EXHIBIT A

Planet Labs Inc.
Amendment

DESCRIPTION OF THE AMENDMENT

Planet Labs Inc. (Planet) respectfully requests to amend its previously submitted request to modify the authorization (Modification) for the Planet Earth Exploration Satellite Service (EESS) system (FCC Call Sign S2912, a.k.a. "Flock").[1] Specifically, Planet requests authority to:

- Modify up to three (3) of its authorized satellites of the Flock constellation to remove the imaging camera system and replace it with a nano propulsion system to be used as a technology demonstration and evaluate its potential for use on future Planet satellites (each such satellite a "Dove Turbo" satellite). The primary purpose of the propulsion system is to demonstrate orbit maintenance and constellation phasing. Further test objectives are later described in this Narrative. Planet currently has planned only one satellite demonstration but requests additional authority in the event the first satellite fails on-orbit, fails to reach orbit, or additional demonstrations or testing become necessary (Backup Dove Turbo satellites).[2]

A. Overview

Planet operates a constellation of commercial non-geostationary orbit (NGSO) remote-sensing satellites and is authorized to operate up to 200 satellites at any one time. The original Dove/Flock satellite design does not include propulsion, and Planet has historically relied on passive maneuvering techniques (e.g. differential drag) for in-orbit operations of its Flock. In addition to the requested modifications in the filing referenced above, Planet requests authorization to use up to three satellites for a technology demonstration of a nano propulsion system. The Dove Tech Demo satellites equipped with propulsion are known as Dove Turbo satellites, each of which will have its remote sensing camera system removed and replaced with a propulsion system. The purpose of the propulsion system is to demonstrate active orbit

[1] *See* Modification Application, File No., IBFS File No. SAT-MOD-20170713-00103 (filed July 13, 2017) ("Modification").
[2] Planet respectfully requests expedited consideration of this amended modification application. The expected launch date for the Dove Turbo satellite is December 20, 2017.

maintenance maneuvers, constellation phasing, collision avoidance techniques, and potentially accelerated deorbit at end of life; the propulsion operations will not exceed the maximum operational altitude authorized for the Flock satellites, and all propulsion maneuvers will be duly coordinated with JSpOC, the Space Data Association (SDA), and any other satellite operators in neighboring orbital regimes that may be affected. The satellite's physical, electrical, avionics, and communications systems will remain unchanged from the flight-proven Dove design.

Each such Dove Turbo satellite will be considered one of the 200 authorized Flock satellites and does not change the orbital debris risk or the compatibility of communications with other systems. More specifically, each such satellite will be in an orbit as currently authorized for the Flock with the same physical properties as regular Doves and thereby no change to orbital debris and collision risk from regular Flock satellites.

All of the communications systems will be on-board and capable of operating, and used for communications for the same purposes as regular Flock satellites currently authorized and operating. The UHF channels will be used for regular Space Operations and anomaly resolution. The S-band channel will be used for regular Space Operation tasking including for the propulsion system control. The X-band channel will be used for the downlink of propulsion system performance data. It is expected however the use of the S-band and X-band channels will be far less frequent than for regular Doves given that there is no regular image scheduling and data downlink. All communication transmissions will be consistent with the authorized parameters for the Flock system.

B. General Description of Overall Facilities, Operations, and Services

The Dove Turbo satellite will share the same mission operations and control points as the regular Flock satellite system as described in the Modification application. The satellite will also share the same orbital characteristics authorized for the Flock constellation.

The services of the satellite will be for demonstration of propulsion technology that may be used on future Planet satellites to further improve on-orbit operations,

conjunction avoidance, and responsible utilization of Low Earth Orbit.

C. Technical Description

Other than replacing the imaging camera with a propulsion system, the satellite is technically identical to the other Flock satellites. It shares the same design and manufacture of the structural, power, avionics, and communications aspects of the Flock satellites and shares the same associated earth stations for the uplink and downlink of space operations data and propulsion system performance data. There are no changes to the frequencies and concept of operations for each of the bands as proposed in the Modification.

The nano propulsion system is known as Indium Field Emission Electric Propulsion. This propulsion system consists of a 250-gram cylinder of indium, associated heaters, ion generator mechanism, and beam neutralizer mechanism. Thrust is generated by the acceleration of ions via an applied electric field between an emitter crown and extractor electrode. The expected thrust is 350 micro-Newtons (uN), and there is a total of 5000 Newton-second total impulse capability for up to 1415 m/s velocity change for the 5 kg Dove Turbo satellite.

The test objectives of the technology demonstration will inform Planet of several use cases for the propulsion system including the following:

- Validate the efficacy of an electric propulsion system for the phasing and maintenance of the orbit including altitude adjustments (typical of orbit maintenance maneuvers, i.e approximately 1 km).
- With efficacy data, estimate the ability for collision avoidance maneuvers using the propulsion system.
- At the end of the Dove Turbo mission and if feasible, demonstrate a rapid de-orbit capability for end-of-mission disposal (potentially reducing orbital lifetime to less than 1 year).

D. Orbital Debris Mitigation

The propulsion system does not change the potential for collisions or risk of

generating orbital debris. Attached as Exhibit B is a revised version of the Orbital Debris Assessment Report (ODAR) specific to the Dove Turbo satellite. The ODAR shows there is no change in the risk for orbital debris generation and collisions with other spacecraft since the physical characteristics of the satellite are the same as regular Flock satellites. The propulsion system does not contain any stored energy and therefore no risk for accidental explosions. All energy is provided by the batteries and solar arrays, which is the same as regular Flock satellites. The risk for human casualty from material reaching the Earth's surface during re-entry is zero (0) since there are no high melting point or large mass materials capable of surviving re-entry, including the indium cylinder within the propulsion system.

Planet has considered the possible failure modes of the propulsion system operations and mitigation to prevent failures from increasing the risk towards collisions and orbital debris generation. In particular, Planet has in-house expertise from the Skysat satellite mission (Call Sign S2862) currently operational with a propulsion system and that person will guide the process for control and operation of the Dove Turbo propulsion system to fully characterize and monitor the resulting effects to the orbit.

The propulsion system is controlled by a software defined state-machine with multiple gates before thrusters are enabled. Although not a credible failure case, in the theoretical worst-case scenario wherein the propulsion system does not turn off, the batteries will deplete within three hours thereby limiting the duration of a continuous thrust event.

E. Additional/General Considerations

Other than as stated in this amendment application, there are no other requested changes to the modification application.

TECHNICAL CERTIFICATE

I, Craig Scheffler, hereby certify, under penalty of perjury, that I am the technically qualified person responsible for the preparation of the engineering information contained in the technical portions of the foregoing application and the related attachments, that I am familiar with Part 25 of the Commission's rules, and that the technical information is complete and accurate to the best of my knowledge and belief.

Craig Scheffler
Spectrum Manager
Planet Labs Inc.