



Federal Communications Commission
Washington, D.C. 20554

April 11, 2017

Bruce A. Olcott
Jones Day
51 Louisiana Ave. NW
Washington, DC 20001

Re: The Boeing Company, IBFS File Nos. SAT-LOA-20160622-00058 and SAT-AMD-20170301-00030 (Call Sign S2966)

Dear Mr. Olcott:

On March 1, 2017, The Boeing Company (Boeing) filed the above-captioned amendment to its pending application for authority to construct, deploy, and operate a non-geostationary orbit (NGSO) low earth orbit (LEO) fixed-satellite service (FSS) system utilizing V-band frequencies. To aid in the Commission's evaluation of Boeing's amendment, please provide updated and additional information as detailed below.¹

1. Boeing describes the amendment as primarily for the purpose of lowering the nominal altitude for the NGSO system.² Section 25.114(d)(14) of the Commission's rules requires that the applicant provide a description of the design and operational strategies that will be used to mitigate orbital debris, including ascertaining the probability of the space station becoming a source of debris by collisions with large debris or other operational space stations, and a statement detailing the post-mission disposal plans for the space station at end of life.³ The previous information provided by Boeing regarding this risk of collision was predicated on orbital parameters that were changed in the amendment.⁴
 - (a) Please confirm that the information on the accuracy to which the space stations' orbital parameters will be maintained, including apogee, perigee, inclination, orbital altitude, and right ascension of the ascending node(s), has not changed from that provided in Boeing's letter to the Commission dated September 16, 2016.⁵
 - (b) The orbital debris analysis in Boeing's original application estimated that each satellite would need to perform 1.6 collision avoidance maneuvers per vehicle-year.⁶ Boeing further elaborated on the assumptions made in this analysis in its letter to the Commission dated September 16, 2016.⁷ Please clarify whether this analysis remains accurate based upon Boeing's new orbital parameters, or provide an updated analysis if needed.

¹ 47 CFR § 25.111(a).

² Boeing Amendment, IBFS File No. SAT-AMD-20170301-00030, at 1.

³ 47 CFR § 25.114(d)(14)(iii)-(iv).

⁴ See Boeing Application, IBFS File No. SAT-LOA-20160622-00058, at 33-34.

⁵ Letter from Bruce A. Olcott, Counsel to The Boeing Company, Jones Day, to Jose P. Albuquerque, Chief, Satellite Division, FCC at 8-9 (September 16, 2016) (on file in IBFS File No. SAT-LOA-20160622-00058) (Boeing Letter).

⁶ See Boeing Application at 34.

⁷ See Boeing Letter at 7.

- (c) Please provide an analysis of collision risk, assuming rates of satellite failure resulting in the inability to perform collision avoidance procedures of 10, 5, and 1 percent. This analysis should include a study performed assuming all failures occur at the mission altitude, but may also include additional studies specifying alternative assumptions concerning the orbital locations (such as injection altitude) at which failures might occur.
- (d) Please provide an analysis of collision risk for satellites during the passive disposal phase, *i.e.*, after all propellant is consumed. Please provide this analysis for a worst case (all satellites at 500 km perigee). The analysis may include an anticipated range of orbits if Boeing believes such alternatives would be more representative. Please include an assessment of how many conjunctions and/or collision avoidance maneuvers might be required of the International Space Station (ISS), assuming it is in operation throughout the period in which the Boeing satellites would transit the ISS orbit.
2. In the Certifications Questions portion of its amended Schedule S, Boeing responds "No" to the question asking whether the applicable power flux-density levels of Section 25.208 are met, and/or whether the appropriate technical showing is provided with the application.⁸ Please clarify Boeing's "No" response to this question.

To facilitate the Commission's timely evaluation of Boeing's application, we ask that you provide the requested information no later than **May 10, 2017**. Failure to do so may result in the dismissal of Boeing's application pursuant to Section 25.112(c) of the Commission's rules, 47 CFR § 25.112(c).

Sincerely,


Jose P. Albuquerque
Chief, Satellite Division
International Bureau

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⁸ Boeing Amendment, Schedule S at 200.