INTRODUCTION
CPB477-WIFI-2.4GHz antenna

This document provides a Omni/Dipole Antenna design

1. GENERAL DESCRIPTION

Model No
CPB477-WIFI-2.4G-N/Female

Below is a table summarizing the antenna design specification.

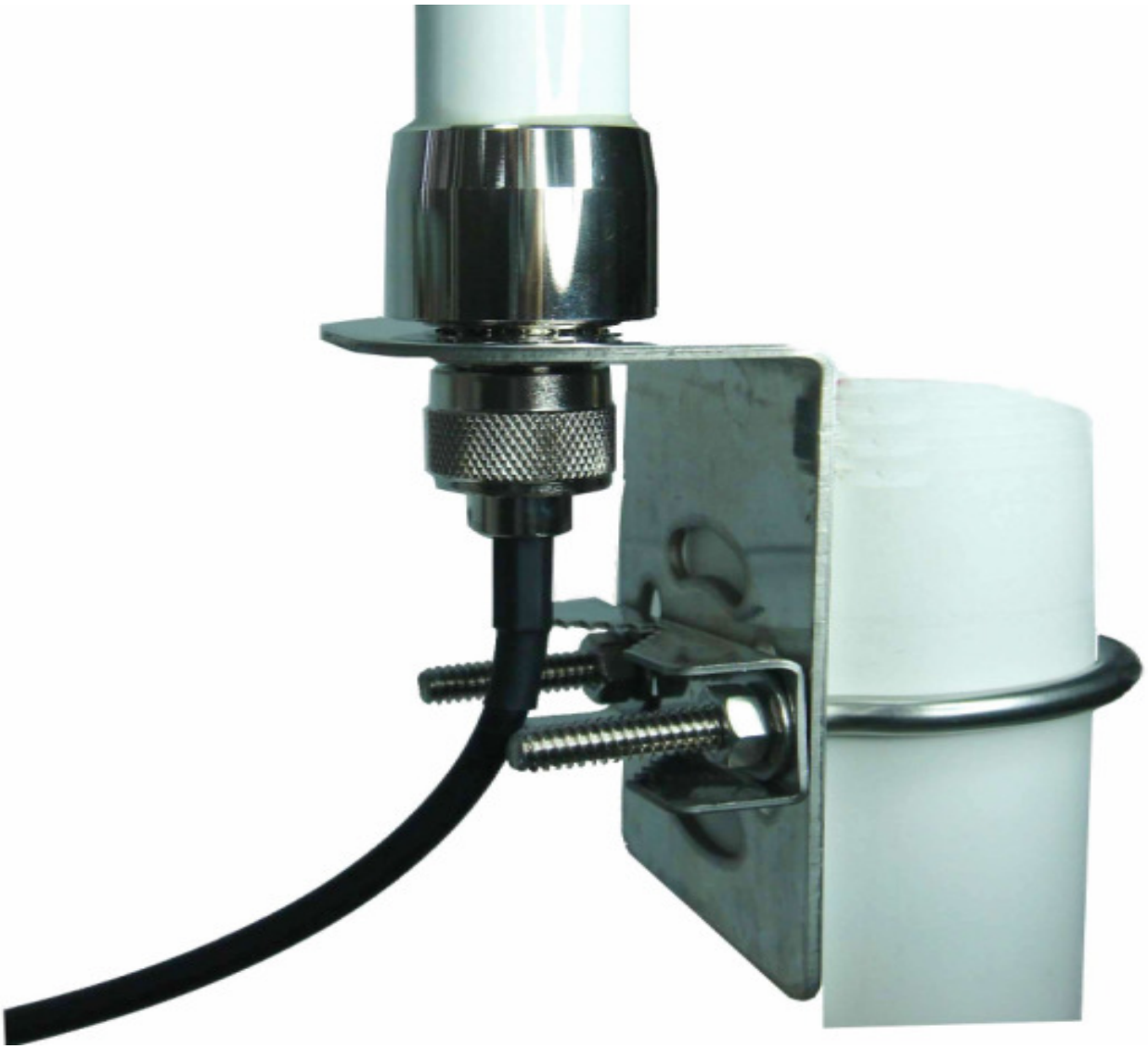
1.1 Electrical Properties

Parameter	Description
Frequency Band	2.4 ~2.5GHz
Nominal Impedance	50 ohm
Polarization	Vertical
V.S.W.R	1.5:1
Antenna Average Gain	6~7dBi
MAX. Power	100W
Note: Gain includes the cable loss	

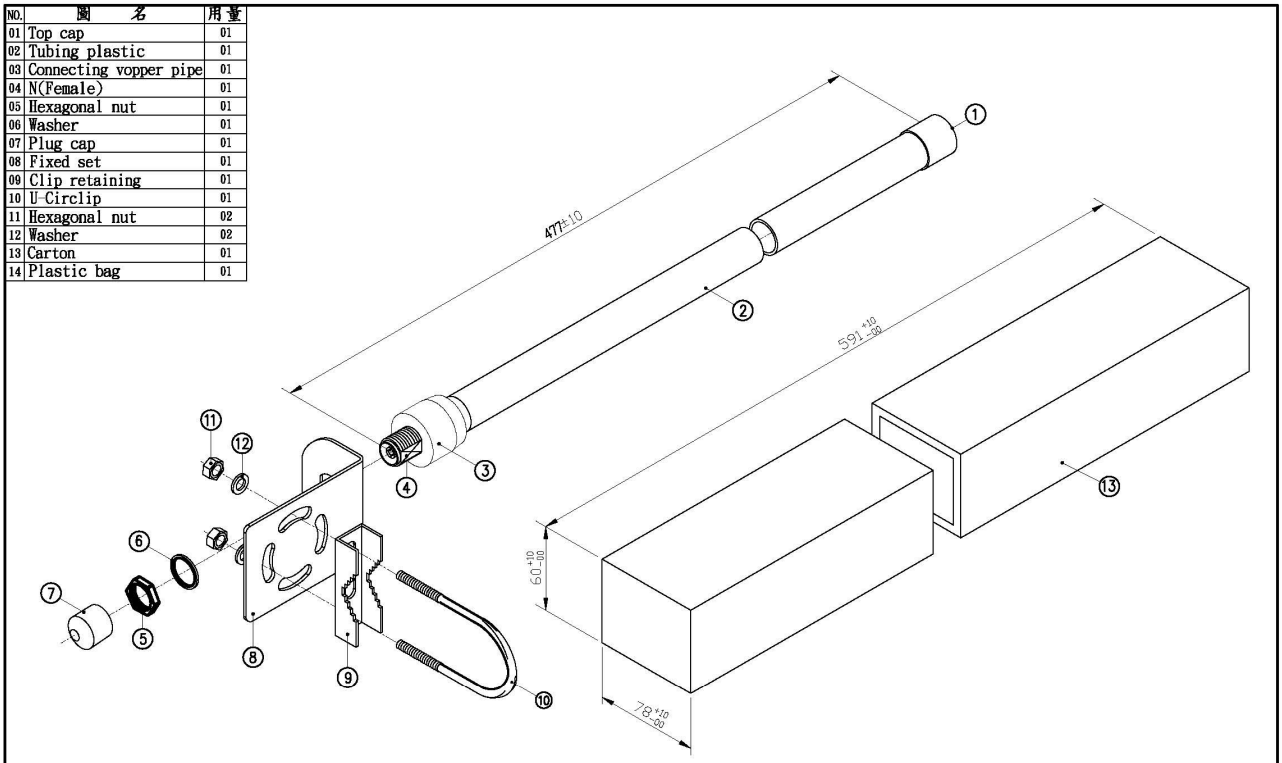
1.2 Mechanical Properties

Parameter	Description
Antenna Type	Omni-Directional Antenna
Materials	Fiberglass
Connector Type	N (Female)
Antenna Dimensions	477 mm ± 10
Antenna Color	White
Waterproof	IP66~IP67
Operating Temperature Range	-30°C~+80°C
Storage Temperature Range	-40°C~+85°C

1. APPEARANCE:

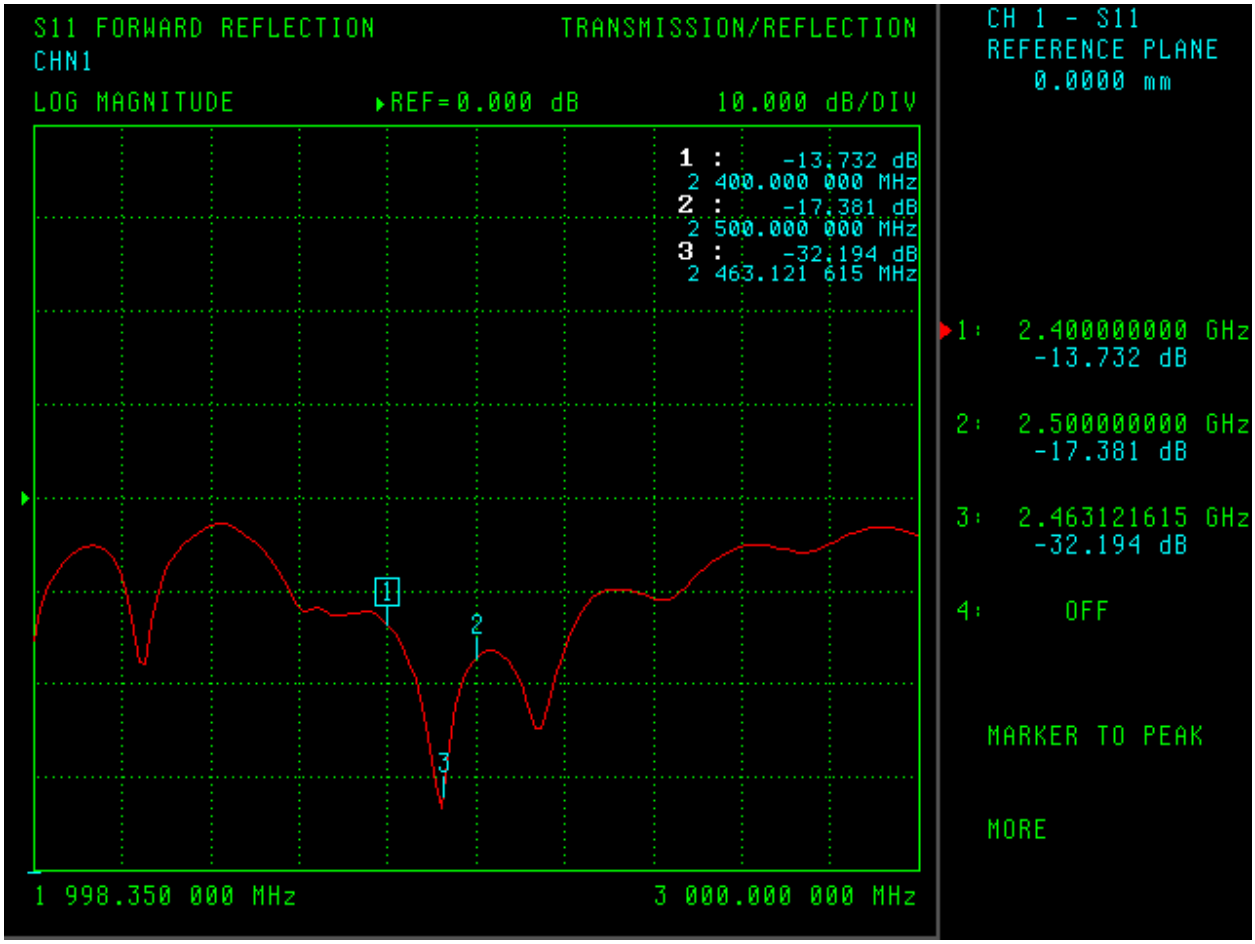


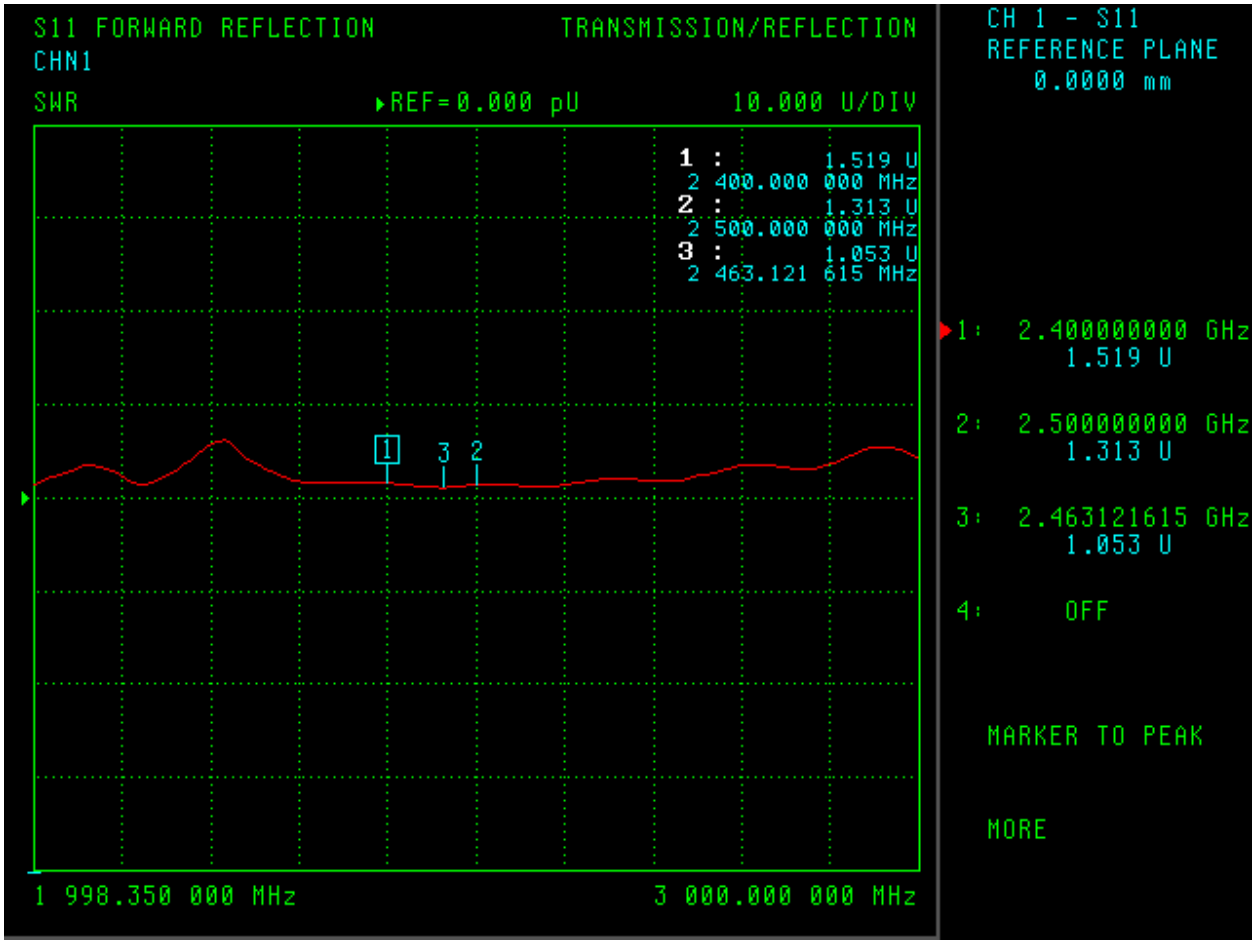
NO.	圖 名	用量
01	Top cap	01
02	Tubing plastic	01
03	Connecting vopper pipe	01
04	N(Female)	01
05	Hexagonal nut	01
06	Washer	01
07	Plug cap	01
08	Fixed set	01
09	Clip retaining	01
10	U-Circlip	01
11	Hexagonal nut	02
12	Washer	02
13	Carton	01
14	Plastic bag	01

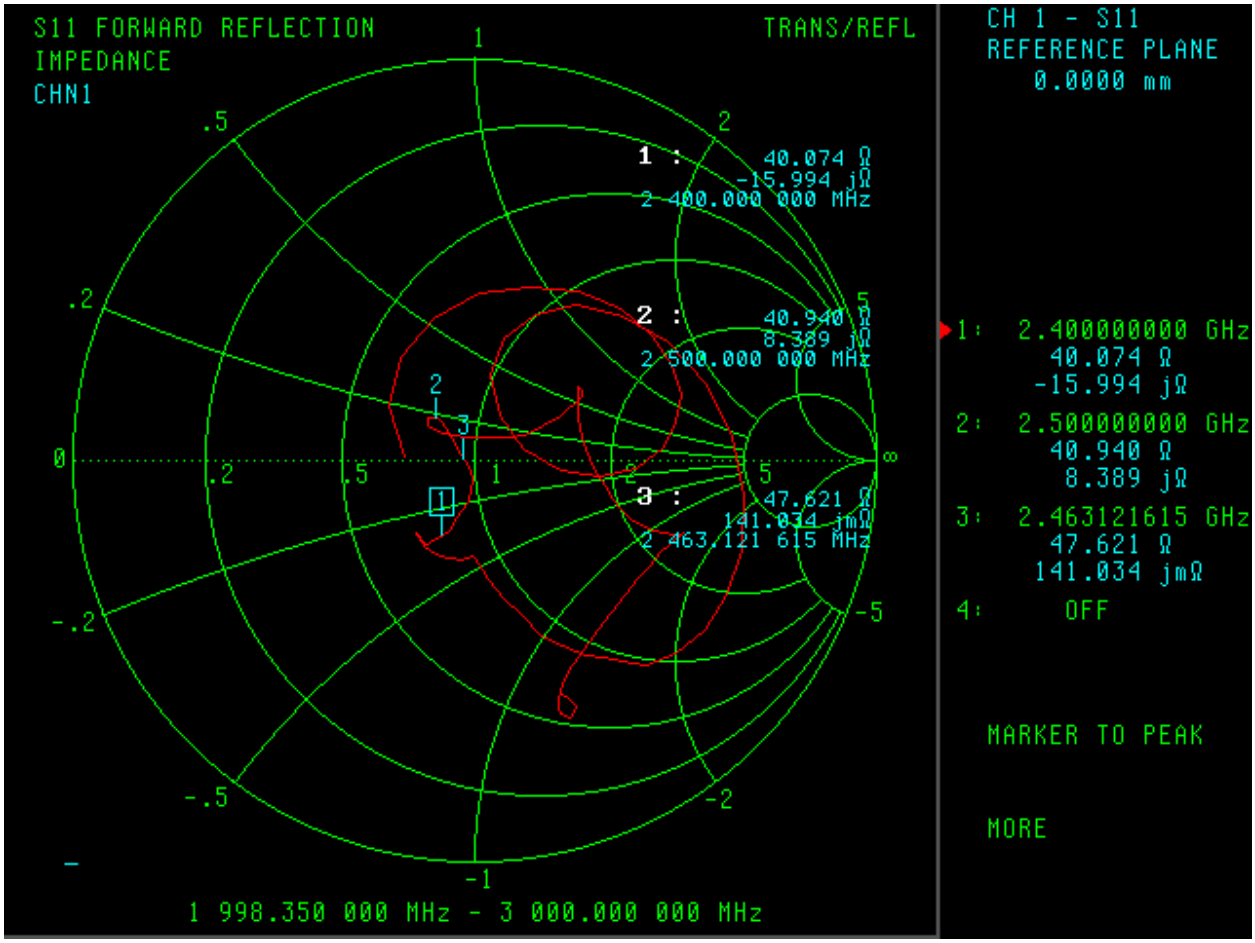


Third angle projection	CUSTOMER'S	MODEL	PARTS NUMBER	FREQUENCY	UNIT	SCALE	DATE	VERSION
				800/900/1800/1900/2100MHz	M/M		20090622	1
PROFESSOR 普傑國際股份有限公司	TOLERANCE	X.XX±0.15	NAME	PARTS NUMBER	APPROVED	CHECKED	DRAWING	DESIGNED
	SURFACE ROUGHNESS	S	APPEARANCE	CPD890-477mm				

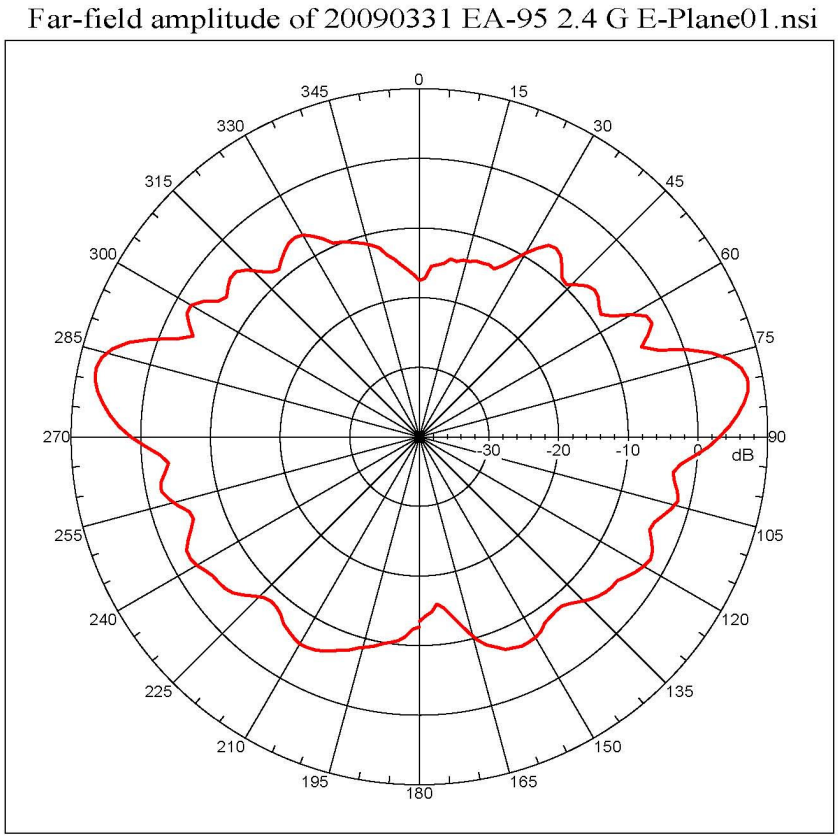
2. Return Loss, V.S.W.R. and Smith Chart




S11 FORWARD REFLECTION
TRANSMISSION/REFLECTION
CHN1
SWR
REF=0.000 pU
10.000 U/DIV
1 : 1.519 U
2 400.000 000 MHz
2 : 1.313 U
2 500.000 000 MHz
3 : 1.053 U
2 463.121 615 MHz
1 3 2
1 998.350 000 MHz
3 000.000 000 MHz
CH 1 - S11
REFERENCE PLANE
0.0000 mm
1: 2.400000000 GHz
1.519 U
2: 2.500000000 GHz
1.313 U
3: 2.463121615 GHz
1.053 U
4: OFF
MARKER TO PEAK
MORE

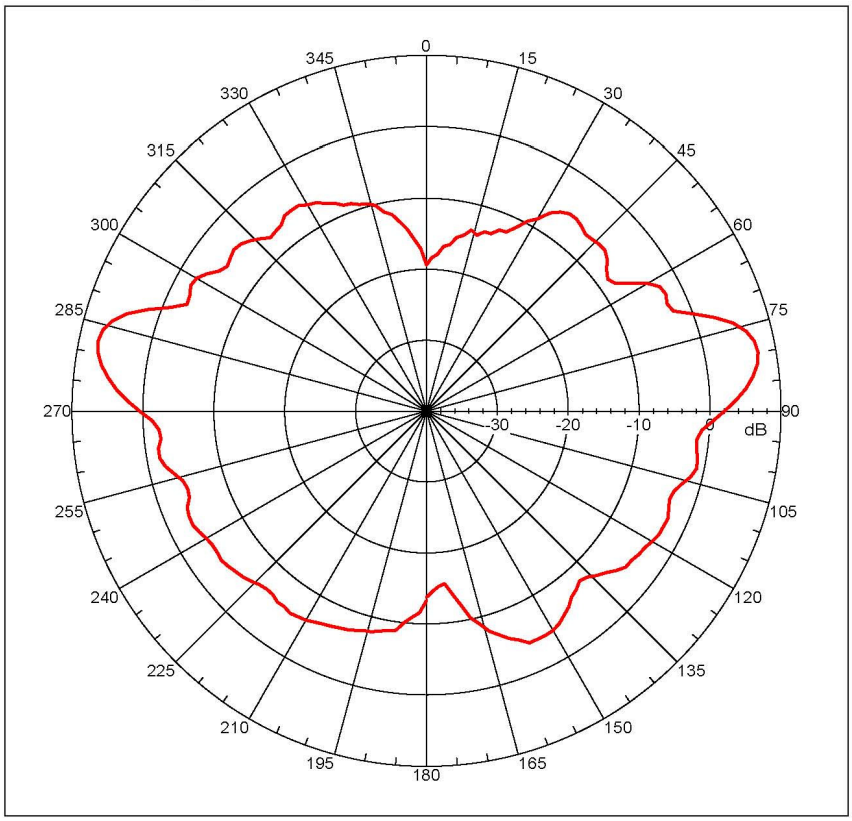

S11 FORWARD REFLECTION
IMPEDANCE
CHN1
TRANS/REFL
1 : 40.074 Ω
-15.994 jΩ
2 400.000 000 MHz
2 : 40.940 Ω
8.389 jΩ
2 500.000 000 MHz
3 : 47.621 Ω
141.034 jmΩ
2 463.121 615 MHz
1 998.350 000 MHz - 3 000.000 000 MHz
CH 1 - S11
REFERENCE PLANE
0.0000 mm
1: 2.400000000 GHz
40.074 Ω
-15.994 jΩ
2: 2.500000000 GHz
40.940 Ω
8.389 jΩ
3: 2.463121615 GHz
47.621 Ω
141.034 jmΩ
4: OFF
MARKER TO PEAK
MORE

3.1 E-Plane

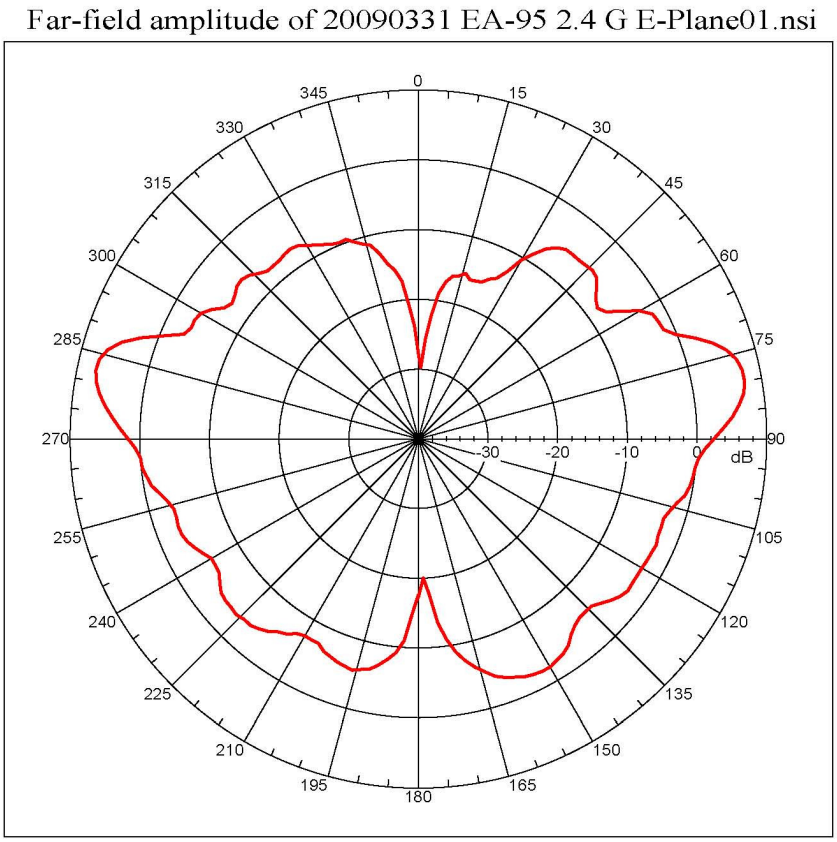



```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000  deg
Gain = 7.82025  dBi
Max far-field (global) = -41.18738  dB, Max far-field (plot) =
-41.18777  dB
Normalization: Reference, Network offset = 0.000  dB
Hpeak at: 79.99999  deg, Vpeak at: 0.000  deg
Plot centering: On

20090331 EA-95 2.4GHZ E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\T.Y.HUS\20090331 EA-95 2.4 G
E-Plane01.nsi
Measurement date/time: 3/31/2009 2:42:03 PM, Filetype: NSI-97
Far-field Cut Analysis:
   Avg value: -4.040 dB
   -3. dB beam width: 12.64 deg
   -6. dB beam width: 18.86 deg
   -10. dB beam width: 25.32 deg
   Left Sidelobe: -10.68 dB at 65.363  deg
   Right Sidelobe: -9.57 dB at 105.587  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 3
Beam    Frequency   Azimuth  Elevation  Pol
----    ---------   -------  ---------  ---
1       2.400  GHz  Azimuth  Elevation  Single-pol
```

Far-field amplitude of 20090331 EA-95 2.4 G E-Plane01.nsi



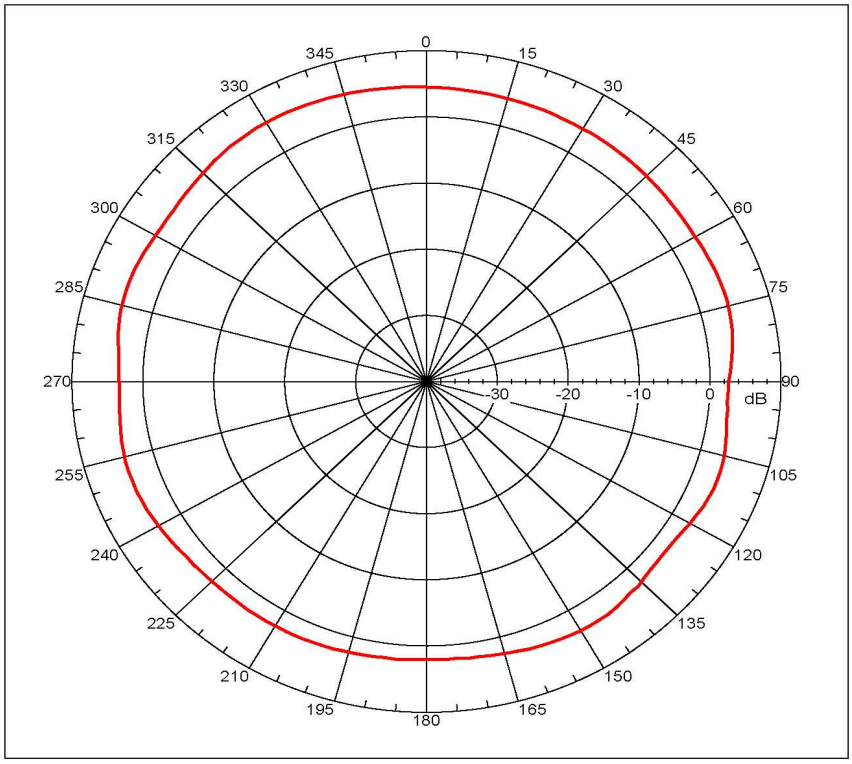

```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000  deg
Gain = 7.48019  dBi
Max far-field (global) = -42.49796  dB, Max far-field (plot) =
-42.49821  dB
Normalization: Reference, Network offset = 0.000  dB
Hpeak at: 79.99999  deg, Vpeak at: 0.000  deg
Plot centering: On

20090331 EA-95 2.4GHZ E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\T.Y.HUS\20090331 EA-95 2.4 G
E-Plane01.nsi
Measurement date/time: 3/31/2009 2:42:03 PM, Filetype: NSI-97
Far-field Cut Analysis:
   Avg value: -3.652 dB
   -3. dB beam width: 13.38 deg
   -6. dB beam width: 19.68 deg
   -10. dB beam width: 38.48 deg
   Left Sidelobe: -13.63 dB at 49.274  deg
   Right Sidelobe: -11.70 dB at 153.855  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 3
Beam    Frequency   Azimuth  Elevation  Pol
----    ---------   -------  ---------  ---
2       2.450  GHz  Azimuth  Elevation  Single-pol
```




```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000  deg
Gain = 7.52029  dBi
Max far-field (global) = -42.6157  dB, Max far-field (plot) =
-42.61586  dB
Normalization: Reference, Network offset = 0.000  dB
Hpeak at: 79.99999  deg, Vpeak at: 0.000  deg
Plot centering: On

20090331 EA-95 2.4GHZ E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\T.Y.HUS\20090331 EA-95 2.4 G
E-Plane01.nsi
Measurement date/time: 3/31/2009 2:42:03 PM, Filetype: NSI-97
Far-field Cut Analysis:
   Avg value: -3.302 dB
   -3. dB beam width: 14.88 deg
   -6. dB beam width: 22.13 deg
   -10. dB beam width: 45.13 deg
   Left Sidelobe: -12.79 dB at 47.263  deg
   Right Sidelobe: -9.71 dB at 151.844  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 3
Beam    Frequency   Azimuth  Elevation  Pol
----    ---------   -------  ---------  ---
3       2.500  GHz  Azimuth  Elevation  Single-pol
```

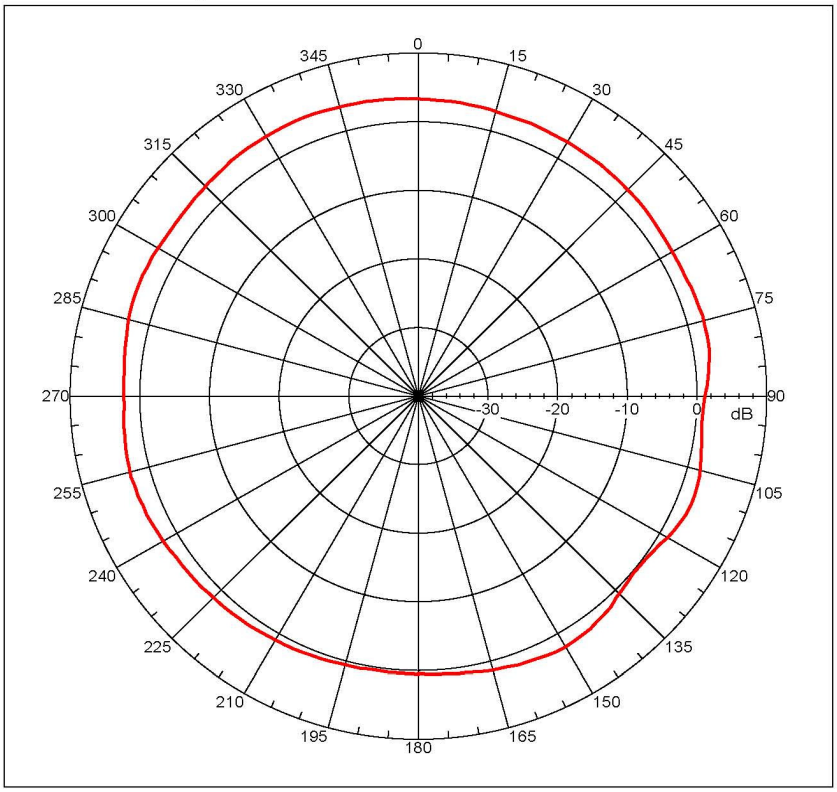
3.2 H-Plane

Far-field amplitude of 20090331 EA-95 2.4 G H-Plane.nsi



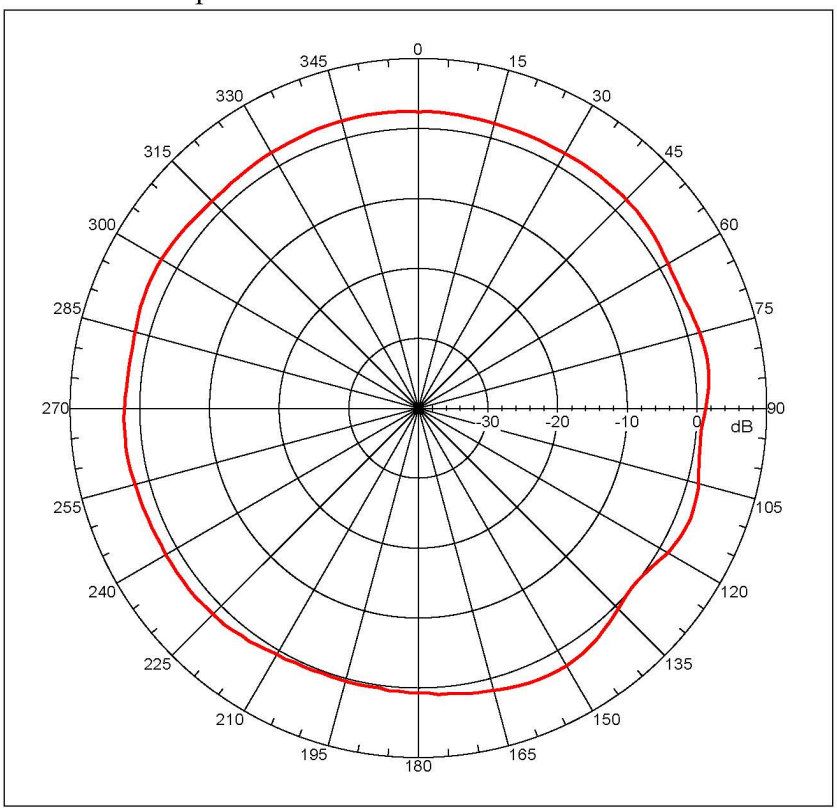

```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000  deg
Gain = 5.18473  dBi
Max far-field (global) = -43.8229  dB, Max far-field (plot) =
-43.8229  dB
Normalization: Reference, Network offset = 0.000  dB
Hpeak at: -32.00001  deg, Vpeak at: 0.000  deg
Plot centering: On

20090331 EA-95 2.4GHZ E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\T.Y.HUS\20090331 EA-95 2.4 G
H-Plane.nsi
Measurement date/time: 3/31/2009 2:38:28 PM, Filetype: NSI-97
Far-field Cut Analysis:
   Avg value: 3.647 dB
   -3. dB beam width: 344.91 deg
   -6. dB beam width: Not Found
   -10. dB beam width: Not Found
   Left Sidelobe: Not Found
   Right Sidelobe: -1.55 dB at 113.631  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 3
Beam    Frequency   Azimuth  Elevation  Pol
----    ---------   -------  ---------  ---
1       2.400  GHz  Azimuth  Elevation  Single-pol
```

Far-field amplitude of 20090331 EA-95 2.4 G H-Plane.nsi




```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000  deg
Gain = 3.80179  dBi
Max far-field (global) = -46.17636  dB, Max far-field (plot) =
-46.17636  dB
Normalization: Reference, Network offset = 0.000  dB
Hpeak at: -22.00001  deg, Vpeak at: 0.000  deg
Plot centering: On

20090331 EA-95 2.4GHZ E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\T.Y.HUS\20090331 EA-95 2.4 G
H-Plane.nsi
Measurement date/time: 3/31/2009 2:38:28 PM, Filetype: NSI-97
Far-field Cut Analysis:
   Avg value: 2.231 dB
   -3. dB beam width: 281.43 deg
   -6. dB beam width: Not Found
   -10. dB beam width: Not Found
   Left Sidelobe: Not Found
   Right Sidelobe: -1.58 dB at 113.631  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 3
Beam    Frequency   Azimuth  Elevation  Pol
----    ---------   -------  ---------  ---
2       2.450  GHz  Azimuth  Elevation  Single-pol
```

Far-field amplitude of 20090331 EA-95 2.4 G H-Plane.nsi




```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000  deg
Gain = 2.60612  dBi
Max far-field (global) = -47.52987  dB, Max far-field (plot) =
-47.52988  dB
Normalization: Reference, Network offset = 0.000  dB
Hpeak at: -62.000  deg, Vpeak at: 0.000  deg
Plot centering: On

20090331 EA-95 2.4GHZ E-PLANE

NSI2000 V4.0.124, Filename:C:\nsi2000\T.Y.HUS\20090331 EA-95 2.4 G
H-Plane.nsi
Measurement date/time: 3/31/2009 2:38:28 PM, Filetype: NSI-97
Far-field Cut Analysis:
   Avg value: 1.760 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: -0.45 dB at 113.631  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 3
Beam    Frequency   Azimuth  Elevation  Pol
----    ---------   -------  ---------  ---
3       2.500  GHz  Azimuth  Elevation  Single-pol
```