

# GSM Antenna

**MODEL: TH-88C**

GSM800/GSM900/DCS1800/PCS1900/3G2170



## 1. GENERAL DESCRIPTION

Model No
TH88C-SMA(M)

Below is a table summarizing the antenna design specification.


### 1.1 Electrical Properties

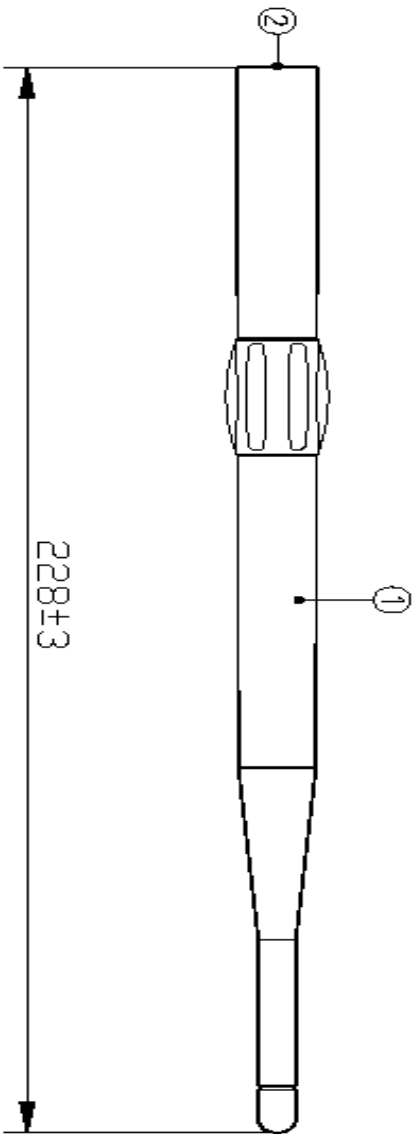
Parameter	Description
Frequency Band	800/900/1800/1900/2100 MHz
Nominal Impedance	50 ohm
Polarization	Vertical
Return Loss	Please See Data-1
V.S.W.R	3.5:1
Note: Gain includes the cable loss	

### 1.2 Mechanical Properties

Parameter	Description
Antenna Type	External Antenna
Antenna Cover	TPE
Touch Type	Screw Type
Connector Type	SMA 180°(Male)
Antenna Dimensions	228 mm ±3
Operating Temperature Range	-20°C~+60°C
Storage Temperature Range	-30°C~+70°C

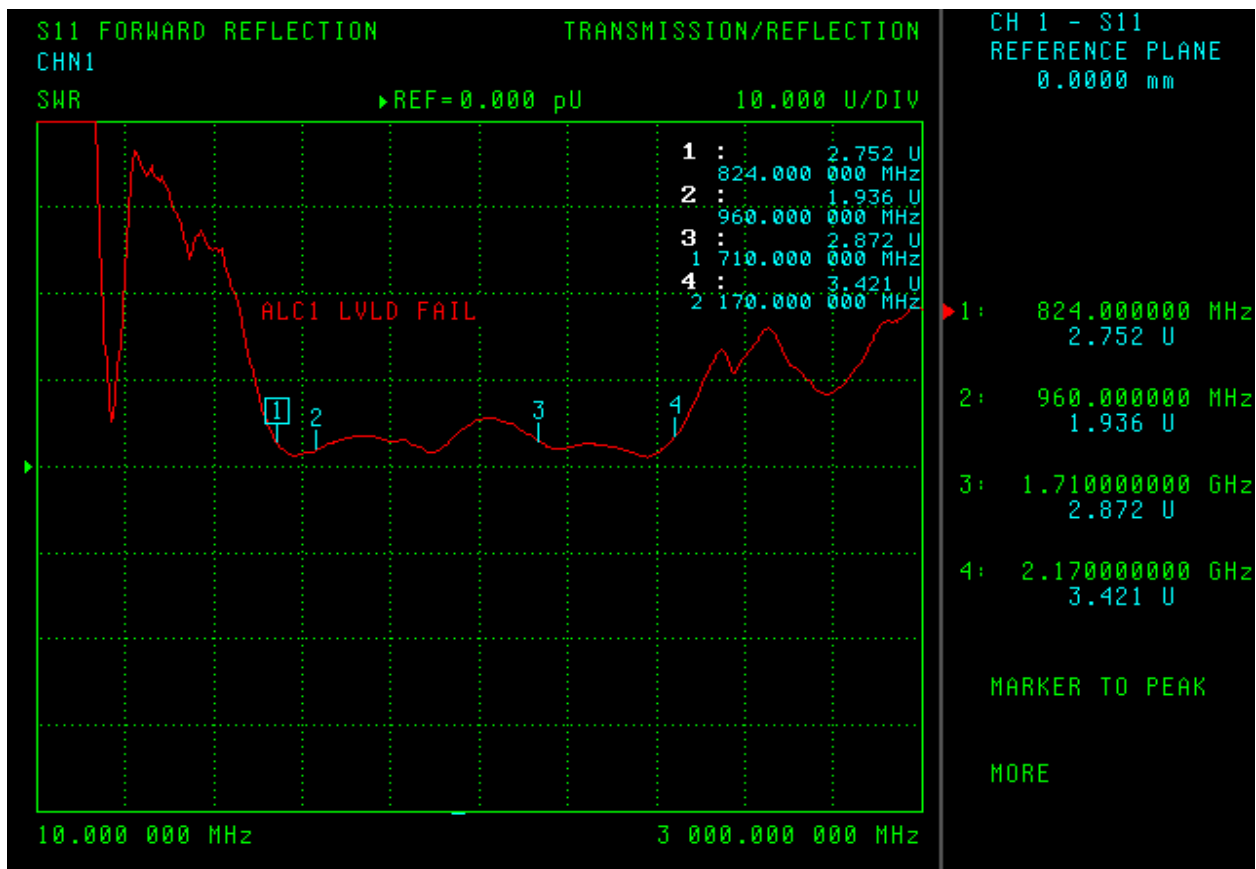
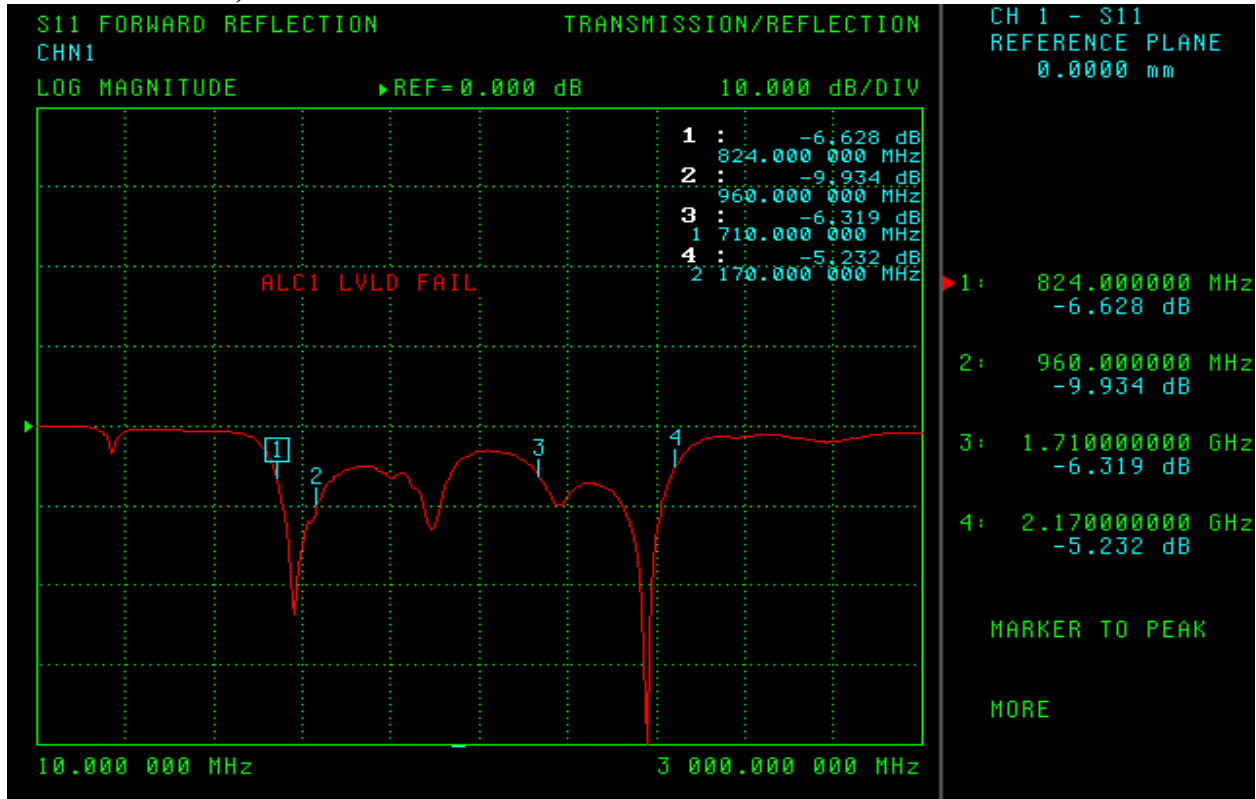
2. Appearance

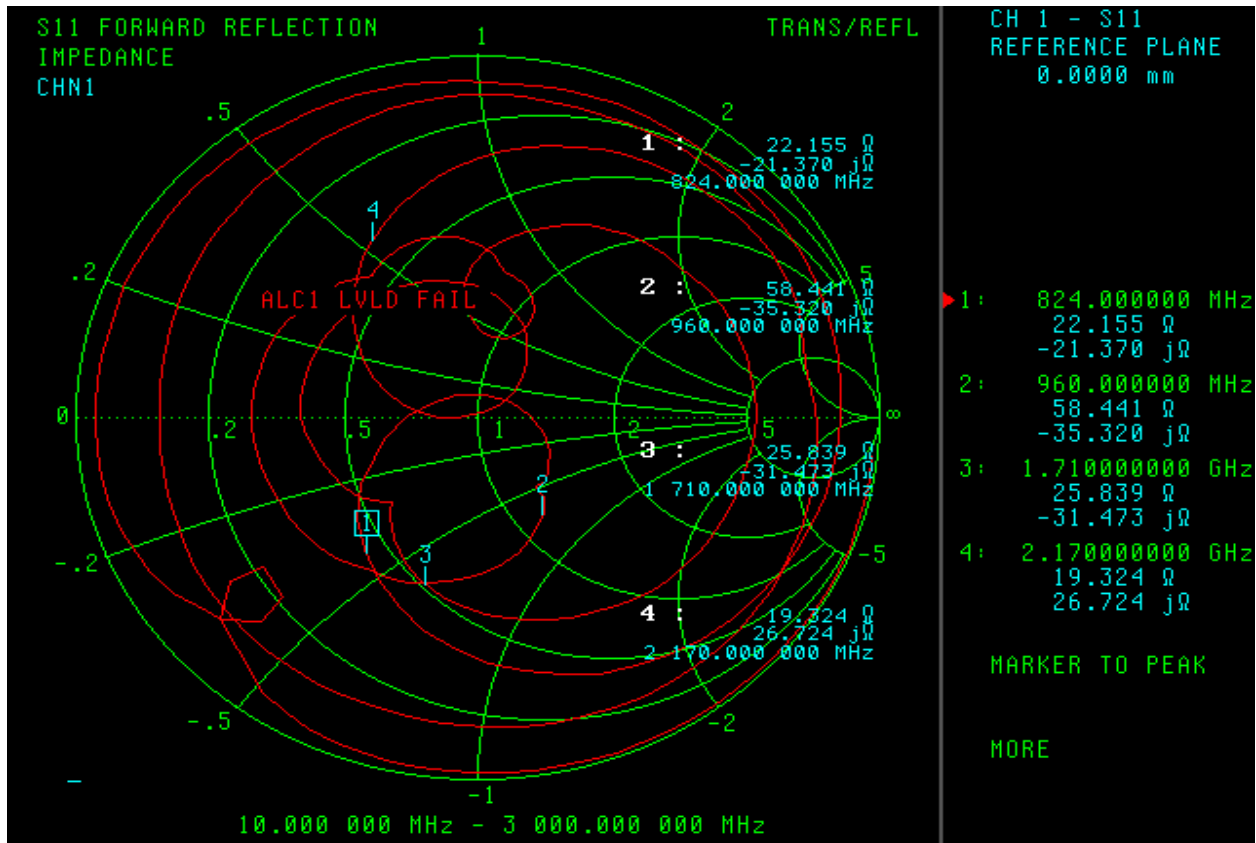
 Third angle projection	CUSTOMER'S	MODEL	PARTS NUMBER	FREQUENCY	UNIT	SCALE	DATE	VERSION
	TOLERANCE	X.XX±0.15	NAME	PARTS NUMBER	APPROVED	CHECKED	20110923	1
SURFACE FINISHNESS	▽	APPEARANCE						

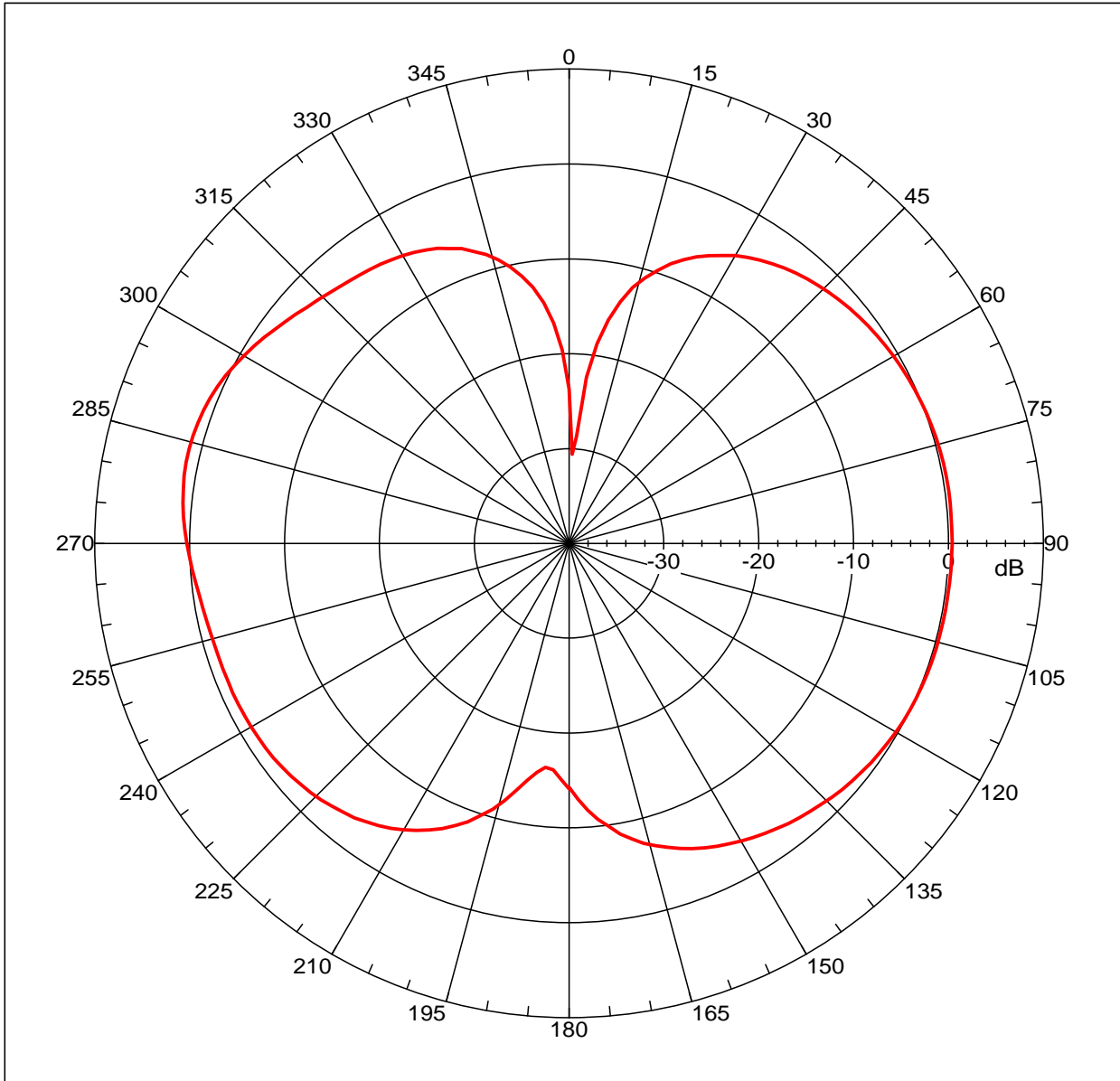
NO.	NAME	FINISH	QTY
01	Core tube	Black	01
02	SMA 180° (Male)		01

### 3. Return Loss, V.S.W.R. and Smith Chart





Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 1.25658 dBi  
 Max far-field (global) = -41.74276 dB, Max far-field (plot) = -41.74279 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -76.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

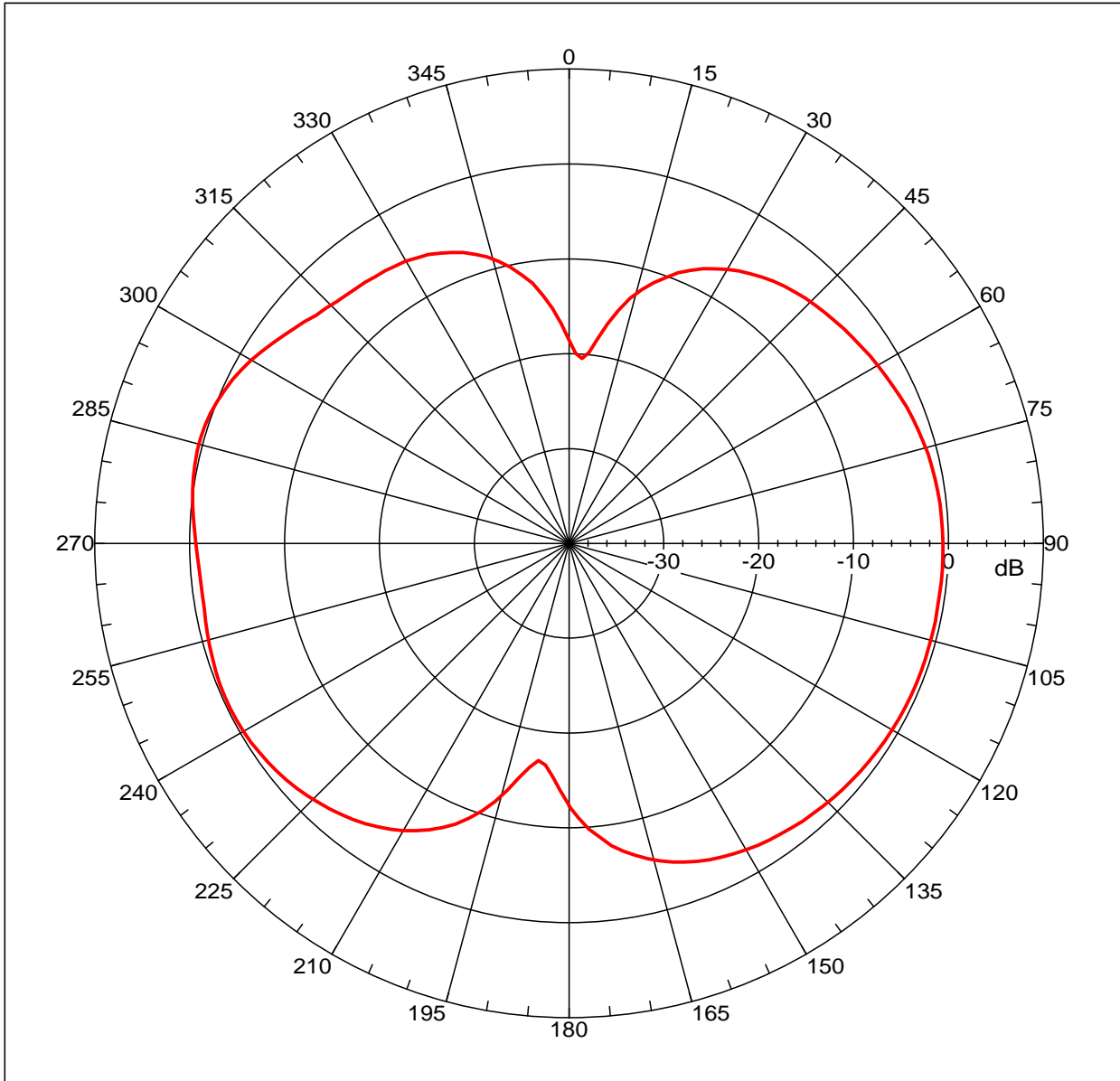
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz E-PLANE.nsi  
 Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: -3.048 dB  
 -3. dB beam width: 75.93 deg  
 -6. dB beam width: 117.29 deg  
 -10. dB beam width: 145.69 deg  
 Left Sidelobe: Not Found  
 Right Sidelobe: -0.87 dB at 85.475 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
1	0.824 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 0.38308 dBi  
Max far-field (global) = -40.38475 dB, Max far-field (plot) = -40.38479 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: -74.000 deg, Vpeak at: 0.000 deg  
Plot centering: On

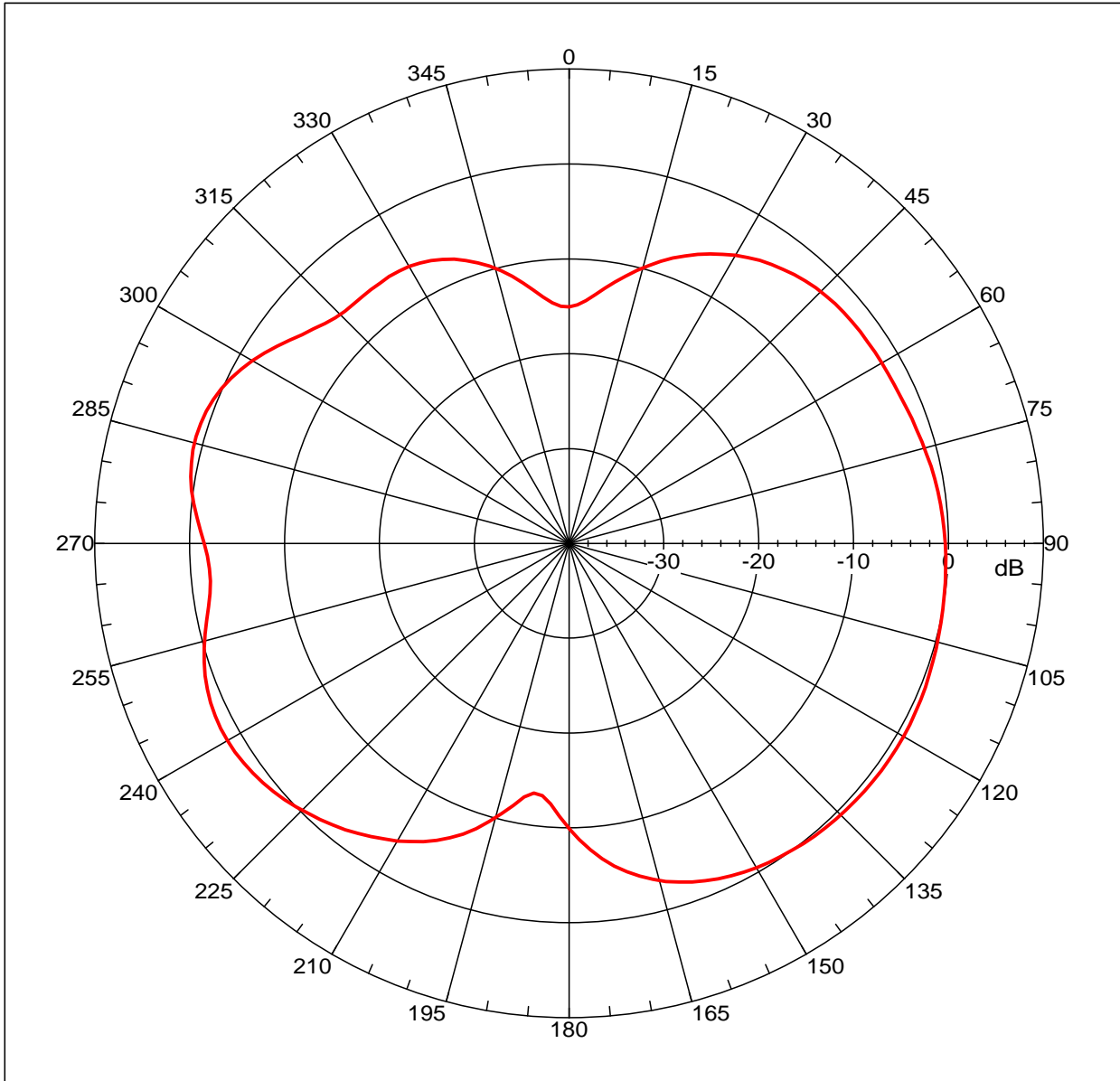
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz E-PLANE.nsi  
Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -3.515 dB  
-3. dB beam width: 85.42 deg  
-6. dB beam width: 122.00 deg  
-10. dB beam width: 148.10 deg  
Left Sidelobe: Not Found  
Right Sidelobe: -0.94 dB at 97.542 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
2	0.860 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 1.56274 dBi  
 Max far-field (global) = -39.99694 dB, Max far-field (plot) = -39.99701 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -118.000 deg, Vpeak at: 0.000 deg  
 Plot centering: On

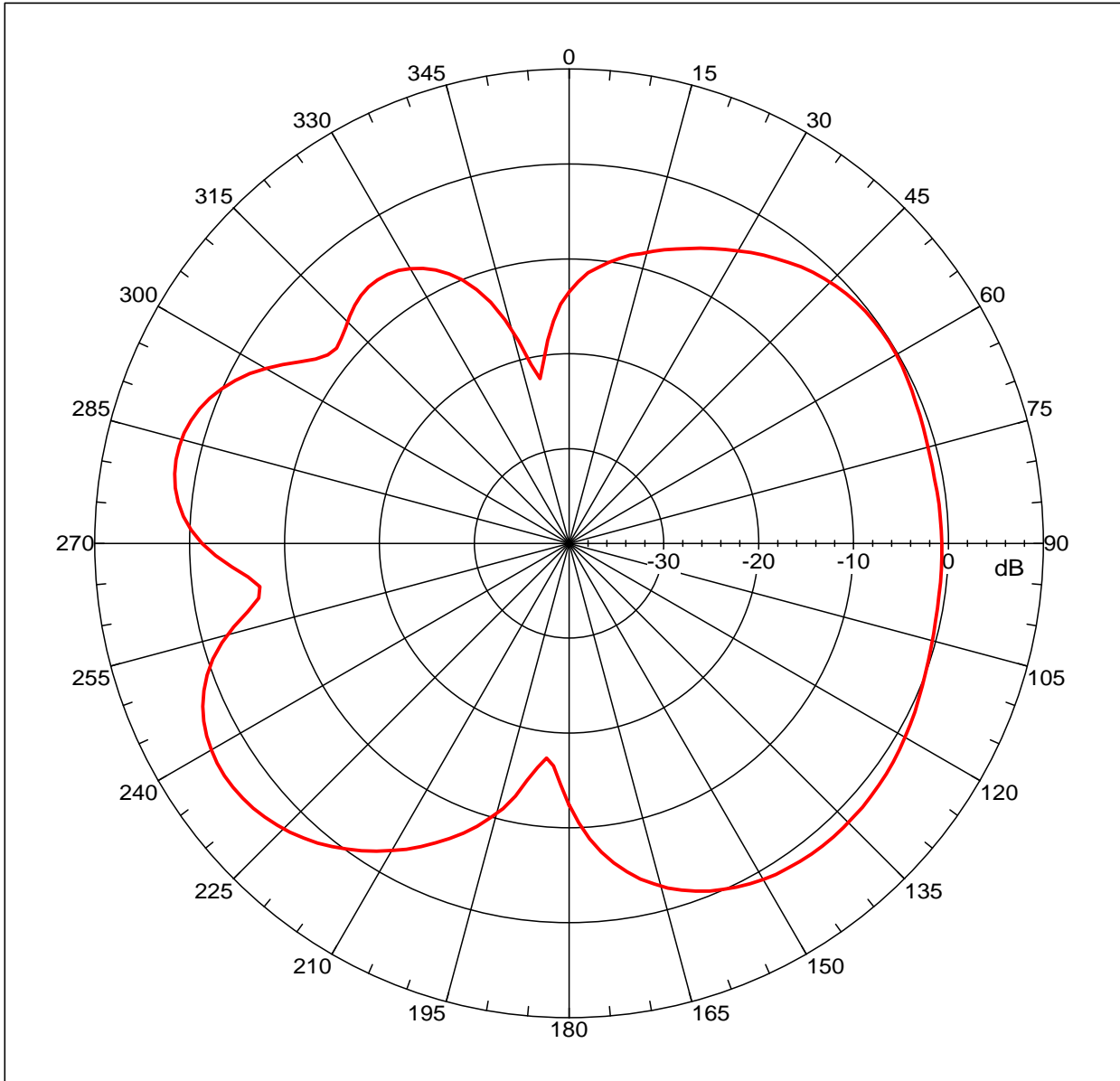
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C  
 800-2100mhz E-PLANE.nsi  
 Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: -2.622 dB  
 -3. dB beam width: 41.09 deg  
 -6. dB beam width: 101.22 deg  
 -10. dB beam width: 143.36 deg  
 Left Sidelobe: Not Found  
 Right Sidelobe: -0.69 dB at -73.408 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
3	0.900 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 3.80544 dBi  
Max far-field (global) = -38.82423 dB, Max far-field (plot) = -38.82429 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: -124.00001 deg, Vpeak at: 0.000 deg  
Plot centering: On

20100924 TH88C 800-2100mhz E-PLANE

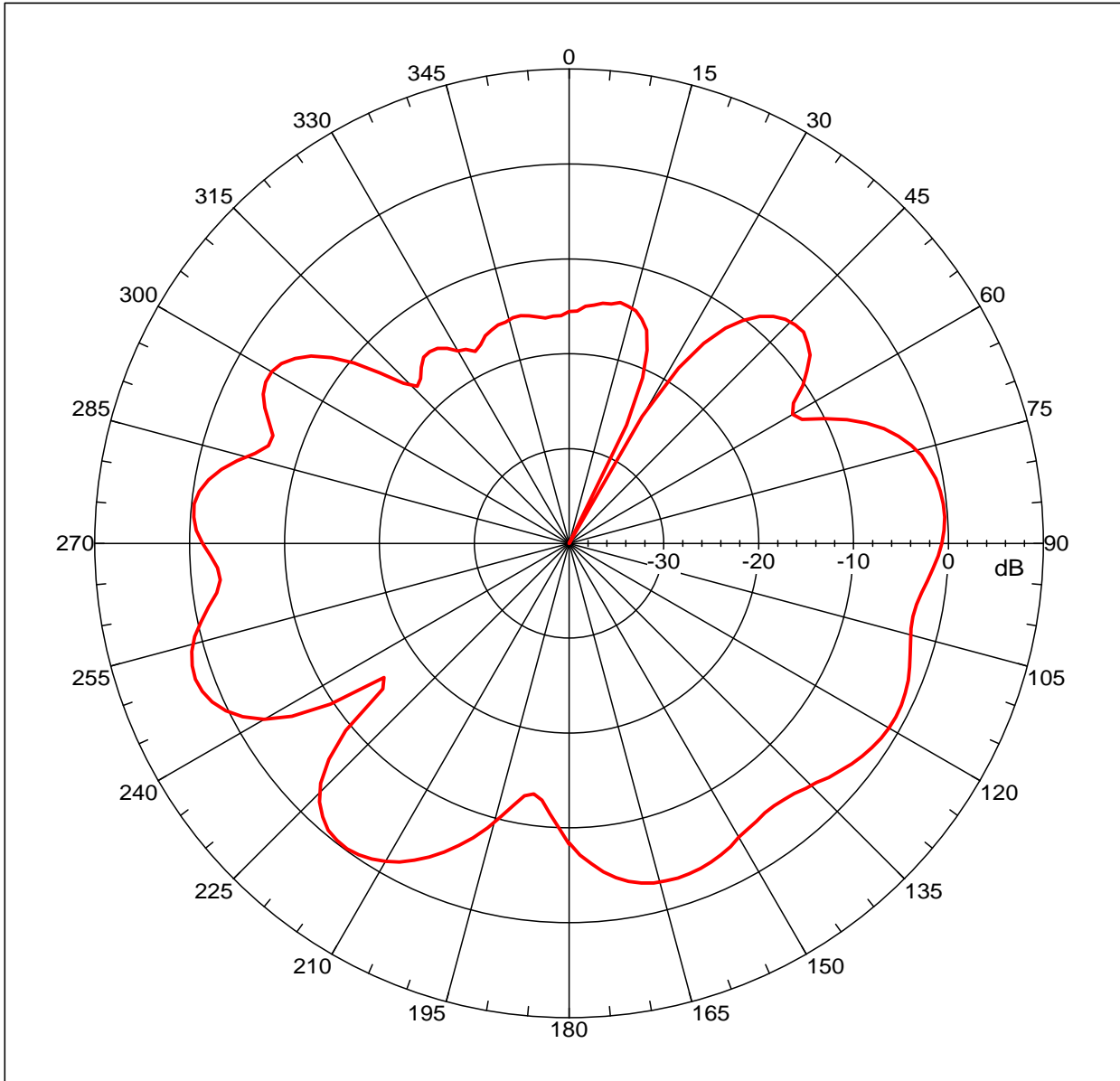
NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C 800-2100mhz E-PLANE.nsi  
Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -2.156 dB  
-3. dB beam width: 30.93 deg  
-6. dB beam width: 43.61 deg  
-10. dB beam width: 56.94 deg  
Left Sidelobe: Not Found  
Right Sidelobe: -1.46 dB at -77.430 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
4	0.960 GHz	Azimuth	Elevation	Single-pol



Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 1.89494 dBi  
 Max far-field (global) = -43.29765 dB, Max far-field (plot) = -43.29775 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -110.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

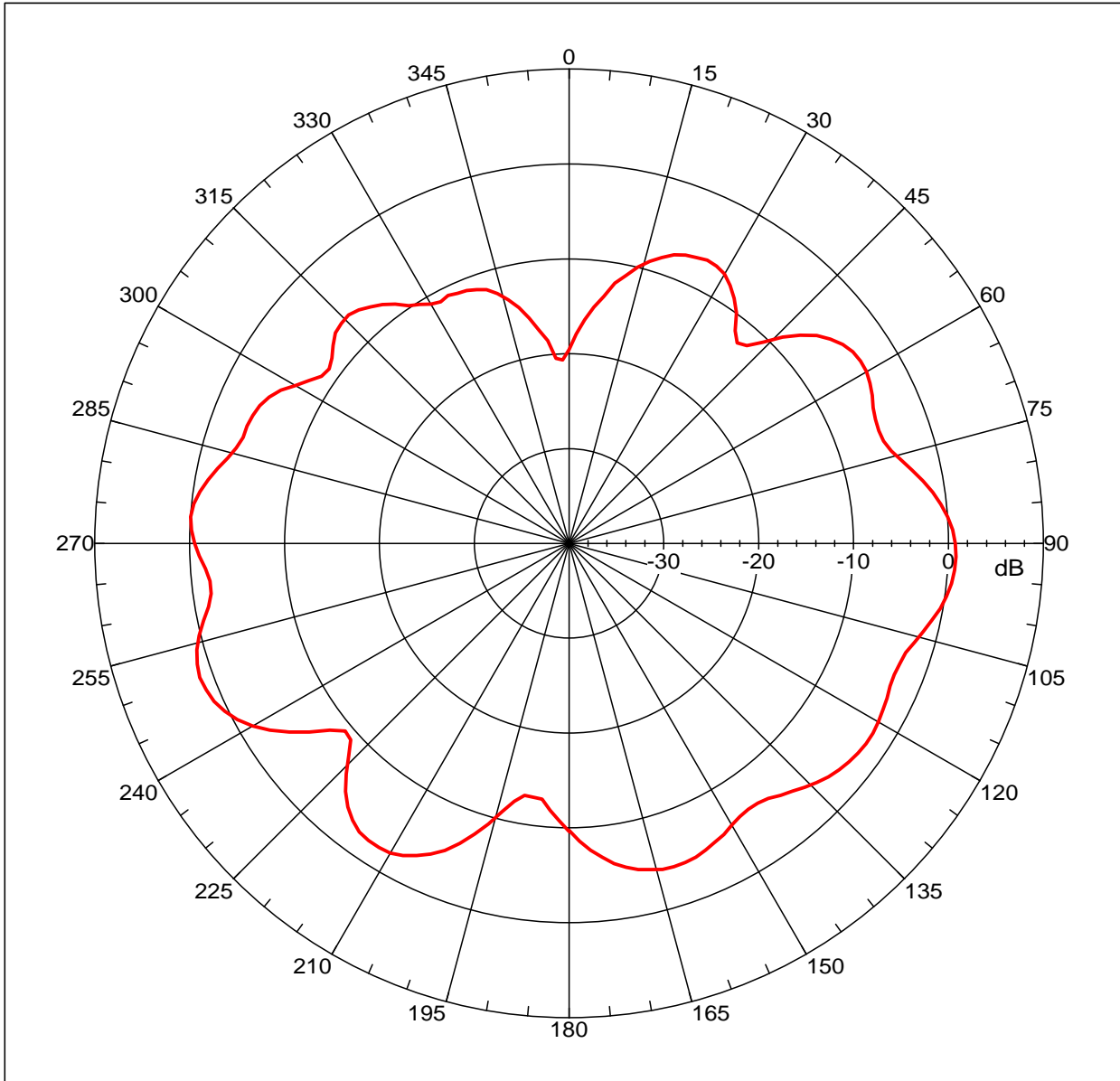
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C  
 800-2100mhz E-PLANE.nsi  
 Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: -5.330 dB  
 -3. dB beam width: 17.55 deg  
 -6. dB beam width: 45.33 deg  
 -10. dB beam width: 71.50 deg  
 Left Sidelobe: -2.10 dB at -143.799 deg  
 Right Sidelobe: -2.17 dB at -83.464 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
5	1.710 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 1.39494 dBi  
 Max far-field (global) = -45.4271 dB, Max far-field (plot) = -45.42727 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -110.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

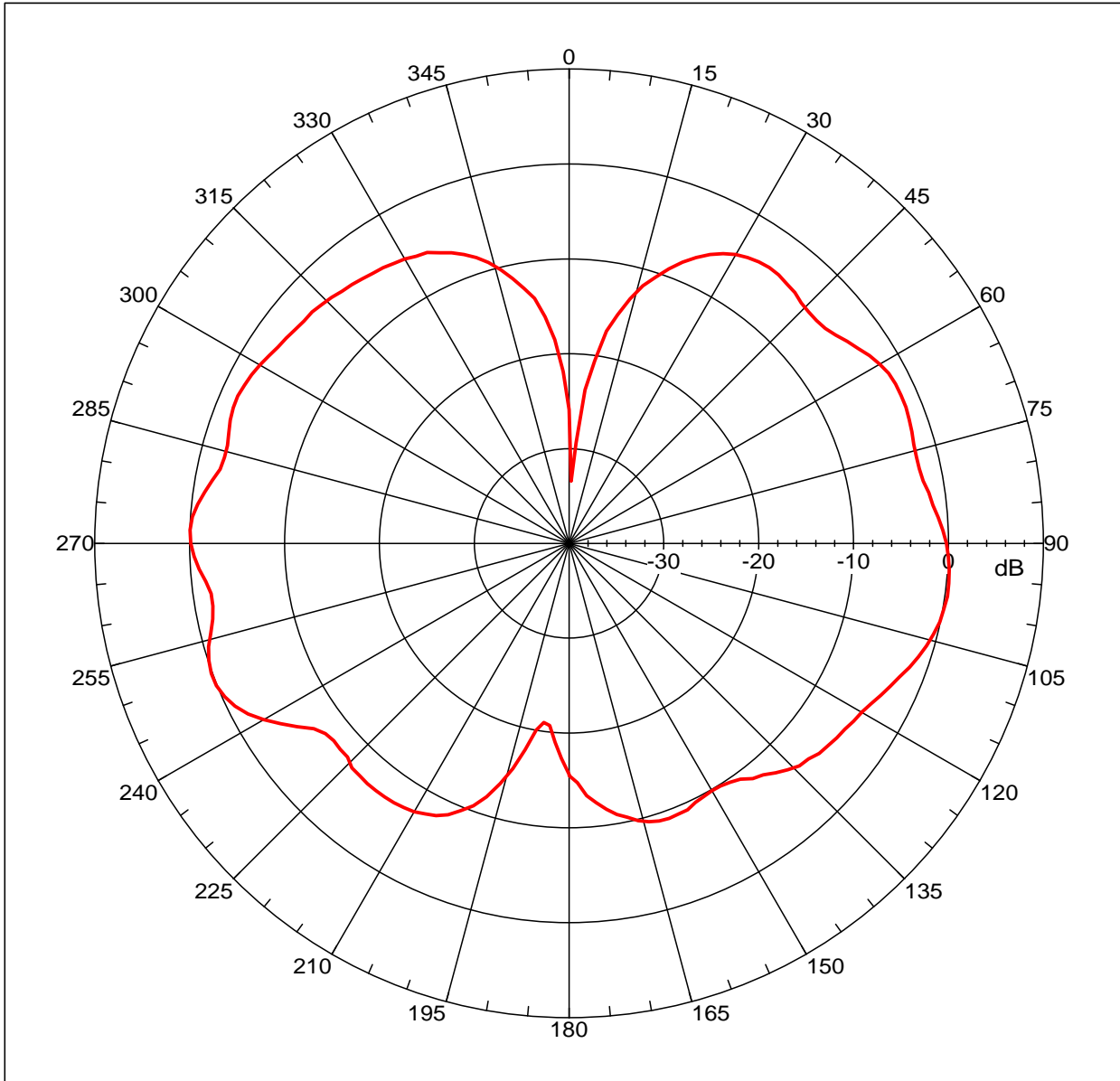
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C  
 800-2100mhz E-PLANE.nsi  
 Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: -4.894 dB  
 -3. dB beam width: 21.02 deg  
 -6. dB beam width: 59.61 deg  
 -10. dB beam width: 74.11 deg  
 Left Sidelobe: -3.59 dB at -147.821 deg  
 Right Sidelobe: -1.42 dB at -85.475 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
6	1.800 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 0.27752 dBi  
 Max far-field (global) = -46.39105 dB, Max far-field (plot) = -46.39119 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: 97.99999 deg, Vpeak at: 0.000 deg  
 Plot centering: On

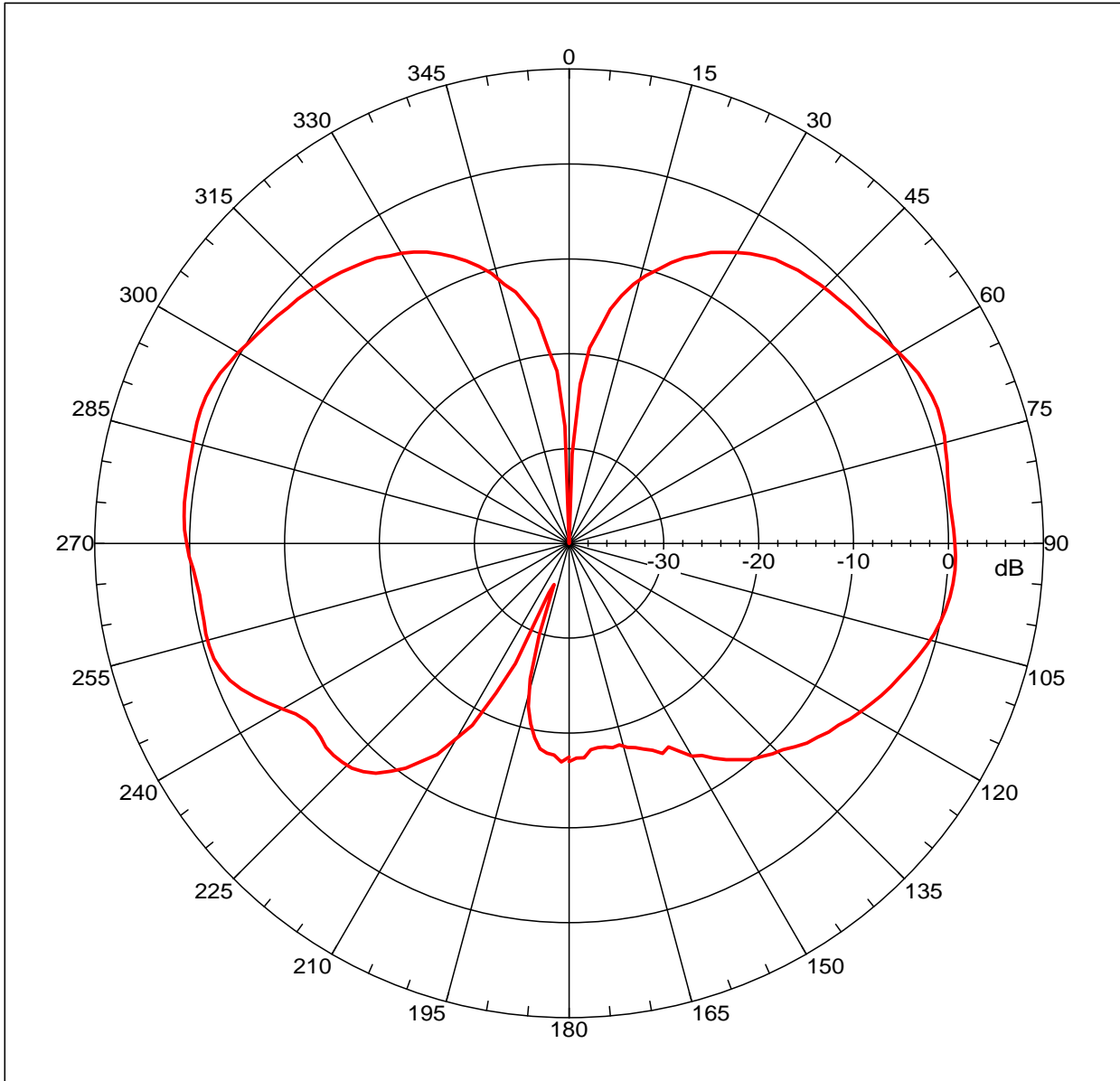
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz E-PLANE.nsi  
 Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: -5.053 dB  
 -3. dB beam width: 55.60 deg  
 -6. dB beam width: 104.09 deg  
 -10. dB beam width: 128.32 deg  
 Left Sidelobe: -2.08 dB at -65.363 deg  
 Right Sidelobe: Not Found  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
7	1.880 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 1.35175 dBi  
Max far-field (global) = -46.45435 dB, Max far-field (plot) = -46.45448 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 69.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

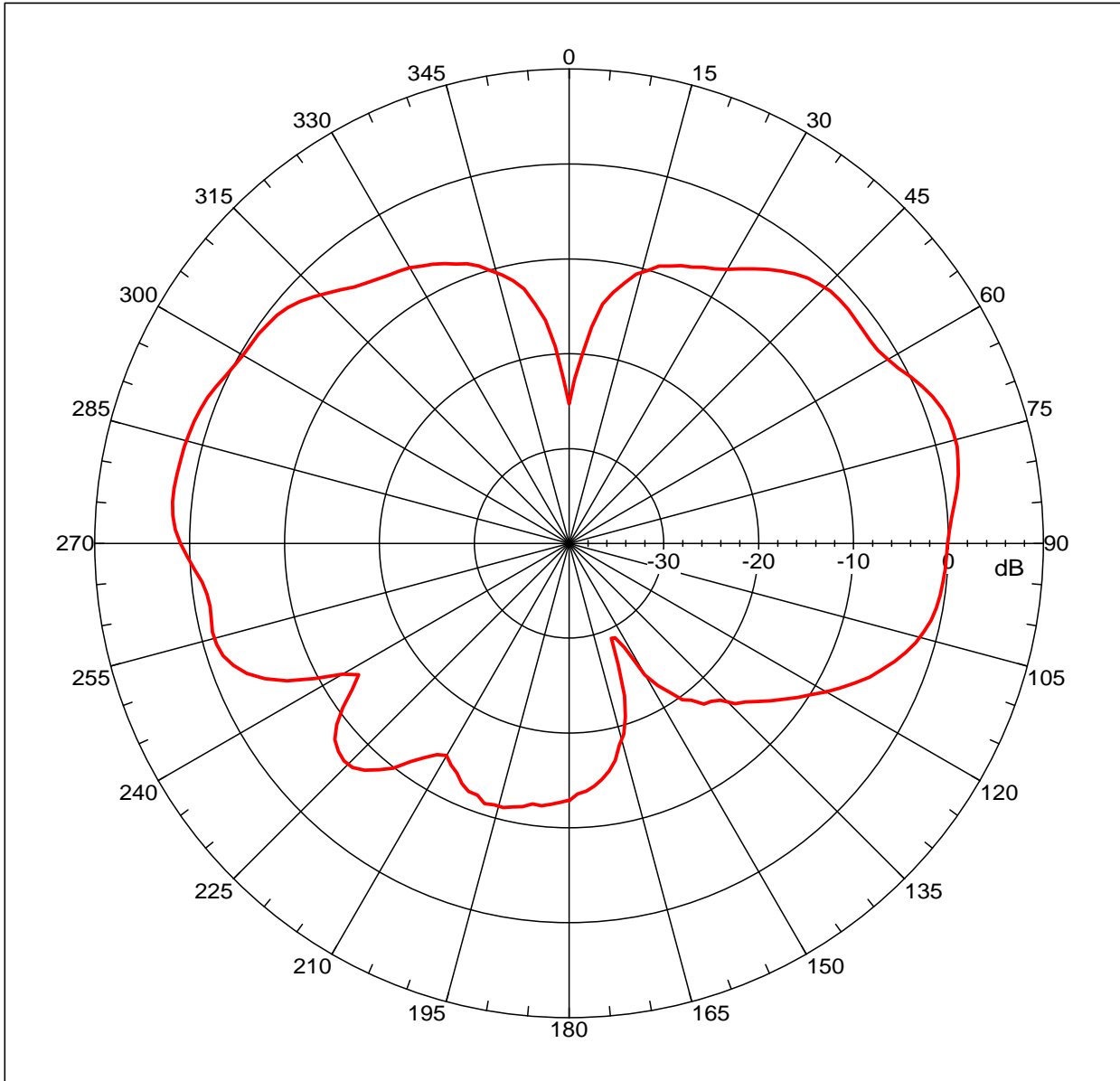
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C  
800-2100mhz E-PLANE.nsi  
Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -4.506 dB  
-3. dB beam width: 61.32 deg  
-6. dB beam width: 91.12 deg  
-10. dB beam width: 114.76 deg  
Left Sidelobe: -0.07 dB at -69.385 deg  
Right Sidelobe: Not Found  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
8	1.990 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 2.15362 dBi  
Max far-field (global) = -45.17308 dB, Max far-field (plot) = -45.17319 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 75.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

20100924 TH88C 800-2100mhz E-PLANE

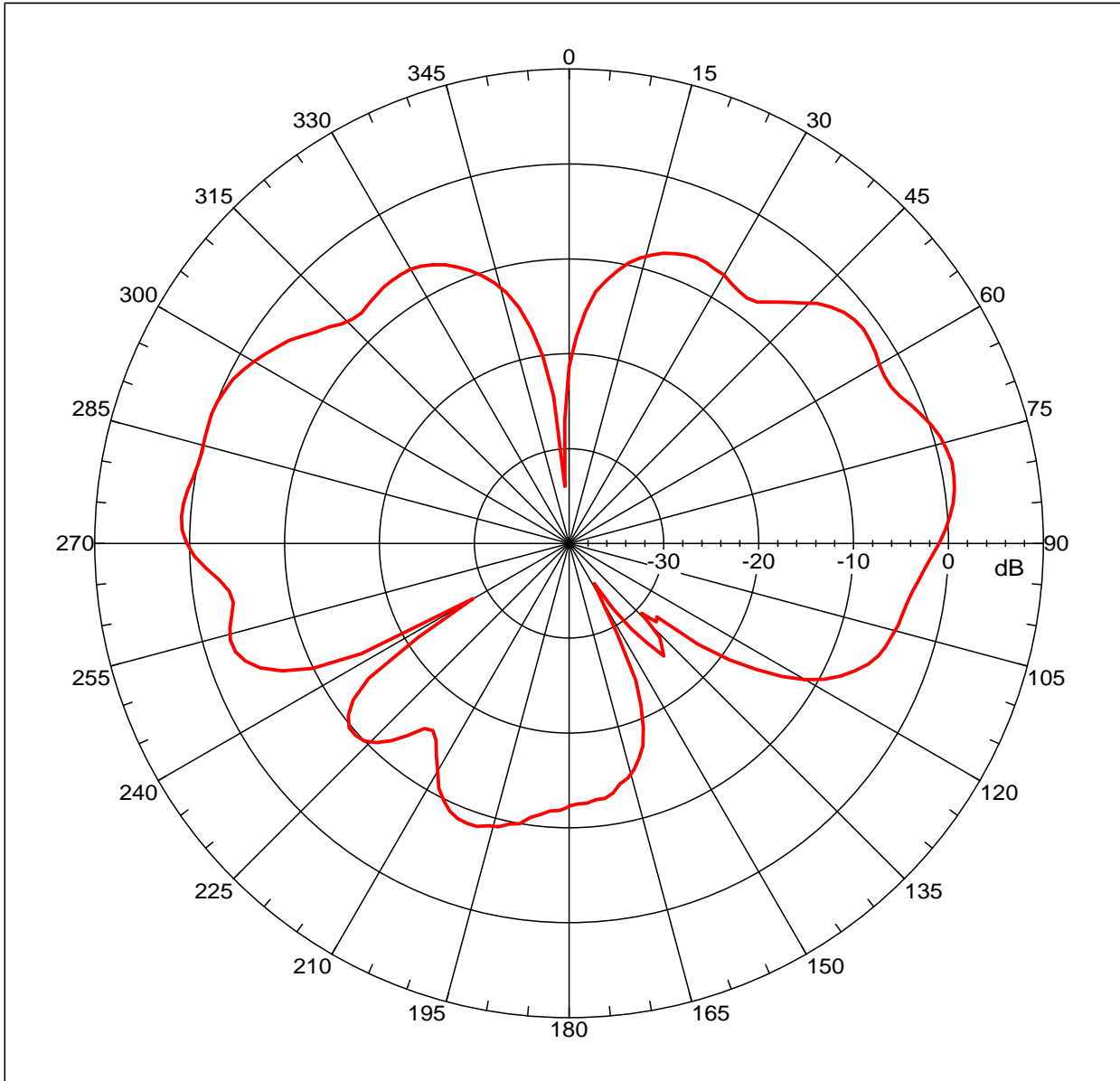
NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz E-PLANE.nsi  
Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97

Far-field Cut Analysis:  
Avg value: -5.064 dB  
-3. dB beam width: 39.79 deg  
-6. dB beam width: 73.81 deg  
-10. dB beam width: 93.89 deg  
Left Sidelobe: -0.13 dB at -81.453 deg  
Right Sidelobe: Not Found  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
9	2.100 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz E-PLANE.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 1.23822 dBi  
Max far-field (global) = -46.29389 dB, Max far-field (plot) = -46.29411 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 78.000 deg, Vpeak at: 0.000 deg  
Plot centering: On

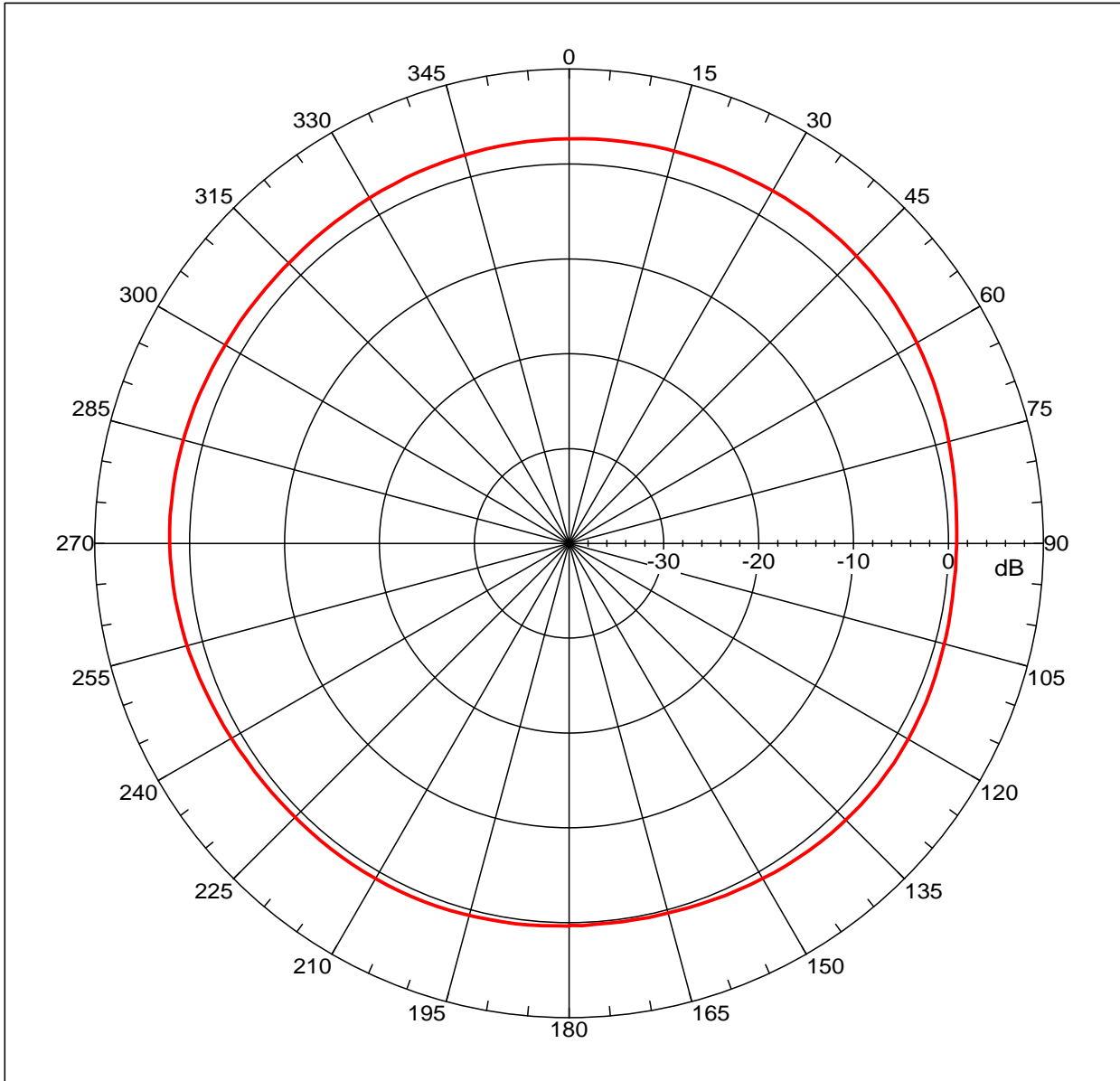
20100924 TH88C 800-2100mhz E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C  
800-2100mhz E-PLANE.nsi  
Measurement date/time: 9/24/2010 11:02:28 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -6.488 dB  
-3. dB beam width: 26.06 deg  
-6. dB beam width: 63.49 deg  
-10. dB beam width: 102.71 deg  
Left Sidelobe: -8.28 dB at 25.140 deg  
Right Sidelobe: -25.74 dB at 141.788 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
10	2.170 GHz	Azimuth	Elevation	Single-pol

### Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 2.92899 dBi  
Max far-field (global) = -40.07035 dB, Max far-field (plot) = -40.07035 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 31.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

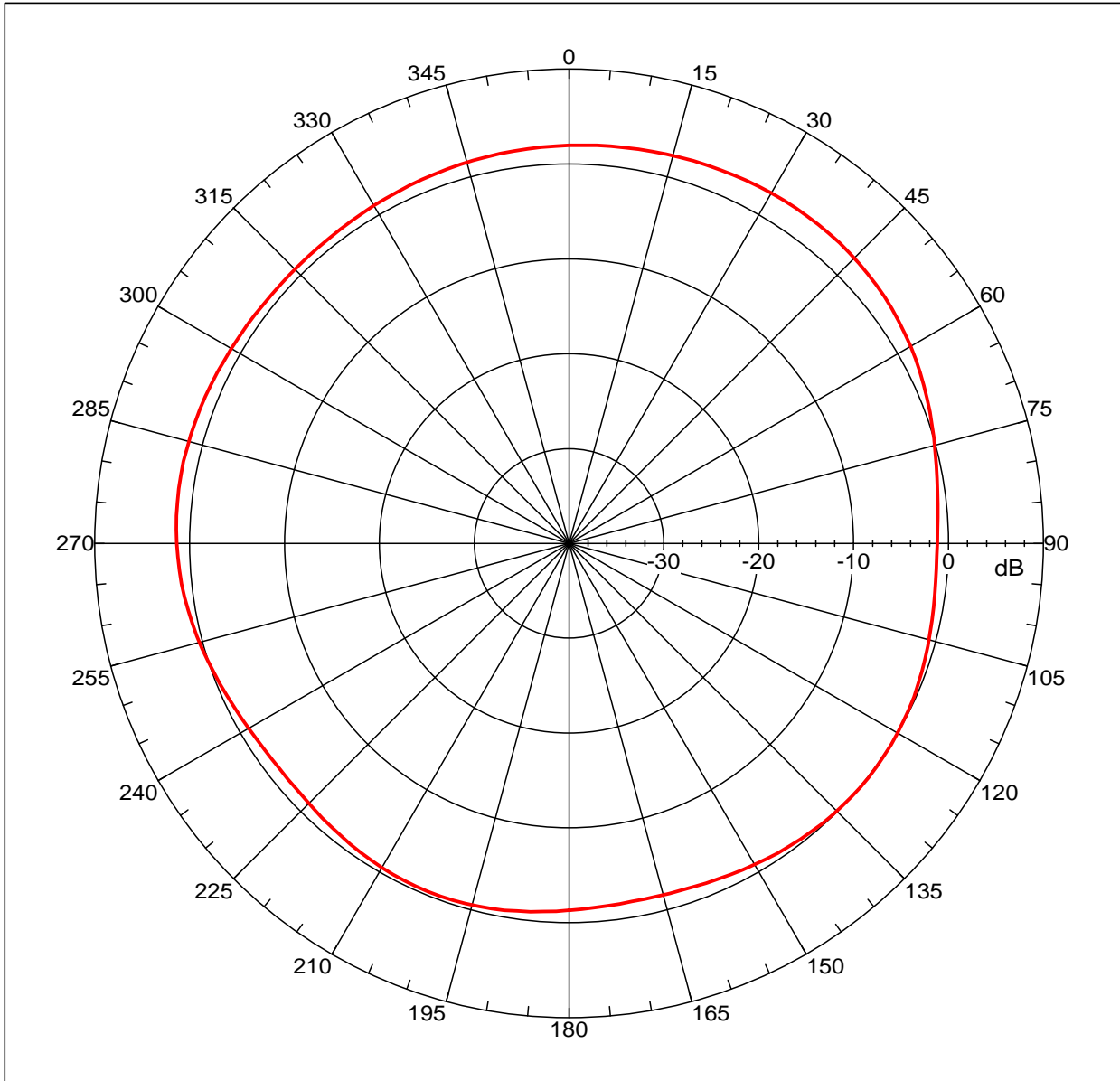
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: 1.617 dB  
-3. dB beam width: Not Found  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: Not Found  
Right Sidelobe: Not Found  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
1	0.824 GHz	Azimuth	Elevation	Single-pol

### Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 2.6659 dBi  
Max far-field (global) = -38.10193 dB, Max far-field (plot) = -38.10194 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 33.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

20100924 TH88C 800-2100mhz H-PLANE

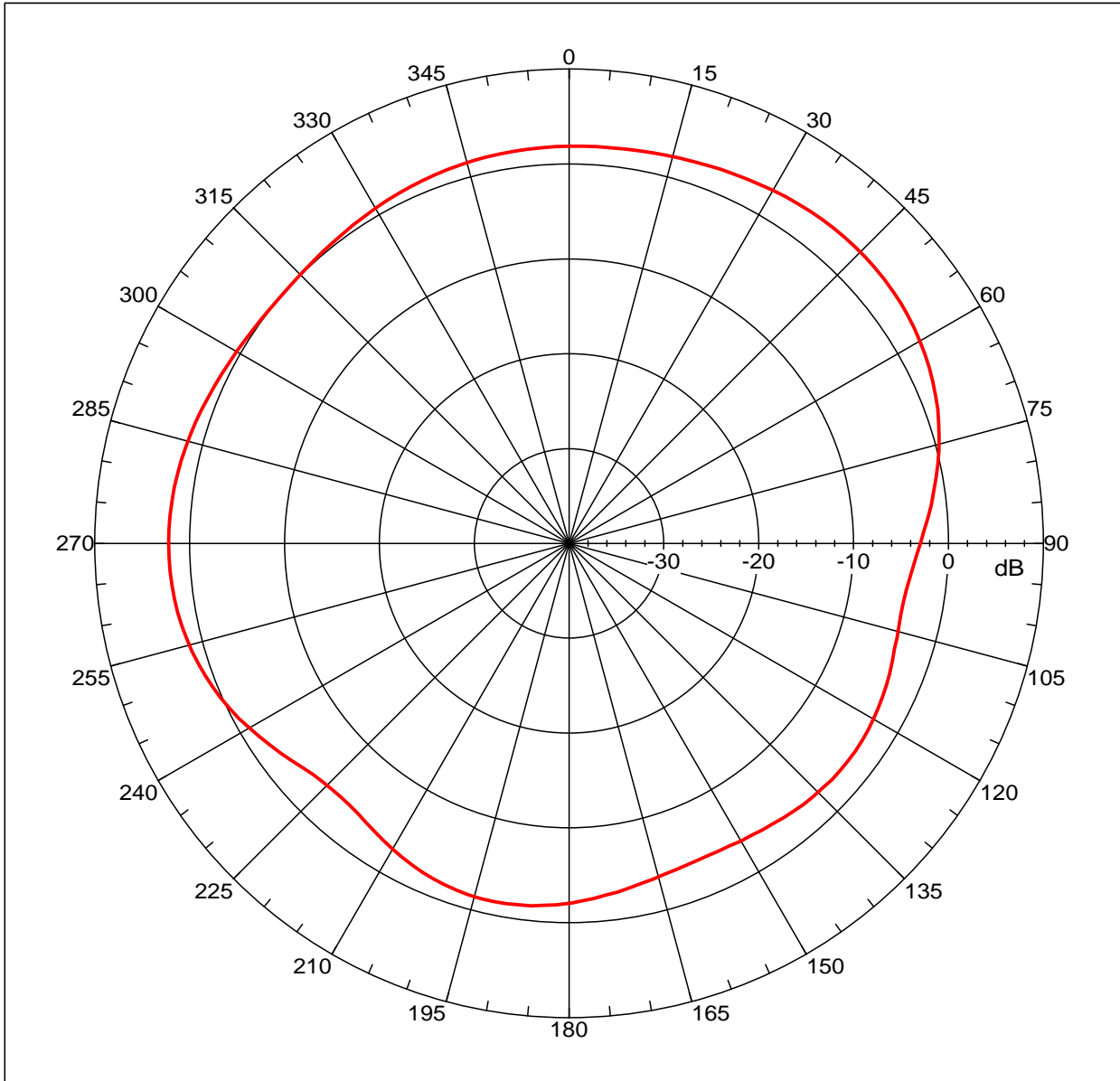
NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: 0.489 dB  
-3. dB beam width: 190.07 deg  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: Not Found  
Right Sidelobe: -2.59 dB at 127.710 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
2	0.860 GHz	Azimuth	Elevation	Single-pol



Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 3.41975 dBi  
Max far-field (global) = -38.13993 dB, Max far-field (plot) = -38.13993 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 43.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

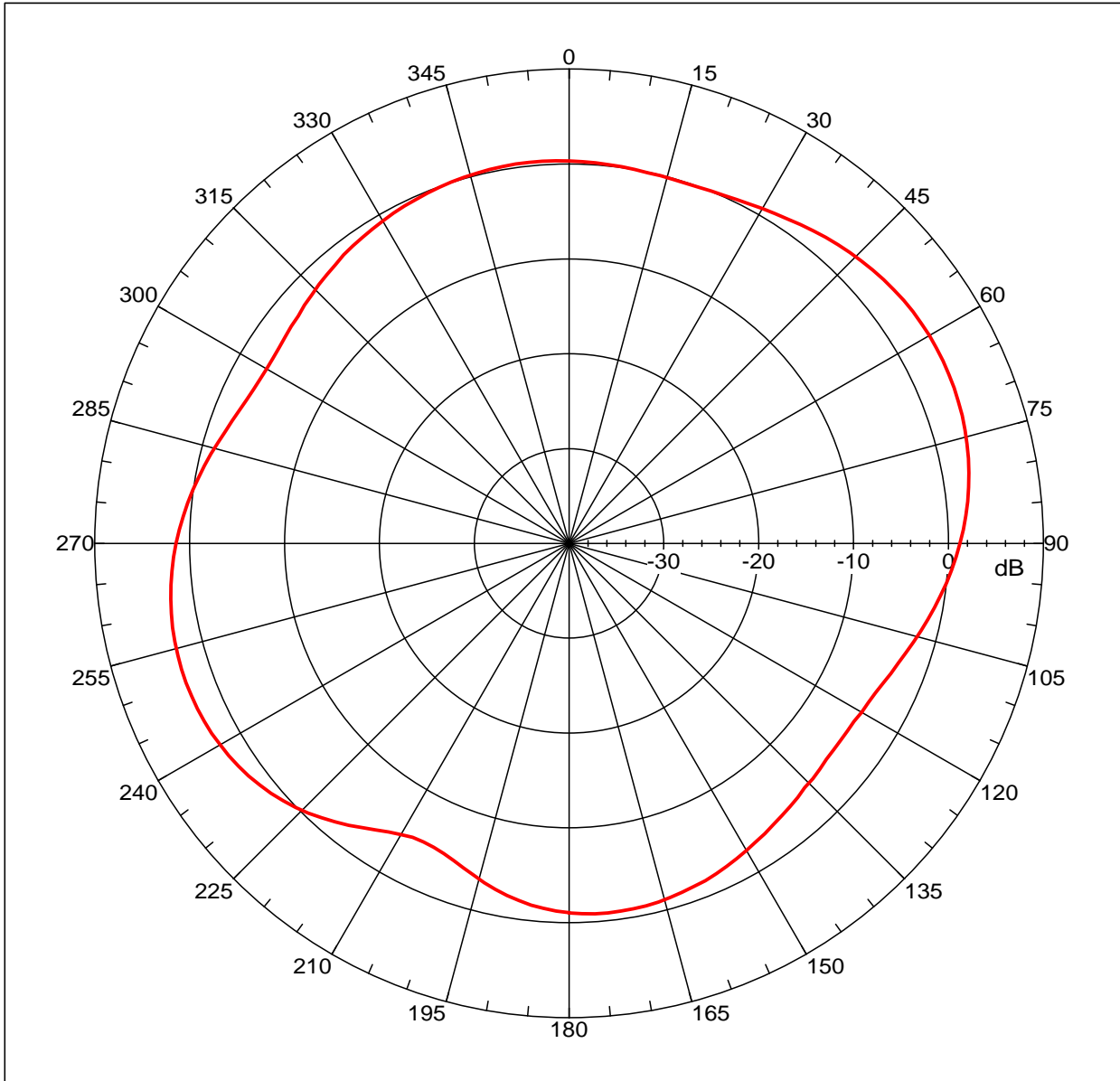
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C  
800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -0.082 dB  
-3. dB beam width: 111.36 deg  
-6. dB beam width: 215.99 deg  
-10. dB beam width: Not Found  
Left Sidelobe: -1.23 dB at -89.497 deg  
Right Sidelobe: -6.14 dB at 127.710 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
3	0.900 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 3.86014 dBi  
 Max far-field (global) = -38.76953 dB, Max far-field (plot) = -38.76954 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: 63.99999 deg, Vpeak at: 0.000 deg  
 Plot centering: On

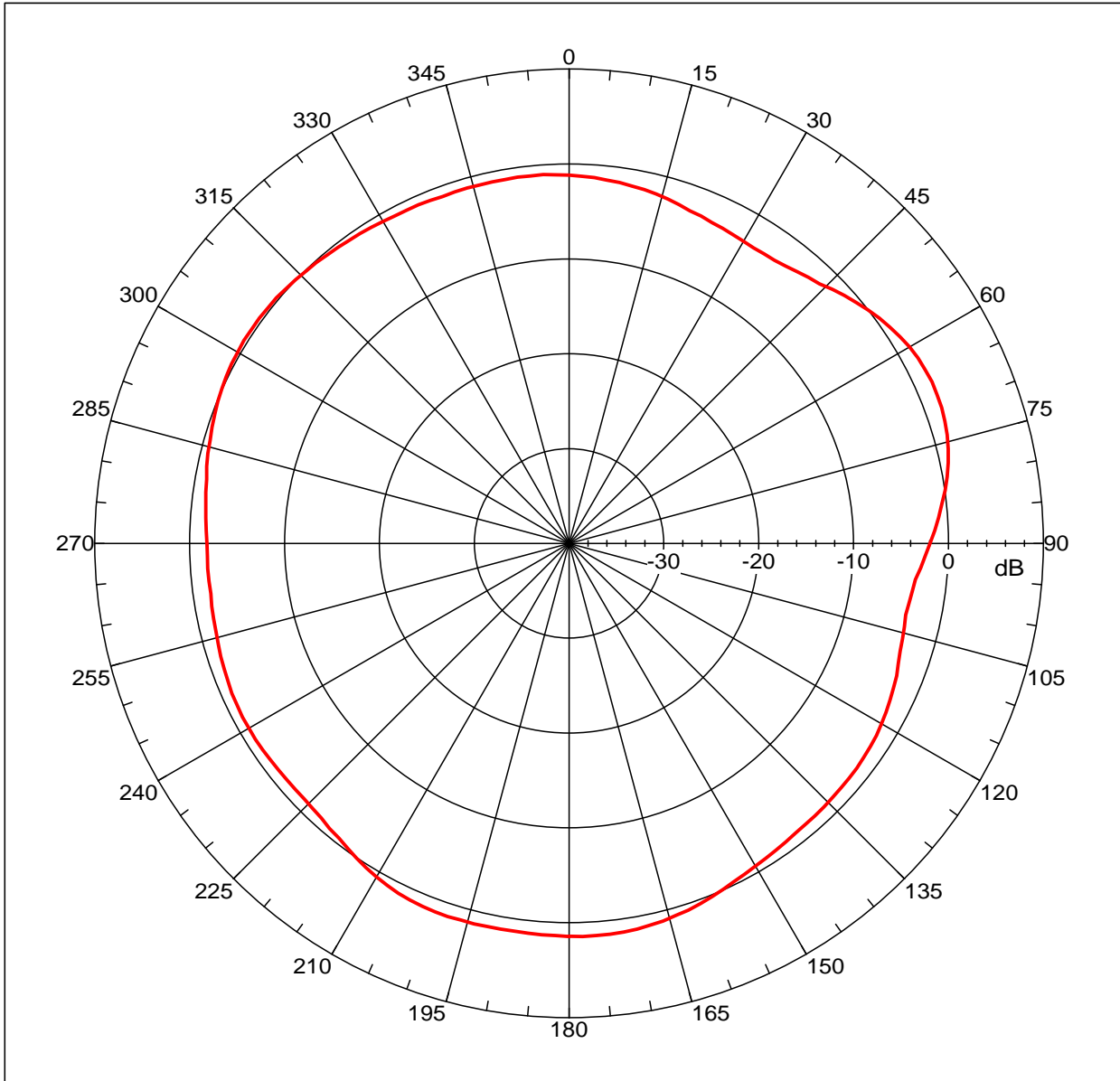
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C  
 800-2100mhz H-PLANE01.nsi  
 Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: -0.157 dB  
 -3. dB beam width: 61.13 deg  
 -6. dB beam width: 151.03 deg  
 -10. dB beam width: Not Found  
 Left Sidelobe: -0.91 dB at -109.609 deg  
 Right Sidelobe: -4.68 dB at 175.978 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
4	0.960 GHz	Azimuth	Elevation	Single-pol

### Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 1.86029 dBi  
Max far-field (global) = -43.3323 dB, Max far-field (plot) = -43.33234 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 66.000 deg, Vpeak at: 0.000 deg  
Plot centering: On

20100924 TH88C 800-2100mhz H-PLANE

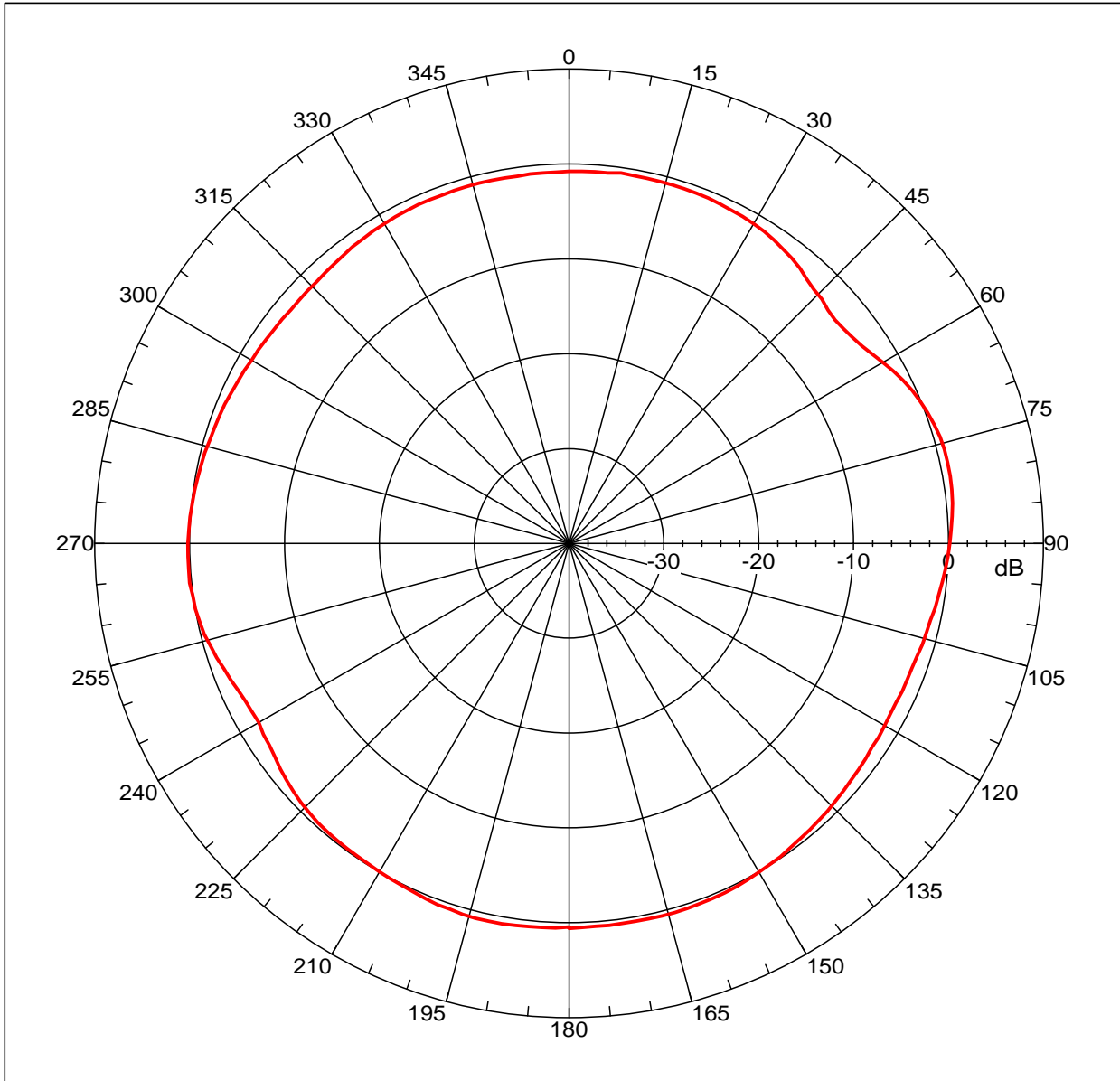
NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97

Far-field Cut Analysis:  
Avg value: -0.670 dB  
-3. dB beam width: 39.74 deg  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: -2.92 dB at -3.017 deg  
Right Sidelobe: Not Found  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
5	1.710 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 0.78941 dBi  
Max far-field (global) = -46.03263 dB, Max far-field (plot) =  
-46.03263 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 79.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

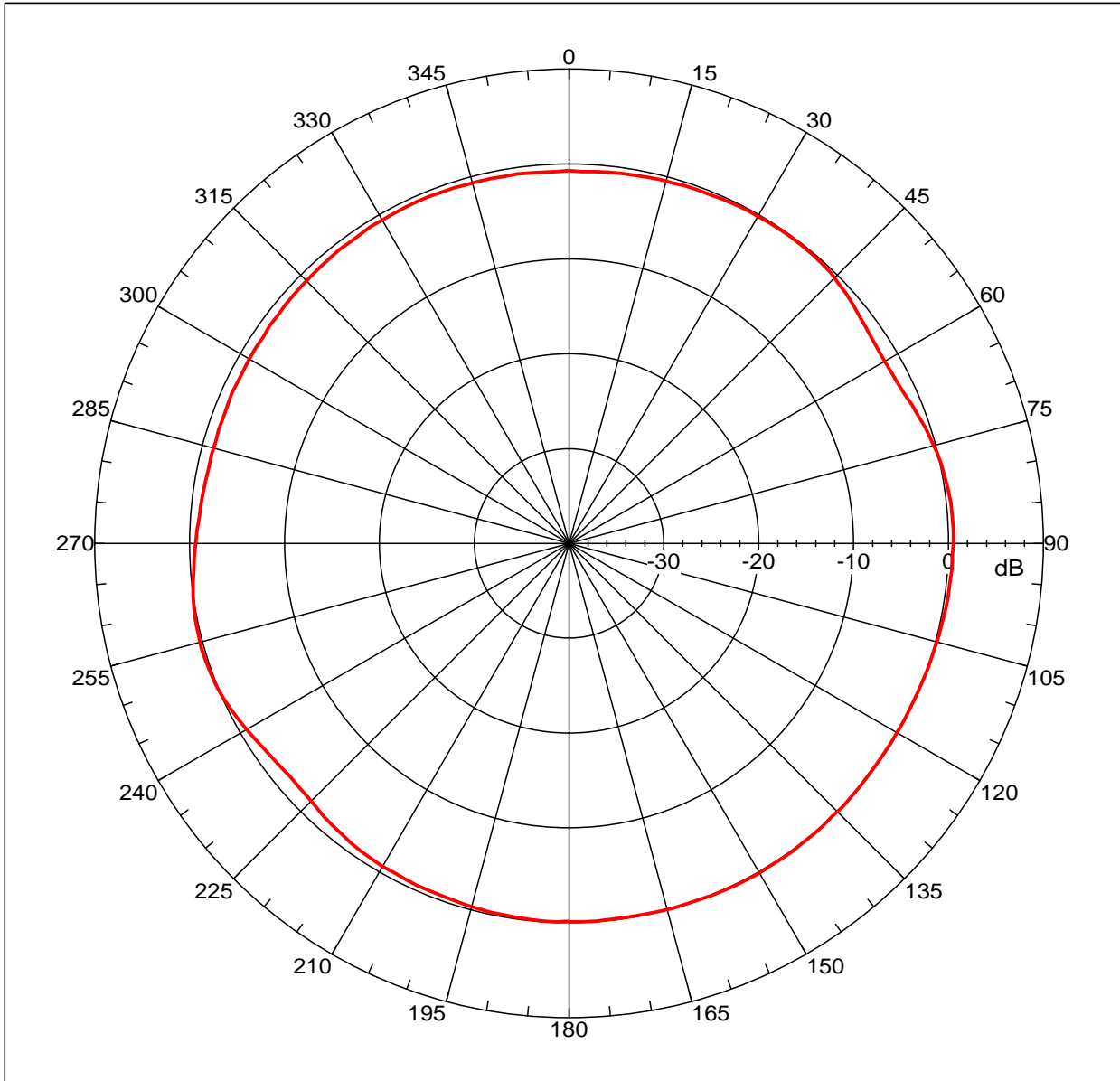
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\Data\20100924 TH88C  
800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -0.672 dB  
-3. dB beam width: Not Found  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: -1.47 dB at 17.095 deg  
Right Sidelobe: -0.32 dB at 167.933 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000  
deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
6	1.800 GHz	Azimuth	Elevation	Single-pol

### Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 0.53056 dBi  
Max far-field (global) = -46.13801 dB, Max far-field (plot) = -46.13803 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: 87.99999 deg, Vpeak at: 0.000 deg  
Plot centering: On

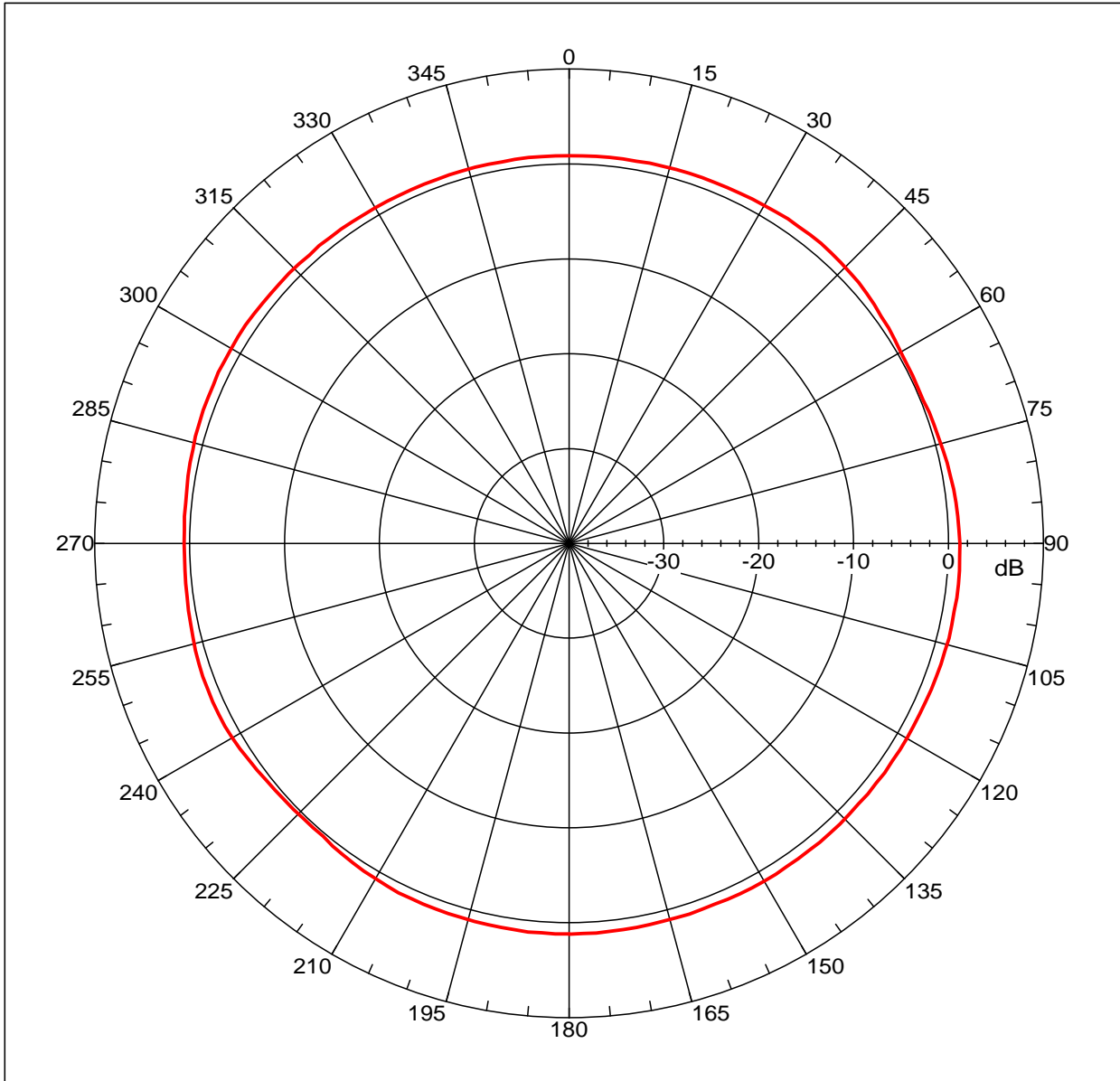
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: -0.460 dB  
-3. dB beam width: Not Found  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: -0.65 dB at 37.207 deg  
Right Sidelobe: Not Found  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
7	1.880 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 1.28112 dBi  
 Max far-field (global) = -46.52498 dB, Max far-field (plot) = -46.52499 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: 39.99999 deg, Vpeak at: 0.000 deg  
 Plot centering: On

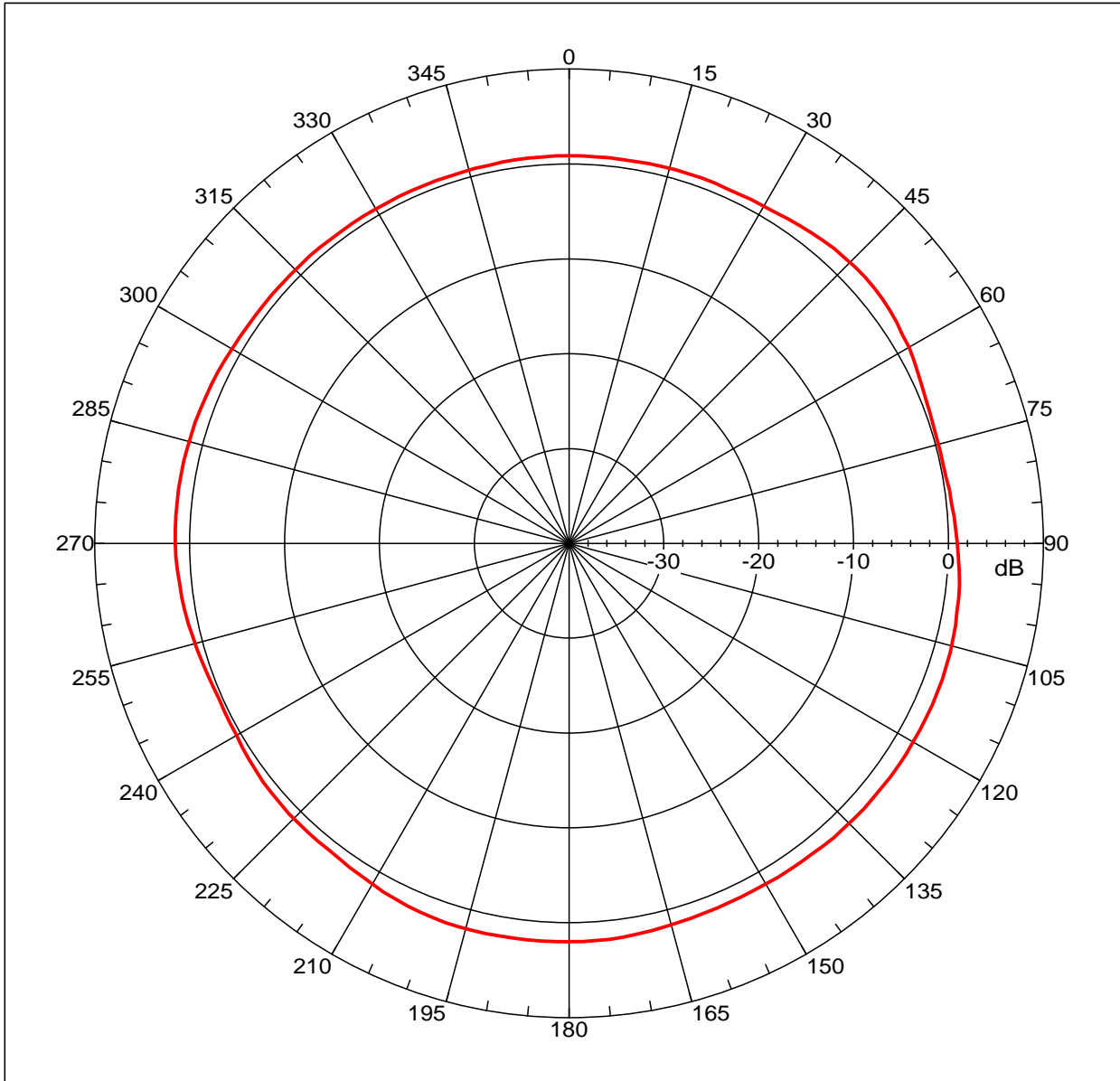
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
 Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: 0.932 dB  
 -3. dB beam width: Not Found  
 -6. dB beam width: Not Found  
 -10. dB beam width: Not Found  
 Left Sidelobe: Not Found  
 Right Sidelobe: -0.01 dB at 99.553 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
8	1.990 GHz	Azimuth	Elevation	Single-pol

### Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
Gain = 2.06857 dBi  
Max far-field (global) = -45.25813 dB, Max far-field (plot) = -45.25813 dB  
Normalization: Reference, Network offset = 0.000 dB  
Hpeak at: -168.000 deg, Vpeak at: 0.000 deg  
Plot centering: On

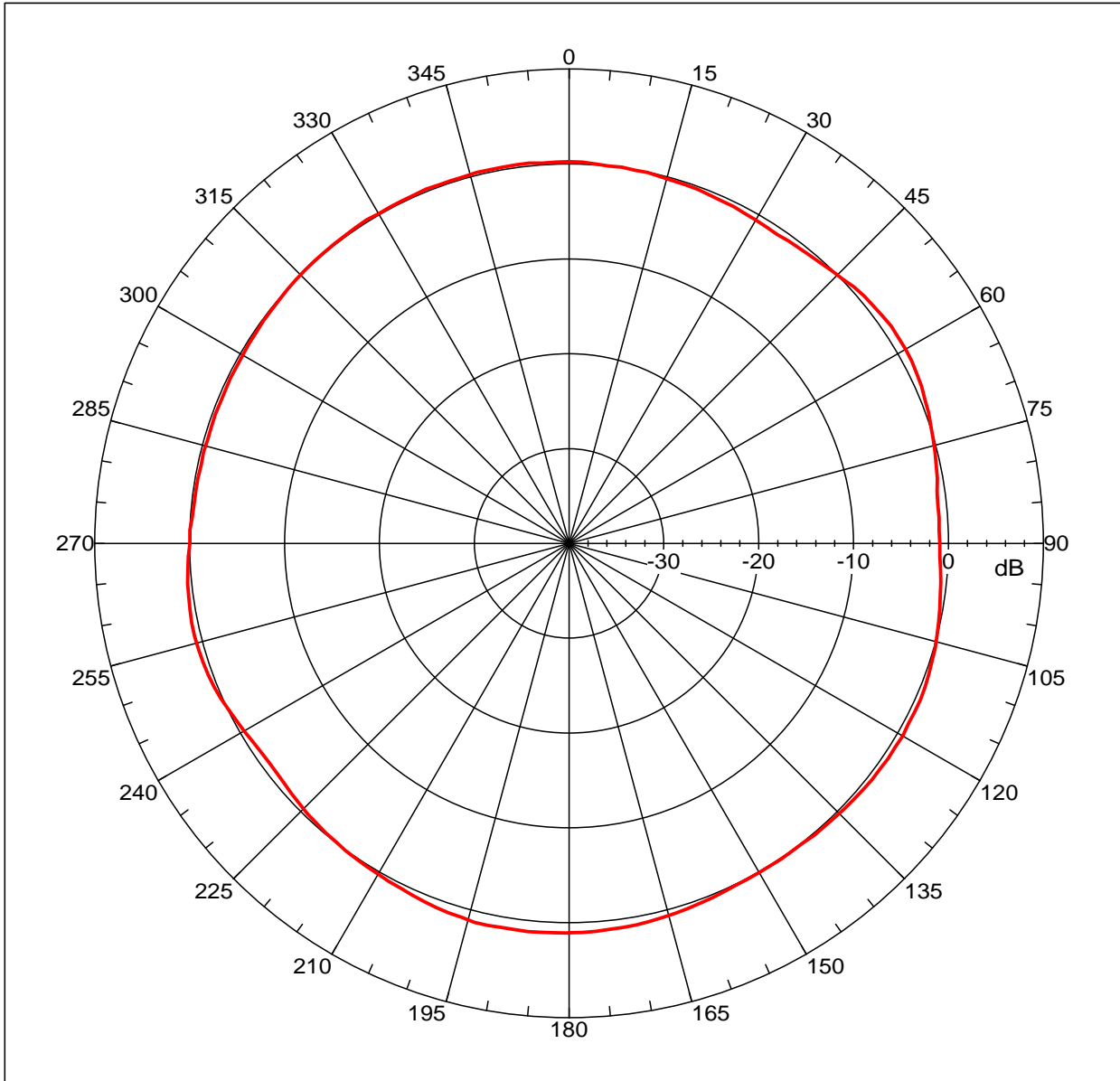
20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
Far-field Cut Analysis:  
Avg value: 1.252 dB  
-3. dB beam width: Not Found  
-6. dB beam width: Not Found  
-10. dB beam width: Not Found  
Left Sidelobe: Not Found  
Right Sidelobe: -0.53 dB at -85.475 deg  
Far-field display setup  
Azimuth (deg)  
Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
Elevation (deg)  
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
9	2.100 GHz	Azimuth	Elevation	Single-pol

Far-field amplitude of 20100924 TH-88C 800-2100mhz H-PLANE01.nsi



Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg  
 Gain = 1.18074 dBi  
 Max far-field (global) = -46.35137 dB, Max far-field (plot) = -46.35152 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Hpeak at: -166.000 deg, Vpeak at: 0.000 deg  
 Plot centering: On

20100924 TH88C 800-2100mhz H-PLANE

NSI2000 V4.0.124, Filename: C:\nsi2000\Data\20100924 TH88C 800-2100mhz H-PLANE01.nsi  
 Measurement date/time: 9/24/2010 11:09:25 AM, Filetype: NSI-97  
 Far-field Cut Analysis:  
 Avg value: 0.125 dB  
 -3. dB beam width: Not Found  
 -6. dB beam width: Not Found  
 -10. dB beam width: Not Found  
 Left Sidelobe: Not Found  
 Right Sidelobe: -0.53 dB at -101.564 deg  
 Far-field display setup  
 Azimuth (deg)  
 Span = 360.00001 deg, Center = 0.000 deg, #pts = 181  
 Start = -180.00001 deg, Stop = 180.00001 deg, Delta = 2.000 deg  
 Elevation (deg)  
 Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 10

Beam	Frequency	Azimuth	Elevation	Pol
10	2.170 GHz	Azimuth	Elevation	Single-pol