SPACEX

September 18, 2020

BY ELECTRONIC FILING

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

Re: *Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20200417-00037; RM-11768*

Dear Ms. Dortch:

This is to inform you that, on September 16, 2020, Tim Hughes and David Goldman from Space Exploration Technologies Corp. ("SpaceX") spoke with Sean Spivey, Advisor to Chairman Pai, to discuss the above referenced proceedings. During the meeting we provided the handout attached hereto as Exhibit A.

SpaceX urged the Commission to act expeditiously on its proposed modification. The record in response to the application clearly demonstrates the public interest benefits from the modification, particularly by improving space safety and bringing faster service to consumers. As shown in Exhibit A, results from beta initial tests have shown both low latency below 30 ms and download speeds greater than 100 Mbps. As it works through these beta tests, SpaceX continues to add features to unlock the full capability of the satellites and user equipment. SpaceX continues its aggressive launch schedule, and this modification is a crucial component in closing the digital divide, including service to Polar Regions.

SpaceX also explained why the record does not support initiating a rulemaking to change the rules for the 12.2-12.7 GHz band. Just as SpaceX was preparing to deliver service, certain interests attempted to resurrect the stale 2016 Petition from MVDDS licensees asking the government to give them additional rights at the expense of existing

1155 F Street, NW Suite 475 Washington, DC 20004
phone 202.649.2700 fax 202.649.2701
spacex.com

operations. Initiating any manner of proceeding based on the proposals from those aligned with MVDSS licensees risks harming service to consumers in the most rural and remote areas of the country.

Sincerely,

/s/ David Goldman

David Goldman
Director of Satellite Policy

SPACE EXPLORATION TECHNOLOGIES CORP.
1155 F Street, NW
Suite 475
Washington, DC 20004
Tel: 202-649-2641
Email: David.Goldman@spacex.com

Attachments

Exhibit A

Starlink Update

Sean Spivey | September 16, 2020

Starlink will provide high speed, low-latency broadband connectivity across the globe, including to locations where traditionally internet has been too expensive, unreliable, or entirely unavailable.

Starlink Basics

- Starlink is a constellation of 4,409 satellites operating close to the earth for high-speed, low-latency broadband services directly to the end-user.
- SpaceX is manufacturing 120 Starlink satellites each month, with spectrum efficient phased-array antennas and safe space operations
- Eleven launches to date, each of ~60 satellites, leveraging Falcon 9 reusable first stages (pioneered 6th reuse)
- The FCC licensed the Starlink constellation in 2018

Starlink Deployment Status

In the past two years, SpaceX has:

- Built a U.S. world-leading manufacturing system, now building 120 satellites per month
- Deployed over 700 satellites to date, now by far the largest satellite constellation in the world
- Building gateway ground stations throughout the United States and internationally
- Begun to produce thousands of consumer user terminals per month, heading toward high-rate production
- Begun beta service for users across multiple U.S. states
- Tested at over 100 Mbps using standard user equipment
- Latency far below 40-50 ms round trip to internet
- Rapid build-out of constellation – gearing to launch 120 satellites per month with SpaceX's reusable Falcon 9 launch system

Modification of Ku/Ka-band License

Partial constellation modification

- Lower remaining satellites to altitudes ranging from 540 km to 570 km
- Align polar shells to speed deployment to Polar Regions, including Alaska

Further enhance space safety

- Update orbital debris showing

Slightly reduce number of satellites

- Now 4,408 satellites
- Demonstrate EPFD, PFD compliance to protect space, terrestrial systems
- Demonstrate lack of significant impact on other licensed NGSO systems

12 GHz

- Multichannel Video and Data Distribution Service (MVDDS) licensees have held spectrum for 15 years and provided no meaningful connectivity solution

- LEO satellite constellations like Starlink are being deployed today and will begin affordable, high-speed commercial broadband service to remote and rural users this year, a mere two years after being licensed to operate by the FCC

- LEO satellite technology is being realized now and depends critically on the 12 GHz band for servicing consumers.

Basic Facts on the 12GHz Band

- MVDDS spectrum holders of the 12 GHz band purchased the spectrum knowing that they had to protect LEO fixed satellite systems

- The FCC did not mention 12 GHz in its "mid-band" NOI and there are no technologies, standards, or international rules relating to this band for 5G

- Under 47 CFR § 101.105 - Interference protection criteria, MVDDS is required to avoid interfering with fixed satellite systems in low Earth orbit

- MVDDS licensees asking to be given 5G rights for free

MVDDS Proposal Has Nothing to do with SpaceX's Modification

2002
FCC releases rules for 12 GHz spectrum band

2004
MVDSS providers purchase 12 GHz spectrum in FCC auction

12-year gap

2016
OneWeb applies for a license in 12 GHz band

2017
FCC adopts rules to allow NGSO operators more use of the band

2018
FCC grants SpaceX a license to use the band

2019
FCC grants SpaceX modification to lower the orbits of half of its satellites

2020
SpaceX applies to lower the orbit of the other half of its satellites

2016
Dish petitions the FCC to prohibit NGSO access to 12 GHz band; files technical studies: "coexistence between MVDDS 5G operations and NGSO FSS operations is not possible"

2018
Dell family invests in the band through their firm RS Access

2020
Dish & RS Access ask the FCC to reject SpaceX's modification, claiming it would impact 5G networks

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