May 1, 2020

VIA ECFS

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington, DC 20554

Re: **Application for Modification of Authorization for the SpaceX NGSO Satellite System, SAT-MOD-20200417-00037**

Dear Ms. Dortch:

On April 29, 2020, representatives of Kuiper Systems LLC, a wholly owned subsidiary of Amazon.com Services, Inc. (collectively, "Amazon"), spoke by telephone with Federal Communications Commission staff regarding the Space Exploration Holdings, LLC ("SpaceX") application to modify its proposed satellite system.[1] A list of meeting participants is attached.

Safety and sustainability of the space environment are paramount concerns for Amazon, the Commission, and the public. Informed decision making as to whether SpaceX's proposed modification is in the public interest requires more data about SpaceX's in-orbit satellites and its newly reconfigured satellite system.

SpaceX's application cited the successful deployment of its in-orbit satellites to support the proposed system reconfiguration. However, a declaration of success, without information about the percentage or number of satellites successfully inserted into mission orbit and operating in accordance with approved technical parameters, does not provide sufficient data to the Commission or the public.[2]

Additional space situational awareness details, such as those required in the Commission's recent *Report & Order and Further Notice of Proposed Rulemaking on Mitigation of Orbital Debris in the New Space Age*, would further the Commission's review of the SpaceX modification and would be consistent with the information disclosure requirements the Commission recently found will serve the public interest in space safety.[3]

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[1] Application for Modification of Authorization for the SpaceX NGSO Satellite System, IBFS File No. SAT-MOD-20200417-00037 (filed Apr. 17, 2020) ("*SpaceX Third Modification*").

[2] *See generally* 47 C.F.R. § 25.173(b) ("Within 15 days after completing in-orbit testing of a space station licensed under this part, the operator must notify the Commission that such testing has been completed and certify that the space station's measured performance is consistent with the station authorization and that the space station is capable of using its assigned frequencies or inform the Commission of any discrepancy.").

[3] *See Mitigation of Orbital Debris in the New Space Age*, Report and Order and Further Notice of Proposed Rulemaking, IB Docket No. 18-313, FCC 20-54, ¶¶ 41-42 (2020) ("*Mitigation of Orbital Debris Report and Order*

The Commission should seek information about how SpaceX "will accommodate spacecraft transiting through the system and other systems, large or small, operating in the same region."[4] SpaceX's latest proposal would stack the system's four orbital shells ten kilometers apart at 540 km, 550 km, 560 km, and 570 km and twenty kilometers from Amazon's Kuiper System at 590 km, 610 km, and 630 km; however, SpaceX has stated that "as with its current constellation, apogee and perigee will be maintained to within 30 km, and inclination will be maintained to less than 0.5 degree of the respective target values."[5] SpaceX's station-keeping practices allow for the possibility that orbits of the reconfigured SpaceX system will intersect with one another and with those of Kuiper, which was not the case for SpaceX's current authorization at 550 km, 1110 km, 1130 km, 1275 km, and 1325 km. The Commission should request that SpaceX identify the systems operating or planned at an orbital altitude within 30 km of its lowest and highest orbital shells (i.e., 510 km-600 km).

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Additional information about SpaceX's existing and proposed satellite operations will allow for informed public analysis of SpaceX's proposed system reconfiguration and will increase the quality and speed of the Commission's disposition of SpaceX's latest application. Review of this additional data will fulfill the Commission's objective of ensuring that space remains viable for future satellites and systems.[6]

Please feel free to contact me with any questions regarding this submission.

Respectfully submitted,

/s/ Mariah Dodson Shuman

Mariah Dodson Shuman
Corporate Counsel
Kuiper Systems LLC,
an Amazon subsidiary

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and FNPRM"), https://bit.ly/3aCMKd1 (adopting a new requirement in Section 25.114(d)(14)(iv)(A)(2) that space station applications "identify characteristics of the space station(s)'orbits that may present a collision risk, including any planned and/or operational space stations in those orbits, and indicate what steps, if any, have been taken to coordinate with the other spacecraft or system, or what other measures the operator plans to use to avoid collision."). The Commission's consideration of a "description of the planned orbital variance, and the relationship of that variance to the system's technical capabilities and operational requirements (e.g., ability to avoid collisions)" is warranted. *Id.* at ¶ 48. Additionally, the Commission should, consistent with its recent rulemaking, require SpaceX to explain how it will identify the satellites after deployment and whether satellite tracking will be active or passive. *Id.* at ¶¶ 63 & 65.

[4] *Id.* at ¶ 48.

[5] *SpaceX Third Modification*, at 3.

[6] *Mitigation of Orbital Debris Report and Order and FNPRM*, at ¶1.

Attachment

Meeting Date	Commission Participants	Amazon Participants
April 29, 2020	Jose Albuquerque Karl Kensinger	Julie Zoller Kalpak Gude Darren Achord Mariah Dodson Shuman