

### **Description of Request**

Planet Labs Inc. (“Planet Labs”) hereby requests authority to operate an earth station located at 235 Martindale Dr., Morehead, KY 40351. The proposed earth station will transmit at 450.0 MHz, and receive at 401.3 MHz. The earth station will be in communications with the authorized Planet Labs Constellation of Non-Geostationary Orbit (“NGSO”) Earth Exploration Satellite Service (“EESS”) satellites.<sup>1</sup> The frequencies in this application have already been authorized for transmission and reception to and from the authorized Planet Labs Constellation for early-phase and emergency-backup telemetry, tracking and command operation (“TT&C”).<sup>2</sup> A Special Temporary Authority (STA) with the exact same technical and administrative characteristics has also been granted for this earth station site.<sup>3</sup>

The 401-402 MHz band, which is authorized for Space Operations on a secondary basis for non-federal users, is used as a secondary TT&C space-to-Earth link.<sup>4</sup> The 449.75-450.25 MHz band, which is authorized for space telecommand, subject to agreement obtained under No. 9.21, is used as a secondary TT&C Earth-to-space link.<sup>5</sup> This site is a TT&C-only site and thus will not utilize any of the other authorized frequencies granted under Call Sign S2912.

Planet Labs transmissions will not cause harmful interference to Federal and non-Federal stations operating in accordance with the Table of Frequency Allocations. Planet Labs also accepts any interference to it that is caused by those allocated services.

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<sup>1</sup> See File No. SAT-LOA-20130626-00087 (approved 12/03/13, Call Sign S2912)

<sup>2</sup> *Ibid*

<sup>3</sup> See File No. SES-STA-20140212-00074 (approved 04/03/14 through 05/03/14)

<sup>4</sup> See 47 C.F.R. § 2.106; In the Matter of Orbital Imaging Corporation, DA 99-353, at ¶¶ 3,8 (1999).

<sup>5</sup> See 47 C.F.R. § 2.106, footnote 5.286 and US87.

**Additional Antenna Information**

This Planet Labs earth station is comprised of two Yagi-Uda antennas mounted on a single cross-boom controlled by an Az/El rotator. Details are as follows:

**Table 1 Antenna Characteristics**

<b>Antenna</b>	<b>Manufacturer &amp; Model</b>	<b># of elements</b>	<b>Antenna Length (m)</b>	<b>Peak Gain (dBi)</b>	<b>3dB Beamwidth (deg)</b>	<b>Polarization</b>
Uplink Yagi	M2 Inc. 450CP34	17	2.7	16.5	30	RHCP
Downlink Yagi	M2 Inc. 400CP30	15	2.7	16.5	30	RHCP

**Table 2 Antenna Rotator Characteristics**

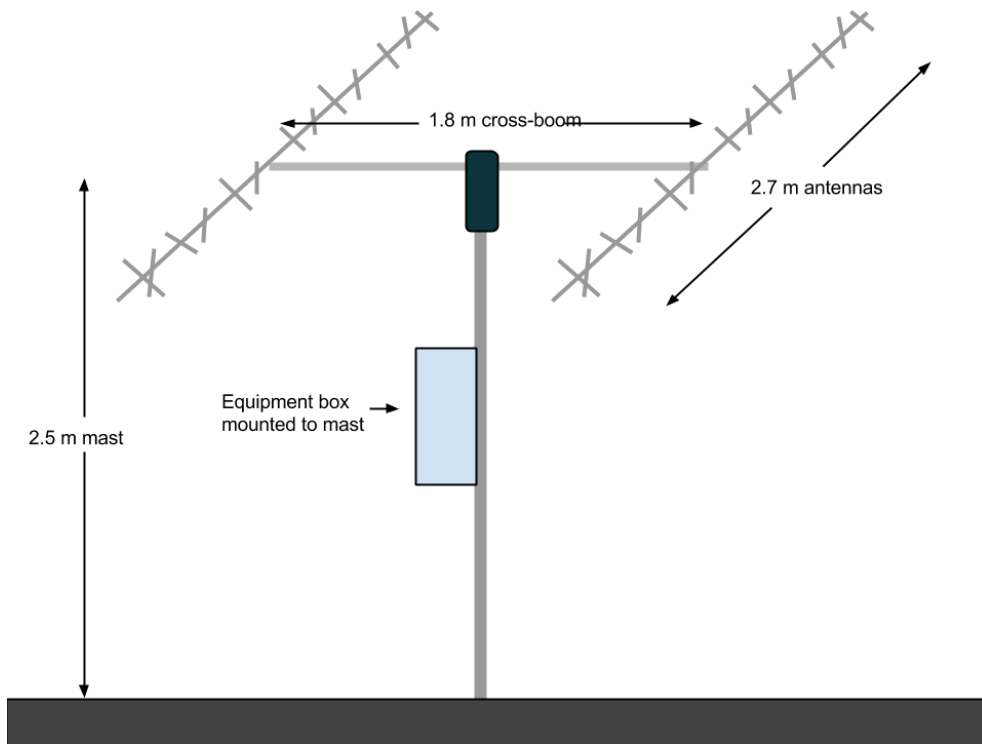
<b>Manufacturer &amp; Model</b>	<b>Type</b>	<b>Mast Height (m)</b>
Yaesu G5500	Az/El	2.5

**Table 3 Site Characteristics**

<b>Site Address<sup>6</sup></b>	<b>Latitude</b>	<b>Longitude</b>	<b>Site Elevation (m)</b>	<b>Max Antenna Height (m)</b>
235 Martindale Dr. Morehead, KY 40351	38° 11' 27.48" N	83° 25' 48.12" W	229.2 AMSL	3.8 AGL/ 233.0 AMSL

<sup>6</sup> Site will be remotely operated from Planet Labs, 490 2<sup>nd</sup> St., Suite 101, San Francisco, CA 94107

**Diagram of the Earth Station**



**Figure 1 earth station diagram**