

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
EUTELSAT S.A.)	File No. SAT-PPL-20180302-00018
)	Call Sign S3031
Petition for Declaratory Ruling for U.S. Market)	
Access for EUTELSAT 133WA Space Station)	

COMMENTS OF SES AMERICOM, INC.

SES Americom, Inc. (“SES”) hereby comments on the above-referenced application in which Eutelsat S.A. (“Eutelsat”) is seeking authority for the French-licensed EUTELSAT 133WA satellite to serve the U.S. market in Ku-band frequencies at 132.85° W.L. with an east-west stationkeeping tolerance of +/- 0.1 degrees.¹ As discussed below, the analysis provided in the EUTELSAT 133WA Petition regarding compatibility with the SES satellites at adjacent orbital locations does not accurately reflect the interference environment. SES requests that the Commission defer action on the EUTELSAT 133WA Petition pending the submission of a supplemental interference showing and the opportunity for SES to evaluate that showing and submit any further comments relevant to adjacent satellite co-existence.

INTRODUCTION

SES has a strong interest in the EUTELSAT 133WA Petition because SES operates satellites with Ku-band payloads on either side of the nominal 133° W.L. location. At 130.9° W.L., SES’s AMC-1 satellite supplies Ku-band space segment to a number of customers, including supporting the national security capabilities of the U.S. Department of Defense (“DoD”). SES’s AMC-4 satellite operates at 134.9° W.L., and its Ku-band payload provides a

¹ Eutelsat S.A., Call Sign S3031, File No. SAT-PPL-20180302-00018 (the “EUTELSAT 133WA Petition”).

variety of services, including supplying capacity that facilitates the delivery of in-flight broadband service to passengers and crew members traveling on U.S. airlines. In its review of the EUTELSAT 133WA Petition, SES has focused on whether the proposed operations pose a threat to the quality and continuity of these essential services.

Eutelsat's interference analysis does not adequately demonstrate its satellite's compatibility with respect to either AMC-1 or AMC-4 under the terms of Section 25.140 of the Commission's rules. SES seeks further information on these matters before the Commission considers Eutelsat's market access request.

I. EUTELSAT HAS NOT SHOWN THAT ITS PROPOSED OPERATIONS WILL NOT CAUSE UNACCEPTABLE INTERFERENCE TO AMC-1

First, Eutelsat has not provided sufficient evidence that its planned Ku-band operations less than two degrees away from the licensed position of AMC-1 will not cause disruption to the important services carried by AMC-1. As noted above, AMC-1 capacity is currently and actively being used by the U.S. Department of Defense, and the technical characteristics of these services render them particularly vulnerable to adjacent satellite interference that could jeopardize critical DoD missions. To date, although there was preliminary discussion about the 133° W.L. position in a Eutelsat-SES coordination meeting late last year, Eutelsat has not reached an agreement with SES addressing the proposal for EUTELSAT 133W to be positioned less than two degrees from AMC-1.

Moreover, the information supplied in the EUTELSAT 133WA Petition does not address SES's concerns about the compatibility of the proposed operations with those of AMC-1. Eutelsat supplies two sets of link budgets that describe the margins it calculates will be achieved for operations of EUTELSAT 133WA based on assumptions regarding the characteristics of

AMC-1 and AMC-4.² As a threshold matter, SES cannot evaluate the validity of these calculations because Eutelsat does not specify what AMC-1 and AMC-4 parameters were used in the analysis. For example, Eutelsat states that the link budget in Exhibit 1 reflects “the situation in which the AMC-1 and AMC-4 links are operating at the expected power levels.”³ But Eutelsat does not say what those “expected power levels” are, or what information Eutelsat used to develop its expectations regarding the SES satellites’ operating characteristics.

More importantly, however, a showing that the planned Eutelsat carriers can achieve an adequate signal margin is insufficient to demonstrate that EUTELSAT 133WA is compatible with AMC-1. Eutelsat must also address whether operations of AMC-1 will be adversely affected by the introduction of a co-frequency Ku-band satellite at less than two-degree spacing. Yet the EUTELSAT 133WA Petition lacks any analysis of the impact of the proposed EUTELSAT 133WA operations on the AMC-1 carrier-to-interference ratios.

Eutelsat’s discussion of its proposal to operate less than two degrees from AMC-1 also fails to adequately acknowledge the threat of interference to AMC-1’s operations. Specifically, Eutelsat states that “EUTELSAT 133WA will operate 1.95° away from the AMC-1 satellite,” and provides calculations regarding the difference in sidelobe isolation at 1.95 degrees of separation as compared to standard two-degree spacing.⁴ But this calculation ignores the fact that not only is Eutelsat seeking to operate centered at a position 1.95 degrees from AMC-1, it is also requesting a waiver of Commission requirements to permit an increased east-west stationkeeping tolerance of +/- 0.1 degrees.⁵ If the Commission grants this waiver, at the

² EUTELSAT 133WA Petition, Engineering Statement, Exhibits 1 and 2.

³ *Id.*, Engineering Statement, Section 13.

⁴ *Id.*, Engineering Statement, Section 14.

⁵ EUTELSAT 133WA Petition, Legal Narrative at 12-13.

EUTELSAT 133WA satellite's closest approach to AMC-1, the separation distance will be reduced by 0.1 degrees, not 0.05 degrees, when compared to satellites positioned two degrees apart with the east-west stationkeeping tolerance specified in the Commission's rules. Any analysis of the adjustments to EUTELSAT 133WA operations needed to protect AMC-1 from unacceptable interference must take into account the actual orbital spacing characteristics Eutelsat proposes.

To correct these flaws, SES requests that Eutelsat provide additional analysis assessing the impact of its planned services on AMC-1's signal quality, taking into account both the reduced nominal orbital spacing and the non-standard stationkeeping parameters proposed for EUTELSAT 133WA. SES's request is consistent with Section 25.140(a)(2), which specifies that unless there is a coordination agreement in place, "an applicant for GSO FSS space station operation at an orbital location less than two degrees from the assigned location of an authorized co-frequency GSO space station" must supply "an interference analysis demonstrating the compatibility of the proposed system with the co-frequency space station."⁶ Once Eutelsat has provided a demonstration that conforms to Section 25.140(a)(2), SES should be given the opportunity to review and comment on the updated interference analysis.

II. EUTELSAT HAS NOT SHOWN THAT IT CAN OPERATE SUCCESSFULLY GIVEN THE NON-ROUTINE POWER LEVELS AUTHORIZED FOR AMC-4

The second defect in the EUTELSAT 133WA Petition is Eutelsat's failure to take into account the authorized uplink operating power for AMC-4 at 134.9° W.L. Eutelsat indicates that the link budgets included in Exhibit 2 to its petition assume that AMC-4 is "operating at the maximum power levels dictated for two-degree spacing as defined in 25.140."⁷

⁶ 47 C.F.R. § 25.140(a)(2).

⁷ EUTELSAT 133WA Petition, Engineering Statement, Section 13.

Operations of AMC-4, however, are not constrained by the default two-degree spacing levels. Instead, consistent with the terms of Section 25.140(d), SES notified the Commission in January that it had coordinated non-routine transmission levels for its satellites at the nominal 131° W.L. orbital location, including AMC-4.⁸ For the 13.75-14.5 GHz frequencies used by AMC-4, the uplink input power density level specified in the SES Section 25.140(d) Notification is -42 dBW/Hz.⁹ Eutelsat proposes to use the same 13.75-14.5 GHz uplink frequencies for EUTELSAT 133WA.

Section 25.140(d)(3) explains the operational implications of the SES Section 25.140(d) Notification:

Non-routine transmissions notified pursuant to this paragraph (d) need not be coordinated with operators of authorized co-frequency space stations that filed their complete applications or petitions after the date of filing of the notification with the Commission. Such later applicants and petitioners must accept any additional interference caused by the notified non-routine transmissions.¹⁰

Pursuant to the rule, SES need not alter its AMC-4 transmission levels to accommodate EUTELSAT 133WA, and Eutelsat is required to accept the effects of the AMC-4 levels on its proposed operations of EUTELSAT 133WA.

The link budgets supplied by Eutelsat, however, do not reflect the notified transmission characteristics for AMC-4. The heading on Exhibit 2 to the EUTELSAT 133WA Petition's

⁸ See Letter from Petra A. Vorwig, SES Senior Legal & Regulatory Counsel, to Marlene H. Dortch, Secretary, Federal Communications Commission, File Nos. SAT-MOD-20170518-00073 *et al.*, dated Jan. 10, 2018 (the "SES Section 25.140(d) Notification"). The Space Station Approval List available on the Commission's website at <https://www.fcc.gov/approved-space-station-list> references the SES Section 25.140(d) Notification and provides a hyperlink to the letter. See Space Station Approval List (last revised March 27, 2018), Row 155, Column L.

⁹ SES Section 25.140(d) Notification at 1.

¹⁰ 47 C.F.R. § 25.140(d)(3).

Engineering Statement suggests that the link budget reflects “Worst Case Interference Conditions,”¹¹ but that is not the case. Instead, the link budget assumes that AMC-4 is operating at default two-degree spacing levels, rather than the higher levels SES has notified.

In short, Eutelsat’s representations about its ability to operate EUTELSAT 133WA given the interference environment at its requested orbital location are premised on incorrect information about that environment. Eutelsat must recalculate its link budgets and the resulting signal margin data using the higher uplink input power density level set forth in the SES Section 25.140(d) Notification in order to demonstrate whether EUTELSAT 133WA can operate successfully as proposed adjacent to AMC-4.

CONCLUSION

As discussed above, the EUTELSAT 133WA Petition does not adequately demonstrate the satellite’s compatibility with adjacent spacecraft operations. Instead, supplemental information is required to show that EUTELSAT 133WA will not cause unacceptable interference to AMC-1 and can achieve satisfactory performance in light of the non-routine

¹¹ EUTELSAT 133WA Petition, Engineering Statement, Exhibit 2.

power levels authorized for AMC-4. Once the updated showing is submitted, the Commission should provide a further opportunity for comment.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 7th day of May, 2018, I caused a true and correct copy of the foregoing “Comments of SES Americom, Inc.” to be sent by first class mail, postage prepaid, to the following:

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