

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”), as amended.¹ Specifically, Planet requests authority to:

- Modify up to three (3) of its authorized satellites of the Flock constellation to add an Automatic Identification System (AIS) receiver system to the satellites to demonstrate the capability of the Planet Dove satellites to receive the AIS 1 (161.9625MHz – 161.9875MHz) and AIS 2 (162.0125MHz – 162.0375MHz) channels. Planet currently has planned only one satellite demonstration but requests additional authority in the event the planned satellite fails on-orbit, fails to reach orbit, or additional demonstrations or testing become necessary.

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 Dove/Flock satellite design has capacity to support other functions in addition to its regular Earth imaging functions. In addition to the requested modifications in the pending filing referenced above, Planet requests authorization to use up to three satellites for a technology demonstration of an AIS system. These Dove technology demonstration (Tech Demo) satellites will be equipped with a software defined radio (SDR) receiver and with an associated self deploying monopole antenna wire, tuned to receive AIS signals. The AIS data will be transmitted to Planet earth stations using Planet’s authorized data downlink. The satellite’s physical, electrical, avionics, imaging system, and communications systems will remain unchanged from the flight-proven Dove design.

Each Dove Tech Demo satellite will be considered one of the 200 authorized

¹ See Modification Application, File No., IBFS File No. SAT-MOD-20170713-00103 (filed July 13, 2017) (“Modification”); see *a/so* Amendment Application, IBFS File No. SAT-AMD-20171025-00144 (filed Oct. 25, 2017)..

Flock satellites and each such satellite will be in an orbit as currently authorized for the Flock with the same physical properties as regular Doves. Therefore, the orbital debris and collision risk associated with a Tech Demo satellite is the same as the risk associated with a regular Flock satellite.

All of the regular 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. Control of the AIS system will be conducted through the S-band uplink and AIS data will be downlinked in the X-band downlink channel. The AIS data quantity is minute relative to regular imaging data, and there is no expected change to the frequency and duration of operations of the S-band and X-band channels.

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

The Dove Tech Demo 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, besides its regular imaging operations, will be for demonstration of AIS capability that may be used on future Planet satellites to provide additional information in support of maritime imaging and ship monitoring products.

C. Technical Description

Other than the addition of the AIS receiver and antenna, the satellite is technically identical to the other Flock satellites. The Tech Demo satellite shares the same design and manufacture of the structural, power, avionics, imaging system, and communications aspects of the Flock satellites and shares the same associated earth stations for the uplink and downlink of space operations data, downlink of imaging data, and downlink of the proposed AIS data. There are no changes to the frequencies and concept of operations for each of the bands as proposed in the Modification.

The AIS system includes an SDR receiver to be added inside the satellite's structure and a self-deploying spring steel wire antenna. The antenna is a 342 mm long

quarter-wave monopole deployed from the back of the satellite (gain pattern shown in attachment A of this Exhibit, "AIS Receiver Antenna Pattern").

The test objectives of the technology demonstration will inform Planet of use cases for the SDR-based AIS receiver system including the following:

- Validate the use of an SDR for the reception of AIS signals.
- Validate the use case of receiving AIS signals to aid in ship monitoring in conjunction with maritime imaging operations for enhanced information products.

E. Waiver Request

To the extent necessary, Planet requests waiver of the Commission's rules to permit reception of AIS 1 and AIS 2 signals by Tech Demo satellites. AIS 1 (161.9625-161.9875 MHz) and AIS 2 (162.0125-162.0375 MHz) are allocated to the Maritime Mobile (Earth-to-space), Aeronautical Mobile (OR), and Mobile-Satellite Service ("MSS") (Earth-to-space) on a co-primary basis, with MSS being limited for the purposes of reception of AIS emissions. 47 C.F.R. § 2.106. Planet's proposed use of these bands for satellite receive-only purposes is in accordance with the U.S. Table of Frequency Allocations. Indeed, the FCC has approved the reception of these bands by other satellite applicants.² For these reasons, to the extent necessary, the FCC should grant this waiver request for the reception of AIS 1 and AIS 2 signals by the Flock constellation.

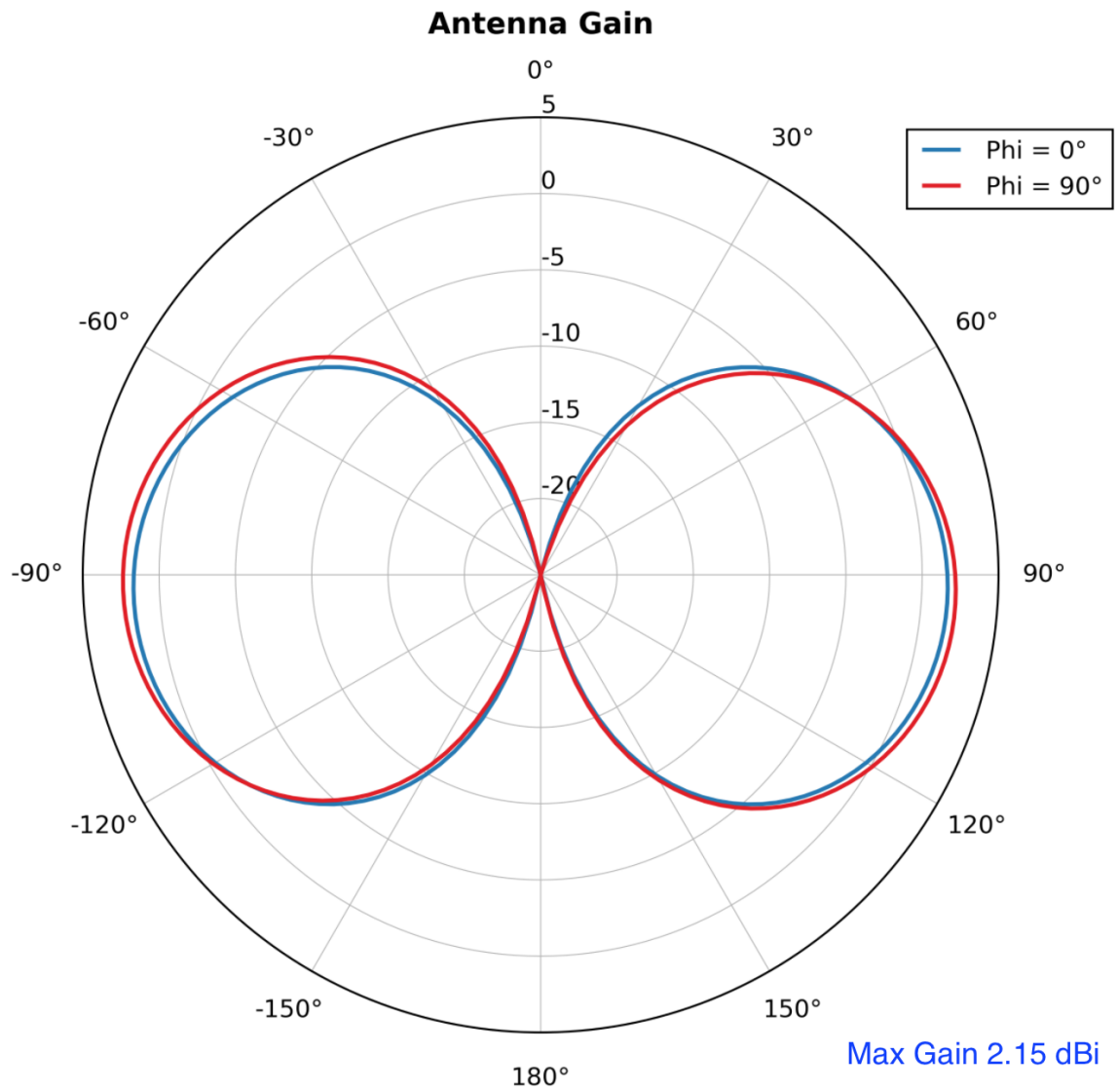
F. Additional/General Considerations

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

² See, e.g., Stamp Grant, Spire Global, Inc. File No. SAT-OA-20151123-00078 (granted in part Mar. 18, 2016).

ATTACHMENT A

AIS Receiver Antenna Pattern



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
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