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

In the Matter of	)	File No. ___
	)	
Planet Labs PBC	)	Call Sign S2912
Application to Modify License	)	
	)	

MODIFICATION APPLICATION

Planet Labs PBC ("Planet") hereby requests authority from the Federal Communications Commission ("Commission"), under 47 C.F.R. § 25.117, to modify Planet's satellite license (Call Sign S2912)[1] as follows:

> (1) authorize Pelican satellites 2-10 to operate at a 440 km nominal altitude (+/- 25 km) and Pelican satellites 3-10 to be inserted at altitudes up to 535 km;[2]
>
> (2) authorize up to six of the first ten Pelican satellites to operate either in sun-synchronous orbit ("SSO") or at an inclination of 53 degrees (+/- 2 degrees); and
>
> (3) authorize the potential use of an L-band radio terminal for inter-satellite links ("ISLs") on Pelican satellites 5-10, as an end user of the Inmarsat system.

In the initial Pelican application, Planet requested authority for a fleet of 32 simultaneously operational satellites in a mix of SSO and inclined orbits at 325 km.[3] The Commission granted-in-part that initial application with respect to the first seven SSO satellites.[4]

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[1] *See* Stamp Grant, ICFS File No. SAT-MOD-20220421-00042, Call Sign S2912 (granted-in-part Aug. 31, 2023; reissued Sept. 28, 2023); *see also* ICFS File No. SAT-AMD-20231127-00290, Call Sign S2912 (granted Dec. 19, 2024).

[2] Planet continues to request authorization for Pelican 1 to operate at a 350 km nominal altitude pursuant to its modification filed October 31, 2023. *See* ICFS File No. SAT-MOD-20231031-00269 (filed Oct. 31, 2023).

[3] SAT-MOD-20220421-00042, Ex. C at 2-3 (filed Apr. 21, 2022).

[4] *See Planet Labs PBC Application for Modification of License*, ICFS File No. SAT-MOD-20220421-00042, Call Sign S2912, *Order*, DA 23-799, & Attachment to Grant at p. 7 (Condition 8) (rel. Aug. 31, 2023) (deferring "action with respect to the additional Pelican satellites, pending filing and approval by the Commission of a modification to the application

In a request to modify the Pelican license (which remains pending), Planet sought authorization to, among other things, "increase the number of Pelican satellites authorized to be deployed and operated under the current first-generation design from seven to ten," (all ten of which it proposed to launch to SSO orbits), and to adjust the nominal operational altitude from 325 km to 350 km (+/- 25 km).[5]

Allowing Planet to increase the nominal altitude of Pelican satellites 2-10 and to launch up to six of those satellites either to SSO or to an inclination 53 degrees will enhance the company's imaging capabilities and its product and service offerings to customers and offer additional flexibility to respond to customer demands and rideshare launch opportunities. In particular, the higher operating altitude will extend Pelican satellite lifetime, which is especially important in the current solar cycle, by reducing the number of orbital maneuvers needed for stationkeeping. Additionally, allowing some of the first ten Pelican satellites to launch and operate in either a mid-inclination orbit or SSO, will support a wider variety of launch opportunities, augment the Pelican fleet's coverage and revisit capabilities, and provide a smoother transition for Planet's high-resolution customers from the SkySat to the Pelican satellites, as certain of the SkySat satellites approach end-of-life as a result of a stronger than predicted solar cycle.

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with an updated orbital debris mitigation demonstration addressing the re-entry casualty risk associated with the deployment of future Pelican satellites").

[5] *See* ICFS File No. SAT-MOD-20231031-00269, Modification Application at 1, Ex. B at 1-2 (filed Oct. 31, 2023). Planet filed two additional Pelican license modifications, one updating the C-band antenna parameters and one to add authorization for a Ka-band intersatellite link demonstration. ICFS File No. SAT-MOD-20240723-00157 (filed July 23, 2024); ICFS File No. SAT-MOD-20240830-00196 (filed Aug. 30, 2024). The C-band modification was granted-in-part with respect to Pelican 2 (the request for authorization remains pending with respect to the remaining Pelicans), and the Ka-band modification remains pending. *See* Stamp Grant, ICFS File No. SAT-MOD-20240723-00157 (granted-in-part Nov. 21, 2024).

Authorizing the use of an L-band terminal for ISLs will enable Planet to more rapidly downlink certain Earth observation data and insights to its customers. For all of the above reasons, Planet submits that grant of the modification application is in the public interest and requests that the Space Bureau ("Bureau") approve the application by mid-August 2025 in sufficient time to allow the Pelican satellites planned for launch in the latter half of 2025 to have increased flexibility in operational orbit and spectrum use.

This application includes: an updated ownership exhibit (Exhibit A); ITU cost recovery letter (Exhibit B); relevant modified sections of the Technical Appendix (Exhibit C); updated orbital debris assessment report ("ODAR") (Exhibit D) to reflect the addition of the L-band antenna hardware and change in operating and maximum deployment orbits; and updated Schedule S.

Discussion

I. Request to Modify License

As described in more detail below, grant of the requested modification will serve the public interest by allowing Planet to prolong satellite lifetime in the face of a stronger than predicted solar cycle, allow Planet to choose from a range of launch providers, and better serve its customers.

A. Pelican Insertion Orbit and Nominal Operating Altitude

At the proposed, new nominal altitude of 440 km, the Pelican satellites will continue to comply with power flux density ("PFD") limits on the Earth and at the geostationary arc. The proposed increase in nominal altitude from 325 km to 440 km +/- 25 km is within the bounds of Planet's original PFD analysis,[6] which presented edge cases as high as 550 km and as low as

[6] *See* ICFS File No. SAT-MOD-20220421-00042, Call Sign S2912, at Exhibit C, Technical App'x, pp. 25-26 (filed Apr. 21, 2022) (discussing edge case commissioning orbits at 550 km and 250 km).

250 km. Nonetheless, for completeness, Planet provides in the attached Technical Appendix an updated PFD analysis for the new nominal altitude of 440 km.

Planet requests the change in the nominal operating altitude in order to optimize Pelican operations and extend satellite lifetime by reducing the need for stationkeeping maneuvers. Because of the stronger than predicted solar cycle, satellites operating at a 350 km altitude will need to more actively maneuver for stationkeeping, reducing budgeted propellant. Additionally, reducing the number of stationkeeping maneuvers enhances orbital safety by minimizing the need for other operators to plan around those maneuvers.

Because Planet intends to launch Pelican satellites 3-10 into insertion orbits of no higher than 535 km, it provides an analysis of this new insertion orbit in its attached ODAR. No further radiofrequency analysis is required as Planet previously provided worst-case envelope analyses for insertion orbits as high as 550 km and as low as 250 km. Planet therefore also requests that its license be updated to reflect a maximum insertion altitude of 535 km for Pelican satellites 3-10.

B. Pelican Inclination

Planet seeks the flexibility to launch up to six of the first ten Pelican satellites either to SSO or to an inclined orbit of 53 degrees (+/- 2 degrees). This will provide Planet with a wider variety of launch options. As with all of its other fleets, Planet intends to rely primarily on rideshare launches for its Pelican satellites and its inclination options will ultimately be dictated by the rideshare launches available. Additionally, inclined orbits allow for a different geographical coverage area than SSO orbits, allowing Planet to better serve its customers.

C. L-Band Intersatellite Link

Planet's satellites only have the ability to downlink imagery data when they pass over and communicate with a Planet Earth station. The use of ISLs provides more opportunities to move data or associated insights from the satellite to the ground, which can significantly reduce latency for customers between image capture and receipt of an image or analytic insight.

Planet seeks authorization to launch some or all of Pelican satellites 5-10 with an L-band ISL transceiver that operates in the 1525-1559 MHz and 1626.5-1660.5 MHz bands authorized and coordinated for the Inmarsat PLC ("Inmarsat") satellites.[7] Planet requests to use the frequencies, as a customer of Inmarsat, for relay communications with the Inmarsat Broadband Global Access Network ("BGAN"). The use of the L-band terminal for ISLs will enable Planet to downlink imagery data and/or data insights produced at the edge, with reduced latency to customers.

As described in further detail in Part II, below, the proposed operations will not cause harmful interference, accept interference from other authorized operators, and conform in all relevant respects with the rules governing Inmarsat's existing service. Planet's proposed use, as a customer of Inmarsat, would not exclude other operators from use of these frequency bands. Below, Planet requests a waiver of the U.S. Table of Frequency Allocations.

D. Orbital Debris Assessment Report

Planet has also updated its Orbital Debris Assessment Report ("ODAR") (attached as Exhibit D) to reflect the addition of the L-band antenna terminal, the updated 440 km nominal orbit and 535 km maximum insertion orbit, as well as the 53-degree proposed inclination. As

[7] Planet understands that the Inmarsat satellites are authorized by the United Kingdom.

demonstrated in the ODAR, the updated Pelican fleet operating parameters continue to meet all collision and casualty risk thresholds set forth in Part 25 of the Commission's rules.

II. Waiver Requests

The Commission may waive any of its rules if there is "good cause" to do so.[8] 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."[9] 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 serve the public interest.[10] For the reasons stated below, Planet submits that good cause exists to waive the following rules or requirements.

A. 1525-1559 MHz and 1626.5-1660.5 MHz (L-Band) (Space-to-Space) Intersatellite Link

Planet submits that good cause exists to provide a waiver of the U.S. Table of Frequency Allocations in order to permit Planet to use L-band MSS spectrum (1525-1559 MHz and 1625.5-1660.5 MHz) for ISLs, as a customer of Inmarsat. Transmissions will occur only on frequencies that Inmarsat assigns to the spaceborne L-band terminals onboard the Pelican spacecraft. These transmissions are approved and supported by Inmarsat and fall within its licensed spectrum. As with its other operations, Inmarsat will assign channels to the spacecraft consistent with its coordination agreements with other operators in the band, ensuring that there is no harmful interference between these systems. Use of the L-band Inmarsat terminal for ISLs

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[8] *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).

[9] *See, e.g., GE American Communications, Inc*., 16 FCC Rcd. 11,038, at 11,041 9 (IB 2001).

[10] *See, e.g*., *WAIT Radio*, 418 F.2d at 1157.

is on a non-conforming basis, and accordingly, such operations are unprotected and on a non-harmful interference basis.

AddValue Technologies Ltd., the L-band terminal vendor, has verified that the modem complies with ETSI EN 301 473, which specifies unwanted emissions limits outside the band 1626.5 MHz to 1660.5 MHz.[11] Accordingly, the proposed use of the L-band terminal will not cause any interference.[12]

Inmarsat through its Network Operations Center in London and its network of land earth stations ("LES") will maintain the same extent of positive control of Planet's operations as it does for its other L-band users and will thereby be able to address any unlikely interference issues as required by Section 25.287 of the Commission's Rules. Because Inmarsat actively controls transmissions using this terminal, Inmarsat will be able to ensure compliance with the priority and preemption requirements specified in 47 C.F.R § 25.287(a), as follows:

[11] *See* European Telecommunications Standards Institute, Harmonised European Standard ETSI EN 301 473 v2.1.2 (2016-11), at Section 5.4.2 (2016), https://www.etsi.org/deliver/etsi_en/301400_301499/301473/02.01.02_60/en_301473v020102p.pdf.

[12] *See, e.g.*, Iridium Constellation LLC Application for Modification of License to Authorize a Second-Generation NGSO MSS Constellation, Order and Authorization, 31 FCC Rcd. 8675 ¶26 (2016). The Commission also has previously authorized earth stations licensed in the United States for communications with Inmarsat satellites for location accuracy services and licensed other space station operators to carry an Inmarsat L-band terminal for inter-satellite links. *See, e.g.*, Stamp Grant, Deere & Company, ICFS File No. SES-LIC-20130422-00340 (granted Feb. 9, 2016); *see also* Stamp Grant, Loft Orbital Solutions, Inc., ICFS File No. SAT-LOA-20230414-00088, Call Sign: S3170 (granted Jan. 19, 2024).

1. Inmarsat assigns a priority to the terminal, which preserves the priority and preemptive access given to maritime distress and safety communications sharing the band.
2. This requirement is not applicable. The terminal does not handle maritime distress and safety communications.
3. The terminal is assigned a unique identification number, which is encoded in the transmitted message.
4. The terminal is under the control of the Inmarsat land earth stations and obtains all channel assignments from such LES.
5. At the end of a transmission, the terminal is listening for forward link messages.
6. The terminal is capable of automatically inhibiting its transmissions if not correctly receiving a separate signaling channel or signaling within the communications channel from the Inmarsat LES, and will inhibit its transmissions upon failure to receive such signaling.
7. The terminal is fully capable of automatically inhibiting its transmissions on all channels upon receipt of a channel shut-off command from the Inmarsat LES and will inhibit its transmissions upon receipt of such a command.
8. This requirement is not applicable. The terminal does not handle maritime distress and safety communications.

For the above reasons, grant of the waiver is justified.

B. Form 312 Schedule S Requirements

Planet requests a limited waiver of section 25.114(c) of the Commission's rules, which requires certain information to be filed in the Schedule S. Some of these categories (*e.g.*, max/min saturation flux density, antenna pointing error, and antenna rotational error) are inapplicable and/or do not permit the entry of correct values. In such cases, Planet has provided placeholder data (*i.e.*, "0.0" or "-999.9") in the Schedule S to complete the form. 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 necessary to evaluate the application. Given that Planet has provided all relevant information in the narrative, Technical Appendix, and Schedule S, waiver of certain Schedule S requirements is appropriate.[13]

[13] *See* 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).

III. International Telecommunication Union Filing

Planet is preparing the International Telecommunication Union Advance Publication Information submission for the proposed modification of its system and will provide an electronic file with this information to the Bureau. Attached as Exhibit B is an ITU cost-recovery letter associated with this application.

Conclusion

For the reasons described herein, Planet respectfully requests modification of its license as discussed above.

Respectfully submitted,

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