

August 3, 2017

BY ELECTRONIC FILING

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

Re: *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, IB Docket No. 16-408

Dear Ms. Dortch:

In this proceeding, Space Exploration Technologies Corp. (“SpaceX”) has supported several Commission proposals that would expand opportunities for operators of non-geostationary satellite orbit (“NGSO”) Fixed-Satellite Service (“FSS”) systems, such as the low-Earth –orbit (“LEO”) satellite constellation that SpaceX plans to deploy to offer national and global broadband services. We have suggested improvements to some of those Commission proposals to better reflect the NGSO industry’s need for operational and regulatory flexibility as it moves ahead rapidly with new technologies and large LEO constellations to provide ubiquitous broadband solutions.¹ One key recommendation that SpaceX and other satellite operators have endorsed is that the Commission allow the deployment of blanket-licensed NGSO user terminals in the United States on a secondary basis with respect to the terrestrial Fixed Service (“FS”) in the 17.8-18.3 GHz band.² For the reasons discussed below, the Commission should implement this suggestion.

Internationally, the 17.8-18.3 GHz band is allocated to FSS (space-to-Earth) on a co-primary basis. In the United States, however, this band has only been allocated on a primary basis to FS, with no allocation made to date for FSS.³ The Commission’s pending *NGSO NPRM* proposes to add a secondary FSS (space-to-Earth) allocation to this band, but to limit deployment

¹ See generally Comments of Space Exploration Technologies Corp., IB Docket No. 16-408 (Feb. 27, 2017) (“SpaceX Comments”); Reply Comments of Space Exploration Technologies Corp., IB Docket No. 16-408 (Apr. 10, 2017).

² SpaceX understands that several other satellite operators are submitting a separate letter reiterating their support for a secondary NGSO FSS allocation in this band.

³ See 47 C.F.R. § 2.106.

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to individually licensed earth stations.⁴ That proposed limitation is both unnecessary and unwise.

NGSO satellite constellations would employ the 17.8-18.3 GHz band for downlink transmissions from their space stations for reception by earth stations. As a result, those earth stations cannot cause any interference to FS operations in this band; rather, the NGSO earth stations would be susceptible to interference from FS transmissions in the band. SpaceX recognizes that earth stations authorized on a secondary basis would have to accept any such interference. Such interference from FS is unlikely, given that the potentially interfering FS transmitters typically radiate in a horizontal or near-horizontal direction using narrow-beam antennas, while NGSO receiving user terminals only have significant gain in high elevation directions and low gain towards the horizon. In addition, NGSO operators have various operational options to ensure their continued quality of service and mitigate any such problematic interference that does arise. For example, if an FS transmitter in the band were to interfere with service at a particular NGSO user terminal location, the NGSO operator can transmit to that specific user location in other frequency bands that are not shared with the FS, such as the 11.7-12.2 GHz band. An additional mitigating step could be to reposition an affected user terminal to another side of a natural or man-made obstacle (*e.g.*, a building) to block the interfering FS signal. By using such strategies, NGSO operators can continue to provide service to subscribers at a high level of quality and reliability notwithstanding FS operations in this band.⁵

Accordingly, widespread deployment of NGSO user terminals receiving in the 17.8-18.3 GHz band on a secondary basis is a prime example of satellite and terrestrial spectrum sharing, allowing the benefits of expanded broadband connectivity and capacity via NGSO satellite, with no concerns of interference with FS operations in the band or impact to ongoing FS deployment. The Commission's goals of spectrum efficiency and innovation would be well served by granting NGSO FSS operators the ability to deploy blanket-licensed user terminals in this band on a secondary basis.⁶

⁴ See *Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters*, 31 FCC Rcd. 13651, ¶ 9 (2016) ("*NGSO NPRM*"). The Commission also proposed that FSS operations in this band would be subject to the applicable power flux-density ("PFD") limits adopted by the International Telecommunications Union ("ITU"). As SpaceX has previously explained, the PFD limits applicable to this band are flawed, but a technically sound PFD limit could facilitate sharing between NGSO FSS and terrestrial FS systems. See, *e.g.*, SpaceX Comments at 8-12.

⁵ It is worth noting that these same arguments would also apply with respect to the 10.7-11.7 GHz band. SpaceX urges the Commission to allow blanket licensing of NGSO FSS earth stations in that band as well.

⁶ The Commission will also need to adopt rules for processing applications for blanket-licensed earth stations in this and other bands where NGSO operations are newly authorized. See, *e.g.*, 47 C.F.R. § 25.115(f) (establishing procedures for blanket licensing of NGSO user terminals in Ku-band spectrum).

HARRIS, WILTSHIRE & GRANNIS LLP

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Respectfully submitted,

A handwritten signature in blue ink that reads "William M. Wiltshire". The signature is written in a cursive, flowing style.

William M. Wiltshire

Counsel to SpaceX

cc: Jose Albuquerque