DESCRIPTION OF PROPOSED MODIFICATION

Planet Labs Inc. ("Planet") respectfully requests authority to modify the authorization for Planet's SkySat Earth Exploration Satellite Service ("EESS") system (FCC Call Sign S2862).[1] Specifically, Planet requests authority to:

- Modify the authorized orbital location for the SkySat-16 to SkySat-21 satellites to include the inclination range 40° – 60° in addition to the currently authorized inclination range of 97.0° – 97.9°; and
- Modify the operational orbital altitude for SkySat-3 to include 400 km.

This application contains only information regarding the above-proposed changes, including an updated Schedule S identifying relevant technical specifications. Planet is not requesting any other changes to the existing authorized satellite operations or radio communications parameters and certifies that all such other information remains unchanged.[2]

Grant of the requested modification increases the commercial flexibility of the company by enhancing image coverage and resolution and facilitating system operations. Such increased capabilities will further competition and expand U.S. capabilities in the market for commercial remote sensing data. Accordingly, grant of the application will serve the public interest.

I. Description of Modification

A. Operation of SkySat-16 to SkySat-21 at an Inclination Range between 40° to 60°

Planet operates a constellation of commercial remote sensing satellites that are licensed under FCC Call Sign S2862.[3] Planet currently operates 15 SkySat satellites and is nearing the completion of construction of six more SkySats (SkySat-16 through SkySat-21).

SkySat-16 through SkySat-18 are intended to be launched as secondary payloads in April 2020 on a Falcon 9 launch vehicle, and SkySat-19 through SkySat-21 are intended to be launched as secondary payloads in June 2020 on a subsequent Falcon 9 launch vehicle. The six SkySats are expected to be deployed into a 190 km x 380 km elliptical orbit.

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[1] *See* Stamp Grant, Application of Terra Bella Technologies Inc., File No. SAT-MOD-20170317-00053 (granted June 28, 2017) ("Planet Authorization").

[2] *See* Application of Terra Bella Technologies Inc., File No. SAT-MOD-20170317-00053, Exhibit 43 (granted June 28, 2017) ("Planet Application").

[3] *See* Planet Authorization. Planet also operates constellation of Dove satellites that provide medium-resolution images and complement the SkySat satellites. *See* Stamp Grant, File No. SAT-MOD-20170713-00103 (granted July 19, 2018).

After each launch, Planet will commence in-orbit testing and commissioning shortly after deployment. Planet will then conduct orbit-raising maneuvers to transition the SkySat satellites to a nominal operating altitude of 400 km at an inclined orbit between 40° to 60° (to be determined based on market factors at that time).[4] Planet expects that SkySats will arrive at their destination location and begin nominal operations within approximately six weeks of deployment. Throughout this period, Planet will also conduct imaging operations for commissioning and calibration purposes. Nominal S-band (uplink) and X-band (downlink) operations will comply with authorized parameters.[5]

To be clear, there are no changes to the SkySat propulsion system, the orbit maintenance characteristics or the orbital debris mitigation plan, as previously authorized.[6]

B. Operation of SkySat-3 at a 400-km Orbital Altitude

On April 8, 2015, Planet (through a predecessor-in-interest) sought authority to launch and operate SkySat-3 to SkySat-15 at orbital altitudes ranging from 400 to 630 km.[7] The FCC granted authority for SkySat-4 to SkySat-15 to operate at any of those altitudes. However, for SkySat-3, which was to be launched in approximately two weeks after the license grant, the FCC authorized the satellite to operate at only the specific target deployment altitude associated with the imminent launch, *i.e.* 510 km x 502 km with an inclination of 97.42 degrees.[8]

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[4] The SkySats are currently authorized to operate in circular orbits with altitudes in the range of 400 to 630 km at an inclination in the range 97.0° – 97.9°. *See* Planet Authorization.

[5] Prior to the arrival of the satellites at the 400 km orbit, Planet will maintain the satellites' PFD levels, during nominal operations, within the applicable ITU limits by operating with a sufficiently low satellite transmitter power. *See* Planet Application at 16 ("At all altitudes down to the reentry altitude, Terra Bella will maintain the satellites' PFD at levels within the applicable ITU limits by reducing satellite transmitter power on a graduated basis as the satellite nears the Earth.").

[6] *See* Planet Application. The ground segment comprises an earth station in Fairbanks, Alaska and stations in Inuvik, Canada; Svalbard, Norway; Tromso, Norway; and Troll, Antarctica. If Planet seeks to communicate with other ground stations, it will seek separate authorizations from the appropriate administrations and coordinate operations with relevant federal agencies, pursuant to existing coordination agreements with federal operators. *See* Planet Authorization, conditions 1, 4, and 5.

[7] *See* Application of SkyBox Imaging, Inc., File No. SAT-MOD-20150408-00019 (April 8, 2015).

[8] *See* Stamp Grant, Application of Skybox Imaging, Inc., File No. SAT-MOD-20150408-00019 (granted June 6, 2016).

Because Planet intends to enhance its image-resolution capabilities and desires consistency for its satellite constellation authorization, it seeks authority to operate SkySat-3 at a 400-km orbital altitude.[9] Planet incorporates by reference the information provided in its 2015 application supporting the authority for the SkySats to operate at the 400-630 km orbital altitude.

II. Additional/General Considerations

A. Form 312, Schedule S

Planet's Transmitting Beam 1 (Beam ID: TTC) has a Max Transmit EIRP of -2.1 dBW. However, the Schedule S data field will not accept a number less than zero. Accordingly, Planet entered zero to satisfy the Schedule S form requirement that maximum EIRP values be non-negative.

As required by the Commission's rules and policies, Planet has completed, to the best of its ability and within the limitations of the Commission's software, the FCC Form 312, Schedule S submission, which reflects the orbital and physical/electrical characteristics of the satellites proposed in this application. To the best of Planet's understanding, the information in Form 312, Schedule S is complete and contains representative data that will allow the Commission to conduct an accurate technical assessment of the proposed modification. Any additional information used to complete the application process is identified in this Exhibit.

B. ITU Advance Publication Materials

Planet is preparing the ITU Advance Publication Information submission for the proposed modification of its non-geostationary EESS system and will provide an electronic file with this information to the International Bureau.

[9] Lowering the operating orbital altitude from 500 km to 400 km will increase the ground sample distance, enhancing the image resolution.

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For the reasons set out above, Planet respectfully requests modification of the Planet Authorization. Further, because of the anticipated launch of SkySat-16 through SkySat-21 in early 2020, Planet requests expedited action.

Respectfully submitted,

/s/ Adonica Wada

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December 17, 2019

TECHNICAL CERTIFICATION

I, Henrique Miranda, 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.

/s/ Henrique Miranda

Henrique Miranda
Principal RF Engineer
Planet Labs Inc.

December 17, 2019