Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Application of Space Exploration Holdings, LLC	)	File No. SAT-MOD-20200417-00037
For Modification of Authorization for the	)	
SpaceX NGSO Satellite System	)	

To: The International Bureau

COMMENTS

Spire Global, Inc. ("Spire") hereby submits these comments to the above-referenced application of Space Exploration Holdings, LLC ("SpaceX") seeking, *inter alia*, authorization to relocate 2,824 satellites previously authorized to operate at altitudes from 1,110 km to 1,330 km down to altitudes ranging from 540 km to 570 km (the "Proposed LEO Orbit"),[1] which is at or near the operating orbital altitudes of Spire LEMUR-2 satellites, as well as those of many non-geostationary orbit satellite systems ("NGSOs").[2] The SpaceX Modification is a substantial reconfiguration of its system and would result in increased density of the 540-570

[1] Application of Space Exploration Holdings for Modification of Authorization for the SpaceX NGSO Satellite System, File No. SAT-MOD-20200417-00037 (filed April 17, k2020) ("SpaceX Modification").

[2] *See* Stamp Grant, Spire Global, Inc., IBFS File No. SAT-AMD-20161114-00107 (granted in part and deferred in part Apr. 7, 2017); Stamp Grant, Spire Global, Inc., IBFS File No. SAT- AMD-20161114- 00107 (granted in part and deferred in part May 18, 2017); Stamp Grant, Spire Global, Inc., IBFS File No. SAT-AMD-20161114-00107 (granted in part and deferred in part July 13, 2017); Stamp Grant, Spire Global, Inc., IBFS File No. SAT-AMD-20180102-00001 (granted in part and deferred in part Nov. 28, 2018); *see also* Commercial Smallsat Spectrum Management Association, Comments and Petition to Defer, File No. SAT-MOD-20181108- 0008, at 3-4 (filed Jan. 29, 2019) (Comments filed in response to SpaceX modification application filed November 8, 2018 for authorization to relocate 1,584 satellites in the Proposed LEO Orbit and describing other systems that operate or will operate in the 400-600 km orbital range) ("CSSMA Comments").

km band impacting all operators currently operating in this band. SpaceX has presented assurances that it will protect the operations of other satellite operators. Therefore, the SpaceX Modification should only be granted with a condition requiring that SpaceX complies with its representations in the SpaceX modification and protects other satellite operations in the Proposed LEO Orbit.

In the SpaceX Modification, SpaceX acknowledges the concerns by other operators relating to non-propulsive systems already authorized to operate in the Proposed LEO Orbit. SpaceX has stated that its propulsive capabilities enable it to avoid non-propulsive systems unilaterally and it intends to conduct active maneuvers to avoid collisions with other spacecraft throughout the life of its satellites.[3] The increase in the number of satellites in the area and the larger mass and cross-sectional area of SpaceX's satellites may require that Spire execute more differential draft maneuvers in response to potential conjunction events, resulting in a significant capacity loss and imposing an extraordinary burden on Spire whose satellites are not operational during those maneuvers.[4]

Spire requests that the Bureau condition any grant of the SpaceX Modification upon the company's commitment to coordinate physical operations of its satellites in good faith with current satellite operators, such as Spire, and current and future applicants proposing to

[3] *See* Application for Modification of Authorization for the SpaceX NGSO Satellite System, Narrative, p. 10-11. SpaceX touts its advanced propulsion capabilities and maintains that its collision risk is considered to be zero (or near zero). *Id.* Accordingly a condition should not be burdensome to SpaceX and would be in the public interest as a means to protect current operators in the Proposed LEO Orbit.

[4] *See* CSSMA Comments at 4-5, n.15. Most of the smallsats operating in the Proposed LEO Orbit lack propulsion capability or have limited propulsion capabilities necessary to accommodate the SpaceX Modification. As explained in the CSSMA Comments, even those satellites capable of executing differential drag maneuvers in response to potential conjunction events will experience substantial capacity loss because they are not operational during those maneuvers. *Id*.

operate in the 400-600 km orbital altitude range.[5] Such a requirement would ensure the continued ability for Spire and others to have fair and reasonable access to a critical shared orbital resource. As part of the good faith requirement, SpaceX should be required to take active responsibility for collision avoidance during orbit raising and end-of-life de-orbiting through low-Earth orbit. Further, SpaceX should not be permitted to request that other parties assume the full burden of avoiding collision with SpaceX's 2,824 satellites. Without such constraints, SpaceX could effectively unilaterally determine which systems can operate in the 400-600 km orbital altitude range.

For the above reasons, Spire urges the Bureau to impose conditions on any grant of the SpaceX Modification.

Respectfully submitted,

/s/ Ananda Martin

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Dated: July 13, 2020

[5] *See*, *e.g.*, *Space Exploration Holdings, LLC, Application for Approval for Orbital Deployment and Operating Authority for the SpaceX NGSO Satellite System*, Memorandum Opinion, Order, and Authorization, 33 FCC Rcd 3391, 3396 ¶ 11 (2018) (requiring SpaceX to "coordinate its physical operations with space stations of NGSO systems operating at similar orbital altitudes"); *Petition for a Declaratory Ruling Granting Access to the U.S. Market for the OneWeb NGSO FSS System*, Order and Declaratory Ruling, 32 FCC Rcd 5366, 5378 ¶ 25(d) (2017) (requiring OneWeb to "coordinate physical operations of spacecraft with any operator using similar orbits, for the purpose of eliminating collision risk and minimizing operational impacts").

CERTIFICATE OF SERVICE

I, Michelle A. McClure, hereby certify that on July 13, 2020, a true and correct copy of these Comments was sent via email to the following*:

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*Service via electronic mail due to COVID-19.