



July 20, 2020

BY ELECTRONIC FILING

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

Re: Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056; Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20200417-00037

Dear Ms. Dortch:

Viasat responds to the SpaceX letter dated July 16, 2020.¹

No matter how many times SpaceX spins its empty rhetoric wheel, a simple fact keeps coming up: SpaceX has failed to identify any data *it has provided* in its three modification applications as to interference calculations *that Viasat has not provided*. As Viasat stated on June 24 and again on July 2:²

“[SpaceX] [d]id not provide the corresponding information in its own recent modification application that it now claims is a threshold requirement for the Commission to process Viasat’s modification application.”

Nothing in SpaceX’s July 1 or July 16 response disputes this fact.

All three of SpaceX’s modification applications have argued that its (very significant) system modifications will not increase interference to GSOs (relying on a certification of compliance with EPFD limits), NGSOs (relying on results of an I/N analysis), or FS (relying on a PFD analysis).

¹ Letter from David Goldman, Director of Satellite Policy, Space Exploration Technologies Corp., to Marlene H. Dortch, Secretary, FCC, Re: Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056 (filed July 16, 2020) (“SpaceX July 16 Letter”).

² Letter from Christopher J. Murphy, Associate General Counsel, Regulatory Affairs, Viasat, Inc., to Marlene H. Dortch, Secretary, FCC, Re: Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056, Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20200417-00037 (filed June 24, 2020), at 1; Letter from Christopher J. Murphy, Associate General Counsel, Regulatory Affairs, Viasat, Inc., to Marlene H. Dortch, Secretary, FCC, Re: Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056, Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20200417-00037 (filed July 2, 2020), at 1.

As to the I/N matter discussed in SpaceX's July 16 letter, Viasat again emphasizes that it followed the same I/N methodology, provided results of the same type, and provided the same level of detail, as SpaceX provided in its various modification applications. In fact, Viasat even went further, providing a table clearly showing that probability of exceeding the 6% $\Delta T/T$ threshold was reduced for each of the other NGSO systems post modification. As Viasat recently noted, the graphs that SpaceX provided in its most recent modification application leave the reader guessing as to whether or not SpaceX is showing that its third modification increases interference.³

Moreover, SpaceX's latest assertion that Viasat "does not disclose what methodology it used for beam selection (e.g., random, highest elevation, etc.)"⁴ is belied by a plain reading of the explanation Viasat provided about its I/N analysis: "The VIASAT-NGSO earth station and the victim earth station can each communicate with any satellite in its respective system following the rules applicable for that system (e.g. GSO avoidance angle and minimum elevation angle). **Within those constraints, the satellites are chosen randomly.**"⁵

Notwithstanding SpaceX's protestations, the number of satellites in the modified Viasat constellation is immaterial to the I/N analysis; it is the potential interference that matters. As reflected most recently in the *Viasat NGSO Authorization*, the determinative factor in a case such as this is "the number of times constellations will be required to reduce spectrum" as a result of the modification.⁶

If the test were as simple as SpaceX suggests (counting the satellites), then having fewer satellites but causing more interference would pass the Commission's test. And if the test were whether the constellation had changed many of its critical characteristics, then SpaceX would fail the test because currently proposed parameters vary greatly from those originally (and those most recently) authorized, as shown in the following table originally provided by Amazon.⁷ By way of example, SpaceX plans to communicate with twice as many satellites at each gateway as before, but SpaceX still asserts that there is no change in the NGSO interference environment, relying on its I/N analysis.

³ Viasat, Inc., Petition to Deny or Defer, IBFS File No. SAT-MOD-20200417-00037 (filed July 13, 2020), at 45-46.

⁴ SpaceX July 16 Letter at 1.

⁵ Viasat, Inc., IBFS File No. SAT-MPL-20200526-00056, Exhibit B, at 13 (2nd bullet) (emphasis supplied).

⁶ *Viasat, Inc., Petition for Declaratory Ruling Granting Access for a Non-U.S.-Licensed Non-Geostationary Orbit Satellite Network*, IBFS File Nos. SAT-PDR-20161115-00120, SAT-APL-20180927-00076, Order and Declaratory Ruling, FCC 20-56 (rel. Apr. 23, 2020), at ¶ 12.

⁷ Kuiper Systems LLC, Petition to Deny and Comments, File No. SAT-MOD-20200417-00037 (filed July 13, 2020), at 14.

Certain Changes in Critical SpaceX Parameters⁸

	# Satellites per Gateway	Elevation Angles	Altitudes
Original License	4	Minimum of 40 degrees ⁹	1,110 km 1,130 km 1,150 km 1,275 km 1,325 km ¹⁰
First and Second Modification	4 ¹¹	Minimum of 40 degrees, nominally ¹²	550 km 1,110 km 1,130 km 1,275 km 1,325 km ¹³
Third Modification	8 ¹⁴	User beams: minimum of 25 degrees ¹⁵ Gateway beams: general minimum of 25 degrees; minimum of 5 degrees for 560 km and 570 km shells for gateways above 62 degrees latitude ¹⁶	540 km 550 km 560 km 570 km ¹⁷

Finally, OneWeb’s case is different. OneWeb failed to provide the type of I/N demonstration Viasat provided, in order to show that OneWeb’s modification would not increase interference to other NGSO systems.

⁸ See Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20200417-00037 (filed Apr. 17, 2020) (“*Third Modification*”), Technical Attachment, at 2 (“SpaceX requests no other technical changes to its authorization at this time, and certifies that all other technical information provided in its previous Ku/Ka-band applications, as modified, remains unchanged.”).

⁹ Space Exploration Holdings, LLC, IBFS File No. SAT-LOA-20161115-00118 (filed Nov. 15, 2016), Technical Attachment at 5.

¹⁰ *Id.* at 1.

¹¹ Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20181108-00083 (filed Nov. 8, 2018), Technical Information, at 8 (“Up to four satellites can beam transmissions to the gateway location.”).

¹² *Id.* at 5 (“To maintain suitable coverage during the very early stages of initial deployment, SpaceX may periodically use a minimum elevation angle as low as 25 degrees for this initial shell. Then, as further satellites are deployed to populate the remainder of the constellation, SpaceX will revert to a 40 degree minimum elevation angle for all user and gateway beams.”).

¹³ *Id.*, at 2, 5.

¹⁴ *Third Modification*, Technical Attachment, at 8.

¹⁵ *Id.* at 4.

¹⁶ *Id.* at 7.

¹⁷ *Id.* at 4.

Viasat would appreciate the Commission's promptly placing the Viasat modification application on public notice for comment, and with the same speed with which it placed the SpaceX third modification application on public notice (within two months of receipt, or by July 24).

Respectfully submitted,

/s/

Christopher J. Murphy
Associate General Counsel, Regulatory Affairs

cc: Jose P. Albuquerque