

# **GENERAL DYNAMICS**

## SATCOM Technologies

### **TEST REPORT: 1.2M KU-BAND RX/TX ANTENNA SERIES 1120**



Test Report 2365

**General Dynamics SATCOM Technologies**

**Antenna Test Facility**

**4488 Lawing Chapel Church Rd**

**Maiden, NC 28650**

# Test Report: 1.2M Ku-Band Rx/Tx Antenna Series 1120

## TEST REPORT 2365

### 1. Introduction:

This document contains far-field range measurements performed on the 1.2M Ku-Band Rx/Tx Antenna Series 1120.

Figures 1 - 5 show the antenna mounted on the range and under test conditions.



Figure 1: AUT under test front view



Figure 2: Antenna mounted for test



Figure 3: Full view antenna under test on test pedestal



Figure 4: Antenna under test back view



Figure 5: Feed Assembly

## 2. Test Objective

Full characterization of antenna performance aligned with 47CFR 25.209 characterization. Report contains radiation patterns, gain and efficiency, beamwidth analysis, and On-Axis X-Pol.

## 3. Electrical Specifications

The technical specifications are listed in Table 1.

**Table 1: Technical Specifications:**

### **Ku-Band**

#### Antenna Size

- 1.2 M (48 in.)

#### Operating Frequency (GHz)

- Receive = 10.70-12.75 GHz
- Transmit = 13.75-14.50 GHz

#### Midband Gain (+/- .5dBi)

- Receive = 41.7 dBi
- Transmit = 43.2 dBi

#### Antenna Sidelobes

- 29-25 Log Theta
- CFR 47 25.209

#### Polarization

- Linear, Orthogonal (2 x WR75)

#### Max. Feed Weight

- Feed/OMT/TRF + BUC/LNB
- Tier 1 = 6 lbs.
- Tier 2 = 12 lbs.

#### Insertion Loss

- 0.2 dB max.

#### Cross-Pol Isolation (Linear)

- > 30 dB (on axis)

#### VSWR

- 1.3:1 Max.

#### 4. Far-Field Range Measurements

##### 4.1 Far-Field Range Equipment List

Equipment used for the measurements are listed in Table 2

**Table 2: Far-Field Range Equipment List**

<b>Item</b>	<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>S/N</b>	<b>Calibration Due</b>
1	PNA-X Measurement Receiver	Keysight	N5264A	MY57241802	8/06/2020
2	PSG Analog Signal Source 250Khz – 50GHz	Keysight	E8257D	MY57280594	4/18/2020
3	EXG Signal Source 9Khz – 20GHz	Keysight	N5173B-520	MY57280364	7/4/2020
4	Amplifier 2-50GHz	Keysight	83050A	MY39500	-
5	GPS Disciplined Clock 10MHz Reference Qty: 2	Thunderbolt	62989-50	31370796 31370822	-



## 4.2 Antenna Test Plan

The outlined test plan is given in Table 3. Azimuth plane patterns are acquired by rotating the azimuth axis of the positioner. Elevation plane patterns are made by tilting the elevation axis up and down.

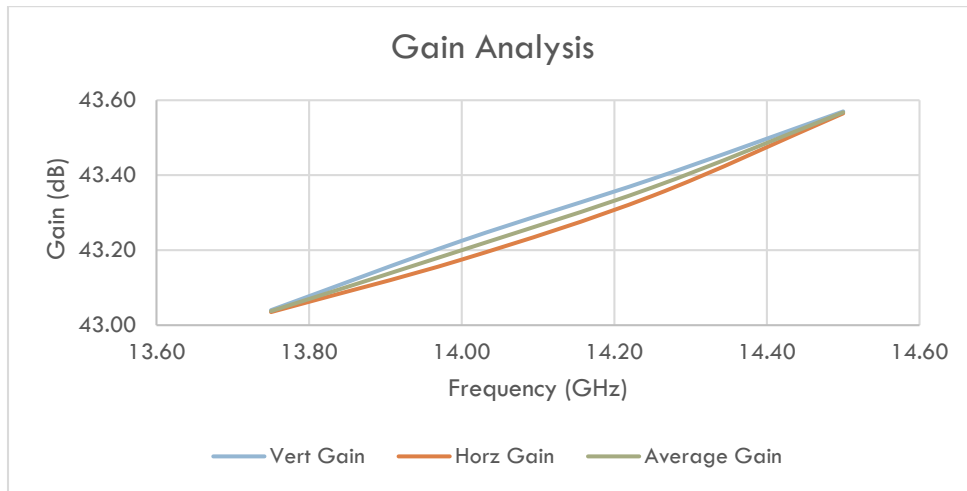
**Table 3: Range Measurement Test Plan**

Angle deg	Pol	Pattern Plane	Co-Pol X-pol	Page Number of Patterns				
				13.75	14.00	14.25	14.50	
<b>Frequency in GHz</b>				<b>13.75</b>	<b>14.00</b>	<b>14.25</b>	<b>14.50</b>	
±10	Vert	Az	Co/XPDP	11	12	13	14	
±10	Vert	Elev	Co/XPDP	15	16	17	18	
-10+30	Vert	Elev	Co	19	20	21	22	
±180	Vert	Az	Co	23	24	25	26	
±10	Horz	Az	Co/XPDP	27	28	29	30	
±10	Horz	Elev	Co/XPDP	31	32	33	34	
-10+30	Horz	Elev	Co	35	36	37	38	
±180	Horz	Az	Co	39	40	41	42	
Antenna Gain & Efficiency				8				
3 & 10dB Beam Widths				9				
On-Axis X-Pol				9				
<b>Frequency in GHz</b>				<b>10.70</b>	<b>11.7</b>	<b>12.2</b>	<b>12.45</b>	<b>12.75</b>
±10	Vert	Az	Co/XPDP	43	44	45	46	47
±10	Vert	Elev	Co/XPDP	48	49	50	51	52
-10+30	Vert	Elev	Co	53	54	55	56	57
±180	Vert	Az	Co	58	59	60	61	62
±10	Horz	Az	Co/XPDP	63	64	65	66	67
±10	Horz	Elev	Co/XPDP	68	69	70	71	72
-10+30	Horz	Elev	Co	73	74	75	76	77
±180	Horz	Az	Co	78	79	80	81	82
Antenna Gain & Efficiency				8				
3 & 10dB Beam Widths				9				
On-Axis X-Pol				9				

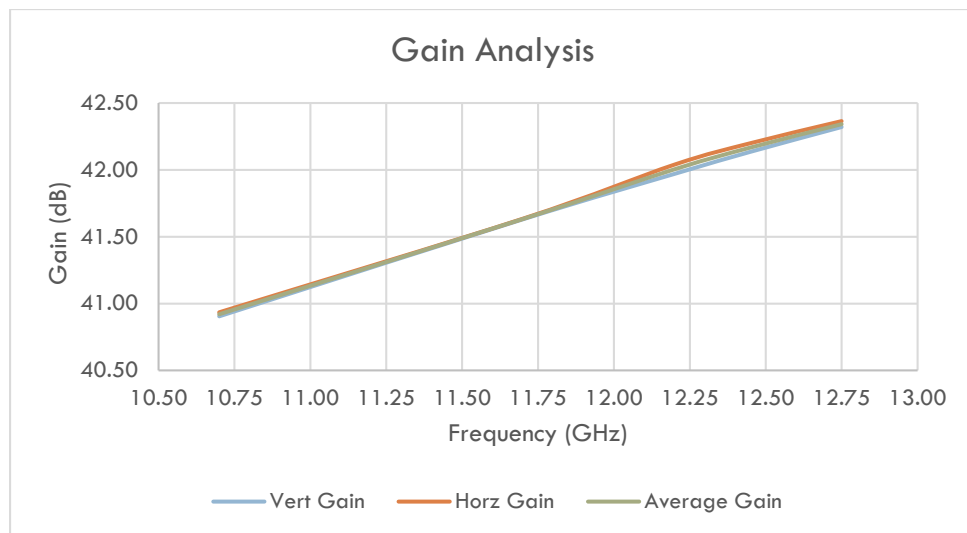
### 4.3 Gain Measurement

Gain measurement by Pattern Integration Method. Values include 0.4dB feed insertion loss.

**Table 4: Gain Analysis Transmit and Receive Bands**



Freq (GHz)	13.75	14.00	14.25	14.50
Vert Gain	43.04	43.23	43.39	43.57
Horz Gain	43.04	43.18	43.35	43.57
<i>Average Gain</i>	<i>43.04</i>	<i>43.20</i>	<i>43.37</i>	<i>43.57</i>
<i>Efficiency</i>	<i>67.4%</i>	<i>67.5%</i>	<i>67.7%</i>	<i>68.5%</i>



Freq (GHz)	10.70	11.70	12.20	12.45	12.75
Vert Gain	40.91	41.63	41.97	42.14	42.32
Horz Gain	40.94	41.64	42.04	42.20	42.37
<i>Average Gain</i>	<i>40.92</i>	<i>41.63</i>	<i>42.01</i>	<i>42.17</i>	<i>42.34</i>
<i>Efficiency</i>	<i>68.4%</i>	<i>67.4%</i>	<i>67.5%</i>	<i>67.3%</i>	<i>66.8%</i>



#### 4.4 X-Pol On-Axis

The Summary of X-Pol measurements are given in Table 5

**Table 5 On-Axis X-Pol Values**

On-Axis X-Pol Azimuth	Freq (GHz)	X-Pol	On-Axis X-Pol Elevation	Freq (GHz)	X-Pol
Vertical	13.75	35.91	Vertical	13.75	36.84
	14.00	45.29		14.00	48.42
	14.25	39.35		14.25	60.62
	14.50	35.77		14.50	44.53
Horizontal	13.75	41.29	Horizontal	13.75	40.94
	14.00	47.93		14.00	42.37
	14.25	43.38		14.25	44.92
	14.50	42.67		14.50	46.77

#### 4.5 Beamwidth Analysis 3 and 10 dB

The Summary of beamwidth measurements are given in Table 6

**Table 6 Beamwidth Values -3 and -10dB**

Beamwidth Azimuth	Freq (GHz)	3dBBW	10dBBW	Beamwidth Elevation	Freq (GHz)	3dBBW	10dBBW
Vertical	13.75	1.21	2.11	Vertical	13.75	1.23	2.15
	14.00	1.19	2.07		14.00	1.20	2.11
	14.25	1.17	2.03		14.25	1.17	2.05
	14.50	1.16	2.03		14.50	1.16	2.01
Horizontal	13.75	1.23	2.13	Horizontal	13.75	1.20	2.12
	14.00	1.20	2.08		14.00	1.20	2.11
	14.25	1.17	2.04		14.25	1.17	2.06
	14.50	1.16	2.00		14.50	1.15	2.00

Beamwidth Azimuth	Freq (GHz)	3dBBW	10dBBW	Beamwidth Elevation	Freq (GHz)	3dBBW	10dBBW
Vertical	10.70	1.56	2.70	Vertical	10.70	1.56	2.71
	11.70	1.44	2.5		11.70	1.45	2.53
	12.20	1.38	2.38		12.20	1.41	2.45
	12.45	1.35	2.32		12.45	1.39	2.43
	12.75	1.31	2.26		12.75	1.36	2.38
Horizontal	10.70	1.56	2.7	Horizontal	10.70	1.55	2.71
	11.70	1.43	2.48		11.70	1.45	2.53
	12.20	1.39	2.42		12.20	1.36	2.37
	12.45	1.37	2.38		12.45	1.34	2.32
	12.75	1.34	2.34		12.75	1.31	2.28

#### 4.6 Antenna Radiation Patterns

This section contains measured radiation patterns for both transmit and receive frequencies, vertical and horizontal polarizations, Co-Pol and X-Pol.

Pattern data also list -3dB and -10dB beamwidths.

Radiation Pattern Envelope on the patterns are **FCC 47 CFR 25.209** for operation in the conventional Ku-Band.

##### **FCC 47 CFR 25.209 Co-Pol Azimuth**

29-25 Log dBi for 1.5° to 7°  
+8.0 dBi for 7° to 9.2°  
32-25 Log 9.2° to 19.1°  
0dBi 19.1° to 180°

##### **FCC 47 CFR 25.209 Co-Pol Elevation**

32-25 Log dBi for 3° to 19.1°  
0dBi for 19.1° to 180°

##### **FCC 47 CFR 25.209 X-Pol Azimuth**

19-25 Log dBi for 1.8° to 7°

##### **FCC 47 CFR 25.209 X-Pol Elevation**

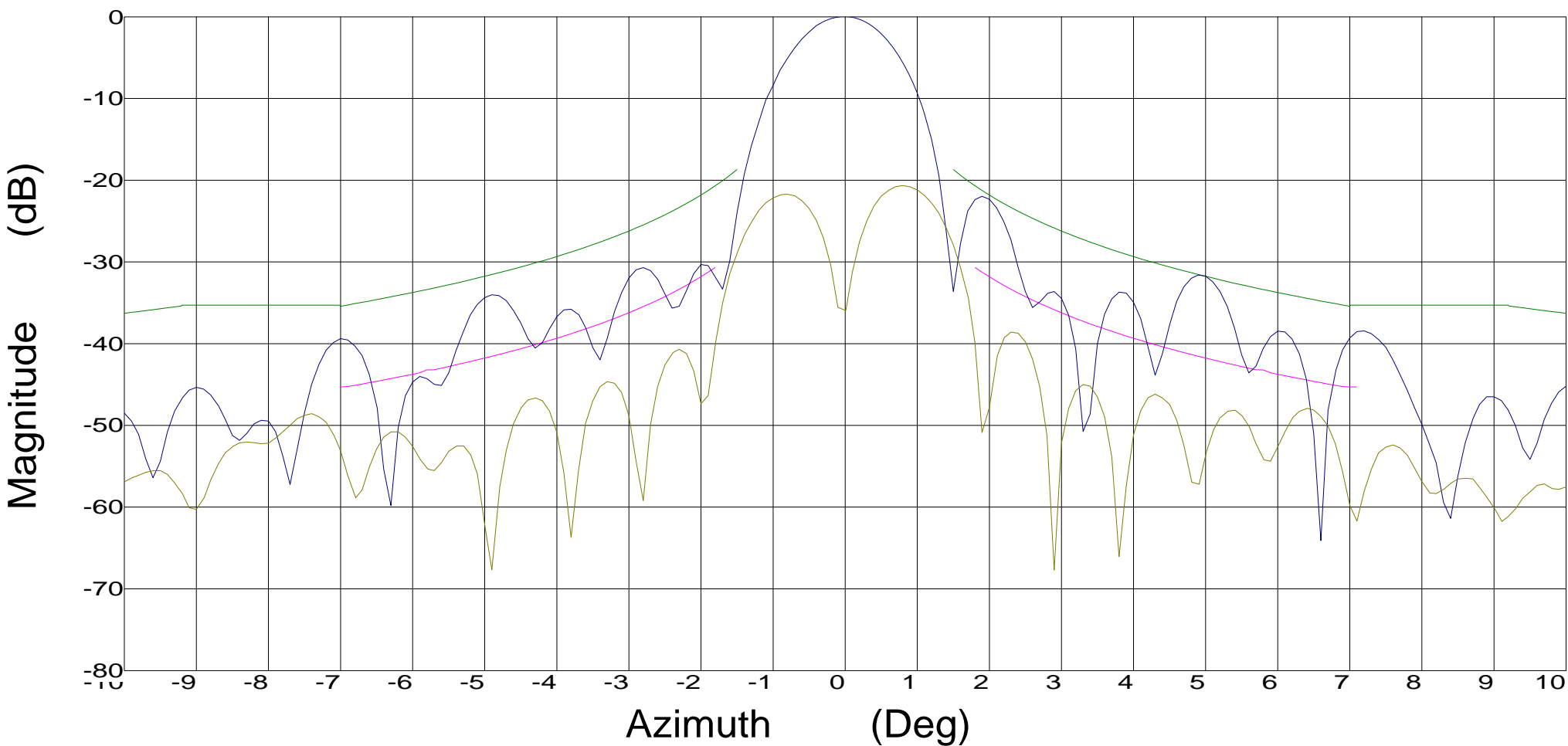
19-25 Log dBi for 3° to 7°

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 35.dat-ant\_under\_test — 2365 35.dat  
2365 37.dat-ant\_under\_test — 2365 37.dat

3dB Beam Width (DEG) 1.21  
10dB Beam Width (DEG) 2.11

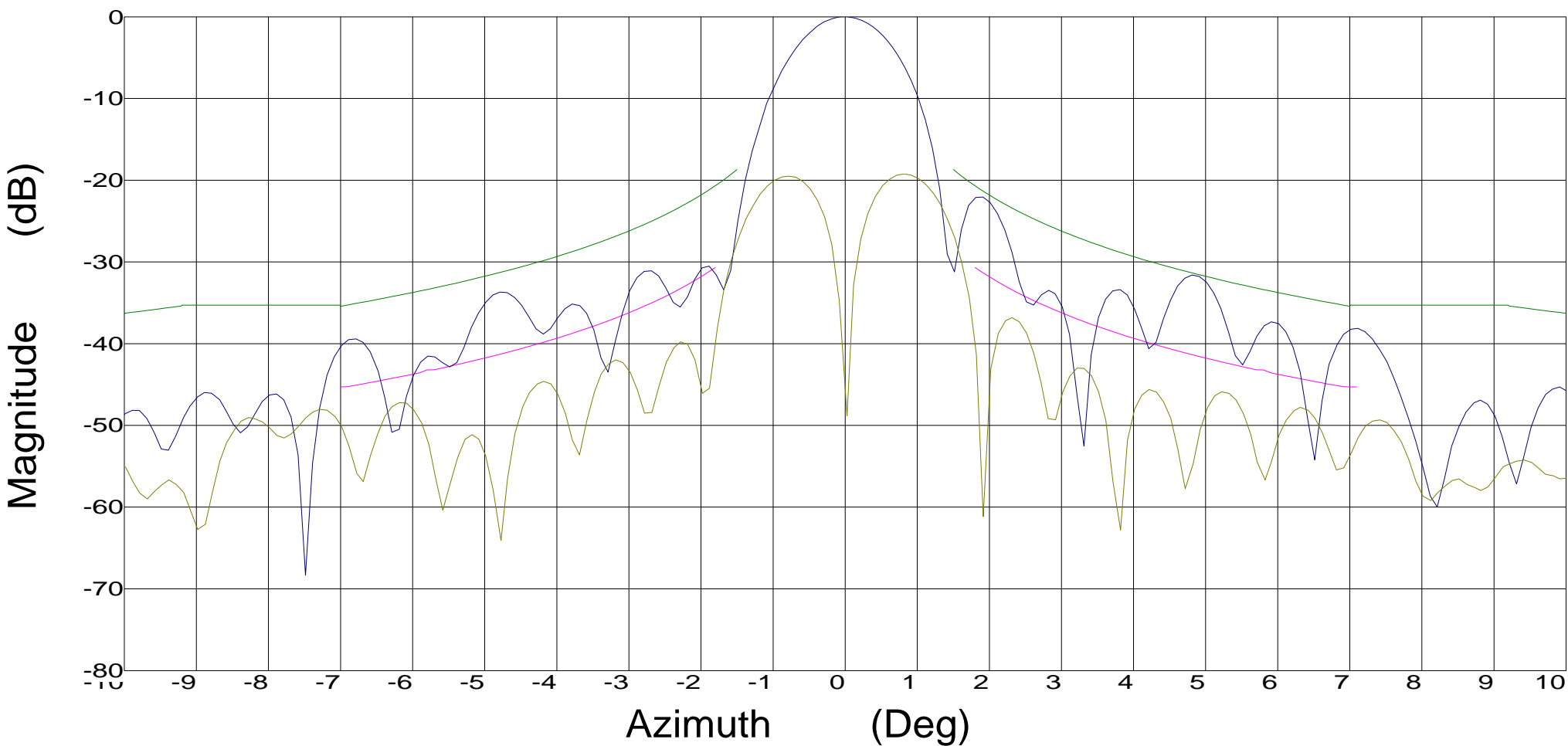
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 35.dat-ant\_under\_test — 2365 35.dat  
2365 37.dat-ant\_under\_test — 2365 37.dat

3dB Beam Width (DEG) 1.19  
10dB Beam Width (DEG) 2.07

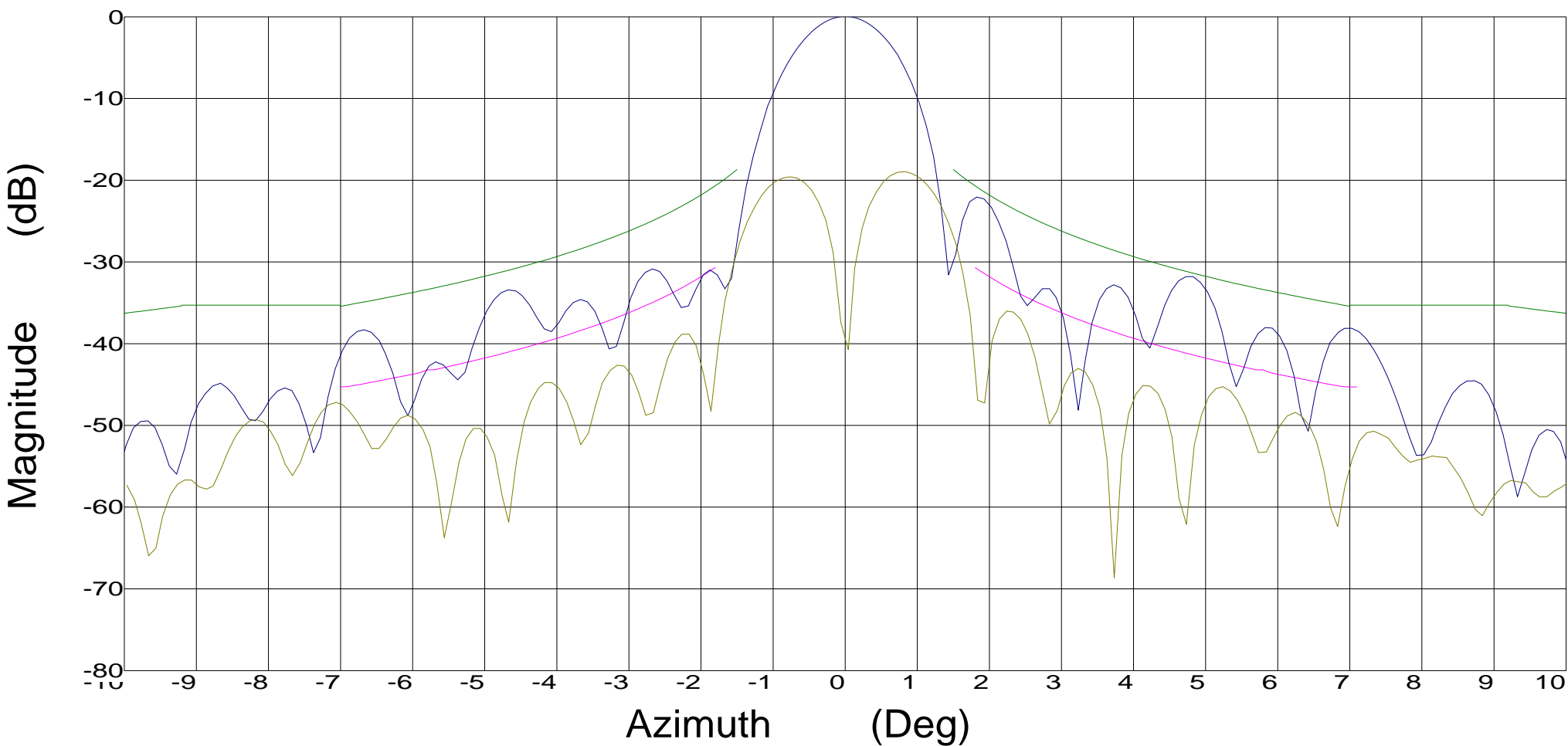
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 35.dat-ant\_under\_test — 2365 35.dat  
2365 37.dat-ant\_under\_test — 2365 37.dat

RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

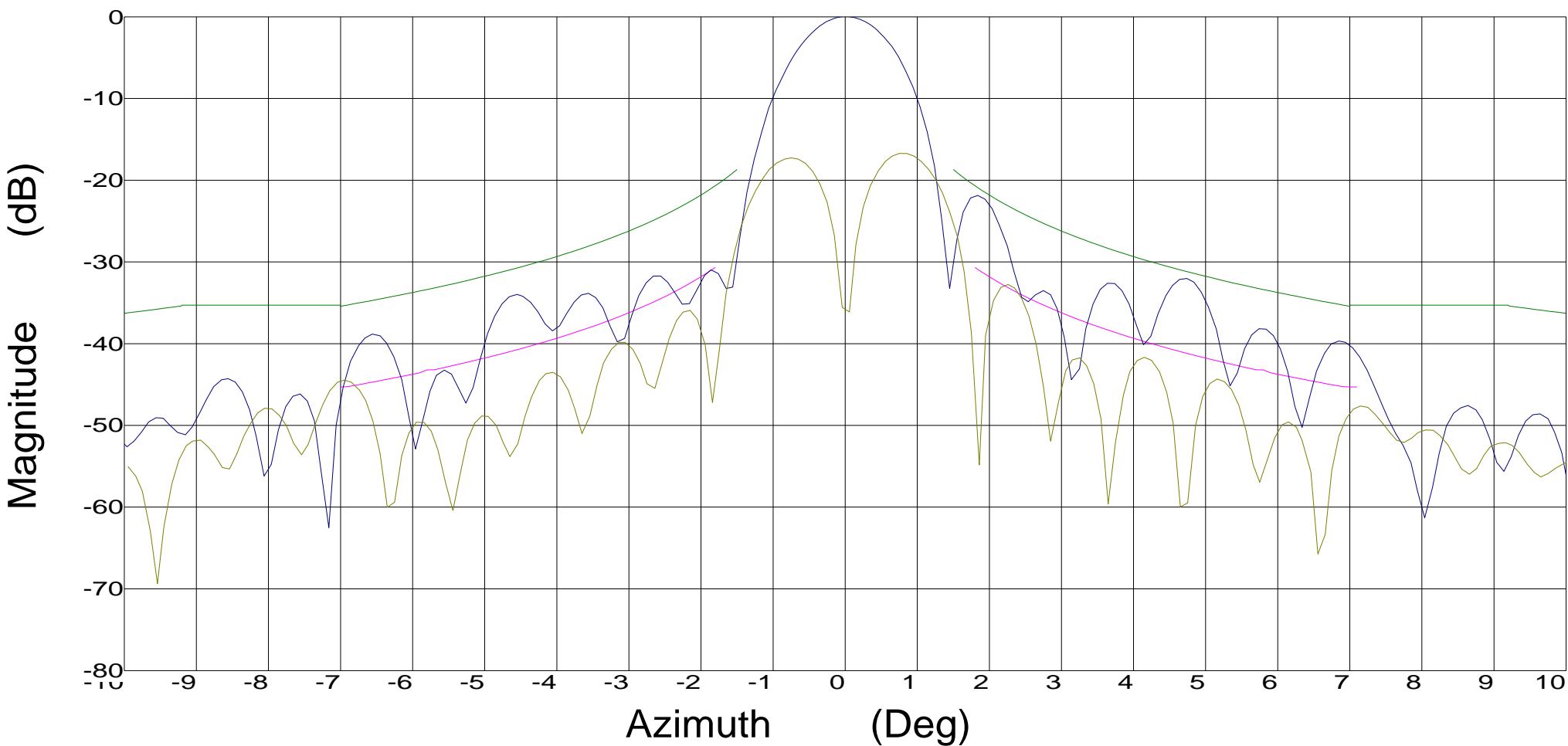
3dB Beam Width (DEG) 1.17  
10dB Beam Width (DEG) 2.03

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 35.dat-ant\_under\_test — 2365 35.dat  
2365 37.dat-ant\_under\_test — 2365 37.dat

RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

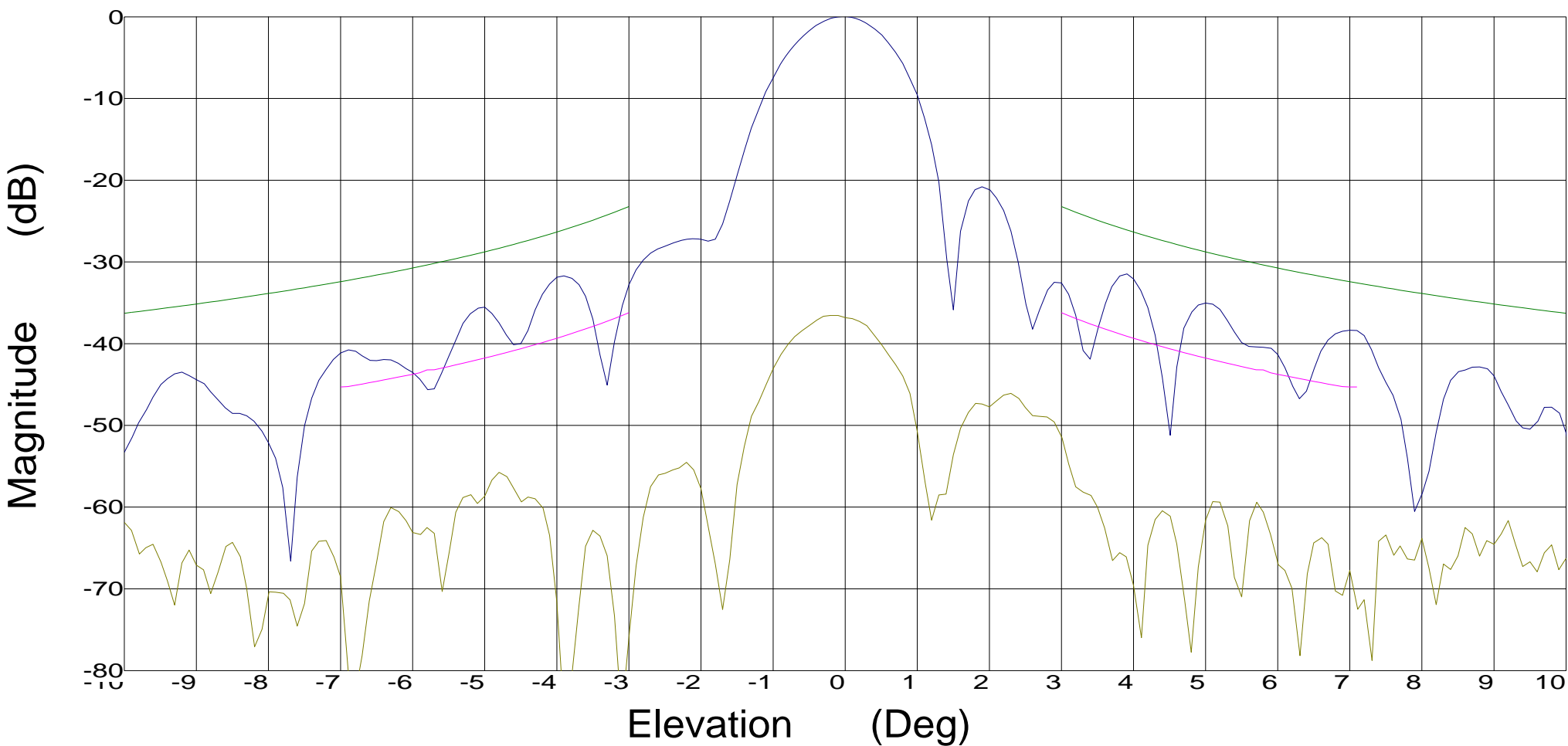
3dB Beam Width (DEG) 1.16  
10dB Beam Width (DEG) 2.00

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 36.dat-ant\_under\_test — 2365 36.dat  
2365 38.dat-ant\_under\_test — 2365 38.dat

3dB Beam Width (DEG) 1.23  
10dB Beam Width (DEG) 2.15

RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

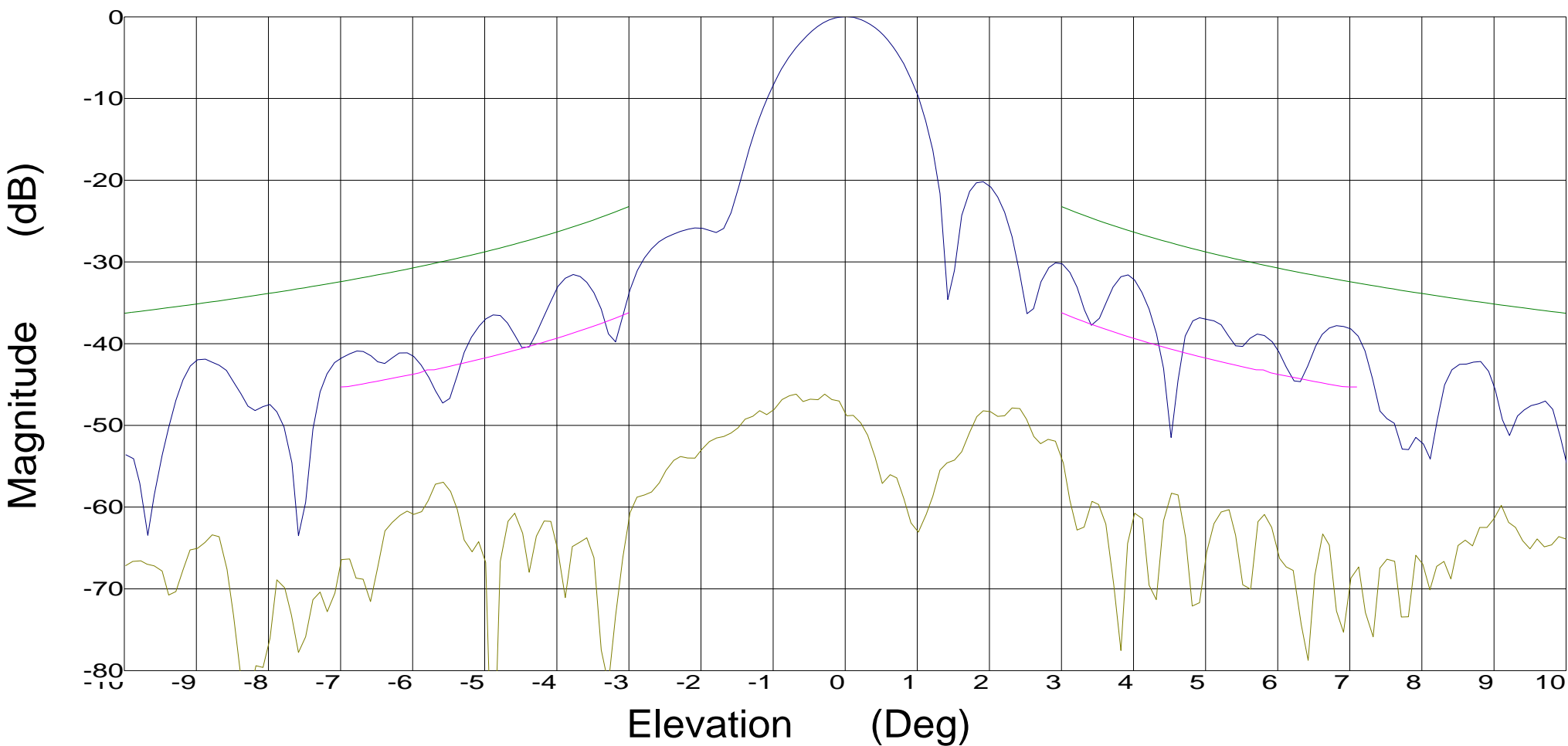


# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 36.dat-ant\_under\_test — 2365 36.dat  
2365 38.dat-ant\_under\_test — 2365 38.dat

RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

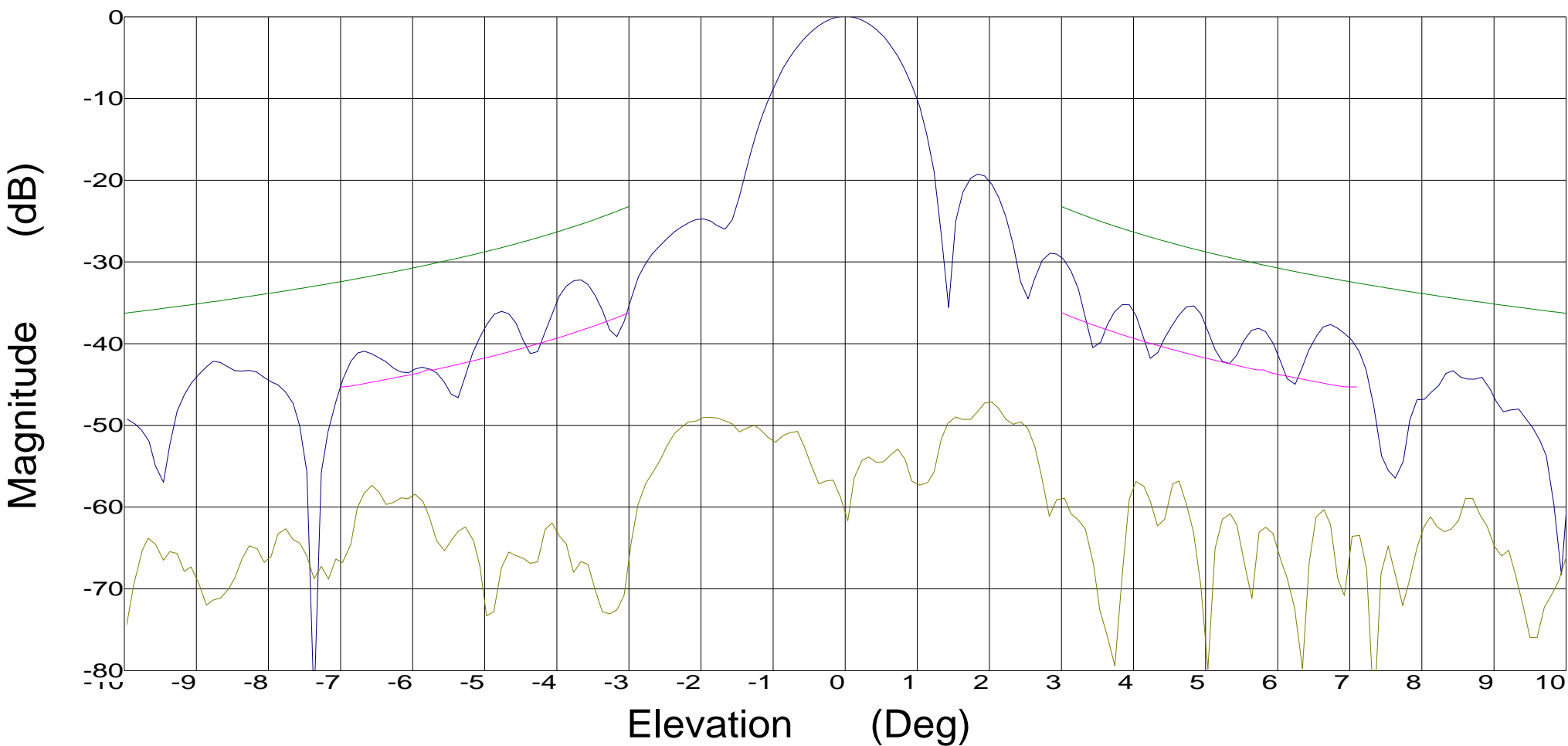
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 36.dat-ant\_under\_test — 2365 36.dat  
2365 38.dat-ant\_under\_test — 2365 38.dat

RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

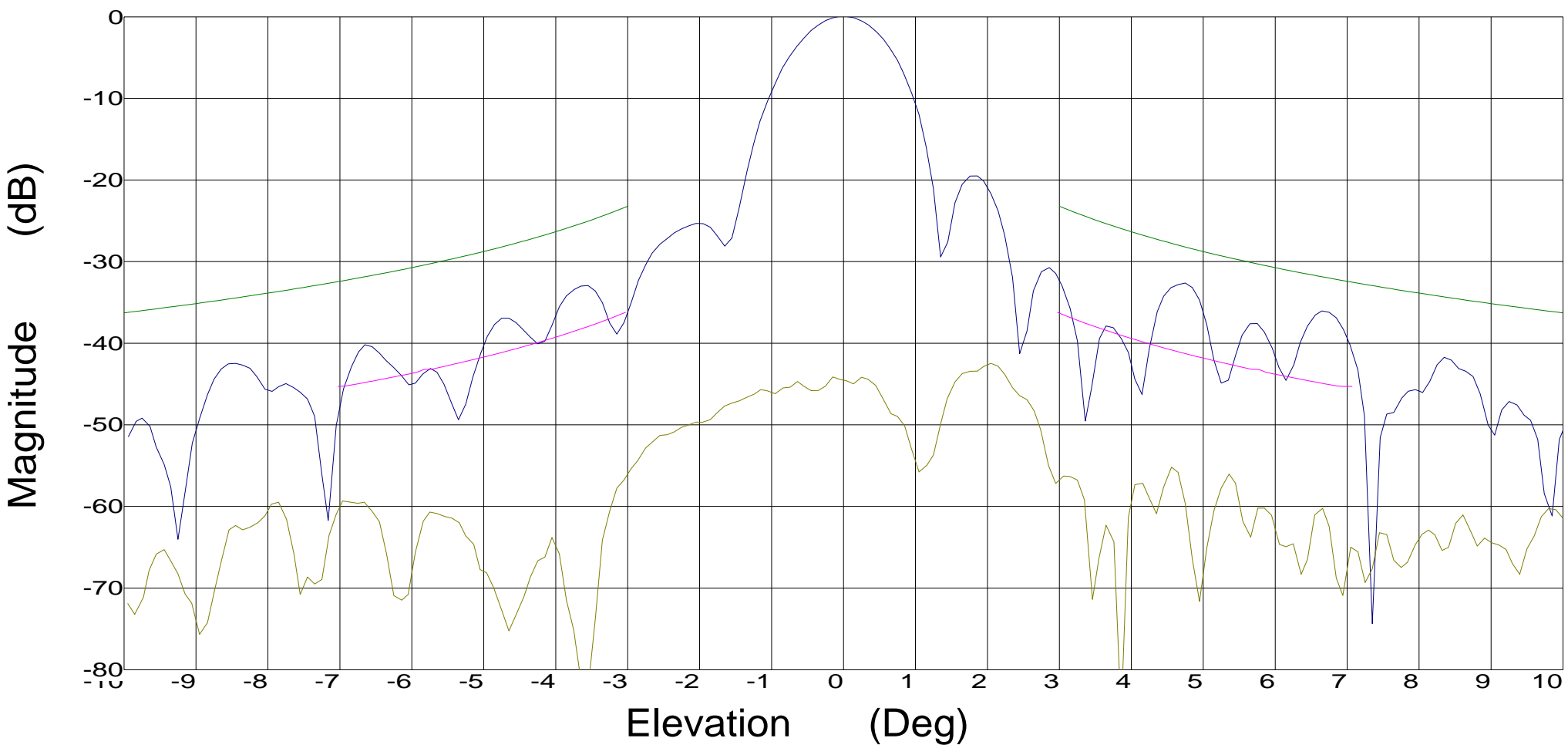
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 36.dat-ant\_under\_test — 2365 36.dat  
2365 38.dat-ant\_under\_test — 2365 38.dat

3dB Beam Width (DEG) 1.16  
10dB Beam Width (DEG) 2.01

RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

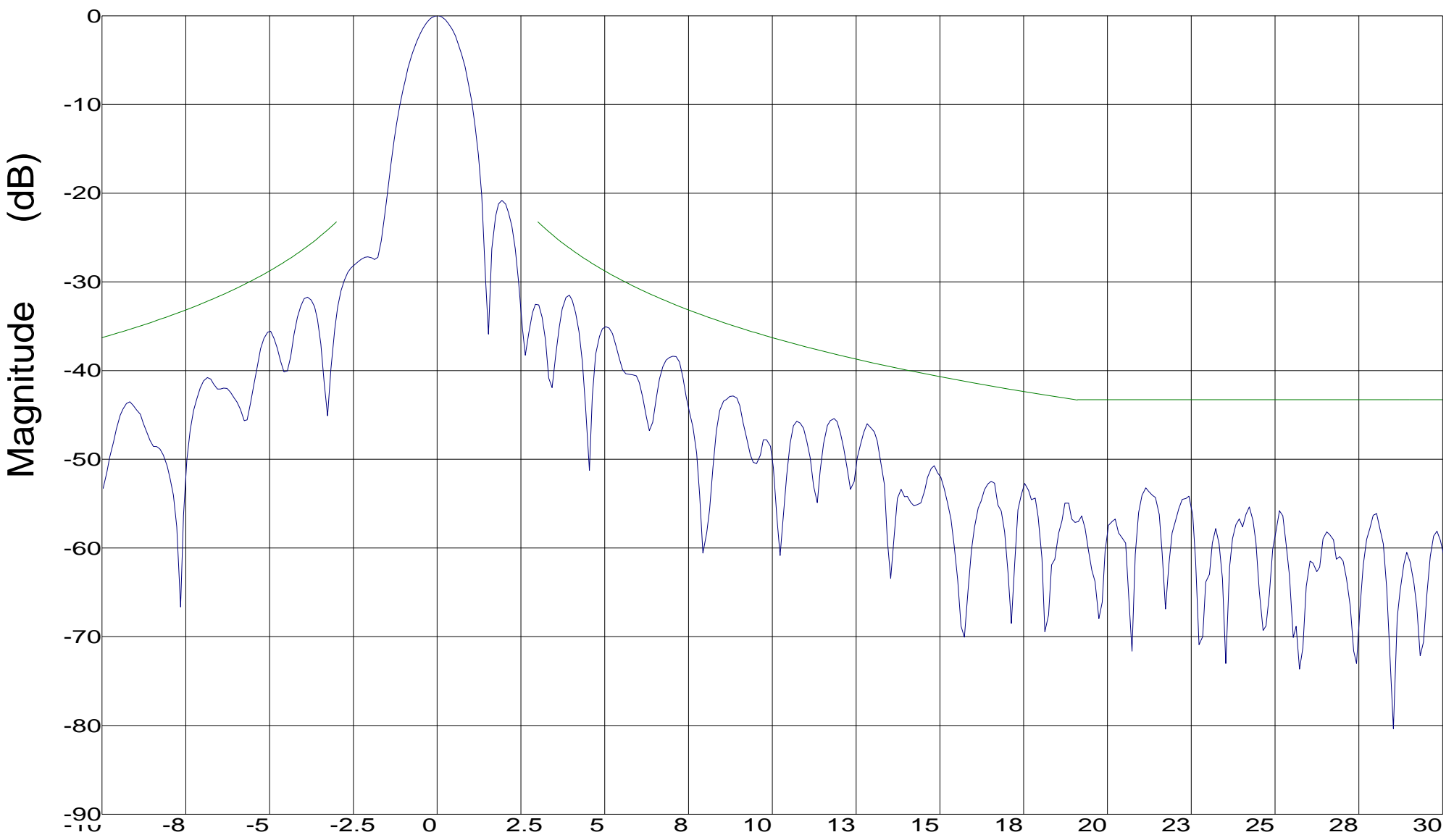
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 36.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

## Elevation (Deg)

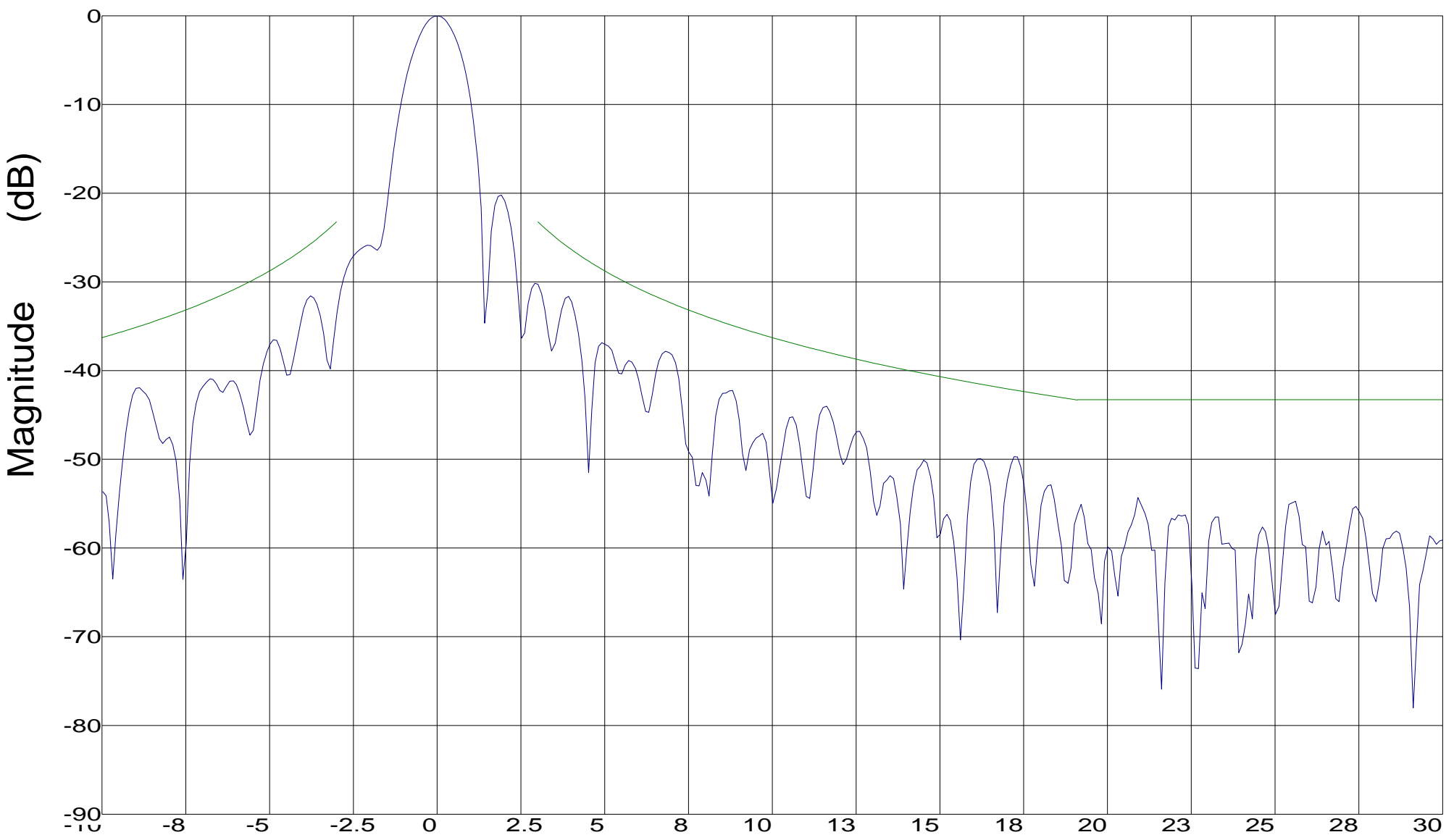
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 36.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

Elevation (Deg)

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:

File: 2365 36.dat

Table: Reference

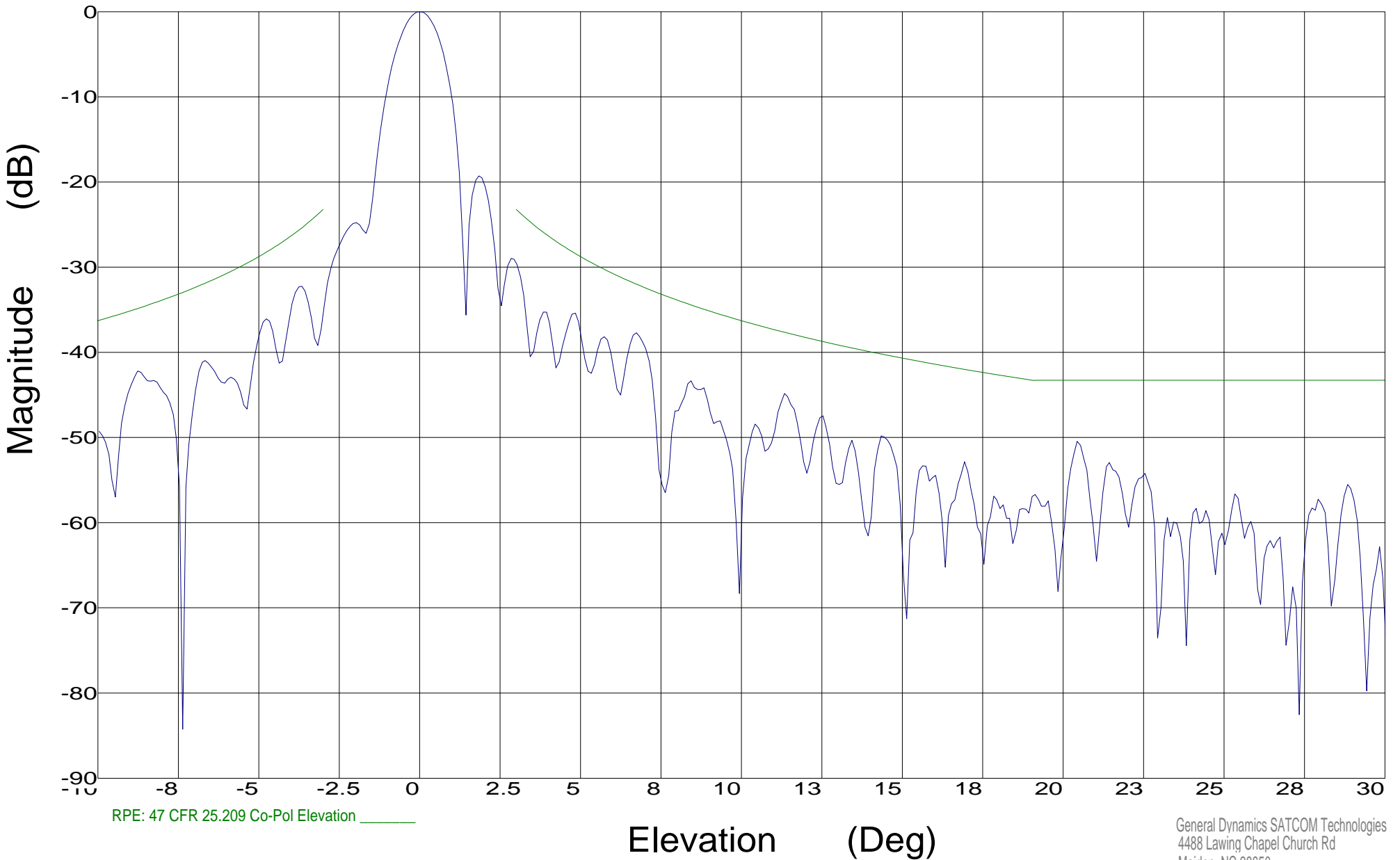
Chan.: AUT

Units: dBi

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Vert.

Rx pol: Vert.



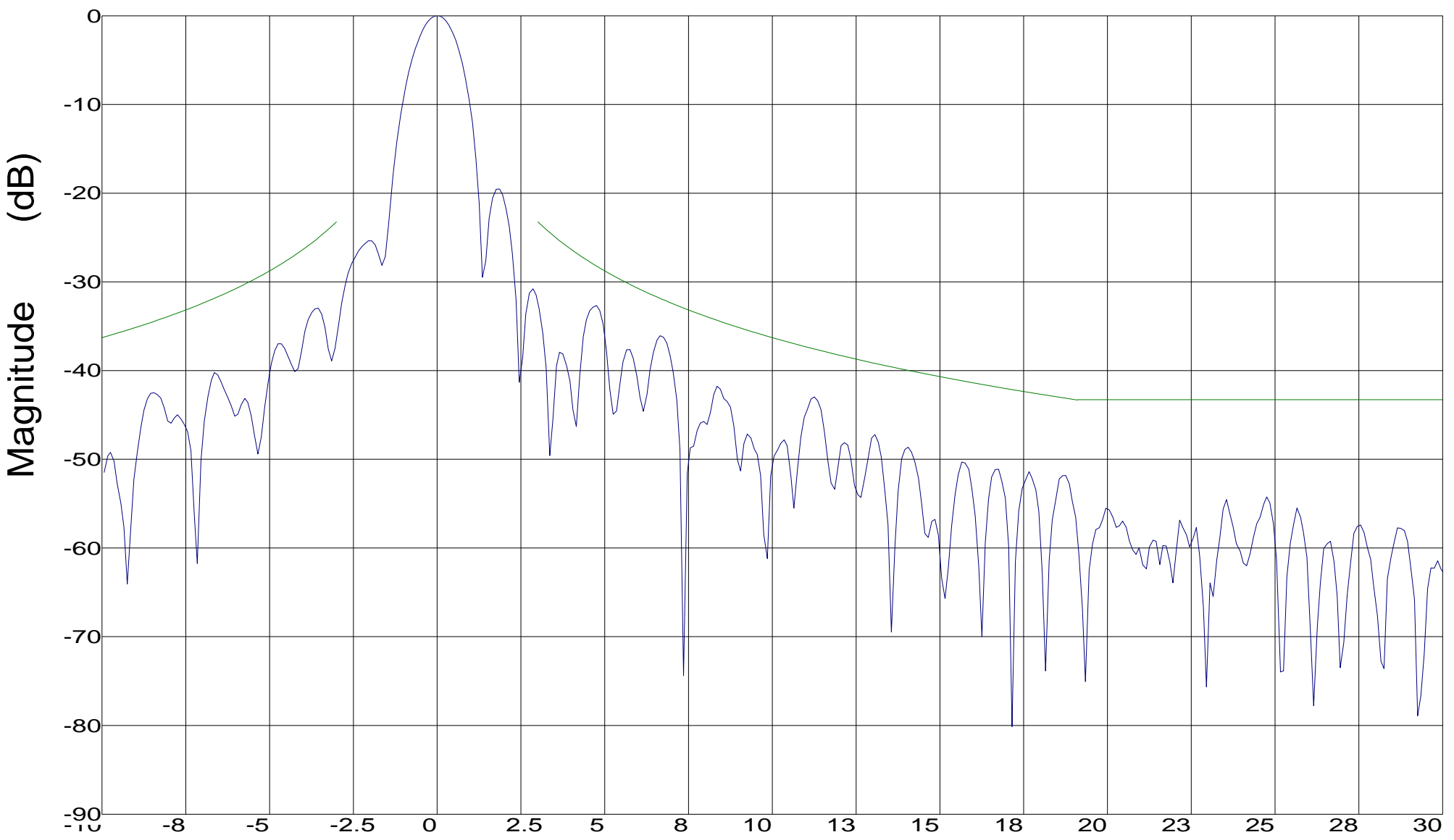
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 36.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

## Elevation (Deg)



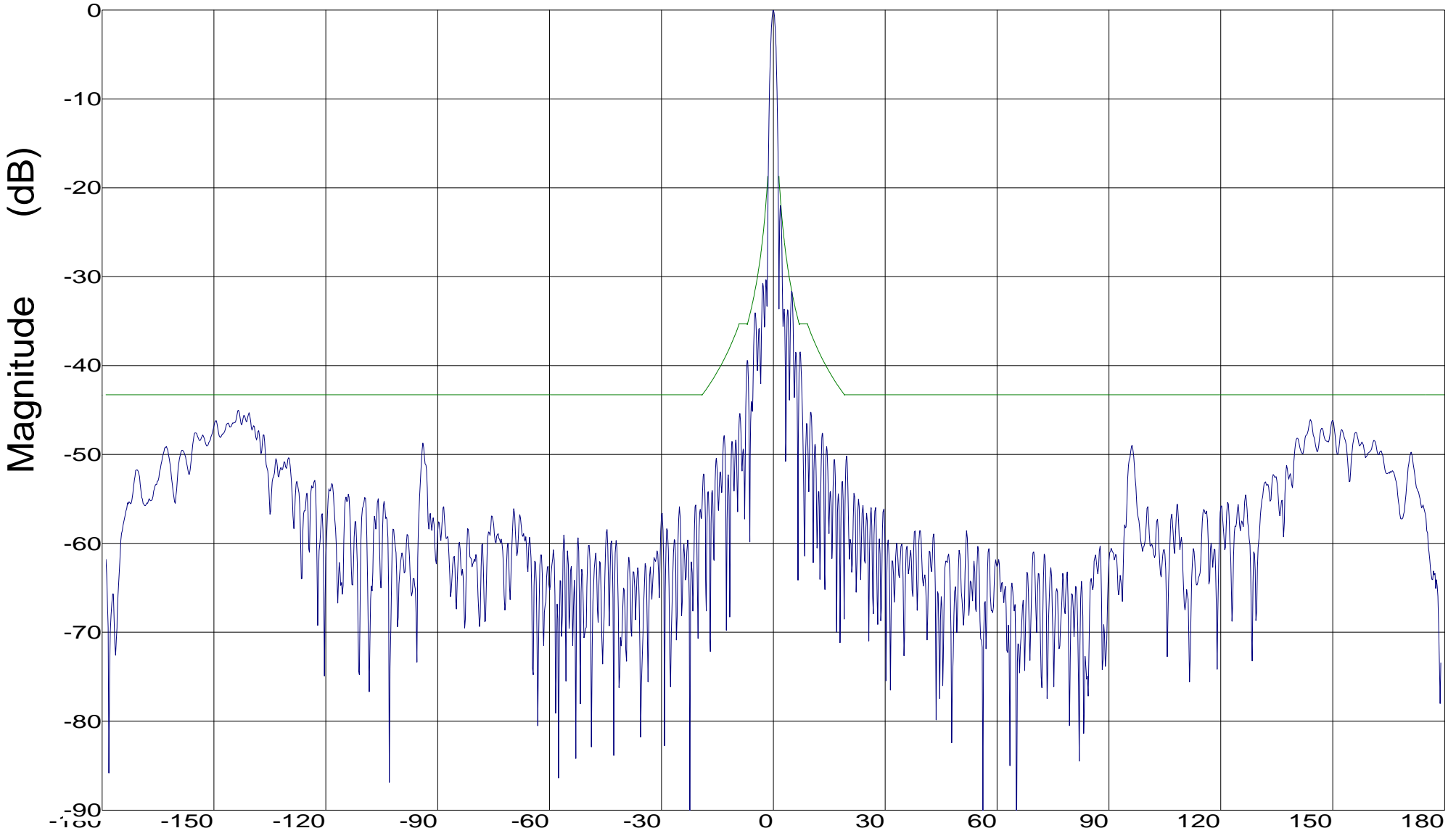
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 35.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

Azimuth (Deg)

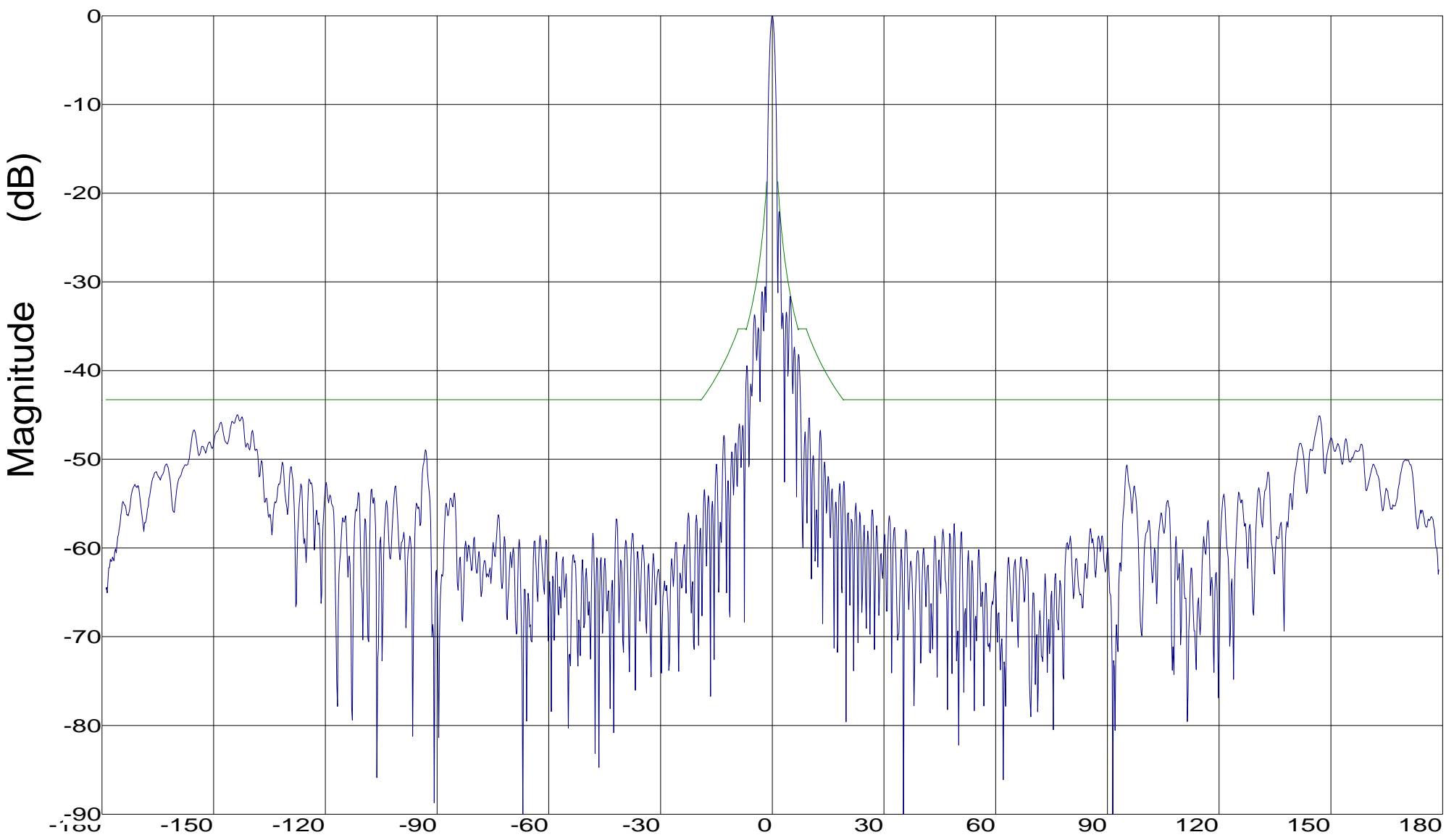
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 35.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

Azimuth (Deg)

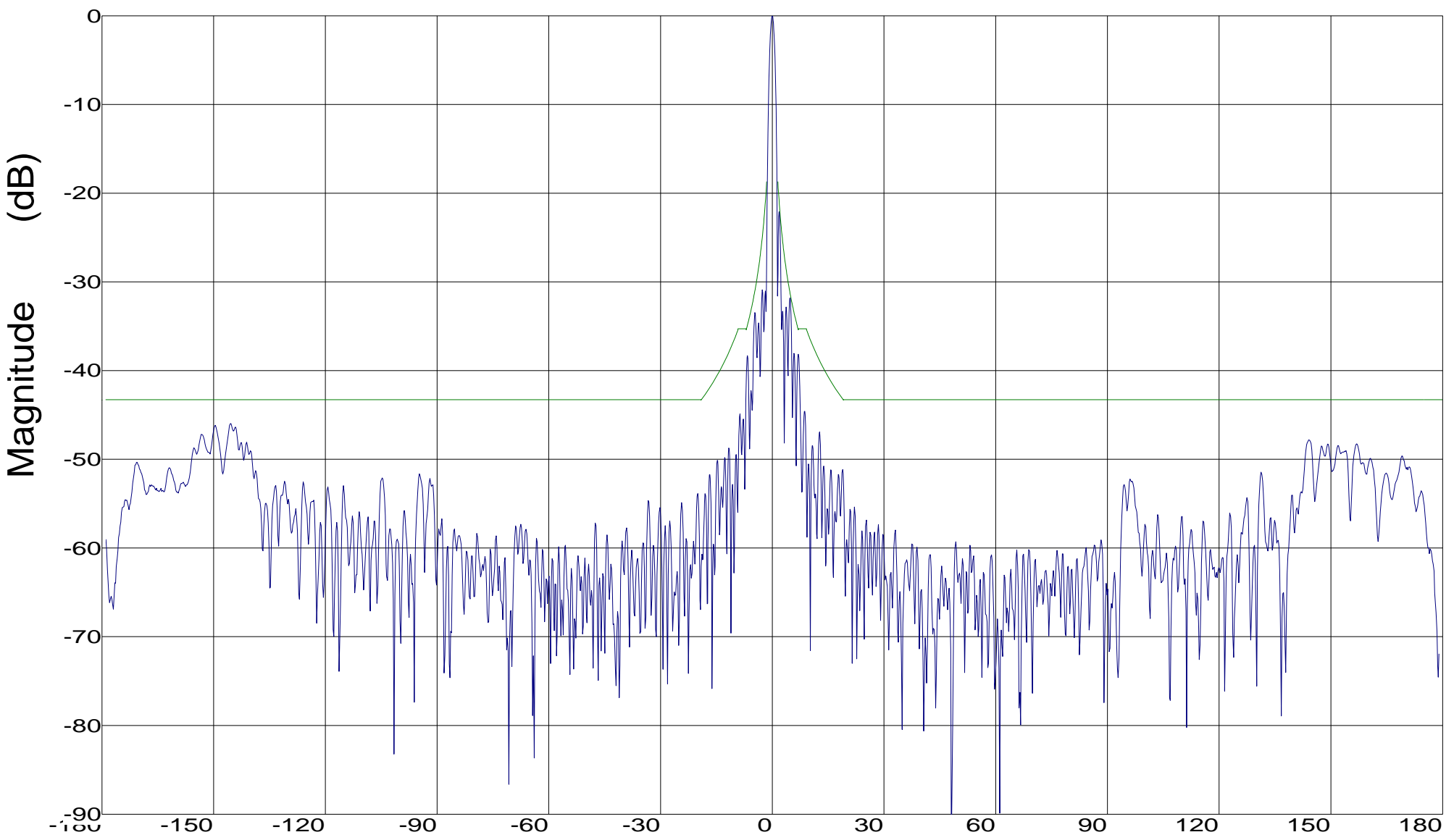
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 35.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth

Azimuth (Deg)

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:

File: 2365 35.dat

Table: Reference

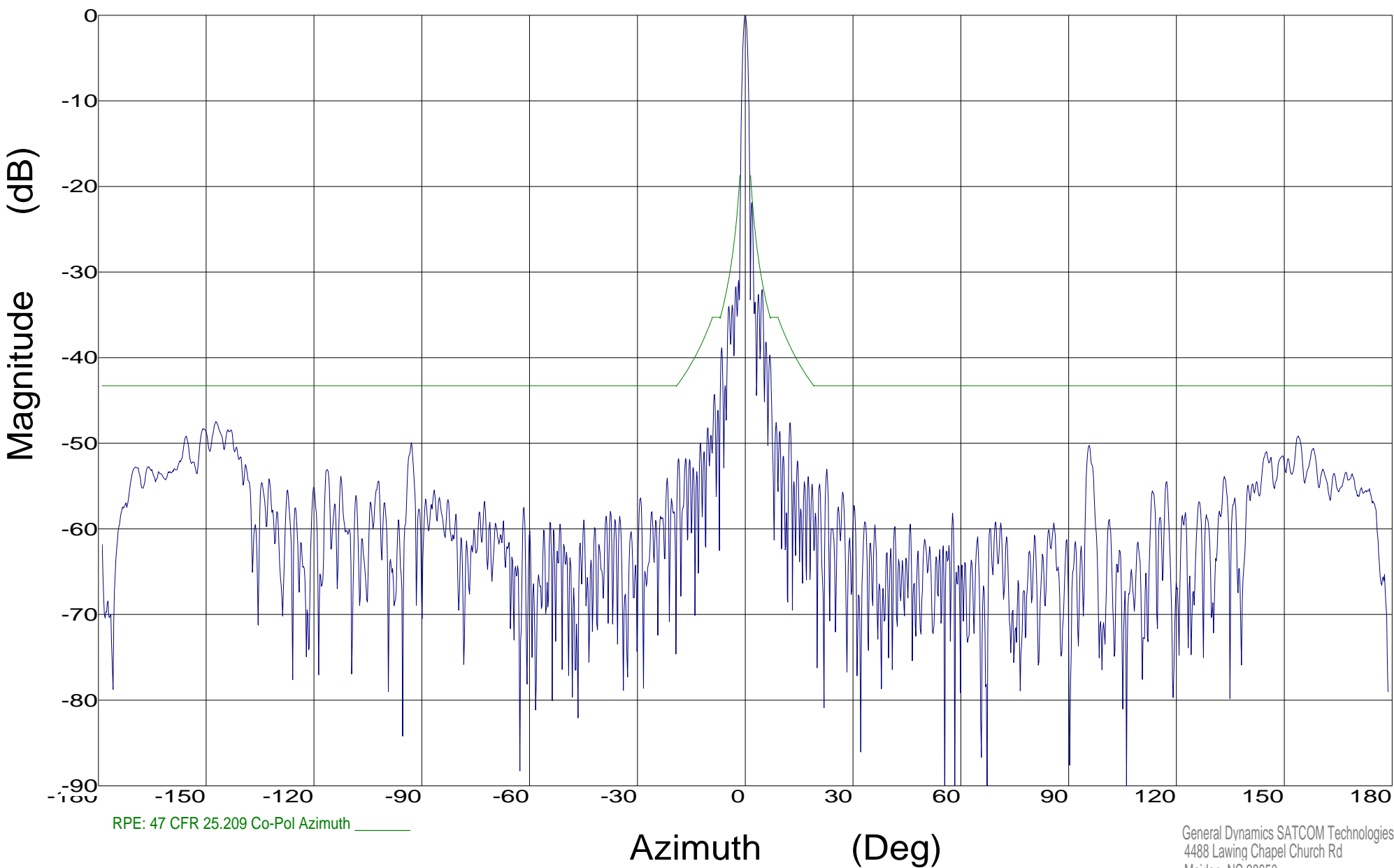
Chan.: AUT

Units: dBi

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Vert.

Rx pol: Vert.

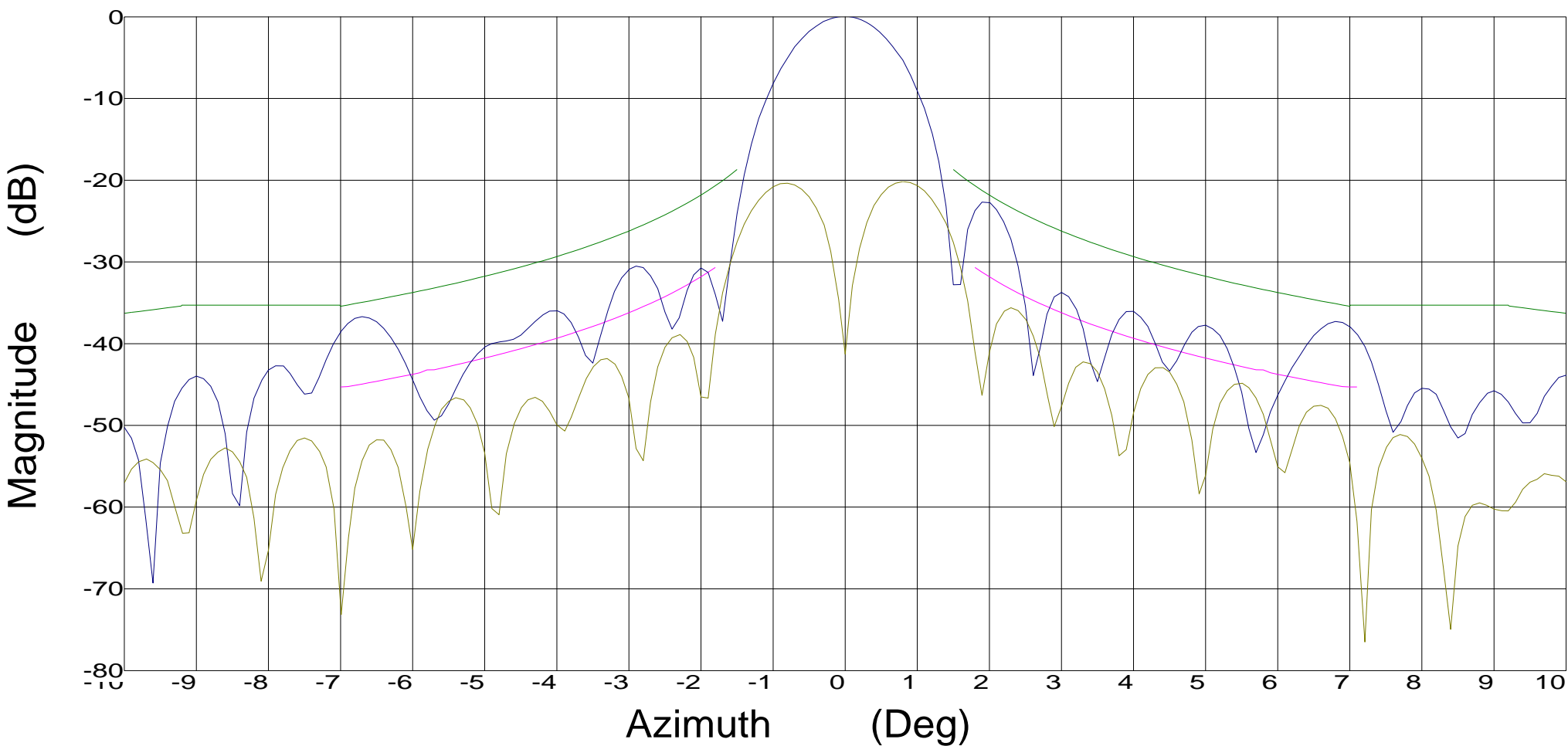


# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 29.dat-ant\_under\_test — 2365 29.dat  
2365 31.dat-ant\_under\_test — 2365 31.dat

3dB Beam Width (DEG) 1.23  
10dB Beam Width (DEG) 2.13

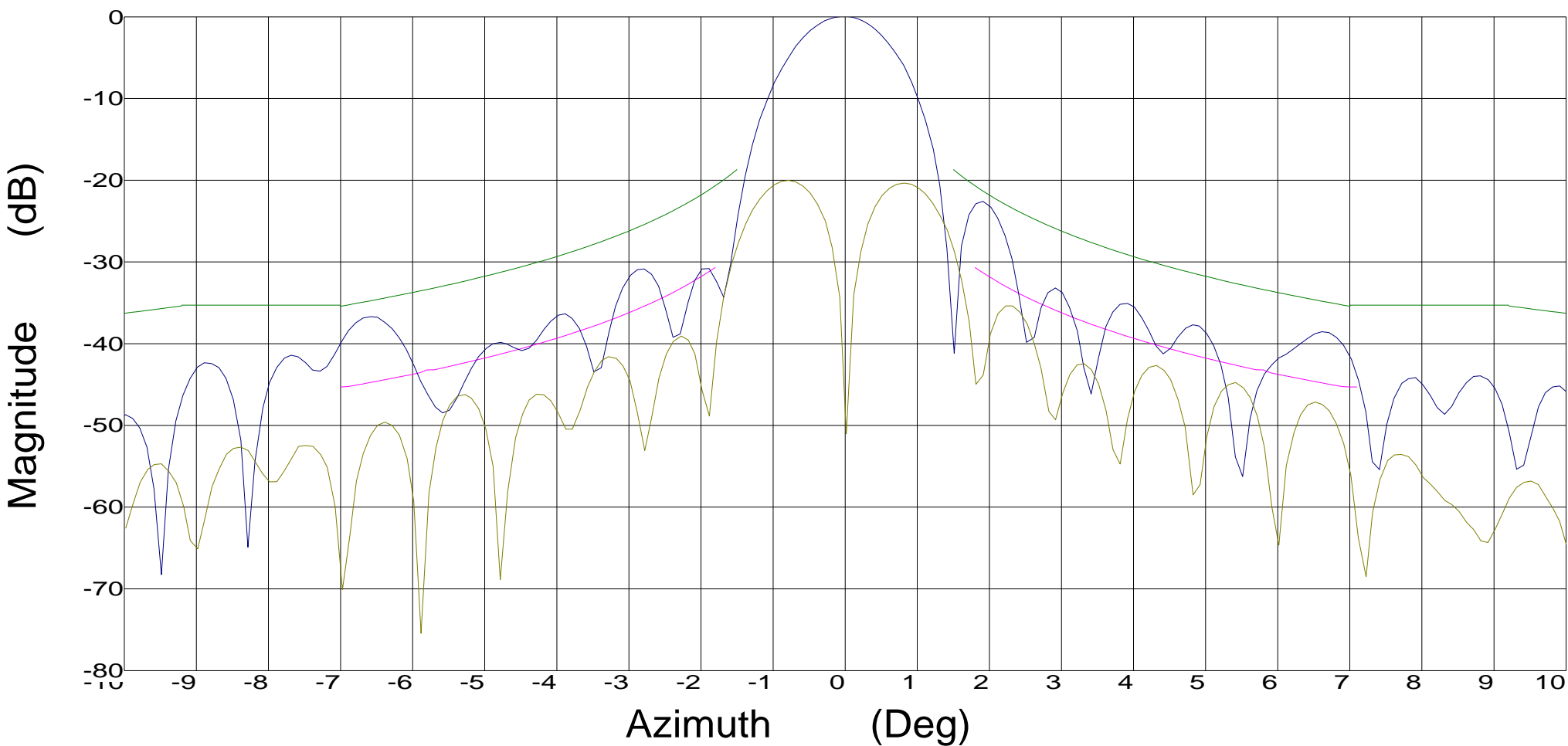
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
 2365 29.dat-ant\_under\_test — 2365 29.dat  
 2365 31.dat-ant\_under\_test — 2365 31.dat

3dB Beam Width (DEG) 1.20  
 10dB Beam Width (DEG) 2.08

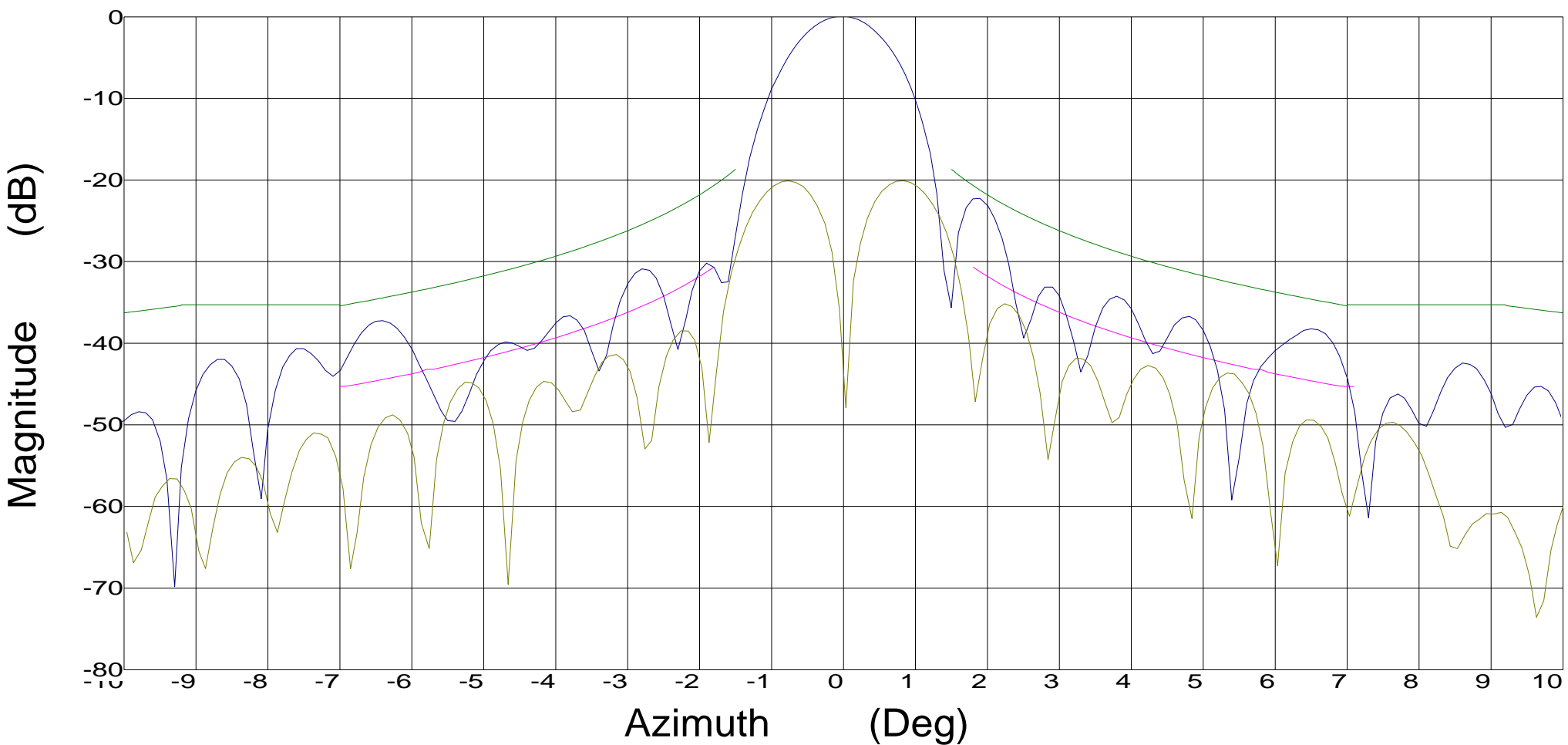
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
 RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 29.dat-ant\_under\_test — 2365 29.dat  
2365 31.dat-ant\_under\_test — 2365 31.dat

3dB Beam Width (DEG) 1.17  
10dB Beam Width (DEG) 2.04

RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

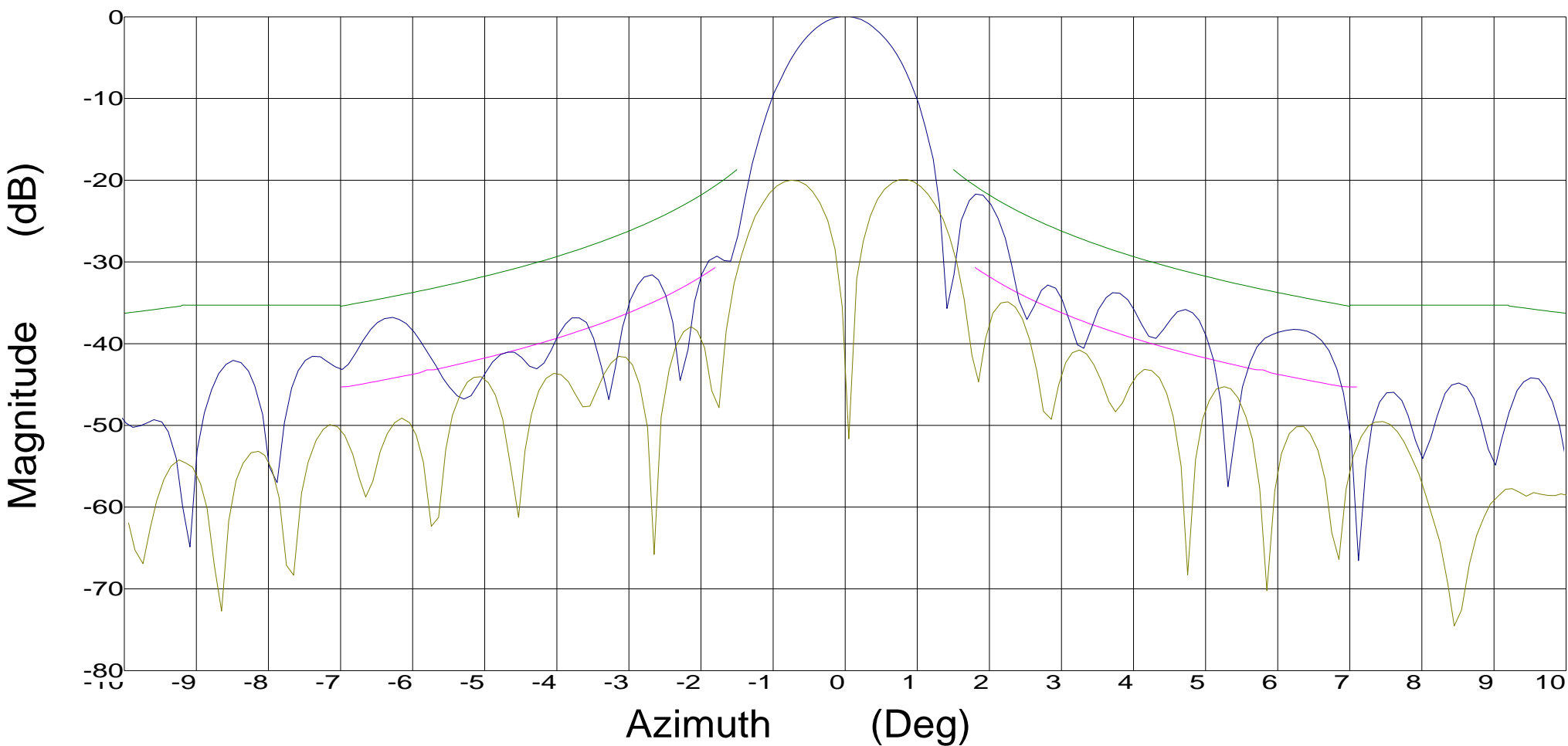


# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 29.dat-ant\_under\_test — 2365 29.dat  
2365 31.dat-ant\_under\_test — 2365 31.dat

3dB Beam Width (DEG) 1.16  
10dB Beam Width (DEG) 2.00

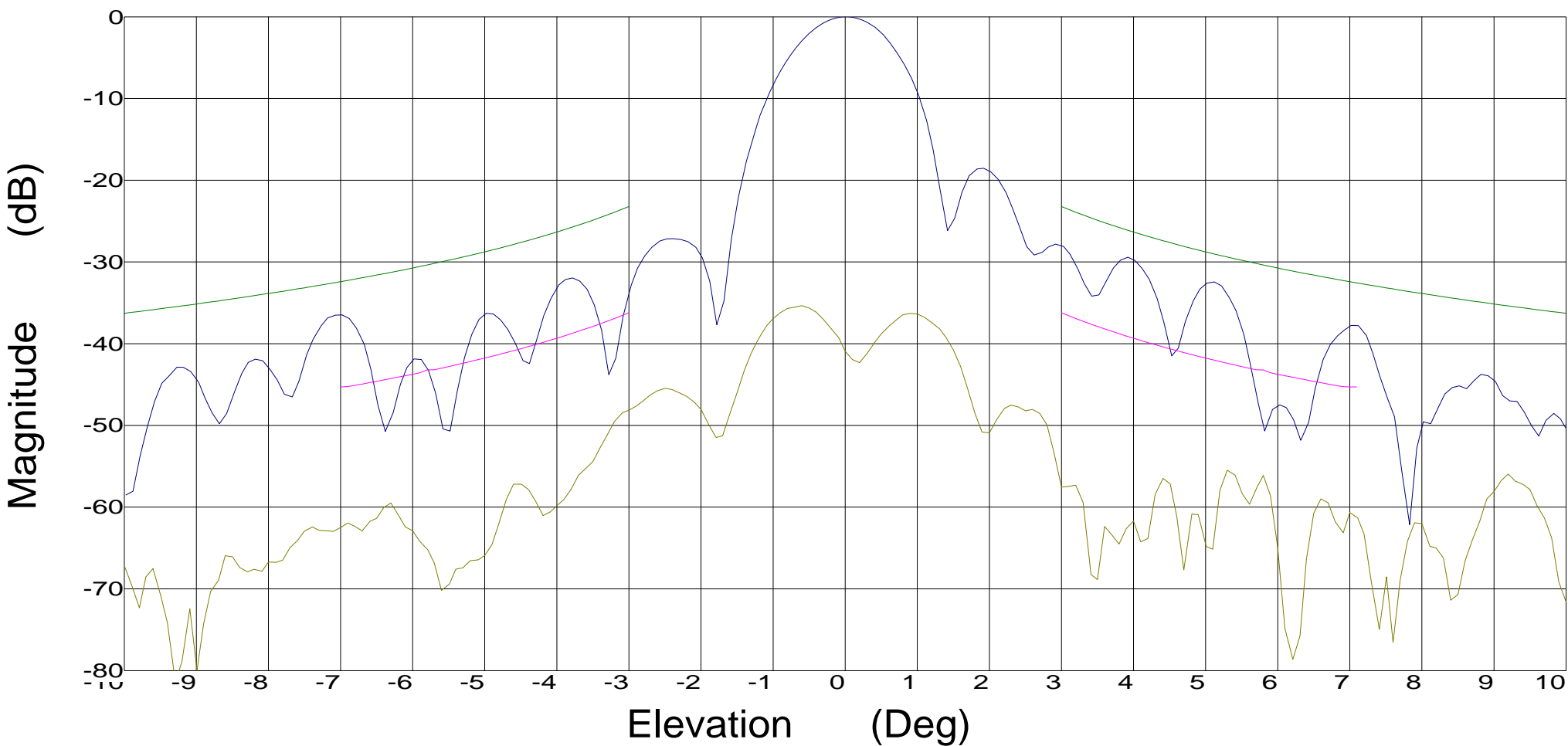
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 30.dat-ant\_under\_test — 2365 30.dat  
2365 32.dat-ant\_under\_test — 2365 32.dat

3dB Beam Width (DEG) 1.20  
10dB Beam Width (DEG) 2.12

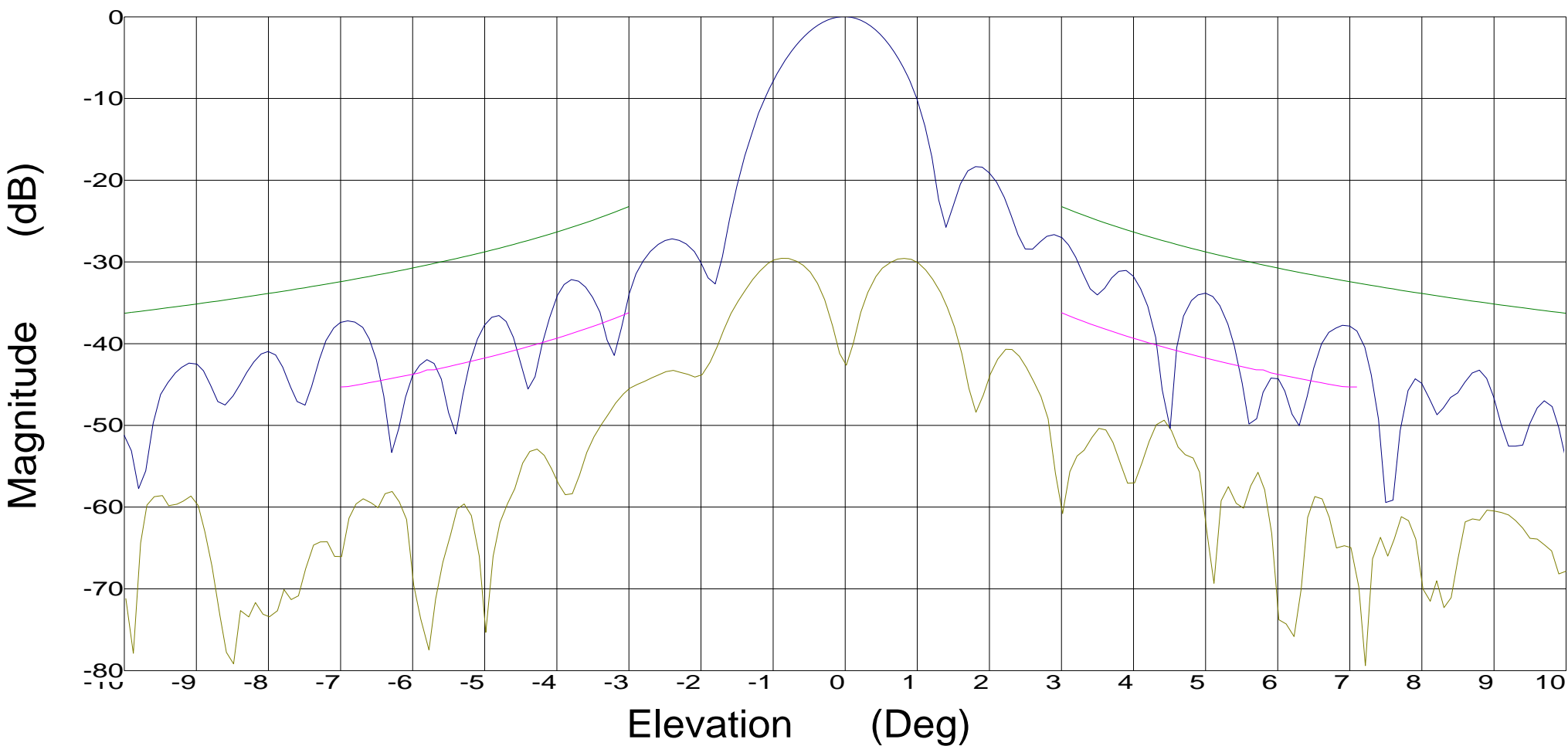
RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 30.dat-ant\_under\_test — 2365 30.dat  
2365 32.dat-ant\_under\_test — 2365 32.dat

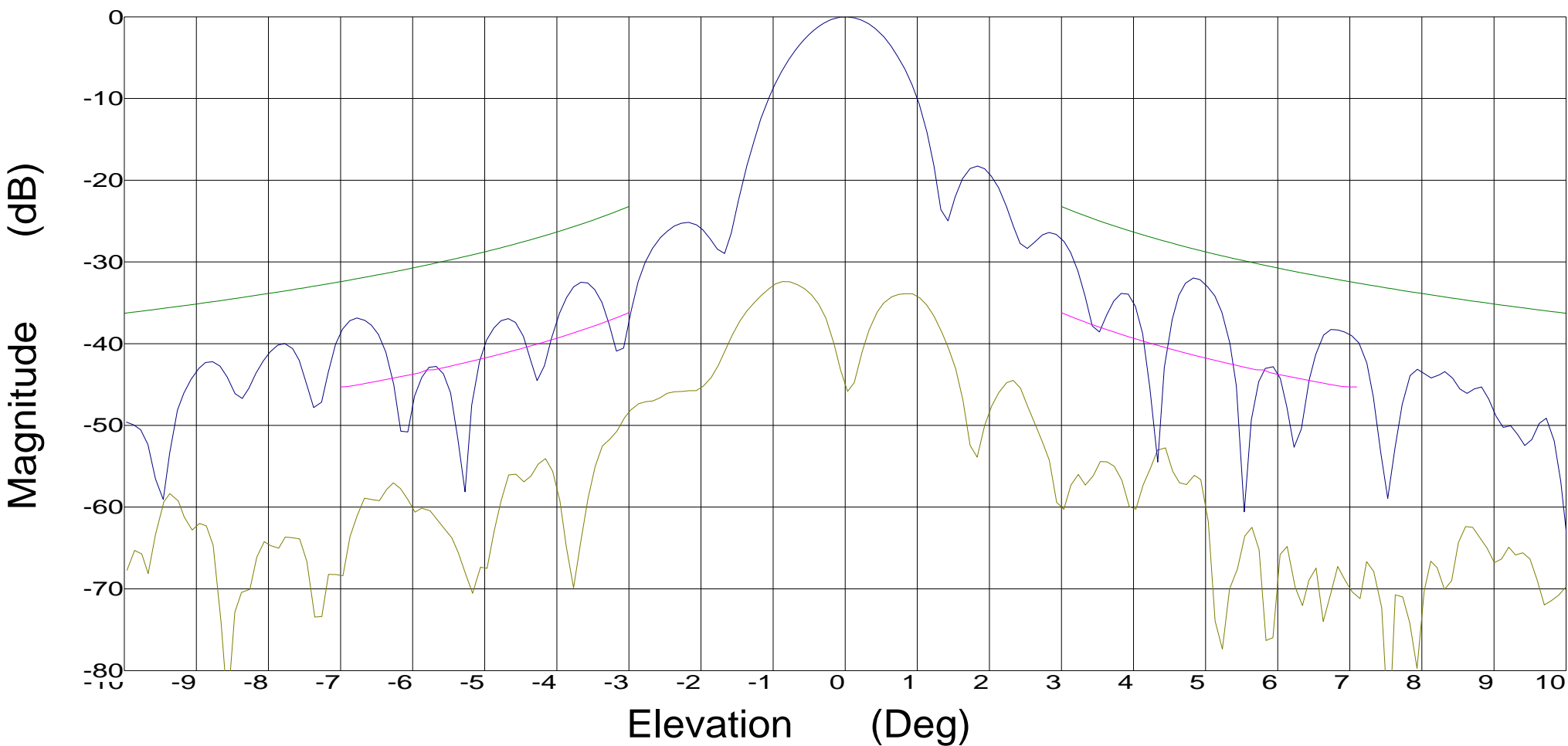
RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 30.dat-ant\_under\_test — 2365 30.dat  
2365 32.dat-ant\_under\_test — 2365 32.dat

RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

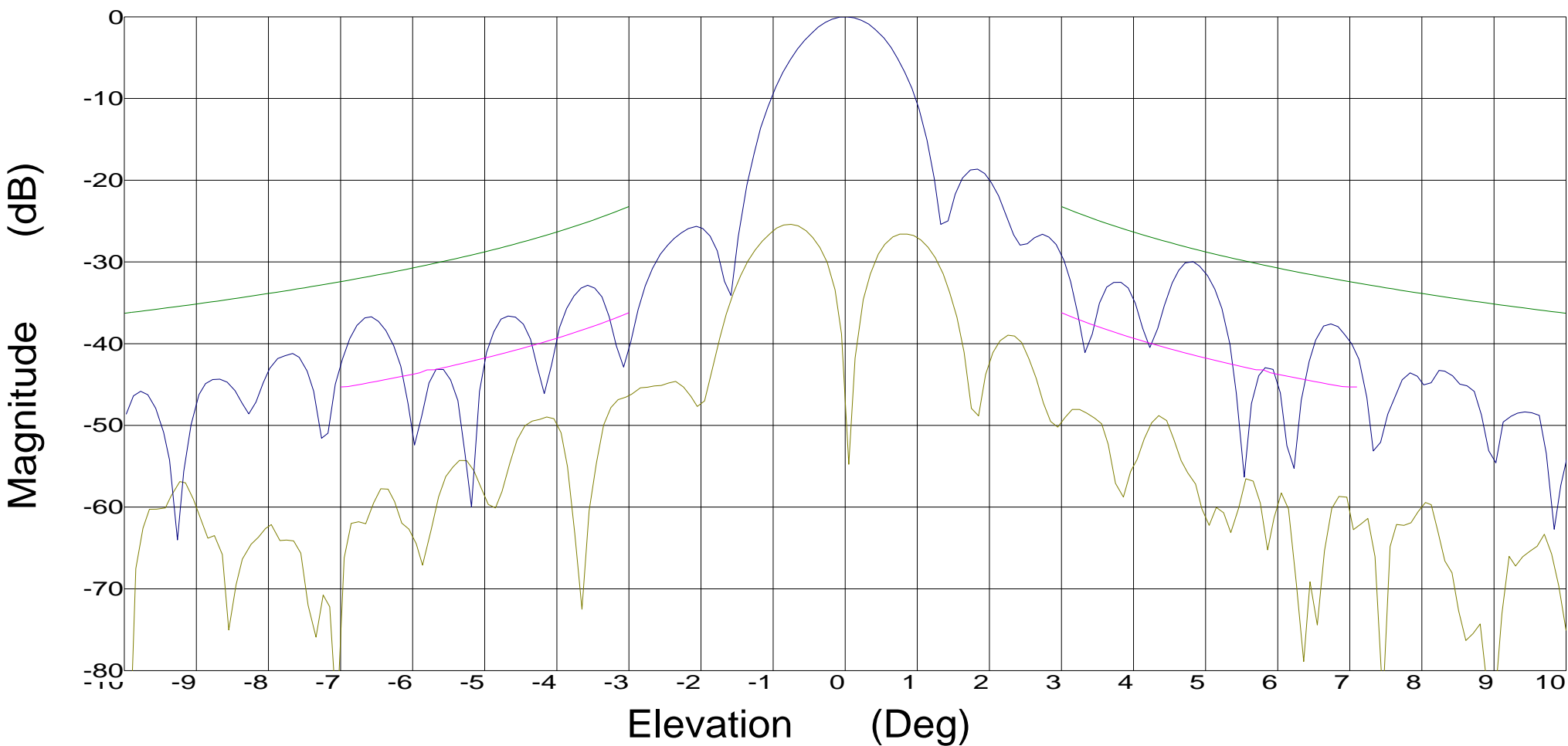
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 30.dat-ant\_under\_test — 2365 30.dat  
2365 32.dat-ant\_under\_test — 2365 32.dat

3dB Beam Width (DEG) 1.15  
10dB Beam Width (DEG) 2.00

RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

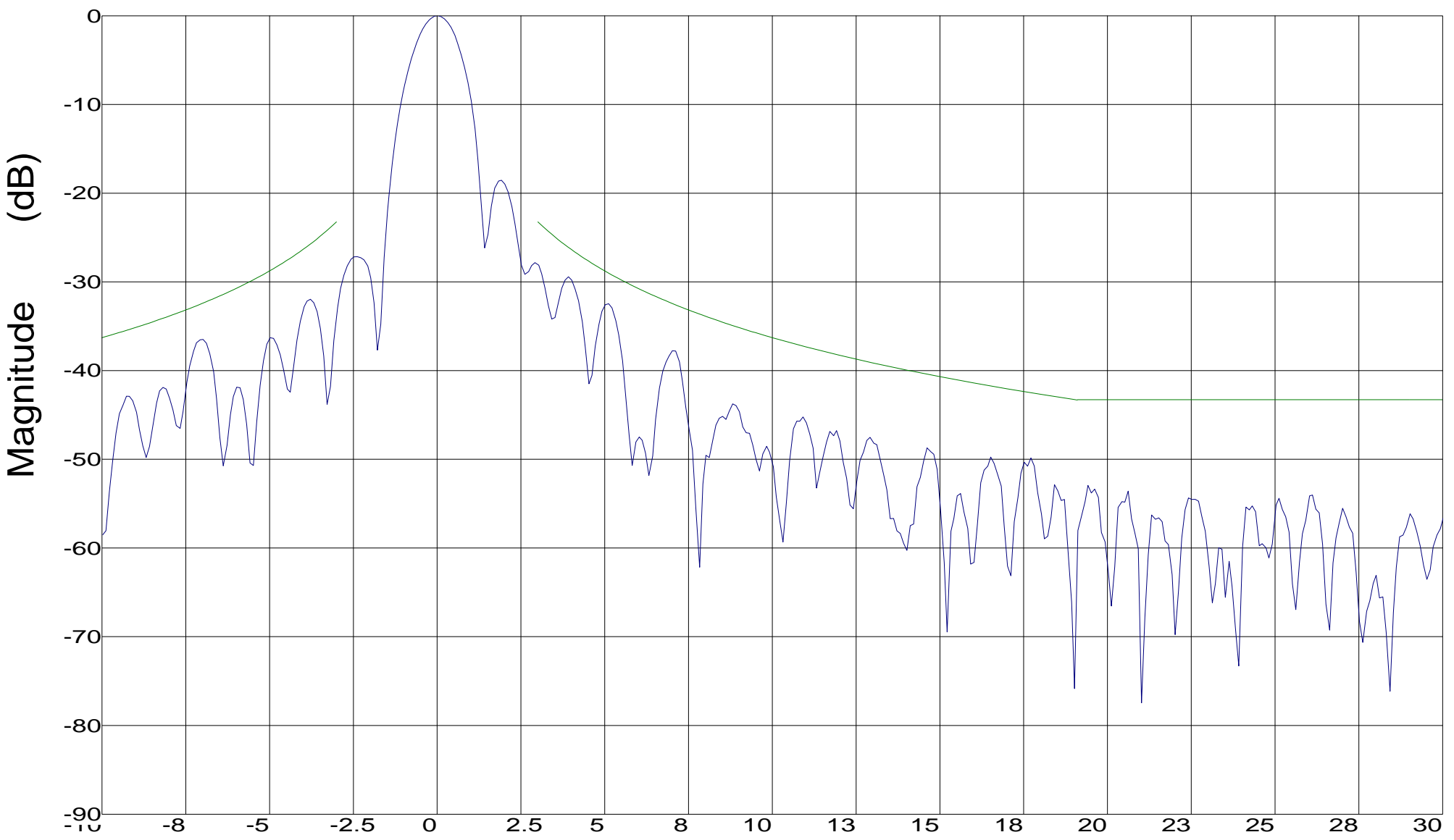
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 30.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

Elevation (Deg)

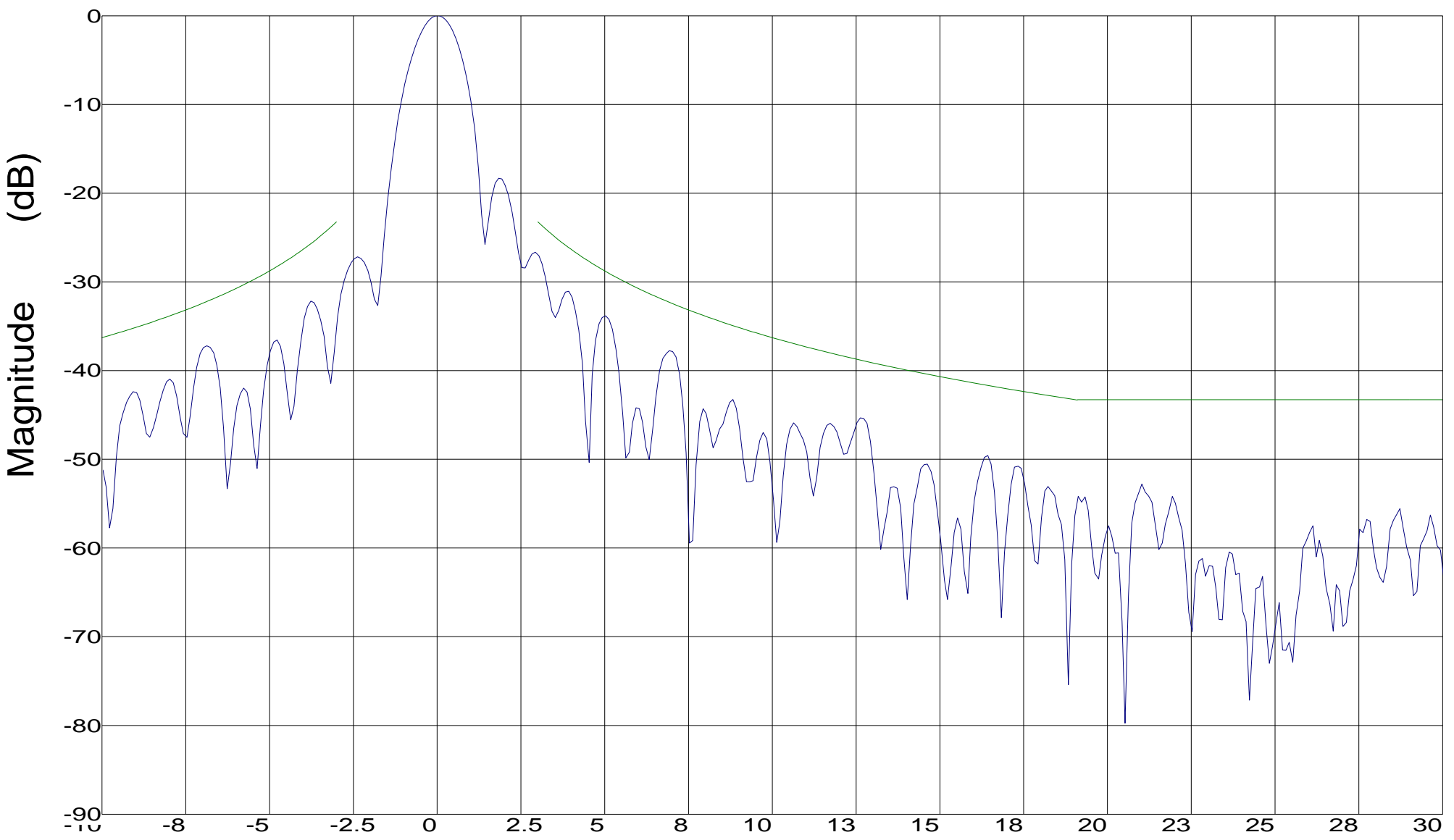
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 30.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

## Elevation (Deg)



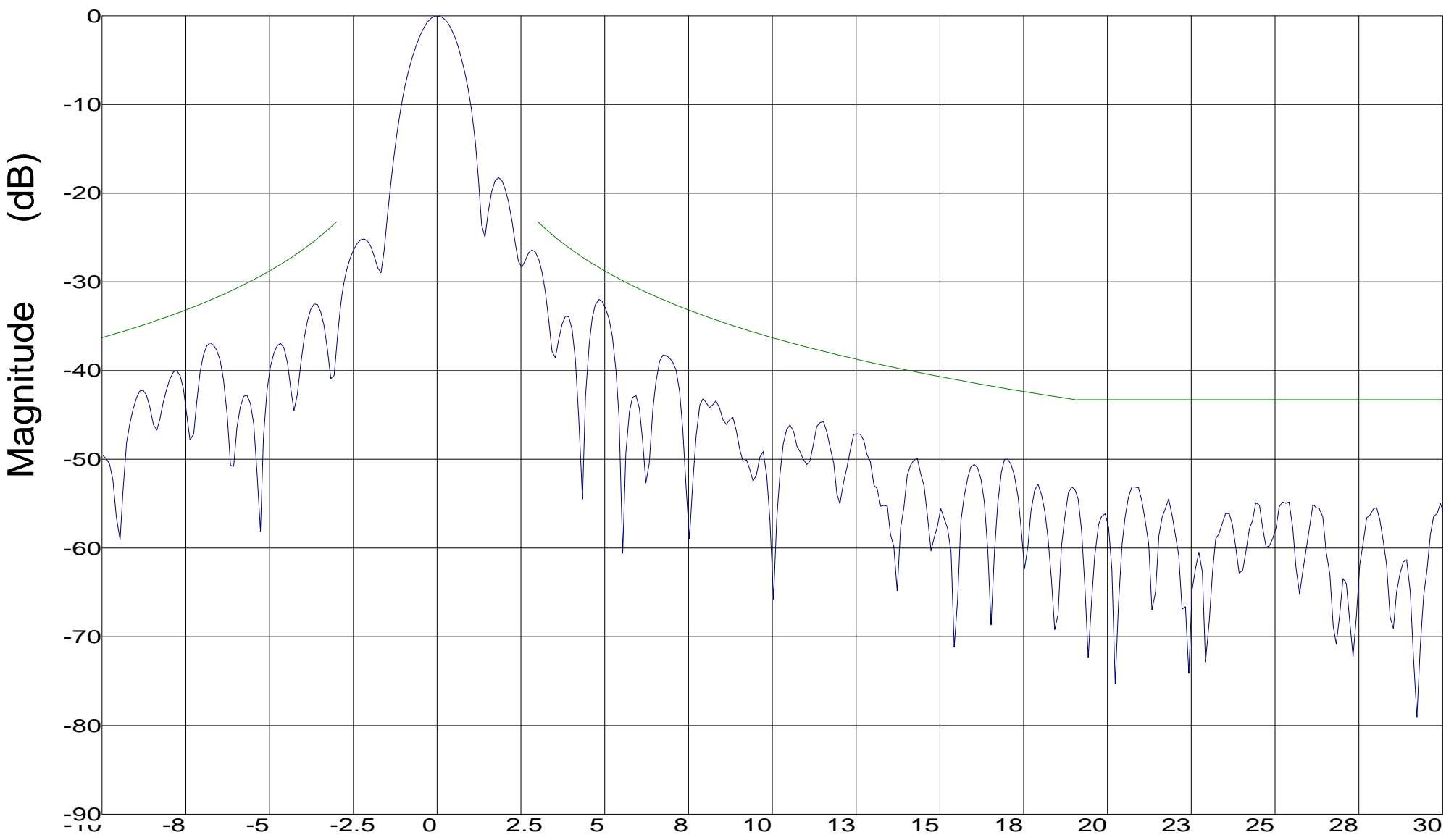
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 30.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

## Elevation (Deg)

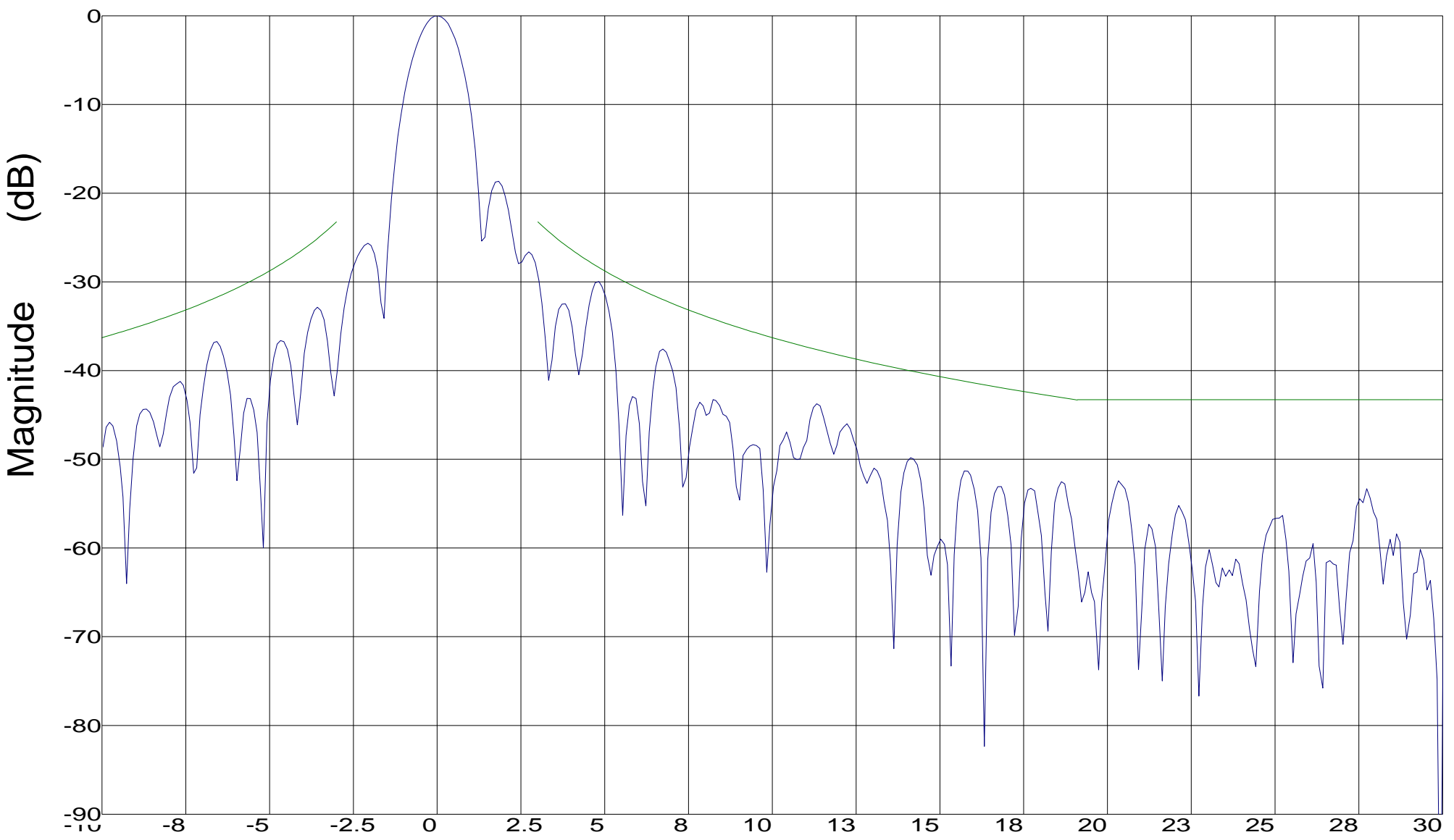
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 30.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation \_\_\_\_\_

## Elevation (Deg)

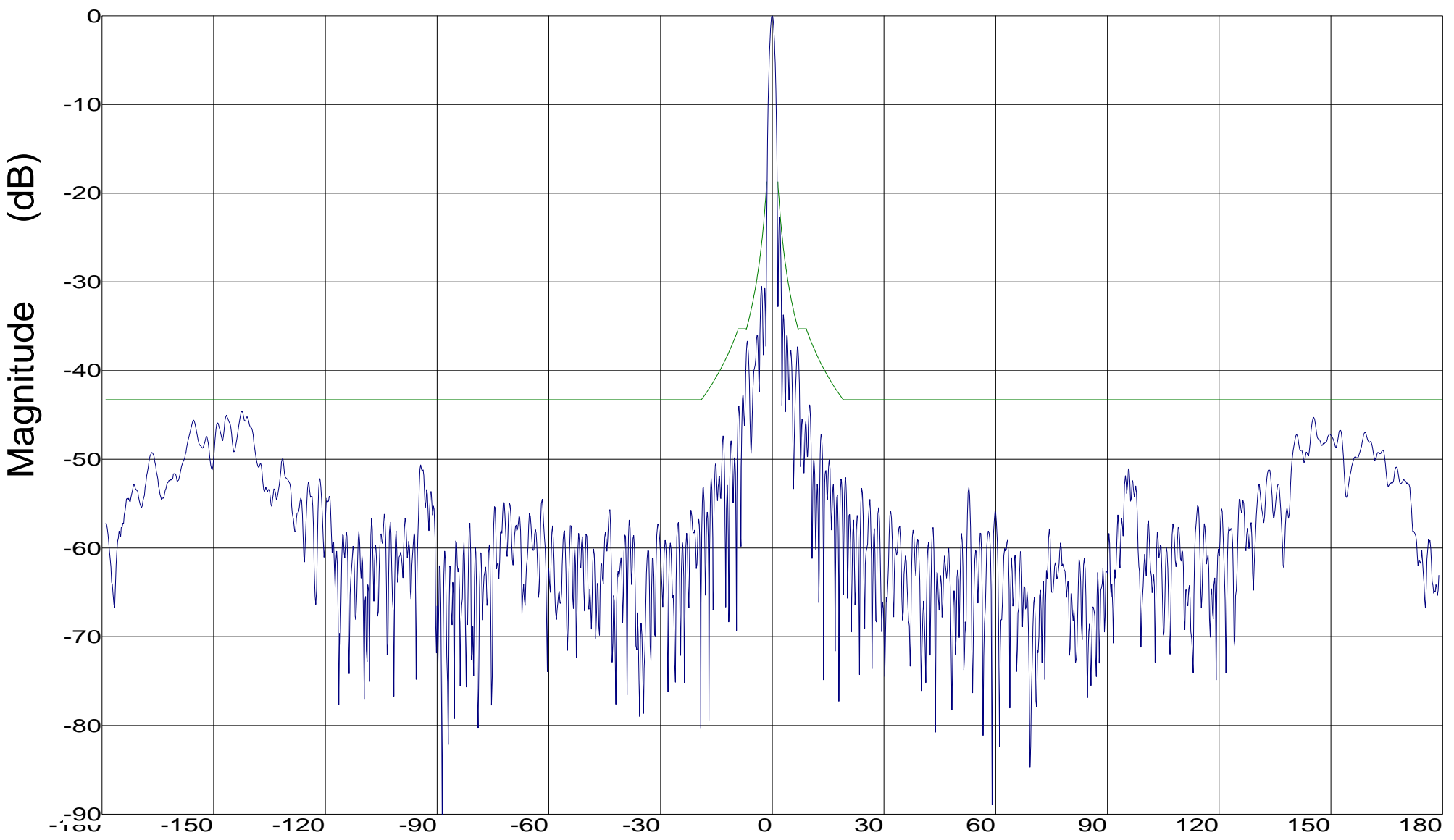
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 13.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 29.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth

Azimuth (Deg)

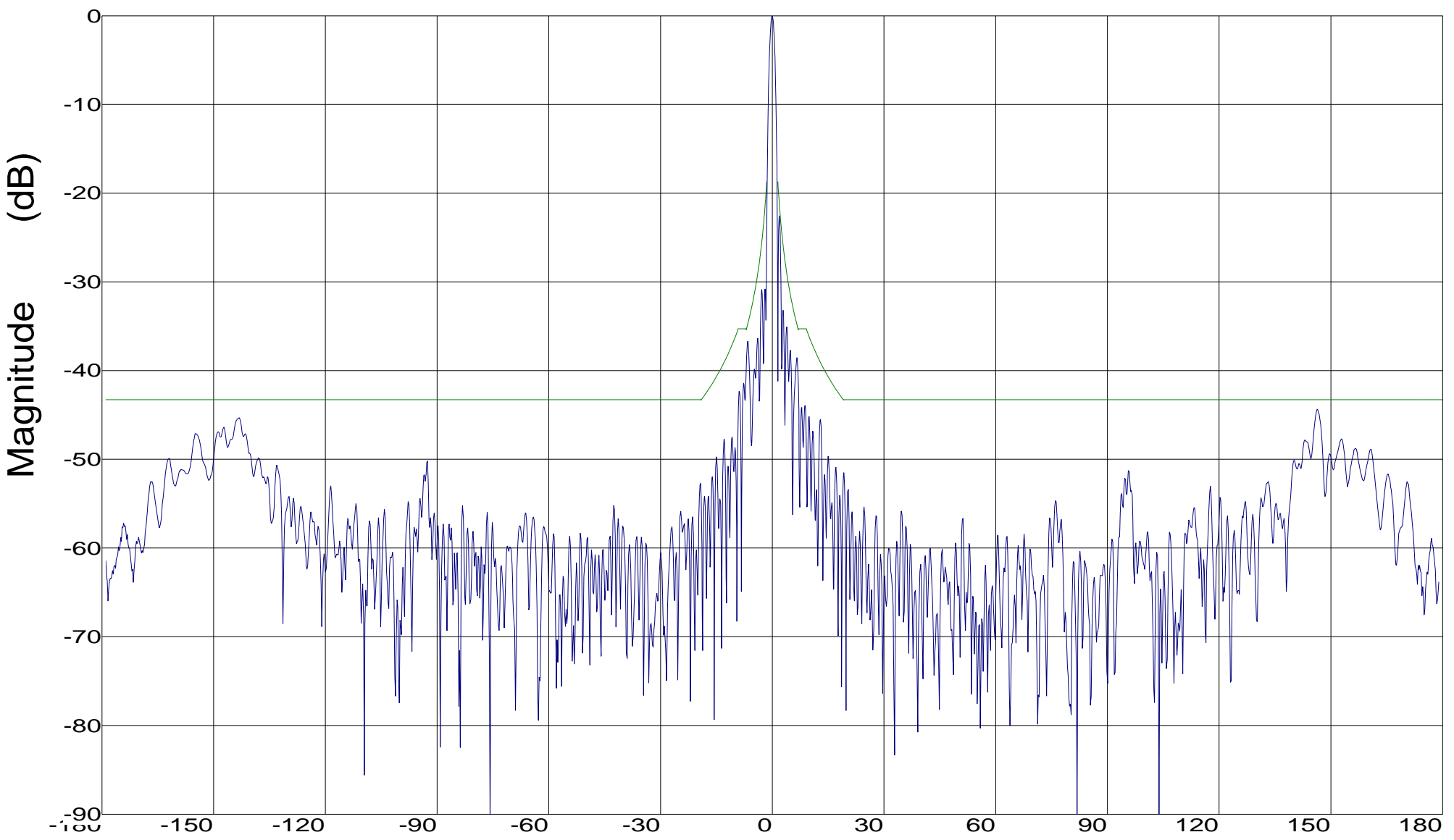
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.000 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 29.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

Azimuth (Deg)

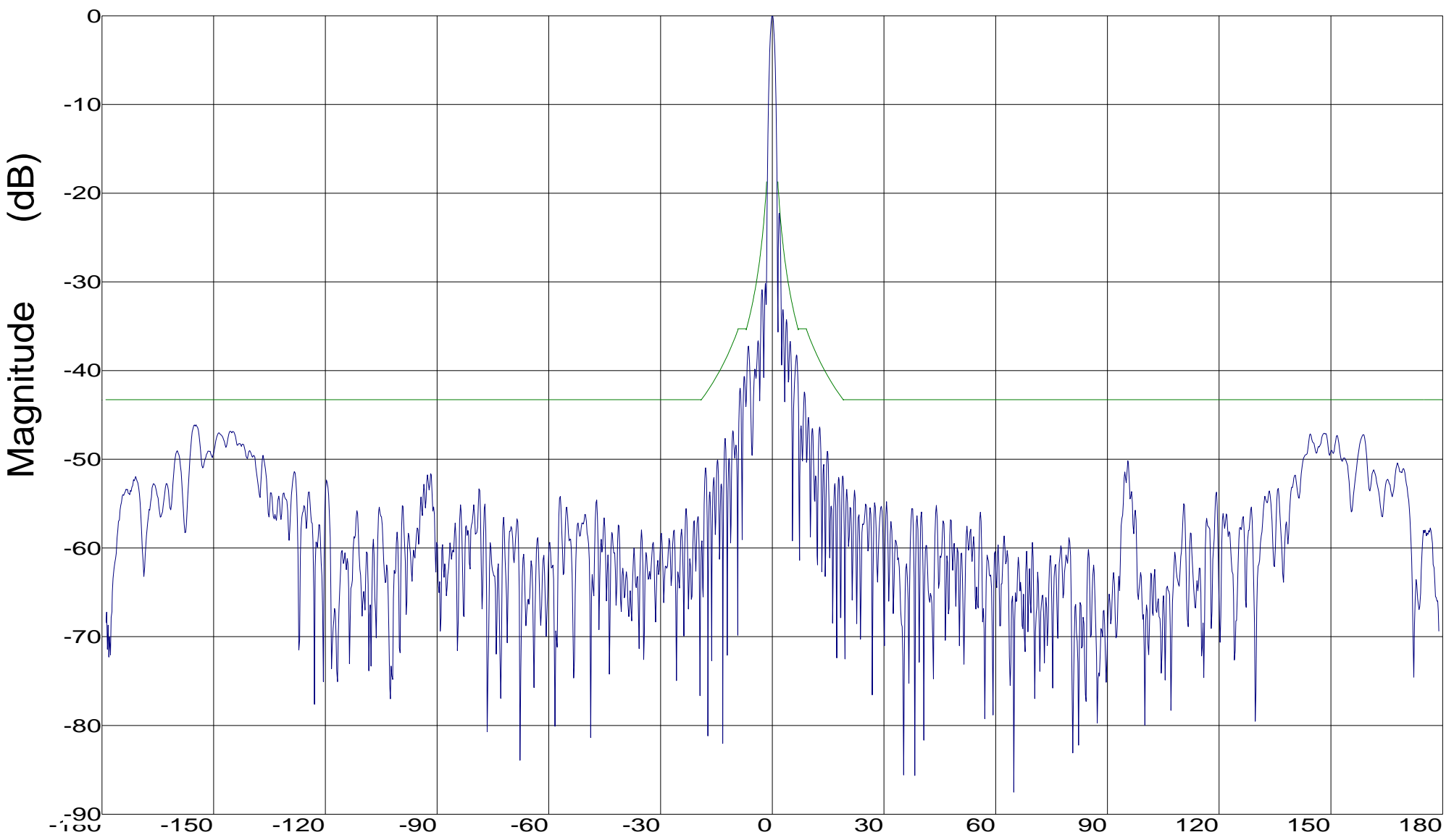
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.250 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 29.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

Azimuth (Deg)

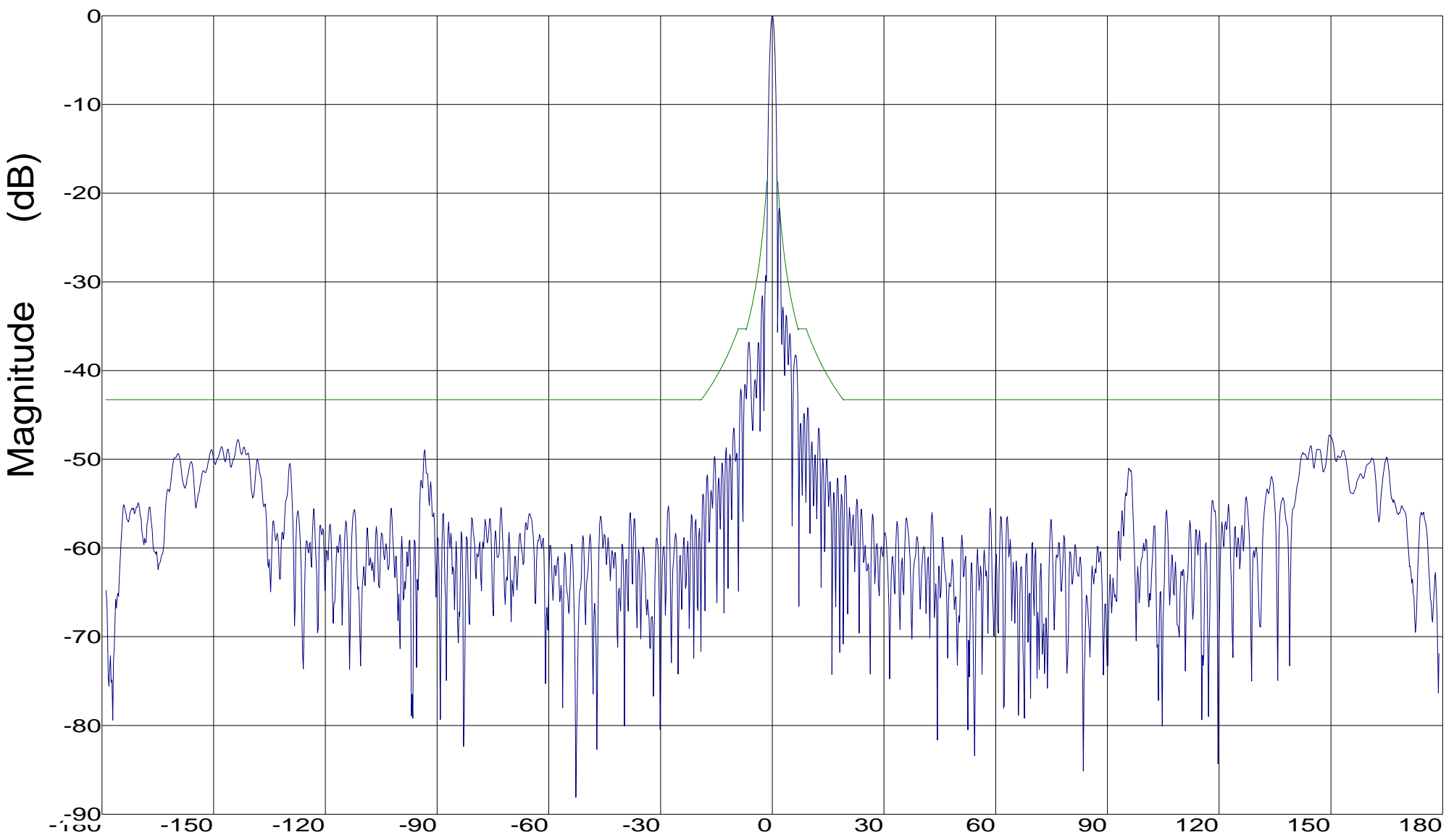
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 14.500 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 29.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

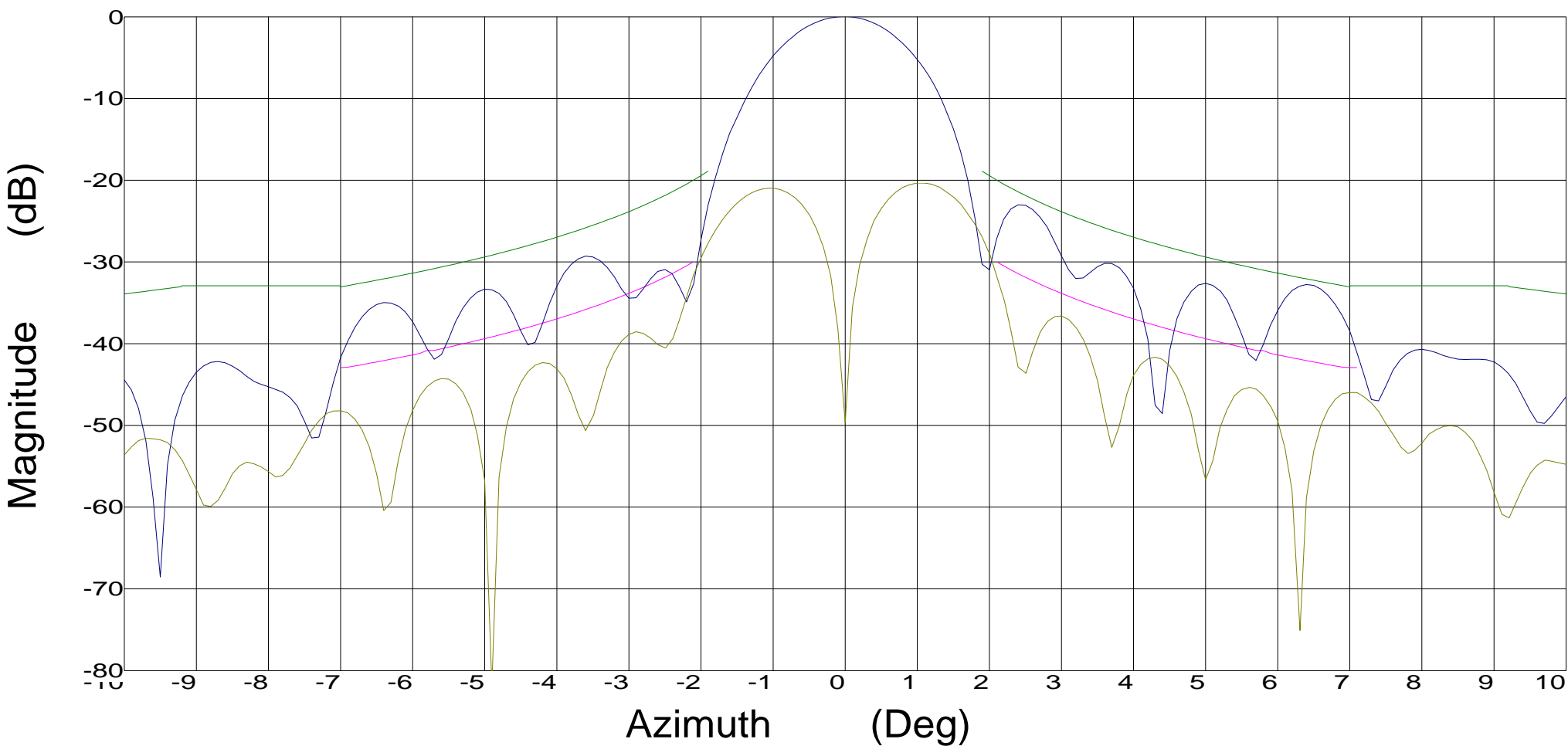
Azimuth (Deg)

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 47.dat-ant\_under\_test — 2365 47.dat  
2365 49.dat-ant\_under\_test — 2365 49.dat

3dB Beam Width (DEG) 1.56  
10dB Beam Width (DEG) 2.70

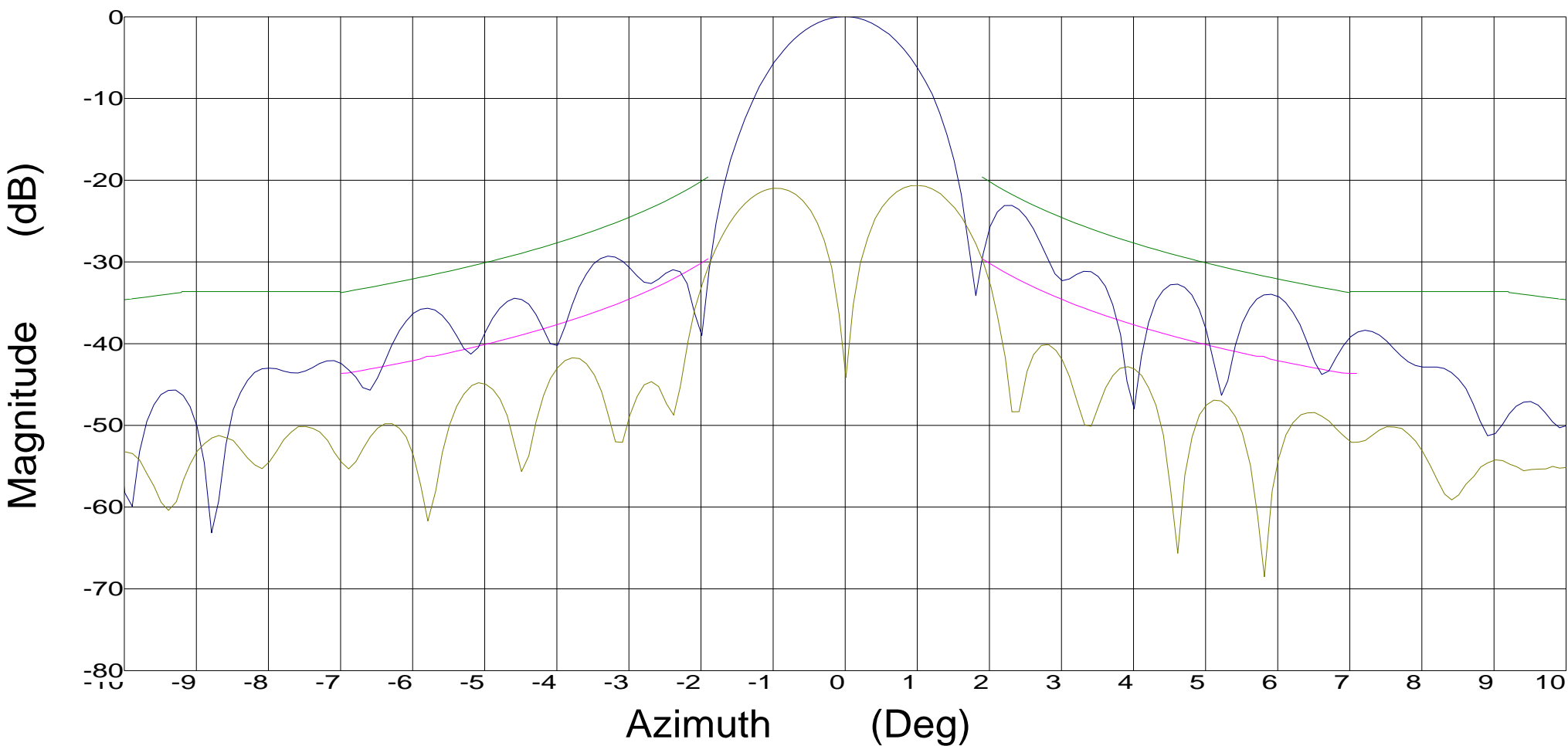
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 47.dat-ant\_under\_test — 2365 47.dat  
2365 49.dat-ant\_under\_test — 2365 49.dat

3dB Beam Width (DEG) 1.44  
10dB Beam Width (DEG) 2.50

RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

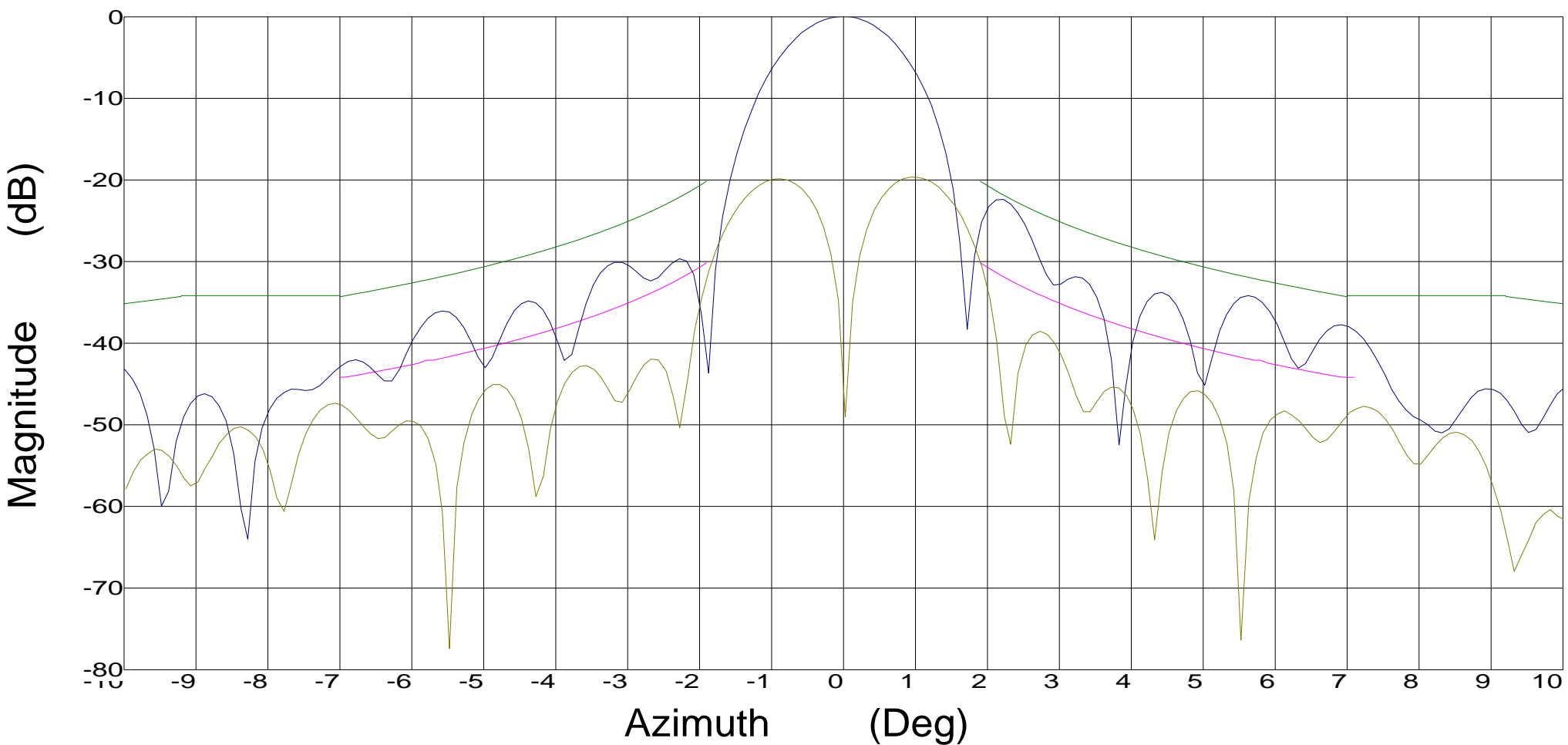


# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 47.dat-ant\_under\_test — 2365 47.dat  
2365 49.dat-ant\_under\_test — 2365 49.dat

3dB Beam Width (DEG) 1.38  
10dB Beam Width (DEG) 2.38

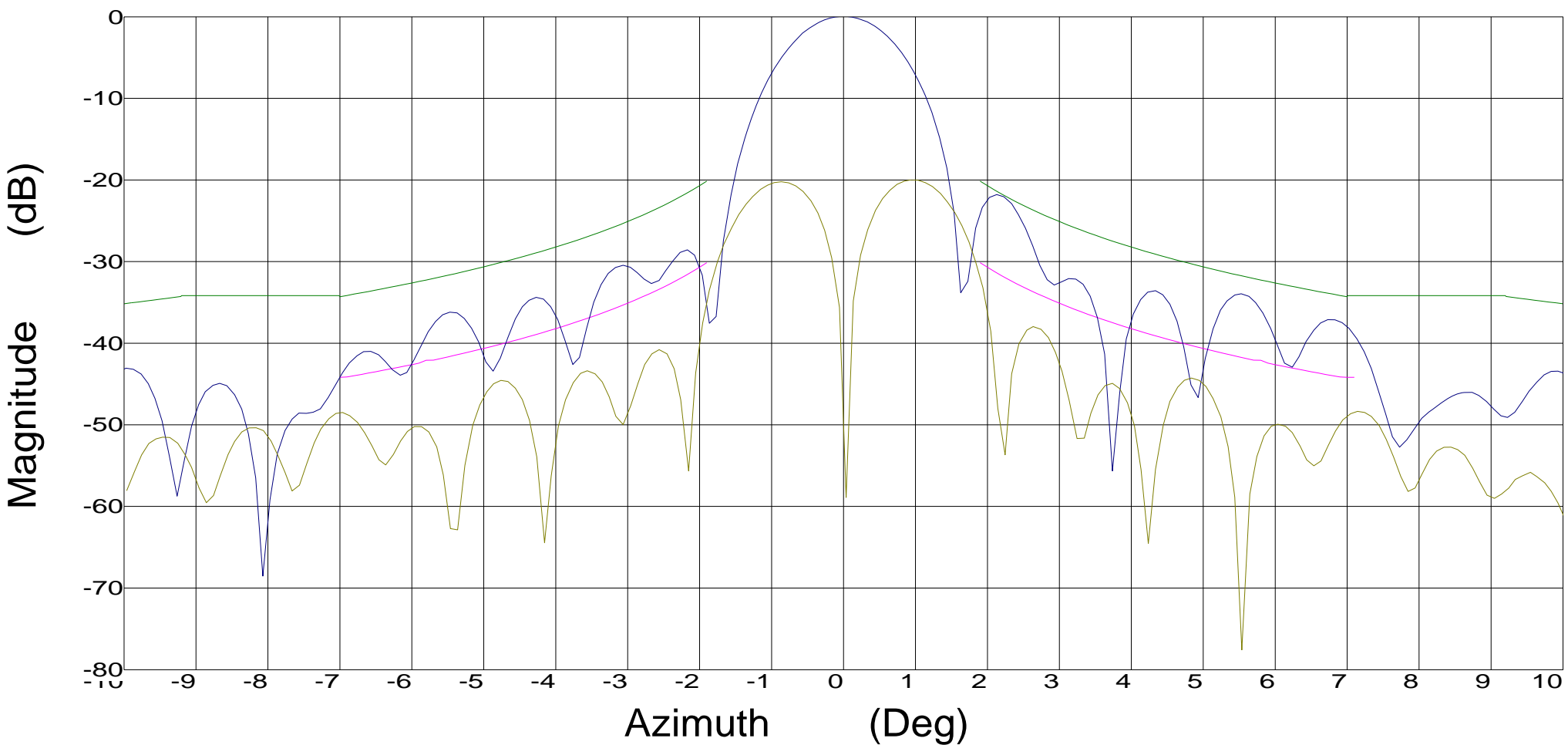
RPE: 47 CFR 25.209 Co-Pol Azimuth  
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 47.dat-ant\_under\_test — 2365 47.dat  
2365 49.dat-ant\_under\_test — 2365 49.dat

3dB Beam Width (DEG) 1.35  
10dB Beam Width (DEG) 2.32

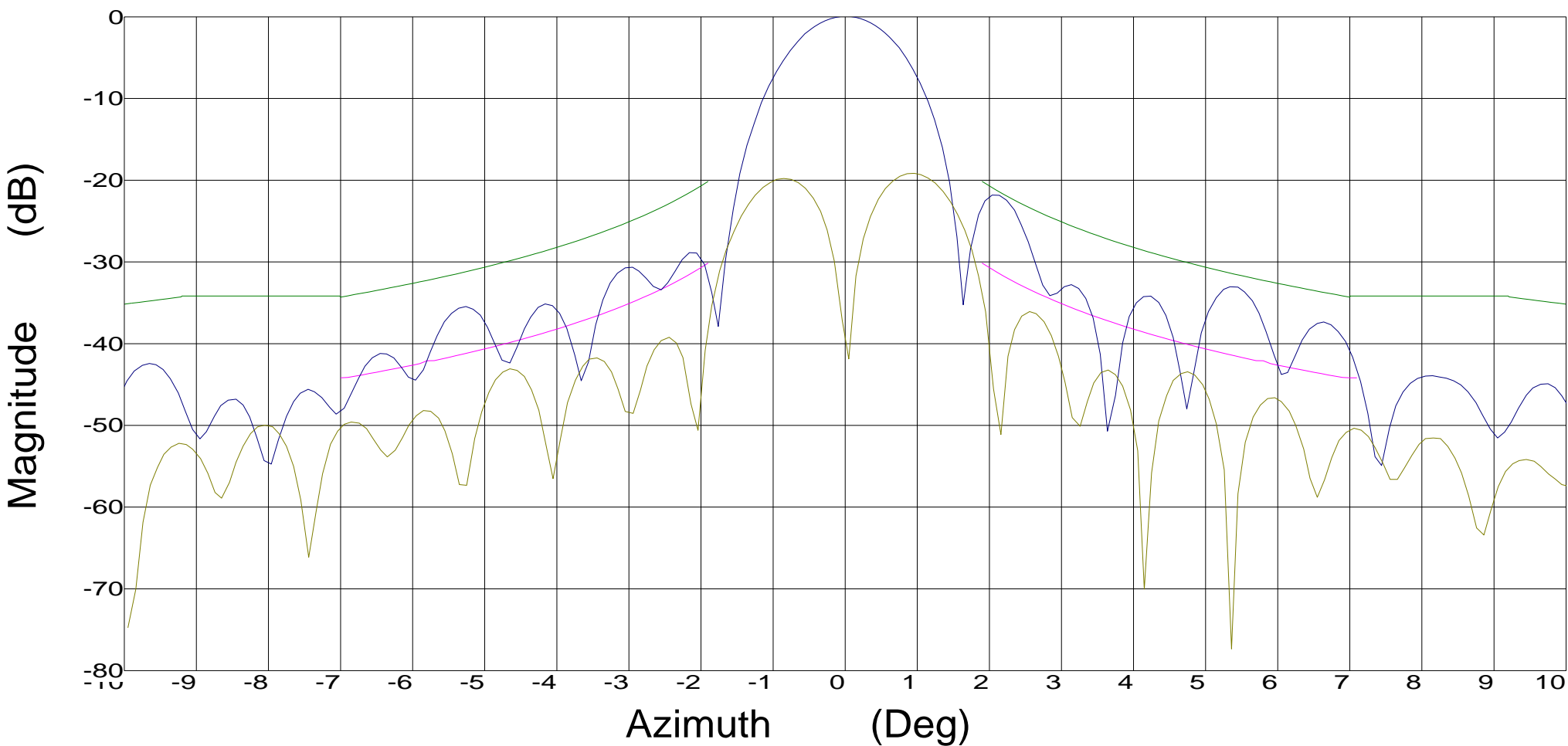
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 47.dat-ant\_under\_test — 2365 47.dat  
2365 49.dat-ant\_under\_test — 2365 49.dat

RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

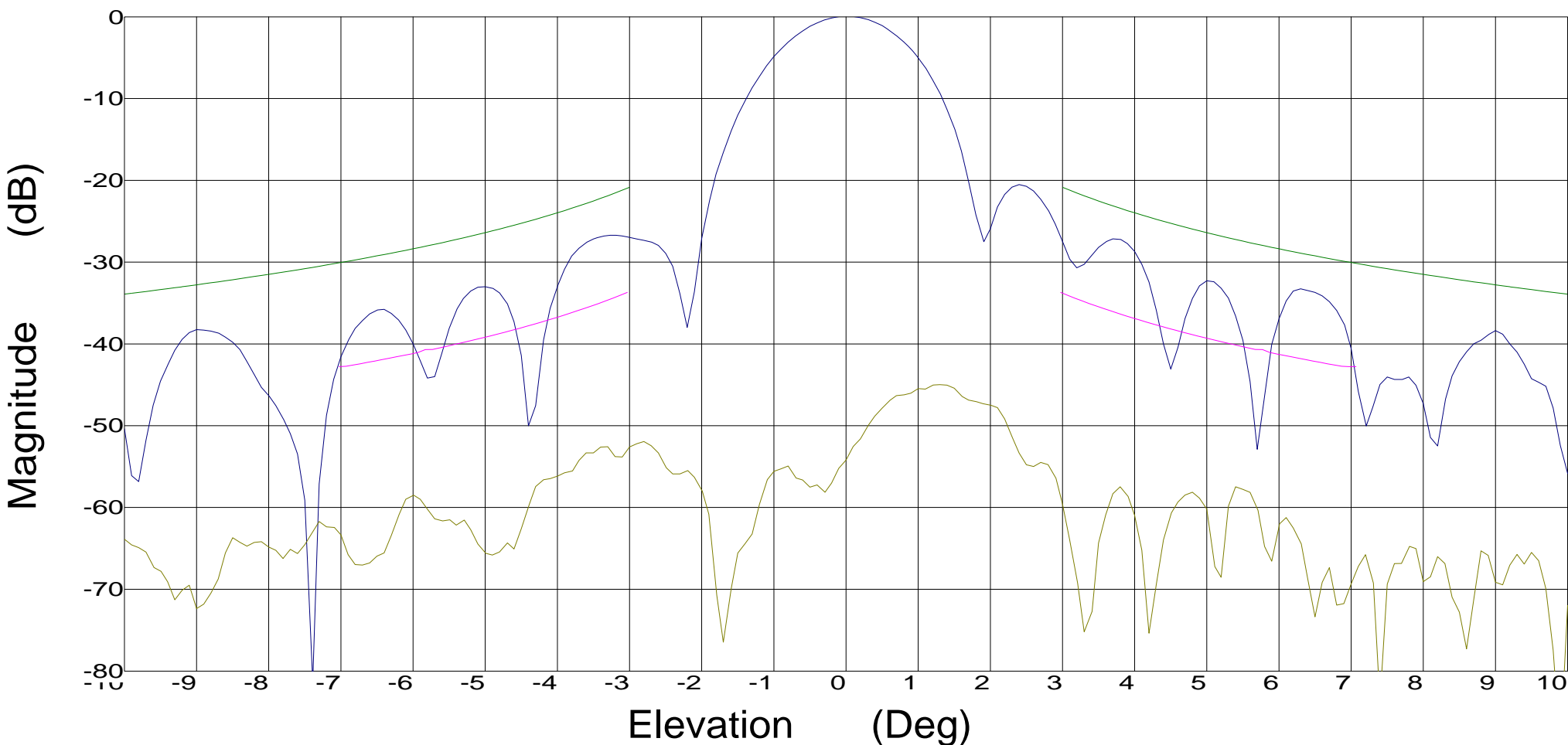
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
 2365 48.dat-ant\_under\_test — 2365 48.dat  
 2365 50.dat-ant\_under\_test — 2365 50.dat

3dB Beam Width (DEG) 1.56  
 10dB Beam Width (DEG) 2.71

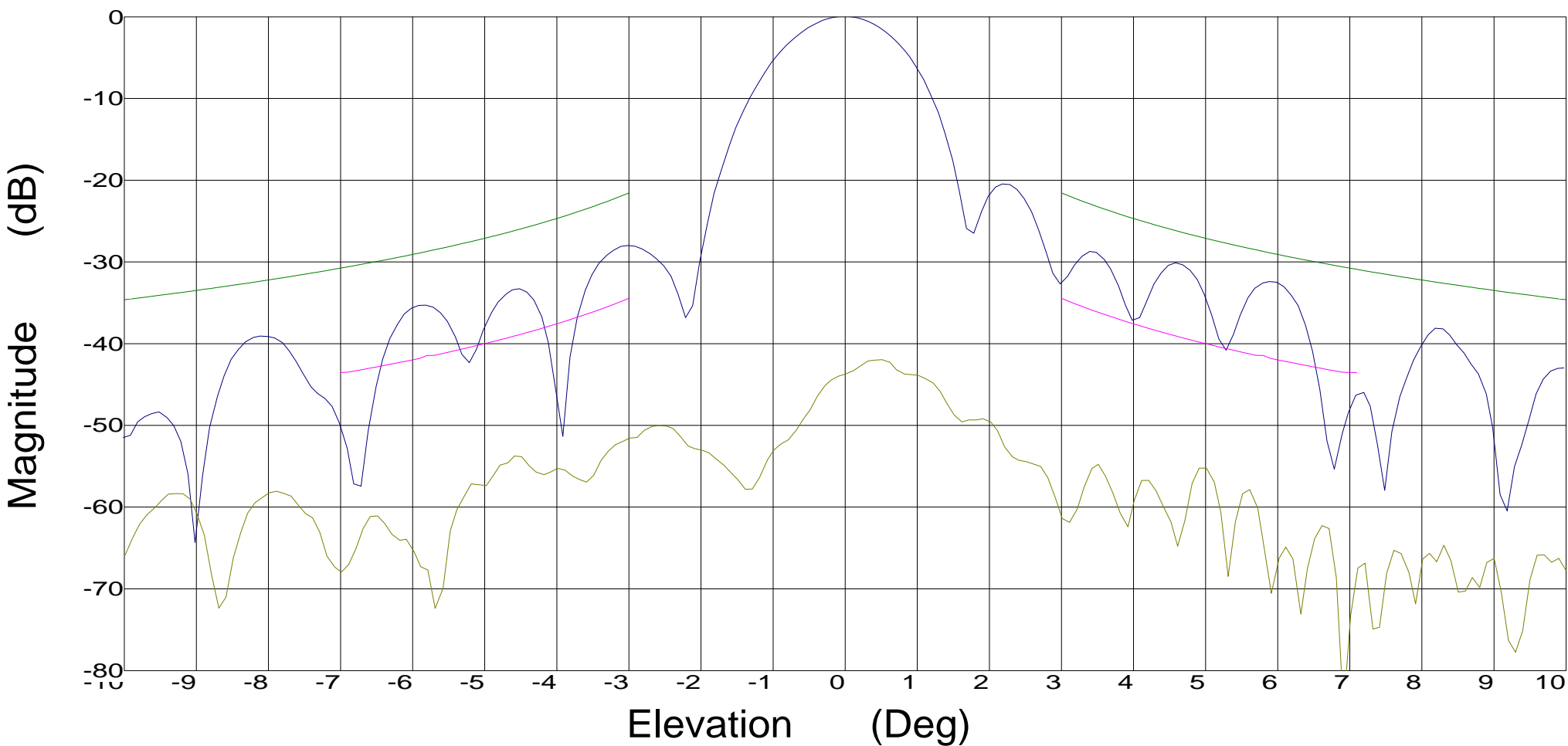
RPE: 47 CFR 25.209 Co-Pol Elevation  
 RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 48.dat-ant\_under\_test — 2365 48.dat  
2365 50.dat-ant\_under\_test — 2365 50.dat

3dB Beam Width (DEG) 1.45  
10dB Beam Width (DEG) 2.53

RPE: 47 CFR 25.209 Co-Pol Elevation\_\_\_\_\_

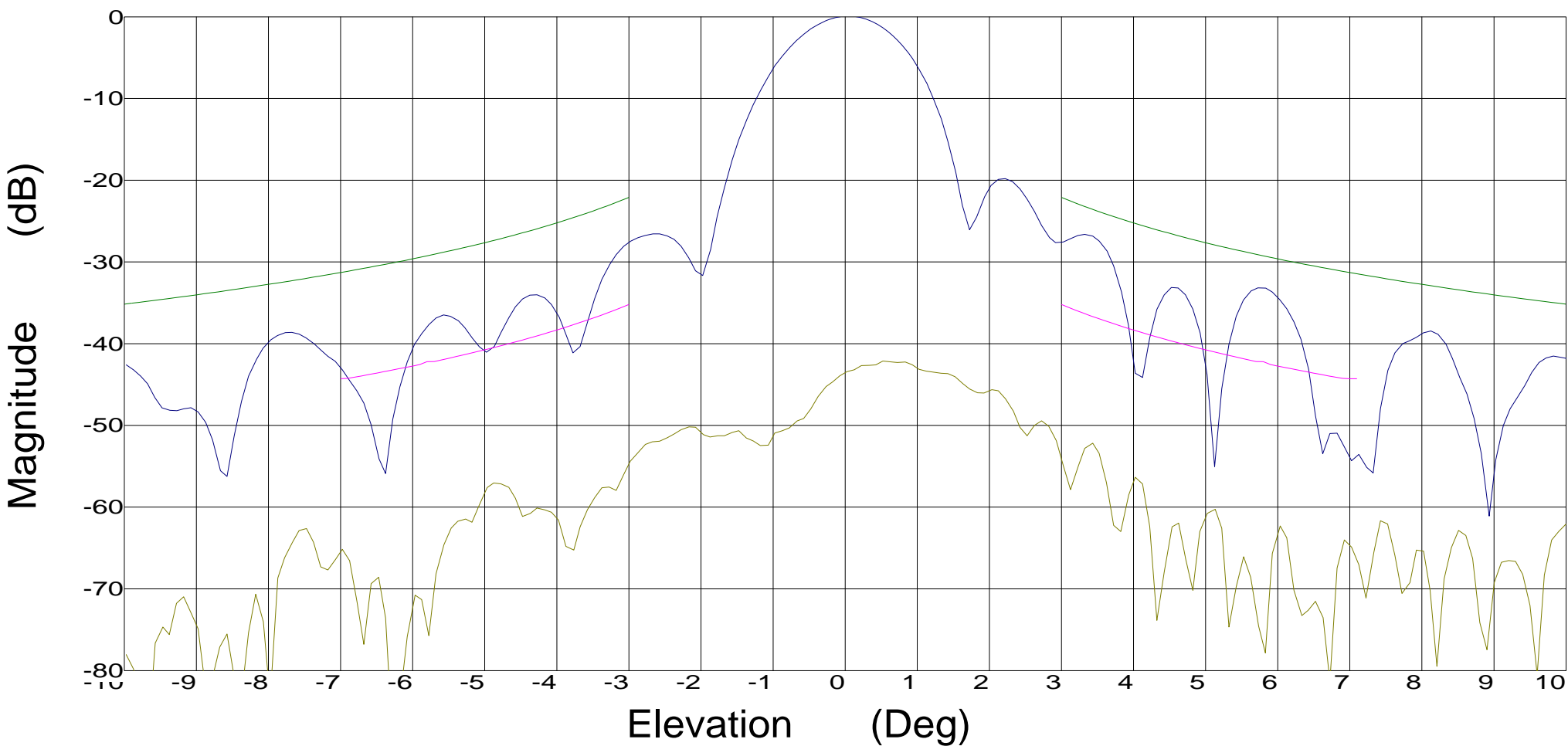
RPE: 47 CFR 25.209 X-Pol\_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 48.dat-ant\_under\_test — 2365 48.dat  
2365 50.dat-ant\_under\_test — 2365 50.dat

RPE: 47 CFR 25.209 Co-Pol Elevation

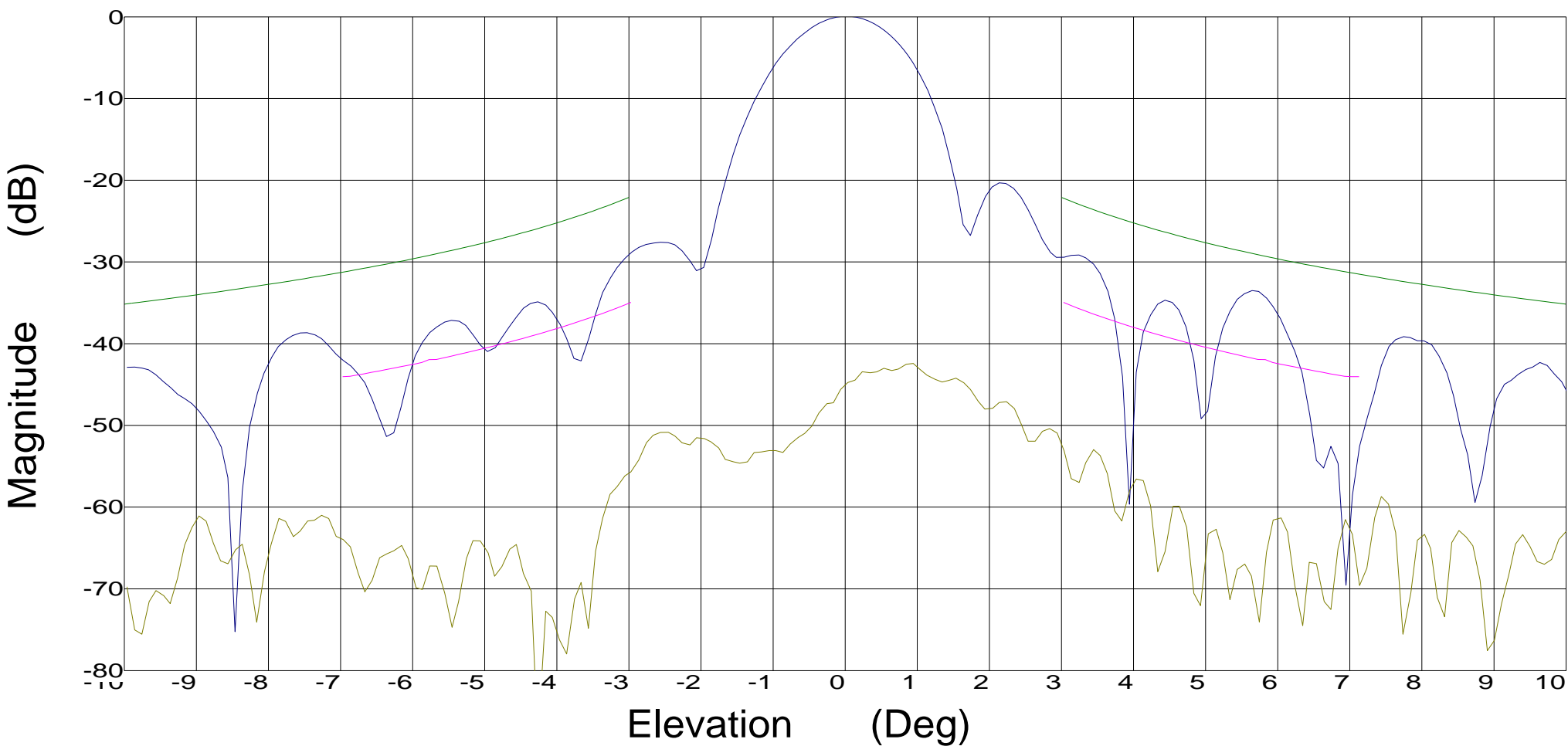
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 48.dat-ant\_under\_test — 2365 48.dat  
2365 50.dat-ant\_under\_test — 2365 50.dat

3dB Beam Width (DEG) 1.39  
10dB Beam Width (DEG) 2.43

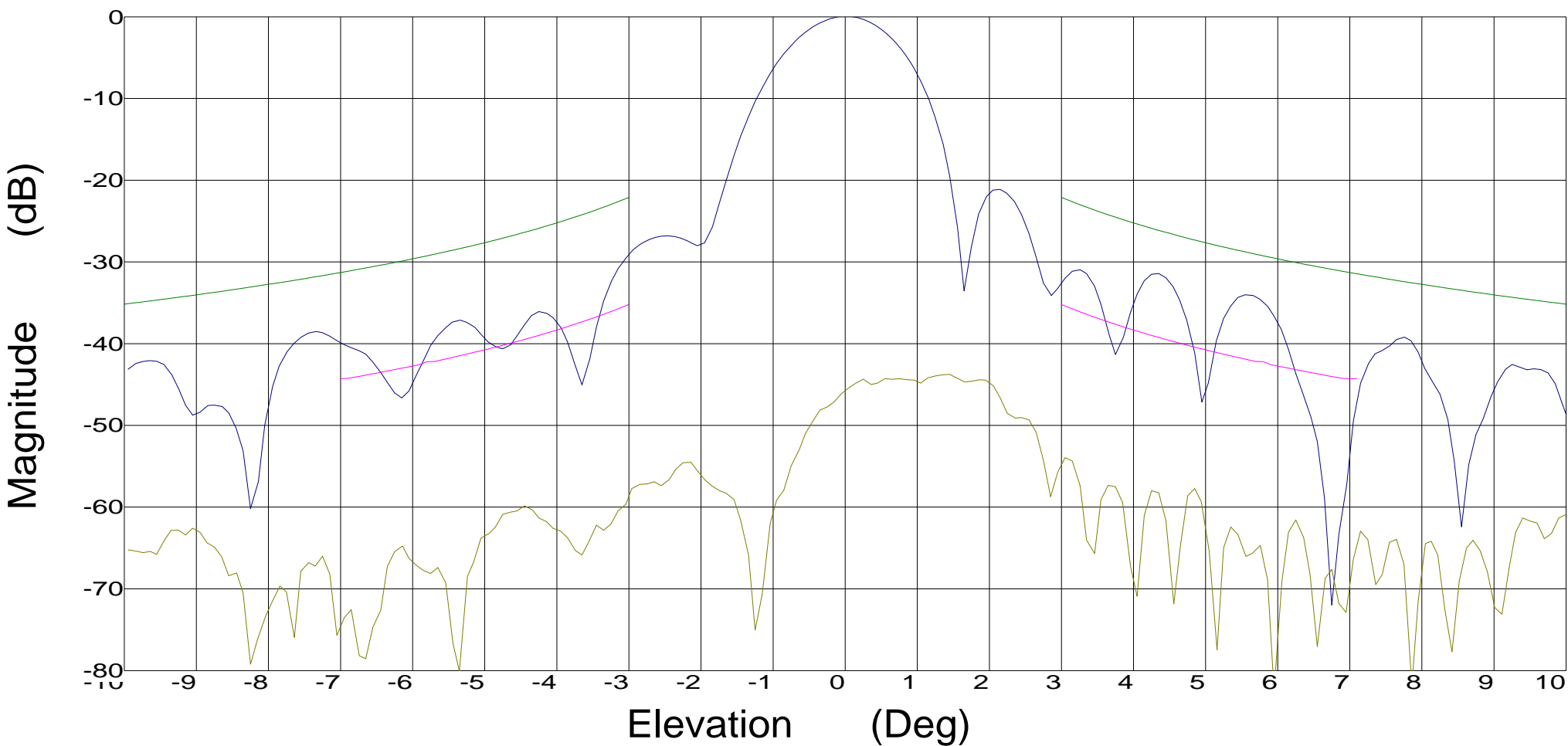
RPE: 47 CFR 25.209 Co-Pol Elevation  
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Vert.

Rx pol: Vert.



Overlays  
2365 48.dat-ant\_under\_test — 2365 48.dat  
2365 50.dat-ant\_under\_test — 2365 50.dat

RPE: 47 CFR 25.209 Co-Pol Elevation

RPE: 47 CFR 25.209 X-Pol



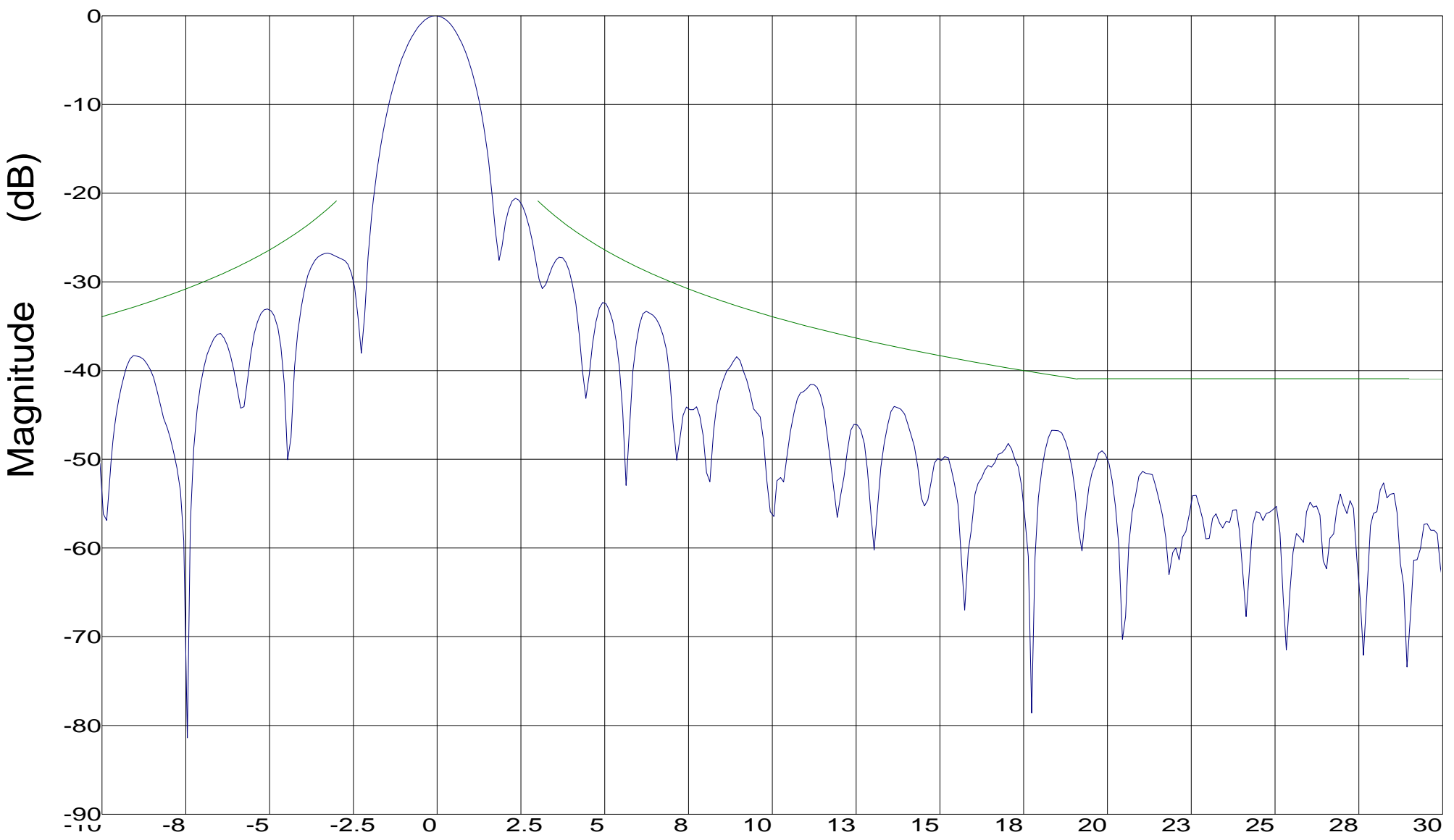
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 48.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

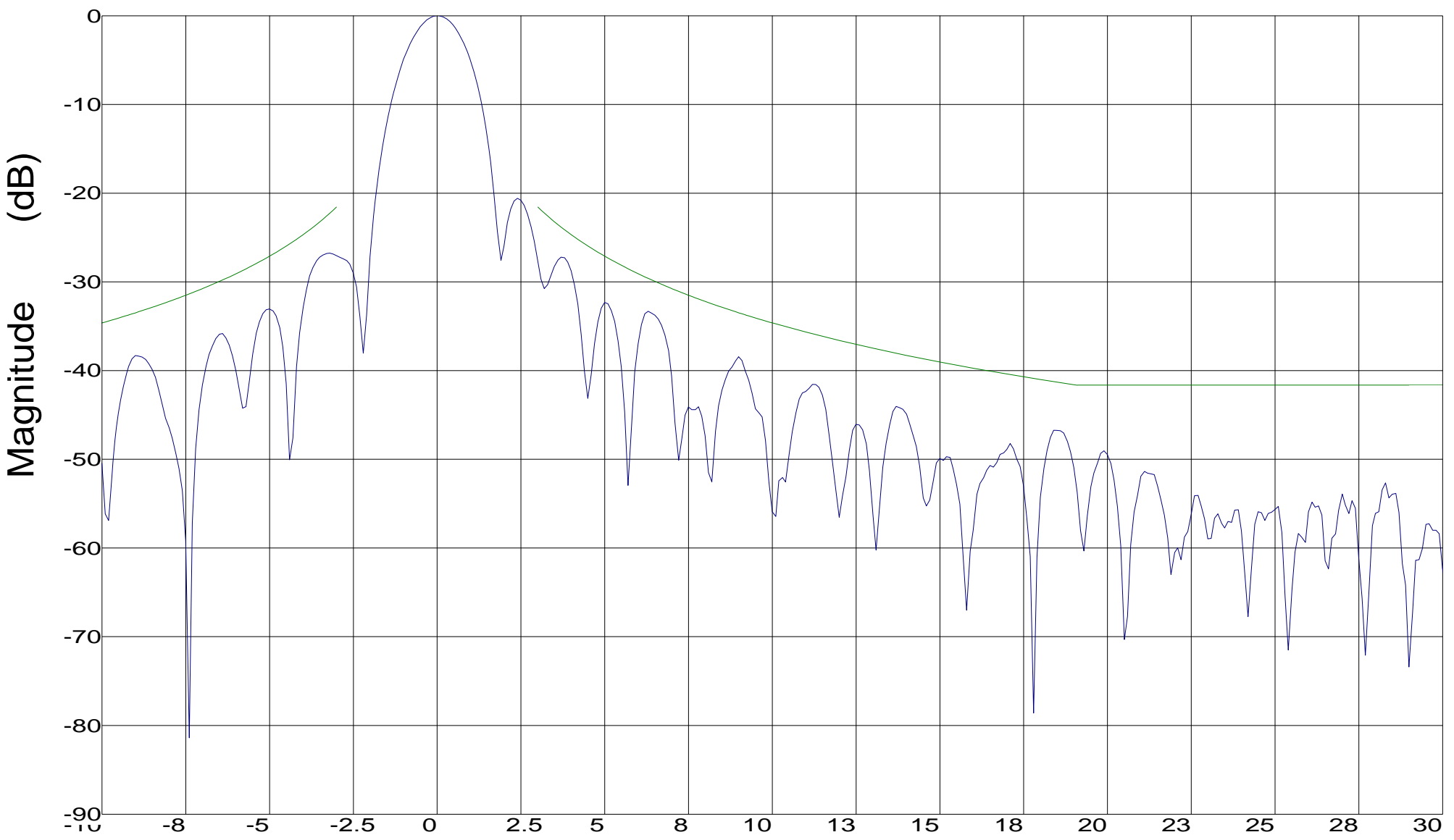
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 48.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

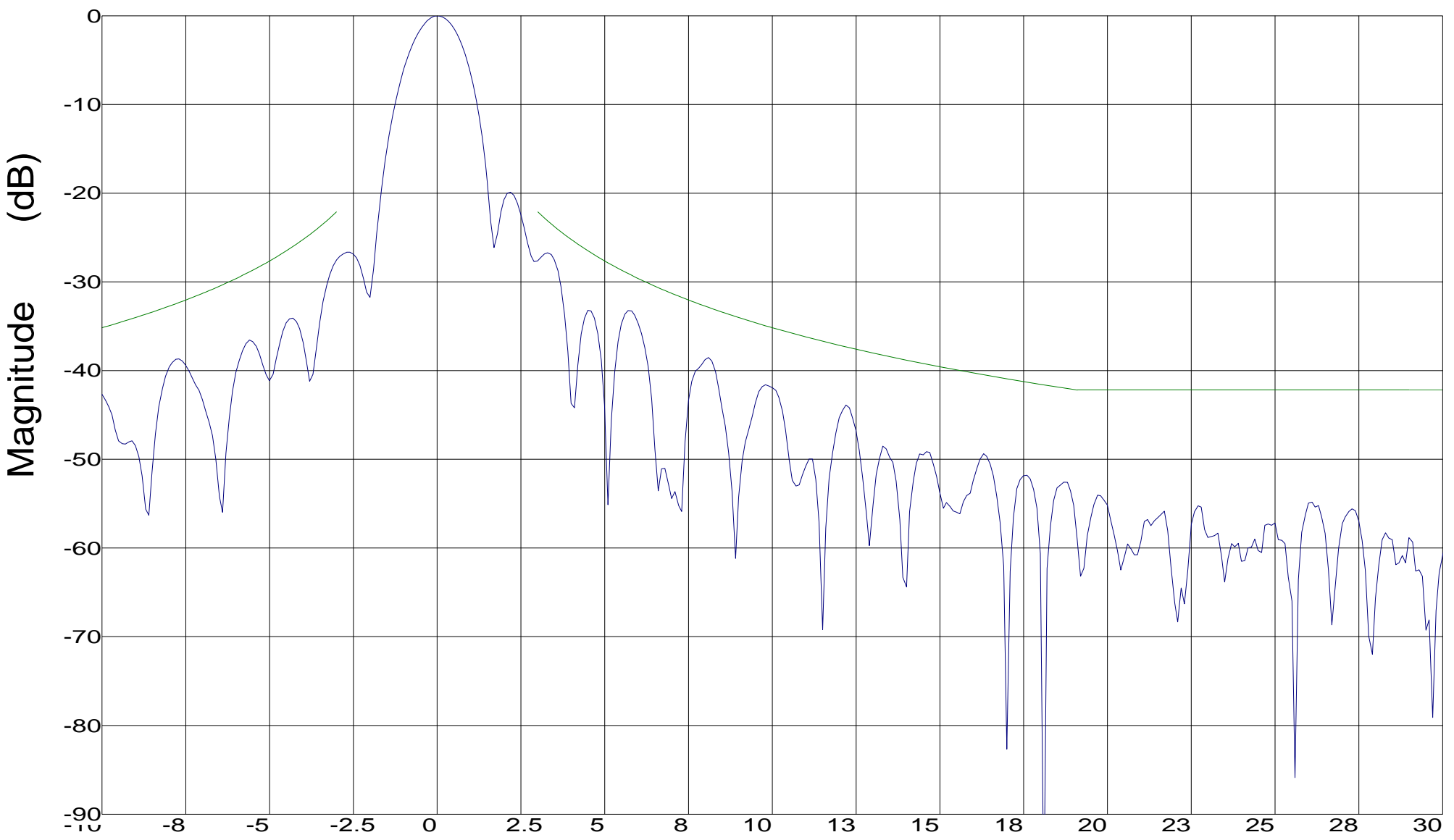
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 48.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

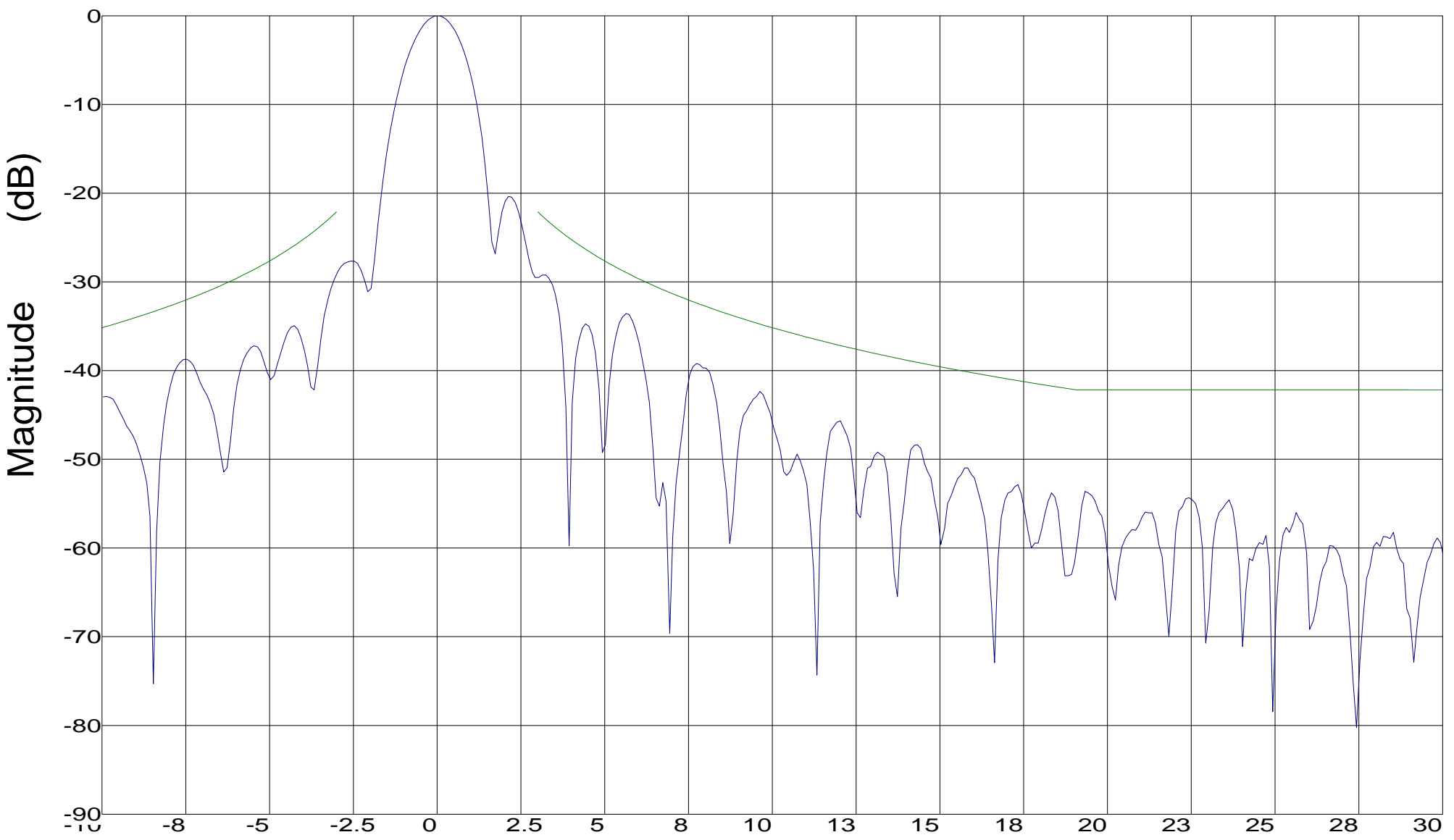
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 48.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

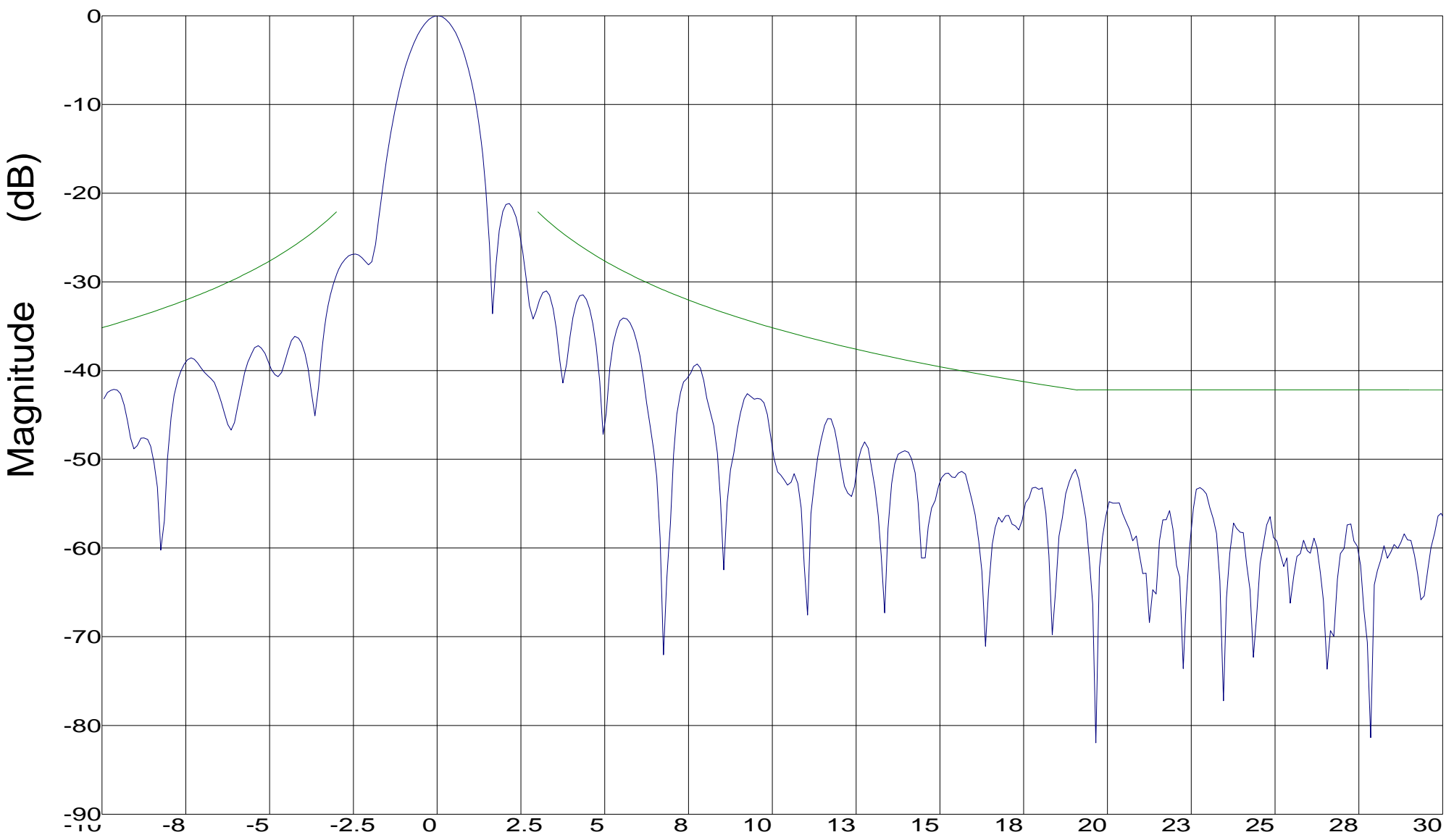
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 48.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

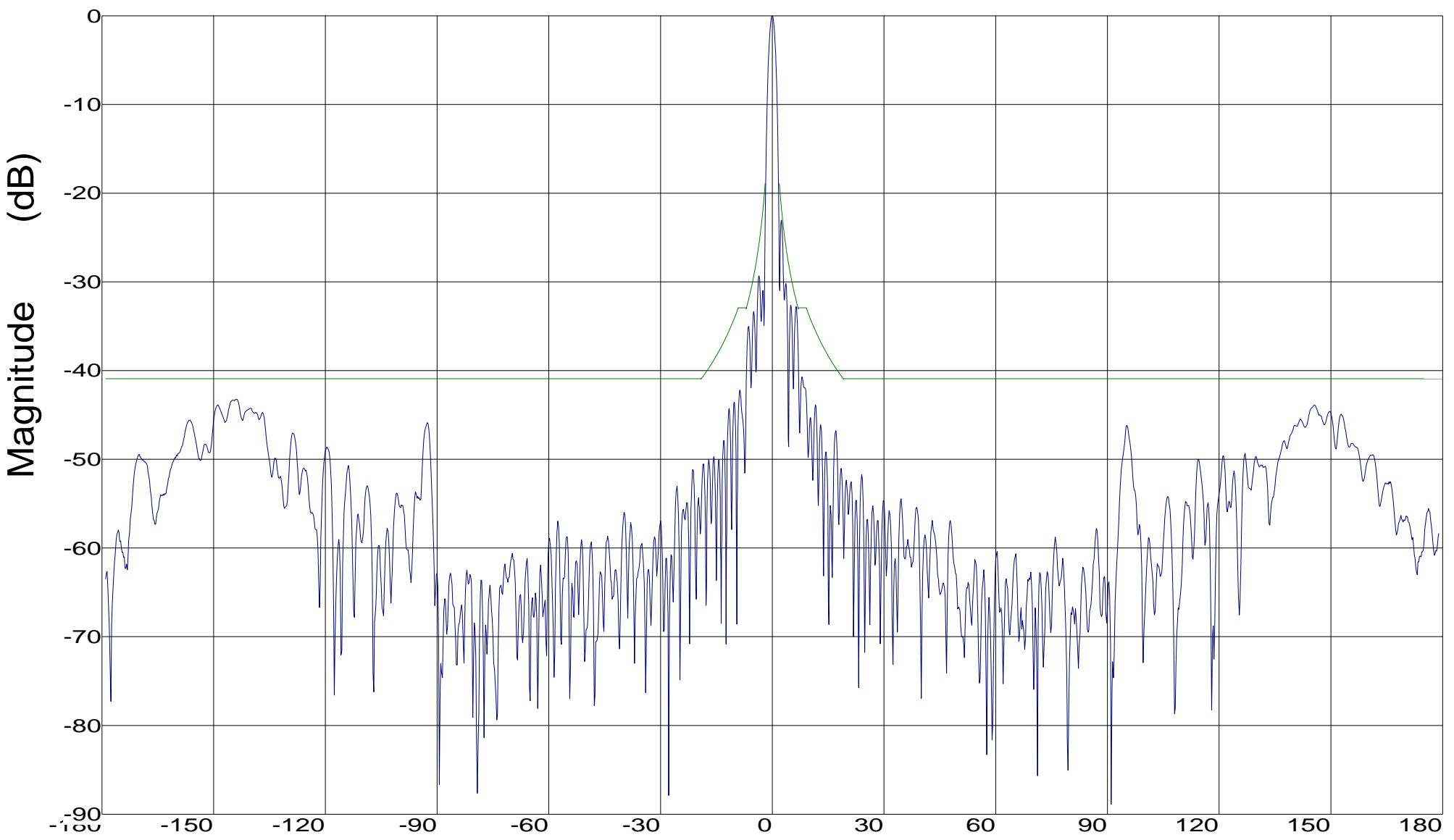
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 47.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Azimuth

## Azimuth (Deg)

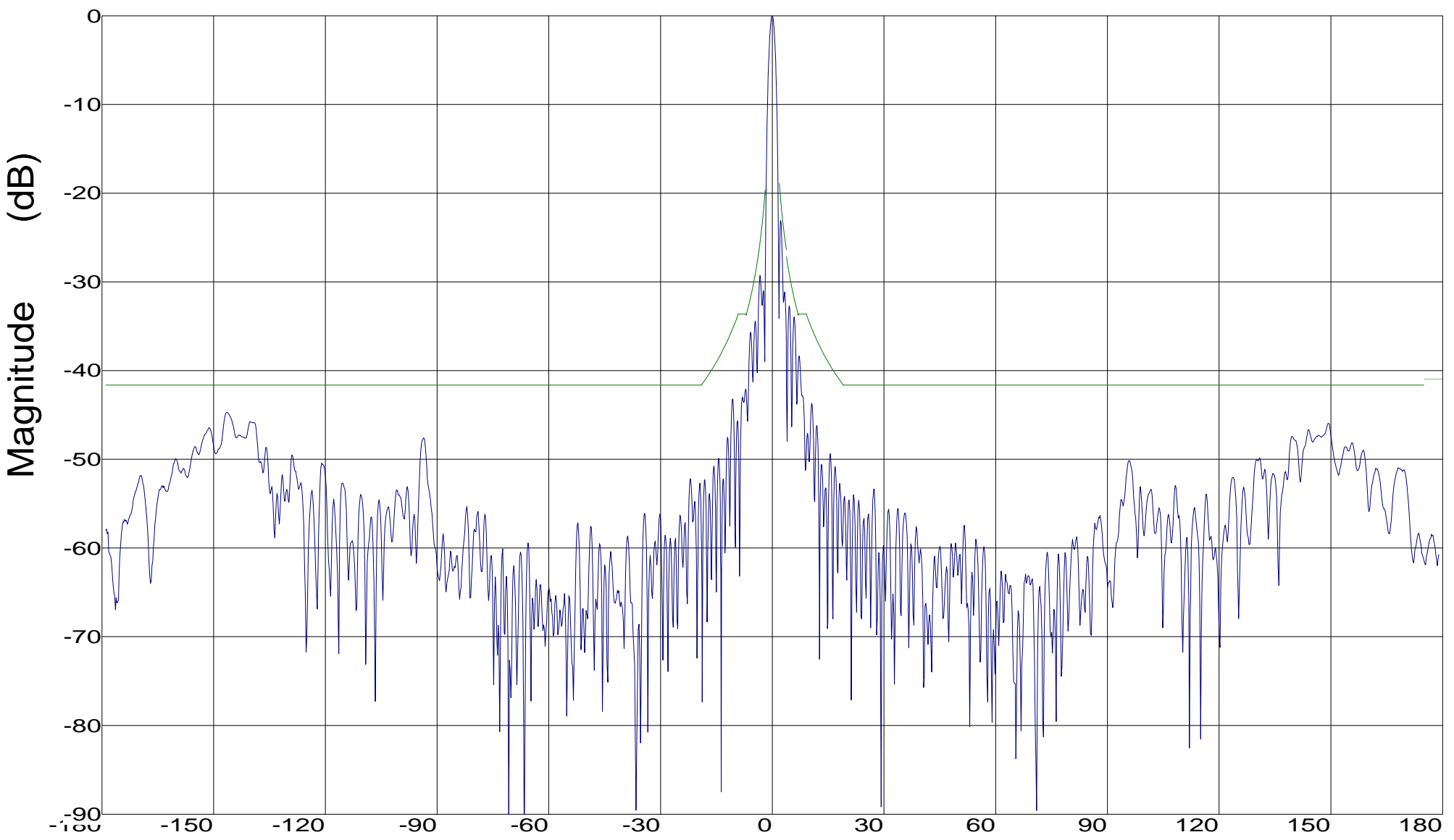
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 47.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Vert.

Rx pol: Vert.



RPE: 47 CFR 25.209 Co-Pol Azimuth

Azimuth (Deg)

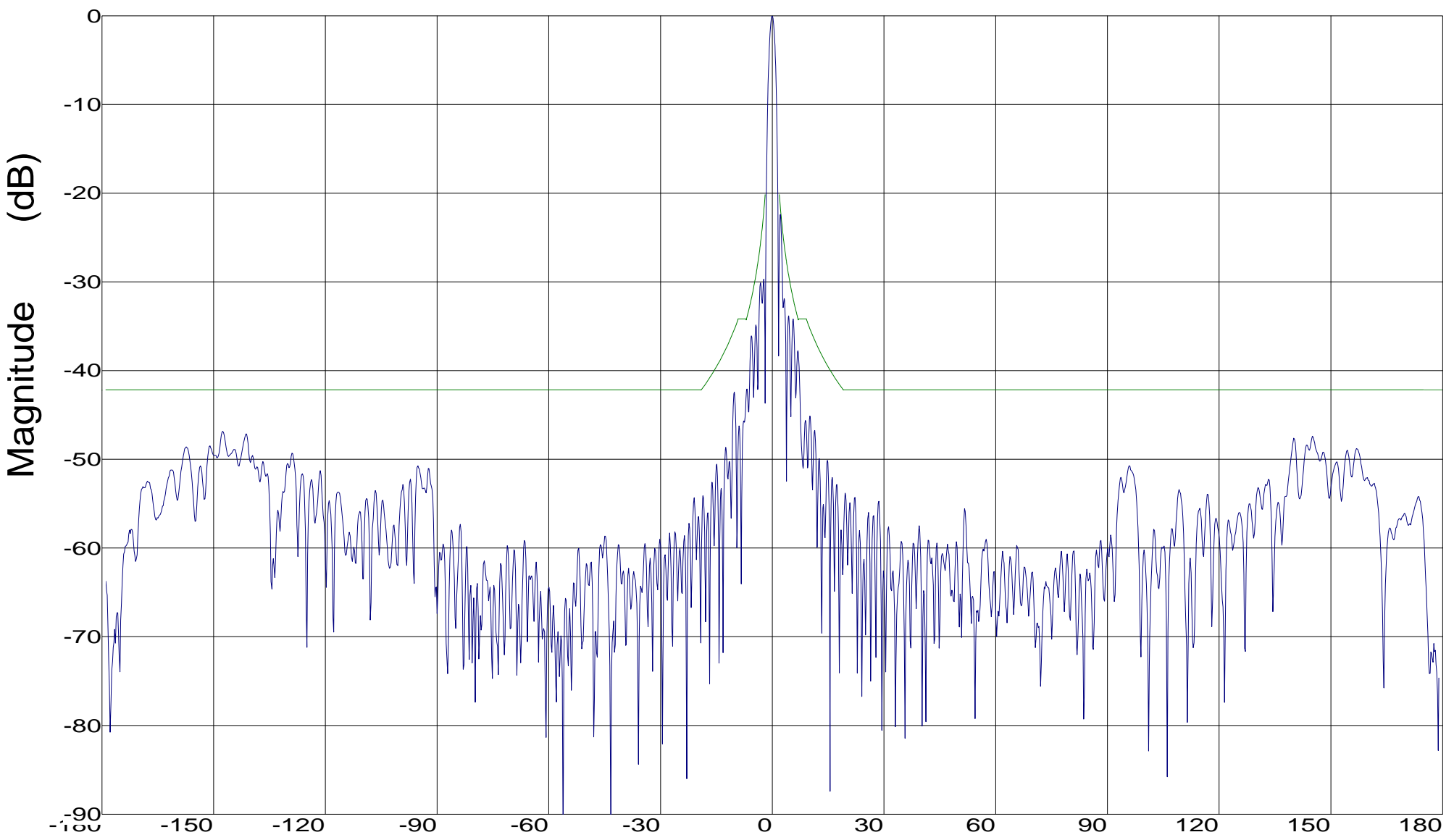
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 47.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth\_\_\_\_\_

Azimuth (Deg)



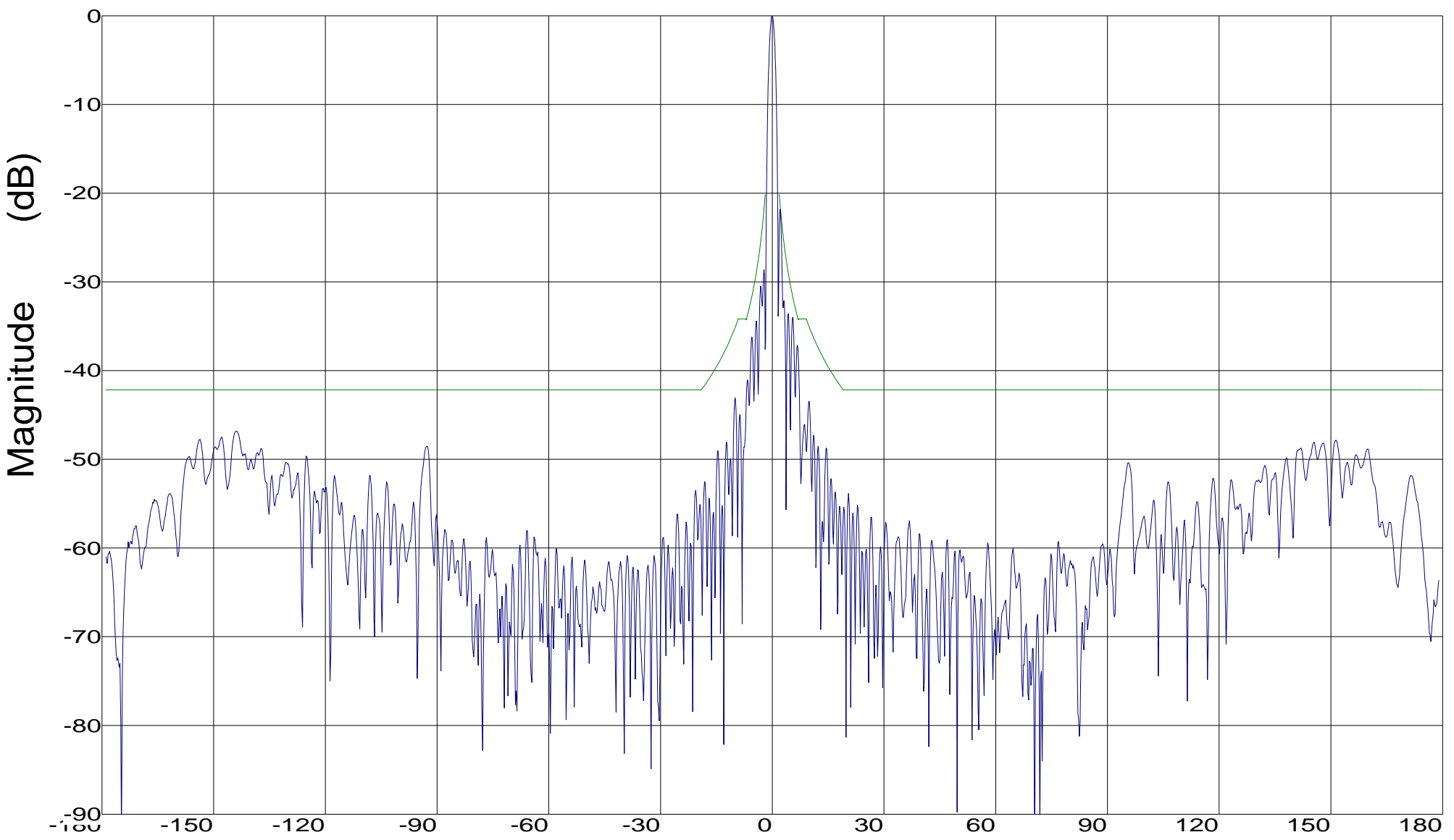
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 47.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth

Azimuth (Deg)

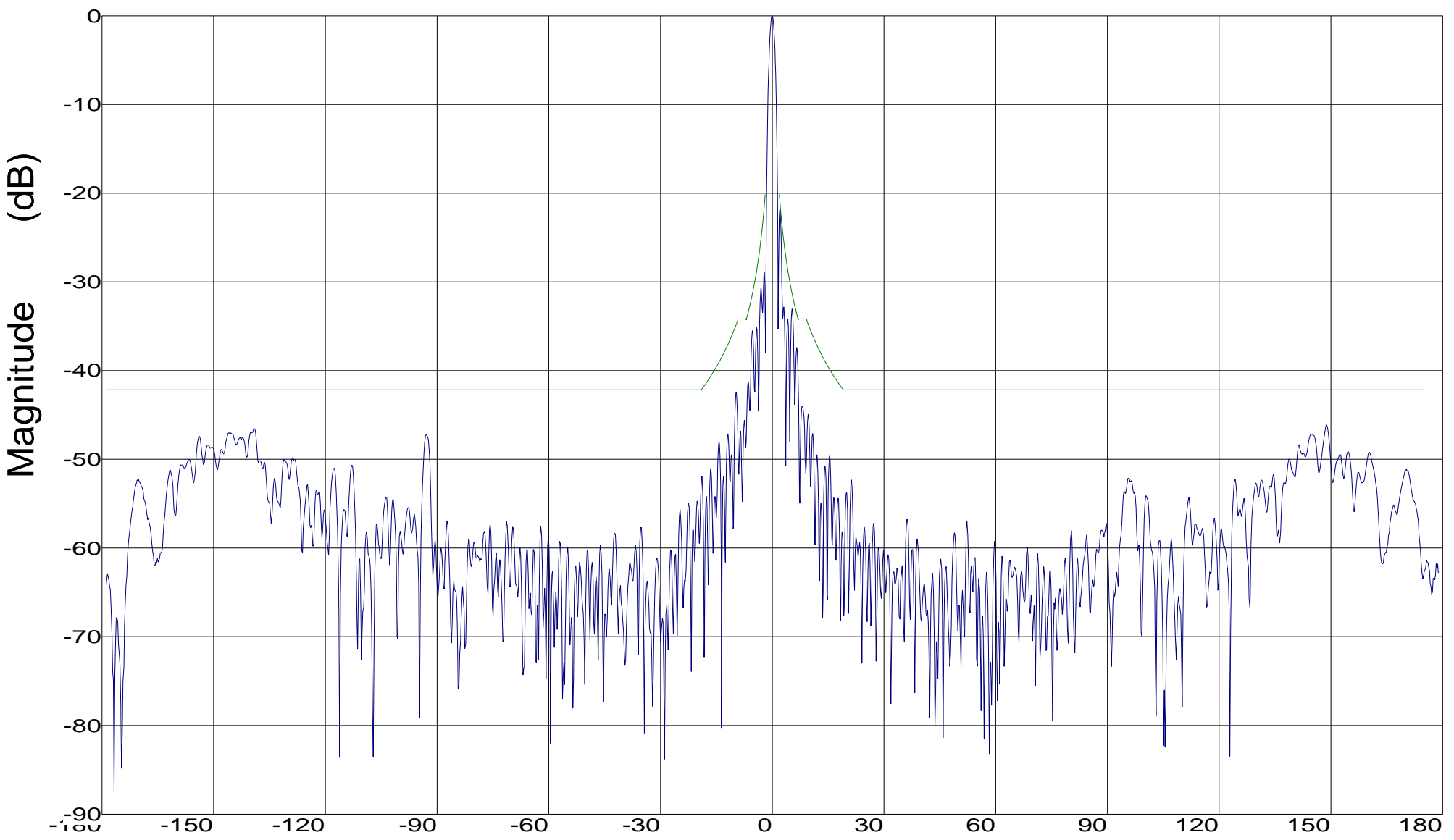
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Vert.

Rx pol: Vert.

Calibration status:  
File: 2365 47.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth\_\_\_\_\_

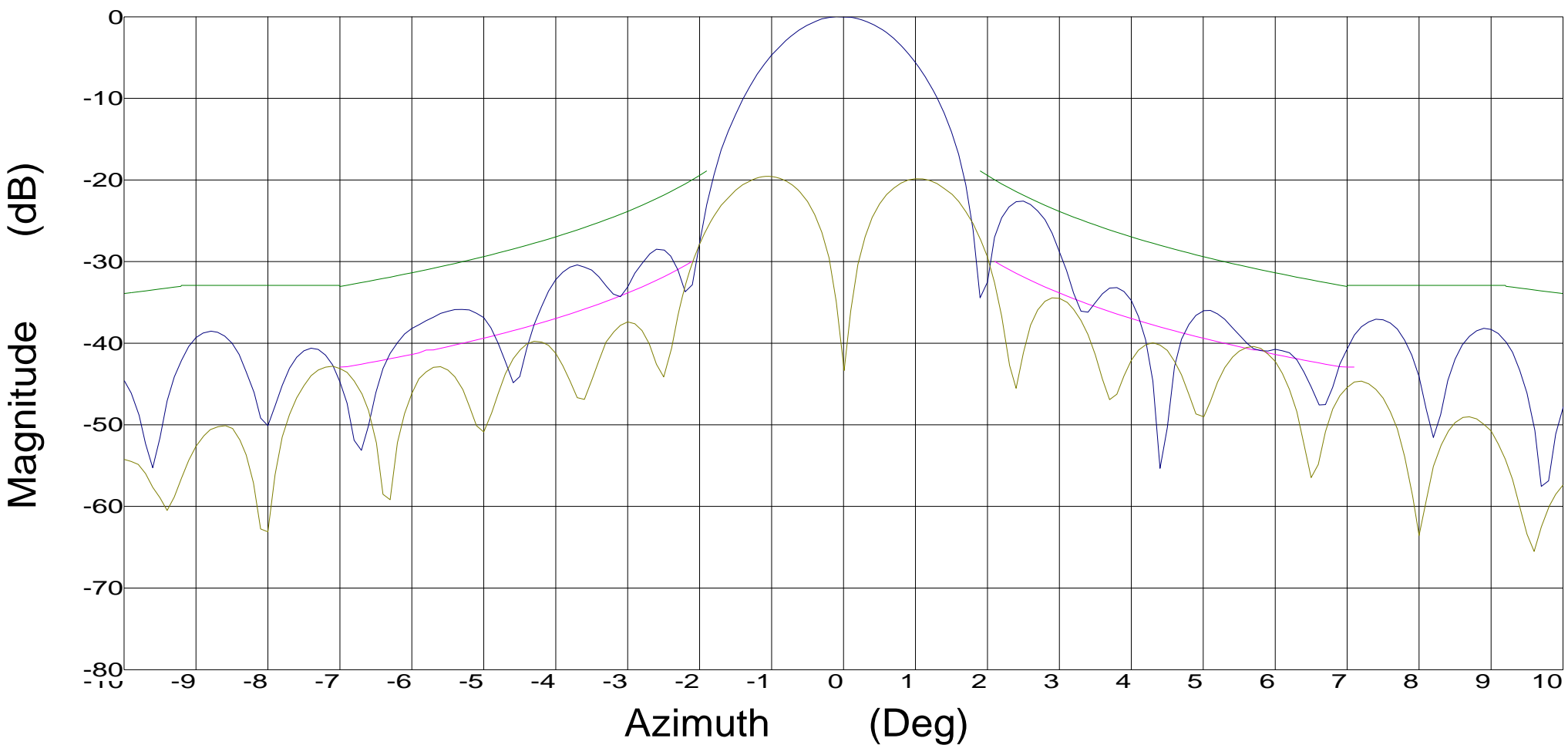
Azimuth (Deg)

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 41.dat-ant\_under\_test — 2365 41.dat  
2365 43.dat-ant\_under\_test — 2365 43.dat

3dB Beam Width (DEG) 1.55  
10dB Beam Width (DEG) 2.70

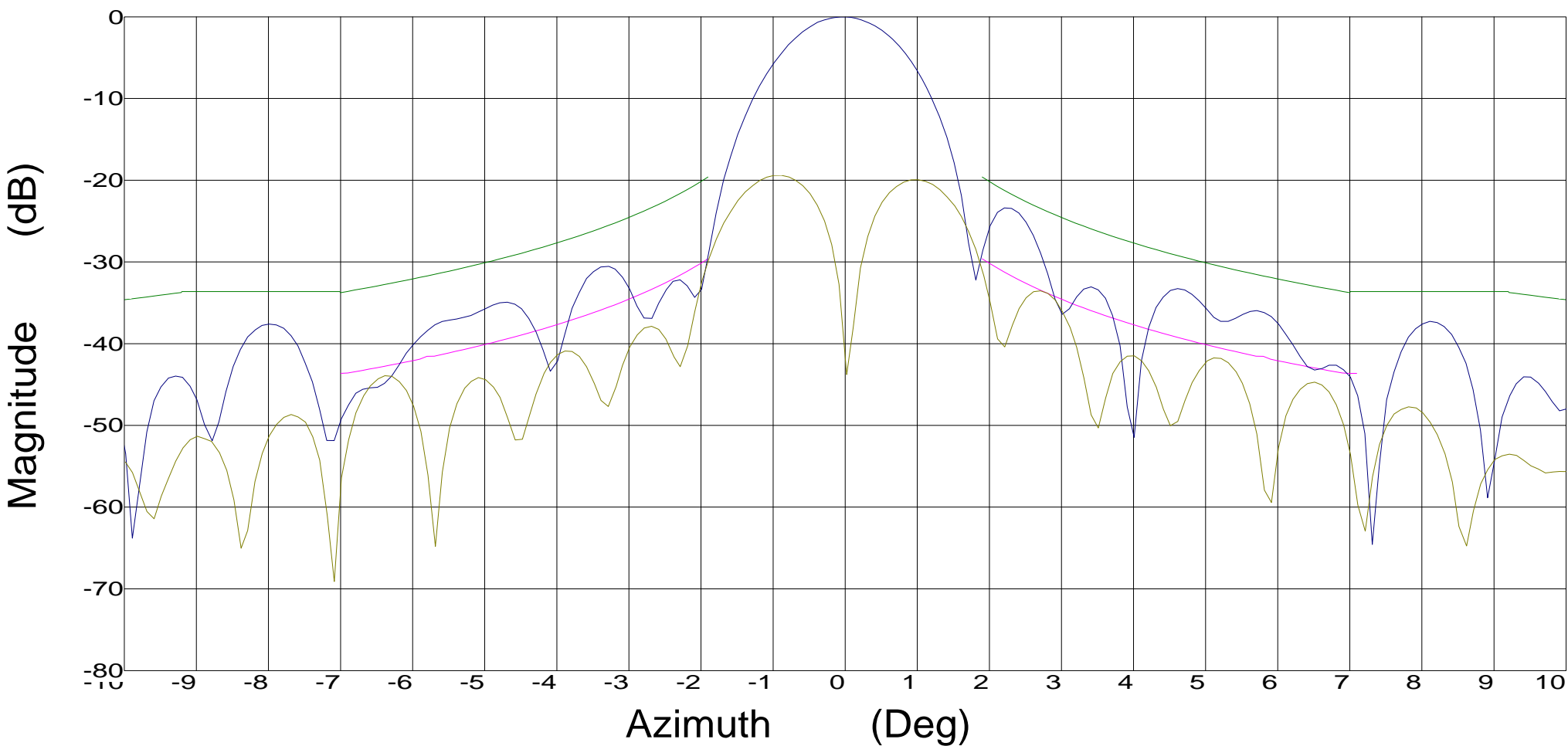
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 41.dat-ant\_under\_test — 2365 41.dat  
2365 43.dat-ant\_under\_test — 2365 43.dat

RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_

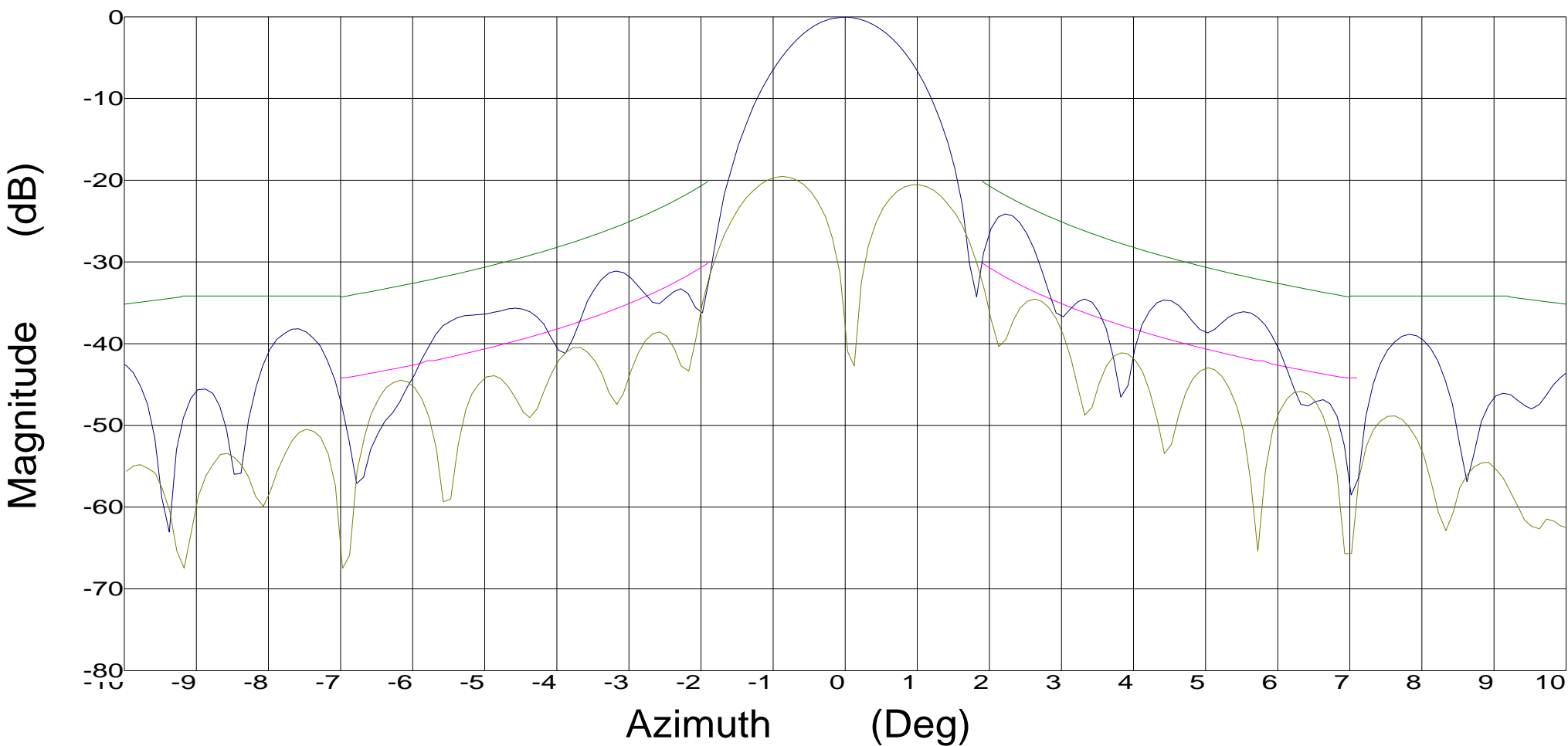
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Horiz.

Rx pol: Horiz.



3dB Beam Width (DEG) 1.39  
10dB Beam Width (DEG) 2.42

Overlays  
2365 41.dat-ant\_under\_test — 2365 41.dat  
2365 43.dat-ant\_under\_test — 2365 43.dat

RPE: 47 CFR 25.209 Co-Pol Azimuth

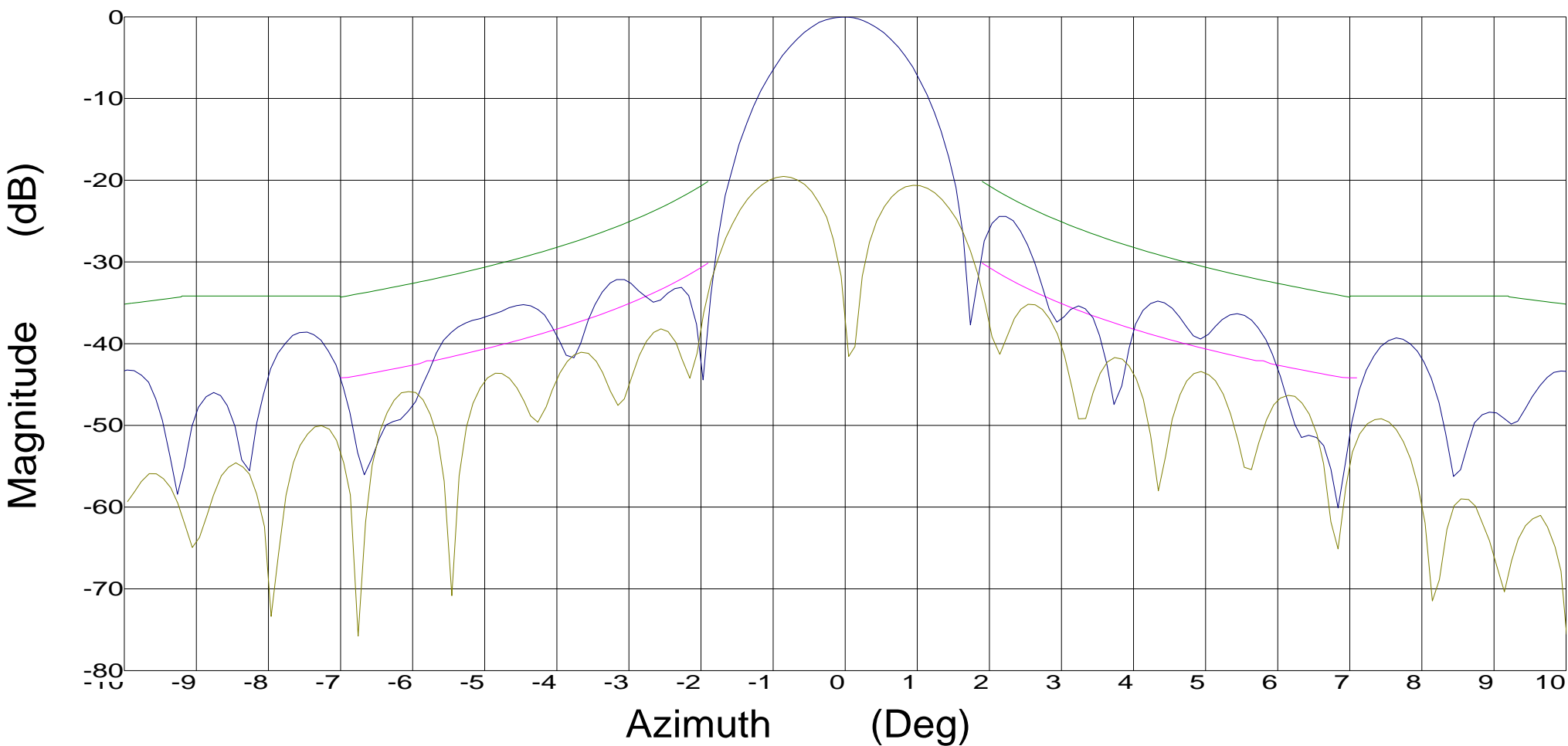
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 41.dat-ant\_under\_test — 2365 41.dat  
2365 43.dat-ant\_under\_test — 2365 43.dat

RPE: 47 CFR 25.209 Co-Pol Azimuth

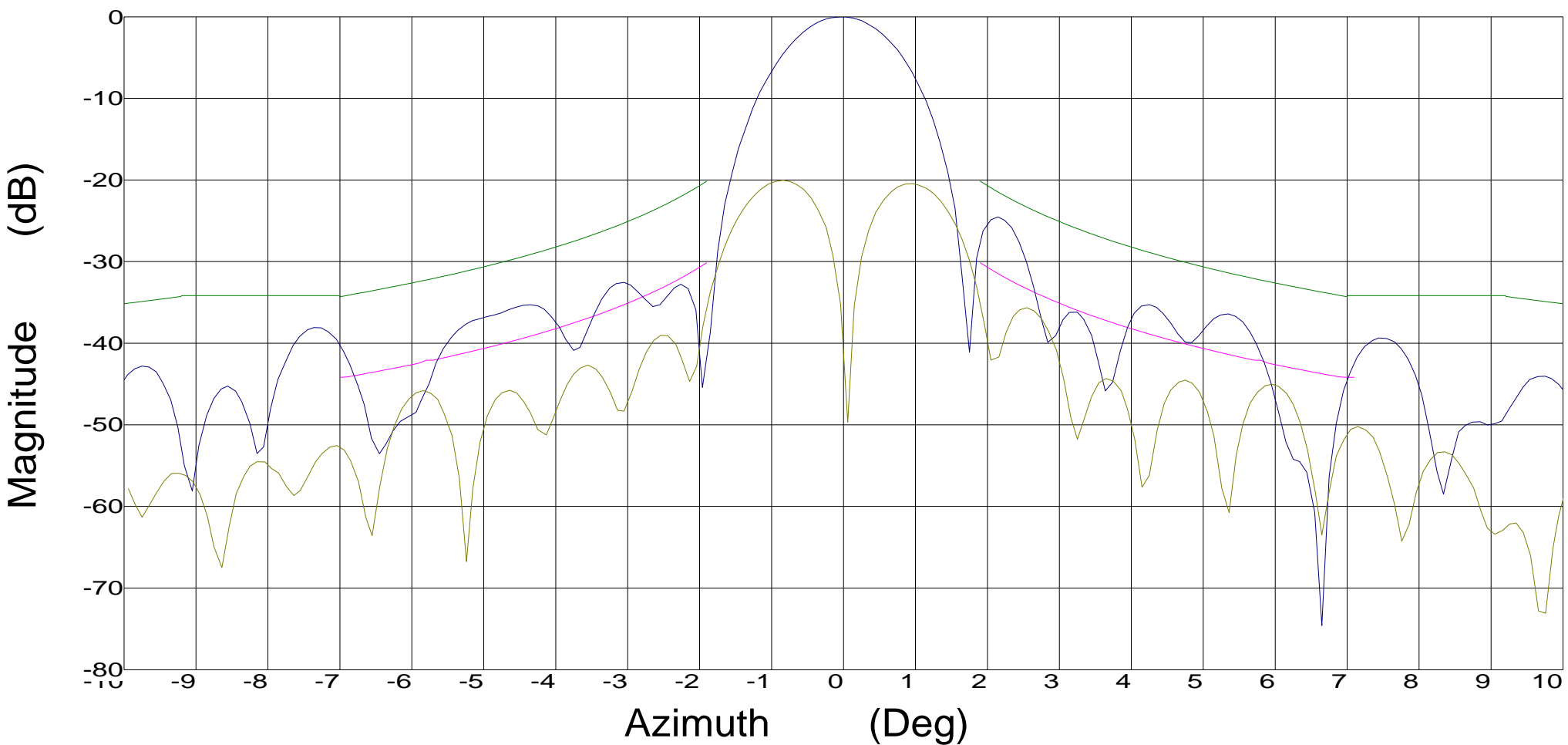
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 41.dat-ant\_under\_test — 2365 41.dat  
2365 43.dat-ant\_under\_test — 2365 43.dat

3dB Beam Width (DEG) 1.34  
10dB Beam Width (DEG) 2.34

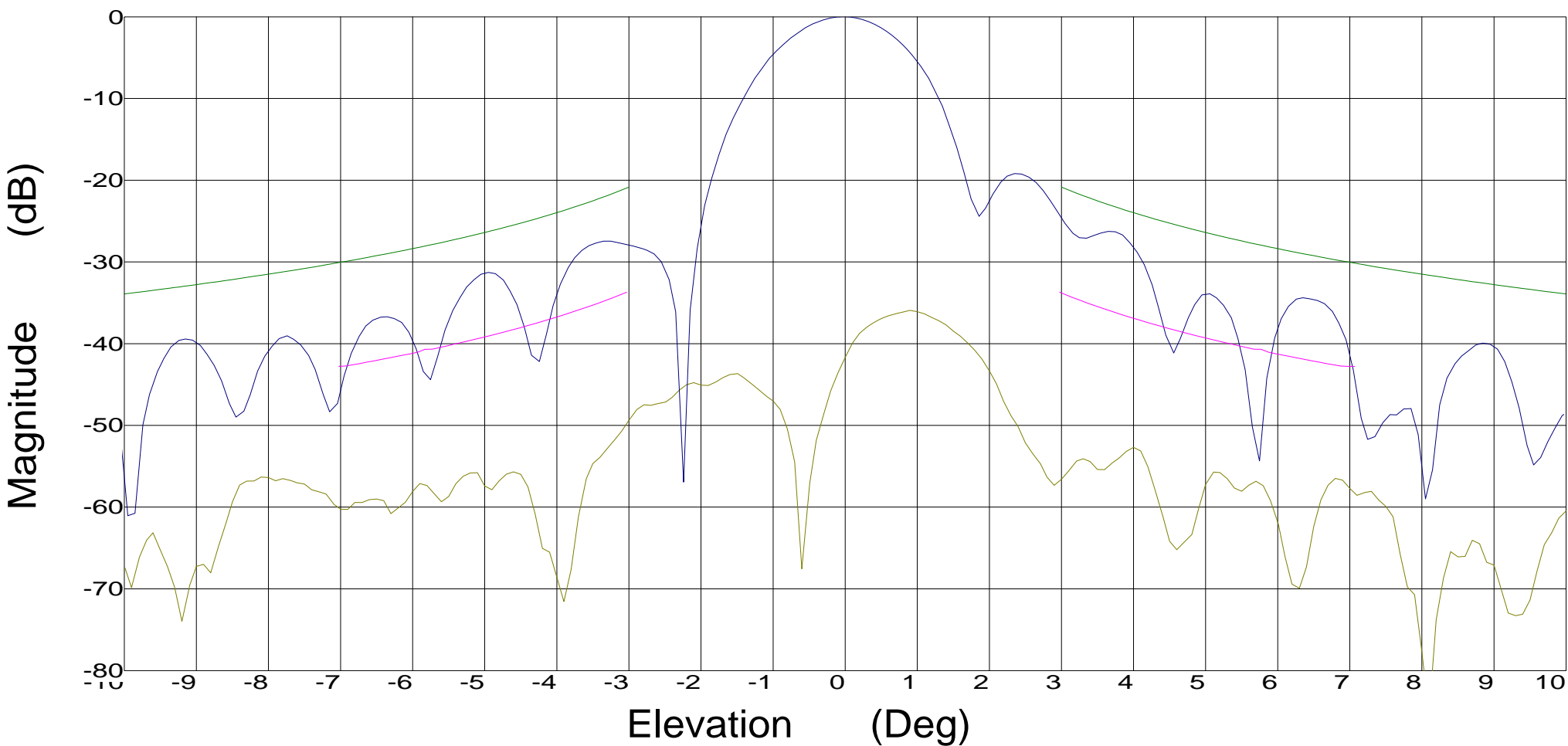
RPE: 47 CFR 25.209 Co-Pol Azimuth \_\_\_\_\_  
RPE: 47 CFR 25.209 X-Pol \_\_\_\_\_

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 42.dat-ant\_under\_test — 2365 42.dat  
2365 44.dat-ant\_under\_test — 2365 44.dat

3dB Beam Width (DEG) 1.55  
10dB Beam Width (DEG) 2.71

RPE: 47 CFR 25.209 Co-Pol Elevation  
RPE: 47 CFR 25.209 X-Pol

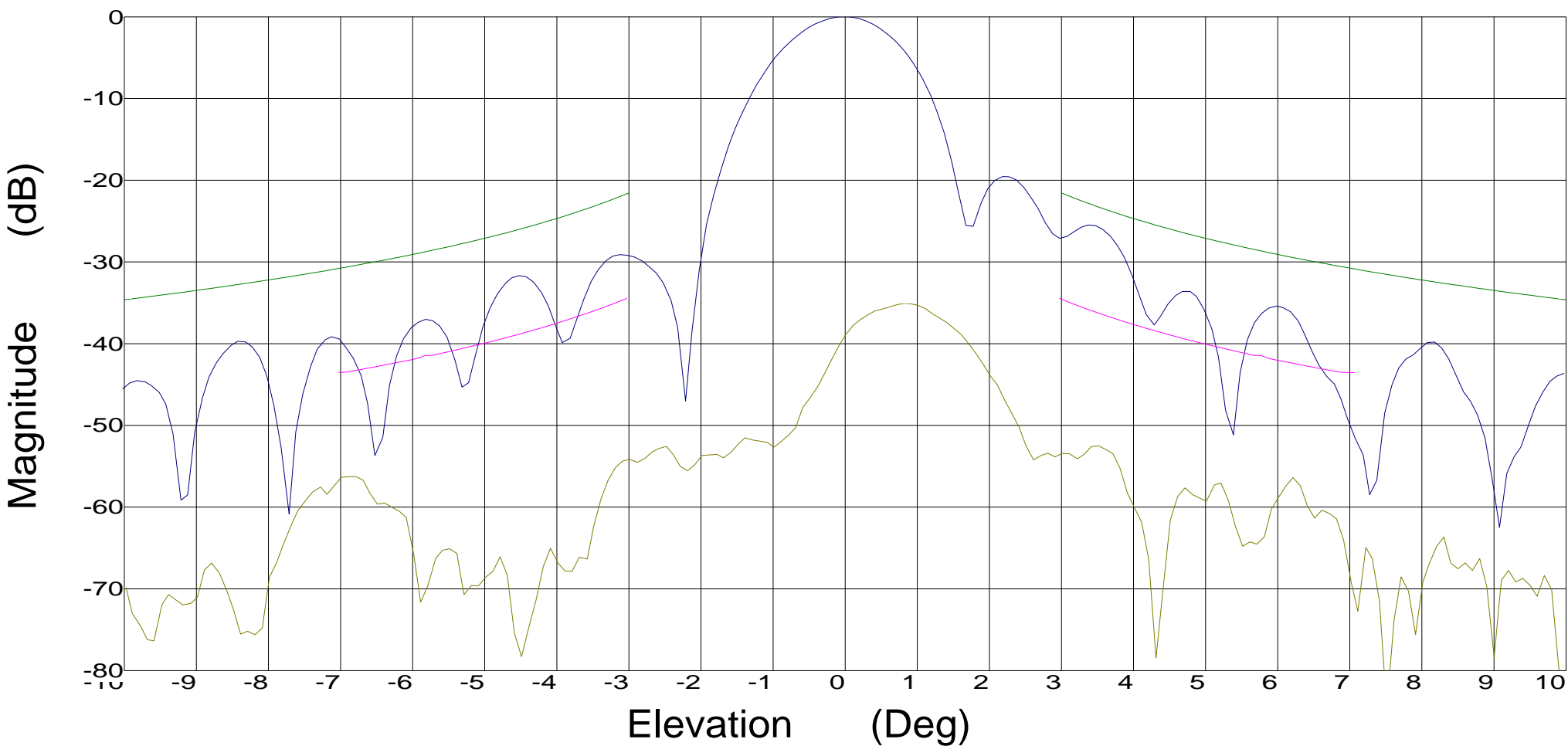


# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 42.dat-ant\_under\_test — 2365 42.dat  
2365 44.dat-ant\_under\_test — 2365 44.dat

RPE: 47 CFR 25.209 Co-Pol Elevation

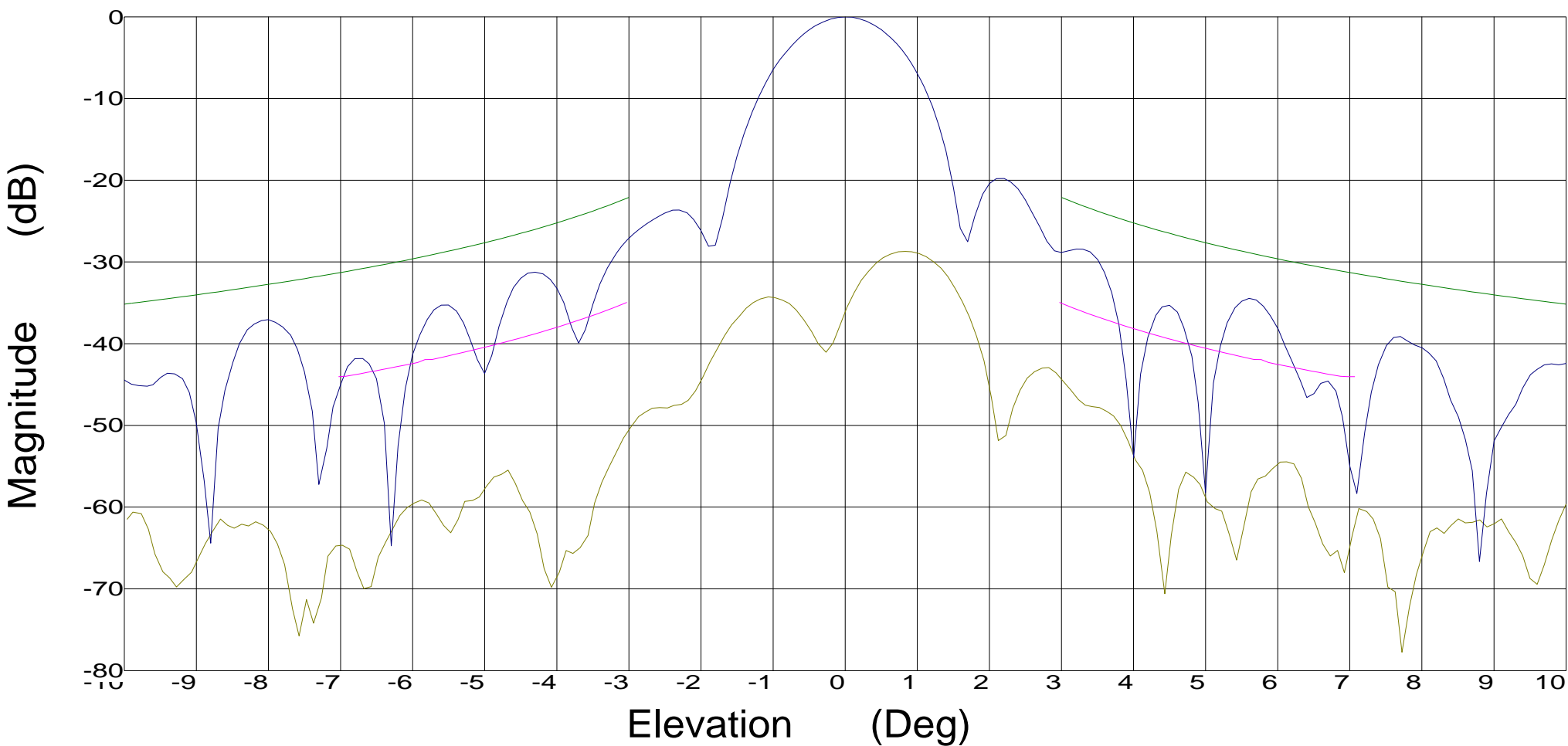
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Horiz.

Rx pol: Horiz.



3dB Beam Width (DEG) 1.36  
10dB Beam Width (DEG) 2.37

Overlays  
2365 42.dat-ant\_under\_test — 2365 42.dat  
2365 44.dat-ant\_under\_test — 2365 44.dat

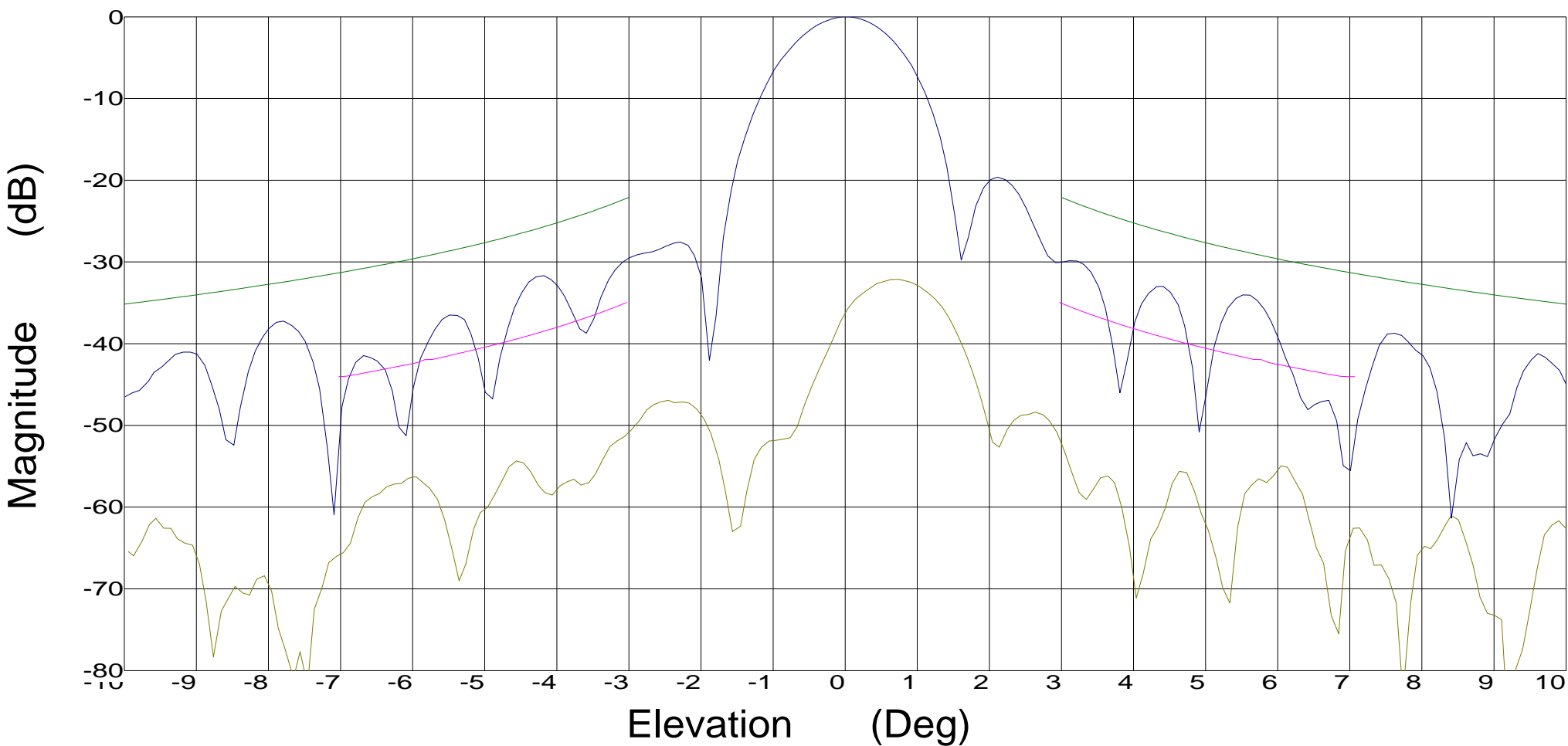
RPE: 47 CFR 25.209 Co-Pol Elevation  
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 42.dat-ant\_under\_test — 2365 42.dat  
2365 44.dat-ant\_under\_test — 2365 44.dat

3dB Beam Width (DEG) 1.34  
10dB Beam Width (DEG) 2.32

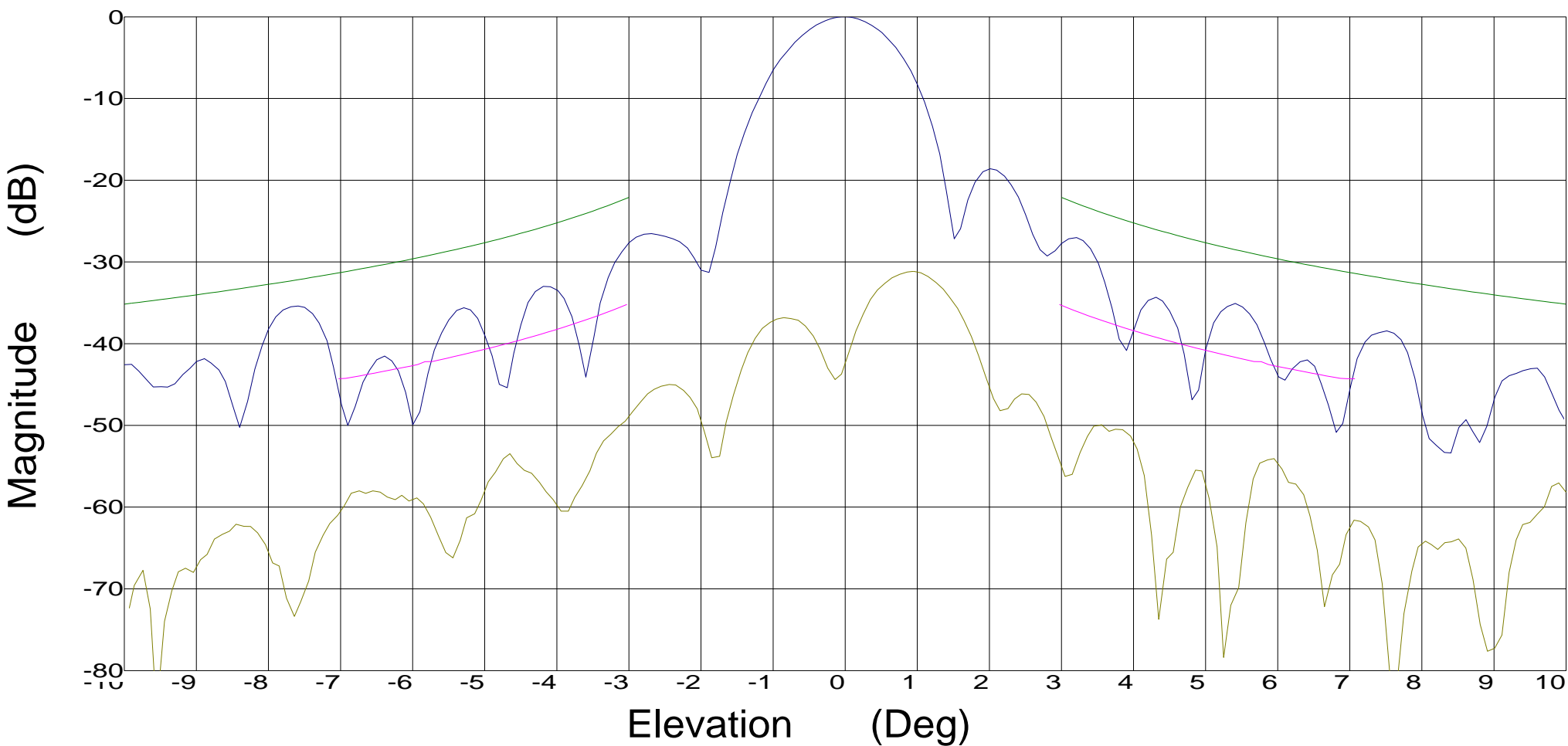
RPE: 47 CFR 25.209 Co-Pol Elevation  
RPE: 47 CFR 25.209 X-Pol

# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Overlays  
2365 42.dat-ant\_under\_test — 2365 42.dat  
2365 44.dat-ant\_under\_test — 2365 44.dat

RPE: 47 CFR 25.209 Co-Pol Elevation

RPE: 47 CFR 25.209 X-Pol

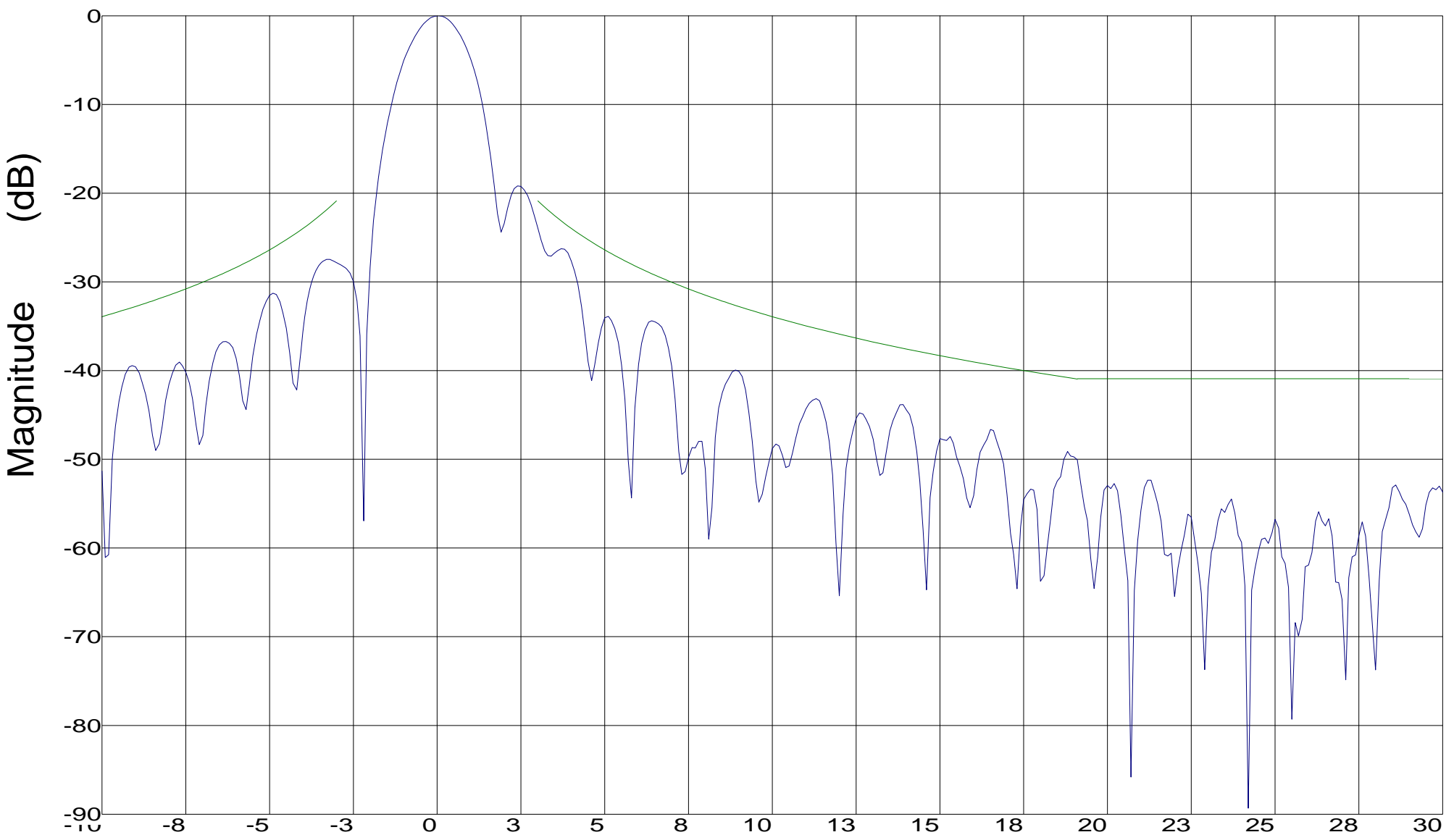
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 42.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

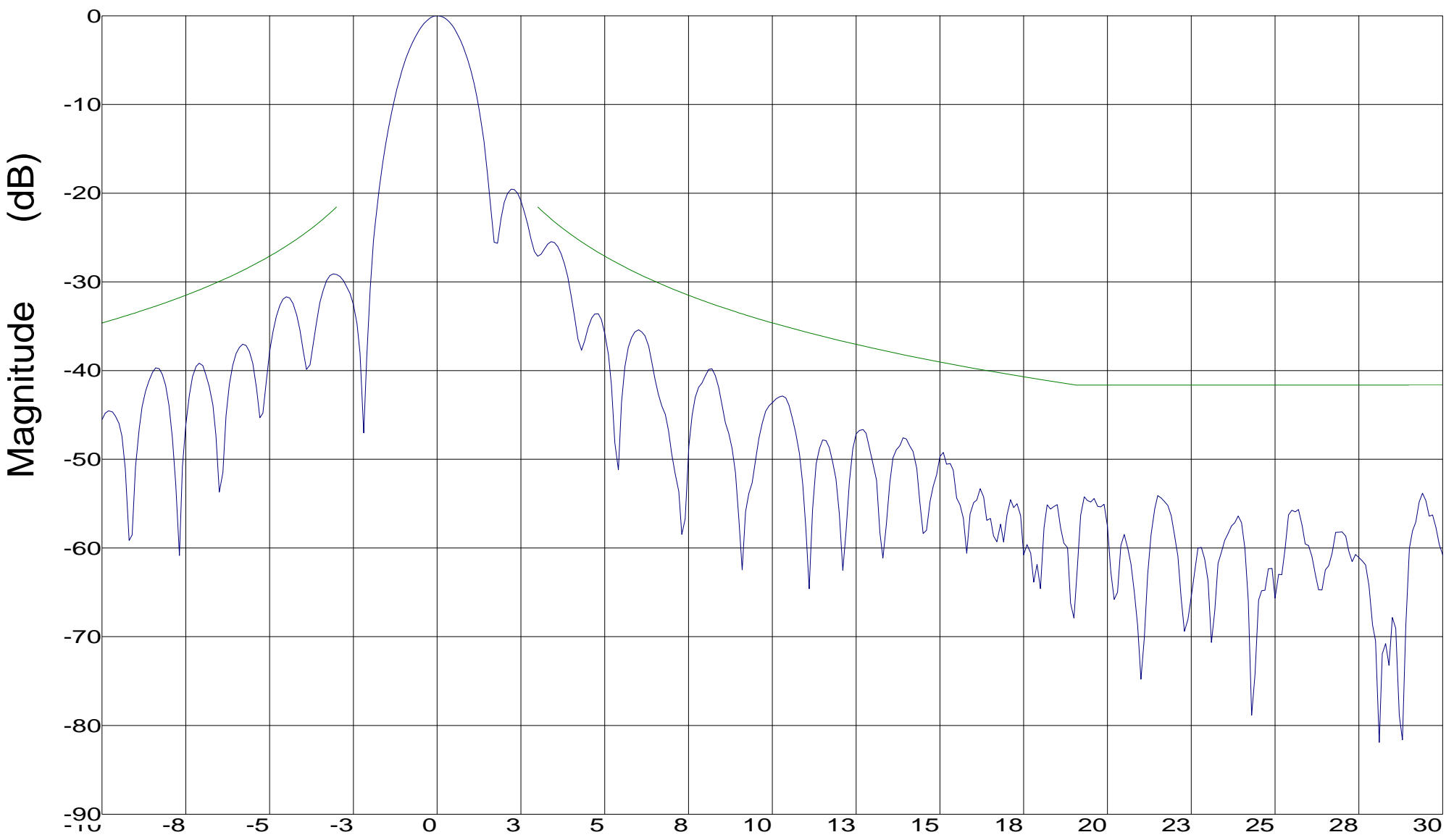
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 42.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

## Elevation (Deg)

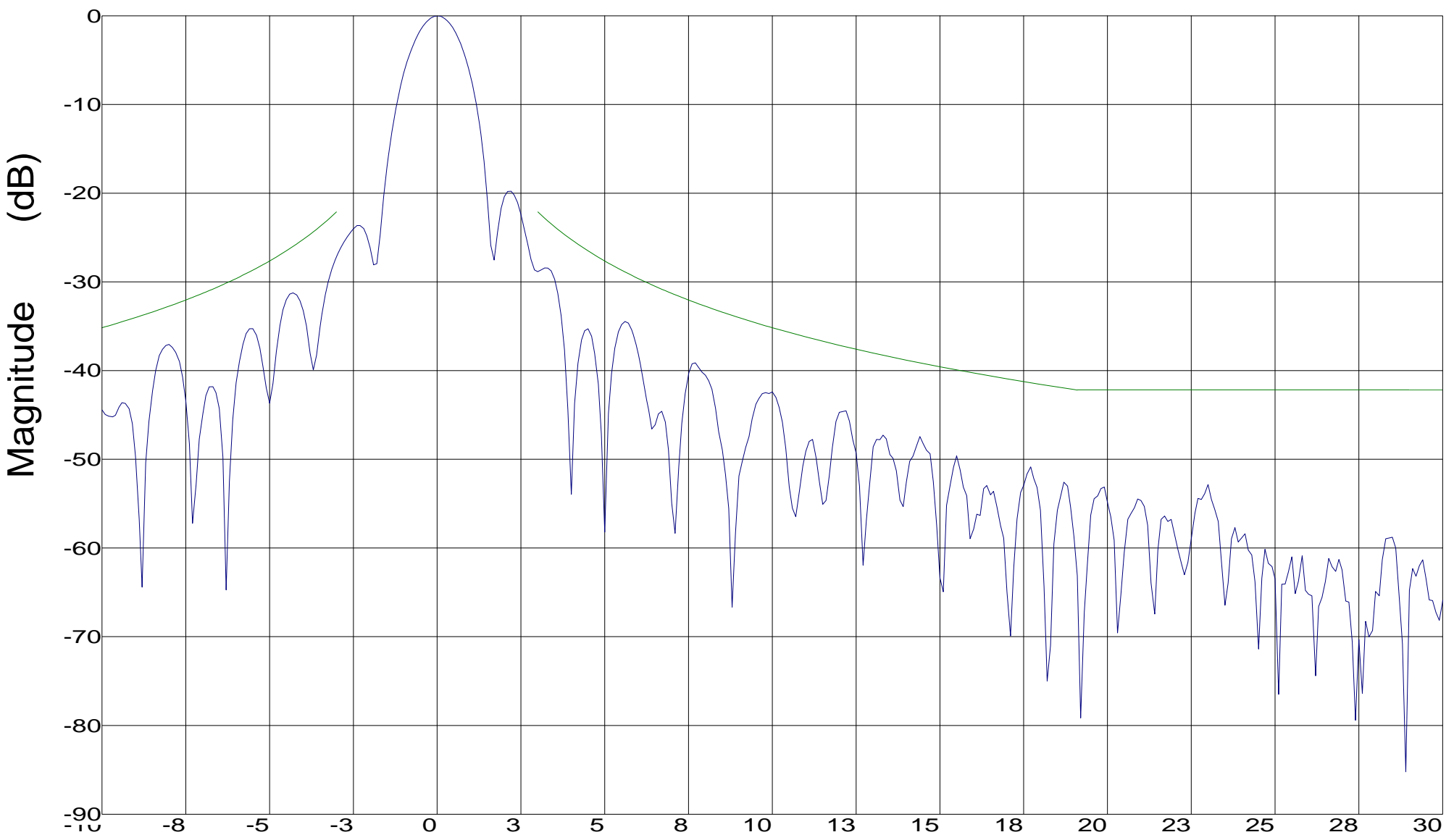
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 42.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

Elevation (Deg)

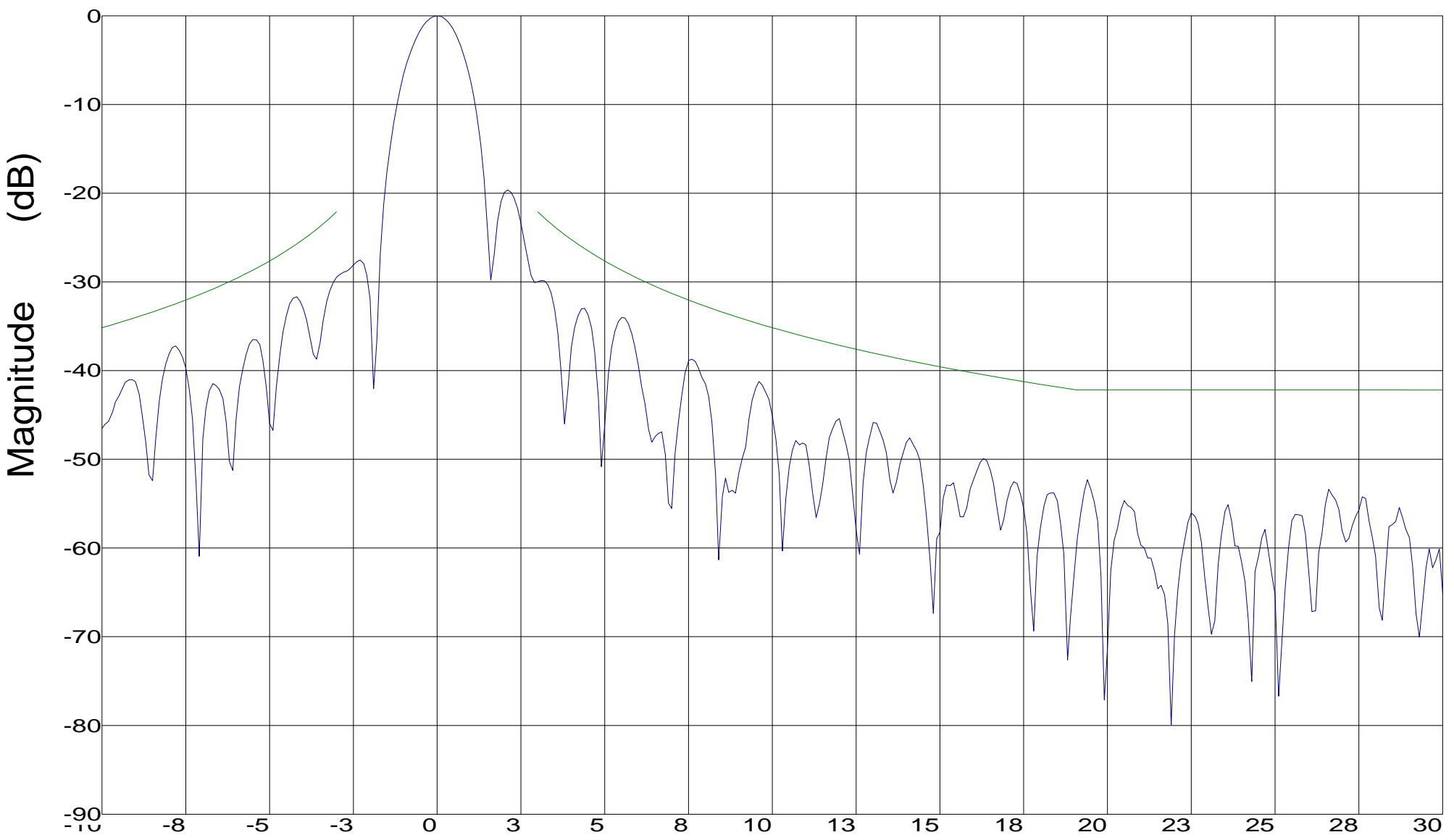
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 42.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

## Elevation (Deg)



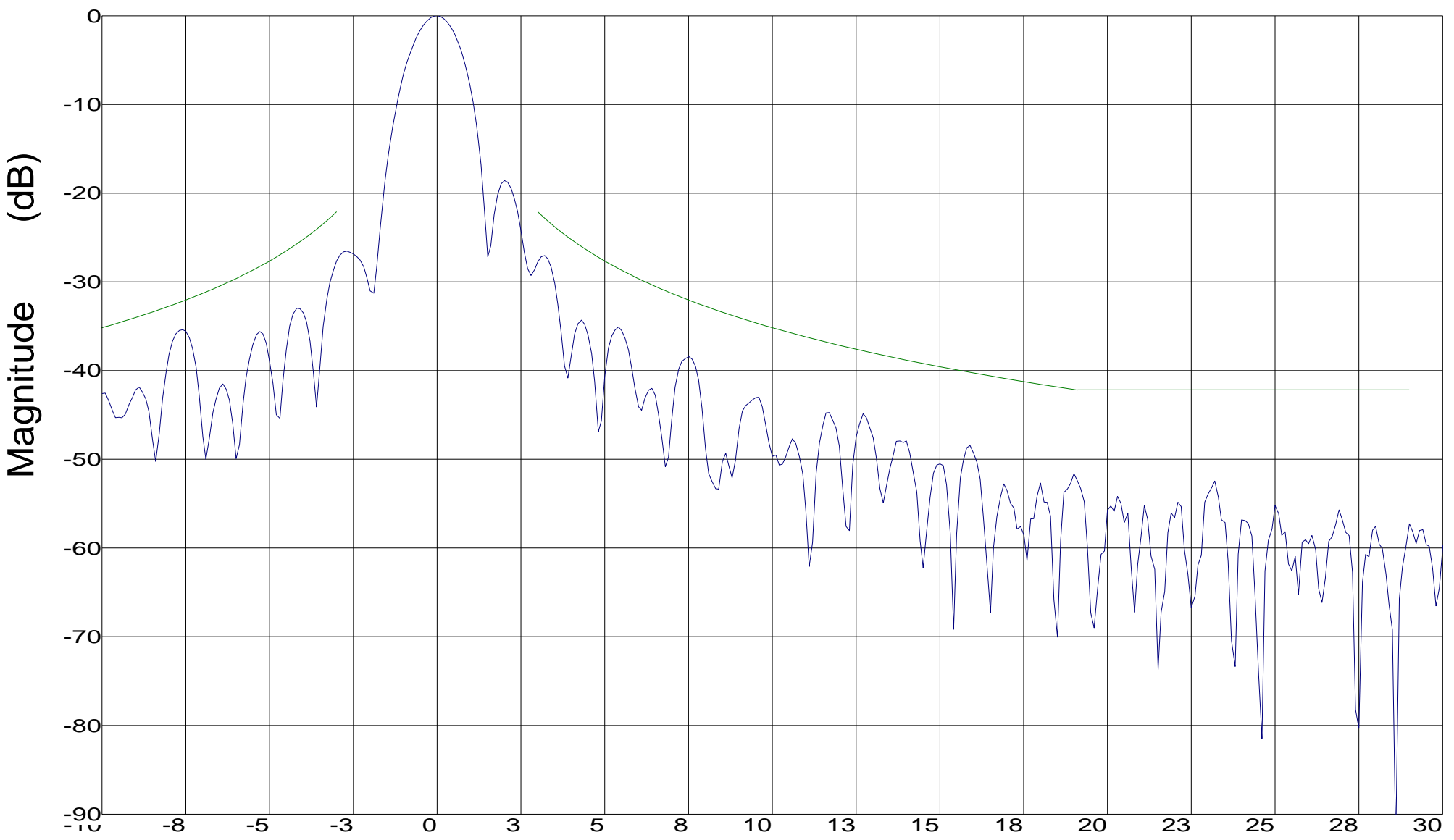
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 42.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Elevation

## Elevation (Deg)

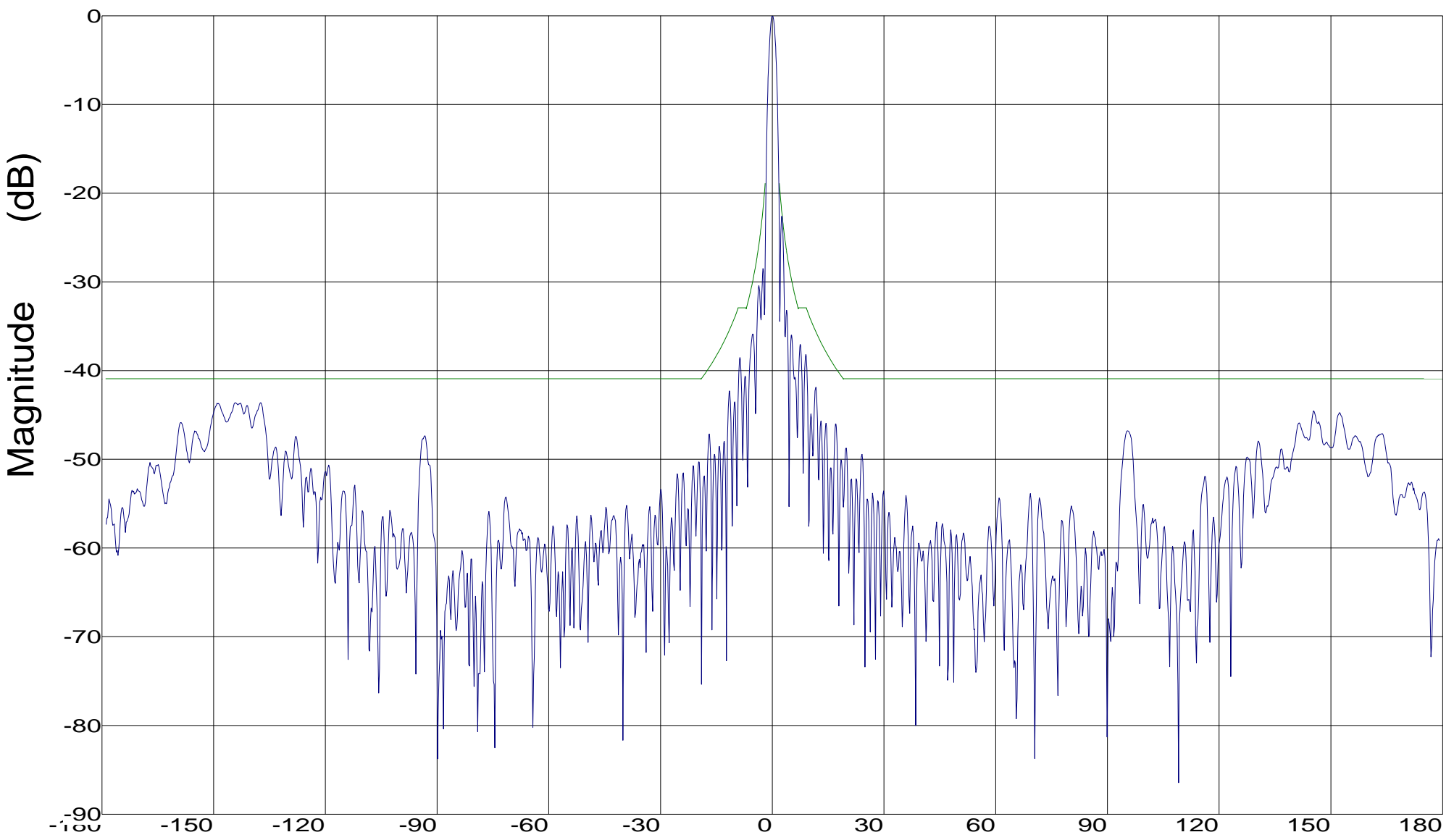
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 41.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 10.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.



Azimuth (Deg)

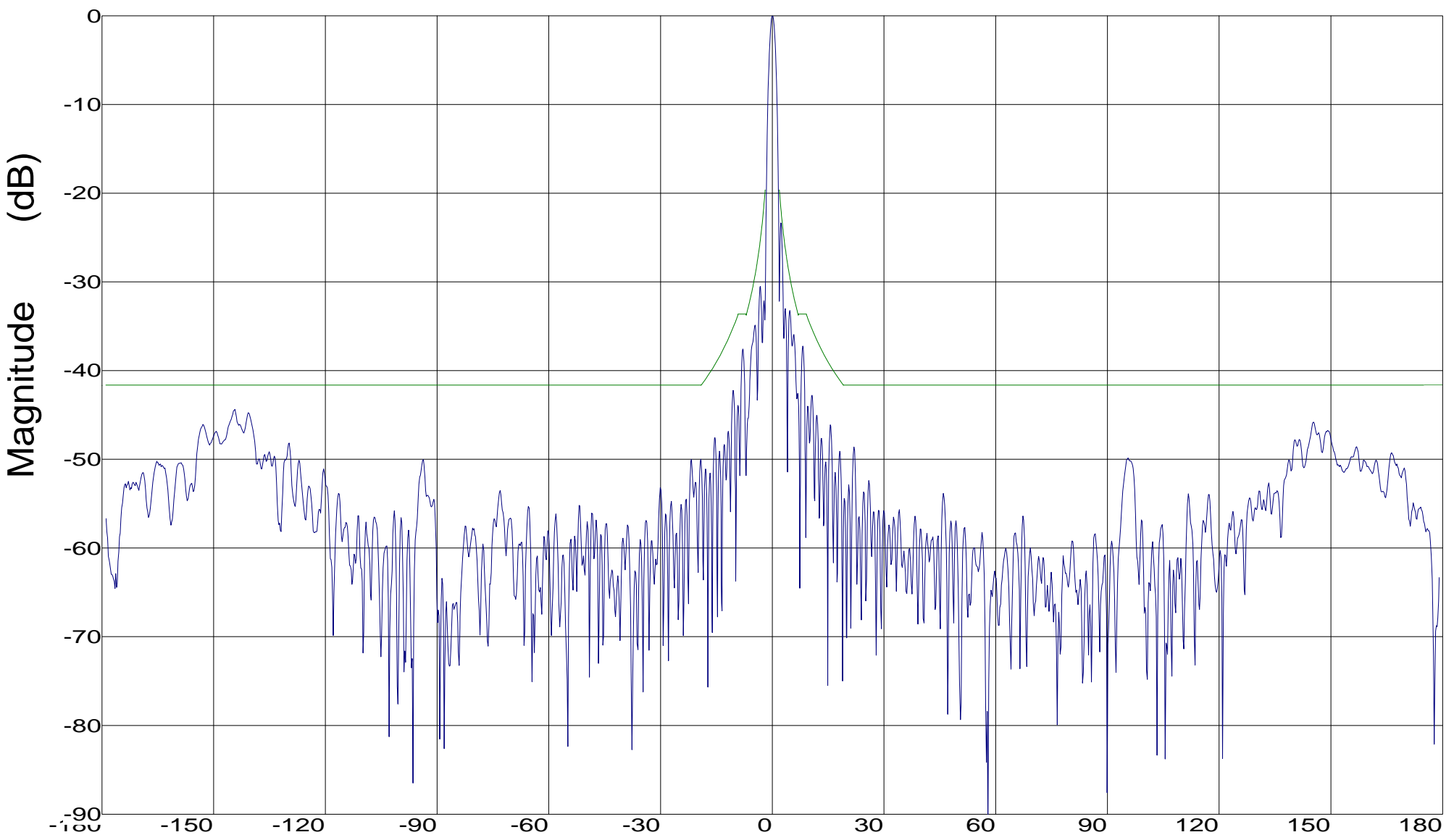
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 11.700 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 41.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth\_\_\_\_\_

Azimuth (Deg)

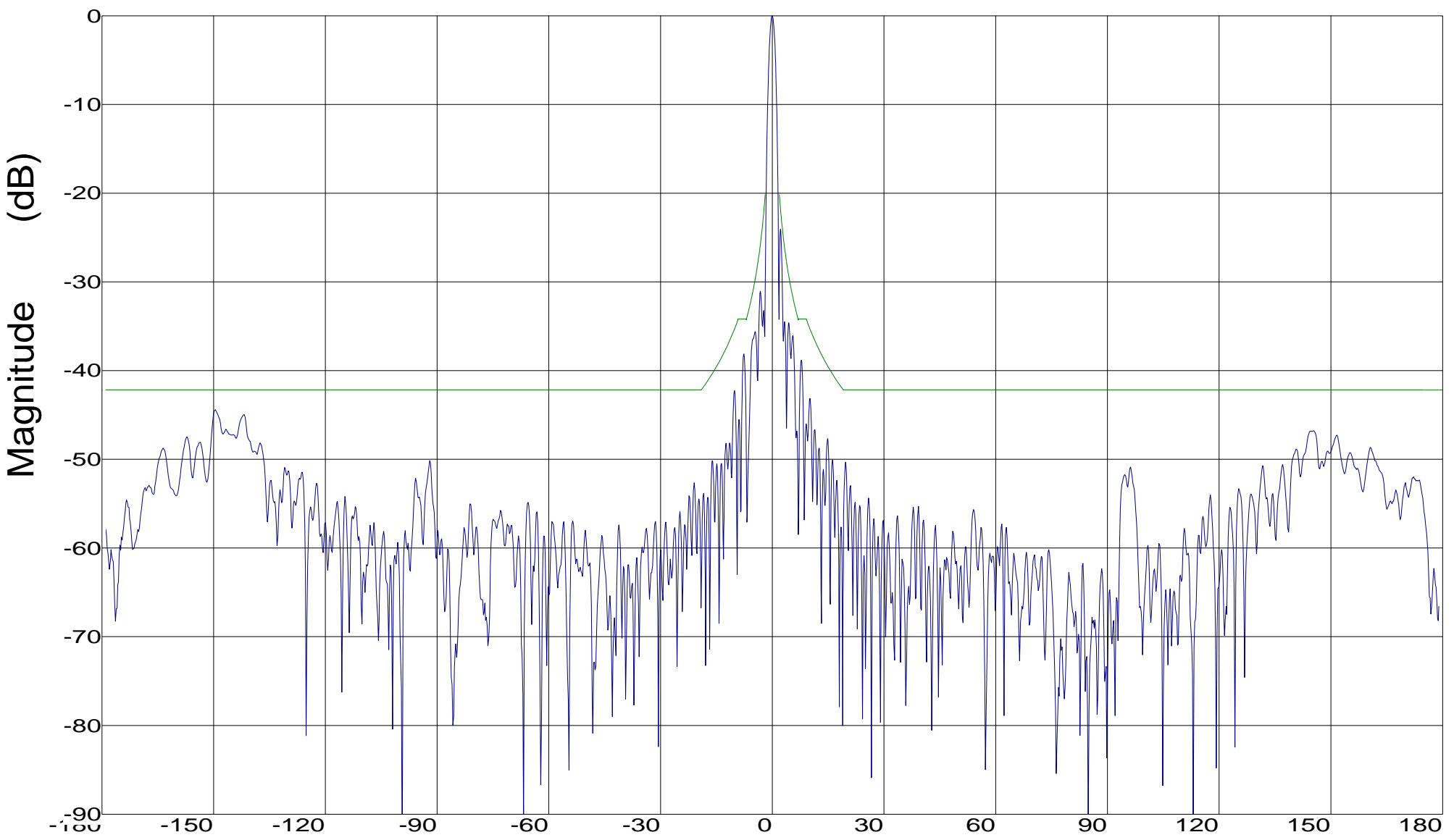
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Channel: AUT  
Freq: 12.200 GHz

Tx pol: Horiz.

Rx pol: Horiz.

Calibration status:  
File: 2365 41.dat  
Table: Reference  
Chan.: AUT  
Units: dBi



RPE: 47 CFR 25.209 Co-Pol Azimuth\_\_\_\_\_

Azimuth (Deg)

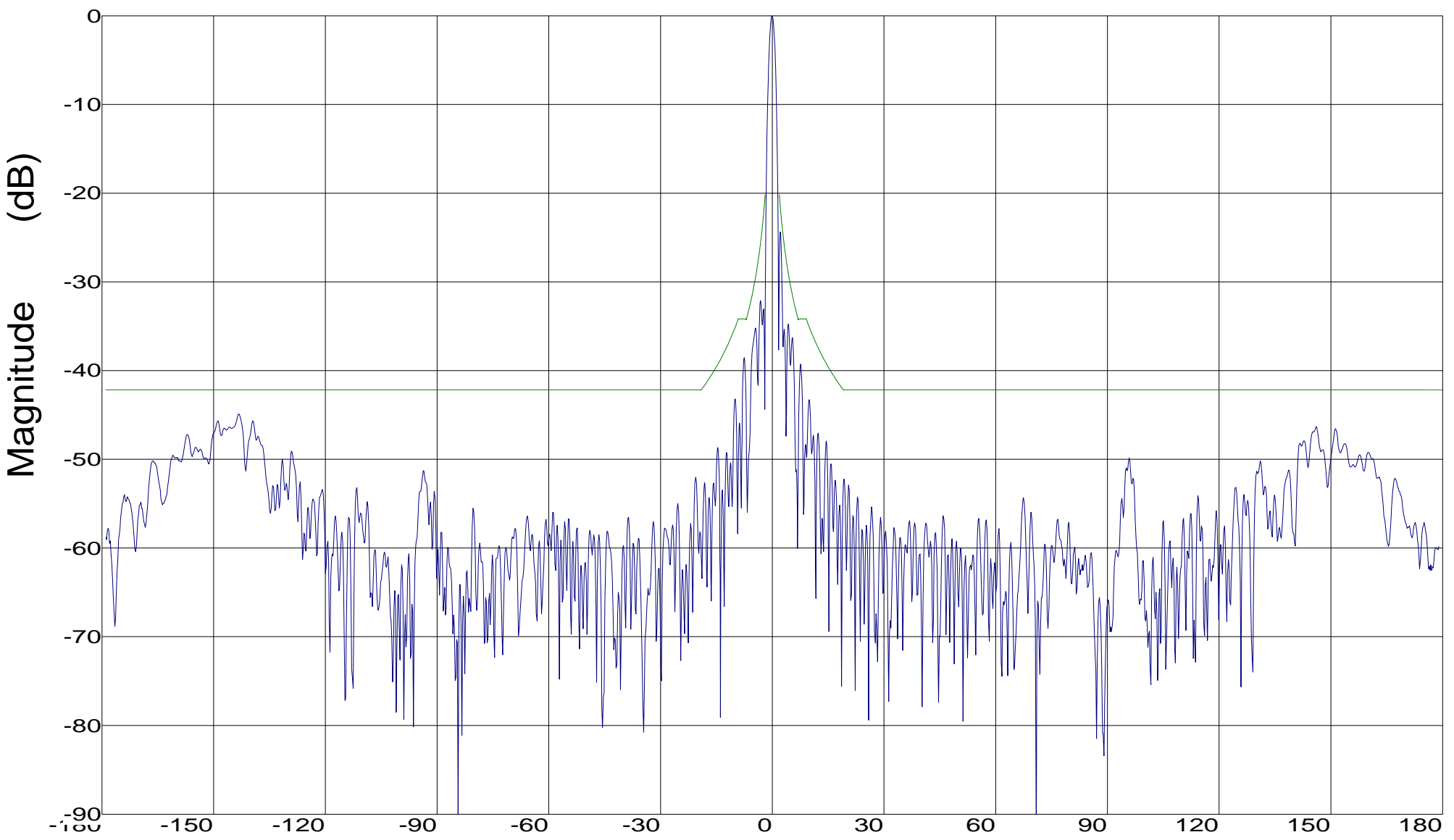
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 41.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 12.450 GHz

Tx pol: Horiz.

Rx pol: Horiz.



RPE: 47 CFR 25.209 Co-Pol Azimuth

## Azimuth (Deg)

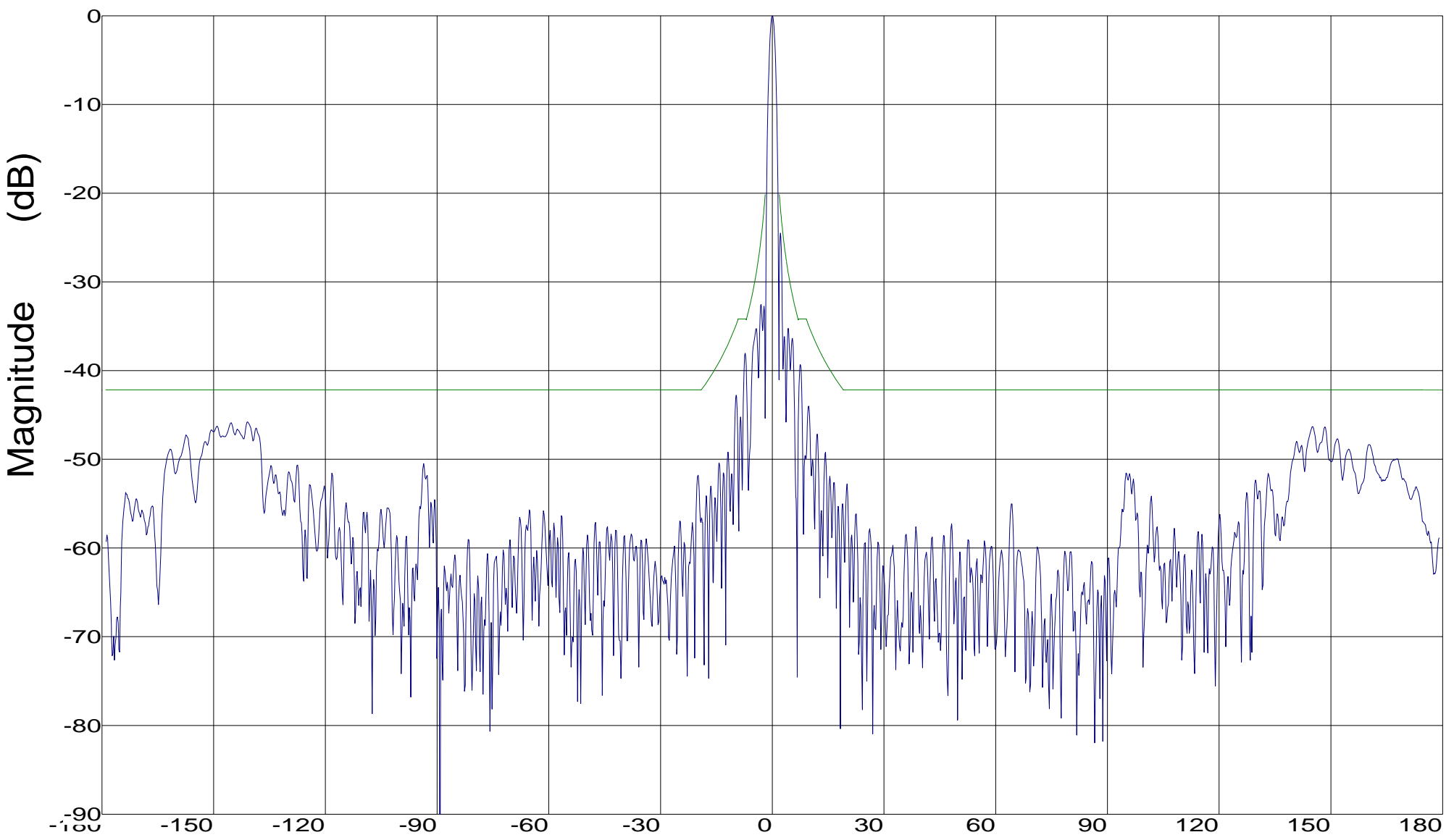
# 1.2M Ku-Band Rx/Tx Antenna System Series 1120

Calibration status:  
File: 2365 41.dat  
Table: Reference  
Chan.: AUT  
Units: dBi

Channel: AUT  
Freq: 12.750 GHz

Tx pol: Horiz.

Rx pol: Horiz.



RPE: 47 CFR 25.209 Co-Pol Azimuth\_\_\_\_\_

## Azimuth (Deg)

**End of Report**