22-68 (Sept. 2, 2022).

²⁵ See *id.* ¶ 45.

²⁶ See 47 C.F.R. § 25.217(b).

²⁷ See e.g., *Space Imaging Order* ¶ 25.

E. 47 C.F.R. § 25.114 (Schedule S)

A Schedule S form accompanies this application.²⁸ But Launcher cannot accurately describe Orbiter SN3's operations because of Schedule S limitations. Launcher, therefore, requests waiver of the Schedule S to the extent necessary. Additional information and explanation of certain Schedule S inputs appear in the attached Technical Annex.

F. 47 C.F.R. § 25.112 (Application Processing)

Application dismissal may occur if the submission contains incomplete information or internal inconsistencies.²⁹ Even in these cases, however, the Commission's rules provide that the Commission may accept a defective application if accompanied by an appropriate waiver request.³⁰ Launcher requests waiver of this rule. It asks the Commission permit Launcher to supplement its application if additional information or explanation is necessary. Granting it would avoid unduly harsh results given no regulatory framework properly captures the proposed operations and would conserve limited FCC resources by allowing any concerns to be addressed on an issue-specific basis.

III. PUBLIC INTEREST

The FCC is committed to fostering space innovation. Approving Launcher's Orbiter SN3 would advance this initiative. Orbiter SN3 acts as a steppingstone toward creating an orbit transfer vehicle that will later be capable of rendezvousing and lowering the orbit or de-orbiting

²⁸ See 47 C.F.R. § 24.114(c).

²⁹ See *id.* § 25.112(a).

³⁰ See *id.* § 25.112(b)(1).

harmful orbital debris.³¹ It also serves as a testbed for future small satellite communications systems and other critical avionics equipment supporting future space missions.

IV. OTHER MATTERS

A. Eligibility and Operational Requirements

To the extent necessary, Launcher confirms that it (1) does not have any other application for an NGSO-like satellite system license on file with the Commission, or any licensed-but-unbuilt NGSO-like system, in any frequency band involved in this application; (2) will satisfy FCC milestone requirements; and (3) will post a surety bond, if necessary.³²

B. NOAA Remote Sensing Licensing

The National Oceanic and Atmospheric Administration (“NOAA”) requires a license to operate a remote sensing system.³³ Launcher (and its customers) will secure any necessary licensing.

C. ITU Requirements

When issuing launch-and-operational authority, the Commission submits advance publication information (“API”) to the International Telecommunication Union (“ITU”).³⁴ In concert with this application, Launcher submits the ITU API and, in Attachment 1 (ITU Cost Recovery Declaration), unconditionally accepts all associated cost recovery responsibilities.

³¹ Launcher won the Department of the Air Force Orbital Prime Phase 1 award that seeks to promote active debris removal. See Lt. Col. Brian Holt, *SpaceWERX awards 124 Orbital Prime contracts*, The Air Force Research Laboratory (Nov. 4, 2022), <https://bit.ly/3Im0cVr>. Launcher plans for Orbiter to operate as an active debris removal platform in the future.

³² See 47 C.F.R. §§ 25.159; 25.164; 25.165.

³³ See generally 15 C.F.R. § 960.

³⁴ See 47 C.F.R. § 25.111.

D. Ownership Information

Attachment 2 (Ownership Information) captures Launcher's equity and voting structure.

V. CONCLUSION

The proposed mission does not harm radiofrequency or orbital resources. It does the opposite. With the requested expedited FCC approval for Orbiter SN3, numerous space industry participants can trial important platforms and services critical to preserving and improving space for all.

Respectfully submitted,

/s/ Max Haot

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Counsel for Launcher Corp.

March 1, 2023

Attachment 1 (ITU Cost Recovery Declaration)

March 1, 2023

Federal Communications Commission
45 L Street, NE
Washington, DC 20554

Subject: ITU Cost Recovery Declaration for the Orbiter SN3 Non-Geostationary Orbit
Satellite in Non-Planned Frequency Bands

Dear FCC Secretary,

Launcher Inc. (Launcher) is aware that in accordance with Resolution 88 of the International Telecommunication Union (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. Launcher hereby states that it is aware of this requirement and unconditionally accepts all cost recovery responsibilities associated with the ITU filings for the satellite network. Please address all cost-recovery inquiries, and ITU correspondence and filings, related to the 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: Max Haot

Organization Name: Launcher Inc.

Address: 12624 Daphne Ave
Hawthorne, CA 90250
United States of America

E-Mail: max@launcherspace.com

Telephone Number: +1 212-380-7533

Launcher 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 C.F.R. § 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.

Respectfully submitted,

/s/ Max Haot

Max Haot
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Attachment 2 (Ownership Information)

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

Shareholder	Citizenship or Country of Incorporation	Equity and/or Voting Interest Percentage
Jed McCaleb	U.S.	94%

The following individuals are Launcher’s board directors.

Name	Citizenship
Jed McCaleb	U.S.

The following individuals are Launcher’s officers.

Name	Title	Citizenship
Jed McCaleb	CEO	U.S.
Max Haot	President and Founder	U.S.
Krystle Caponio	Secretary and General Counsel	U.S.
David Caponio	Chief Operating Officer and SVP of Product & Business Development	U.S.

All Launcher board directors and officers may be reached at the address below.

Launcher Inc.
12624 Daphne Ave
Hawthorne, CA 90250