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By Electronic Filing

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

Re: SES and Intelsat Notice of Oral *Ex Parte*: Unlicensed Use of the 6 GHz Band, ET Docket No. 18-295 & GN Docket No. 17-183

Dear Ms. Dortch:

On May 9, 2019, representatives of SES and Intelsat met to discuss the above-referenced proceeding with Julius Knapp, Aspasia Paroutsas, Ira Keltz, Paul Murray, Karen Rackley, Nicholas Oros, Hugh VanTuyl, and Aole Wilkinsel of the Federal Communications Commission's ("FCC" or "Commission") Office of Engineering and Technology and Kathyrn Medley of the FCC's International Bureau. SES was represented by Noah Cherry and the undersigned outside counsel to SES, and Intelsat was represented by Cynthia Grady, Giselle Creeser, and Anum Pirzada. The discussion centered on the need to prevent harmful aggregate interference to C-band satellite operations, as discussed in the joint comments and reply comments SES and Intelsat filed in the proceeding.

SES and Intelsat noted that they operate the overwhelming majority of C-band satellites serving the U.S., which rely on spectrum in the 6 GHz band for uplinks that support critical communications services as well as telemetry, tracking and command transmissions essential to the safe control of the spacecraft. The companies emphasized that these important licensed incumbent operations must be protected from harmful interference by imposing a cap of -142 dBW per channel on aggregate nationwide unlicensed device emissions. SES and Intelsat derived the -142 dBW limit from an interference-to-noise ratio of -13.5 dB, well below the more restrictive level applied internationally for secondary services.

SES and Intelsat explained that because C-band satellite receive antennas are designed to receive highly attenuated signals that have traveled almost 36,000 kilometers, the antennas must necessarily be extremely sensitive, making them very vulnerable to interference. Moreover, a typical C-band satellite has a very large footprint, with many spacecraft capable of covering the entire contiguous United States ("CONUS").[1] Emissions from all unlicensed

[1] *See, e.g.,* Comments of the Satellite Industry Association, GN Docket No. 17-183, filed Oct. 2, 2017 at 14 ("at least two dozen satellites with C-band payloads offer service that spans the entirety of the contiguous U.S.").

devices within the satellite's broad coverage area will contribute to the increased noise received at the satellite receiver.

SES and Intelsat observed that the experience of Globalstar in the U-NII-1 frequency band provides a concrete example of aggregate interference from unlicensed devices adversely affecting satellite reception. Within a few years after the Commission allowed outdoor devices and increased power levels in that band, Globalstar measured a substantial increase in the noise floor over the United States.

To prevent similar harms from disrupting vital C-band satellite services, SES and Intelsat urged the Commission to cap the maximum permissible aggregate interference level from unlicensed devices and explained that doing so would ensure protection of satellite services without unnecessarily constraining unlicensed device deployment. Proponents of 6 GHz unlicensed operations have presented analyses suggesting that aggregate interference will not create problems for satellite service continuity. These predictions, however, are inherently speculative, as they rely on a number of unproveable assumptions about future unlicensed device deployment numbers, duty cycles, power levels, and other variables.

Imposing a cap on aggregate interference to satellite receivers makes it unnecessary to debate the accuracy of these forecasted parameters or to limit the way in which unlicensed devices can be deployed. The cap SES and Intelsat support would be triggered if and only if aggregate interference reaches levels that would harm satellite reception. If unlicensed use advocates' predictions prove correct, that will never occur, and the cap will have no effect on unlicensed device deployment. But in the event that increased noise from unlicensed deployment threatens to disrupt satellite service integrity, the Commission will have a mechanism in place to prevent such harmful interference.

SES and Intelsat argued that the automated frequency coordination ("AFC") framework proposed for use to prevent harmful interference to the thousands of terrestrial fixed service links in the 6 GHz frequencies can be utilized to implement the interference cap needed to protect satellite operations as well. Specifically, the Commission should require that the ability to monitor and limit aggregate interference from outdoor unlicensed devices to -142 dBW per channel be integrated into the AFC system. Any frequency channel where the cap has been reached would be unavailable for additional unlicensed deployment unless changes in unlicensed usage parameters are made to reduce the level to below -142 dBW.

To protect C-band satellites with full-CONUS beams, the aggregate interference from unlicensed devices would need to be tracked on a nationwide basis, necessitating either a centralized AFC or interconnection if multiple AFCs are used. All outdoor devices, regardless of operational parameters, would need to be monitored by the AFC, and periodic updating of the AFC would be required to make sure that calculations are accurate and do not include devices that have been deactivated.

Please address any questions regarding these matters to the undersigned.

Respectfully submitted,

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cc: Meeting participants