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June 29, 2007

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BY HAND DELIVERY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: HNS License Sub, LLC, Call Sign E060383, Fillmore, CA

Dear Ms. Dortch:

By this letter, HNS License Sub, LLC (“Hughes”), licensee of a new earth station at Fillmore, California (Call Sign E060383, issued March 6, 2007), through counsel, provides the Commission with the results of antenna performance verification measurements in accordance with Section 25.138(d) of the Commission’s Rules. The antenna performance verification measurements are provided pursuant to Condition 253 of the authorization of E060383. (*See* SES-LIC-20061017-01869, as amended by SES-AMD-20061103-01952 and SES-AMD-20070207-00203, granted March 6, 2007.) The result of these performance verification measurements demonstrate the antenna complies fully with the requirements of Sections 25.209(a) and (b) of the Commission’s Rules.

Hughes applied for authority to establish the earth station at Fillmore, California as part of its telemetry, tracking, and control (“TT&C”) system for the soon-to-be-launch Ka-band fixed-satellite service space station, SPACEWAY 3, that is licensed to Hughes’ corporate parent. In addition, Hughes requested authority for a second back-up earth station located at Castle Rock, Colorado (Call Sign E060382) as part of its TT&C system for SPACEWAY 3 in the interest of redundancy, both in terms of number and site diversity, should a problem arise with one of the antennas. Antenna performance verification measurements for the Castle Rock, Colorado TT&C earth station are provided under separate cover.

In preparing the attached antenna performance verification measurements, Hughes selected frequencies in accordance with Section 25.138(d) of the Commission’s Rules that were based upon the availability of Ka-band spectrum that was simultaneously visible from Castle Rock, Colorado and Fillmore, California. The transmit frequencies used for the attached antenna measurements are 29.569 GHz, 29.744 GHz, and 29.874 GHz, and the receive frequencies used for the antenna measurements are 19.717 GHz, 19.892 GHz, and 19.908 GHz.



Marlene H. Dortch

June 29, 2007

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The cross polarization radiation diagrams in the attached document show two plots on the same page. The top plot consists of the co-polarization patterns while the lower plot consists of the cross-polarization patterns. Both of these plots were included on the same diagram in order to allow Hughes to assess the cross-polarization isolation performance of the antenna. For the purpose of the Commission's review, the lower plot on the page is the pertinent cross-polarization diagram.

Should you have any questions in regard to the attached antenna performance measurements, please do not hesitate to contact the undersigned.

Respectfully submitted,

Raul R. Rodriguez
Counsel to HNS License Sub, LLC

cc (by email): Mr. Scott Kotler
Mr. Steven Doiron

GENERAL DYNAMICS

C4 Systems

**Installation and Test Services
Field Test Report
of
9.0 m THKa Cassegrain
Antenna System**

**Feed Model #: K90KCFMSN
Feed Serial #: AA284-102
RF Specification: 975-3550B
Sidelobe Specification: FCC
Test Plan: 900-0126 / 0135
Test Engineer: T. Murray**

Field Test Report #: 7015
Job #: 5348
01 June 2007

For
INTELSAT

Prepared By: T. W. West



**GDC4S / SATCOM Technologies
2600 North Longview Street
Kilgore, Texas 75662
(903) 984-0555**

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Section 1
TX Patterns @ 29.569 GHz



Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 004946
 Job Number..... 5348

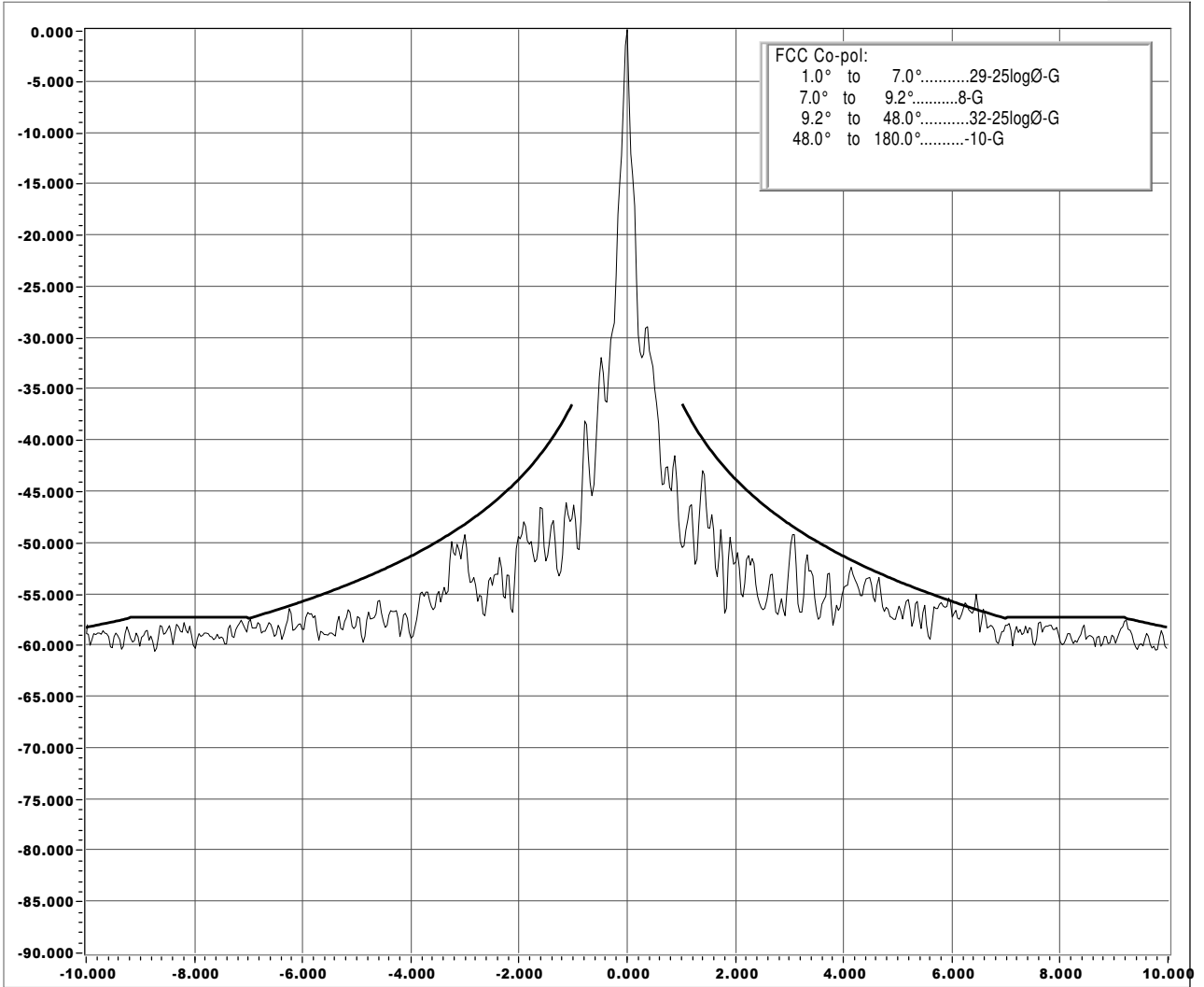
Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Co-pol...LHCP polarization...29.569 GHz

Azimuth

% Over Curve (not including main lobe)

1.0



Y-scale is power level (dB) relative to beam center; x-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19779414517, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

File: % 070521 004946 5348 TC-14-LA-19.779.txt

Test Frequency (GHz): 29.56900000

Ref. Level (dBm): -6.66

Points Displayed: 589

Versions
 60719 FAST
 60129 PACK

Specified Gain (dB): 65.300

Azimuth Beam Center (deg): 147.690

Elevation Beam Center (deg): 44.830

Margin Under Curved (dB): None



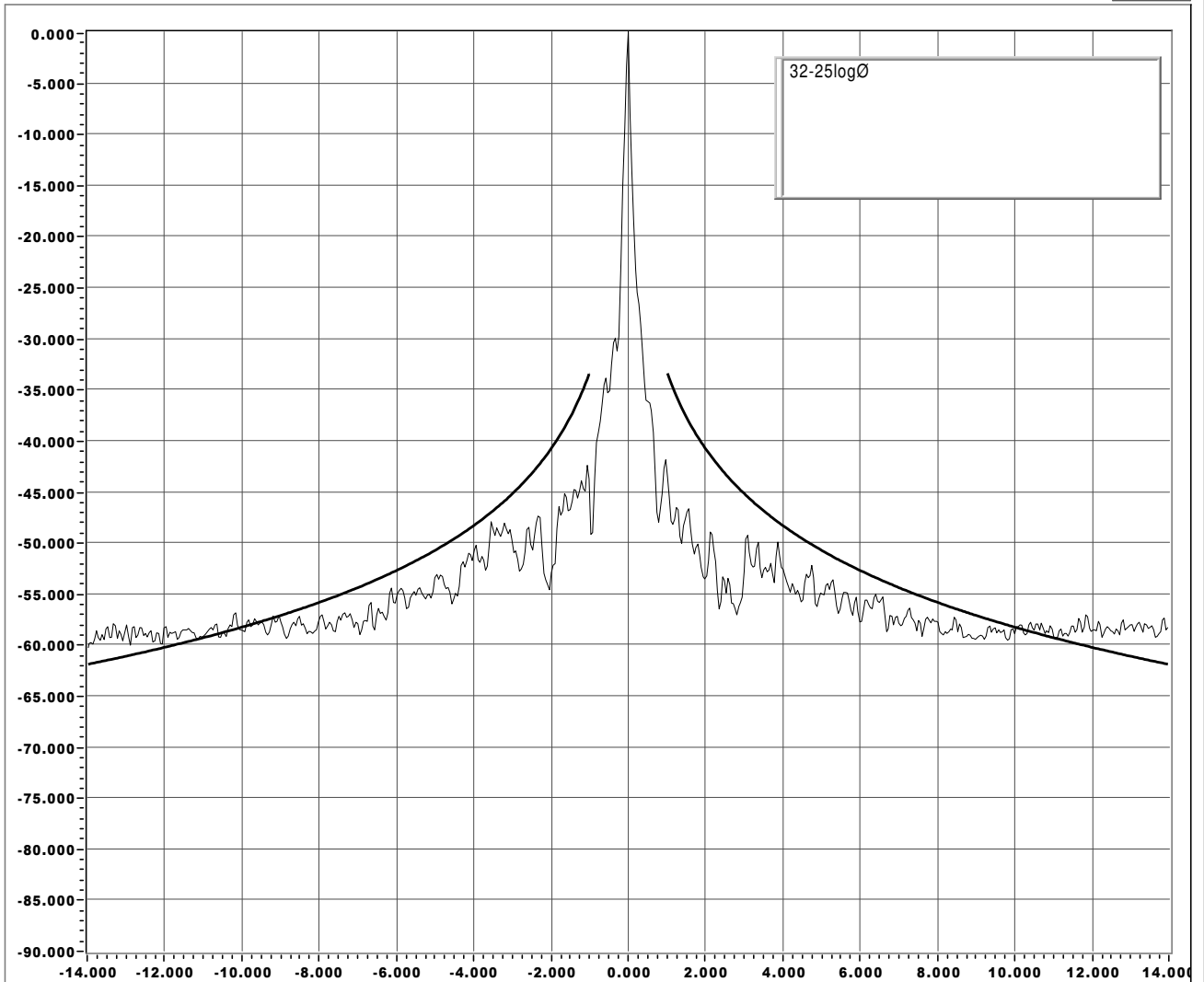
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 011108
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Co-pol...LHCP polarization...29.569 GHz

Elevation

% Over Curve (not including main lobe) 29.7



Y-scale is power level (dB) relative to beam center; x-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19779414517, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

File: % 070521 011108 5348 TC-14-LE-19.779.txt

Specified Gain: 65.300

Test Frequency (GHz): 29.569000000

Azimuth Beam Center (deg): 147.690

Ref. Level (dBm): -6.50

Elevation Beam Center (deg): 44.830

Points Displayed: 592

Versions
60719 FAST
60129 PACK

Margin Under Curve (dB): None



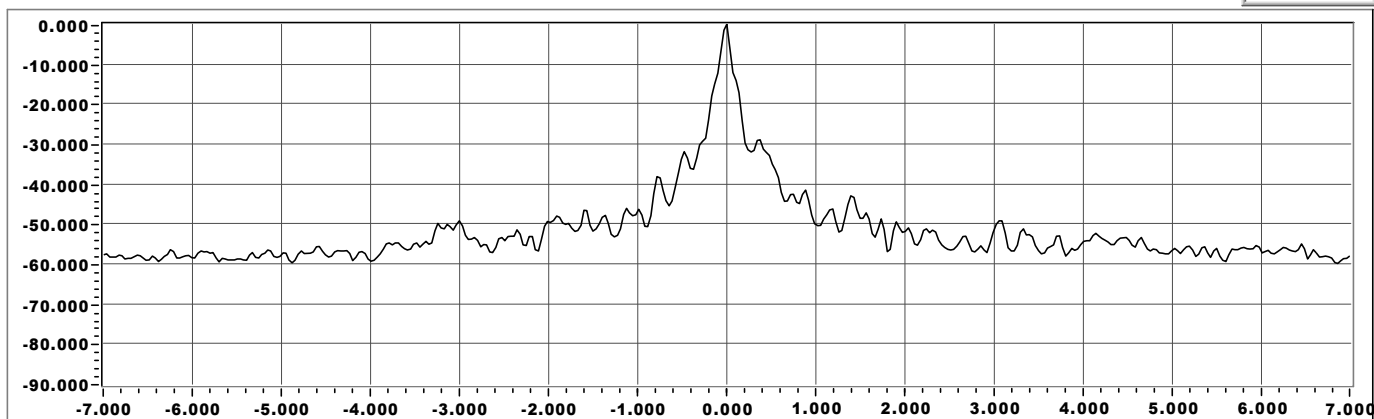
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 004946
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

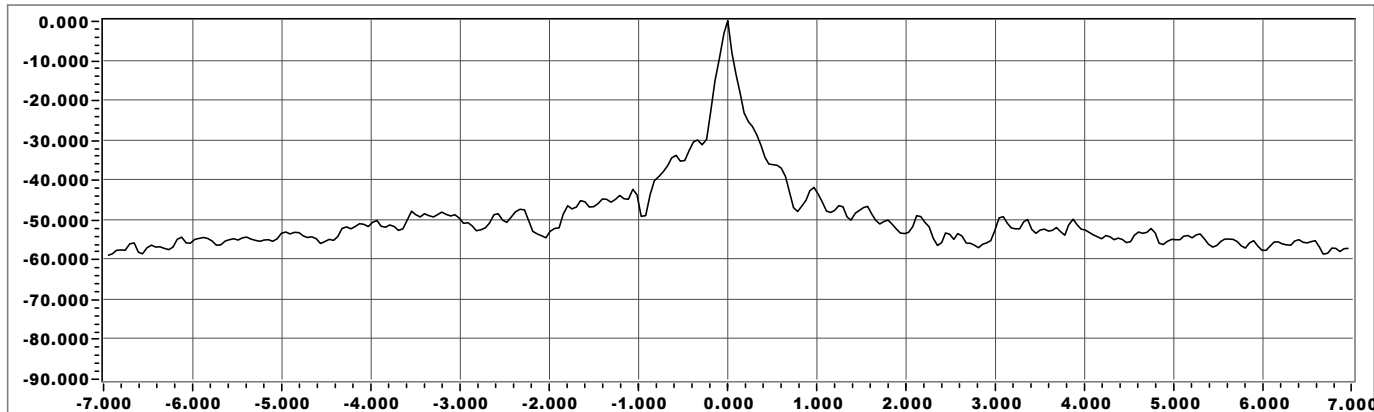
TX...LHCP Polarization...Gain by Integration...29.569 GHz

Spec. Gain (dBi): **65.300**
 Calculated Gain (dB): **65.96**

AZ Pattern



EL Pattern



The Y-scale is power level (dB) relative to beam center; the X -scale is angle (degrees, AZ cosine corrected) relative to beam center.

Antenna Gain by Integration = $2 / (\text{Sum} [\text{PsubTheta} * \sin(\text{Theta}) * \text{deltaTheta}] - \text{FeedLoss} - \text{AngularExtentLoss} - \text{SparBlockageLoss} - \text{CrossPolLoss})$
 where the summation is performed for look angles (Theta) offset from beam center from 0 to 180 degrees (in practice the summation occurs on both sides of beam center and the average is taken) and where PsubTheta is the power relative to beam center power and measured at look angles offset from beam center.

SA Freq (Hz)=19779414517, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

AZ Co-pol File
 EL Co-pol File
 Test Frequency (GHz)
 AZ Ref. Level (dBm)
 Azimuth (deg)
 Elevation (deg)

Versions
 60719 FAST
 60129 PACK

The calculated gain is greater than the specified gain by 0.66 dB.

# Points Displayed	412
Feed Loss (dB)	0.91
Angular Extent Loss(dB)	0.05
Spar Blockage Loss (dB)	0.03
Cross-pol Loss (dB)	0.03



Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 011639
 Job Number..... 5348

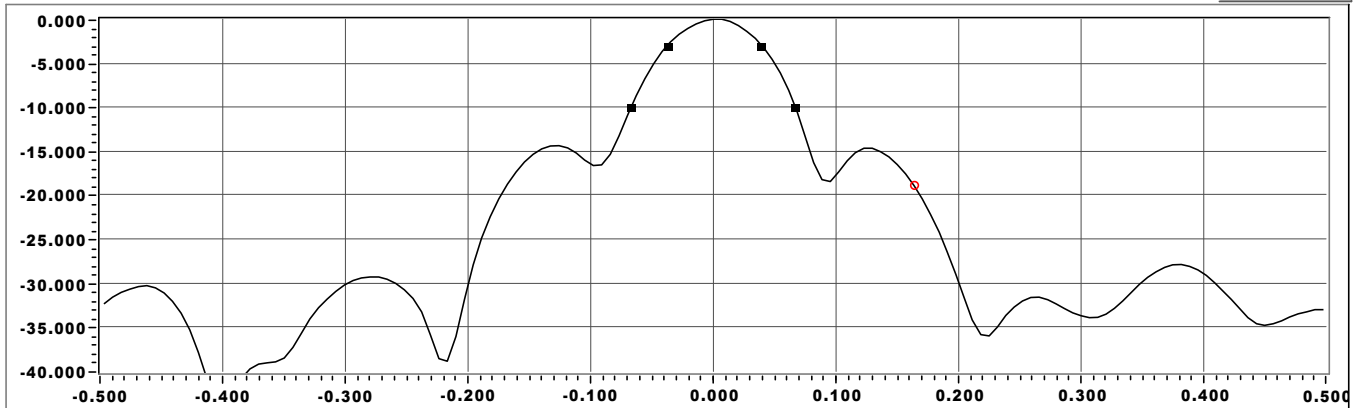
Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...LHCP Polarization...Gain by Beamwidth...29.569 GHz

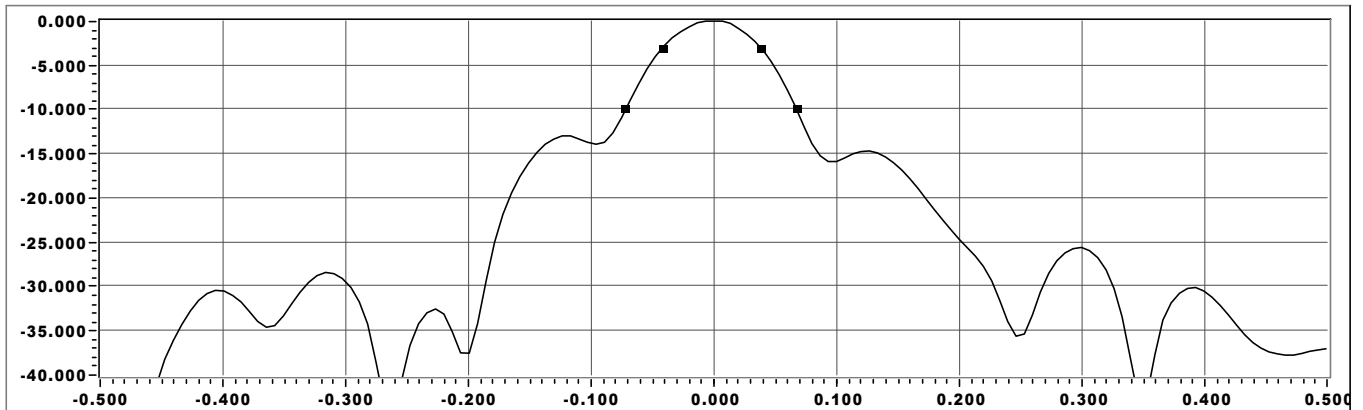
Spec. Gain (dBi): **65.300**

Calculated Gain (dB): **66.03**

AZ Pattern



EL Pattern



The Y-scale is power level (dB) relative to beam center; the X -scale is angle (degrees, AZ cosine corrected) relative to beam center.

$$\text{Gain by Beamwidth dBi} = 10 \log \left[\frac{((3\text{dB factor} / (\text{AZ } 3\text{dB BW} * \text{EL } 3\text{dB BW})) + (10\text{dB factor} / (\text{AZ } 10\text{dB BW} * \text{EL } 10\text{dB BW})))}{2} \right] - \text{Feed Loss dB} - 4.923(\text{RMS inches} * \text{Freq GHz})^2$$

SA Freq (Hz)=19779414517, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

AZ Co-pol File

The calculated gain is greater than the specified gain by 0.73 dB.

EL Co-pol File

Test Frequency (GHz)	29.569000000
AZ Ref. Level (dBm)	-6.50
Feed Loss (dB)	0.91
RMS (in.)	0.003
Azimuth (deg)	147.690
Elevation (deg)	44.830

AZ 3dB BW (deg)	0.0770
AZ 10dB BW (deg)	0.1339
AZ 15dB BW (deg)	0.1616
EL 3dB BW (deg)	0.0798
EL 10dB BW (deg)	0.1394
EL 15dB BW (deg)	0.2305

Points Displayed

3dB Factor	31000
10dB Factor	91000

Versions
 60719 FAST
 60129 PACK



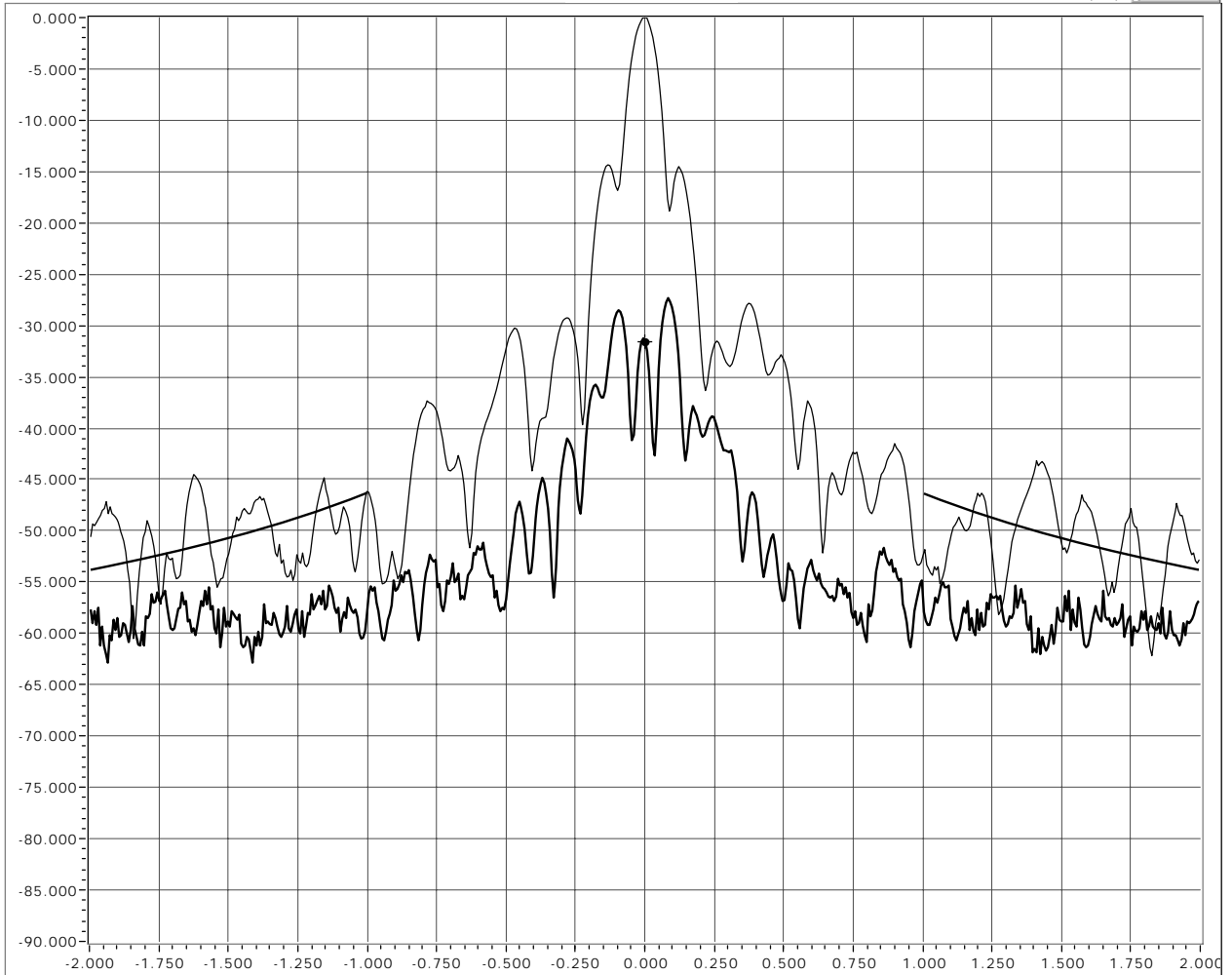
Customer..... Intelsat
 Date/Local Time.... 5-21-2007 at 013220
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Cross-pol under Co-pol...LHCP polarization...29.569 GHz

Azimuth

On-axis Isolation (dB): 31.58



The Y-scale is power level (dB) relative to beam center; the X-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19779414517, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

Co-pol File:	% 070521 011639 5348 TC-3-LA-19.779.txt	Azimuth Beam Center (deg):	147.690
Cross-pol File:	% 070521 013220 5348 TC-3-LA-19.779.txt	Elevation Beam Center (deg):	44.830
Test Frequency (GHz):	29.569000000	On-axis Spec. Isolation (dB):	30.800
Ref. Level (dBm):	-6.50	Off-axis Spec. Isolation (dB):	30.80
# Points Displayed:	582		

Versions
 60719 FAST
 60129 PACK



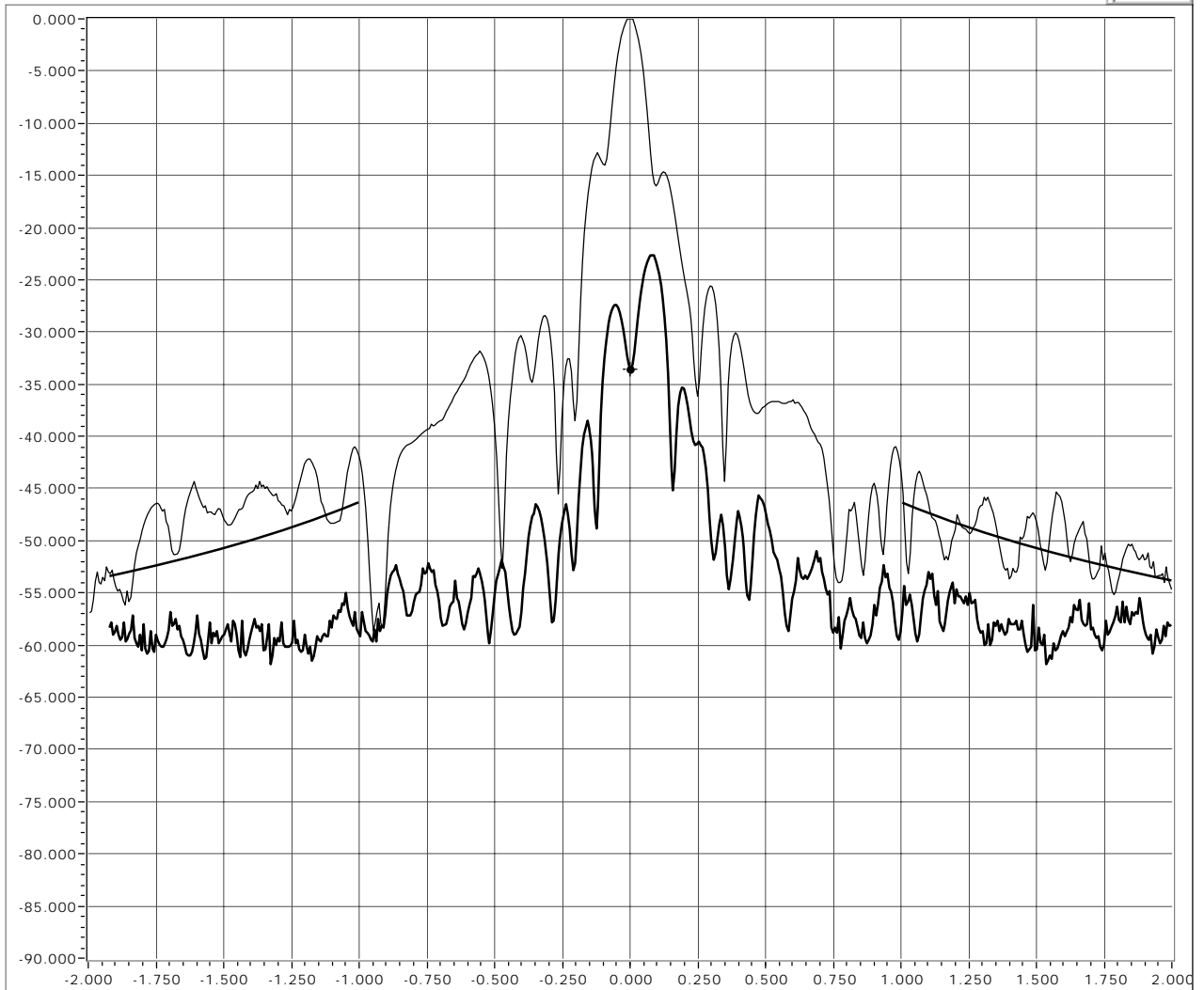
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 012041
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Cross-pol under Co-pol...LHCP polarization...29.569 GHz

Elevation

On Axis Isolation (dB): 33.50



The Y-scale is power level (dB) relative to beam center; the X-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19779414517, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3			
Co-pol File:	% 070521 012041 5348 TC-2-LE-19.779.txt	Azimuth Beam Center (deg):	147.690
Cross-pol File:	% 070521 013625 5348 TC-2-LE-19.779.txt	Elevation Beam Center (deg):	44.830
Test Frequency (GHz):	29.569000000	On-axis Spec. Isolation (dB):	30.800
Ref. Level (dBm):	-6.50	Off-axis Spec. Isolation (dB):	30.80
# Points Displayed:	591	Versions	
		60719 FAST	
		60129 PACK	

Section 2
TX Patterns @ 29.744 GHz



Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 015710
 Job Number..... 5348

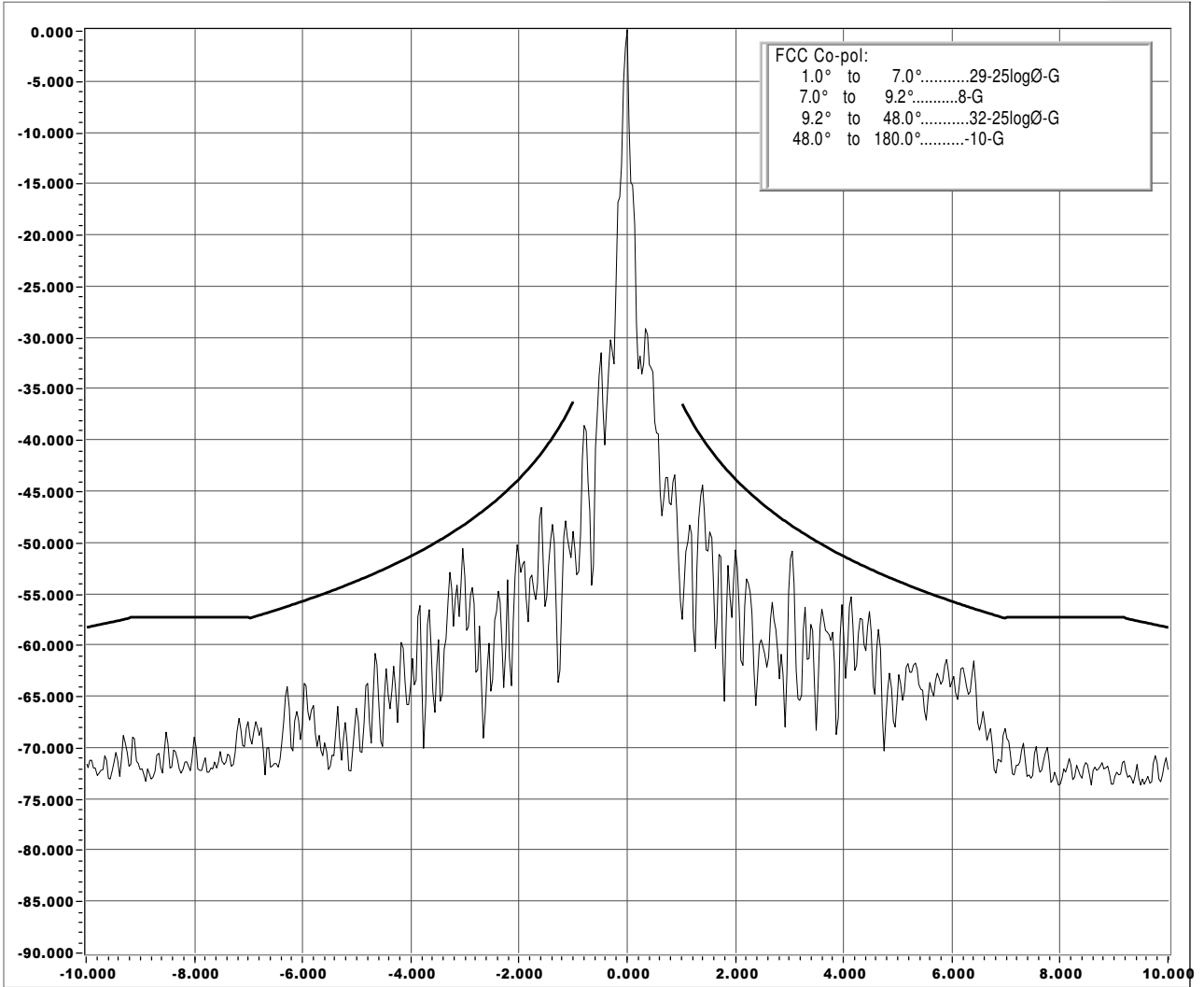
Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Co-pol...RHCP polarization...29.744 GHz

Azimuth

% Over Curve (not including main lobe)

0.0



Y-scale is power level (dB) relative to beam center; x-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19891914500, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

File: % 070521 015710 5348 TC-14-LA-19.892.txt

Test Frequency (GHz): 29.74400000

Ref. Level (dBm): -7.83

Points Displayed: 586

Versions
 60719 FAST
 60129 PACK

Specified Gain (dB): 65.300

Azimuth Beam Center (deg): 147.680

Elevation Beam Center (deg): 44.830

Margin Under Curved (dB): 2.22



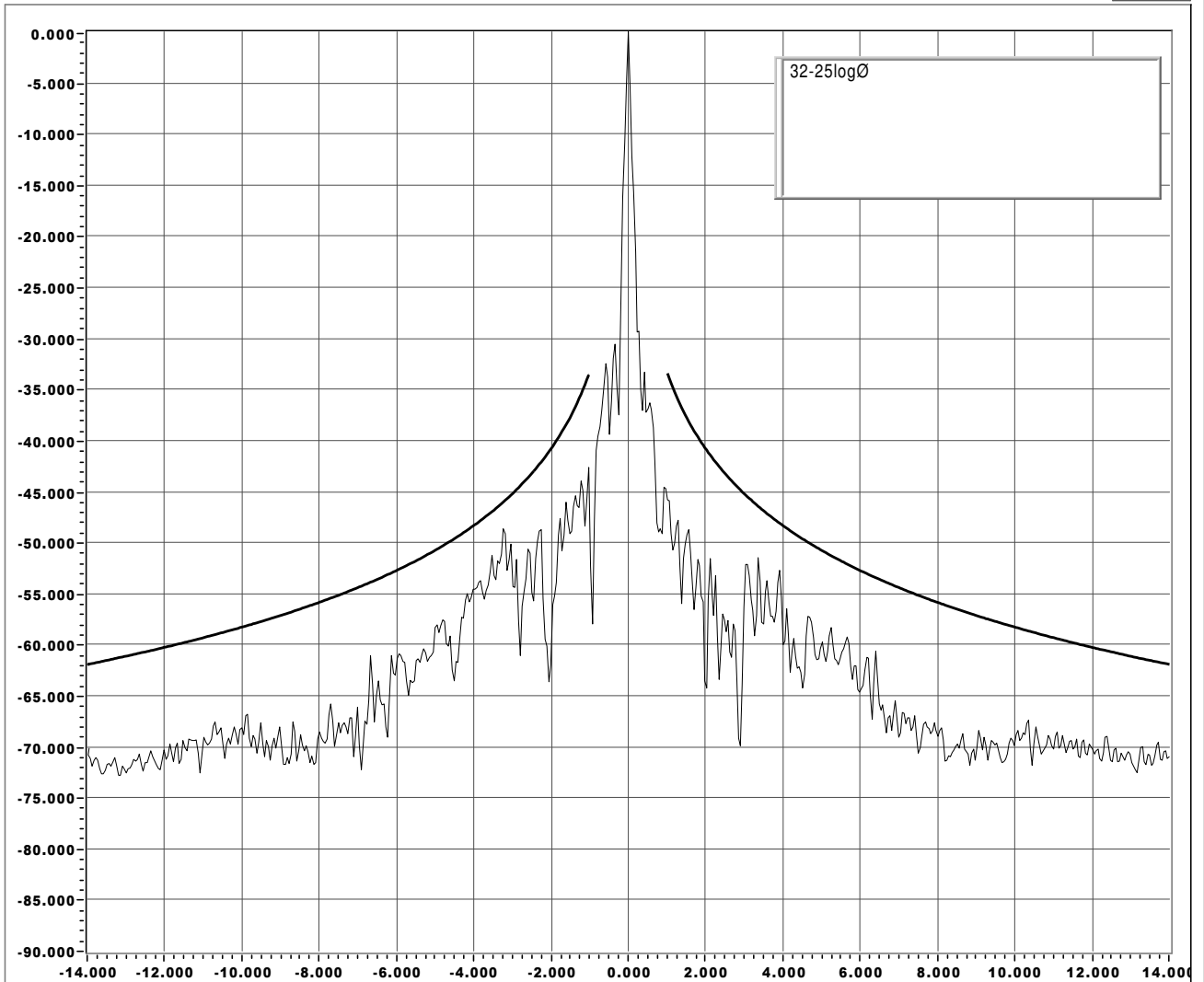
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 021814
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Co-pol...LHCP polarization...29.744 GHz

Elevation

% Over Curve (not including main lobe)



Y-scale is power level (dB) relative to beam center; x-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19891914500, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

File:

Specified Gain:

Test Frequency (GHz):

Azimuth Beam Center (deg):

Ref. Level (dBm):

Elevation Beam Center (deg):

Points Displayed:

Margin Under Curve (dB):

Versions
 60719 FAST
 60129 PACK



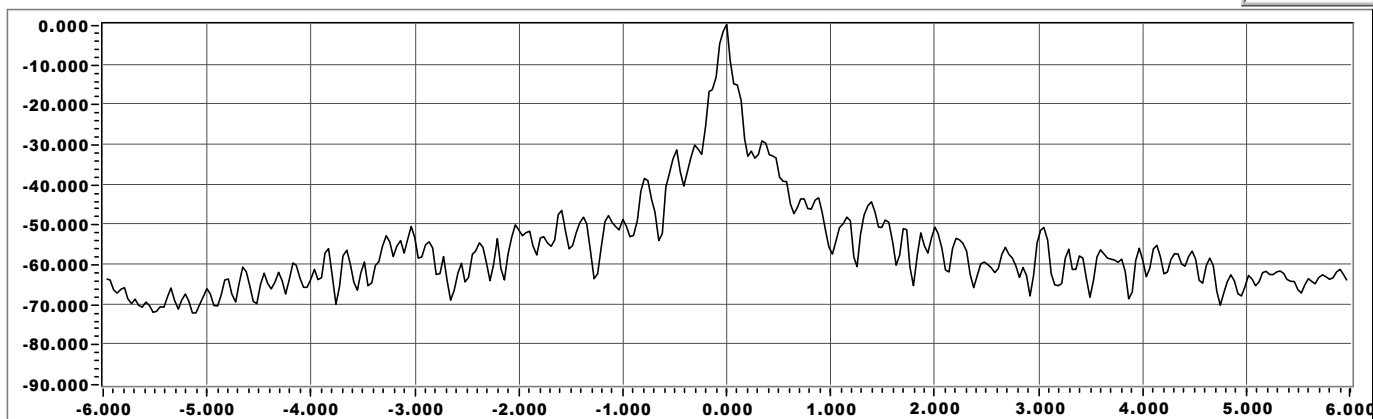
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 015710
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

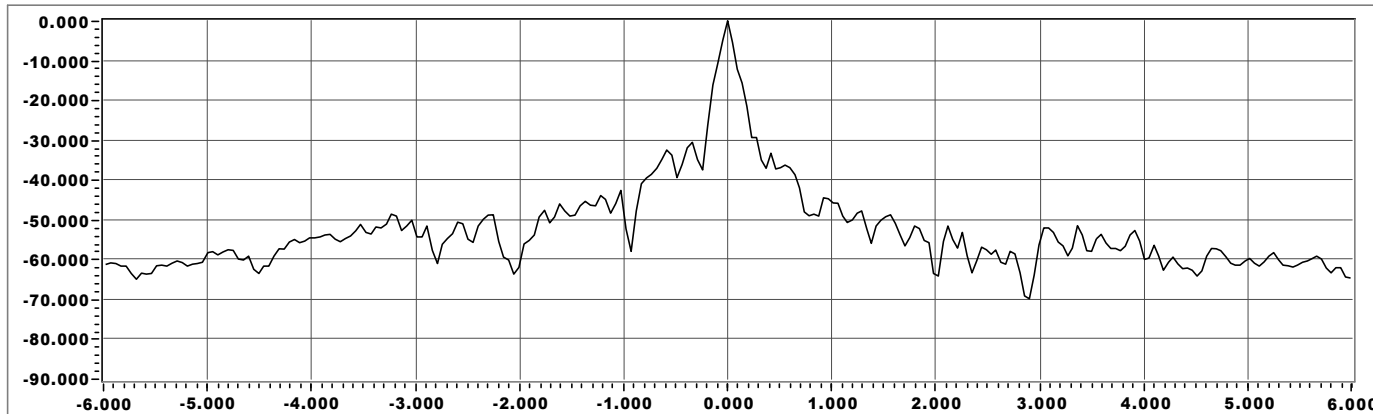
TX...LHCP Polarization...Gain by Integration...29.744 GHz

Spec. Gain (dBi): **65.300**
 Calculated Gain (dB): **65.17**

AZ Pattern



EL Pattern



The Y-scale is power level (dB) relative to beam center; the X -scale is angle (degrees, AZ cosine corrected) relative to beam center.

Antenna Gain by Integration = $2 / (\text{Sum} [\text{PsubTheta} * \sin(\text{Theta}) * \text{deltaTheta}] - \text{FeedLoss} - \text{AngularExtentLoss} - \text{SparBlockageLoss} - \text{CrossPolLoss})$
 where the summation is performed for look angles (Theta) offset from beam center from 0 to 180 degrees (in practice the summation occurs on both sides of beam center and the average is taken) and where PsubTheta is the power relative to beam center power and measured at look angles offset from beam center.

SA Freq (Hz)=19891914500, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

AZ Co-pol File
 EL Co-pol File
 Test Frequency (GHz)
 AZ Ref. Level (dBm)
 Azimuth (deg)
 Elevation (deg)

Versions
 60719 FAST
 60129 PACK

The calculated gain is less than the specified gain by 0.13 dB.
 (The tolerance is +/- 0.5 dB.)
 # Points Displayed
 Feed Loss (dB)
 Angular Extent Loss(dB)
 Spar Blockage Loss (dB)
 Cross-pol Loss (dB)



Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 022425
 Job Number..... 5348

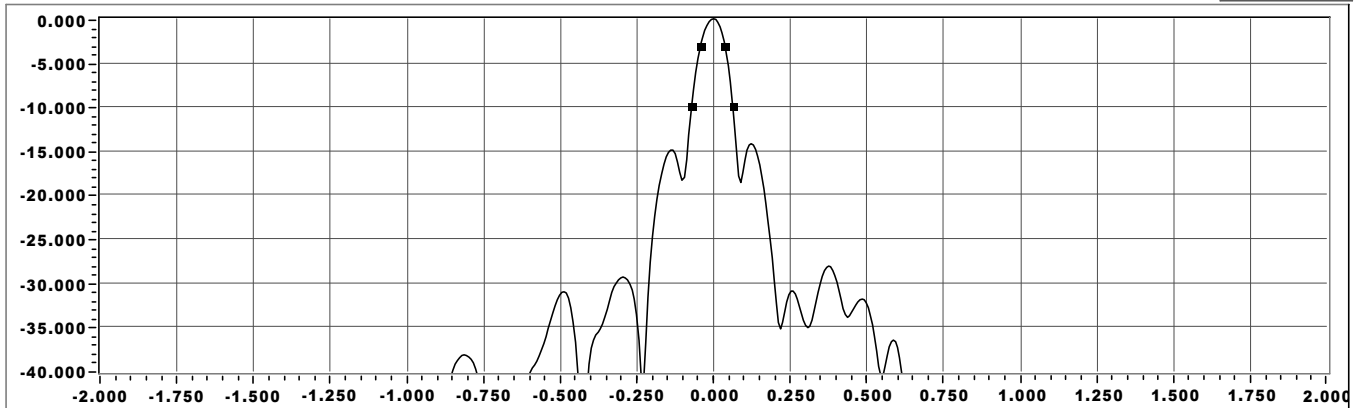
Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...LHCP Polarization...Gain by Beamwidth...29.744 GHz

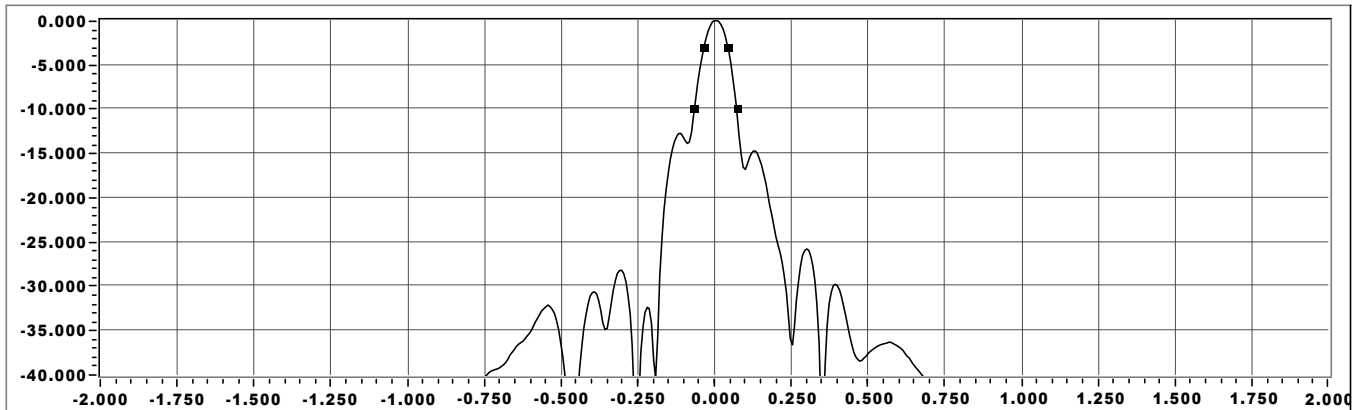
Spec. Gain (dBi): 65.300

Calculated Gain (dB): 66.05

AZ Pattern



EL Pattern



The Y-scale is power level (dB) relative to beam center; the X -scale is angle (degrees, AZ cosine corrected) relative to beam center.

$$\text{Gain by Beamwidth dBi} = 10 \log \left[\left(\frac{3\text{dB factor}}{\text{AZ 3dB BW} * \text{EL 3dB BW}} + \frac{10\text{dB factor}}{\text{AZ 10dB BW} * \text{EL 10dB BW}} \right) / 2 \right] - \text{Feed Loss dB} - 4.923(\text{RMS inches} * \text{Freq GHz})^2$$

SA Freq (Hz)=19891914500, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

AZ Co-pol File % 070521 022425 5348 TC-3-LA-19.892.txt
 EL Co-pol File % 070521 022817 5348 TC-2-LE-19.892.txt

The calculated gain is greater than the specified gain by 0.75 dB.

Test Frequency (GHz)	29.744000000	AZ 3dB BW (deg)	0.0785	# Points Displayed	569
AZ Ref. Level (dBm)	-7.66	AZ 10dB BW (deg)	0.1350		
Feed Loss (dB)	0.91	AZ 15dB BW (deg)	0.1601		
RMS (in.)	0.003	EL 3dB BW (deg)	0.0780		
Azimuth (deg)	147.680	EL 10dB BW (deg)	0.1373	3dB Factor	31000
Elevation (deg)	44.830	EL 15dB BW (deg)	0.2266	10dB Factor	91000
				Versions	
				60719 FAST	
				60129 PACK	



Customer..... Intelsat
 Date/Local Time.... 5-21-2007 at 023544
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Cross-pol under Co-pol...LHCP polarization...29.744 GHz

Azimuth

On-axis Isolation (dB): 38.17



The Y-scale is power level (dB) relative to beam center; the X-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19891914500, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3			
Co-pol File:	% 070521 022425 5348 TC-3-LA-19.892.txt	Azimuth Beam Center (deg):	147.630
Cross-pol File:	% 070521 023544 5348 TC-3-LA-19.892.txt	Elevation Beam Center (deg):	44.830
Test Frequency (GHz):	29.744000000	On-axis Spec. Isolation (dB):	30.800
Ref. Level (dBm):	-7.66	Off-axis Spec. Isolation (dB):	30.80
# Points Displayed:	563	Versions 60719 FAST 60129 PACK	



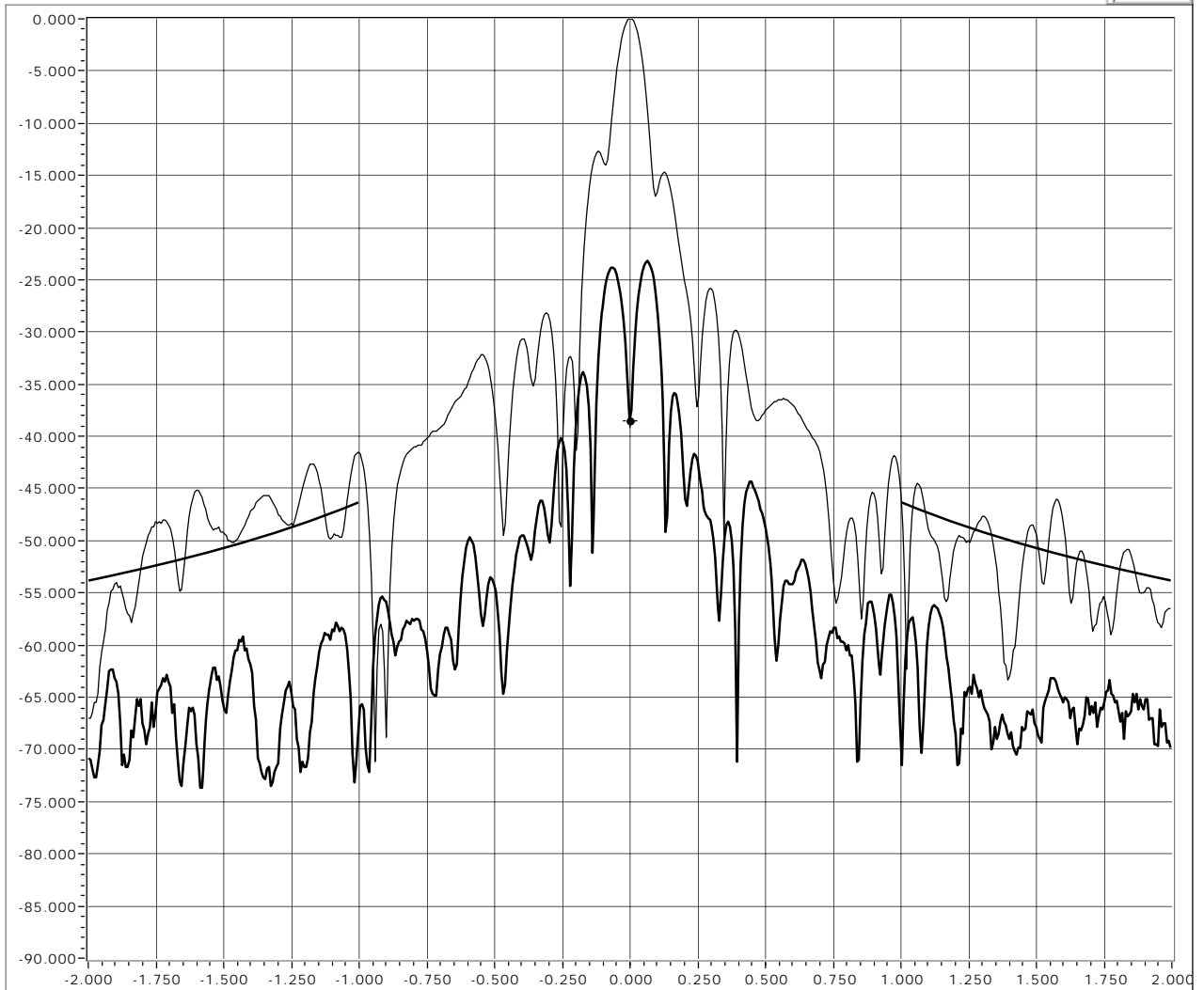
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 022817
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Cross-pol under Co-pol...LHCP polarization...29.744 GHz

Elevation

On Axis Isolation (dB): 38.50



The Y-scale is power level (dB) relative to beam center; the X-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=19891914500, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3			
Co-pol File:	% 070521 022817 5348 TC-2-LE-19.892.txt	Azimuth Beam Center (deg):	147.680
Cross-pol File:	% 070521 023952 5348 TC-2-LE-19.892.txt	Elevation Beam Center (deg):	44.830
Test Frequency (GHz):	29.74400000	On-axis Spec. Isolation (dB):	30.800
Ref. Level (dBm):	-6.50	Off-axis Spec. Isolation (dB):	30.80
# Points Displayed:	591	Versions	
		60719 FAST	
		60129 PACK	

Section 3
TX Patterns @ 29.874 GHz



Customer..... Intelsat
 Date/Local Time.... 5-20-2007 at 163619
 Job Number..... 5348

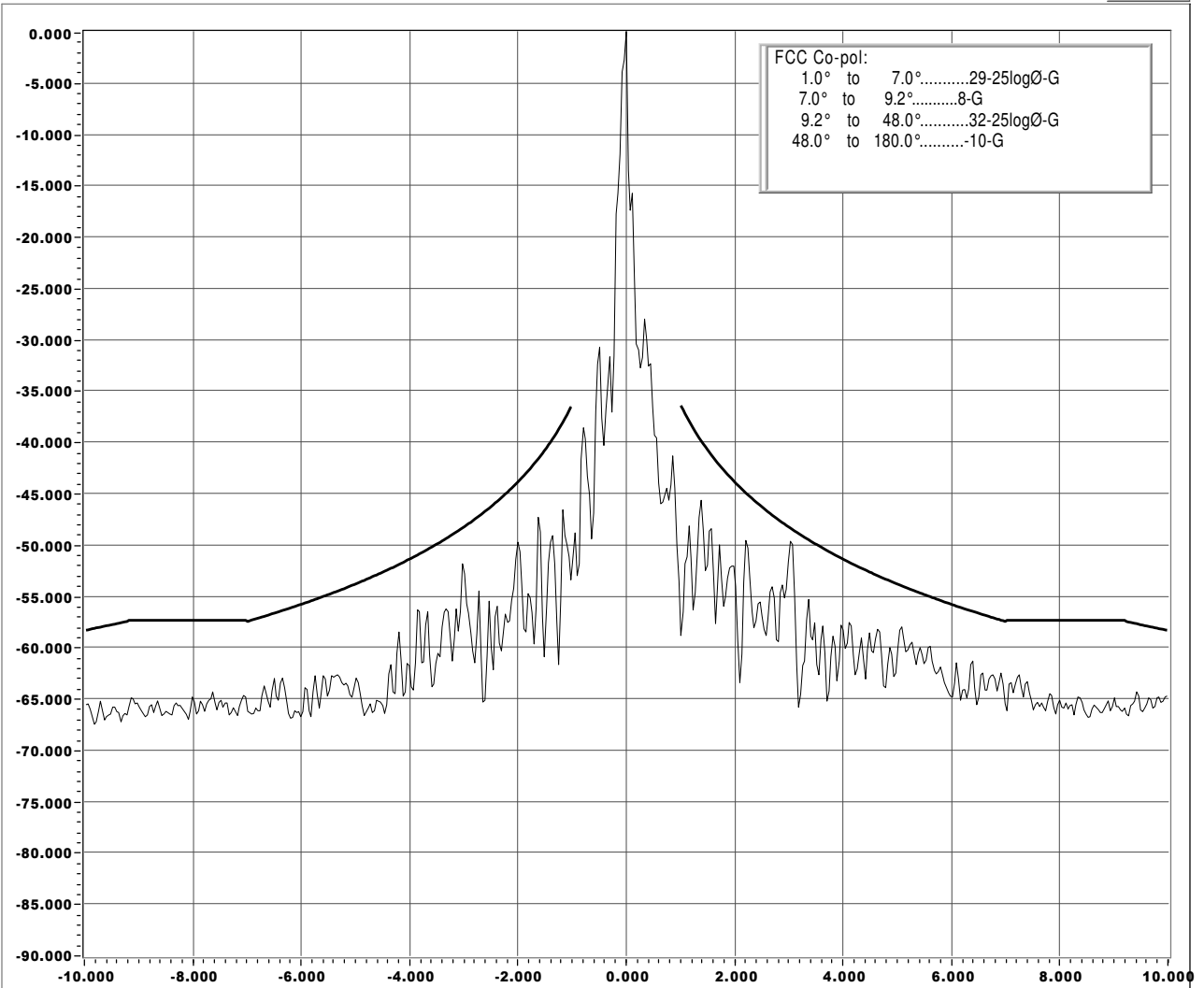
Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... G28
 Transponder.....

TX...Co-pol...RHCP polarization...29.874 GHz

Azimuth

% Over Curve (not including main lobe)

0.0



Y-scale is power level (dB) relative to beam center; x-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=20073998729, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

File: % 070520 163619 5348 TC-14-LA-20.074.txt

Test Frequency (GHz): 29.87400000

Ref. Level (dBm): -11.66

Points Displayed: 532

Versions
 60719 FAST
 60129 PACK

Specified Gain (dB): 65.350

Azimuth Beam Center (deg): 134.540

Elevation Beam Center (deg): 38.900

Margin Under Curved (dB): 1.29



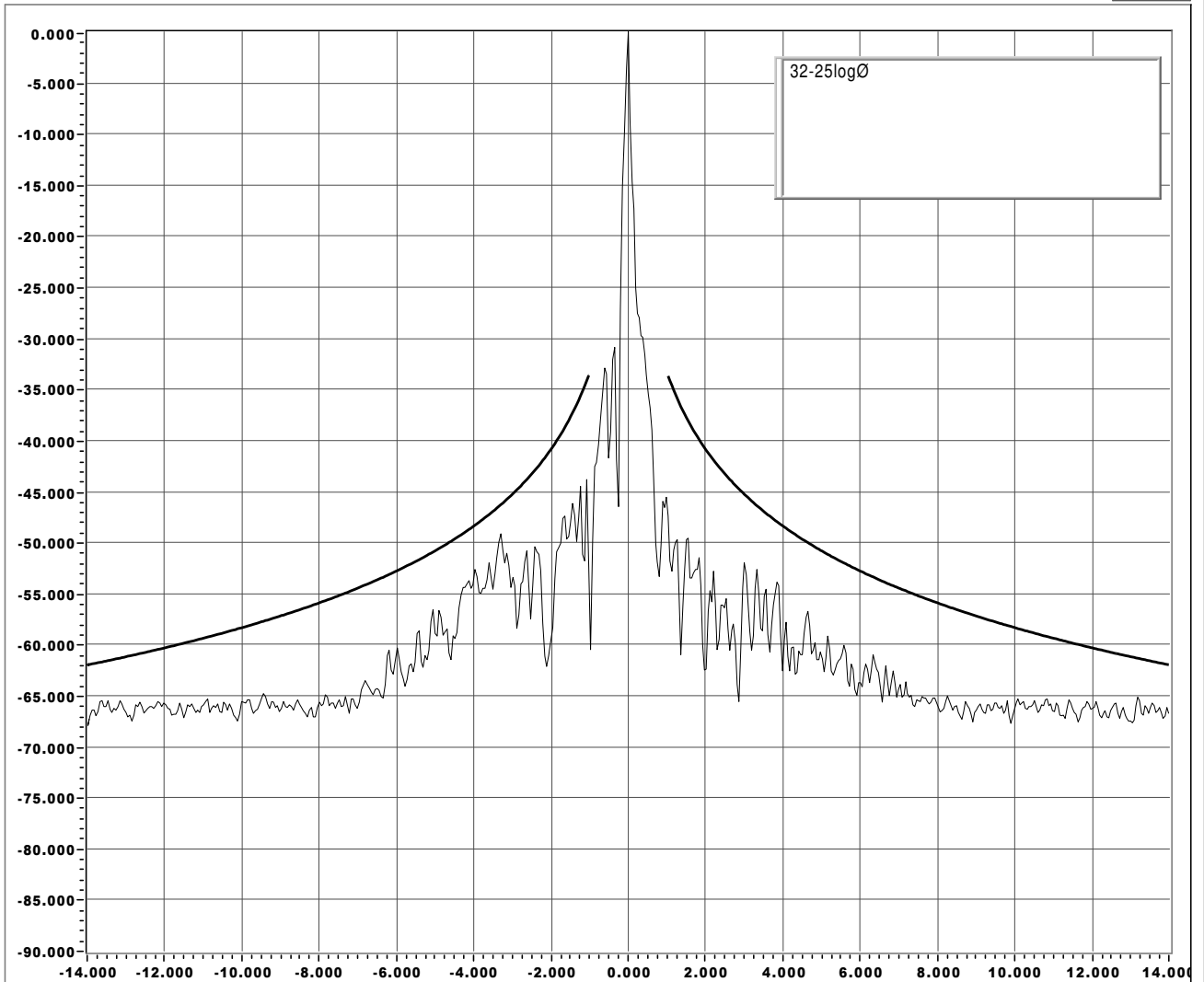
Customer..... Intelsat
 Date/Local Time..... 5-20-2007 at 170104
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... G28
 Transponder.....

TX...Co-pol...LHCP polarization...29.874 GHz

Elevation

% Over Curve (not including main lobe)



Y-scale is power level (dB) relative to beam center; x-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=20073998729, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

File:

Specified Gain:

Test Frequency (GHz):

Azimuth Beam Center (deg):

Ref. Level (dBm):

Elevation Beam Center (deg):

Points Displayed:

Versions
60719 FAST
60129 PACK

Margin Under Curve (dB):



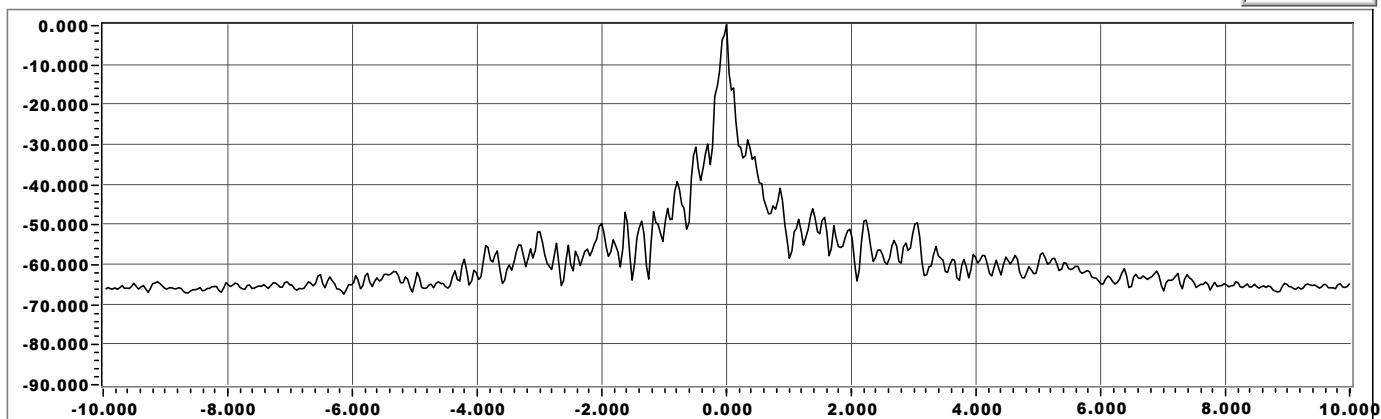
Customer..... Intelsat
 Date/Local Time..... 5-20-2007 at 152935
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... G28
 Transponder.....

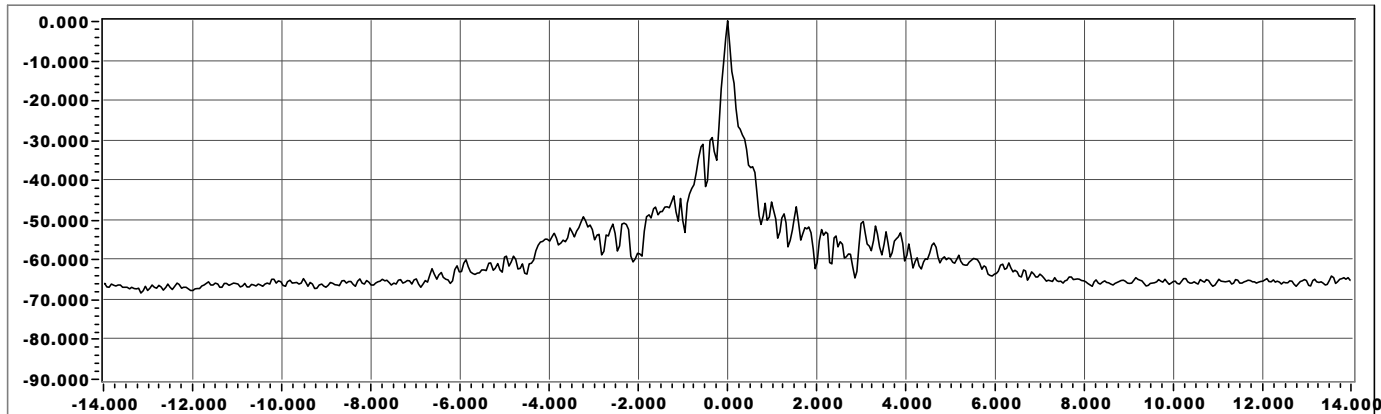
TX...LHCP Polarization...Gain by Integration...29.874 GHz

Spec. Gain (dBi): **65.350**
 Calculated Gain (dB): **65.88**

AZ Pattern



EL Pattern



The Y-scale is power level (dB) relative to beam center; the X -scale is angle (degrees, AZ cosine corrected) relative to beam center.

Antenna Gain by Integration = $2 / (\text{Sum} [\text{PsubTheta} * \sin(\text{Theta}) * \text{deltaTheta}] - \text{FeedLoss} - \text{AngularExtentLoss} - \text{SparBlockageLoss} - \text{CrossPolLoss})$
 where the summation is performed for look angles (Theta) offset from beam center from 0 to 180 degrees (in practice the summation occurs on both sides of beam center and the average is taken) and where PsubTheta is the power relative to beam center power and measured at look angles offset from beam center.

SA Freq (Hz)=20073998729, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

AZ Co-pol File
 EL Co-pol File
 Test Frequency (GHz)
 AZ Ref. Level (dBm)
 Azimuth (deg)
 Elevation (deg)

Versions
 60719 FAST
 60129 PACK

The calculated gain is greater than the specified gain by 0.53 dB.

# Points Displayed	532
Feed Loss (dB)	0.91
Angular Extent Loss(dB)	0.05
Spar Blockage Loss (dB)	0.03
Cross-pol Loss (dB)	0.03



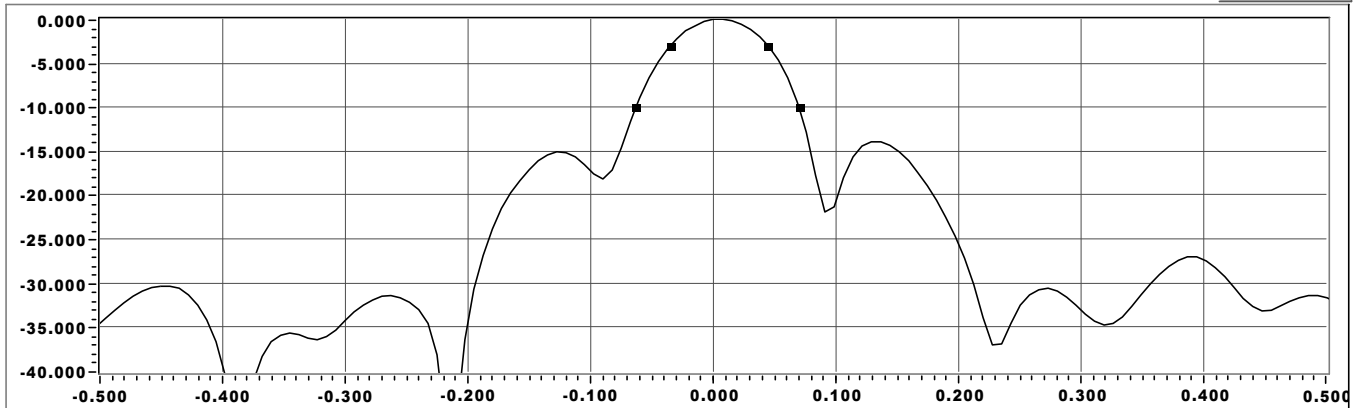
Customer..... Intelsat
 Date/Local Time..... 5-20-2007 at 170646
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... G28
 Transponder.....

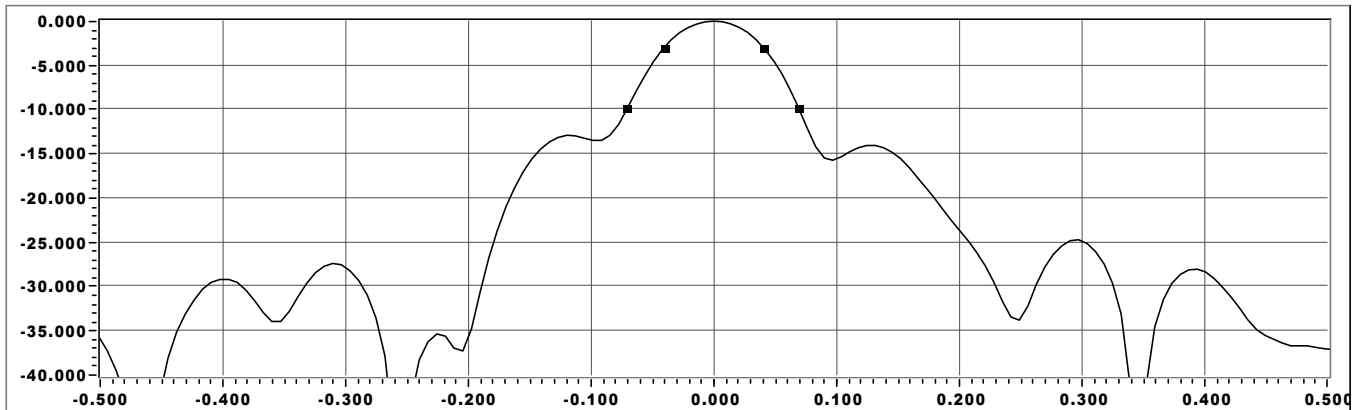
TX...LHCP Polarization...Gain by Beamwidth...29.874 GHz

Spec. Gain (dBi): **65.350**
 Calculated Gain (dB): **65.93**

AZ Pattern



EL Pattern



The Y-scale is power level (dB) relative to beam center; the X -scale is angle (degrees, AZ cosine corrected) relative to beam center.

$$\text{Gain by Beamwidth dBi} = 10 \log \left[\frac{((3\text{dB factor} / (\text{AZ } 3\text{dB BW} * \text{EL } 3\text{dB BW})) + (10\text{dB factor} / (\text{AZ } 10\text{dB BW} * \text{EL } 10\text{dB BW})))}{2} \right] - \text{Feed Loss dB} - 4.923(\text{RMS inches} * \text{Freq GHz})^2$$

SA Freq (Hz)=20073998729, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

AZ Co-pol File
 EL Co-pol File

The calculated gain is greater than the specified gain by 0.58 dB.

Test Frequency (GHz)	<input type="text" value="29.874000000"/>	AZ 3dB BW (deg)	<input type="text" value="0.0795"/>	# Points Displayed	<input type="text" value="534"/>
AZ Ref. Level (dBm)	<input type="text" value="-11.50"/>	AZ 10dB BW (deg)	<input type="text" value="0.1328"/>		
Feed Loss (dB)	<input type="text" value="0.91"/>	AZ 15dB BW (deg)	<input type="text" value="0.1554"/>		
RMS (in.)	<input type="text" value="0.003"/>	EL 3dB BW (deg)	<input type="text" value="0.0808"/>		
Azimuth (deg)	<input type="text" value="134.540"/>	EL 10dB BW (deg)	<input type="text" value="0.1407"/>	3dB Factor	<input type="text" value="31000"/>
Elevation (deg)	<input type="text" value="38.900"/>	EL 15dB BW (deg)	<input type="text" value="0.2318"/>	10dB Factor	<input type="text" value="91000"/>
				Versions	60719 FAST 60129 PACK



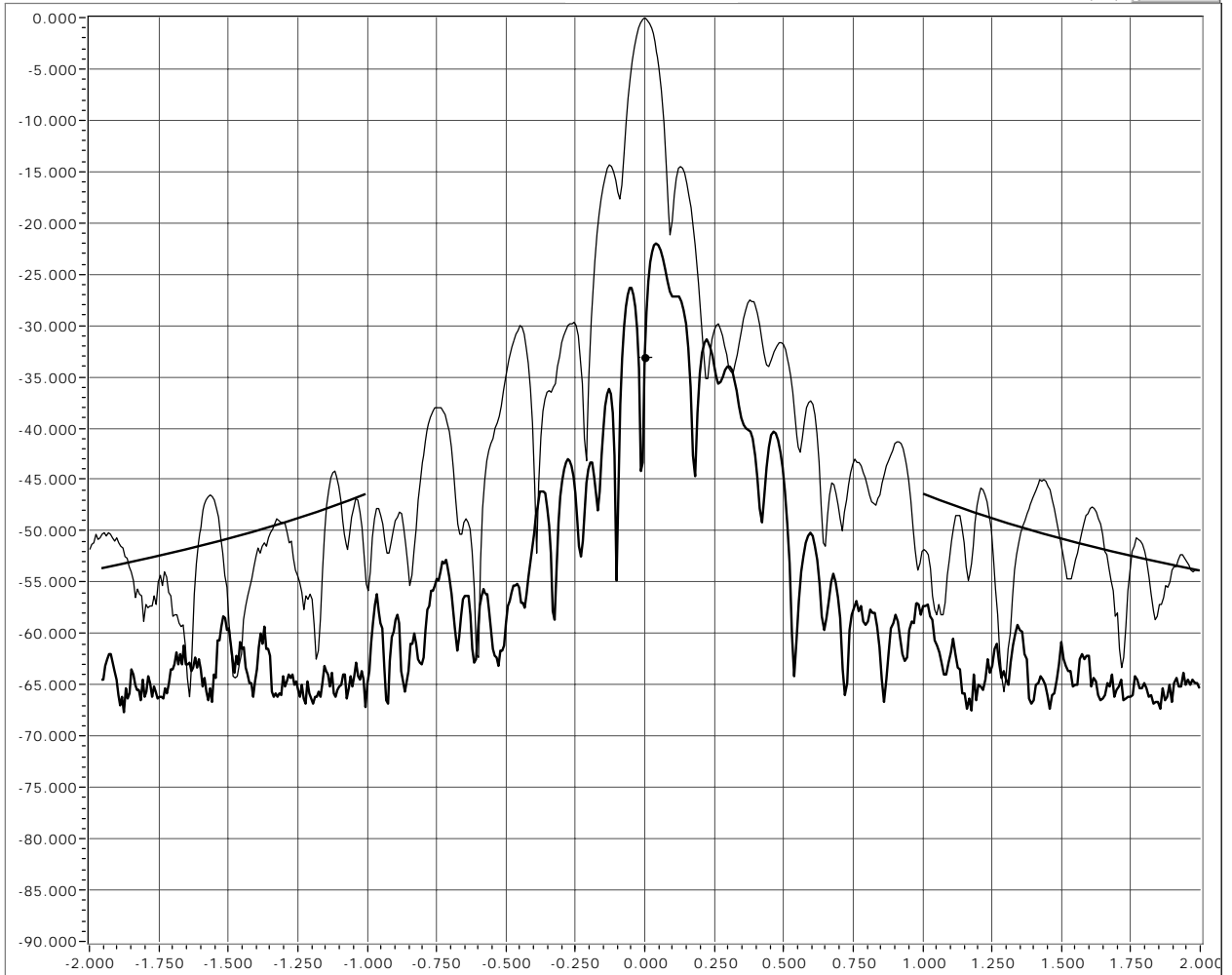
Customer..... Intelsat
 Date/Local Time.... 5-21-2007 at 185839
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Cross-pol under Co-pol...LHCP polarization...29.874 GHz

Azimuth

On-axis Isolation (dB): 33.17



The Y-scale is power level (dB) relative to beam center; the X-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=20073998658, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3

Co-pol File:	% 070521 184733 5348 TC-3-LA-20.074.txt	Azimuth Beam Center (deg):	134.540
Cross-pol File:	% 070521 185839 5348 TC-3-LA-20.074.txt	Elevation Beam Center (deg):	44.830
Test Frequency (GHz):	29.874000000	On-axis Spec. Isolation (dB):	30.800
Ref. Level (dBm):	-11.33	Off-axis Spec. Isolation (dB):	30.80
# Points Displayed:	533		

Versions
 60719 FAST
 60129 PACK



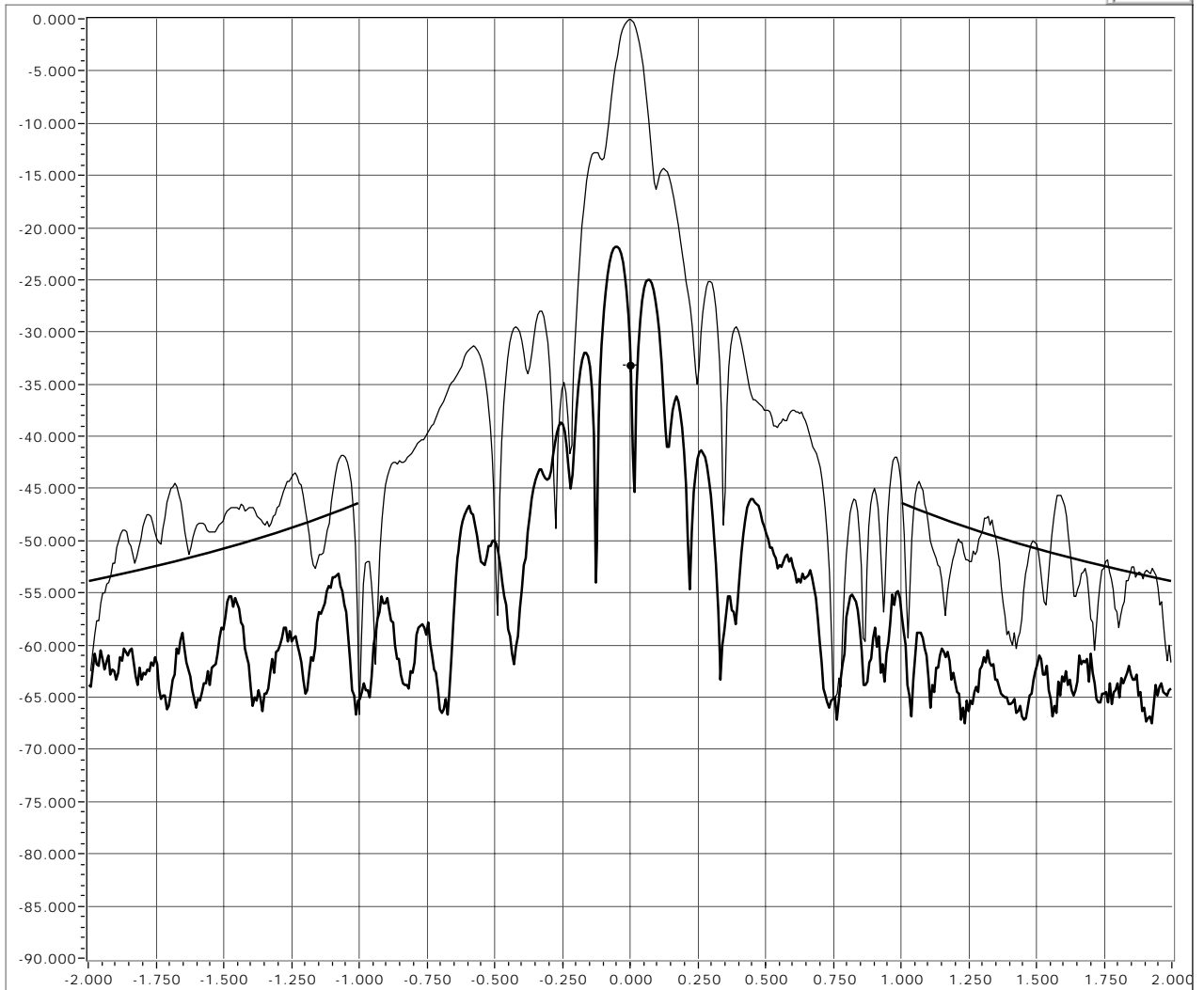
Customer..... Intelsat
 Date/Local Time..... 5-21-2007 at 185211
 Job Number..... 5348

Model..... 9.0m THKa
 Location..... FIL-A26
 Weather..... Clear
 Test Engineer..... T. Murray/T. West
 Spacecraft..... SW2
 Transponder.....

TX...Cross-pol under Co-pol...LHCP polarization...29.874 GHz

Elevation

On Axis Isolation (dB): 33.16



The Y-scale is power level (dB) relative to beam center; the X-scale is angle (degrees, cosine corrected) relative to beam center.

SA Freq (Hz)=20073998658, AZ rate (deg/s)=0.125, EL rate (deg/s)=0.100, RBW (Hz)=300, VBW (Hz)=3			
Co-pol File:	% 070521 185211 5348 TC-2-LE-20.074.txt	Azimuth Beam Center (deg):	134.540
Cross-pol File:	% 070521 190217 5348 TC-2-LE-20.074.txt	Elevation Beam Center (deg):	44.830
Test Frequency (GHz):	29.87400000	On-axis Spec. Isolation (dB):	30.800
Ref. Level (dBm):	-11.33	Off-axis Spec. Isolation (dB):	30.80
# Points Displayed:	560	Versions	
		60719 FAST	
		60129 PACK	

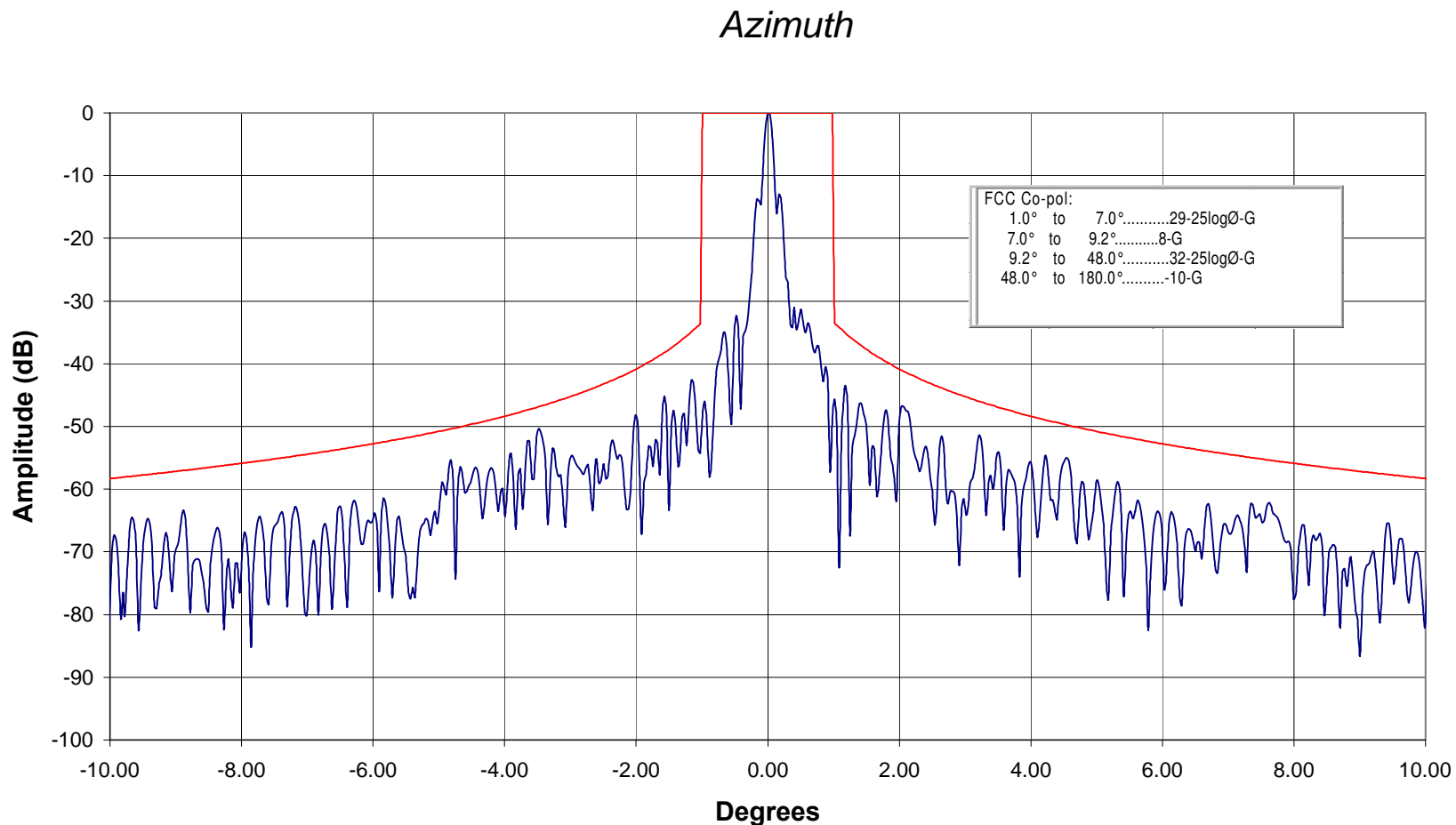
Section 4

RX Patterns @ 19.717 GHz

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Gain at 19,717 MHz = 62.31 dBi
Sidelobe Envelope = 29 -25Log(Θ) dBi
FIL-A26

Antenna Dia. (m):	9.0
Gain by Integration (dBi):	62.31
Efficiency (%):	49.34
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	Spaceway 2
Frequency (MHz):	19,717
Polarization:	RHCP
Local Time of Day:	1:15:00
Feed Insertion Loss:	0.96 dB

Azimuth Angle:	147.69
Elevation Angle:	44.81
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	490.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-4.0	dBm
TEMP(°F):	58	
Note:	0	

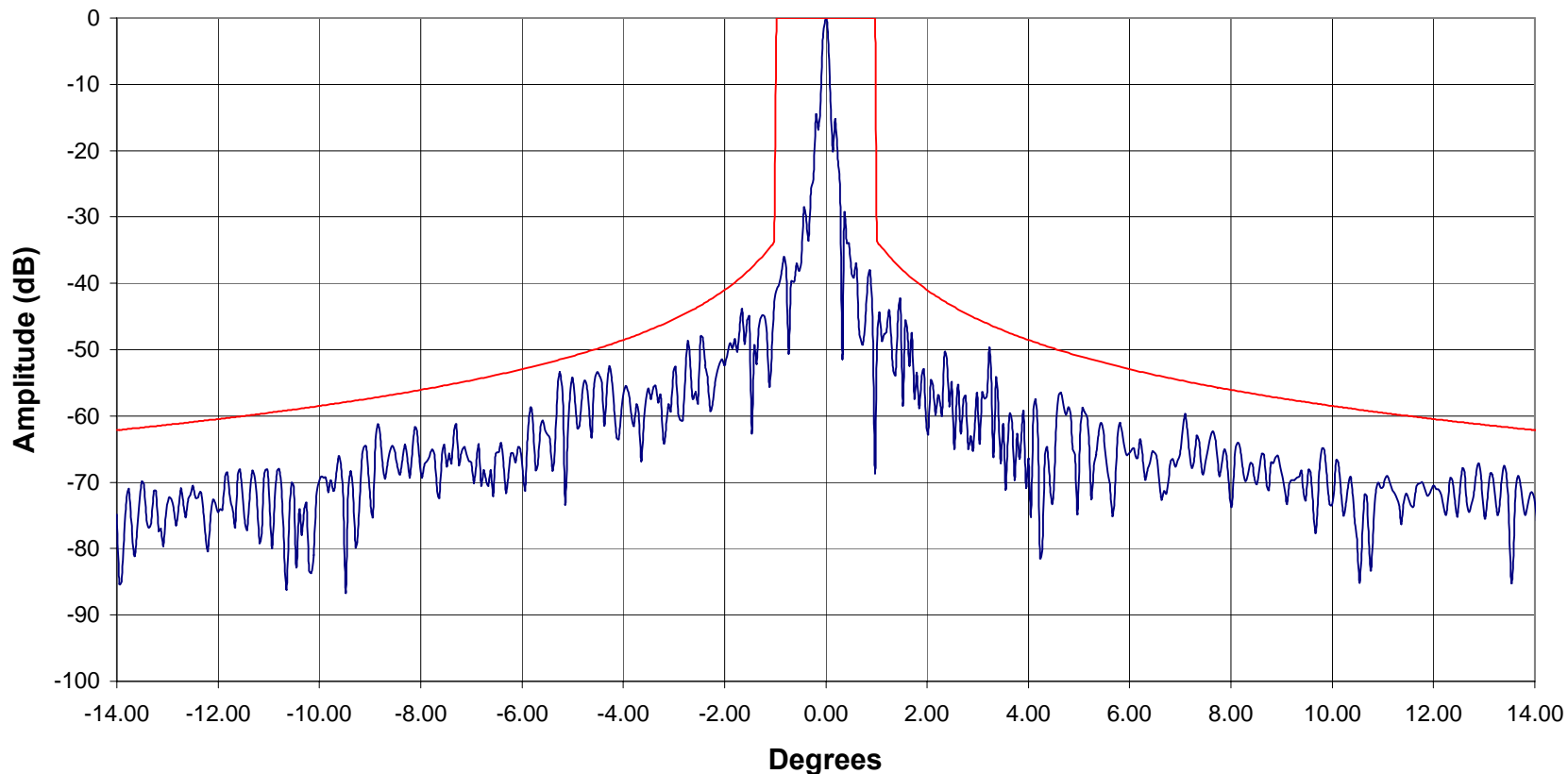
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Gain at 19,717 MHz =	62.49 dBi
Sidelobe Envelope =	29 -25Log(Θ) dBi

Antenna Dia. (m):	9.0
Gain by integration (dBi):	62.49
Efficiency (%):	51.40
Axis Recorded:	Elevation
Direction of Travel:	UP

FIL-A26

Elevation



Spacecraft:	Spaceway 2
Frequency (MHz):	19,717
Polarization:	RHCP
Local Time of Day:	1:30:00
Feed Insertion Loss:	0.96 dB

Azimuth Angle:	147.69
Elevation Angle:	44.81
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

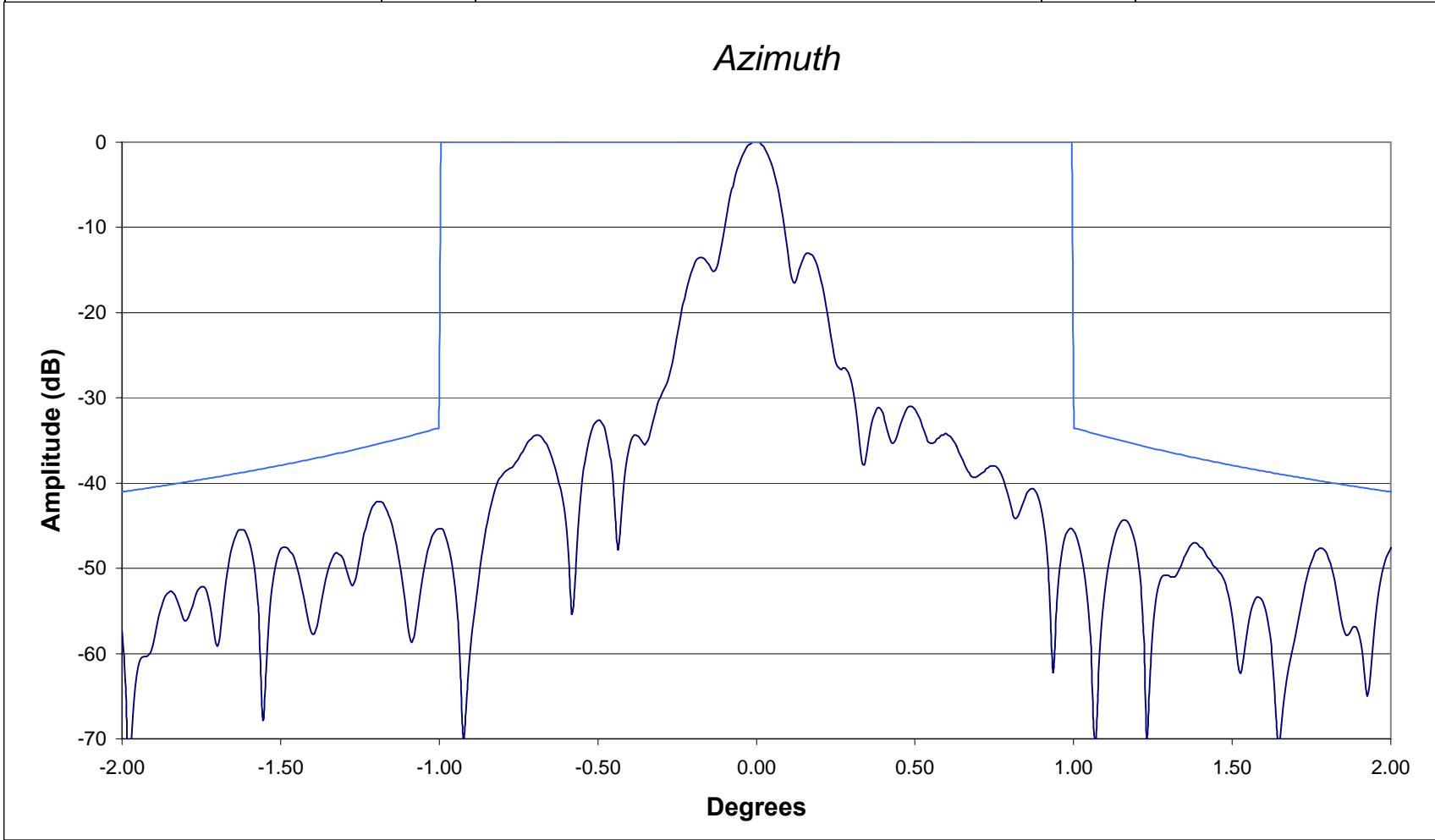
Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	1078.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-4.0	dBm
TEMP(°F):	58	
Note:	0	

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,717 MHz = 62.51 dBi
Sidelobe Envelope = 29 $-25\text{Log}(\Theta)$ dBi

FIL-A26

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	62.55
Gain: Integration (dBi):	62.46
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	Spaceway 2		
Frequency (MHz):	19,717		
Polarization:	RHCP		
3dB BW:	0.116	10dB BW:	0.185

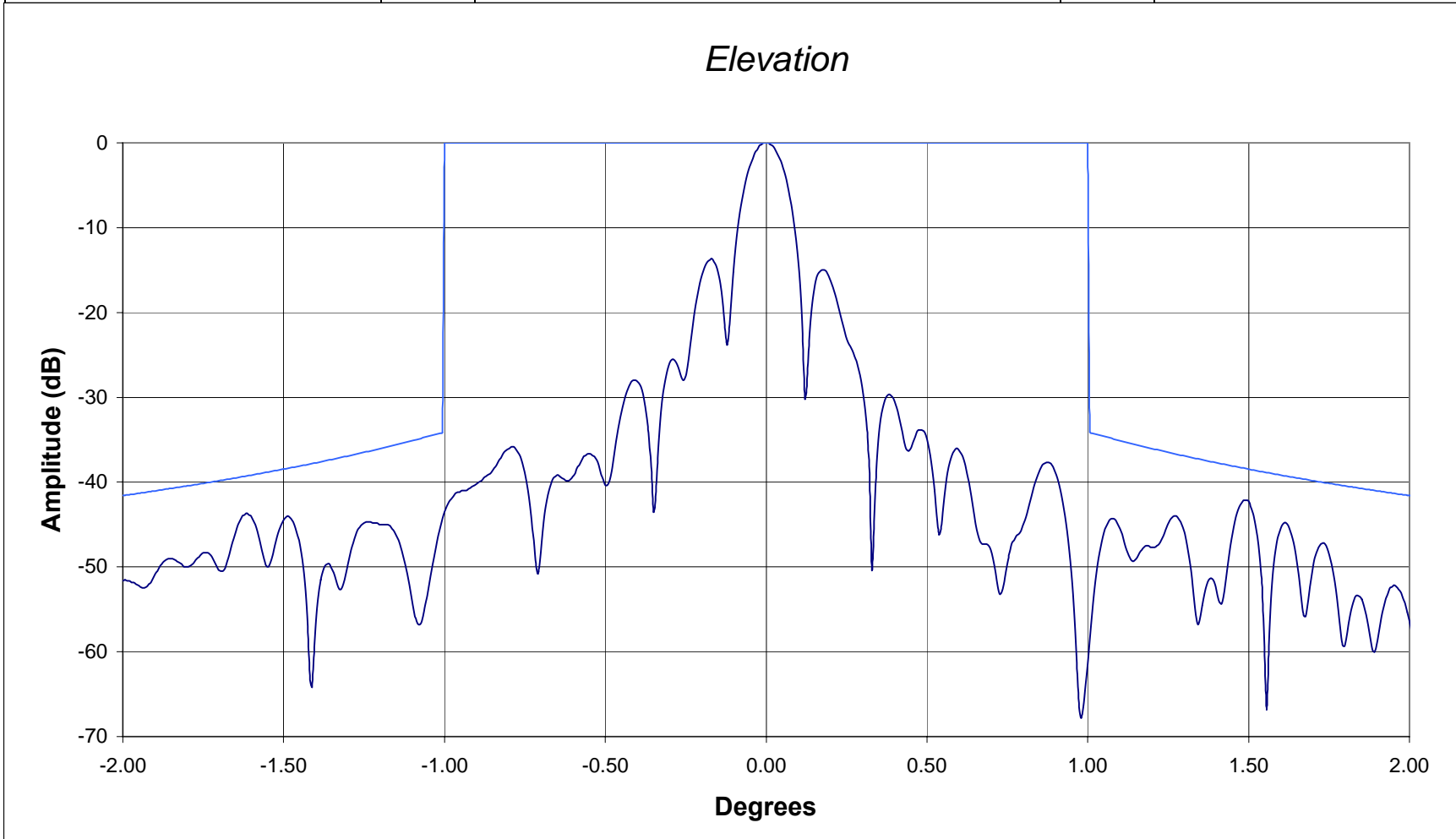
Azimuth Angle:	147.69
Elevation Angle:	44.81
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	98.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-4.0	dBm
Note:		

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,717 MHz =	63.07 dBi
Sidelobe Envelope =	29 -25Log(Θ) dBi
FIL-A26	

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	62.96
Gain: Integration (dBi):	63.17
Axis Recorded:	Elevation
Direction of Travel:	UP



Spacecraft:	Spaceway 2		
Frequency (MHz):	19,717		
Polarization:	RHCP		
3dB BW:	0.108	10dB BW:	0.181
Local Time of Day:	2:00:00		
Feed Insertion Loss:	0.60 dB		

Azimuth Angle:	147.69
Elevation Angle:	44.81
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

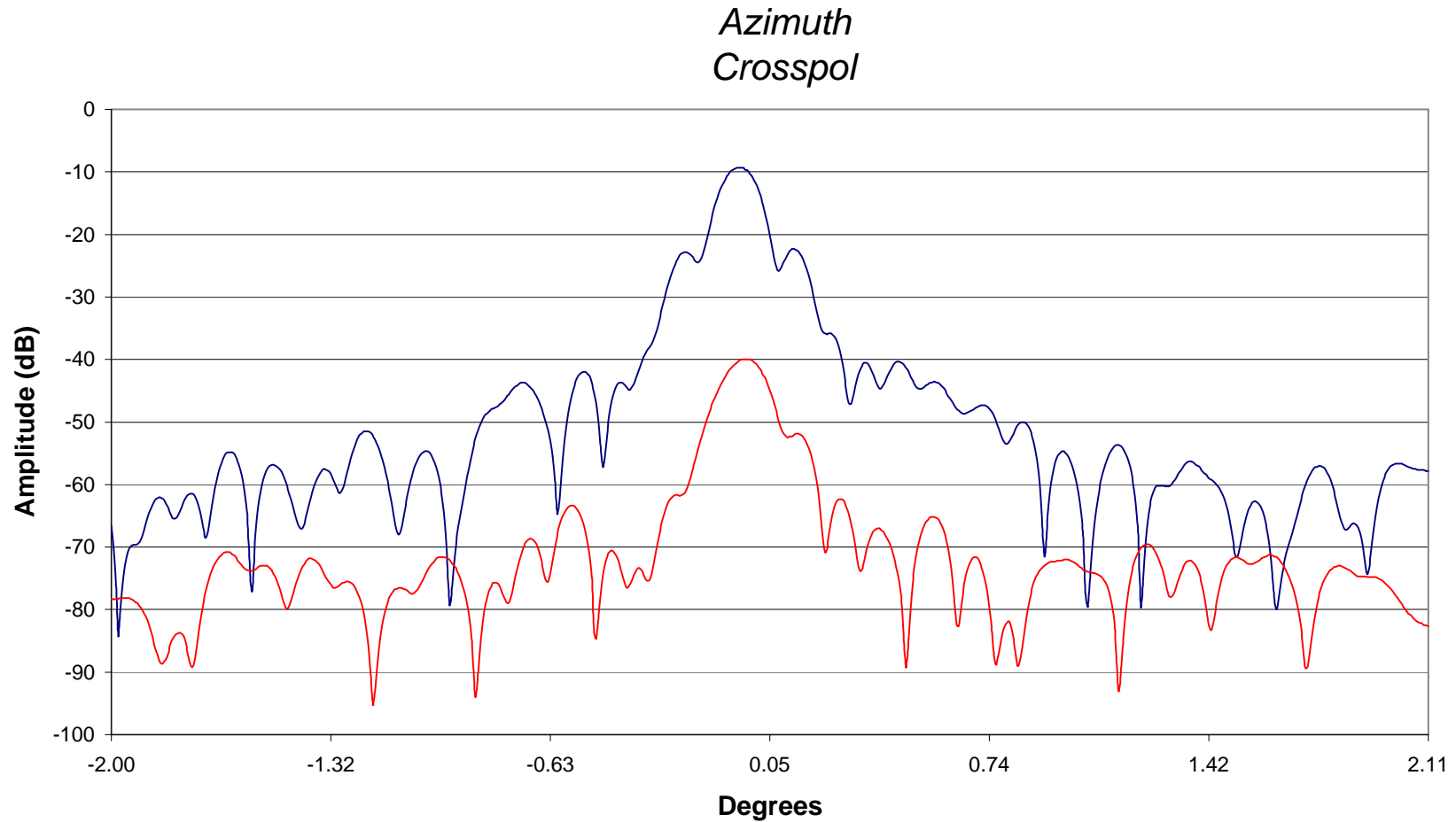
Resolution BW:	300.0 Hz
Frequency Span:	0.0 Hz
Video BW:	1.0 Hz
Input Attenuation:	10.0 dB
Sweep Time:	154.0 Sec
Log Scale:	10.0 dB/Div
Ref Level:	-4.0 dBm
TEMP(°F):	58
Note:	0

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,717 MHz = 65.89 dBi
On Axis Isolation = 31.17 dB

FIL-A26

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	
Gain: Integration (dBi):	
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	Spaceway 2
Frequency (MHz):	19,717
Polarization:	RHCP
3dB BW:	10dB BW:

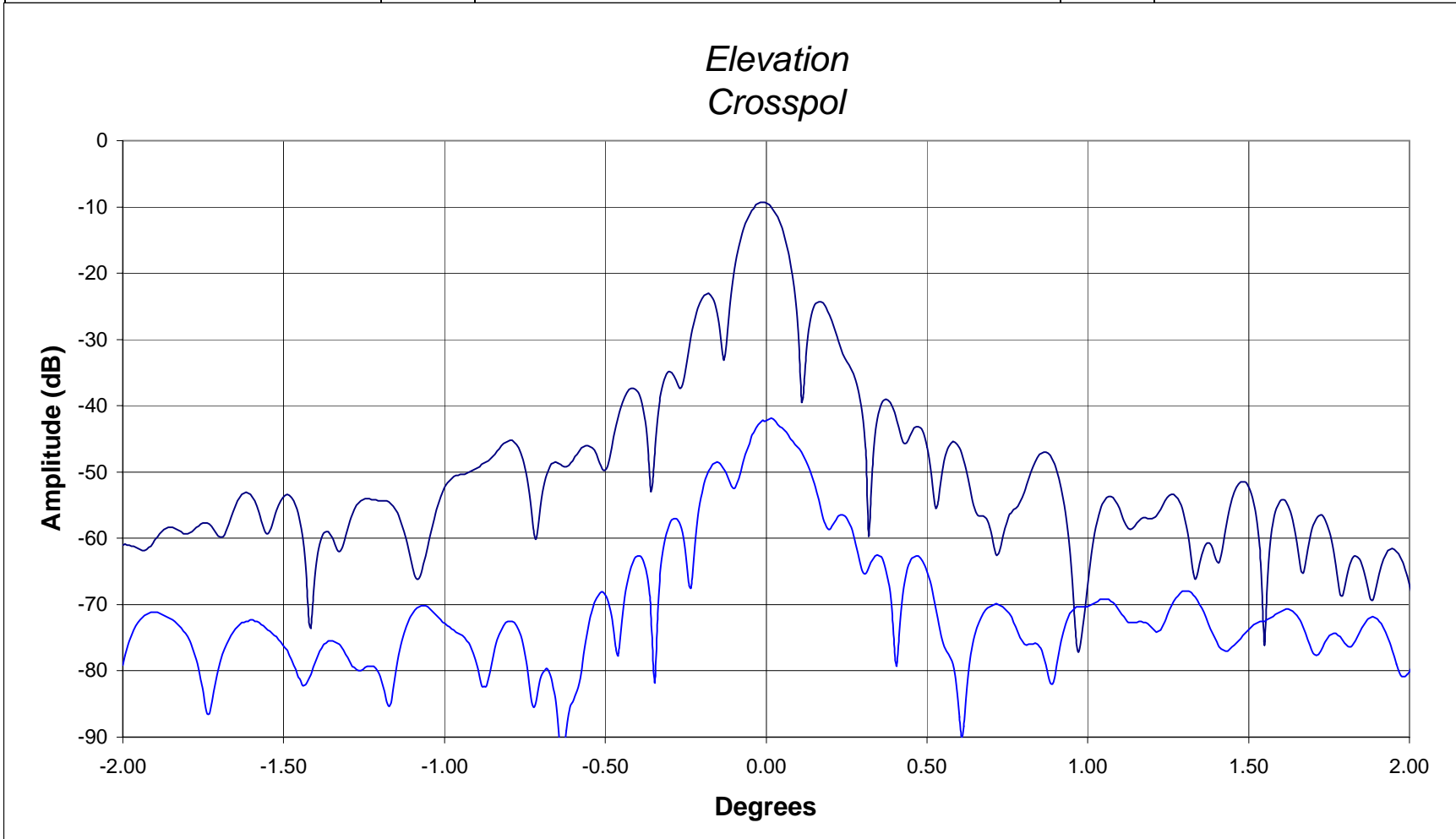
Azimuth Angle:	147.69
Elevation Angle:	44.81
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	98.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-4.0	dBm

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,717 MHz =	63.07	dBi
On Axis Isolation =	33	dB
FIL-A26		

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	62.96
Gain: Integration (dBi):	63.17
Axis Recorded:	Elevation
Direction of Travel:	UP



Spacecraft:	Spaceway 2		
Frequency (MHz):	19,717		
Polarization:	RHCP		
3dB BW:	0.108	10dB BW:	0.181
Local Time of Day:	2:00:00		
Feed Insertion Loss:	0.60	dB	

Azimuth Angle:	147.69
Elevation Angle:	44.81
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

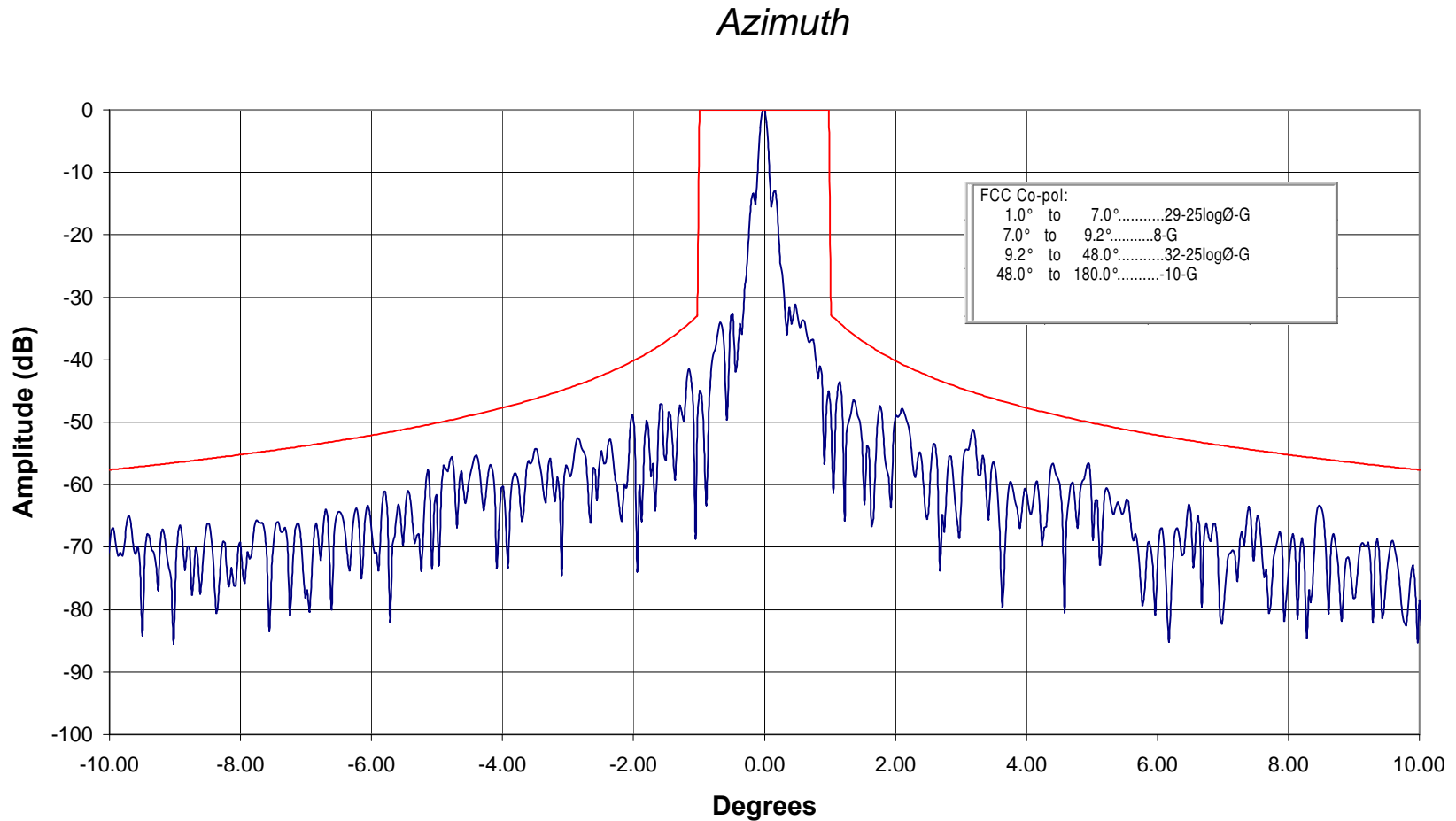
Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	154.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-4.0	dBm
TEMP(°F):	58	
Note:	0	

Section 5
RX Patterns @ 19.892 GHz

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	22-May-07

Gain at 19,892 MHz = 61.64 dBi
Sidelobe Envelope = 29 -25Log(Θ) dBi
FIL-A26

Antenna Dia. (m):	9.0
Gain by Integration (dBi):	61.64
Efficiency (%):	41.49
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	Spaceway 2
Frequency (MHz):	19,892
Polarization:	RHCP
Local Time of Day:	0:40:00
Feed Insertion Loss:	0.96 dB

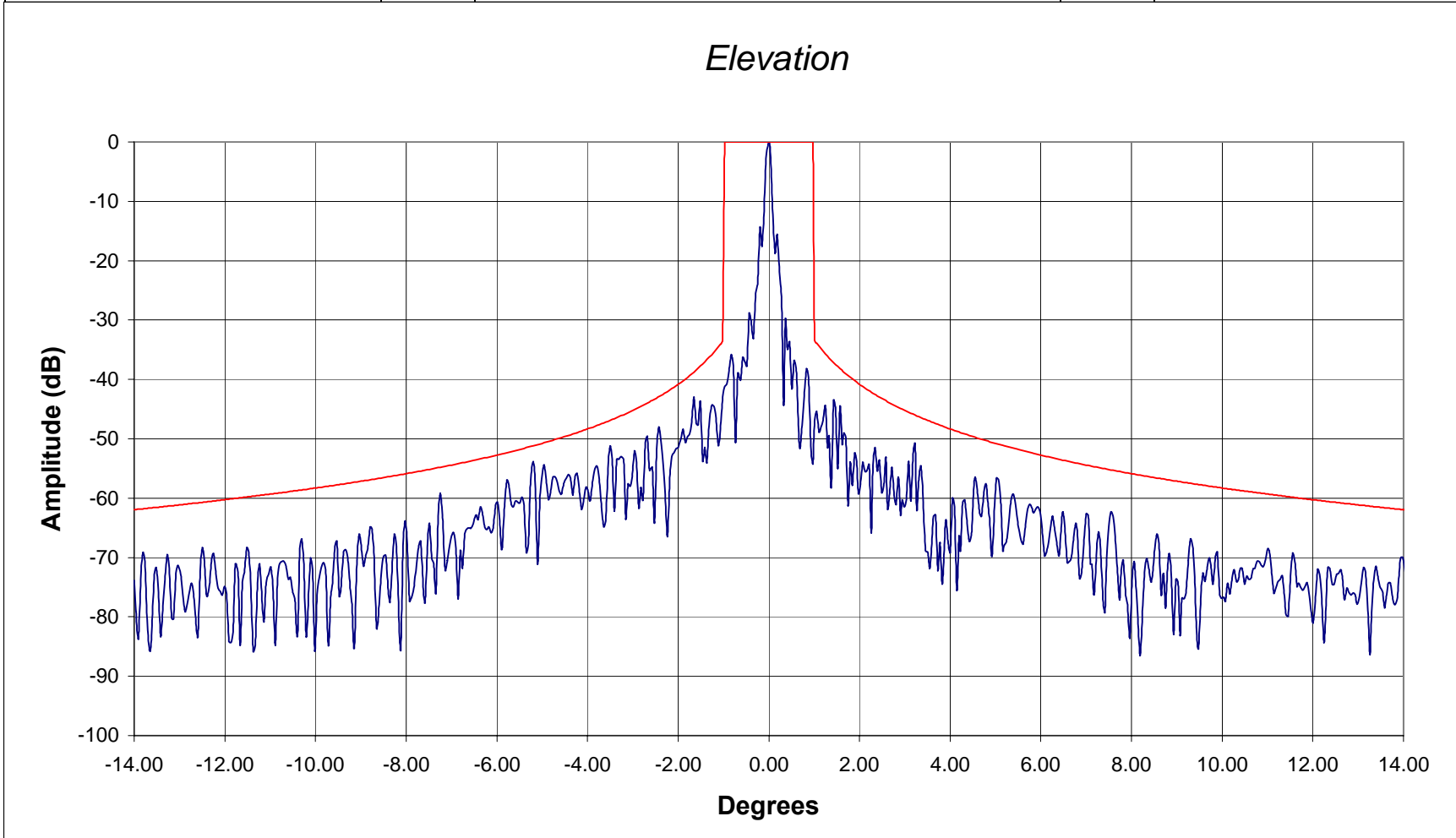
Azimuth Angle:	147.68
Elevation Angle:	44.82
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	490.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-3.0	dBm
TEMP(°F):	58	
Note:	0	

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	22-May-07

Gain at 19,892 MHz =	62.30 dBi
Sidelobe Envelope =	29 -25Log(Θ) dBi
FIL-A26	

Antenna Dia. (m):	9.0
Gain by integration (dBi):	62.30
Efficiency (%):	48.29
Axis Recorded:	Elevation
Direction of Travel:	UP



Spacecraft:	Spaceway 2
Frequency (MHz):	19,892
Polarization:	RHCP
Local Time of Day:	0:55:00
Feed Insertion Loss:	0.96 dB

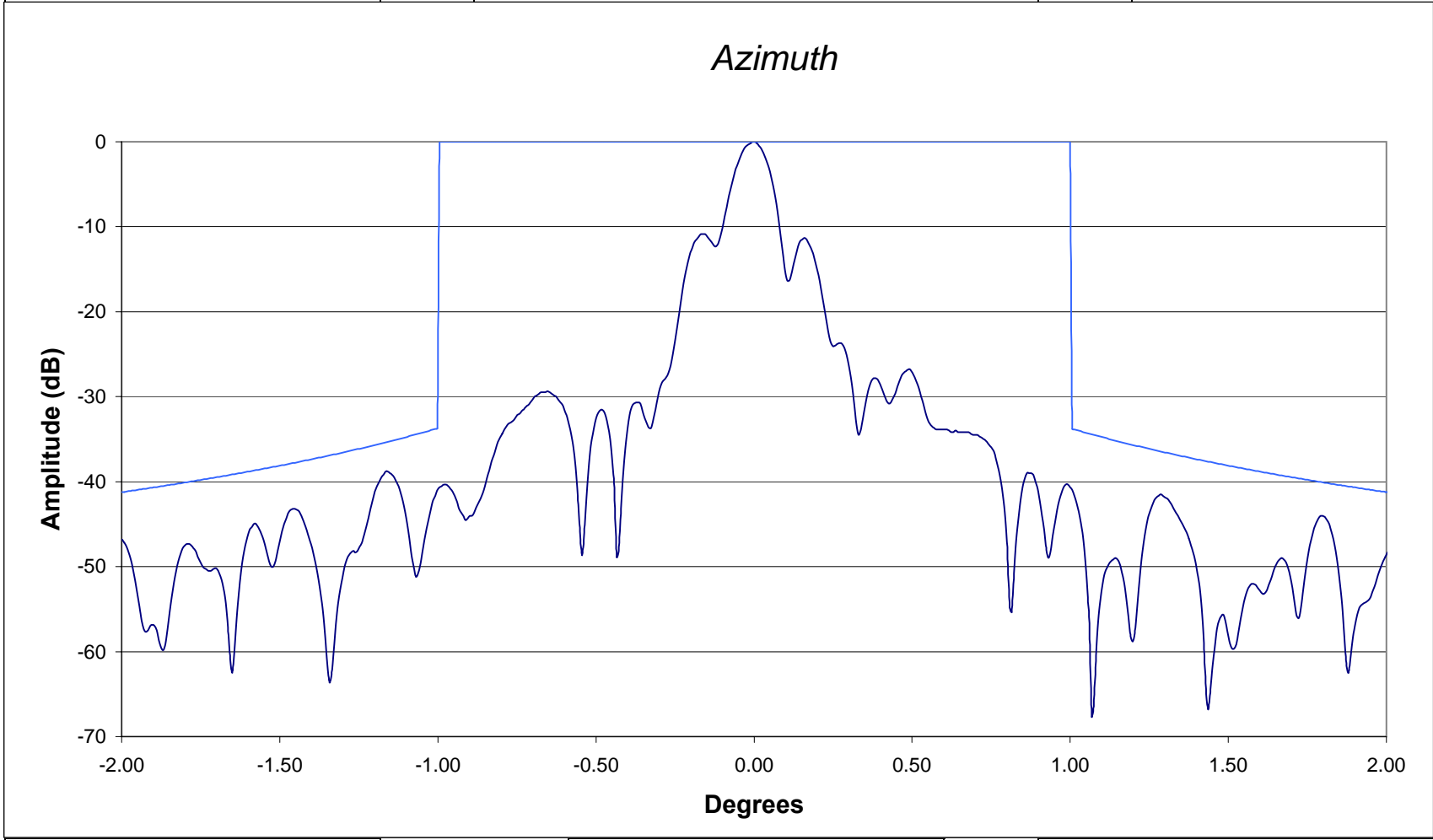
Azimuth Angle:	147.68
Elevation Angle:	44.82
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	1078.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-3.0	dBm
TEMP(°F):	58	
Note:	0	

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	22-May-07

Avg. Gain at 19,892 MHz = 62.71 dBi
Sidelobe Envelope = 29 $-25\text{Log}(\Theta)$ dBi
FIL-A26

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	63.27
Gain: Integration (dBi):	62.08
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	Spaceway 2		
Frequency (MHz):	19,892		
Polarization:	RHCP		
3dB BW:	0.102	10dB BW:	0.177

Azimuth Angle:	147.68
Elevation Angle:	44.86
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	98.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-3.0	dBm
Note:		

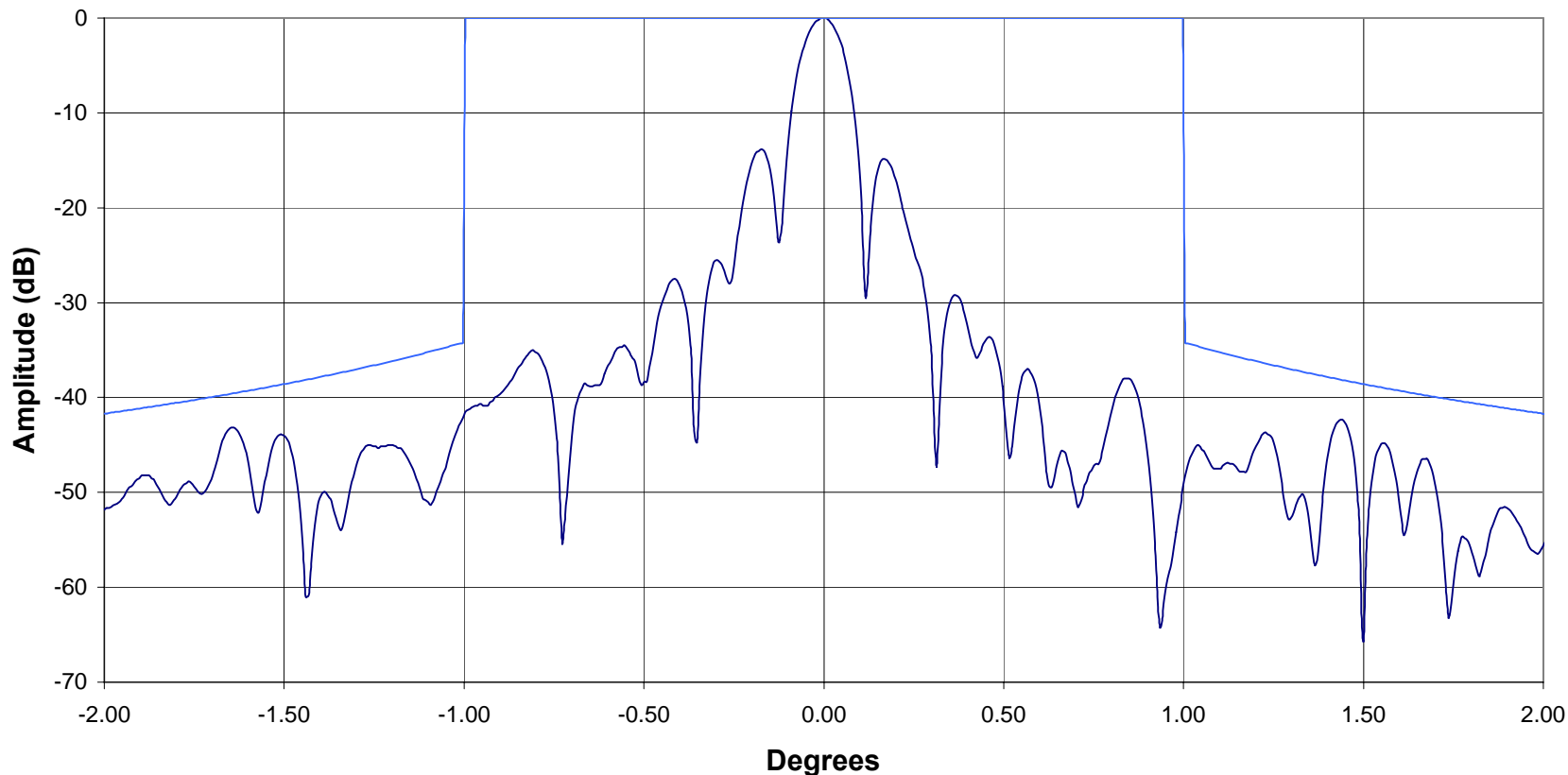
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	22-May-07

Avg. Gain at 19,892 MHz =	63.18	dBi
Sidelobe Envelope =	29	-25Log(Θ) dBi

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	63.14
Gain: Integration (dBi):	63.22
Axis Recorded:	Elevation
Direction of Travel:	UP

FIL-A26

Elevation



Spacecraft:	Spaceway 2
Frequency (MHz):	19,892
Polarization:	RHCP
3dB BW: 0.107	10dB BW: 0.174
Local Time of Day:	1:30:00
Feed Insertion Loss:	0.96 dB

Azimuth Angle:	147.7
Elevation Angle:	44.86
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

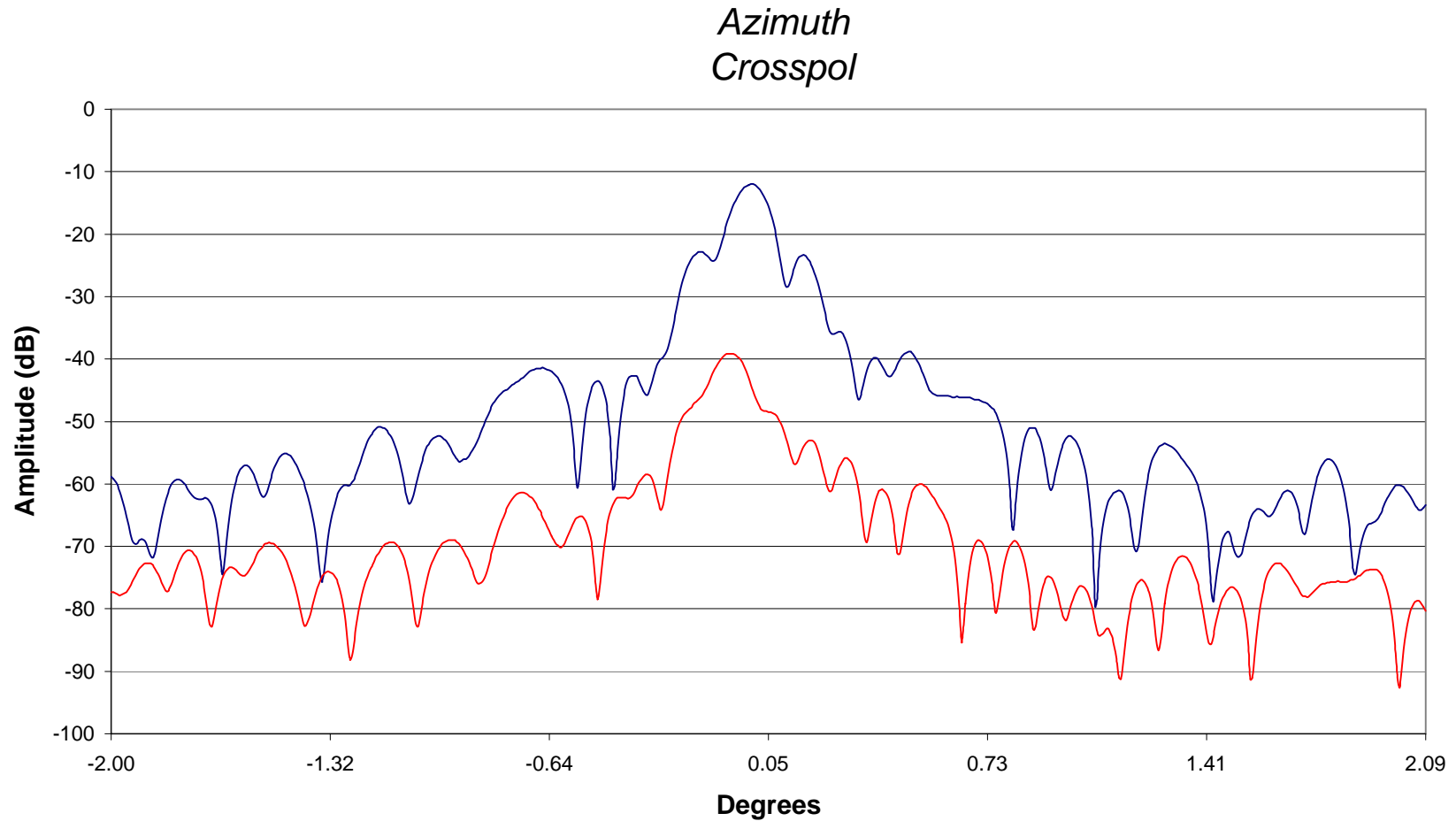
Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	154.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-3.0	dBm
TEMP(°F):	58	
Note:	0	

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	22-May-07

Avg. Gain at 19,892 MHz =	65.89	dBi
On Axis Isolation =	36.33	dB

FIL-A26

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	
Gain: Integration (dBi):	
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	Spaceway 2
Frequency (MHz):	19,892
Polarization:	RHCP
3dB BW:	10dB BW:

Azimuth Angle:	147.68
Elevation Angle:	44.86
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	98.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-3.0	dBm

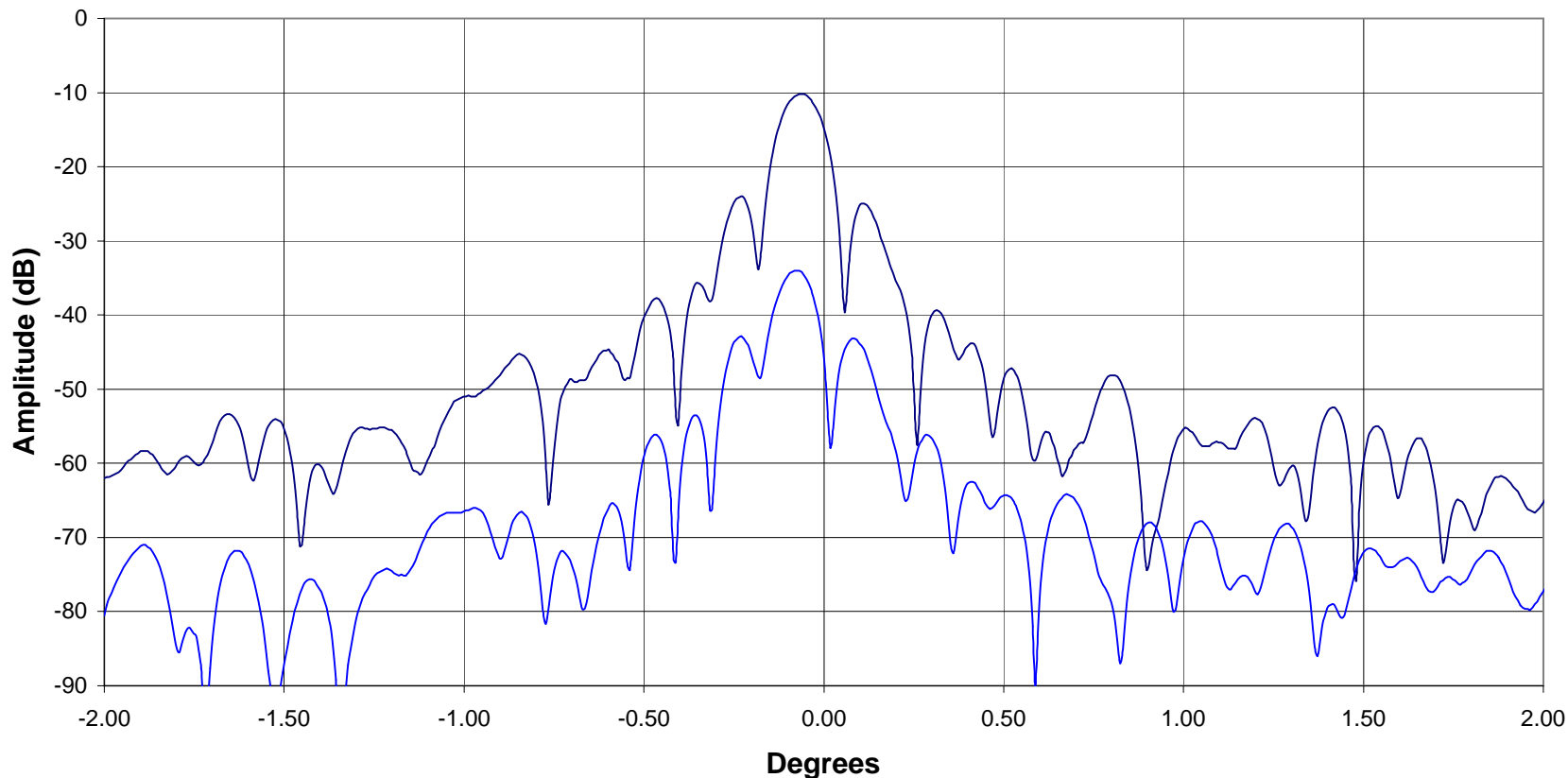
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	22-May-07

Avg. Gain at 19,892 MHz =	63.18	dBi
On Axis Isolation =	37.66	dB

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	63.14
Gain: Integration (dBi):	63.22
Axis Recorded:	Elevation
Direction of Travel:	UP

FIL-A26

Elevation Crosspol



Spacecraft:	Spaceway 2
Frequency (MHz):	19,892
Polarization:	RHCP
3dB BW: 0.107	10dB BW: 0.174
Local Time of Day:	1:30:00
Feed Insertion Loss:	0.96 dB

Azimuth Angle:	147.7
Elevation Angle:	44.86
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Partly Cloudy
RMS Surface Accuracy:	0.015 in.

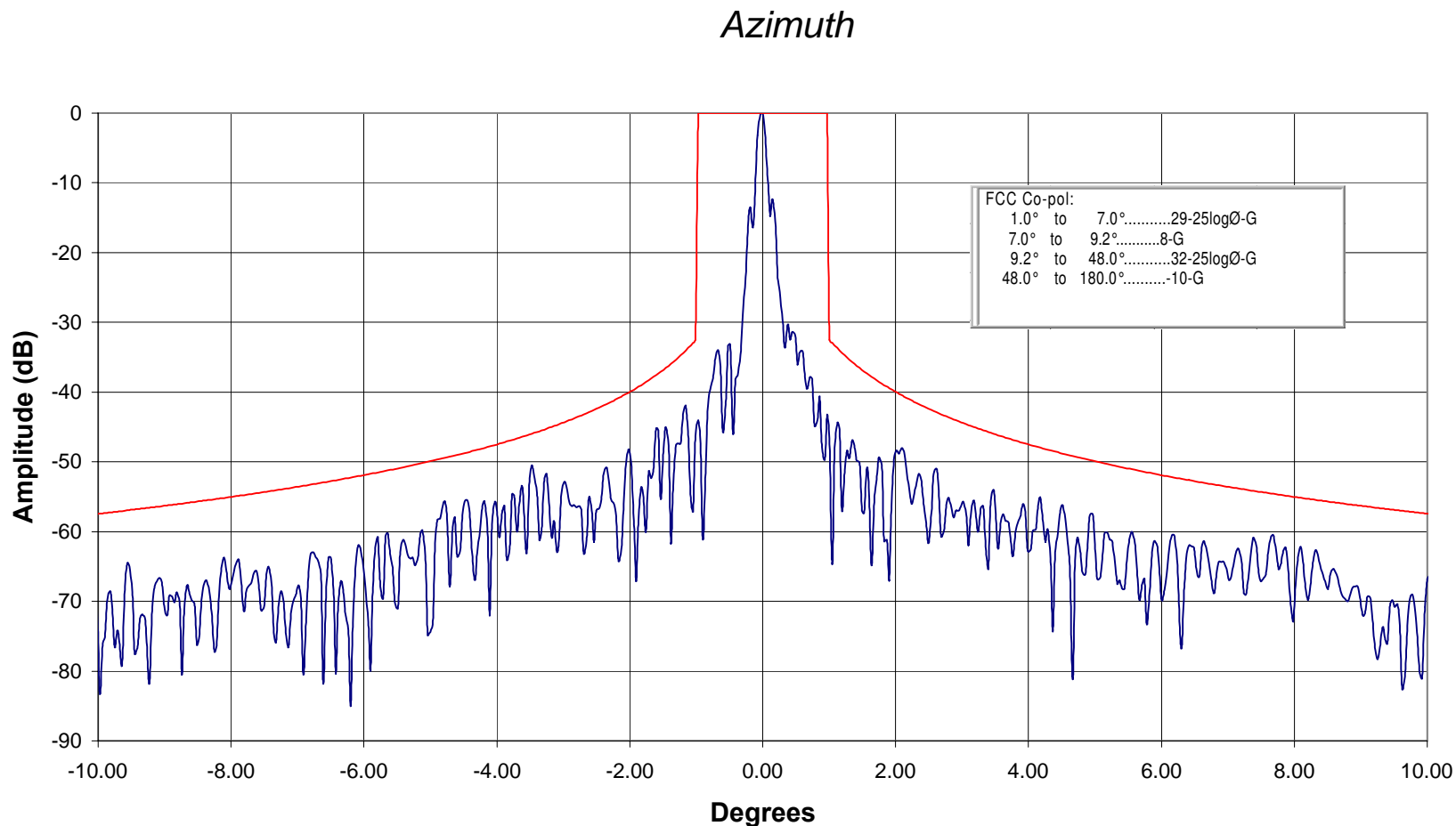
Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	154.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-3.0	dBm
TEMP(°F):	58	
Note:	0	

Section 6
RX Patterns @ 19.908 GHz

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Gain at 19,908 MHz =	61.45 dBi
Sidelobe Envelope =	29 $-25\text{Log}(\Theta)$ dBi
FIL-A26	

Antenna Dia. (m):	9.0
Gain by Integration (dBi):	61.45
Efficiency (%):	39.66
Axis Recorded:	Azimuth
Direction of Travel:	CW



Spacecraft:	G28
Frequency (MHz):	19,908
Polarization:	LHCP
Local Time of Day:	18:10:00
Feed Insertion Loss:	0.97 dB

Azimuth Angle:	134.55
Elevation Angle:	38.90
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	490.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-8.5	dBm
TEMP (°F):	58	
Note:	0	

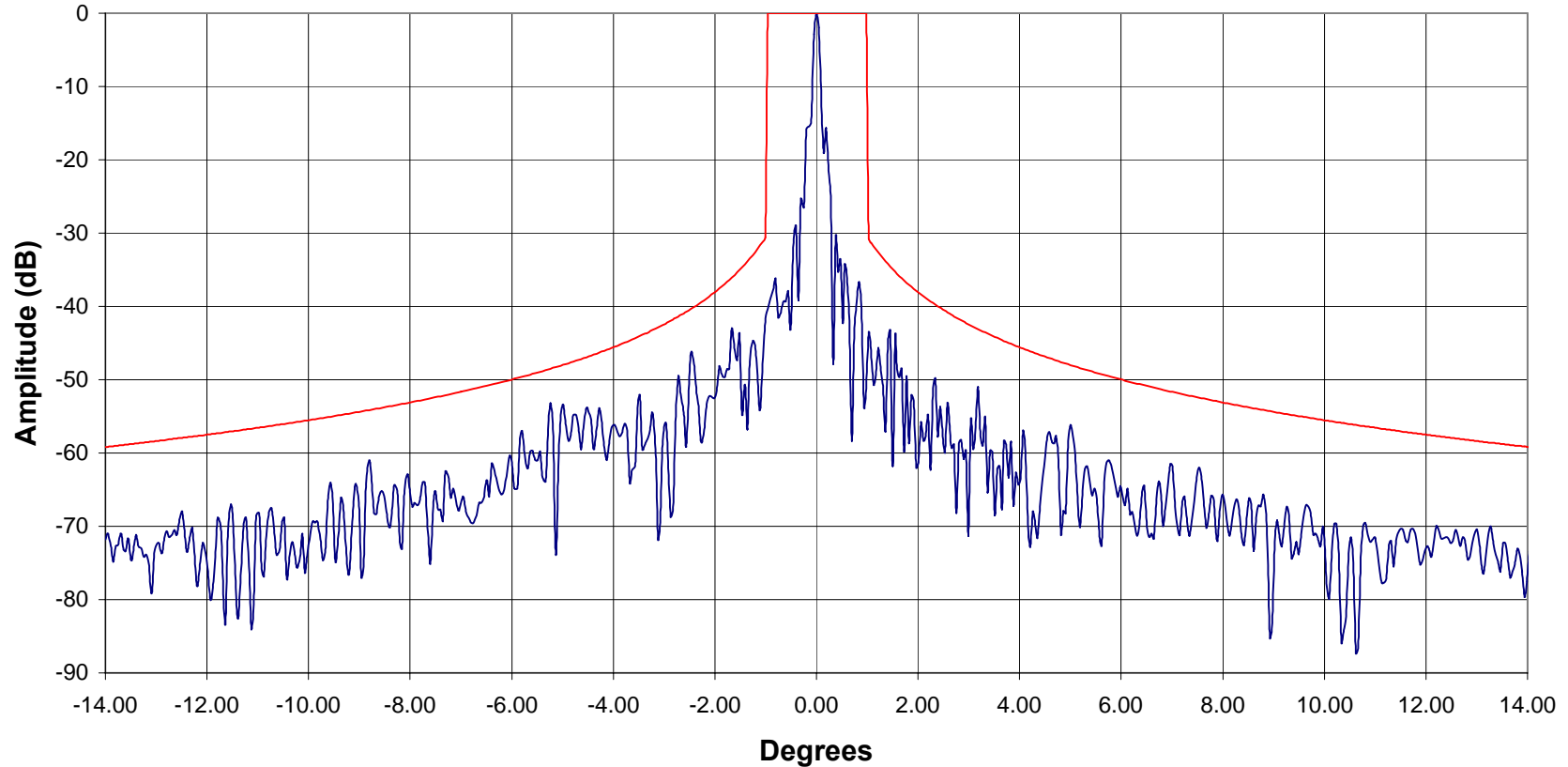
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Gain at 19,908 MHz =	62.53 dBi
Sidelobe Envelope =	32 -25Log(Θ) dBi

Antenna Dia. (m):	9.0
Gain by integration (dBi):	62.53
Efficiency (%):	50.81
Axis Recorded:	Elevation
Direction of Travel:	UP

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Elevation



Spacecraft:	G28
Frequency (MHz):	19,908
Polarization:	LHCP
Local Time of Day:	18:25:00
Feed Insertion Loss:	0.97 dB

Azimuth Angle:	134.55
Elevation Angle:	38.90
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	1078.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-8.5	dBm
TEMP(°F):	58	
Note:	0	

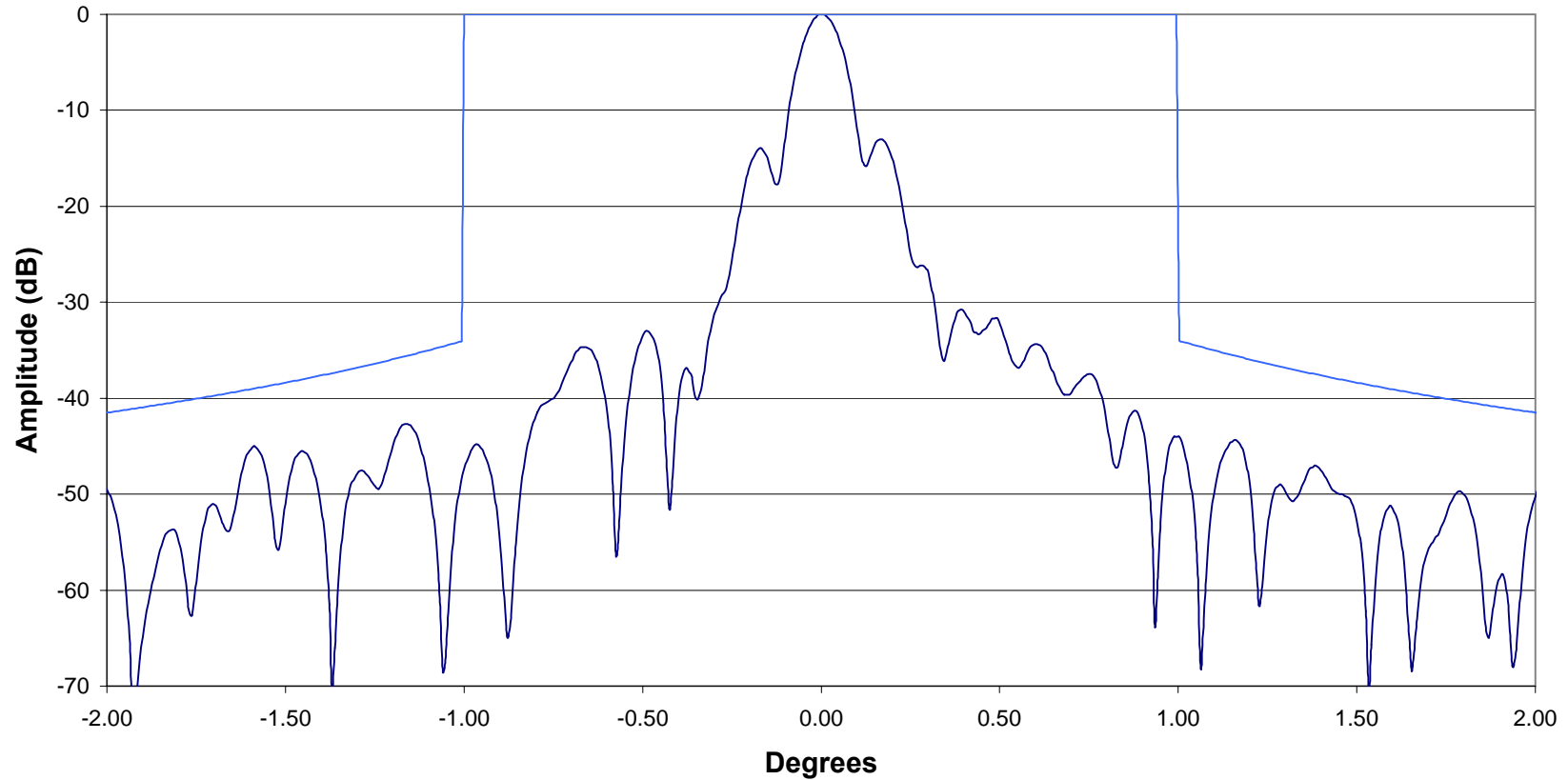
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,908 MHz =	62.98 dBi
Sidelobe Envelope =	29 -25Log(Θ) dBi

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	63.08
Gain: Integration (dBi):	62.87
Axis Recorded:	Azimuth
Direction of Travel:	CW

FIL-A26

Azimuth



Spacecraft:	G28		
Frequency (MHz):	19,908		
Polarization:	LHCP		
3dB BW:	0.105	10dB BW:	0.180

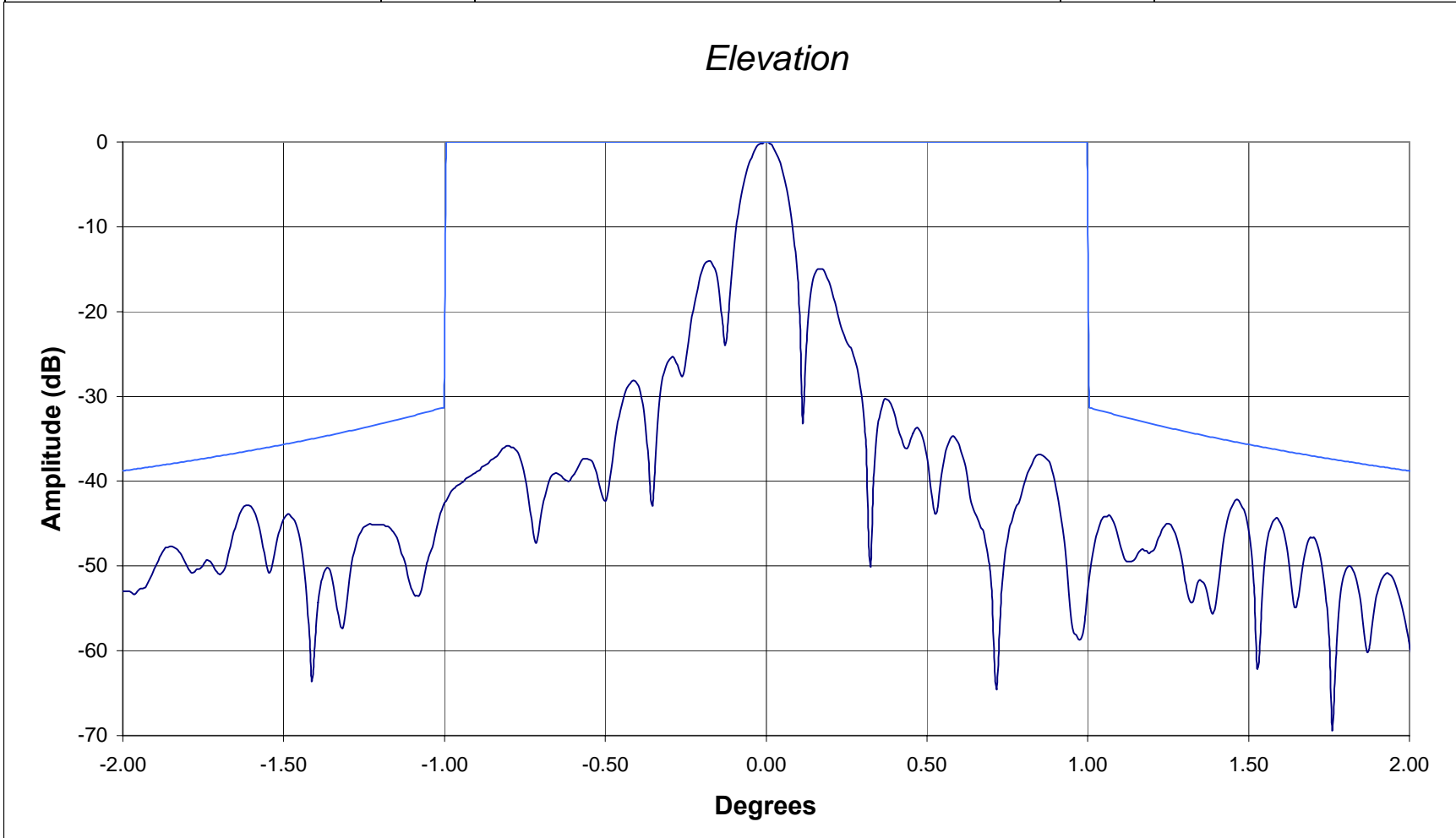
Azimuth Angle:	134.57
Elevation Angle:	38.9
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	98.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-8.5	dBm
Note:		

Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,908 MHz =	63.27 dBi
Sidelobe Envelope =	32 -25Log(Θ) dBi
FIL-A26	

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	63.33
Gain: Integration (dBi):	63.20
Axis Recorded:	Elevation
Direction of Travel:	UP



Spacecraft:	G28		
Frequency (MHz):	19,908		
Polarization:	LHCP		
3dB BW:	0.104	10dB BW:	0.173
Local Time of Day:	19:40:00		
Feed Insertion Loss:	0.97 dB		

Azimuth Angle:	134.57
Elevation Angle:	38.9
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0 Hz
Frequency Span:	0.0 Hz
Video BW:	1.0 Hz
Input Attenuation:	10.0 dB
Sweep Time:	154.0 Sec
Log Scale:	10.0 dB/Div
Ref Level:	-8.5 dBm
TEMP(°F):	58
Note:	0

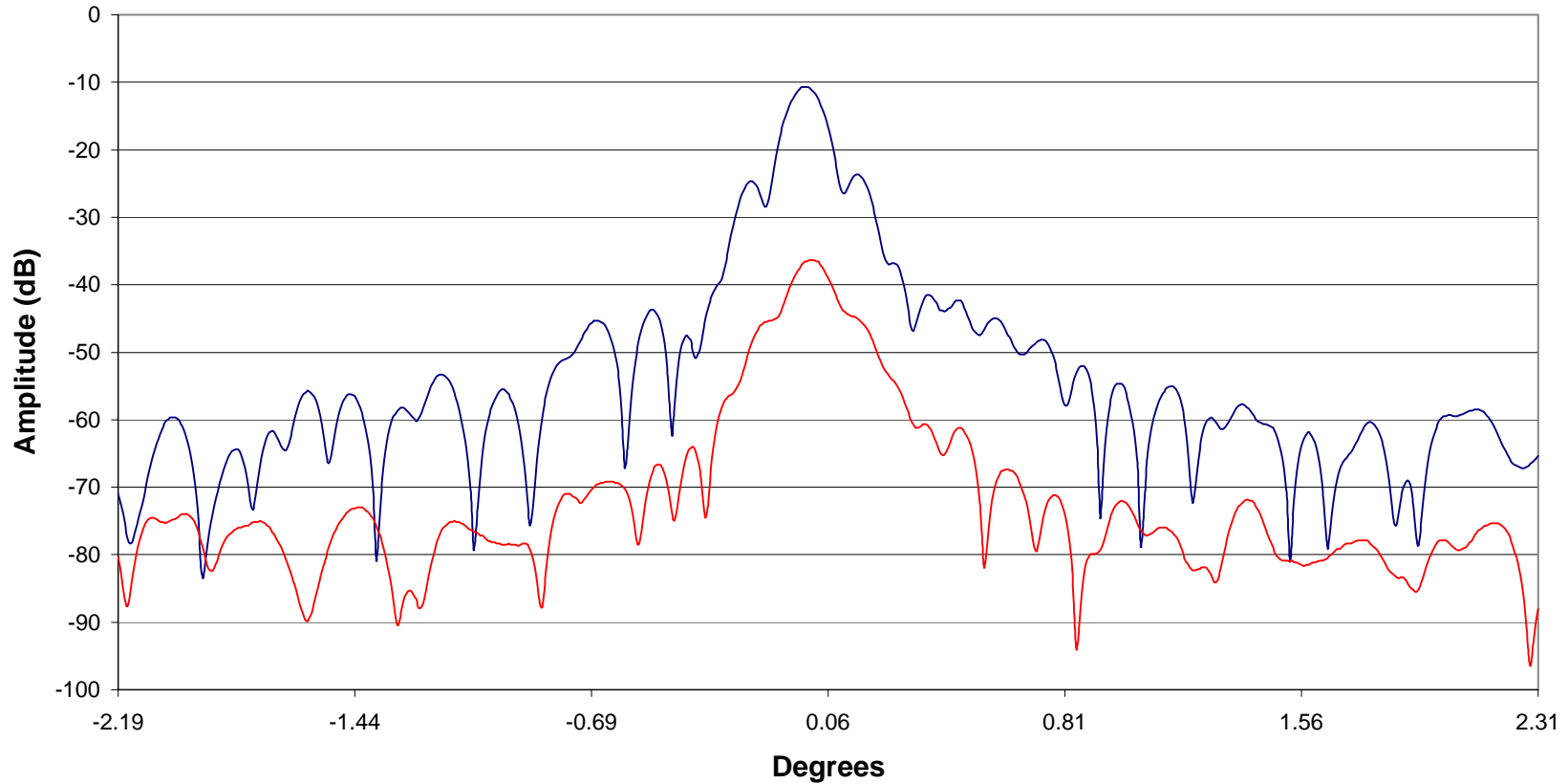
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,908 MHz = 65.89 dBi
On Axis Isolation = 28 dB

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	
Gain: Integration (dBi):	
Axis Recorded:	Azimuth
Direction of Travel:	CW

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Azimuth Crosspol



Spacecraft:	G28
Frequency (MHz):	19,908
Polarization:	LHCP
3dB BW:	10dB BW:

Azimuth Angle:	134.57
Elevation Angle:	38.9
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	98.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-8.5	dBm

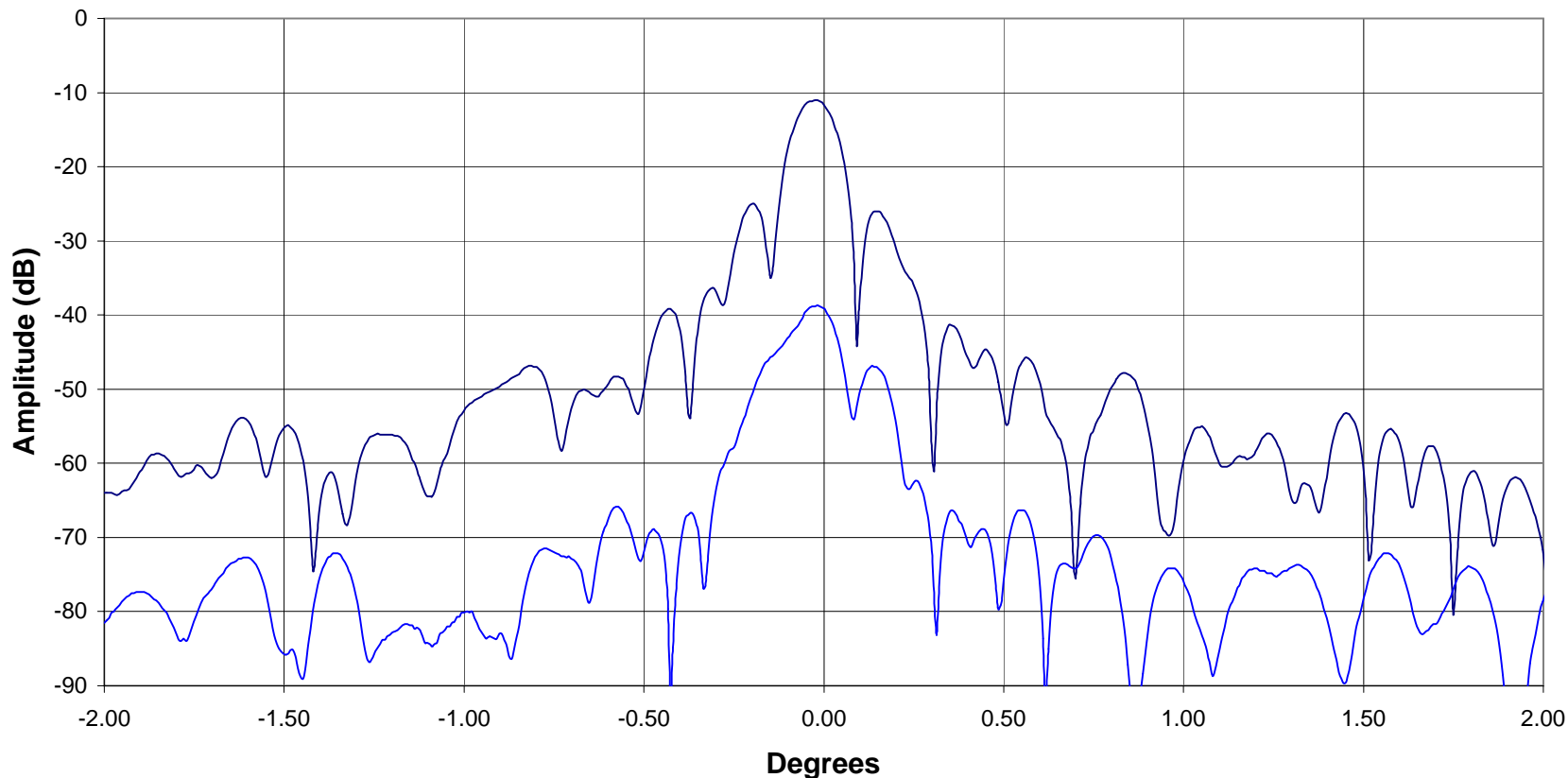
Customer:	Intelsat
Location:	Fillmore, CA
By:	Tom Murray
Witness:	Mark Stephan
Date:	21-May-07

Avg. Gain at 19,908 MHz =	63.27	dBi
On Axis Isolation =	27.83	dB

Antenna Dia. (m):	9.0
Gain: 3/10dB BW (dBi):	63.33
Gain: Integration (dBi):	63.20
Axis Recorded:	Elevation
Direction of Travel:	UP

FIL-A26

Elevation Crosspol



Spacecraft:	G28		
Frequency (MHz):	19,908		
Polarization:	LHCP		
3dB BW:	0.104	10dB BW:	0.173
Local Time of Day:	19:40:00		
Feed Insertion Loss:	0.97	dB	

Azimuth Angle:	134.57
Elevation Angle:	38.9
Polariz. Angle:	27.6
% sidelobes exceeding envelope:	0.00
Weather:	Cloudy
RMS Surface Accuracy:	0.015 in.

Resolution BW:	300.0	Hz
Frequency Span:	0.0	Hz
Video BW:	1.0	Hz
Input Attenuation:	10.0	dB
Sweep Time:	154.0	Sec
Log Scale:	10.0	dB/Div
Ref Level:	-8.5	dBm
TEMP(°F):	58	
Note:	0	