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File Number: SAT-STA-20070306-00043  
Callsign:

AMC-16 at 96.925 and 113.075

FEDERAL COMMUNICATIONS COMMISSION  
APPLICATION FOR SPACE STATION SPECIAL TEMPORARY AUTHORITY

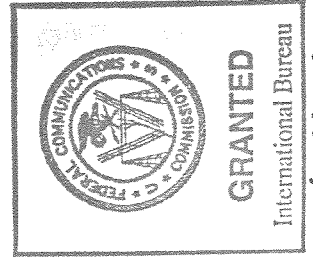
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:  
AMC-16 STA at 113 and 97 degrees W. L.

I. Applicant

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



File # SAT-STA-20070306-00043

Call Sign \_\_\_\_\_ Grant Date May 1, 2007

(or other identifier)

Term Dates From May 1, 2007 To: 60 days

Approved: [Signature] Policy Branch Chief

**Attachment**  
**File No. SAT-STA-20070306-00043**  
**May 1, 2007**

SES Americom, Inc's request, File No. SAT-STA-20070306-00043, IS GRANTED and SES Americom, Inc. (SES) IS AUTHORIZED, for a period of 60 days in total, commencing on May 1, 2007, to operate the AMC-16 satellite in the 18.6-18.8 GHz, and 19.7-20.2 GHz (space-to-Earth) and 28.4-28.6 GHz, and 29.5-30.0 GHz (Earth-to-space) frequency bands (the "Ka-band payload") at the 113.075 ° W.L. and 96.925° W.L. orbital locations, for up to 20 days at each location. SES IS AUTHORIZED to conduct space station Telemetry, Tracking, and Control (TT&C) functions during the relocation of AMC-16 from the 118.75° W.L. orbital location to the 113.075 ° W.L. and 96.925° W.L. orbital locations, and to the 85° W.L. orbital location, and to conduct TT&C operations in the 11.70075 GHz, 12.19925 GHz, and 18.584 GHz (Telemetry) and 14.0015 GHz (Command) frequencies necessary to effect Ka-band payload operations at the 96.925° W.L. and 113.075 ° W.L. orbital locations, subject to the following conditions:

1. All operations shall be on an unprotected and non-harmful interference basis, *i.e.*, SES shall not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating station.
2. In the event of any harmful interference as a result of SES's operations during relocation or during operations at either the 96.925° W.L. or the 113.075 ° W.L. orbital location, SES shall cease operations immediately upon notification of such interference and shall inform the FCC, in writing, immediately of such an event.
3. SES shall maintain the AMC-16 spacecraft at the 96.925° W.L. and 113.075° W.L. orbital locations with an east/west longitudinal station-keeping tolerance of 0.025 degrees.
4. SES shall inform its customers that operations at the 96.925° W.L. and the 113.075° W.L. orbital location are on a non-harmful interference basis and that SES must cease operations upon notification of such interference.
5. The 17.8 - 20.2 GHz band is shared with U.S. Government space stations and associated earth stations in the Fixed-Satellite Services and must be coordinated. 47 C.F.R. § 2.106, US334. Accordingly, operations of the space station at the 113.075 ° W.L. and 96.925° W.L. orbital locations shall be consistent with prior US334 agreements reached for the operation of this space station at the 85° W.L. orbital location.
6. SES Americom must maintain the 24-hours a day, seven days a week, point of contact as provided to the Satellite Division on April 30, 2007.
7. Nothing in this action in any way affects SES Americom's obligation to resume Ka-band operations at the 85° W.L. orbital location by a date 80 days following the launch of Anik F3. Application of SES Americom, Inc. For Modification of AMC-16 Fixed Satellite

**Attachment**  
**File No. SAT-STA-20061117-00141**

Space Station License, *Memorandum Opinion and Order*, 21 FCC Rcd 14785, 14790 par. 18 (Int'l Bur. 2006); 47 C.F.R. § 25.161(c).

8. This authorization is not one relating to an "activity of a continuing nature" for purposes of Section 1.62 of the Commission's rules and Section 558(c) of the Administrative Procedure Act. Continuation of operations beyond the 60 day term of this authorization will require prior affirmative authorization by the FCC.

10. This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106, 1.115, may be filed within 30 days of the date of the public notice indicating that this action was taken.



w/caudhous

File # SAT-STA-20070306-00043

Call Sign \_\_\_\_\_ Grant Date May 1, 2007  
(or other identifier)

Term Dates  
From May 1, 2007 To: +60

Approved: [Signature]  
Policy Branch Chief

2. Contact	
<b>Name:</b>	Karis A. Hastings, Esq. <b>Phone Number:</b> 202-637-5767
<b>Company:</b>	Hogan & Hartson LLP <b>Fax Number:</b> 202-637-5910
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<b>City:</b>	Washington <b>State:</b> DC
<b>Country:</b>	USA <b>Zipcode:</b> 20004 -1109
<b>Attention:</b>	<b>Relationship:</b> Legal Counsel
(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)	
3. Reference File Number or Submission ID	
4a. Is a fee submitted with this application?	
<input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).	
<input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee	
<input type="radio"/> Other (please explain):	
4b. Fee Classification    CRY – Space Station (Geostationary)	
5. Type Request	
<input checked="" type="radio"/> Change Station Location	<input type="radio"/> Extend Expiration Date <input type="radio"/> Other
6. Temporary Orbit Location 113 degrees W.L.	
7. Requested Extended Expiration Date	

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. ('SES Americom') hereby respectfully requests special temporary authority to locate the AMC-16 Ku/Ka-band hybrid satellite at the nominal 97 degree W.L. and 113 degree W.L. orbital locations and operate AMC-16's Ka-band communications payload and Ku-band TT&C payload for up to 20 days at each of these locations.

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  
Nancy J. Eskenazi

11. Title of Person Signing  
Vice President & Associate General Counsel

12. Please supply any need attachments.

Attachment 1: Attachment 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).

**FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT**

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**THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.**

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

_____	)	
<i>Application of</i>	)	
	)	
<b>SES AMERICOM, INC.</b>	)	File No. SAT-STA-_____
	)	Call Sign: S2181
For Special Temporary Authority To	)	
Operate AMC-16 at 97° W.L. and 113° 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 nominal 97° W.L. and 113° W.L. orbital locations and operate AMC-16’s Ka-band communications payload and Ku-band TT&C payload for up to 20 days at each of these locations. SES Americom would operate AMC-16 at each of these orbital locations in the course of the satellite’s relocation from the Canadian orbital location at 118.75° W.L. to its U.S authorized orbital location at 85° W.L. SES Americom requests special temporary authority for a period of 60 days in total, commencing when SES Americom starts the move of AMC-16 from 118.75° W.L. 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. Grant is also consistent

with past Commission STA authorizations allowing brief operation of SES Americom's AMC-15 and AMC-16 satellites at the same orbital locations.<sup>1</sup>

AMC-16 is a Ku/Ka-band satellite that is licensed to operate at the 85° W.L. orbital location.<sup>2</sup> It is currently located at 118.75° W.L., where it is operating temporarily pending the launch and positioning of Telesat Canada's new ANIK F3 satellite at this location. As part of granting SES Americom's request to relocate AMC-16 to 118.75° W.L.,<sup>3</sup> the Commission granted the authority contemplated in Section 25.161(c) of the Commission's rules, 47 C.F.R. § 25.161(c), allowing SES Americom to remove the Ka-band payload from its licensed 85° W.L. slot location for more than 90 days.<sup>4</sup> The Commission recently extended that authority "to a date 80 days following the launch of ANIK F3, or July 24, 2007, whichever date is earlier."<sup>5</sup> To meet this condition, SES Americom plans to relocate AMC-16 from 118.75° W.L. to 85° W.L. promptly after the launch of the ANIK F3 satellite (now scheduled for April 10, 2007) and the transfer of traffic from AMC-16 to the Canadian satellite.

In connection with this relocation, SES Americom has been asked by its customer, EchoStar Satellite Operating Corporation ("EchoStar"), to temporarily place AMC-16 at 97° W.L. and 113° W.L. and operate it for up to 20 days at each orbital

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<sup>1</sup> See *Grant Stamp*, File No. SAT-STA-20050111-00009 (granted Apr. 8, 2005) (authorizing AMC-16 to operate for 60 days at 97° W.L.) and *SES Americom, Inc.*, Order and Authorization, 20 FCC Rcd 436 (Int'l Bur. 2005) (authorizing AMC-15 to operate at 113° W.L. and 117° W.L. for 60 days at each location).

<sup>2</sup> See File Nos. SAT-LOA-19950929-00133; SAT-RPL-20040227-00024; and SAT-MOD-20040227-00022.

<sup>3</sup> See *SES Americom, Inc. and EchoStar Satellite LLC*, Order and Authorization, 21 FCC Rcd 3430 (Int'l Bur. 2006) ("*AMC-16 Order*").

<sup>4</sup> See *AMC-16 Order* at ¶ 9. No such authority was needed for Ku-band operations at 85° W.L., because the AMC-2 satellite remains operational at that location. See *id.*

<sup>5</sup> See *SES Americom, Inc.*, Memorandum Opinion and Order, 21 FCC Rcd 14785, ¶ 15 (Int'l Bur. 2006).



position. EchoStar holds licenses to operate Ka-band satellites at these two slots.<sup>6</sup> To accommodate EchoStar's request, SES Americom seeks authority to operate AMC-16 at 97° W.L. and 113° W.L. for a period of sixty days in total, commencing when SES Americom starts to move AMC-16 from 118.75° W.L. SES Americom's plan allows for sufficient time to return the satellite to 85° W.L. within the time allowed by the Commission. Because EchoStar is the customer for the entire communications payload of AMC-16, no other customers will be affected by this temporary use.

The relevant operational characteristics of AMC-16 while stationed at 97° W.L. and 113° W.L. are described in more detail in the attached Technical Appendix. Operation of the Ka-band payload of AMC-16 at the nominal 97° W.L. and 113° W.L. orbital locations will not result in harmful interference to adjacent satellites at those positions. There are no operational Ka-band spacecraft at either 97° W.L. or 113° W.L. The nearest operational Ka-band satellite to 97° W.L. is DIRECTV's Spaceway 2 satellite at 99.2° W.L. The nearest operational Ka-band satellites to 113° W.L. are Telesat's Anik F2 and WildBlue's WildBlue-1 at 111.1° W.L. As demonstrated in the attached Technical Appendix, AMC-16 complies with Commission requirements for operation at two-degree spacing in the Ka-band. SES Americom will coordinate its operations as necessary with DIRECTV, Telesat and WildBlue to ensure that no harmful interference is caused to their operations.

Nor will any harmful interference be caused by operation of the Ku-band TT&C payload at 97° W.L. and 113° W.L. Intelsat operates the Ku-band G-25 satellite (formerly Intelsat Americas 5) at 97° W.L., the Ku-band G-3C satellite at 95° W.L. and

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<sup>6</sup> See File Nos. SAT-LOA-20030827-00186; SAT-AMD-20031203-000345; and SAT-LOA-20040803-00154.

the Ku-band G-16 satellite at 99° W.L.<sup>7</sup> 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 and stationkeeping. SatMex operates the Ku-band SatMex 6 satellite at 113° W.L. SES Americom will similarly coordinate with SatMex with respect to the very limited use of the Ku-band at 113° W.L.<sup>8</sup>

In addition, SES Americom will coordinate with Intelsat and SatMex on stationkeeping matters with respect to the temporary co-location of AMC-16 at 97° W.L. and 113° W.L. When SES Americom spacecraft operated temporarily at these nominal locations previously, SES Americom agreed to position its spacecraft at offsets so that there would be no overlap of the stationkeeping volumes with the satellites assigned to these positions. Specifically, SES Americom's satellites operated centered at 96.925° W.L. and at 113.075° W.L., in each instance with an east/west stationkeeping tolerance of 0.025 degrees. Subject to the outcome of coordination discussions with the affected operators, SES Americom proposes to operate AMC-16 at the same offsets and with the same stationkeeping tolerance here. When it has completed stationkeeping discussions with the affected operators, SES Americom will advise the Commission if any change is proposed in the precise planned locations for temporary operations of AMC-16. SES Americom will also operate AMC-16 so as to avoid collisions with other spacecraft during in-orbit maneuvers.

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<sup>7</sup> 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's G-25 satellite. However, the AMC-16 command channel will be operated cross-polarized to the G-25 services, providing approximately 30 dB of isolation. The Ku-band TT&C frequencies of AMC-16 do not overlap with those used on G-3C and G-16.

<sup>8</sup> SES Americom will select its TT&C frequencies such that there will be no frequency overlap with the TT&C functions of SatMex-6 at 113° W.L.

In conclusion, SES Americom seeks temporary authority to operate AMC-16 at the nominal 97° W.L. and 113° W.L. orbital locations pursuant to the following conditions:

(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 nominal 97° W.L. and 113° W.L. orbital locations.

(b) No harmful interference will be caused to any lawfully operating satellite network or radio communications system, and SES Americom's 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 48 hours 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 the 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 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 the Ku-band TT&C payload of AMC-16 at the nominal 97° W.L. and 113° W.L. orbital locations in order to meet its customer's request for Ka-band service. SES Americom seeks authority for a total period of 60 days commencing

when SES Americom starts to move AMC-16 from 118.75° W.L., with operations at each location not to exceed 20 days. SES Americom requests timely action on this application to accommodate the proposed schedule and will return AMC-16 to 85° W.L. by the deadline established in its existing authorization.

Respectfully submitted,

**SES Americom, Inc.**

Of Counsel

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/s/ Nancy J. Eskenazi

Nancy J. Eskenazi  
Vice President and Associate General  
Counsel  
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Princeton, NJ 08540

March 6, 2007

## TECHNICAL APPENDIX

### Overall Description

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 the nominal 113° W.L. and 97° W.L. orbital locations.<sup>1</sup> The uplink and downlink Ka-band coverage at 113° W.L. and 97° W.L. consists of 12 spot beams providing coverage of the 50 states.<sup>2</sup> The technical characteristics of AMC-16 are described in detail in the AMC-16 applications.<sup>3</sup>

### Technical Characteristics of Proposed Temporary Operations

#### *Orbit locations*

The present application requests authority to operate the Ka-band payload and TT&C functions on a temporary basis at the nominal 113° W.L. and 97° W.L. orbital locations.

#### *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.

The 113° W.L. orbit location is adjacent to 111.1° W.L. and 115° W.L. At 111.1° W.L., Anik F2, an operational satellite, is authorized to serve the U.S. using the 19.7-

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<sup>1</sup> 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. and 113° W.L. or within two degrees of these locations. 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. Intelsat also operates satellites adjacent to 97° W.L., the Galaxy 3C satellite at 95° W.L. and the Galaxy 16 satellite at 99° W.L., but the Ku-band TT&C frequencies of AMC-16 do not overlap those used by Intelsat at these locations. Nevertheless, SES Americom will notify Intelsat of its proposed operations. With respect to the 113° W.L. orbital location, SES Americom will notify Satmex of its proposed operations and coordinate the operation of the Ku-band TT&C frequencies with SatMex-6's Ku-band payload. In addition, SES Americom will select its TT&C frequencies such that there will be no frequency overlap with the TT&C functions of SatMex-6 at 113° W.L.

<sup>2</sup> See Attachment 1 to this Technical Appendix for AMC-16 Ka-band antenna gain contours from the nominal 113° W.L. orbit location, and Attachment 2 for AMC-16 Ka-band antenna gain contours from the nominal 97° W.L. orbit location.

<sup>3</sup> See File Nos. SAT-RPL-20040227-00022 & SAT-MOD-20040227-00022, granted Sept. 2, 2004.

20.2 GHz and 29.5-30 GHz Ka-band frequencies on a non-harmful interference basis relative to two-degree compliant spacecraft. WildBlue-1 is expected to operate at this location as well. At 115° W.L., the Ka band frequencies are currently unassigned. AMC-16's compatibility with the FCC's 2° spacing rules (§ 25.138) is shown in Sections 2.2.1 and 2.2.2 below. Compatibility of the proposed AMC-16 operations with spacecraft at 111.1° W.L. is addressed in further detail below in Section 2.2.3.

The 97° W.L. orbit location is adjacent to 95° W.L. and 99° W.L. DIRECTV operates Spaceway-2 in the Ka-band frequencies at 99.2° W.L. Hughes Communications Inc. is licensed to operate Spaceway-3 at 94.95° W.L., but that spacecraft is not expected to commence operations during the period of the requested STA for AMC-16. As demonstrated in Sections 2.2.1 and 2.2.2 below, AMC-16 complies with the FCC's 2 degree spacing rules (§ 25.138), and as a result, no coordination with adjacent Ka-band satellites is required.

### **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,<sup>4</sup> meets these off-axis EIRP density requirements.

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<sup>4</sup> File No. SAT-MOD-20040227-00022.

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

### 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.

Maximum EIRP, dBW	62.0
IF Bandwidth, dBHz	79.1
1 MHz, dBHz	60.0
Minimum spreading loss, dBW/m <sup>2</sup>	162.3
Maximum PFD, dBW/m <sup>2</sup> /1 MHz	-119.5
25.138 level, dBW/m <sup>2</sup> /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, and demonstrates that they meet the limits of 47 C.F.R. § 25.208.

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

**Analysis with respect to the operational satellite at 111.1° W.L.**

The 111.1° W.L. orbit location is separated from the nominal 113° W.L. orbit location by 1.9°, which is less than the 2 degree assumption on which the technical rules of Section 25.138 are based. In order to determine if AMC-16’s temporary operation at 113° W.L. would cause any harmful interference to adjacent spacecraft, SES Americom has compared the margin by which its uplink and downlink operations meet the requirements of 25.138 with the change in earth station off-axis gain at 1.9° vs. 2° off-axis.

In the downlink direction, as described above in Section 2.2.2, AMC-16 meets the 25.138 pfd limits with a minimum margin of 1.5 dB. Applying the FCC’s earth station antenna pattern contained in Section 25.209 at the topocentric angle associated with a 2° geocentric orbital separation (i.e., 2.09°, considering 0.1° for total station keeping



tolerance and a 1.1 topocentric advantage) gives a receive gain of 21 dBi. Similarly, applying the 25.209 antenna pattern at the topocentric angle associated with a 1.9° geocentric orbital separation gives a gain of 21.58 dBi. The resulting decrease in receive off-axis discrimination is 0.58 dB. As the AMC-16 satellite's margin to the 25.138 pfd limits is almost 1 dB greater than this difference in receive discrimination, the earth stations receiving from 111.1° W.L. will still effectively receive less interference from AMC-16 operations 1.9° away than from a neighboring satellite 2° away operating at the maximum pfd levels in 25.138.

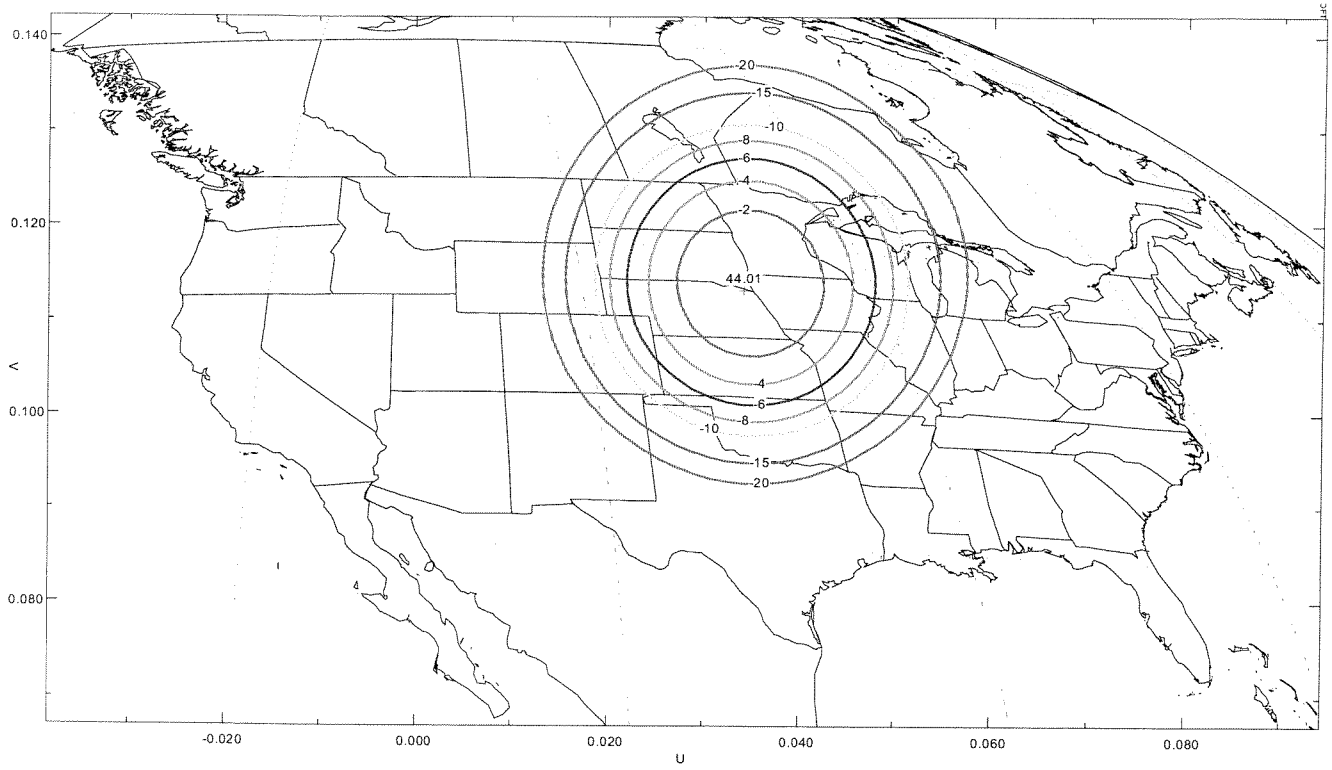
In the uplink direction, as described in Section 2.2.1 above, AMC-16 meets the 25.138 off-axis EIRP density limits by a minimum margin of 4.3 dB. Applying the same calculations for the downlink, the off-axis gain of the AMC-15 earth stations will increase by the same amount—0.58 dB—in going from a 2° separation to 1.9° separation. Again, the margin with which AMC-15's earth stations meet the 25.138 off-axis EIRP density limits more than compensates for this increase in off-axis gain.

ATTACHMENT 1  
COVERAGE MAPS FOR KA-BAND  
CONTOURS AT 113° W.L.<sup>13</sup>

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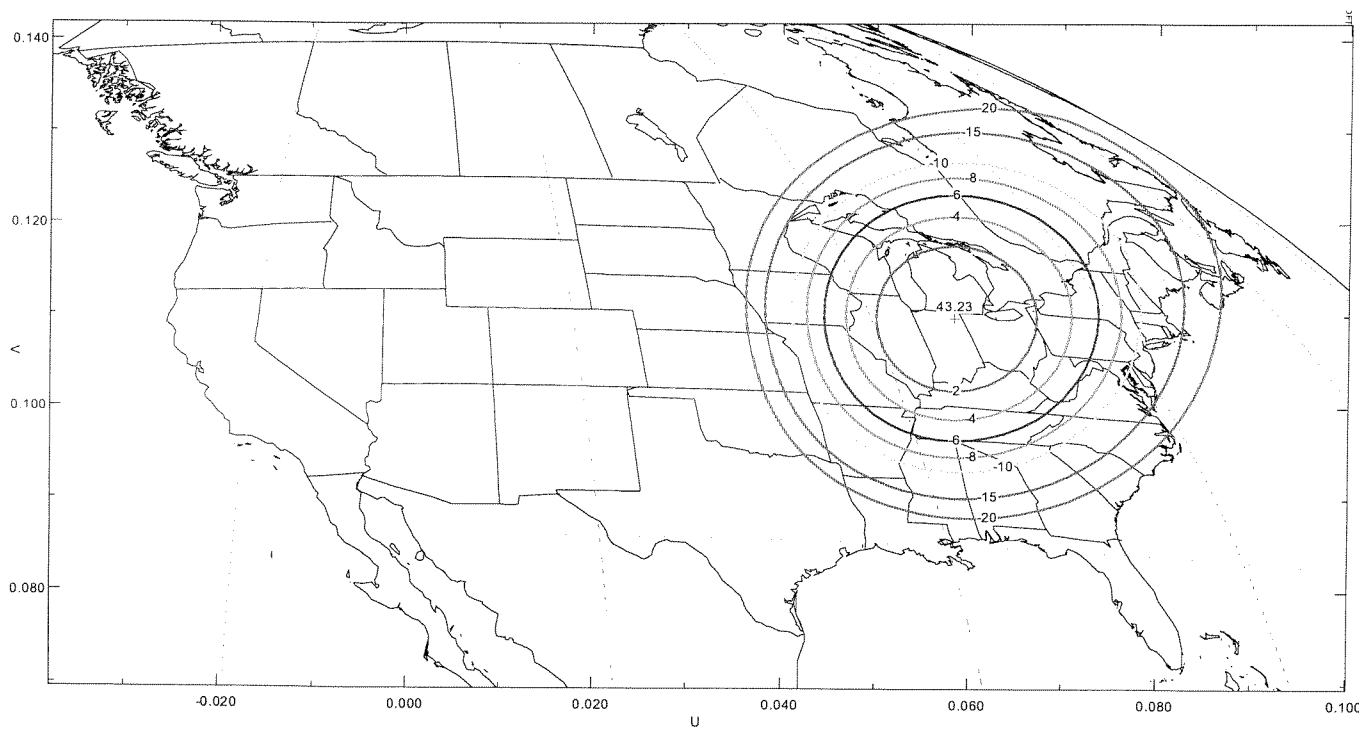
<sup>13</sup> The same gain contours provided in the original AMC-16 application are provided here, with the nominal orbit location changed to 113° W.L.

*Ka-Band Downlink Gain Contours*



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

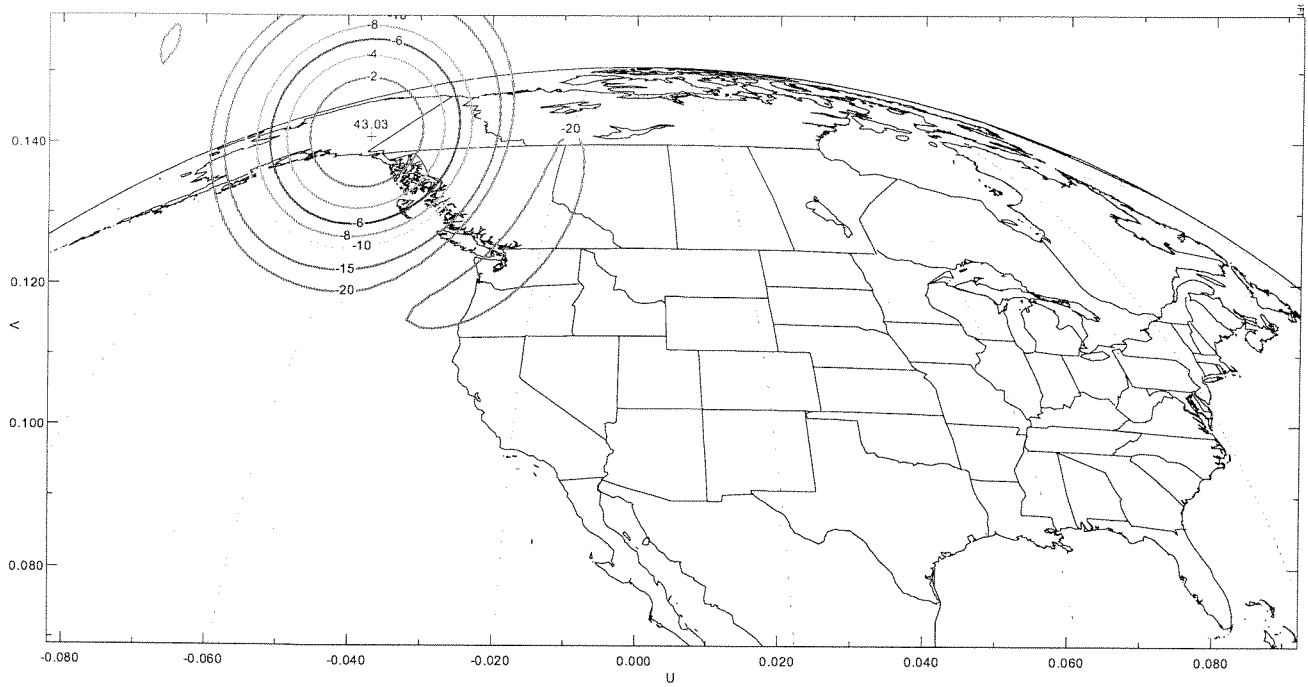
### *Ka-Band Downlink Gain Contours*



*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

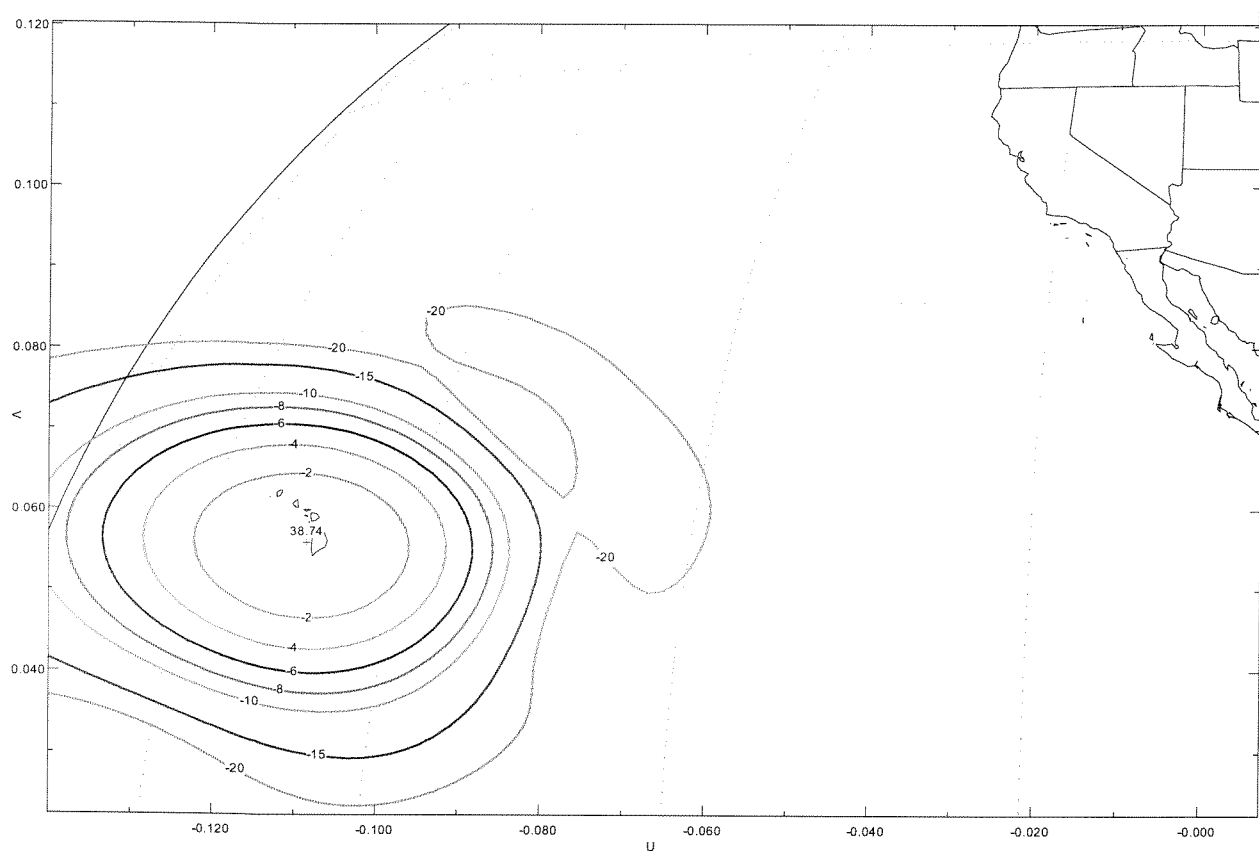
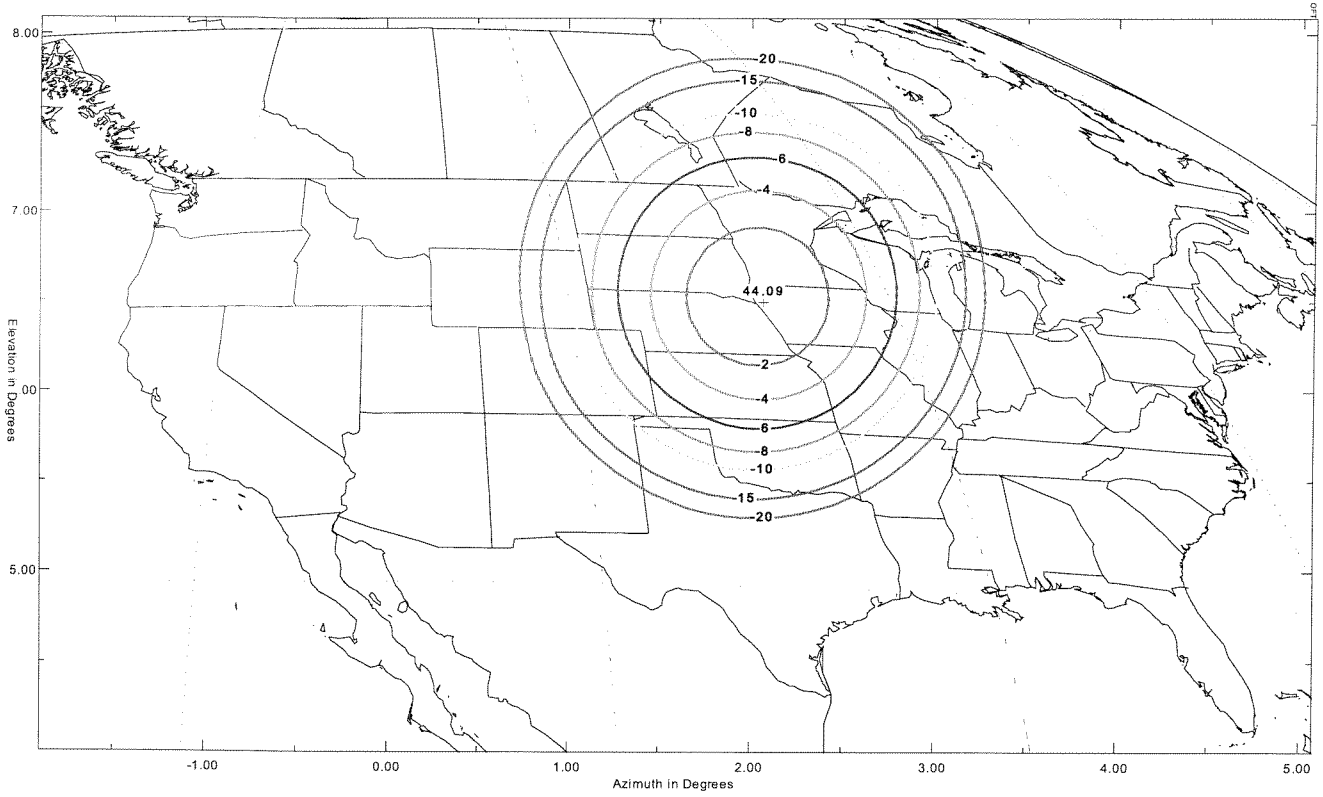


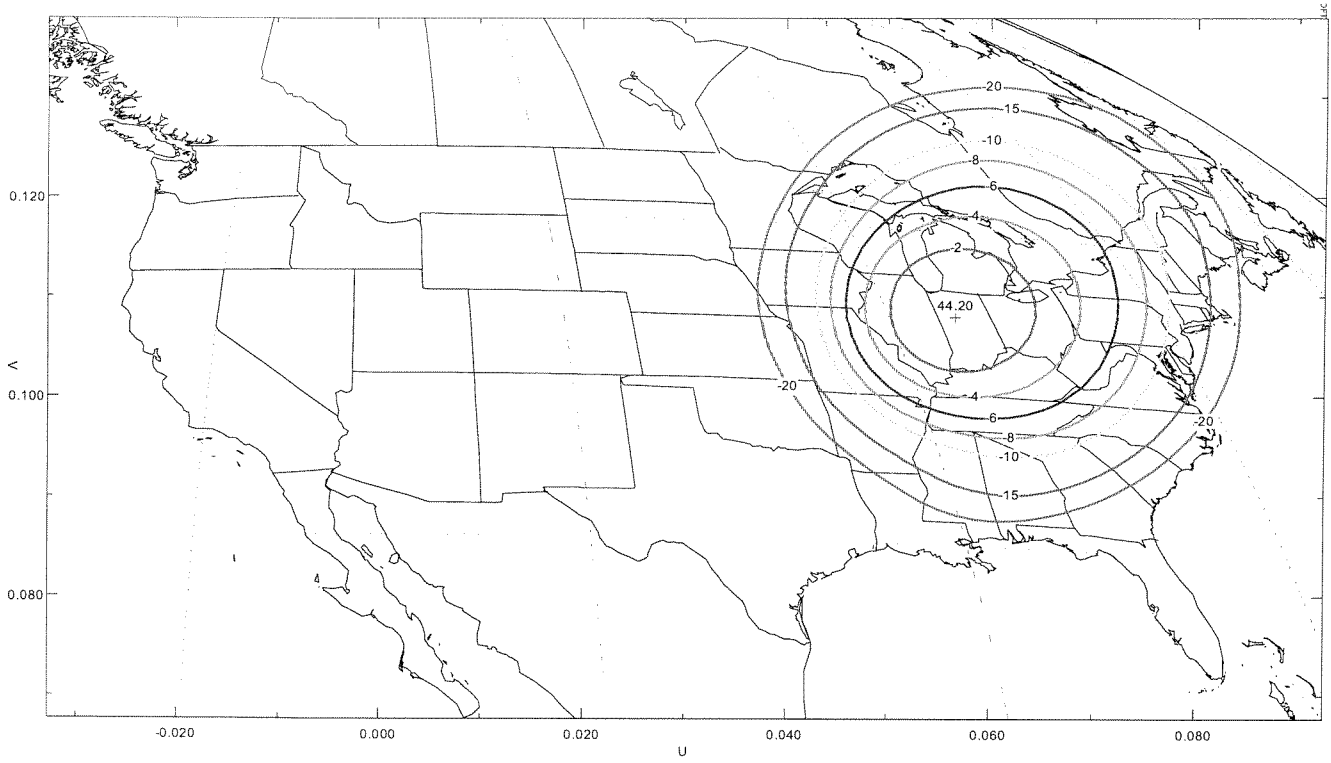
Figure A1-4. Representative Ka-band spot beam downlink gain contours, Hawaii coverage

### *Ka-Band Uplink Gain Contours*



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

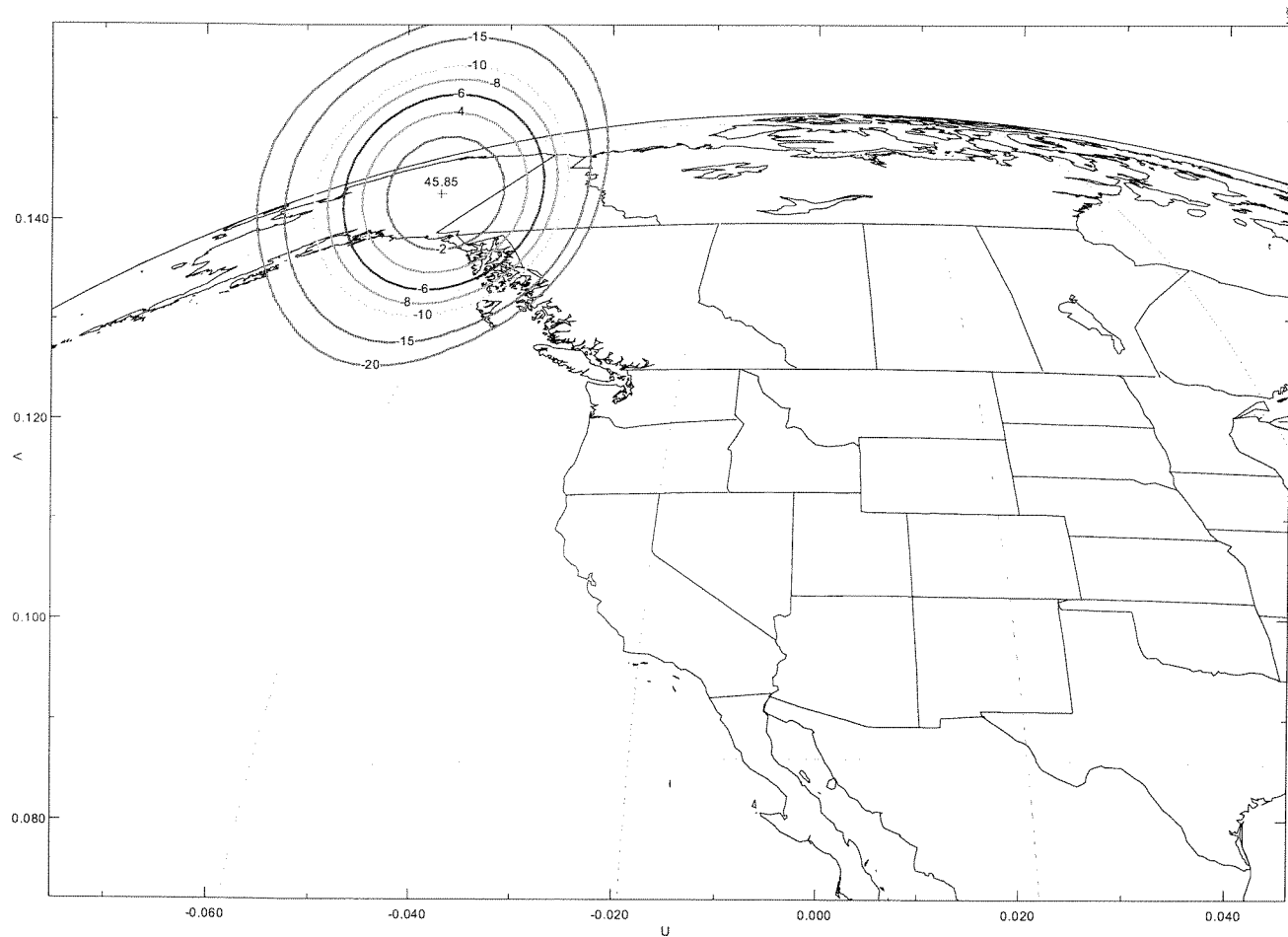
*Ka-Band Uplink Gain Contours*



*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*

### Ka-Band Uplink Gain Contours

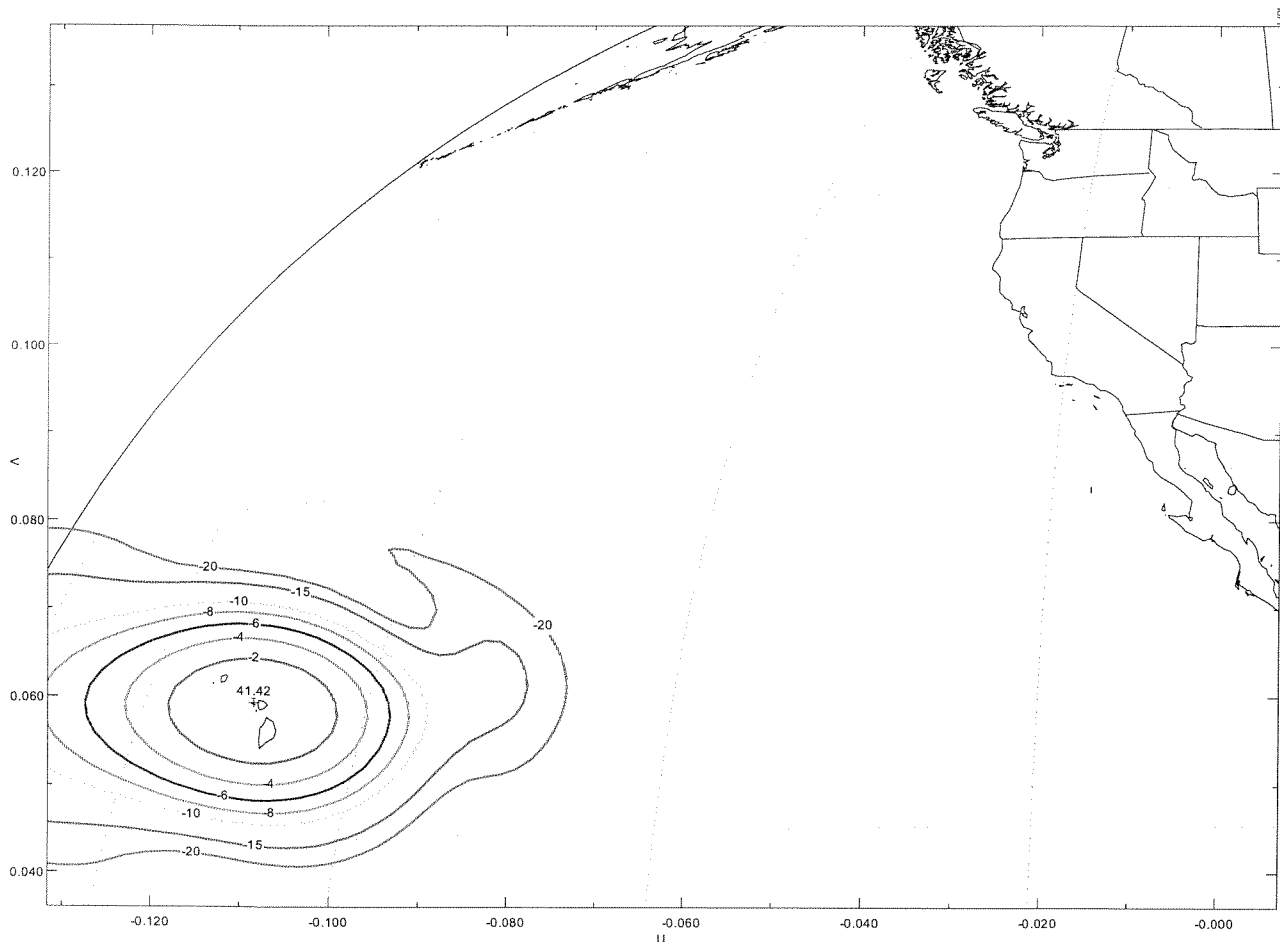


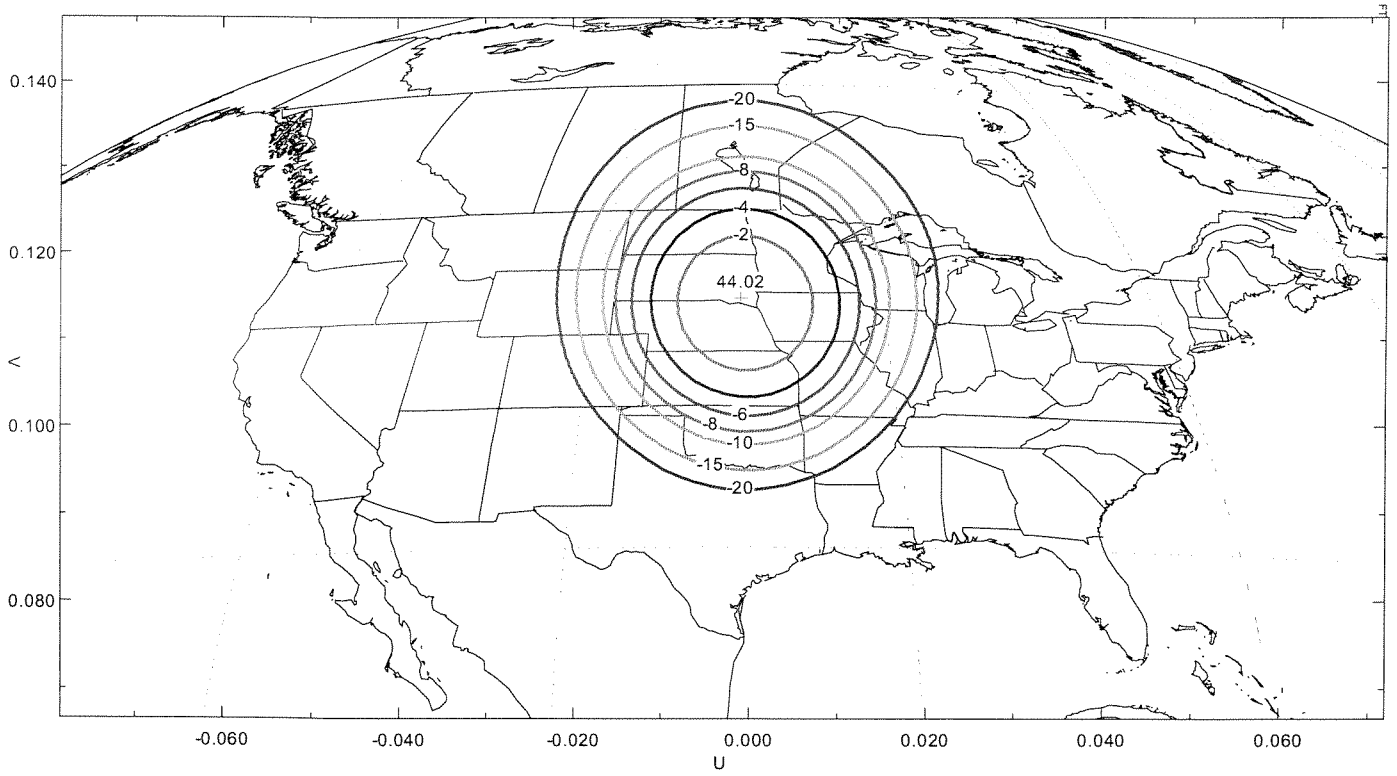
Figure A1-8. Representative Ka-band spot beam uplink gain contours, Hawaii coverage.

ATTACHMENT 2  
COVERAGE MAPS FOR KA-BAND CONTOURS  
AT 97° W.L.<sup>14</sup>

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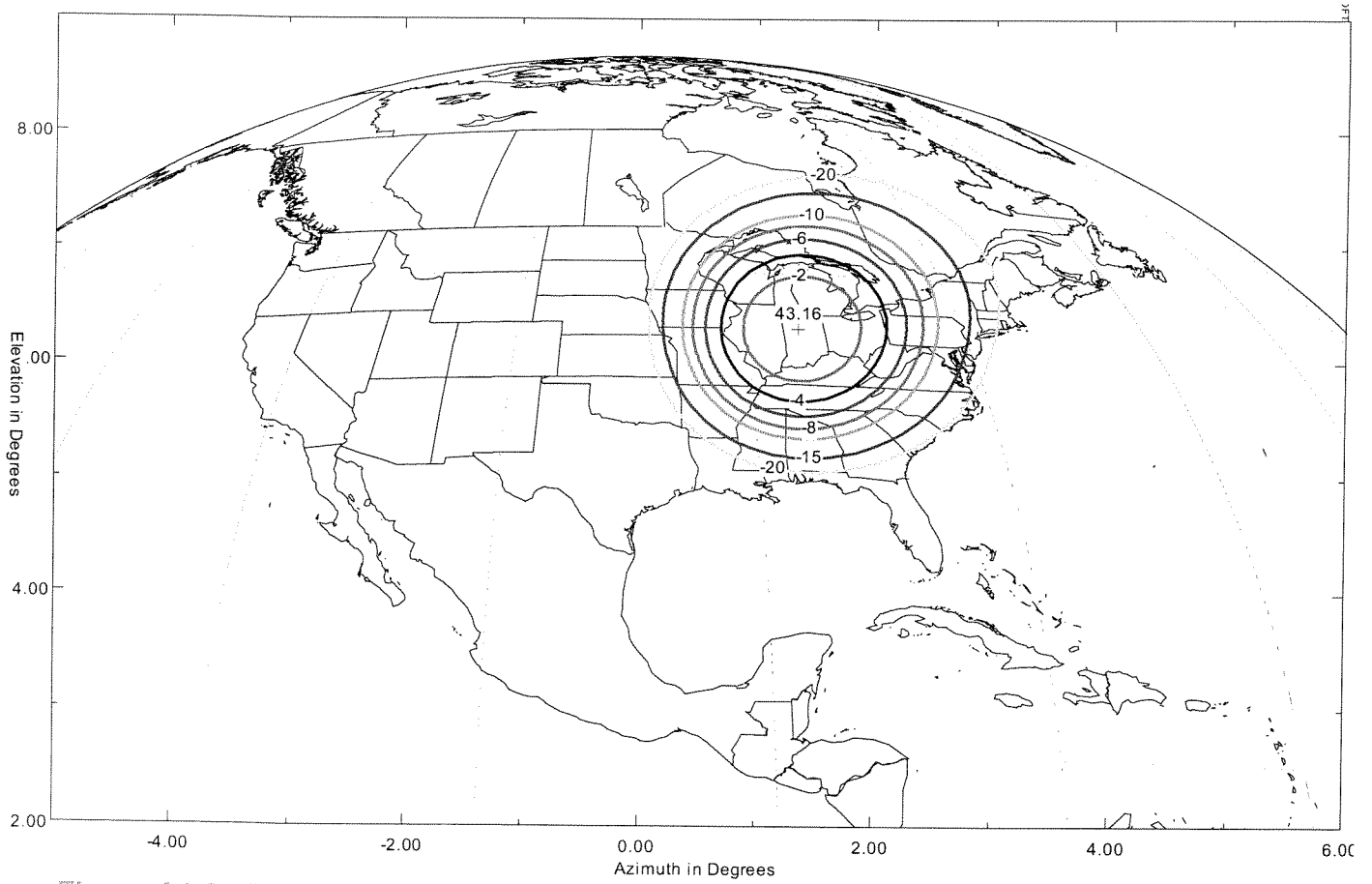
<sup>14</sup> The same gain contours provided in the original AMC-16 application are provided here, with the nominal orbit location changed to 97° W.L.

*Ka-Band Downlink Gain Contours*



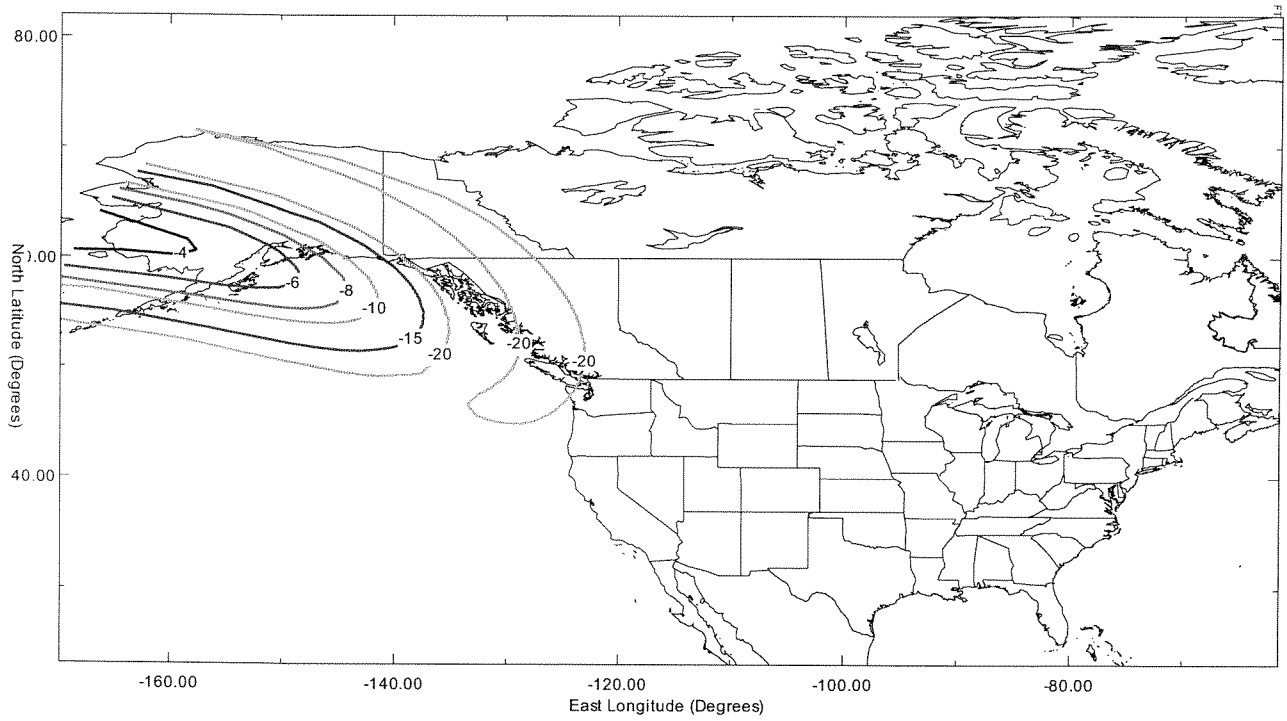
*Figure A1-1. Representative Ka-band spot beam downlink gain contours, Peak EIRP*

*Ka-Band Downlink Gain Contours*



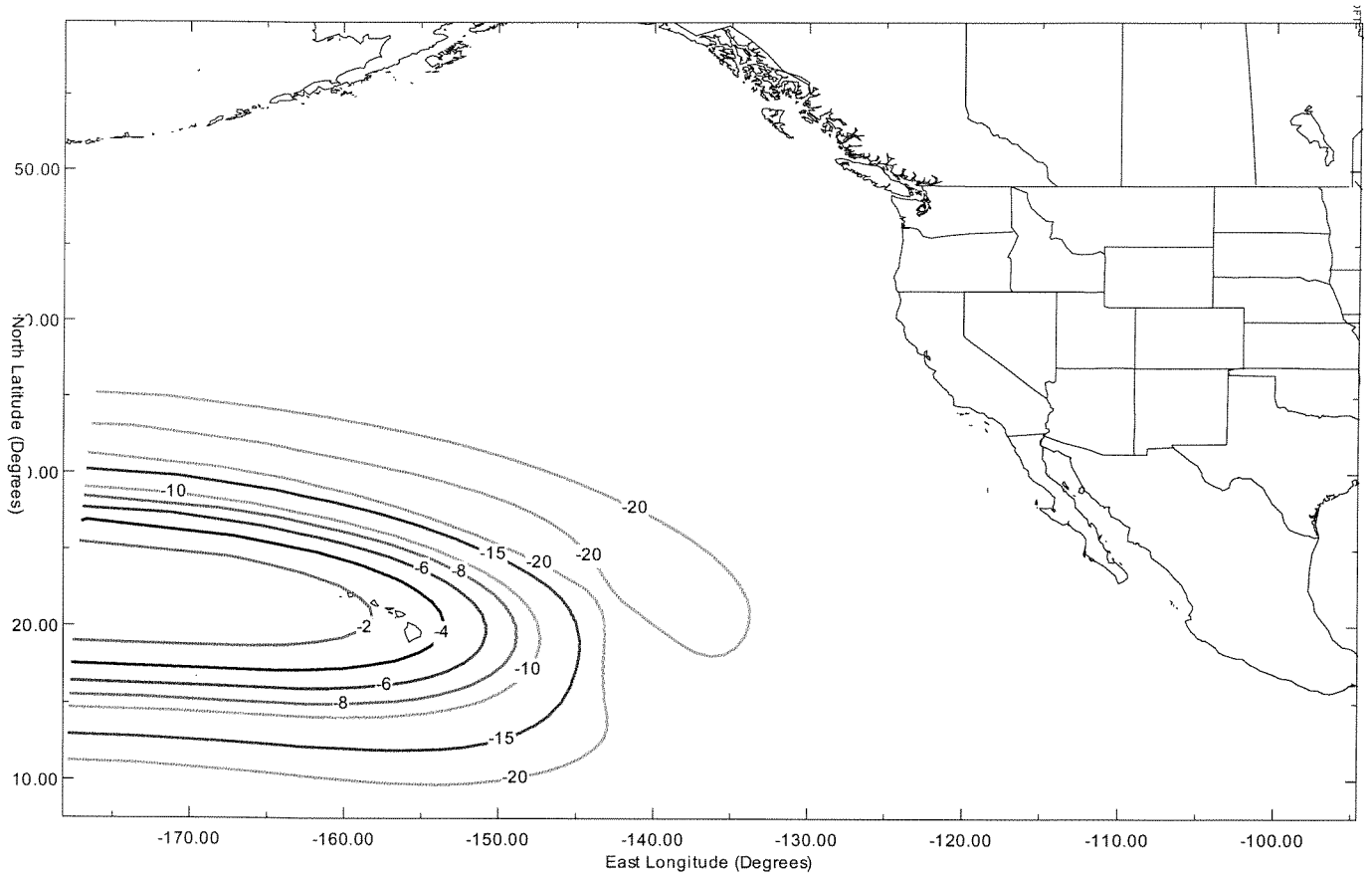
*Figure A1-2. Representative Ka-band downlink gain contours, Minimum CONUS EIRP*

*Ka-Band Downlink Gain Contours*



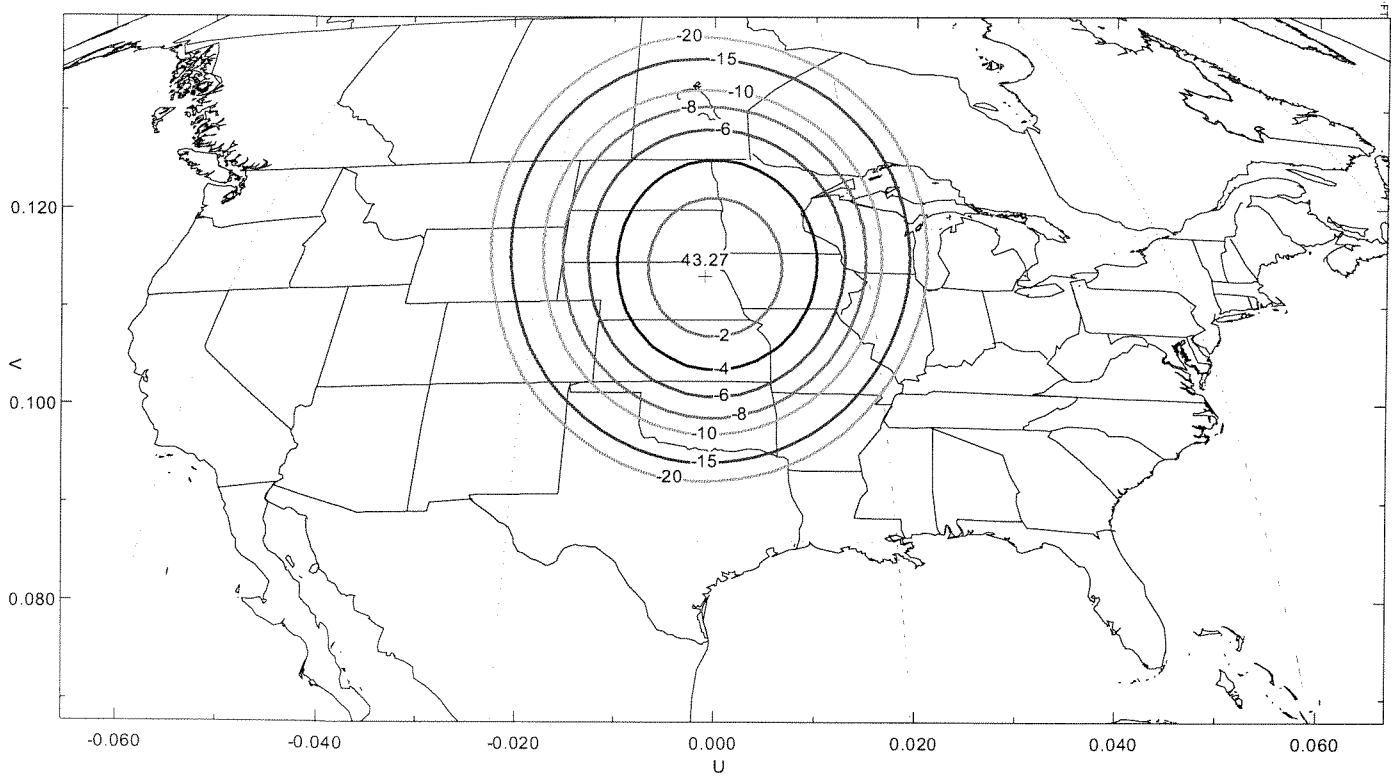
*Figure A1-3. Representative Ka-band spot beam downlink gain contours, Alaska coverage*

*Ka-Band Downlink Gain Contours*



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

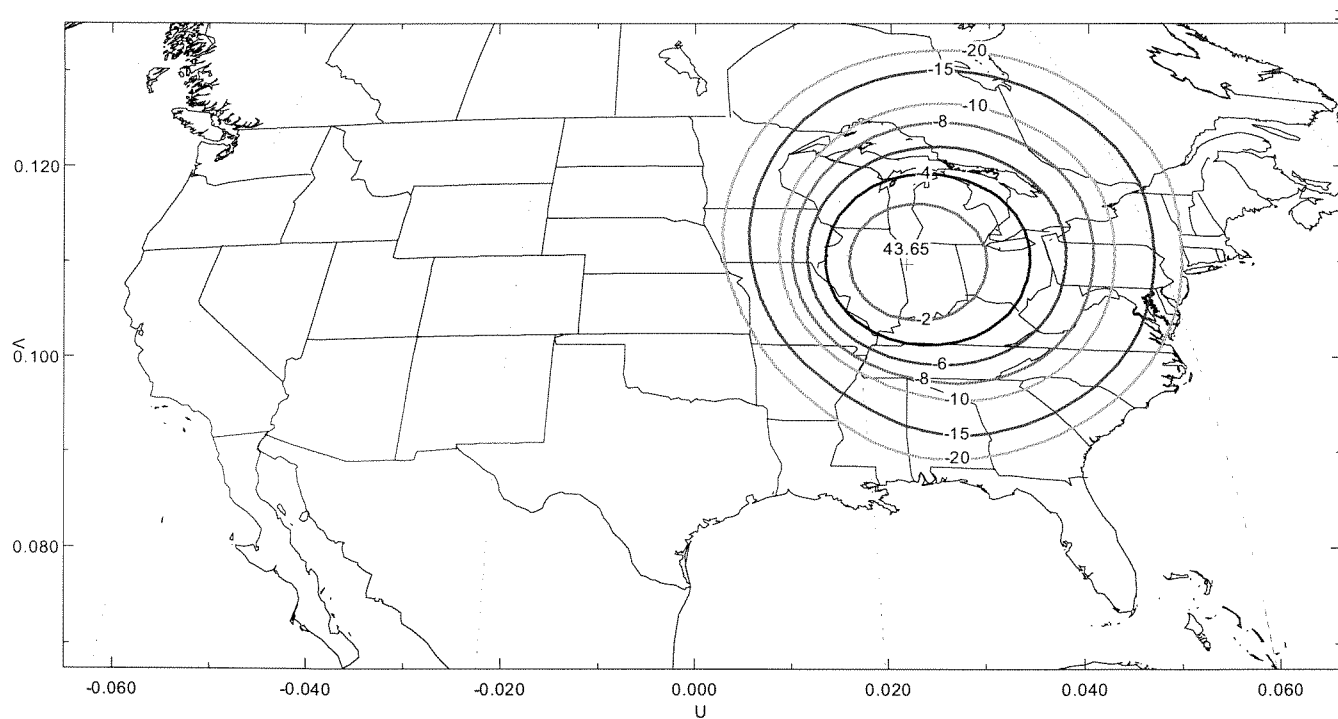
*Ka-Band Uplink Gain Contours*



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

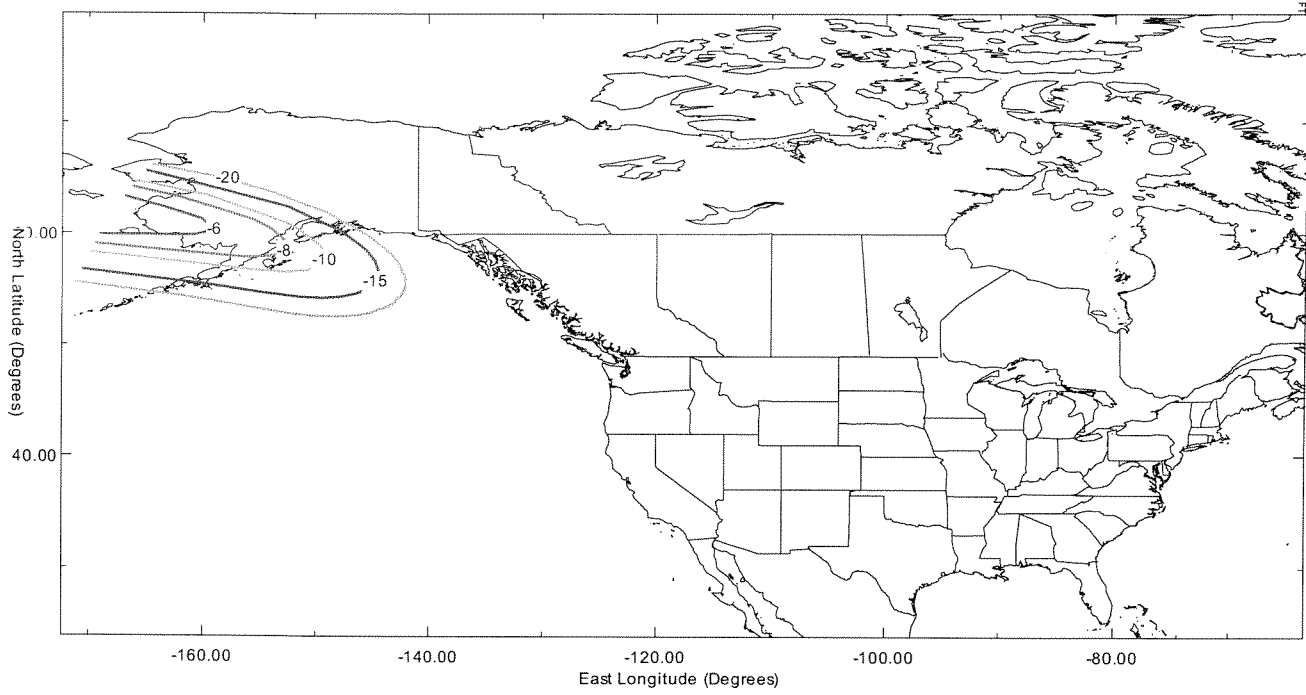


### *Ka-Band Uplink Gain Contours*



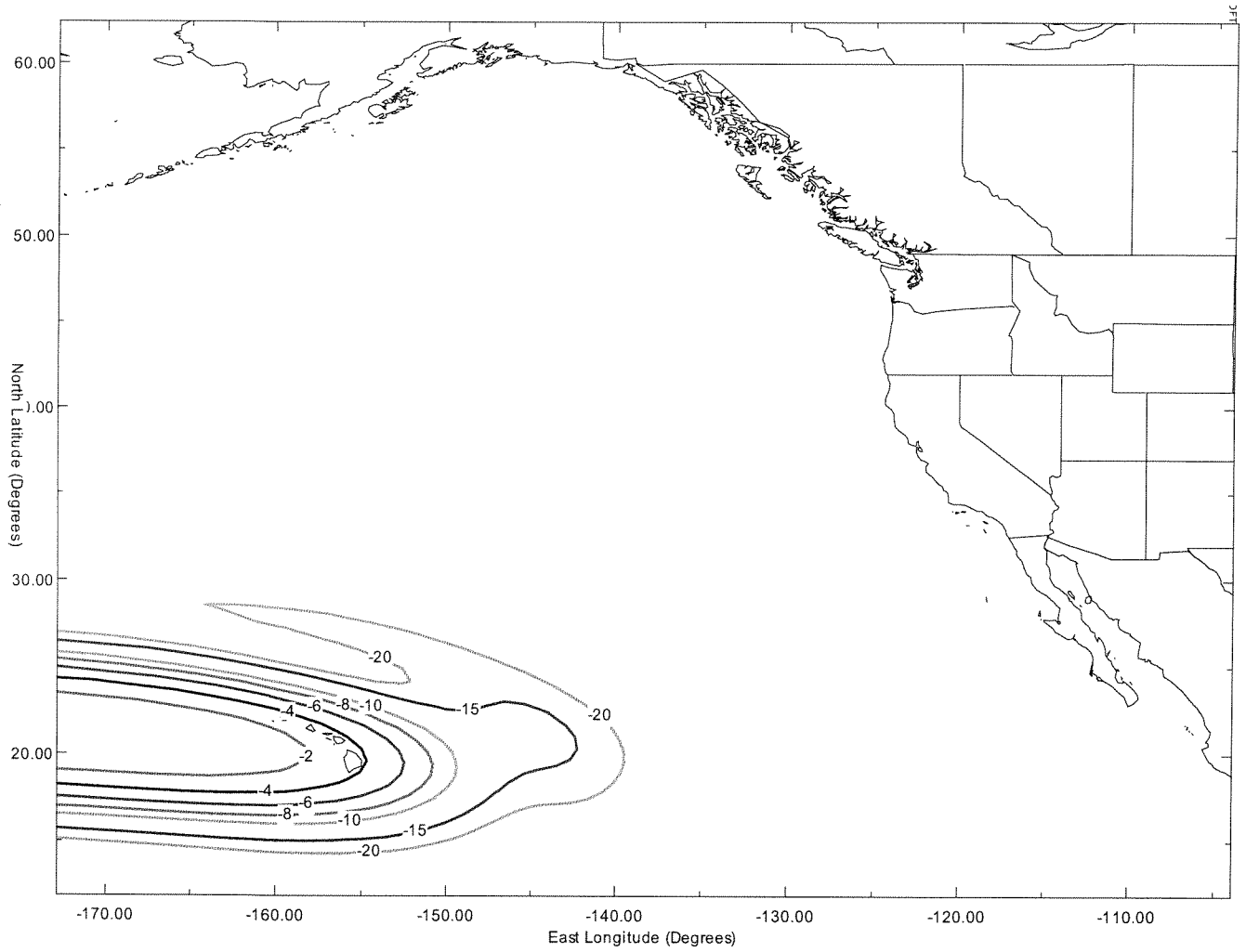
*Figure A1-6. Representative Ka-band spot beam uplink gain contours.*

*Ka-Band Uplink Gain Contour*



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

*Ka-Band Uplink Gain Contours*



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

DECLARATION OF JAIME LONDONO

I, Jaime Londono, 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/ Jaime Londono  
Director, Satellite Market Development  
SES Americom, Inc.

Dated: March 6, 2007