

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

In the Matter of	)	File No. SAT-MOD-20170713-00103,
	)	SAT-MOD-20191217-00148
Planet Labs Inc.	)	
	)	Call Signs S2912, S2862
Application to Consolidate Licenses	)	

**MODIFICATION APPLICATION**

Planet Labs Inc. (“Planet”) hereby requests authority from the Federal Communications Commission (“Commission”), under 47 C.F.R. § 25.117, to consolidate under one satellite system license (Call Sign S2912): (i) the “SkySat” satellites (Call Sign S2862)<sup>1</sup> and (ii) the “Flock” satellites (Call Sign S2912).<sup>2</sup> Planet is not requesting any technical changes to the authorized Flock or SkySat satellite operations and certifies that all such information remains unchanged.<sup>3</sup> Grant of the license consolidation will reduce regulatory costs and burdens for Planet and facilitate internal operations. For these reasons, Planet submits that grant of the application is in the public interest and requests that the International Bureau (“Bureau”) approve the application.

**Background**

Planet is an integrated aerospace and data analytics company that operates a constellation of Earth-Exploration Satellite Service (“EESS”) or Earth-imaging satellites collecting information about our changing planet. Planet is driven by its mission to image the entire Earth

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<sup>1</sup> See Stamp Grant, IBFS File No. SAT-MOD-20191217-00148, Call Sign S2862 (granted Mar. 16, 2020).

<sup>2</sup> See Stamp Grant, IBFS File No. SAT-MOD-20170713-00103, Call Sign S2912 (granted Jul. 19, 2018).

<sup>3</sup> Planet also submits an up-to-date ownership exhibit to reflect one new Director. See Exhibit 40.

every day, and make global change visible, accessible, and actionable. Founded in 2010, Planet designs, builds, and operates small satellites, as well as online platforms that serve data to users, helping decision-makers solve our world's toughest challenges, and entrepreneurs to build new businesses. Planet is headquartered in San Francisco, California. For more information, visit <https://www.planet.com/>.

As part of its satellite constellation, Planet operates the SkySat satellites, which are authorized under FCC Call Sign S2862.<sup>4</sup> The satellites operate in the S-band (2025-2110 MHz Earth-to-space) and X-band (8025-8400 MHz space-to-Earth) frequencies. Eighteen SkySat satellites are currently in orbit, and Planet is nearing the completion of construction and deployment of three more SkySats (SkySat-19 through SkySat-21), which are scheduled to launch in the second half of 2020. The SkySat satellites provide high-resolution (sub-meter) imagery and can provide regular, rapidly updated snapshots of select areas of the globe that can be used in applications for monitoring supply chain changes in commodities and shipping, or tracking mineral mining and extraction.

Planet also operates a fleet of smaller 3U Flock satellites, which are authorized under FCC Call Sign S2912.<sup>5</sup> The Flock satellites operate in the UHF (401-402 MHz space-to-Earth; 449.75-450.25 MHz Earth-to-space), S-band (2025-2110 MHz Earth-to-space) and X-band (8025-8400 MHz space-to-Earth) frequencies. The Flock satellites image the entire Earth daily, providing medium-resolution imagery that can be used in applications such as mapping and

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<sup>4</sup> See Stamp Grant, File No. SAT-MOD-20170317-00053, Call Sign S2862 (granted Jun. 28, 2017).

<sup>5</sup> See Stamp Grant, File No. SAT-MOD-20170713-00103, Call Sign S2912 (granted Jul. 19, 2018).

agricultural monitoring. Together the complementary services and diverse capabilities of the SkySat and Flock satellites allow Planet to better serve the needs of its customers.

### **Discussion**

Planet requests that the FCC consolidate under one satellite system license (Call Sign S2912): (i) the SkySat satellites (Call Sign S2862) and (ii) the Flock satellites (Call Sign S2912).<sup>6</sup> Both the SkySats and Flocks are non-geostationary orbit, EESS satellites. The SkySat and Flock satellites function as part of an integrated system. Additionally, the satellites operate in essentially the same frequency bands (*i.e.*, 2025-2110 MHz and 8025-8400 MHz)<sup>7</sup> and communicate with common ground stations. By consolidating the satellite licenses, Planet will be able to reduce regulatory costs and burdens<sup>8</sup> and facilitate internal operations. Indeed, consolidating the SkySats and Flock into one operational satellite system was one of the anticipated benefits from Planet's acquisition of the SkySats in 2017.<sup>9</sup> Grant of the license consolidation is also consistent with FCC precedent.<sup>10</sup>

Planet understands that all current license terms and conditions applicable to the SkySat and Flock satellites will continue to apply to those satellites after the license consolidation. In fact, all conditions applicable to SkySat are already included in the Flock license. The only

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<sup>6</sup> *See id.*

<sup>7</sup> The Flock satellites also operate in certain UHF bands.

<sup>8</sup> For example, at present Planet must pay the annual regulatory fee for two EESS systems.

<sup>9</sup> *See, e.g.*, Application of Planet, File No. SAT-T/C-20170215-00018, Call Sign S2862, Description of the Transaction, at 2 (granted Apr. 10, 2017).

<sup>10</sup> *See, e.g.*, Stamp Grant, DIRECTV Enterprises LLC, File No. SAT-MOD-20161219-00128, Call Sign S2669 (granted Mar. 23, 2017); Stamp Grant, DIRECTV Enterprises, LLC, File No. SAT-MOD-20150428-00031, Call Sign S2861 (granted Feb. 11, 2016) (consolidating call signs for different payloads on a single satellite).

additional conditions are either unique to Flock satellite operations,<sup>11</sup> or unique to the number of Flock satellites.<sup>12</sup> Accordingly, treating the satellites as authorized under one license for administrative purposes would not impact the technical operations of the SkySat or Flock satellites.<sup>13</sup> Planet has included in this narrative a proposed consolidated license (Exhibit A), with only conforming changes to original language, intended to capture the spirit of the separate license conditions.

Planet also requests that the Commission apply the February 28, 2029 license expiration date for Call Sign S2912 to the SkySat satellites. Having a consolidated expiration date applicable to both the SkySat and Flock satellites is administratively convenient and avoids unnecessary complexity or confusion. Moreover, the current license expiration date for the SkySat satellites is December 16, 2028,<sup>14</sup> and an extension of approximately two and a half months is modest. After consolidating the licenses as requested above, the Commission should treat Call Sign S2862 as surrendered.

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<sup>11</sup> See Note 4, Conditions 2-6, 11.

<sup>12</sup> *Id.*, at Condition 14.

<sup>13</sup> Planet incorporates the Schedule S for both Flock and SkySat by reference. See Note 1, Note 2.

<sup>14</sup> See *supra* note 1.

## Conclusion

For the reasons set out above, Planet respectfully requests modification of its license, as discussed above.

Respectfully submitted,

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EXHIBIT A

Proposed Consolidated License for Flock and SkySat

(SkySat additions or changes to S2912 are underlined)

IBFS File No(s):	
Licensee/Grantee:	Planet Labs Inc.
Call Sign:	S2912
Satellite Name:	Flock <u>and SkySat</u>
Orbital Location: (required station-keeping tolerance)	NGSO at altitudes between 350 km and 660 km; <u>and NGSO at altitudes between 400 km and 630 km and inclinations between 85 and 100 degrees (SkySats 1 and 2), 97.0 and 97.9 degrees (SkySats 3-21); approximately 400 km to 420 km between 40.0 and 60.0 degrees (SkySats 16-21 alternative orbit)</u>
Administration:	United States of America:
Nature of Service:	Earth Exploration Satellite Service; Space Operations
Scope of Grant:	<p>Authority to construct, deploy, and operate a constellation of up to 544 technically identical non-geostationary satellites as follows:</p> <ul style="list-style-type: none"> <li>• 12 Flock 2p satellites deployed at 505 km with an inclination of 97.51 ° by the PSL V launch vehicle;</li> <li>• 529 satellites initially deployed to orbital apogee altitudes of no greater than 660 kilometers, including up to 3 satellites with an Automatic Identification System (AIS) receiver system to demonstrate the capability of the satellites receive AIS 1 (161.9625 MHz-161.9875 MHz) and AIS 2 (162.0125-162.0375 MHz) channels;</li> <li>• 3 satellites for purposes of a propulsion demonstration, deployed to orbital apogee altitudes of approximately 550 kilometers;</li> </ul> <p><u>And Modification of the specified operational orbital altitude range for SkySat-3 to include altitudes down to 400 km.</u> <u>Modification of the specified orbital locations for SkySat-16 to SkySat-21 satellites to include the inclination range of 40.0 degrees to 60.0 degrees in addition to the inclination range of 97.0 degrees and 97.9 degrees.</u></p>
Previous Grant(s):	<p>SAT-MOD-20170713-00103 (granted in part, deferred in part May 24, 2018);  SAT-AMD-20171106-00151 (granted May 24, 2018);  SAT-AMD-20171025-00144 (granted Dec. 8, 2017);  SAT-MOD-20150802-00053 (granted in part, deferred in part Sept. 15, 2016; granted in part, deferred in part Dec. 8, 2017);  SAT-MOD-20140912-00100 (granted Oct. 23, 2014);  SAT-MOD-20140321-00032 (granted June 18, 2014);</p>

	<p>SAT-LOA-20130626-00087 (granted Dec. 3, 2013);</p> <p><u>And Authority to construct, deploy and operate two satellites, SkySat-1 and SkySat-2, in high-inclination circular orbits. See IBFS File No. SAT-LOA-20120322-00058 (granted Sept. 20, 2012).</u></p> <p><u>Authority to construct, deploy, and operate SkySat-3. See IBFS File No. SAT-MOD-20150408-00019 (granted in part and deferred in part June 10, 2016).</u></p> <p><u>Authority to construct, deploy and operate 12 additional satellites, SkySat-4 through SkySat-15, in circular orbits with altitudes from 400 to 630 km, depending on the launch vehicle used, and with inclination ranging between 97 and 97.9 degrees. See IBFS File No. SAT-MOD-20150408-00019 (granted Aug. 31, 2016).</u></p> <p><u>Authorization to deploy and operate up to six additional non-geostationary orbit remote-sensing satellites, SkySat-16 through SkySat-21, in circular orbits with altitudes from 400 to 630 km, depending on the launch vehicle used, and with inclination ranging between 97 and 97.9 degrees. See IBFS File No. SAT-MOD-20170317-00053 (granted June 29, 2017).</u></p>
Service Area(s):	Global.
Frequencies:	<p>8025-8400 MHz (space-to-Earth) (remote sensing data and telemetry) 2025-2110 MHz (Earth-to-space) (command)</p> <p>401-402 MHz (space-to-Earth) and 449.75-450.25 MHz (Earth-to-space) (early-phase and emergency-backup, as well as ranging and orbit determination on a non-emergency basis)</p> <p>161.9625-161.9875 MHz (AIS 1) and 162.0125-162.0375 MHz (AIS 2) (up to 3 demonstration satellites)</p>
<p>1. Planet Labs must prepare the necessary information, as may be required, for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, coordination, due diligence, and notification process for these space stations, in accordance with the ITU Radio Regulations. Planet Labs shall be held responsible for all cost-recovery fees associated with ITU filings. No protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination with the frequency assignments of other administrations. See 47 CFR § 25.11 l(b).</p>	

2. Power flux-density from operation in the 8025-8400 MHz band must not exceed the limits in No. 22.5 and Table 21-4 of the International Telecommunication Union's Radio Regulations, the limits/protection criteria in Recommendation ITU-R SA.1157-1 must be met, and the guidelines in Recommendation ITU-R SA.1810 must be followed.
3. Operations pursuant to this authorization must not cause harmful interference to stations operating in the 2025-2110 MHz band in accordance with the U.S. Table of Frequency Allocations. See 47 CFR § 2.106, Footnote US347.
4. Operations pursuant to this authorization must be in compliance with the terms of a Memorandum of Agreement between Planet Labs and the National Aeronautics and Space Administration (NASA) pertaining to operation in the frequency band 8025-8400 MHz.
5. Transmissions of remote-sensing and telemetry data in the 8025-8400 MHz frequency band may only be made to earth stations coordinated with the National Aeronautics and Space Administration (NASA). Planet shall provide the FCC the list of coordinated earth stations.
6. Given the opportunity for additional entrants to operate in the 8025-8400 MHz band, we grant Planet Lab's request for waiver of the modified processing round requirements of 47 CFR §§ 25.156 and 25.157. See DigitalGlobe, Inc., Order and Authorization, 20 FCC Red 15696 (Sat. Div., Int'l Bur. 2005), at paragraph 8.
7. Because Planet Labs must comply with technical requirements in Part 2 of the Commission's rules and the above-referenced power flux-density limits, which should prevent harmful interference to other operations in the band, we grant its request for a waiver of the default service rules in 47 CFR § 25.217(b). See DigitalGlobe, Inc., supra, at paragraph 15.
8. Upon receipt of a conjunction warning from the JSpOC or other source for Flock satellites, Planet Labs must review the warning and take all possible steps to assess and, if necessary, to mitigate collision risk, including, but not limited to: contacting the operator of any active spacecraft involved in such warning; sharing ephemeris data and other appropriate operational information with any such operator; modifying space attitude and/or operations.
9. The number of simultaneously operational Flock satellites must not exceed 200.
10. No more than 120 Flock satellites may be deployed to orbits that exceed an apogee altitude of 550 km
11. Deployment of a Flock satellite into an orbit with an inclination of 51.6 degrees, plus or minus 0.1 degree, at an altitude above the ISS, is not authorized by this grant.



12. Planet Labs shall tune Flock satellite TT&C UHF links to an agreed frequency range with NOAA as soon as possible to minimize interference to NOAA GOES Data Collection System (DCS), and radiosonde operations and continue to work closely with NOAA to identify and implement any further measures needed to avoid RFI to the systems mentioned earlier. This initial tuning would be an interim frequency range for Planet Labs to use for upcoming launches. For future mission planning, transition out of 401-406 MHz to avoid interference to DCS and radiosondes is recommended. Planet Labs and NOAA shall work jointly to explore future mitigation strategies to avoid interference to NOAA missions.
13. Given that there is little potential for interference into any authorized service, we grant, on our own motion, a waiver of the U.S. Table of Frequency Allocations, 47 CFR § 2.106, to allow non-conforming use of the 2025-2110 MHz band and the 8025-8400 MHz band in support of Planet Lab's limited demonstration of propulsion technology, subject to the condition that Planet Labs accepts any interference from authorized services in these bands in connection with its limited propulsion demonstration and that transmissions in the 8025-8400 MHz band are subject to any agreement reached between Planet Labs and NASA in this band.
14. This authorization will become null and void regarding Flock satellites, if at any time during the license term, none of the 600 Flock satellites hereby authorized is operating; or in regard to SkySat, if there are no SkySat satellites operating. This authorization may be subject to additional conditions or a reduction in the number of authorized satellites for Flock, in the event future deployment rates do not justify an authorization for 200 operational satellites.
15. Planet Labs has fulfilled milestone and bond obligations imposed as conditions to a previous grant of authority for Flock to operate up to 28 NGSO satellites in the 8025-8400 MHz band, (*see* IBFS File No. SAT-MOD-20140321-00032 (grant stamp dated June 18, 2014), as well as a previous grant of authority for SkySat to operate the SkySat-3 satellite in the 2020-2025 MHz band (*see* IBFS File No. SAT-MOD-20150408-00019). Because of the need for Planet Labs to continuously replenish its Flock satellite constellation within the duration of its license term, and the discharge of the bond requirement associated with the previous SkySat grant, we will not impose additional milestones or bond conditions in connection with this license modification. We find that warehousing concerns are addressed in this situation through the imposition of condition 13 above.
16. Within 30 days after deployment of each satellite pursuant to this authorization, Planet Labs must file a notification with the Commission specifying its apogee and perigee altitudes and orbital inclination.
17. The authority granted herein is subject to the existing license term for operation under S2912, which ends February 28, 2029.