Before the FEDERAL COMMUNICATIONS COMMISSION Washington, DC 20554

In the Matter of)
Space Exploration Holdings, LLC)
Application for Modification of Authorization for the SpaceX NGSO Satellite System))

Call Signs S2983 and S3018

File No. SAT-MOD-20181108-00083

REPLY OF ECHOSTAR SATELLITE OPERATING CORPORATION, HUGHES NETWORK SYSTEMS, LLC, AND INTELSAT LICENSE LLC

Pursuant to 47 C.F.R. § 25.154(d), EchoStar Satellite Operating Corporation, Hughes

Network Systems, LLC, and Intelsat License LLC (collectively, the "GSO Satellite Operators")

submit this reply to Space Exploration Holdings, LLC's ("SpaceX") Further Consolidated

Opposition to Petition and Response to Comments ("Further Consolidated Opposition"),¹ which

addresses the oppositions raised by SES Americom Inc. and O3b Limited (collectively, "SES"),²

as well as WorldVu Limited ("OneWeb"),³ to SpaceX's above-referenced modification

application (the "Modification").⁴ The GSO Satellite Operators urge the Federal

Communications Commission ("Commission") to reject SpaceX's request for waiver of Section

¹ Further Consolidated Opposition to Petition and Response to Comments of Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20181108-00083 (Feb. 21, 2019) ("SpaceX Opposition").

² Comments of SES Americom Inc. and O3B Limited, IBFS File No. SAT-MOD-20181108-00083 (Feb. 8, 2019) ("SES Comments").

³ Petition to Deny or Defer of WorldVu Satellites Limited, IBFS File No. SAT-MOD-20181108-00083 (Feb. 8, 2019).

⁴ See Space Exploration Holdings, LLC Application for Modification of Authorization for the SpaceX NGSO Satellite System, IBFS File No. SAT-MOD-20181108-00083 at n. 14, Waiver Request at 3-4 (filed Nov. 8, 2018) ("SpaceX Modification"); Space Exploration Holdings, LLC, 33 FCC Rcd. 148, ¶ 40n (2018) ("SpaceX Authorization").

25.146 of the Commission's rules.⁵

As large global geostationary orbit ("GSO") satellite fleet operators, the GSO Satellite Operators have significant concerns about the potential increase in harmful interference associated with non-geostationary orbit ("NGSO") constellations, such as the SpaceX constellation. The Commission recently concluded a rulemaking on NGSO service rules wherein it adopted a carefully balanced equivalent power flux density ("EPFD") regime.⁶ In its Order, the Commission adopted the International Telecommunication Union ("ITU") Radio Regulations ("RR") Article 22 EPFD limits with broad support from both NGSO and GSO operators,⁷ which were codified in Section 25.146.⁸

The importance of the ITU RR Article 22 EPFD limits to protect GSO operations from harmful interference is well documented in the Commission's record.⁹ While the GSO Satellite Operators supported the Commission proposal to codify ITU RR Article 22 EPFD limits in the NGSO Rulemaking,¹⁰ they also urged the Commission to include in the rules realistic and practicable mechanisms to ensure that aggregate EPFD limits are met by all NGSO systems providing service in the United States.¹¹

The GSO Satellite Operators recognize that when the Commission incorporated the ITU RR Article 22 EPFD limits by reference, the agency also eliminated the requirement that NGSO

⁵ See SpaceX Modification at n. 14, Waiver Request p. 3-4.

⁶ See Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 7809, ¶ 41 (2017) ("NGSO Order"). ⁷ See NGSO Order at \P \P 34, 35.

⁸ In the Modification and later filings, SpaceX mistakenly conflates sections (a) and (c) of the rule, citing the § 25.146(a) rule number but referring to the text of § 25.146(c). See e.g. SpaceX Modification, Waiver Request at 3. SpaceX provides the certification needed to satisfy 25.146(a) in their Modification. Id. at Technical Information p. 23.

⁹ See, e.g. Letter from Jennifer Manner, EchoStar, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 16-408, at 2 (September 19, 2017) (supporting codification of ITU Article 22 EPFD limits as "critical to ensure that GSOs are protected from harmful interference from NGSO FSS operations."). ¹⁰ See NGSO Order; see also 47 C.F.R. § 25.146(c).

¹¹ See e.g. Reply Comments of Hughes Network Systems, LLC, IB Docket 16-408 (Apr. 10, 2017) at 8.

FSS applicants provide a detailed technical demonstration of EPFD compliance as part of their Commission application, in reliance on the applicant completing an ITU assessment prior to commencement of service.¹² In making this change, the Commission adopted rules permitting NGSO FSS applicants to self-certify prior to obtaining their authorization that they will meet the ITU EPFD limits, in part "[b]ecause of the detailed review performed by the ITU, [the Commission has] even greater confidence that EPFD levels certified to will be respected."¹³ Indeed, a "favorable" or "qualified favorable" finding from the ITU Radiocommunications Bureau ("ITU-BR"), as required by the Commission's rules, unbiasedly demonstrates that a proposed system does not create a harmful interference environment for GSO operations.¹⁴ As a result of these rules, other NGSO and GSO FSS operators can and have relied on these interim certifications to design future systems and coordinate operations, knowing that the Commission has required each NGSO FSS applicant to also obtain an ITU-BR finding of "favorable" or "qualified favorable" prior to commencing service.¹⁵

Grant of SpaceX's request to waiver of the Commission's rule or removal of the related license condition on the grounds that the process takes too long, simply is not in the public interest. Such a grant would leave the Commission, and potentially affected operators, without conclusive and verifiable evidence that the proposed system is compliant with the Commission's EFPD rules, essentially undermining the rule itself and the protection it is meant to provide. It

¹² See 47 C.F.R. § 25.146(a) (2016); NGSO Order at ¶ 41.

¹³ NGSO Order at n 92.

¹⁴ While SpaceX is correct that the Commission is capable of making its own initial determination with respect to EPFD compliance, it does not request that the Commission make an interim finding while the ITU-BR process is ongoing and instead requests a waiver solely based on its own showing. *See* SpaceX Opposition at 16; SpaceX Modification at Technical Information p. 23. Further, the Commission specifically decided to stop evaluating EPFD determinations just over a year ago given that such evaluation duplicates work performed by the ITU and that "due to staffing constraints and technical complexity, its review of EPFD demonstrations typically takes a few months." NGSO Order at ¶ 41.

¹⁵ NGSO Order at ¶ 41.

would also create a precedent permitting other NGSO FSS systems to circumvent the ITU RR Article 22 assessment requirement, creating an unpredictable interference risk to the GSO arc in the future. While SpaceX offers several assurances that the changes it has proposed for its network design will decrease the interference environment, it offers as evidence only the results of its own analysis.

In its Further Consolidated Opposition, SpaceX attempts to downplay the importance of receiving the determination from the ITU-BR, which is essential for the maintenance of a safe operational environment, by asserting that OneWeb is merely "fret[ting]."¹⁶ However, expedient deployment should not be valued over the assurance of a safe operational environment for all satellite operators. SpaceX should not be granted waivers of rules and license conditions it finds inconvenient to its expedited deployment schedule-especially when it chooses to seek a major modification and accelerate its launch at about the same time. This is a problem of SpaceX's own making and not grounds for waiver. A backlog of filings at the ITU-BR is not new or unique to SpaceX's situation and must be accounted for in the deployment schedule of all satellite operators when determining the earliest possible initiation of service date. In fact, the Commission already streamlined the EPFD validation process by eliminating its duplicative review process during the NGSO Rulemaking, and instead opted to rely solely on the ITU-BR for a definitive finding of compliance with EPFD limits.¹⁷

Moreover, a denial of SpaceX's waiver request would be consistent with prior Commission action on this issue. The Commission determined that the SpaceX's showing in its original application, complete with ITU-approved software analysis, was sufficient *only* for the

¹⁶ See SpaceX Opposition at 17.
¹⁷ See NGSO Order, at 41.

initial grant determination.¹⁸ Even with SpaceX's original showing, the Commission determined that the Initial Authorization include the condition that initiation of service requires a showing of a "favorable" or "qualified favorable" determination from the ITU-BR.¹⁹ SpaceX asserts that its new showing for its modified system,²⁰ which uses the same methodologies, should mandate a different result. It should not. The Commission included the compliance obligation to ensure that SpaceX "will satisfy its EPFD obligations going forward."²¹ The Commission's reasoning—"to provide sufficient assurance beyond the technical demonstrations that SpaceX has already provided that SpaceX will comply with the EPFD limits specified in Article 22"²²— is no less valid here just because SpaceX has accelerated its deployment. As such, waiver should be denied and a condition ensuring compliance with the Commission's EPFD prior to commencing operations should be included with any future grant.

Even if the Commission determines that SpaceX's desire for expediency outweighs the public interest benefit of requiring all operators to receive an unequivocal interference assessment from the ITU prior to commencing service, the Commission should not grant the unconditional waiver requested by SpaceX. Rather, the GSO Satellite Operators agree with SES that the Commission should specify in any grant of the Modification that if SpaceX commences service prior to receiving a "favorable" or "qualified favorable" finding from the ITU-BR, it does so at its own risk.²³ At most, the Commission should provide for a limited waiver, with new conditions that (1) permit SpaceX to operate at its own risk, on a non-protected, non-interference basis until it receives an Article 22 finding from the ITU-BR, which, if unfavorable, would result

¹⁸ See SpaceX Authorization at ¶ 9.

¹⁹ *Id*.

²⁰ SpaceX Modification at Technical Information Annex 1, 2.

²¹ See SpaceX Authorization at \P 9.

²² Id.

²³ See SES Comments at 5.

in the immediate cessation of operations; and (2) require SpaceX to notify the Commission of any reported harmful interference.

For all the reasons set forth above, the GSO Satellite Operators respectfully submit that SpaceX's waiver request be denied.

Respectfully submitted,

/s/ Jennifer A. Manner

Jennifer A. Manner, Senior Vice President, Regulatory Affairs

ECHOSTAR SATELLITE OPERATING CORPORATION

HUGHES NETWORK SYSTEMS, LLC

/s/ Susan H. Crandall

Susan H. Crandall, Associate General Counsel

Cynthia J. Grady Senior Counsel

INTELSAT LICENSE LLC

March 5, 2019

CERTIFICATE OF SERVICE

I, Theresa Rollins, hereby certify under penalty of perjury that the foregoing Reply to

Opposition was served on March 5, 2019, by depositing a true copy thereof with the United

States Postal Service, first class postage pre-paid, addressed to the following:

Tim Hughes Patricia Cooper Space Exploration Technologies Corp. 1155 F Street, NW Suite 475 Washington, DC 20004

Mariah Dodson Shuman Head of Regulatory Affairs WorldVu Satellites Limited 1785 Greensboro Station Place, Tower 3 McLean, VA 22102

Nick G. Spina Director, Launch & Regulatory Affairs Kepler Communications Inc. 675 King Street West Suite 204 Toronto, Ontario M5V 1M9 CANADA

George John Spire Global, Inc. 575 Florida Street Suite 150 San Francisco, CA 94110

Jan King Astro Digital U.S., Inc. 3171 Jay Street Santa Clara, CA 95054 William M. Wiltshire Paul Caritj Harris, Wiltshire & Grannis LLP 1919 M Street, NW Suite 800 Washington, DC 20036 *Counsel to SpaceX*

Suzanne Malloy Petra A. Vorwig Noah Cherry SES Americom, Inc./O3b Limited 1129 20th Street, NW Suite 1000 Washington, DC 20036

Craig Scheffler Commercial Smallsat Spectrum Management Association 555 Thirteenth Street, NW Washington, DC 20004

Rich Leshner Planet Labs Inc. 645 Harrison Street Floor 4 San Francisco, CA 94107

<u>/s/ Theresa Rollins</u> Theresa Rollins