GRANTED

File # Sat-STA-20050111-00009 with attached Conditions

Call Sign S2181 Grant Date April 8, 2005
(or other identifier)

Term Dates
From April 8, 2005 To: June 7, 2005

Approved by OMB
3060-0678

Approved: Chief Satellite Robert G. Nelson Engineering Branch

Date & Time Filed: Jan 11 2005 5:28:29:086PM
File Number: SAT-STA-20050111-00009
Callsign:

FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY

FOR OFFICIAL USE ONLY

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
AMC-16 STA Request

1. Applicant

Name:	SES Americom, Inc.	**Phone Number:**	609-987-4000 x4187
DBA Name:		**Fax Number:**	609-987-4233
Street:	4 Research Way	**E-Mail:**	nancy.eskenazi@ses-americom.com
City:	Princeton	**State:**	NJ
Country:	USA	**Zipcode:**	08540 -
Attention:	Ms. Nancy J. Eskenazi		

Attachment
SAT-STA-20050111-00009
AMC-16
Call Sign: S2181
April 8, 2005

1. SES Americom, Inc.'s ("SES Americom") application for Temporary Authority, File No: SAT-STA-20050111-00009 IS GRANTED. Accordingly, SES Americom is authorized, for the period of April 8, 2005 to June 7, 2005, to drift to 96.925°W. L. and, upon arrival at 96.925° W.L., to operate the AMC-16 Ka-band payload and Ku-band Telemetry, Tracking and Control functions at 96.925° W.L., in accordance with the terms, conditions, and technical specifications set forth in its application, its April 7,2005 letter[1], this Attachment and the Commission's Rules.

2. This temporary authority is limited to the Ka-band frequencies and Ku-band TT&C frequencies for which AMC-16 is regularly authorized, File Nos. SAT-LOA-19950929-00133, SAT-RPL-20040227-00024, and SAT-MOD-20040227-00022. See Policy Branch Information, Public Notice, DA 04-2884, Report No. SAT-00239 (Sep. 3, 2004).

3. With respect to AMC-16's operations, no harmful interference will be caused to any lawfully operating satellite network or radio communication system, and SES Americom will immediately cease the operations of AMC-16 upon notification of harmful interference. SES Americom must notify the Commission, in writing, that it has received such a notification within 48 hours of receipt.

4. SES Americom is required to accept interference to its operations on AMC-16 at 96.925°W.L. from other lawfully operating in-orbit satellites.

5. SES Americom shall maintain a +/- 0.025 degree East/West stationkeeping tolerance.

6. With respect to AMC-16's Ka-band operations, no protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination of the frequency assignments of other administrations. *See* 47 C.F.R. § 25.111(b).

7. Any action taken or expense incurred as a result of operations pursuant to this temporary authorization is solely at the risk of SES Americom.

[1] *See* letter from Karis Hastings to Marlene Dortch attached.

2. Contact

Name:	Karis A. Hastings	**Phone Number:**	202-637-5767
Company:	Hogan & Hartson L.L.P.	**Fax Number:**	202-637-5910
Street:	555 Thirteenth Street, NW	**E-Mail:**	KAHastings@HHLaw.com
City:	Washington	**State:**	DC
Country:	USA	**Zipcode:**	20004 -1109
Contact Title:		**Relationship:**	Legal Counsel

(If your application is related to an application filed with the Commission, enter the file number below.)
3. Reference File Number

4a. 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):

4b. Fee Classification CRY – Space Station (Geostationary)

5. Type Request

○ Change Station Location ○ Extend Expiration Date ◉ Other

6. Temporary Orbit Location	7. Requested Extended Expiration Date
97 W. L.	

8. Description (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. seeks special temporary authority to locate the AMC-16 Ku/Ka-band hybrid satellite at 97 degrees W.L. and to operate the spacecraft's Ka-band payload and Ku-band TT&C for a period of two months at that location.

9. 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

10. Name of Person Signing	11. Title of Person Signing
Nancy J. Eskenazi	Vice President and Associate General Counsel

12. Please supply any need attachments.

Attachment 1: Att. 1	Attachment 2:	Attachment 3:

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

In the Matter of Application by	)	
	)	
SES AMERICOM, INC.	)	File No. SAT-STA-_____
	)	
For Special Temporary Authority To Operate AMC-16 at 97° W.L.	)	

APPLICATION OF SES AMERICOM, INC.

SES Americom, Inc. ("SES Americom") hereby respectfully requests special temporary authority to locate the AMC-16 Ku/Ka-band hybrid satellite at the 97° W.L. orbital location and to operate the spacecraft's Ka-band payload and Ku-band TT&C payload at that location for a period of two months beginning in early April. Grant of the requested authority will serve the public interest by permitting the use of AMC-16 in response to customer requirements and promoting efficient use of orbital resources.

AMC-16 is a Ku/Ka-band satellite that was launched on December 17 and is licensed to operate at the 85° W.L. orbital position.[1] SES Americom is authorized to test AMC-16's Ku-band payload at 82.1° W.L. and its Ka-band payload at 84.9° W.L.[2] Testing of the Ku-band payload is currently in progress. Following

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1 *See* File Nos. SAT-LOA-19950929-00133; SAT-RPL-20040227-00024 & SAT-MOD-20040227-00022, granted Sept. 2, 2004.

2 *See* File No.SAT-STA-20040902-00164, granted Oct. 18, 2004.

completion of testing SES Americom will move AMC-16 to its assigned orbit location at 85° W.L. and commence operations there.

SES Americom has been asked by its customer, EchoStar Satellite L.L.C. ("EchoStar"), to temporarily relocate AMC-16 for regular operation at the 97° W.L. orbital location.[3] To accommodate this request, SES Americom seeks authority to operate AMC-16 at 97° W.L. for a two-month period beginning in April 2005. EchoStar is the customer for the entire communications payload of AMC-16, so no other customers will be impacted by this temporary use.[4]

The relevant operational characteristics of AMC-16 while stationed at 97° W.L. are described in more detail in the attached Technical Appendix.

Operation of the Ka-band payload of AMC-16 at 97° W.L. will not result in harmful interference to adjacent satellites at that position. DIRECTV holds a Ka-band license at 99° W.L. with a launch and operation milestone of June 25, 2005. SkyTerra has applied for a Ka-band license at 95° W.L. As demonstrated in the technical appendix, AMC-16 complies with Commission two-

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3 EchoStar holds a license to operate a Ka-band satellite at 97° W.L. *See* File Nos. SAT-LOA-20030827-00186 & SAT-AMD-20031203-00345, granted March 8, 2004.

4 SES Americom currently serves customers at 85° W.L. on the AMC-9 C/Ku-band satellite. However, upon the arrival of AMC-16 at this orbital position, AMC-9 will be moved to 83° W.L., and those customers will be served by AMC-9 after its relocation or by other SES Americom satellites. This transfer of traffic will occur prior to the temporary relocation of AMC-16 proposed here.

degree spacing requirements, making coordination of Ka-band operations with adjacent licensees unnecessary.

Operation of the Ku-band TT&C payload at 97° W.L. also will not cause interference. Intelsat operates the Intelsat Americas 5 satellite at 97° W.L. PanAmSat operates the Galaxy 3C satellite at 95° W.L. and the Galaxy 4R satellite at 99° W.L.[5] SES Americom will coordinate with Intelsat with respect to the very limited use of the Ku-band at 97° W.L. for TT&C communications[6] and on stationkeeping matters with respect to the temporary co-location of AMC-16 at the 97° W.L. position.[7] In addition, SES Americom will operate AMC-16 so as to avoid collisions with other spacecraft during in-orbit maneuvers.

SES Americom seeks temporary authority to operate AMC-16 at 97° W.L. pursuant to the following conditions:

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5 The Ku-band TT&C frequencies of AMC-16 do not overlap with those used on the PanAmSat satellites adjacent to 97° W.L. Nevertheless, SES Americom will advise PanAmSat of its proposed operations.

6 As noted in the technical appendix, there is an overlap between the AMC-16 Ku-band command channel and the lowest-frequency Ku-band transponder on Intelsat Americas 5. However, the AMC-16 command channel will be operated cross-polarized to the Intelsat Americas 5 services, providing approximately 30 dB of isolation.

7 In order to provide flexibility to accommodate stationkeeping matters, SES Americom requests authority to operate AMC-16 centered at a location within .1 degrees of 97° W.L. When it has completed stationkeeping discussions with Intelsat, SES Americom will advise the Commission concerning the precise location for temporary operations of AMC-16.

(a) SES Americom will coordinate these operations with existing satellite networks as necessary to ensure that no unacceptable interference results from the operation of AMC-16 at the 97° W.L. orbital location.

(b) No harmful interference will be caused to any lawfully operating satellite network or radio communication system and SES Americom operations will cease immediately upon notification of harmful interference. Further, SES Americom shall notify the Commission in writing that it has received such a notification within 14 days of receipt.

(c) SES Americom will accept interference from any lawfully operating satellite network or radio communication system.

(d) Temporary authority is limited to the Ka-band frequencies and Ku-band TT&C frequencies for which the AMC-16 satellite is authorized.

(e) The authorization is subject to change in any of its terms or cancellation in its entirety at any time upon reasonable notice, but without hearing, if in the opinion of the Commission circumstances require.

SES Americom hereby certifies that no party to this application is subject to a denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. § 862.

SES Americom 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.

For the foregoing reasons, SES Americom seeks temporary authority to operate the Ka-band payload and Ku-band TT&C payload of AMC-16 at 97° W.L. for a period of two months beginning in April 2005. SES Americom requests timely action on this application to accommodate the proposed schedule.

Respectfully submitted,

SES AMERICOM, INC.

By: */s/ Nancy J. Eskenazi*
Nancy J. Eskenazi
Vice President and
Associate General Counsel
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Karis A. Hastings
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Washington, D.C. 20004-1109
Tel: (202) 637-5600

Dated: January 11, 2005

TECHNICAL APPENDIX

1.0 Overall Description

Americom-16 ("AMC-16") is a hybrid Ku-band/Ka-band spacecraft. The current application seeks special temporary authority ("STA") to operate the Ka-band payload and Ku-band TT&C frequencies at 97° W.L.[1] The uplink and downlink Ka-band coverage at 97° W.L. consists of 12 spot beams providing coverage of the 50 states.[2] The technical characteristics of AMC-16 are described in detail in the AMC-16 applications.[3]

2.0 Technical Characteristics of Proposed Temporary Operations

2.1 Orbit location

The present application requests authority to operate the Ka-band payload and TT&C functions on a temporary basis at 97° W.L.

2.2 Technical analysis

Section 25.138 of the FCC's rules contains off-axis EIRP density limits for Ka-band uplinks (§ 25.138(a)(1)), and pfd limits for Ka-band downlinks (§ 25.138(a)(6)). In addition, Section 25.208 contains pfd limits for Ka-band (§ 25.208(d) & (e)). Compliance with each of these provisions is demonstrated in the following sections.

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[1] The frequencies used for TT&C are 11.70075, 12.19925 and 18.584 GHz (telemetry) and 14.0015 GHz (command). SES Americom will coordinate the operation of the Ku-band TT&C frequencies with operational co-frequency satellites at 97° W.L. or within two degrees of this location. Specifically, SES Americom will coordinate with Intelsat's operation of the Intelsat Americas 5 satellite at 97° W.L. The AMC-16 command channel overlaps with frequencies on one IA-5 transponder, but the command channel operates on the opposite polarization, resulting in approximately 30 dB of isolation. PanAmSat operates adjacent to 97° W.L. via the Galaxy 3C satellite at 95° W.L. and the Galaxy 4R satellite at 99° W.L., but the Ku-band TT&C frequencies of AMC-16 do not overlap those used by PanAmSat. Nevertheless, SES Americom will notify PanAmSat of its proposed operations.

[2] See Attachment 1 to this Technical Appendix for AMC-16 Ka-band antenna gain contours from the 97° W.L. orbit location.

[3] *See* File Nos. SAT-RPL-20040227-00022 & SAT-MOD-20040227-00022, granted Sept. 2, 2004.

The 97° W.L. orbit location is adjacent to 95° W.L. and 99° W.L. At 99° W.L., DIRECTV is licensed for Spaceway-2 for the Ka-band frequencies. Spaceway 2 has not yet been launched, but may commence operations at 99° W.L. during the period of the requested STA. At 95° W.L., SkyTerra has a pending application for authority to operate on the Ka-band frequencies. As demonstrated in Sections 2.2.1 and 2.2.2 below, AMC-16 complies with the FCC's 2° spacing rules (§ 25.138), and as a result, no coordination with adjacent Ka-band satellites is required.

2.2.1 Off-axis EIRP density limits

Section 25.138(a)(1), together with 25.138(b), specifies that certain EIRP density levels must be met by FSS earth stations or coordination of the network is necessary with other licensees within +/- 6 degrees of the licensed orbit location.

The following Table demonstrates that AMC-16, using the uplink EIRP levels and earth station antenna sizes from the sample link budgets in Attachment A (Section 2.12) of the original AMC-16 application,[4] meets these off-axis EIRP density requirements.

[4] File No. SAT-MOD-20040227-00022.

Table 1. Off-axis EIRP density						
Carrier type	8PSK Turbo 60 Mbps	QPSK 3-4 8 Mbps	QPSK 2-3 100Mbps	8PSK Turbo 78Mbps	QPSK Turbo 1.2Mbps	QPSK Turbo 1.2Mbps
Frequency, GHz	29.5	29.5	29.5	29.5	29.5	29.5
IF bandwidth, kHz	32499.8	5787.2	81383.0	33855.3	1302.1	1302.1
Carrier EIRP, dBW	73.8	69.4	80.8	76.8	42.4	42.4
Earth station antenna diameter, m	6.00	4.50	6.00	6.00	0.65	1.20
EIRP density, dBW/40 kHz	44.7	47.8	47.7	47.5	27.3	27.3
On-axis gain of earth station antenna	63.49	60.99	63.49	63.49	44.18	49.51
Off-axis gain at 2.1 degrees (topocentric)	20.94	20.94	20.94	20.94	20.94	20.94
Off-axis eirp density at 2 degrees, dBW/40 kHz	2.19	7.75	5.17	4.98	4.03	-1.29
FCC 25.138, 18.5-25*log(2) dBW/40 kHz	10.97	10.97	10.97	10.97	10.97	10.97
Margin	8.79	3.22	5.80	5.99	6.94	12.27

2.2.2 PFD analysis

Section 25.138(a)(6), together with § 25.138(b), specifies that certain power flux density (PFD) levels must be met by FSS space stations or coordination of the space station is necessary with other licensees within +/- 6 degrees of the licensed orbit location.

The following Table demonstrates that AMC-16, using the maximum Ka-band EIRP levels in Attachment A (Section 2.3.2) of the original AMC-16 Application, meets these PFD requirements.

Table 2. AMC-16 Worst case PFD analysis	
Maximum EIRP, dBW	62.0
IF Bandwidth, dBHz	79.1
1 MHz, dBHz	60.0
Minimum spreading loss, dBW/m2	162.3
Maximum PFD, dBW/m2/1 MHz	-119.5
25.138 level, dBW/m2/1 MHz	-118.0
Margin, dB	1.5

In addition, Table 3 provides a pfd analysis for the sample link budgets provided in Attachment A (Section 2.12) of the original AMC-16 Application.

Table 3. PFD calculations for Sample Link budgets

Carrier type	8PSK Turbo 60 Mbps	QPSK 3-4 8 Mbps	QPSK 2-3 100Mbps	8PSK Turbo 78Mbps	QPSK Turbo 1.2Mbps
Frequency, GHz	19.7	19.7	19.7	19.7	19.7
Data rate, kbps	59901.5	8000.0	100000.0	78000.0	1200.0
Modulation phases	8.0	4.0	4.0	8.0	4.0
FEC	2/3	3/4	2/3	5/6	1/2
Outer coding	188/204	188/204	188/204	0.95	0.95
IF bandwidth, kHz	32499.8	5787.2	81383.0	33855.3	1302.1
Carrier EIRP, dBW	50.3	42.6	59.1	52.0	17.6
Minimum spreading loss, dB/m2	162.3	162.3	162.3	162.3	162.3
PFD, dBW/m2/1 MHz	-127.1	-127.4	-122.3	-125.6	-145.9
FCC 25.208 PFD limit, dBW/m2/1 MHz	-115.0	-115.0	-115.0	-115.0	-115.0
Margin	12.1	12.4	7.3	10.6	30.9
FCC 25.138 PFD limit, dBW/m2/1 MHz	-118.0	-118.0	-118.0	-118.0	-118.0
Margin	9.12	9.36	4.34	7.63	27.88

ATTACHMENT 1

COVERAGE MAPS FOR KA-BAND CONTOURS AT 97° W.L.[12]

[12] The same gain contours provided in the original AMC-16 application are provided here, with the orbit location changed to 97° W.L.

Ka-Band Downlink Gain Contours

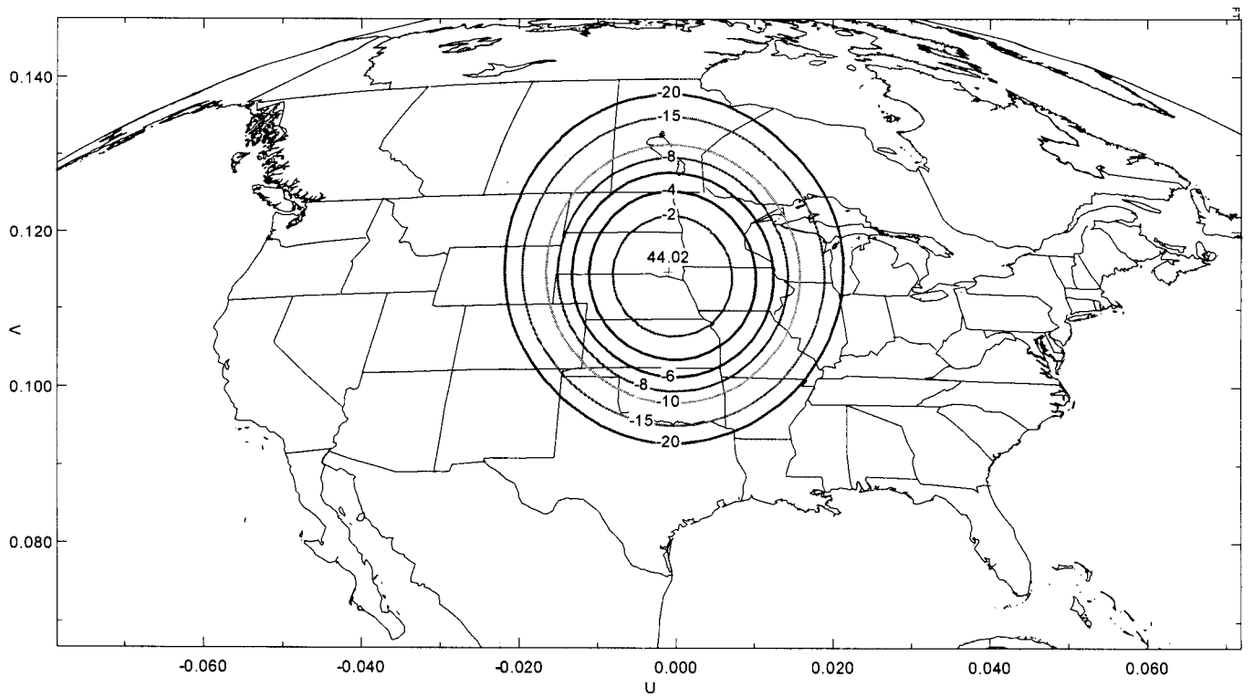

Figure A1-1. Representative Ka-band spot beam downlink gain contours, Peak EIRP

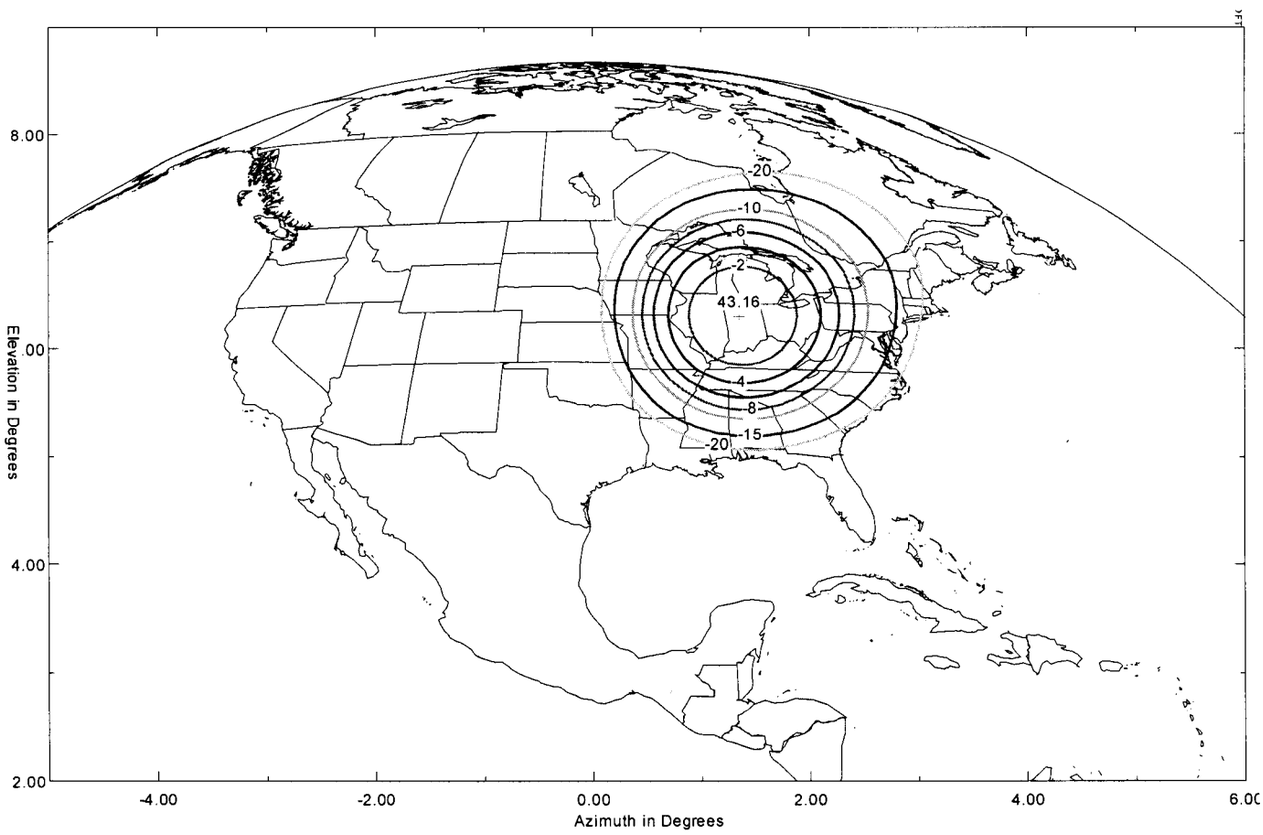

Figure A1-2. Representative Ka-band downlink gain contours, Minimum CONUS EIRP

Ka-Band Downlink Gain Contours

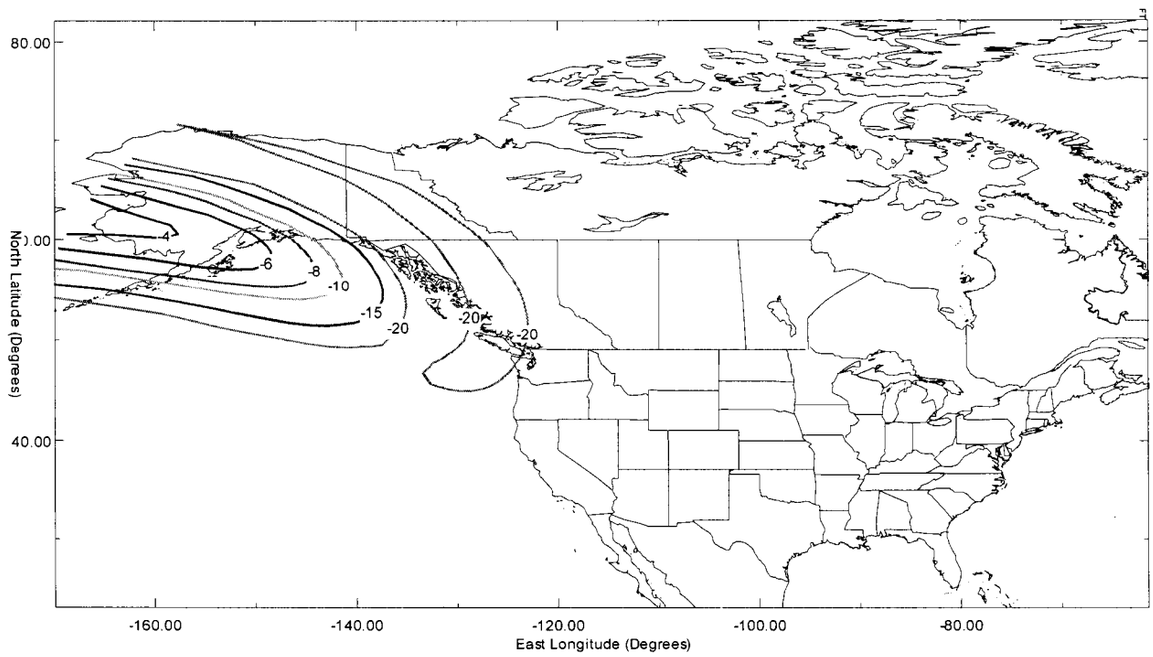

Figure A1-3. Representative Ka-band spot beam downlink gain contours, Alaska coverage

Ka-Band Downlink Gain Contours

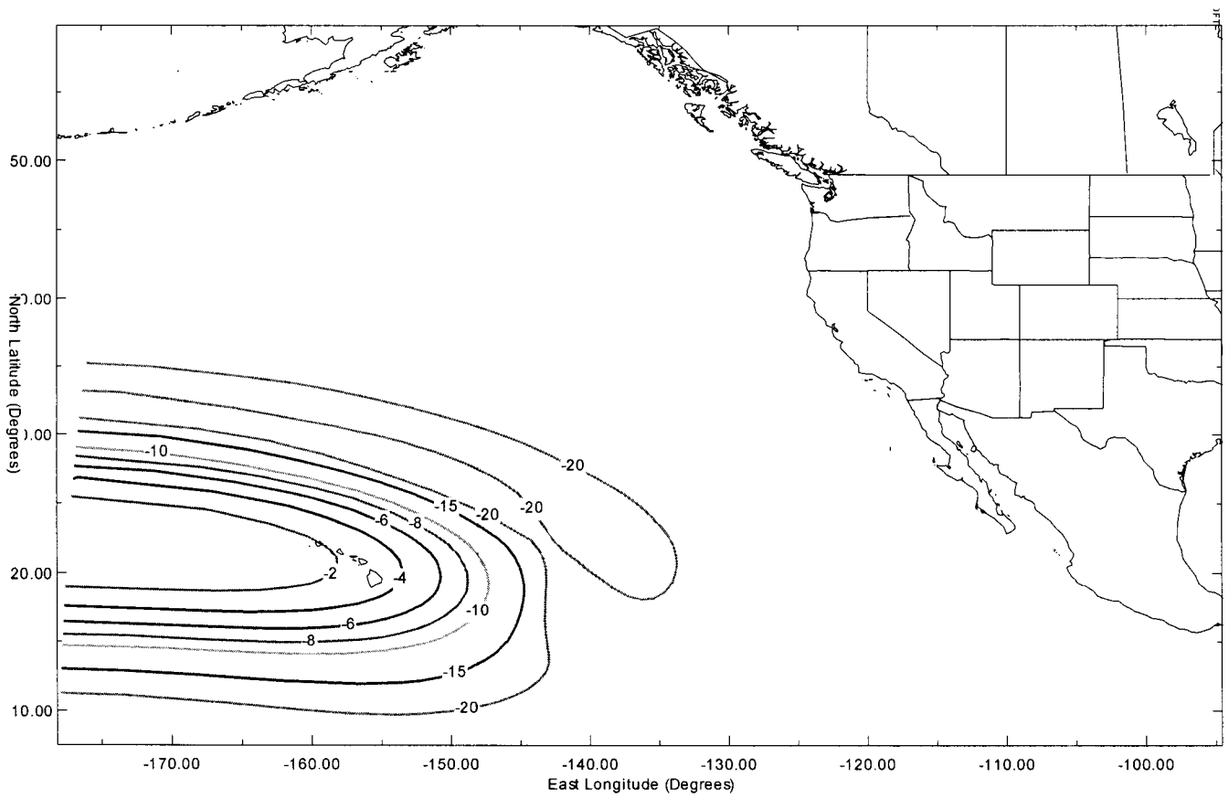

Figure A1-4. Representative Ka-band spot beam downlink gain contours, Hawaii coverage

Ka-Band Uplink Gain Contours

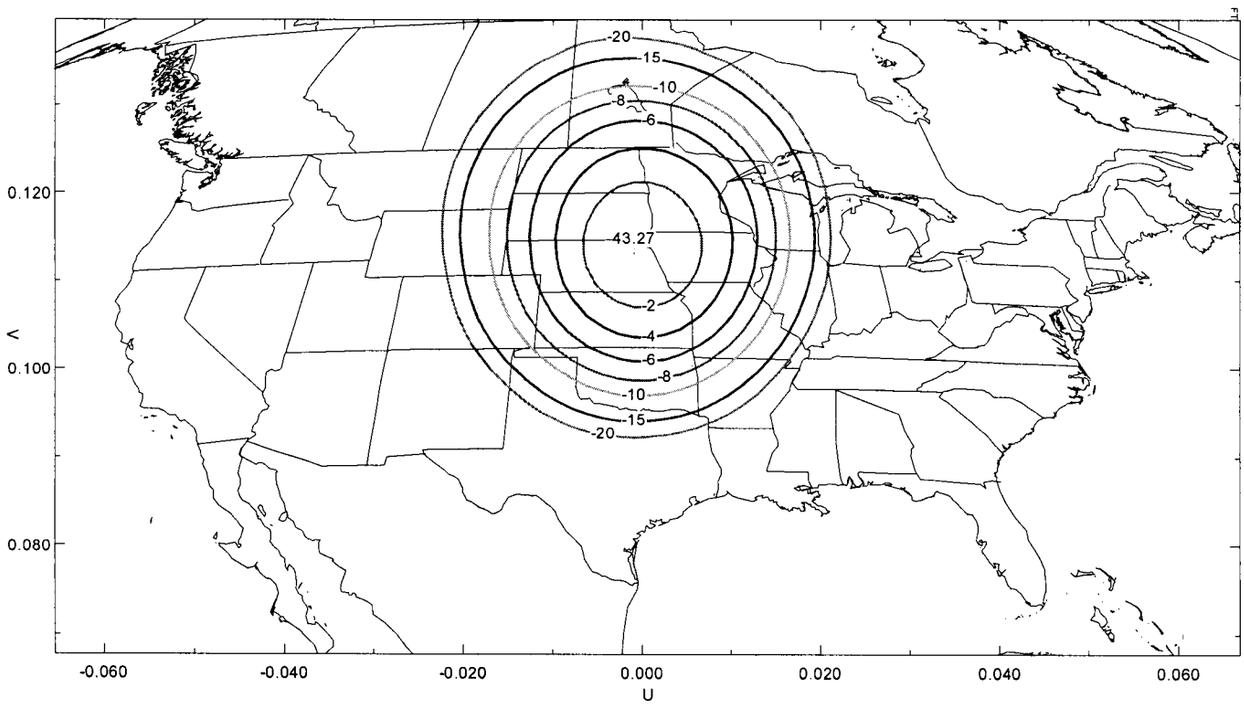

Figure A1-5. Representative Ka-band spot beam uplink gain contours

Ka-Band Uplink Gain Contours

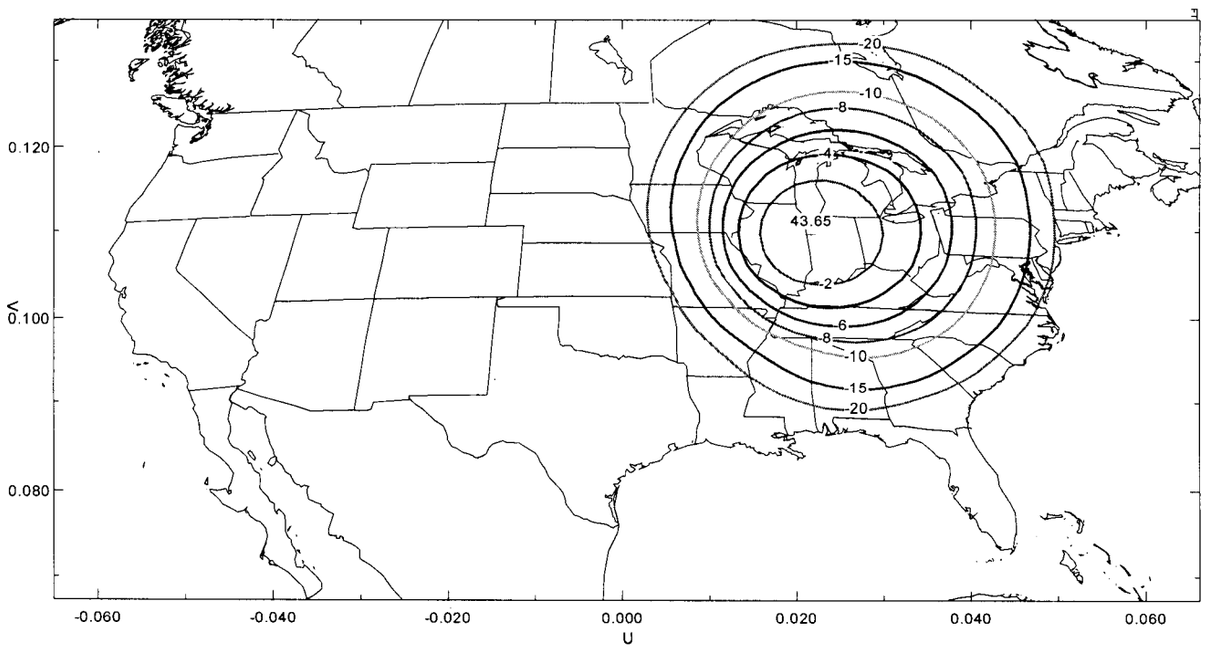

Figure A1-6. Representative Ka-band spot beam uplink gain contours.

Ka-Band Uplink Gain Contour

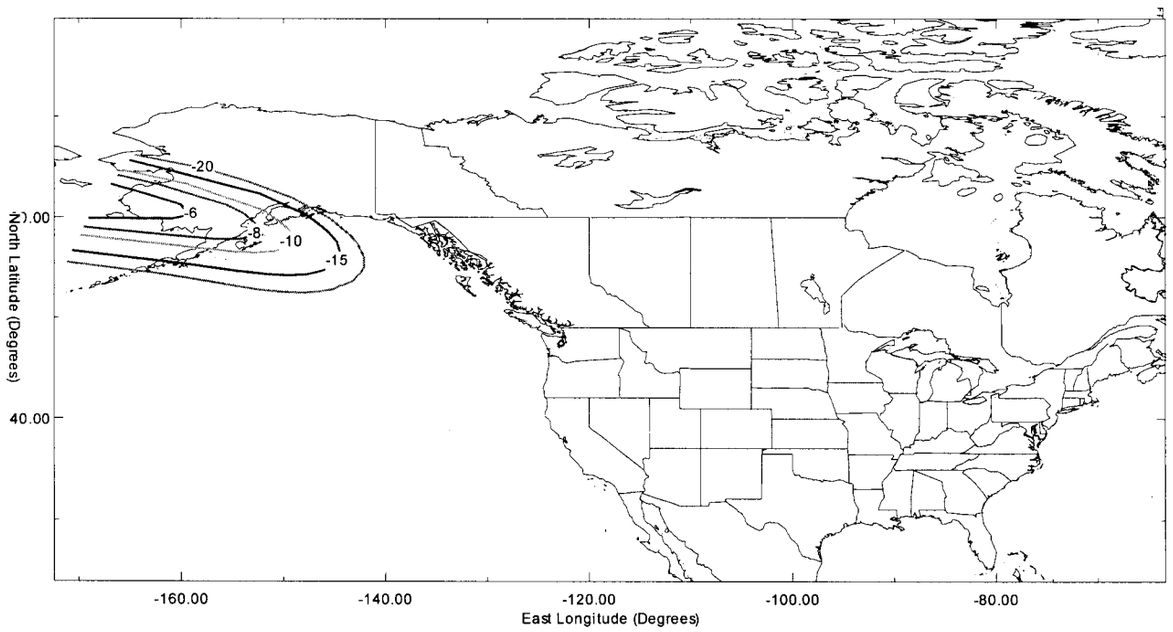

Figure A1-7. Representative Ka-band spot beam uplink gain contours, Alaska coverage

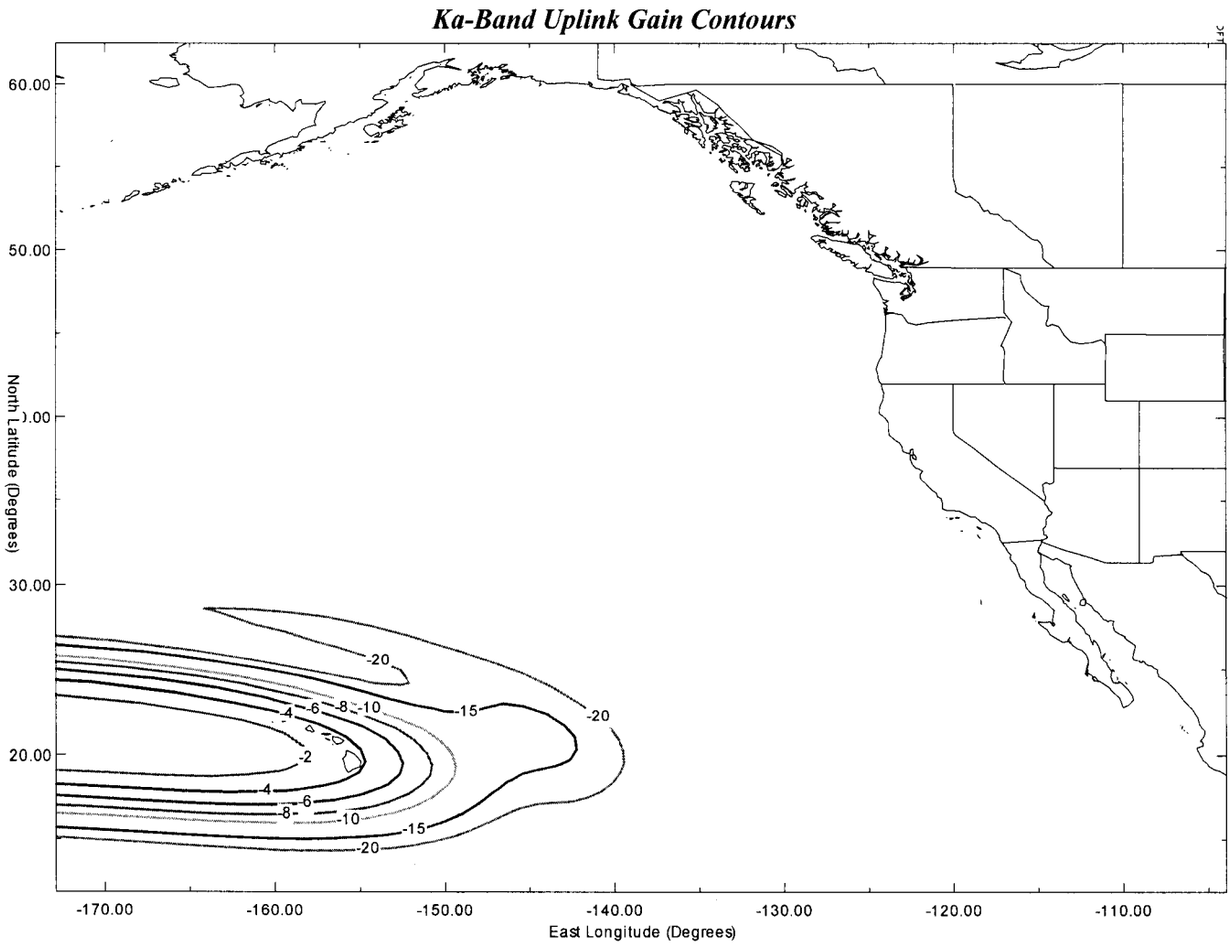

Figure A1-8. Representative Ka-band spot beam uplink gain contours, Hawaii coverage.

DECLARATION OF KIMBERLY M. BAUM

I, Kimberly M. Baum, hereby certify under penalty of perjury that I am the technically qualified person responsible for preparation of 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/ Kimberly M. Baum
Manager, Satellite Market Development
SES AMERICOM, Inc.

Dated: January 11, 2005