

S2135 SAT-MOD-20170518-00073 IB2017001345
SES Americom, Inc.
AMC-4



File # SAT-MOD-20170518-00073

Call Sign S2135 Grant Date 07/31/17
(or other identifier)

Term Dates
From 07/31/17 To: 02/28/22

Approved: Stephen J. Duall

Approved by OMB
3060-0678

Date & Time Filed: May 18 2017 5:15:51:193PM
File Number: SAT-MOD-20170518-00073

* with conditions

Stephen J. Duall
Chief, Satellite Policy Branch

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD – MAIN FORM	FCC Use Only
FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	


APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Modification to Reassign AMC-4 (S2135) to 134.9 W.L. May 2017

1-8. Legal Name of Applicant

Name:	SES Americom, Inc.	Phone Number:	202-478-7143
DBA Name:		Fax Number:	202-478-7111
Street:	1129 20th Street NW Suite 1000	E-Mail:	petra.vorwig@ses.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20036 -
Attention:	Ms Petra A Vorwig		

ATTACHMENT TO GRANT
SES Americom, Inc.
IBFS File No. SAT-MOD-20170518-00073

IBFS File No(s):	SAT-MOD-20170518-00073	GRANTED – With Conditions  International Bureau Satellite Division
Licensee/Grantee:	SES Americom, Inc. (SES)	
Call Sign:	S2135	
Satellite Name:	AMC-4	
Orbital Location: (required station-keeping tolerance)	134.9° W.L. (+/- 0.05 degrees)	
Administration:	United States of America ¹	
Nature of Service:	Fixed-Satellite Service (FSS); Direct-to-home (DTH) ²	
Scope of Grant:	SES is authorized to conduct Telemetry, Tracking and Command (TT&C) operations necessary to drift of AMC-4 from the 67.0° W.L. orbital location to the 134.9° W.L. orbital location and to conduct TT&C and provide FSS, including DTH service, at 134.9° W.L. The license term for AMC-4 is also extended until February 28, 2022.	
Previous Grant(s):	SAT-MOD-20140606-00059, SAT-AMD-20110802-000142, SAT-MOD-20110510-00086, SAT-MOD-20100623-00144	
Service Area(s):	Pacific Ocean, North America, Caribbean	
Frequencies:	3700-4200 MHz, 11.45-11.7 GHz, and 11.7-12.2 GHz (space-to-Earth) 5925-6425 MHz, 13.75-14.0 GHz, and 14.0-14.5 GHz (Earth-to-space) Telemetry, Tracking, & Command center frequencies (TT&C): Telemetry: 3700.5 MHz, 4199.5 MHz, 11702.0 MHz, and 12198.0 MHz (space-to-Earth) Command: 6423.5 MHz (Earth-to-space)	

Unless otherwise specified herein, operations under this grant must comport with the legal and technical specifications set forth by the applicant or petitioner and with Federal Communication Commission’s rules not waived herein. This grant is also subject to the following conditions:

1. All operations during AMC-4’s drift to the 134.9° W.L. orbital location must be on an unprotected and non-harmful interference basis, *i.e.*, SES Americom must not cause harmful interference to, and must not claim protection from interference caused to it by, any other lawfully operating stations. In the event of harmful interference, SES Americom must cease operations immediately upon notification of such interference, and must inform the Commission, in writing, immediately of such an event.
2. SES Americom must coordinate the operations of AMC-4 with existing geostationary space stations to ensure that no unacceptable interference results from its operations during drift from the 67.0° W.L. to the 134.9° W.L. orbital location.
3. During the drift to the 134.9° W.L. orbital location, SES Americom must operate only the TT&C frequencies authorized for AMC-4, and must not include the provision of commercial services.
4. While at the 134.9° W.L. orbital location, SES Americom must maintain the AMC-4 spacecraft with an east/west longitudinal station-keeping tolerance of +/- 0.05 degrees.
5. In connection with the provision of service in any particular country, SES Americom is obliged to comply

¹ SES Americom states that it will operate AMC-4 in the conventional C-band (3700–4200 MHz and 5925–6425 MHz) under U.S. ITU network filings and in the conventional Ku (11.7-12.2 GHz and 14.0-14.5 GHz) and extended Ku-band (11.45-11.7 GHz and 13.75-14.0 GHz) frequency bands under ITU network filings held by the Luxembourg Administration designated LUX-G8-36.

² For purposes of this condition, DTH means the services subject to Section 25.701 of the Commission’s rules. 47 CFR § 25.701.

ATTACHMENT TO GRANT
SES Americom, Inc.
IBFS File No. SAT-MOD-20170518-00073

- with the applicable laws, regulations, rules, and licensing procedures of that country.
6. SES Americom must operate AMC-4 at the 134.9° W.L. orbital location in compliance with all existing or future coordination agreements for this location. In the absence of a coordination agreement, such communications must comply with applicable provisions of the ITU Radio Regulations as the Commission cannot guarantee the success of the required coordinations.
 7. The operations of AMC-4 and associated earth stations must comport with the applicable uplink and downlink limits in 47 CFR § 25.140(a)(3) of the Commission's rules, unless SES Americom coordinates any non-conforming operations with the operations of U.S.-licensed geostationary orbit space stations within 6 degrees of the 134.9° W.L. orbital location. SES Americom must also comport with the maximum power limits indicated in existing or future coordination agreements at 134.9° W.L. Non-conforming operation must also be coordinated with respect to those operations of non-U.S.-licensed space stations within 6 degrees of 134.9° W.L. involving approved communications with U.S.-licensed earth stations.
 8. Section 25.114(c)(4)(vi)(A) of the Commission's rules, 47 C.F.R. §§ 25.114(c)(4)(vi)(A), requires that space stations in a geostationary orbit specify the predicted space station antenna gain contour(s) for each transmit and receive antenna beam, except for beams where the contour at 8 dB below peak falls entirely beyond the edge of the visible Earth. The contour(s) should be plotted on an area map at 2 dB intervals down to the 10dB below the peak gain at 5 dB intervals between 10 dB and 20 dB below the peak gain, and the information must be in a GIMS-readable format. The information required was not prepared in accordance with the requirements of 47 C.F.R. §§ 25.114(c)(vi)(A) because the space station manufacturer did not provide .gxt data for this antenna. We find, however, that the figure provided in Annex 1 to the Technical Appendix in IBFS File No. SAT-MOD-20100623-00144 provides a sufficiently complete description of the global horn antenna on the AMC-4 space station to enable the Commission to determine whether the AMC-4 space station meets the Commission's technical requirements.
 9. On our own motion, we grant SES a waiver of Sections 25.114(d)(14)(ii) and 25.283(c) of the Commission's rules, 47 C.F.R. §§ 25.114(d)(14)(ii) and 25.283(c). These rules require an applicant to demonstrate how stored energy will be removed at the spacecraft's end-of-life and that all stored energy will be vented at end-of-life. The AMC-4 space station is a Lockheed Martin A2100 model that was not designed to completely vent its oxidizer tank. Following the launch of the spacecraft in 1999, the oxidizer tank was permanently sealed by firing pyrotechnic valves. As a result, SES states that at the end of AMC-4's operational life there will be oxidizer remaining in the tanks that cannot be vented. SES Americom states that the residual oxidizer in AMC-4's oxidizer tank has an end-of-life has a mass of 20.66 kg at a temperature of 25° Celsius in a tank with a volume of 0.01445 m³ liters. We waive Sections 25.114(d)(14)(ii) and 25.283(c) in light of the fact that the action taken to seal the oxidizer tanks was taken prior to the adoption of this rule, and compliance would require direct retrieval of the spacecraft.³
 10. The U.S. Administration will not object to use of the AMC-4 by the Administration of the Luxembourg for bringing into use or continuing use of orbital assignments in the 11.45-11.7 GHz, 11.7-12.2 GHz, 13.75-14.0 GHz and 14.0-14.5 GHz frequency bands at 134.9°W.L. orbital location contained in the filing LUX-G8-36.
 11. SES Americom's use of the 11.45-11.7 GHz band (space-to-Earth) frequency band is subject to footnote US211 to the United States Table of Frequency Allocations, 47 C.F.R. § 2.106, US211, which urges applicants for airborne or space station assignments to take all practicable steps to protect radio astronomy observations in the adjacent bands from harmful interference, consistent with footnote US74.
 12. SES Americom's operation of the AMC-4 space station in the 11.45-11.7 GHz (space-to-Earth) frequency band is limited to international operations in accordance with footnote NG52 to the United

³ See condition 16 granted in SES's application IBFS File No. SAT-MOD-20100623-00144.

ATTACHMENT TO GRANT
SES Americom, Inc.
IBFS File No. SAT-MOD-20170518-00073

States Table of Frequency Allocations. 47 CFR § 2.106, NG52.

13. Pursuant to footnote US337 of the United States Table of Frequency Allocations, 47 C.F.R. § 2.106, any earth station in the United States and its possessions communicating with the AMC-4 space station in the 13.75-14.0 GHz band (Earth-to-space) is required to coordinate through National Telecommunications and Information Administration's (NTIA's) Interdepartment Radio Advisory Committee's (IRAC's) Frequency Assignment Subcommittee (FAS) to minimize interference to the National Aeronautics and Space Administration (NASA) Tracking and Data Relay Satellite System, including manned space flight.
14. Operations of any earth station in the United States and its possessions communicating with the AMC-4 space station in the 13.75-14.0 GHz band (Earth-to-space) must comply with footnote US356 to United States Table of Frequency Allocations, 47 C.F.R. § 2.106, US356, which specifies a mandatory minimum antenna diameter of 4.5 meters and recommended minimum and maximum equivalent isotropically radiated power (e.i.r.p.). Operations of any earth station located outside the United States and its possessions communicating with the AMC-4 space station in the 13.75-14.0 GHz band (Earth-to-space) must be consistent with footnote 5.502 to the ITU Radio Regulations, which allows a minimum antenna diameter of 1.2 meters for earth stations of a geostationary satellite orbit network and specifies mandatory power limits.
15. Pursuant to footnote US356 to the United States Table of Frequency Allocations, 47 CFR § 2.106, US356, in the 13.75-14.0 GHz band (Earth-to-space), receiving space stations in the fixed-satellite service shall not claim protection from radiolocation transmitting stations operating in accordance with the United States Table of Frequency Allocations.
16. Operations of any earth station in the United States and its possessions communicating with the AMC-4 space station in the 13.77-13.78 GHz band (Earth-to-space) must comply with footnote US357 to the United States Table of Frequency Allocations, 47 C.F.R. § 2.106, US357, which specifies that a required maximum e.i.r.p. density of emissions not exceed 71 dBW in any 6 MHz band for communications with a space station in geostationary-satellite orbit.⁴ Operations of any earth station located outside the United States and its possessions must comply with footnote 5.503 to the ITU Radio Regulations, which specifies a required maximum e.i.r.p. density of emissions (limit is dependent on antenna diameter) for communications with a space station in geostationary-satellite orbit.
17. Pursuant to footnote US342 of the United States Table of Frequency Allocations, 47 C.F.R. § 2.106, services operating in the 14.47-14.5 GHz band shall take all practicable steps to protect the radio astronomy service from harmful interference.
18. The license term for the AMC-4 space station is extended from December 22, 2018, through February 28, 2022.


Licensee/grantee is afforded thirty (30) days from the date of release of this action to decline the grant as conditioned. Failure to respond within this period will constitute formal acceptance of the grant as conditioned.

This action is taken pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon release.

Station licenses are subject to the conditions specified in Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. § 309(h).

⁴ Footnote US357 places a restriction on FSS earth station operations in order to protect government operations in the band, including manned space flight. 47 C.F.R. § 2.106, US357.

ATTACHMENT TO GRANT
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IBFS File No. SAT-MOD-20170518-00073

Action Date:	July 31, 2017	
Term Dates	From: July 31, 2017	To: February 28, 2022
Approved:	 Stephen J. Duall Chief, Satellite Policy Branch	

9-16. Name of Contact Representative

Name:	Karis A. Hastings	Phone Number:	202-599-0975
Company:	SatCom Law LLC	Fax Number:	
Street:	1317 F St NW Suite 400	E-Mail:	karis@satcomlaw.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20004-
Attention:		Relationship:	

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

- a1. Earth Station
- a2. Space Station

- (N/A) b1. Application for License of New Station
- (N/A) b2. Application for Registration of New Domestic Receive-Only Station
- b3. Amendment to a Pending Application
- b4. Modification of License or Registration
- b5. Assignment of License or Registration
- b6. Transfer of Control of License or Registration
- b7. Notification of Minor Modification
- (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
- (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
- (N/A) b10. Other (Please specify)
- (N/A) b11. Application for Earth Station to Access a Non-U.S. satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States
- (N/A) b12. Application for Database Entry
- b13. Amendment to a Pending Database Entry Application
- b14. Modification of Database Entry

17c. Is a fee submitted with this application?

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity Noncommercial educational licensee
- Other (please explain):

17d.

Fee Classification BFY – Space Station Modification (Geostationary)

18. If this filing is in reference to an existing station, enter:

(a) Call sign of station:
S2135

19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:

(a) Date pending application was filed: (b) File number:

SATMOD2014060600059

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:	
<input checked="" type="checkbox"/> a. Fixed Satellite <input type="checkbox"/> b. Mobile Satellite <input type="checkbox"/> c. Radiodetermination Satellite <input type="checkbox"/> d. Earth Exploration Satellite <input checked="" type="checkbox"/> e. Direct to Home Fixed Satellite <input type="checkbox"/> f. Digital Audio Radio Service <input type="checkbox"/> g. Other (please specify)	
21. STATUS: Choose the button next to the applicable status. Choose only one. <input type="radio"/> Common Carrier <input checked="" type="radio"/> Non-Common Carrier	22. If earth station applicant, check all that apply. <input type="checkbox"/> Using U.S. licensed satellites <input type="checkbox"/> Using Non-U.S. licensed satellites
23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities: <input type="radio"/> Connected to a Public Switched Network <input type="radio"/> Not connected to a Public Switched Network <input checked="" type="radio"/> N/A	
24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s). <input checked="" type="checkbox"/> a. C-Band (4/6 GHz) <input checked="" type="checkbox"/> b. Ku-Band (12/14 GHz) <input checked="" type="checkbox"/> c. Other (Please specify upper and lower frequencies in MHz.) Frequency Lower: Frequency Upper: (Please specify additional frequencies in an attachment)	

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- a. Fixed Earth Station
- b. Temporary-Fixed Earth Station
- c. 12/14 GHz VSAT Network
- d. Mobile Earth Station
- e. Geostationary Space Station
- f. Non-Geostationary Space Station
- g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY:

- Transmit/Receive Transmit-Only Receive-Only N/A

"For Space Station applications, select N/A."

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- a — authorization to add new emission designator and related service
- b — authorization to change emission designator and related service
- c — authorization to increase EIRP and EIRP density
- d — authorization to replace antenna
- e — authorization to add antenna
- f — authorization to relocate fixed station
- g — authorization to change frequency(ies)
- h — authorization to add frequency
- i — authorization to add Points of Communication (satellites & countries)
- j — authorization to change Points of Communication (satellites & countries)
- k — authorization for facilities for which environmental assessment and radiation hazard reporting is required
- l — authorization to change orbit location
- m — authorization to perform fleet management
- n — authorization to extend milestones
- o — Other (Please specify)

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments. Yes No

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30–34.

29. Is the applicant a foreign government or the representative of any foreign government?	<input type="radio"/> Yes <input checked="" type="radio"/> No
30. Is the applicant an alien or the representative of an alien?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A

33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?

Yes No N/A

34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.

Exhibits A and B

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules?
If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.

Yes No

36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explanation of circumstances.

Yes No

37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explanation of circumstances.

Yes No

38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attempting unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition? If Yes, attach as an exhibit, an explanation of circumstances

Yes No

39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhibit, an explanation of the circumstances.

Yes No

40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.

41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.

Yes No

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in 47 C.F.R. 25.137, as appropriate. If No, proceed to question 43.

Yes No

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?

43. Description. (Summarize the nature of the application and the services to be provided). (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

SES Americom, Inc. hereby requests modification of its license for the AMC-4 satellite (call sign S2135) to reassign the spacecraft to 134.9 W.L. and to extend the license term. Please see attached narrative.

Narr and Tech App

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.

A

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.

B

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.

C

CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- Individual
- Unincorporated Association
- Partnership
- Corporation
- Governmental Entity
- Other (please specify)

45. Name of Person Signing
Petra A. Vorwig

→

46. Title of Person Signing
Senior Legal & Regulatory Counsel

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT
(U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION
(U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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