SES
beyond frontiers

September 10, 2020

VIA ELECTRONIC FILING

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

Re: SES Americom, Inc. and O3b Limited Notice of Oral *Ex Parte* Presentation
***Space Exploration Holdings, LLC,* Application for Modification**
File No. SAT-MOD-20200417-00037; Call Signs S2983 and S3018

Dear Ms. Dortch:

SES representatives spoke by telephone with Federal Communications Commission staff on September 8, 9, and 10, 2020, regarding the above-referenced application of Space Exploration Holdings, LLC ("SpaceX") to modify its NGSO satellite system license. A list of participants in each discussion is attached.

During the calls SES reiterated its arguments in the record regarding the broad scope of the changes SpaceX seeks to implement, which would increase interference into the operational O3b NGSO system, create possible harmful interference to SES's GSO operations in the Ku-band and Ka-band, and raise significant space safety issues. SES contended that the pervasive alterations and their impact on other operators require the Commission to treat the entire SpaceX system as newly filed to provide the certainty the processing round rules were designed to confer. The attached talking points were sent to participants in the September 9 and 10 meetings and formed the basis for the discussions.

Please address any questions regarding this matter to the undersigned.

Respectfully submitted,

/s/ Suzanne Malloy
Suzanne Malloy
Vice President, Regulatory Affairs
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(202) 813-4026

Attachments

cc: Meeting participants

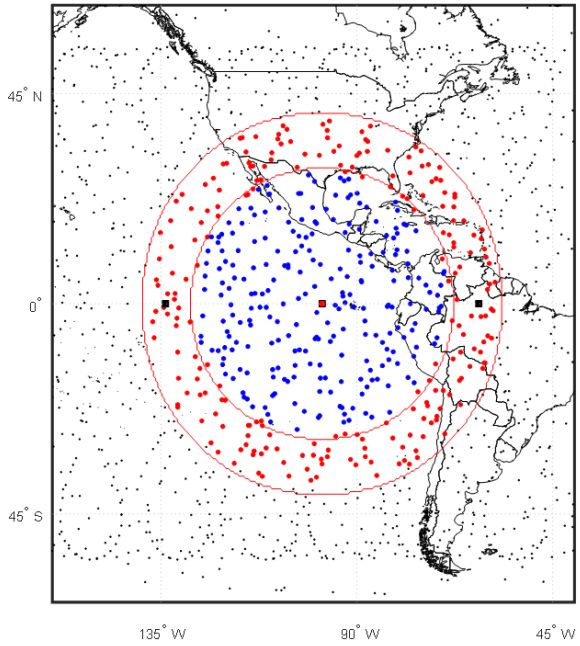
Date	Commission Participants	SES Participants
September 8, 2020	Tom Sullivan Jennifer Gilsenan Troy Tanner Karl Kensinger Kerry Murray Jay Whaley	Suzanne Malloy Noah Cherry Zach Rosenbaum Kelsie Rutherford Karis Hastings, outside counsel to SES
September 9, 2020	Erin McGrath	Suzanne Malloy Zach Rosenbaum Karis Hastings, outside counsel to SES
September 9, 2020	Sean Spivey	Suzanne Malloy Zach Rosenbaum Kelsie Rutherford Karis Hastings, outside counsel to SES
September 10, 2020	Umair Javed	Suzanne Malloy Zach Rosenbaum Karis Hastings, outside counsel to SES
September 10, 2020	Bill Davenport	Suzanne Malloy Zach Rosenbaum Kelsie Rutherford Karis Hastings, outside counsel to SES

The NGSO Interference, GSO Protection, and Space Safety Issues Raised by the SpaceX Redesign Require the Commission to Treat the System as Newly Filed

- The facts contradict SpaceX's attempts to downplay the significance and impact of its third system modification, as the network it now proposes bears no meaningful resemblance to the one for which SpaceX currently holds an authorization.
- The changes SpaceX seeks would degrade the interference environment for O3b and other NGSO systems authorized in the November 2016 processing round, pose a threat to SES's Ku- and Ka-band GSO operations, and raise substantial space safety concerns.
- Rather than substantively addressing these issues, SpaceX attacks the motives of other parties and relies on evasions, mischaracterizations, and outright untruths in an attempt to distract from the defects in its proposal.
- Commission acceptance of the SpaceX changes as minor would set an unsustainable precedent, fundamentally undermining the NGSO processing round framework.
- In contrast, treating the SpaceX system as a new filing in the processing round that closed in May would not impede the company's service plans.
    - SpaceX's 2019 observation regarding Amazon Kuiper is equally true here: its "own filings demonstrate that its system is fully capable of succeeding as part of a later processing round; it has the sophisticated technical capabilities necessary to protect first-round licensees and still provide a robust broadband service."

NGSO Interference: Geometry and Geography

- O3b's analysis disproves SpaceX's claim that its proposed design changes would not adversely affect O3b's authorized and operational Ka-band NGSO system.
- The SpaceX redesign involves every aspect of its system: not just lowering the satellites' altitude, but materially decreasing the elevation angles, multiplying the beam sizes, altering power characteristics, and implementing an undisclosed substitution in antenna technology.
- By altering the geometry, these changes would create new conjunction events with O3b's equatorial satellites over a substantial portion of CONUS where such events would have been impossible, as illustrated by the map included in SES's filings.



- These changes would raise both the number and persistence of inline events with O3b, yielding a 434% increase in total duration of conjunction events experienced by the O3b link.
- Even if SpaceX reduces its uplink power somewhat, that change in the intensity of interference to O3b will not offset the huge jump in its duration.
- SpaceX's response regarding increased downlink interference to O3b incorrectly assumes that every inline event that requires band-splitting will necessarily include both uplink and downlink spectrum.
- SpaceX is simply wrong when it claims the modification will not increase the amount of time band-splitting is required absent coordination, as O3b would be subject to the risk of spectrum splitting in an unacceptably high number of new situations in new geographies.
- Under the *Teledesic* standard, this means SpaceX cannot remain in the November 2016 round.

GSO Protection: Gaslighting on N_co

- The SpaceX response to SES's concerns about its compliance with EPFD limits to protect GSO systems suggests an intent to affirmatively mislead the Commission.
- N_co, the number of co-frequency satellites transmitting simultaneously, is critical to calculating EPFD, and SES asked why the SpaceX EPFD data used an N_co of one when the modification stated that up to eight satellites would transmit to a single gateway location.
- SpaceX suggested that the SES argument was speculative because the EPFD data was from a prior modification – but the data SpaceX shared with SES for *this* modification also used an N_co value of one.

- SpaceX's actions call into question not only whether its system will adequately protect GSO operations but whether SpaceX can be relied on to be truthful with the Commission.

Space Safety: Failures and Falsehoods

- The record on space safety issues raises similar concerns, as instead of being upfront about its record of spacecraft failures to date, SpaceX attacks other parties.
- SpaceX disingenuously attempts to equate the uncontrolled loss of at least 15 of its satellites in a matter of months to an anomaly affecting SES's AMC-9 satellite, but SES's efforts allowed it to regain control of AMC-9 and safely raise it to a disposal orbit – in fact, in the more than four decades SES entities have been in the satellite business, we have never failed to remove a GSO satellite from orbit at end of life.
- SpaceX is also dismissive of concerns relating to a close approach incident with a European Space Agency satellite, which exposed an "error" in SpaceX's procedures that meant SpaceX did not respond to ESA until after the fact, when ESA had already taken evasive action.
- Despite this questionable record, SpaceX asks the Commission and other operators to take on faith that its autonomous collision avoidance technology will perform flawlessly and refuses to provide supporting details about how the system works.

Bottom Line: If it Looks Like a Duck and Quacks Like a Duck . . .

- SES does not object to the evolution of the SpaceX design, but the current proposal differs in virtually every respect from the system as originally filed in November of 2016.
- Allowing SpaceX to substitute this radically different system and retain its status in the 2016 round would directly conflict with the processing round rules' purpose – to establish a known, stable sharing environment for NGSO systems.
- The precedent set by such a decision would embolden other operators to propose similarly substantive changes, with similarly radical impacts on others' authorized operations, destroying the certainty Commission policy was intended to create.
- Once SpaceX fills the gaping holes in its supporting information, its application should be considered as part of the processing round that closed in May.