

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

In the Matter of	)	
	)	
SES AMERICOM, INC.	)	
	)	File No. SAT-MOD-_____
Application for Modification of AMC-6 Fixed-	)	Call Sign S2347
Satellite Space Station License	)	

**APPLICATION OF SES AMERICOM, INC.**

SES Americom, Inc. (“SES”) hereby respectfully requests modification of its license for the AMC-6 C/Ku-band fixed-satellite space station to reassign the spacecraft to 83.0° W.L. Specifically, SES seeks authority to: (1) drift AMC-6 from its current position at 85.0° W.L. to 83.0° W.L. and maintain it at that location using certain C-band and conventional Ku-band frequencies for Telemetry, Tracking and Command (“TT&C”);<sup>1</sup> and (2) operate AMC-6 in the C-band, conventional Ku-band and extended Ku-band<sup>2</sup> frequencies at 83.0° W.L. Grant of the requested authority will serve the public interest by allowing SES to offer a long-term solution for customers whose service at 83° W.L. was interrupted by the recent AMC-9 anomaly. AMC-6 will also add capacity in the extended Ku-band.

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<sup>1</sup> The AMC-6 TT&C frequencies and nominal polarizations are as follows:

<u>Command:</u>	6423.5 MHz (horizontal polarization; uplink)
<u>Telemetry:</u>	3700.5 MHz (horizontal polarization; downlink), 4199.5 MHz (vertical polarization; downlink), and 11702.0 MHz (horizontal polarization; downlink) 12198.0 MHz (vertical polarization; downlink).

<sup>2</sup> Operations in the extended Ku-band (specifically 11.45-11.7 and 13.75-14 GHz) will be conducted under an ITU network filing LUX-G8-44 held by the Luxembourg Administration.

A completed Form 312 is attached, and SES incorporates by reference the technical information previously provided in support of AMC-6.<sup>3</sup> In addition, SES is providing here technical information relating to the proposed modification to the AMC-6 license on Schedule S and in narrative form pursuant to Section 25.114 of the Commission's Rules.

## MODIFICATION

***Re-assignment to 83.0° W.L.:*** AMC-6 is a U.S.-licensed hybrid C/Ku-band satellite that is assigned to 85° W.L. with a license term that expires on November 22, 2023.<sup>4</sup> As SES previously notified the Commission, on June 17, 2017, the AMC-9 satellite assigned to 83° W.L. experienced an anomaly of unknown origin. Due to this anomaly, the satellite is not responding to commands, and SES is unable to maintain the satellite in its assigned stationkeeping volume. SES received STA for 30 days to continue communications with the satellite for TT&C purposes only.<sup>5</sup> A significant portion of the traffic that had been carried by AMC-9 has been transitioned to AMC-6 at 85° W.L.

In response to the anomaly, SES has developed a plan to restore long-term service to the customers previously using AMC-9 at 83° W.L. and seeks the necessary authority to implement the solution. Initially, SES's AMC-4 satellite, which is currently authorized to drift to 134.9° W.L.,<sup>6</sup> will stop temporarily at 85° W.L. on or around June 29, 2017.<sup>7</sup> SES will

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<sup>3</sup> The most recent technical information regarding AMC-6 is found in File No. SAT-MOD-20170316-00051. This application also incorporated by reference the technical information from File Nos. SAT-LOA-19971222-00230 & SAT-AMD-20000510-00089, SAT-MOD-20050819-00163 and the updated orbital debris mitigation plan submitted in File No. SAT-MOD-20150820-00059.

<sup>4</sup> See SES Americom, Inc., File No. SAT-MOD-20170316-00051, granted June 14, 2017.

<sup>5</sup> See SES Americom, Inc., File No. SAT-STA-20170619-00091, granted June 17, 2017.

<sup>6</sup> SES Americom, Inc., File No. SAT-STA-20170503-00070, granted June 7, 2017.

transfer active traffic on AMC-6 at 85° W.L. to AMC-4. Once the traffic has been transferred, which is expected to be completed by early on June 30, AMC-6 can be relocated to 83° W.L.<sup>8</sup> After AMC-6 arrives at 83° W.L. on or around July 3, SES will transfer all of the traffic from AMC-4 back to AMC-6. At 83° W.L. AMC-6 will continue to support customers that were affected by the AMC-9 anomaly, support additional aeronautical services and add extended Ku-band capacity at the location.

Grant of the requested authority to relocate and operate AMC-6 will serve the public interest and is consistent with Commission precedent. The Commission has repeatedly observed that its policy is to allow “satellite operators to rearrange satellites in their fleet to reflect business and customer considerations where no public interest factors are adversely affected.”<sup>9</sup> As the International Bureau has explained:

the Commission attempts, when possible, to leave spacecraft design decisions to the space station licensee because the licensee is in a better position to determine how to tailor its system to meet the particular needs of its customers. Consequently the Commission will generally grant a licensee’s request to modify its system, provided there are no compelling countervailing public interest considerations.<sup>10</sup>

Here, the requested authority is necessary to provide a quick and long-term solution to restore service for customers, including the U.S. Department of Defense, that were

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<sup>7</sup> See SES Americom, Inc., File No. SAT-STA-20170623-00094, filed June 23, 2017.

<sup>8</sup> See SES Americom, Inc., File No. SAT-STA-20170623-00096, filed June 23, 2017.

<sup>9</sup> *SES Americom, Inc.*, Order and Authorization, DA 06-757 (IB rel. Apr. 7, 2006) at 4, ¶ 8, citing *Amendment of the Commission’s Space Station Licensing Rules and Policies*, Second Report and Order, 18 FCC Rcd 12507, 12509, ¶ 7 (2003).

<sup>10</sup> *AMSC Subsidiary Corp.*, Order and Authorization, DA 98-493, 13 FCC Rcd 12316 (IB 1998) (“*AMSC Modification Order*”) at 12318, ¶ 8 (footnote omitted).

affected by the AMC-9 anomaly. Furthermore, reassignment of AMC-6 by two degrees to 83.0° W.L. will not adversely affect other operators. There are no satellites operating at or near 83.0° W.L. that would overlap with the stationkeeping volume of AMC-6. SES will operate only the TT&C frequencies of AMC-6 during the drift and will follow standard industry practices for coordination of TT&C transmissions during the relocation process. The Technical Appendix certifies that the AMC-6 network is compliant with Commission rules for operation in a two-degree spacing environment and is compatible with co-frequency satellites adjacent to the nominal 83° W.L. orbital location.

### CONCLUSION

For the foregoing reasons, SES seeks modification of the AMC-6 license to reassign the spacecraft to 83.0° W.L. for operations in the C-band, conventional Ku- and extended Ku-band frequencies, as described in the attached materials.

Respectfully submitted,

SES AMERICOM, INC.

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Dated: June 28, 2017

**TECHNICAL APPENDIX**

**AMC-6 AT 83.0° W.L.**

## **1.0 Overall Description (§25.114(d)(1))**

This technical appendix is submitted in support of the modification application of SES Americom, Inc. (“SES”) seeking authority to relocate AMC-6 to 83.0° W.L. SES incorporates by reference the technical information it has already provided with respect to AMC-6,<sup>1</sup> and provides here technical information relating to operation of AMC-6 at 83.0° W.L. consistent with the proposed modification.

AMC-6 is equipped with twenty-four 36 MHz conventional Ku-band transponders, four 72 MHz extended Ku-band transponders and twenty-four 36 MHz conventional C-band transponders.

The satellite will provide coverage of North America, Central America and the Caribbean. The Telemetry, Tracking and Command (“TT&C”) capabilities will be provided in the Ku-band and in limited C-band frequencies as described in previous applications. The interconnectivity of the AMC-6 uplink and downlink transponders and its detailed frequency plan is described in previous applications.

## **2.0 Schedule S (§25.114(c))**

The Schedule S database is included with this filing. Pursuant to Section 25.114(c)(4)(vi)(A), the gxt diagram for the global telecommand receive beam (“CMD”) and the global horn antenna (“CTM”) are not included because, for these beams, the contour at 8 dB below peak falls entirely beyond the edge of the visible Earth.

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<sup>1</sup> The most recent technical information regarding AMC-6 is found in File No. SAT-MOD-20170316-00051. This application also incorporated by reference the technical information from File Nos. SAT-LOA-19971222-00230 & SAT-AMD-20000510-00089, SAT-MOD-20050819-00163 and the updated orbital debris mitigation plan submitted in File No. SAT-MOD-20150820-00059.

### **3.0 TT&C frequencies and beams**

The telemetry and command subsystem consists of redundant receivers and transmitters which are able to operate through either an omnidirectional antenna system or through the communications antennas. AMC-6 will use the communication antennas (“CTH” and “CTV”) for transmitting telemetry carriers in C-band, and the global horn antenna for receiving the C-band telecommand carrier (“CMD”) with a horizontal polarization while on-station. The communication antennas (“NATH” and “NATV”) will be used for transmitting telemetry carriers in Ku-band. The horn antenna (“CTM”) is used for emergency operations telemetry in the C-band with a vertical polarization while on-station. All of these carriers are described in the Schedule S.

### **4.0 Certification with respect to two degree spacing levels (§25.140(a))**

SES certifies that the AMC-6 downlink EIRP density will not exceed 3 dBW/4kHz for digital transmissions or 8 dBW/4kHz for analog transmissions in the C-band, nor will the downlink EIRP density exceed 14 dBW/4kHz in the Ku-band unless higher levels are coordinated with the operators of authorized co-frequency space stations at assigned locations within six degrees of 83° W.L. SES also certifies that the associated uplink EIRP density levels in the C-band will not exceed the envelopes in §25.218 or §25.221(a)(1) and the uplink density levels in the Ku-band will not exceed the envelopes in §25.218, §25.222(a)(1), §25.226(a)(1), or §25.227(a)(1) unless appropriately coordinated with operators of authorized co-frequency space stations at assigned locations within six degrees of 83.0° W.L.

### **5.0 Maximum Theoretical Operation Levels**

AMC-6 will be operated consistently with coordination agreements with adjacent satellites. In any case, in the conventional and extended Ku-bands, the downlink EIRP density of the AMC-6

digital carriers will not exceed -20.5 dBW/Hz, and the input power density of the uplink digital carriers of earth stations operating with AMC-6 will not exceed -46 dBW/Hz. In the 3700-4200 MHz band, the downlink EIRP density of the AMC-6 digital carriers will not exceed -30.0 dBW/Hz; and in the 5925-6425 MHz band, the input power density of the uplink digital carriers of earth stations operating with AMC-6 will not exceed -38.7 dBW/Hz.

#### **6.0 Mitigation of Orbital Debris (§25.114(d)(14))**

The information required under Section 25.114(d)(14) of the Commission's Rules is already on file with the Commission and is incorporated by reference herein.<sup>2</sup> SES proposes to move AMC-6 to 83.0° W.L. and to operate it there with an east-west station keeping tolerance of +/- 0.05 degrees.

SES is not aware of any satellites planned to be at or near the nominal 83° W.L. orbital location; therefore SES does not anticipate that the stationkeeping volume of AMC-6 will overlap with any other satellites.

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<sup>2</sup> See File No. SAT-MOD-20050819-00163, Technical Appendix, Section 6, as updated in File No. SAT-MOD-20150820-00059, Attachment A.



## DECLARATION

I, Donna Wang, hereby certify under penalty of perjury that I am the technically qualified person responsible for the technical information contained in the foregoing exhibit; that I am familiar with the technical requirements of Part 25; and that I either prepared or reviewed the technical information contained in the exhibit and that it is complete and accurate to the best of my knowledge, information and belief.

/s/ Donna Wang

Donna Wang  
Engineer, Spectrum Management and Development  
SES

Dated: June 28, 2017