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

In the Matter of	)	
	)	
Petition for Rulemaking to Permit	)	RM No. 11768
MVDDS Use of the 12.2-12.7 GHz Band for	)	
Two-Way Mobile Broadband Service	)	

REPLY OF SES

SES S.A. ("SES") submits this reply to the comments of other parties regarding the above-referenced Petition for Rulemaking filed by the MVDDS 5G Coalition (the "Coalition").[1] In its initial pleading, SES joined other satellite companies in opposing the Petition's request for a rulemaking to consider radical changes in the MVDDS framework given the need to protect current and future satellite uses of the 12.2-12.7 GHz band.[2] The satellite industry parties observed that the MVDDS rules were carefully tailored to address the complicated interference issues raised by entry of MVDDS into heavily used satellite spectrum and argued that the Coalition had failed to provide a justification for revisiting the Commission's findings regarding required MVDDS operating parameters.[3]

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[1] MVDDS 5G Coalition Petition for Rulemaking filed April 26, 2016 (the "Petition"). The Commission issued a public notice inviting interested parties to comment on the Petition. *See* Consumer & Government Affairs Bureau, Public Notice Report No. 3042 (May 9, 2016).

[2] *See* Opposition of SES, RM-11768, filed June 8, 2016 ("SES Opposition"). *See also* Statement of AT&T Opposing Petition for Rulemaking, RM-11768, filed June 8, 2016 ("AT&T Opposition"); Opposition of Intelsat, RM-11768, filed June 3, 2016 ("Intelsat Opposition"); Opposition of WorldVu Satellites Limited, RM-11768, filed June 8, 2016 ("OneWeb Opposition"); Space Exploration Technologies Corporation Opposition to Petition for Rulemaking, RM-11768, filed June 8, 2016 ("SpaceX Opposition").

[3] *See* SES Opposition at 2-3; AT&T Opposition at 1-3; Intelsat Opposition at 2-3; OneWeb Opposition at 3-4; SpaceX Opposition at 1-2.

The belatedly filed technical report submitted with the Coalition's comments[4] does not cure the defects in the Petition. As a threshold matter, the report concedes that the Coalition's proposed modified MVDDS operations would not be compatible with non-geostationary orbit ("NGSO") satellite operations "without severe operational constraints on MVDDS, NGSO FSS, or both services."[5] Because OneWeb and others are planning NGSO systems that will use 12 GHz spectrum,[6] that conclusion alone should be sufficient reason to reject the Petition.

The Coalition's predictions that the proposed new MVDDS operations would be compatible with the Direct Broadcast Satellite ("DBS") services provided using capacity supplied by SES companies and others also are questionable. The Coalition asserts that point-to-point links can successfully be deployed in the 12 GHz band without interference to DBS based on a single hypothetical path in what appears to be a rural area well outside of Indianapolis.[7] For other types of contemplated terrestrial services, the study's own data show numerous areas where the effective power flux density ("EPFD") limits adopted to protect DBS operations would be exceeded.[8] Clearly the Coalition has not satisfied its burden of demonstrating that the modified MVDDS operations proposed would protect DBS services from harmful interference, as required by Commission rules.[9]

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[4] Comments of the MVDDS 5G Coalition, RM-11768, filed June 8, 2016 ("Coalition Comments"), Attachment I ("Coalition Study").

[5] Coalition Study at 35.

[6] *See* OneWeb Opposition at 1-3; SpaceX Opposition at 1-3.

[7] Coalition Study at 14 & Figure 4.

[8] *See, e.g., id.* at 24 & Figure 11.

[9] *See* SES Opposition at 2 & n.3, *citing* 47 C.F.R. Section 2.106, Footnote S.490.

Moreover, SES questions whether the results cited by the Coalition could actually be achieved under real world conditions. For example, the Coalition's assumption of compatibility between the proposed terrestrial services and DBS is premised on the careful placement of transmitters using very detailed mapping data.[10] Yet the Coalition does not explain how the necessary device location accuracy could be maintained for a consumer terrestrial service with ubiquitously-deployed, mobile terminals.

In addition, the Coalition Study acknowledges that changes in the structures surrounding a transmitter can have a material effect on potential interference but may not be reflected in the mapping data relied on by a terrestrial operator. Specifically, the document explains that during a period when a building was under construction, the analysis indicated that applicable EPFD limits would consistently be exceeded at that building's location.[11] The study's authors note that although "LIDAR measurements for the finished structure were unavailable at the time of our analysis," they assumed that the as-completed building would provide sufficient attenuation to address the EPFD exceedances.[12] The study, however, does not account for the reverse situation – when a building is demolished or altered in such a way that its attenuation effects are eliminated or significantly decreased. In such an instance, an MVDDS transmitter could create new interference problems for DBS receivers even if the terrestrial transmission characteristics remain unchanged. The Coalition does not indicate how frequently the LIDAR data necessary to prevent interference will be updated or suggest that future terrestrial operators would have an obligation to monitor changes in topography that could result in interference.

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[10] *See* Coalition Study at 7-8 (arguing that Light Detection and Ranging – "LIDAR" – data "offers the ability to create high-resolution, three-dimensional digital models of both terrain and constructed features" and did not exist in 2000 when the current MVDDS rules were adopted).

[11] *See id.* at 22.

[12] *Id.*

These flaws in the analysis completely undercut any confidence the Commission might have in the Coalition's claims. Furthermore, the Coalition continues to ignore the significant international implications of the rule changes it seeks. As SES and others have noted, the 12 GHz band is in active use around the globe, with millions of unregistered terminals that could be at risk of interference from new terrestrial operations.[13]

Because the Coalition has failed to provide persuasive evidence that the proposed modified MVDDS operations would be compatible with existing satellite networks that serve tens of millions of customers or with planned future satellite systems, the Commission must reject the request for a rulemaking to reopen the well-settled MVDDS regulatory framework.[14]

Respectfully submitted,

SES S.A.

By: */s/ Petra A. Vorwig*

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[13] *See* SES Opposition at 4; Intelsat Opposition at 3.

[14] The Commission should also deny the Coalition's suggestion that matters relating to the 12 GHz band should be explored in the context of the pending *Spectrum Frontiers* proceeding. *See* Coalition Comments at 1. As indicated by its formal name, the *Spectrum Frontiers* rulemaking is focused on the "Use of Spectrum Bands Above 24 GHz for Mobile Radio Services."

CERTIFICATE OF SERVICE

I hereby certify on this 23rd day of June, 2016, that a copy of the foregoing "Reply of SES" is being sent by first class, U.S. Mail, postage paid, to the following:

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