

## Features

- 4G GSM & GPS Antenna
- World-Wide Use
- Rugged Screw Fix connector
- 3m RG174u-DS Low Loss
- SMA (M) Connector
- Operates -30 to +80degC

## GPS

- 1575.42MHz
- Bandwidth 10MHz
- Active LNA gain: 30dB typ
- Noise Figure 1.5max
- SMA Male Connector
- Operates from 2.7–5.5V, 28mA

## GSM

- 4G Antenna
  - 824 - 960MHz
  - 1710 - 2170MHz
  - 2.6 - 2.7GHz
- Active gain: +2dBi
- VSWR <2.0
- Omni directional
- Impedance 50ohm



## Applications

- **Automotive Applications**
- **Covert Applications**
- **Machine to Machine**
- **Secure Rugged Applications**

## Description

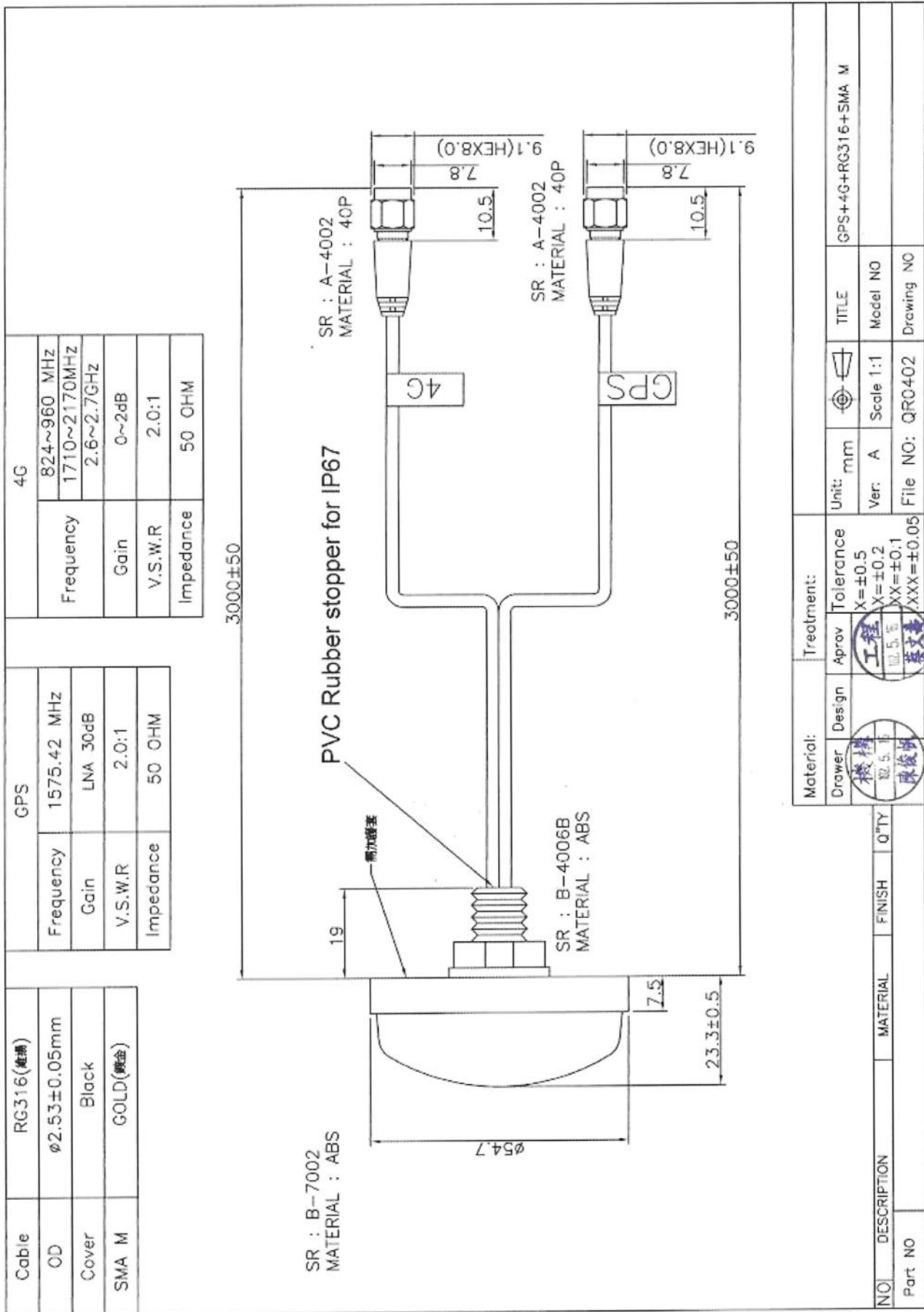
A Rugged antenna with high performance for worldwide use. This antenna provides 4G GSM Antenna with 2dBi gain. Housed in a rugged low profile UV resistant IP67 housing, this antenna is compact and resistant to Vandalism.

	Description	Cable Length	Connector
ANT-GSMGPSUKS	Puck Antenna	3metres	SMA (M)

# GSM & GPS Rugged 'Puck' Antenna IP67



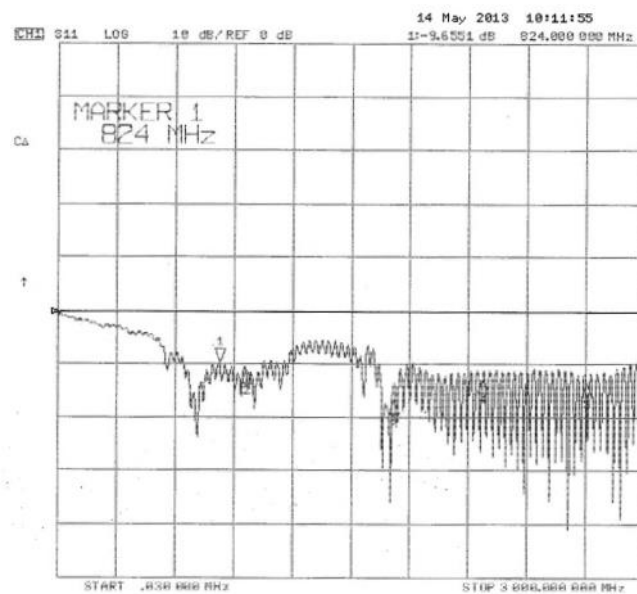
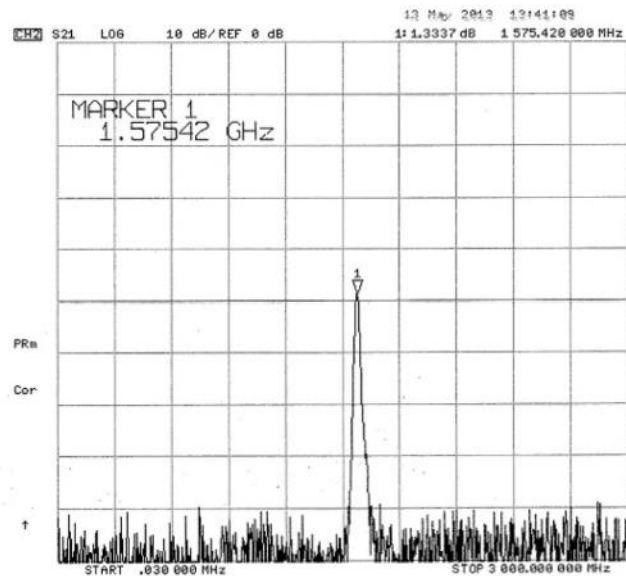
## Mechanical Data



# GSM & GPS Rugged 'Puck' Antenna IP67

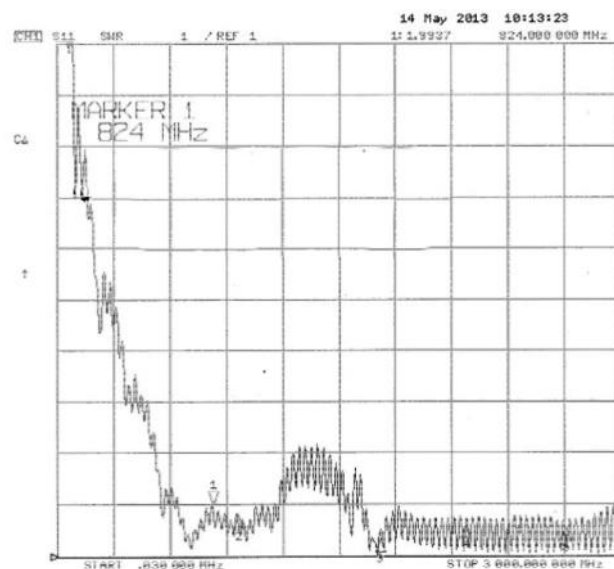


## Test VSWR



CH1 Markers

1	-11.251 dB	960.000 MHz
2	-17.017 dB	1.71000 GHz
3	-13.015 dB	2.17000 GHz
4	-13.004 dB	2.70000 GHz



CH1 Markers

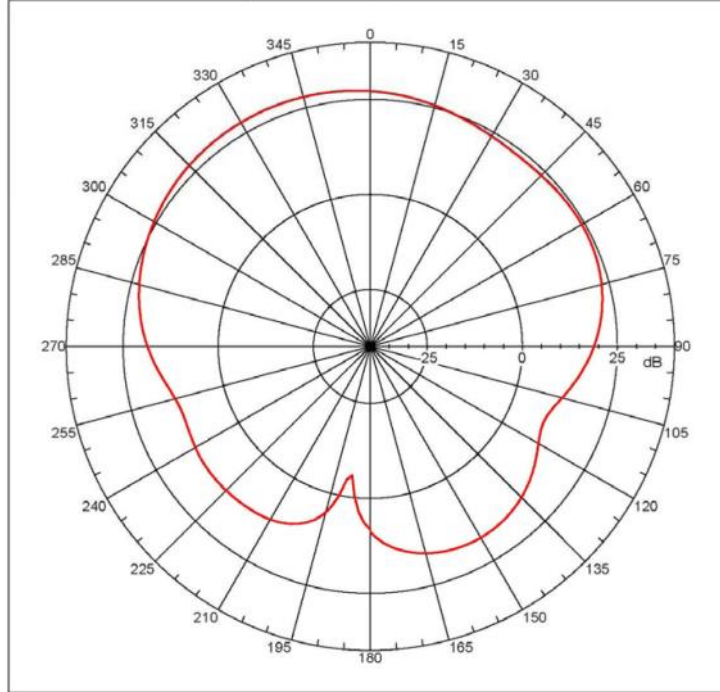
1	1.7300	960.000 MHz
2	1.3817	1.71000 GHz
3	1.5773	2.17000 GHz
4	1.5147	2.70000 GHz

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance GPS Horizontal Plane

Far-field amplitude of GPS-H.nsi

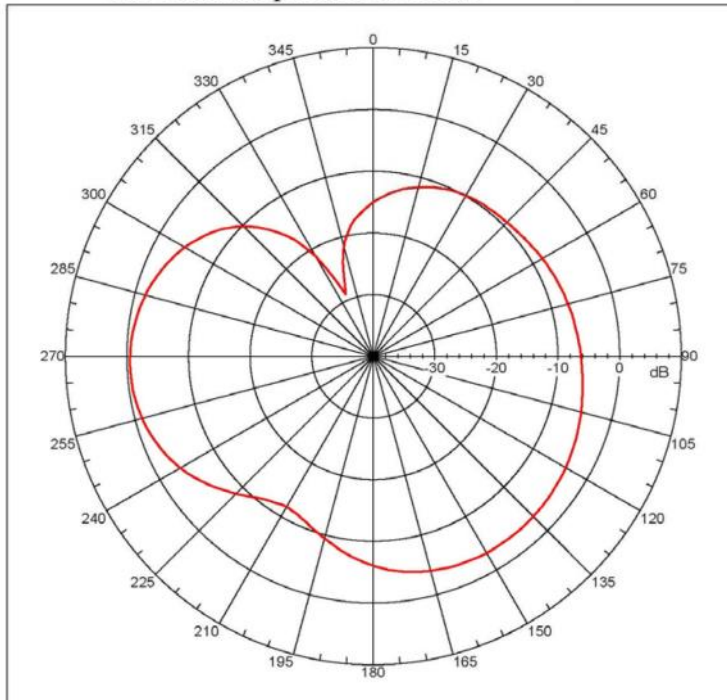


```
Far-field amplitude, Spherical: Linear, Tau = 0.000 deg
Gain = 21.2691 dB
Max far-field (global) = -16.72397 dB, Max far-field (plot) =
-16.72397 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -21.00001 deg, Vpeak at: 0.000 deg
Plot centering: on

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:25:47 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: 21.269 dB
-3 dB beam width: 33.23 deg
-6 dB beam width: 159.03 deg
-10 dB beam width: 184.76 deg
Left sidelobe: -14.29 dB at -131.732 deg
Right sidelobe: -9.91 dB at 151.844 deg
Far-field display setup
Azimuth (deg)
Span = 350.00001 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 1
Beam Frequency Azimuth Elevation Pol
----
1 1.57542 GHz Azimuth Elevation Single-pol
```

## Measured Performance at 824MHz Horizontal Plane

Far-field amplitude of H.nsi



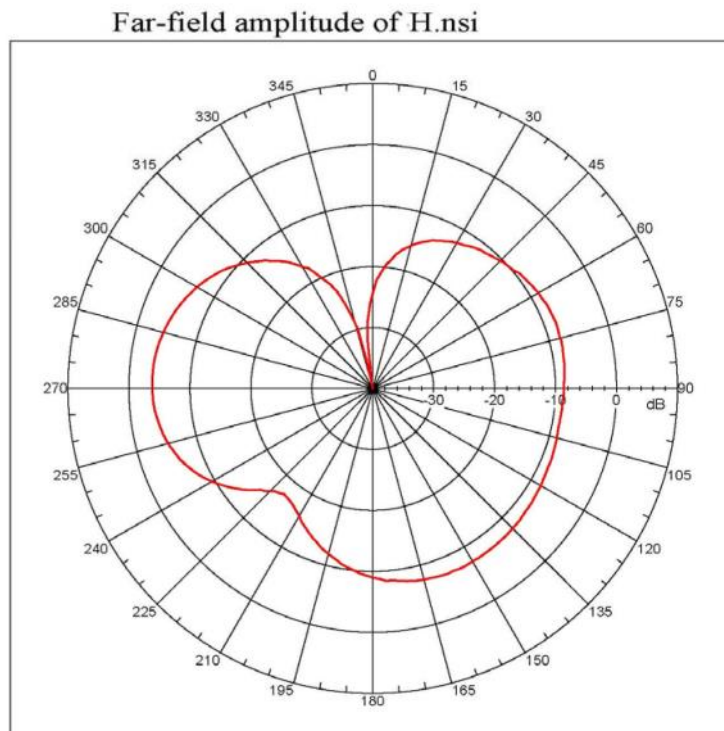
```
Far-field amplitude, Spherical: Linear, Tau = 0.000 deg
Gain = -0.48917 dB
Max far-field (global) = -43.48851 dB, Max far-field (plot) =
-43.48851 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -92.000 deg, Vpeak at: 0.000 deg
Plot centering: on

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -0.489 dB
-3 dB beam width: 53.91 deg
-6 dB beam width: 75.38 deg
-10 dB beam width: 97.17 deg
Left sidelobe: Not Found
Right sidelobe: -21.60 dB at 141.788 deg
Far-field display setup
Azimuth (deg)
Span = 350.00001 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 12
Beam Frequency Azimuth Elevation Pol
----
1 0.824 GHz Azimuth Elevation Single-pol
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 850MHz Horizontal Plane

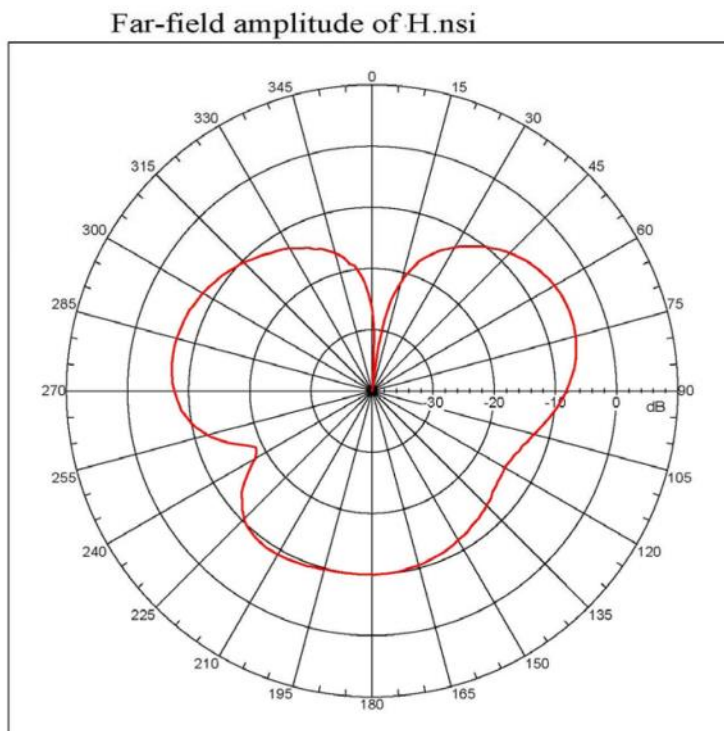


```

Far-field amplitude, #principal: Linear, Tau = 0.000 deg
Gain = -3.0157 dB
Max far-field (global) = -45.07613 dB, Max far-field (plot) =
-45.07614 dB
Normalization: Reference, Network offset = 0.000 dB
Mpeak at: -88.00001 deg, Upeak at: 0.000 deg
Plot centering: On

NFI2000 V4.0.124, Filename:C:\Documents and Settings\NFI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NFI-97
Far-field Cut Analysis:
Avg value: -2.663 dB
-3 dB beam width: 52.61 deg
-6 dB beam width: 72.95 deg
-10 dB beam width: 92.90 deg
Left Sidelobe: Not Found
Right Sidelobe: -4.28 dB at 71.397 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 12
Beam Frequency Azimuth Elevation Pol
-----
2 0.850 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 900MHz Horizontal Plane



```

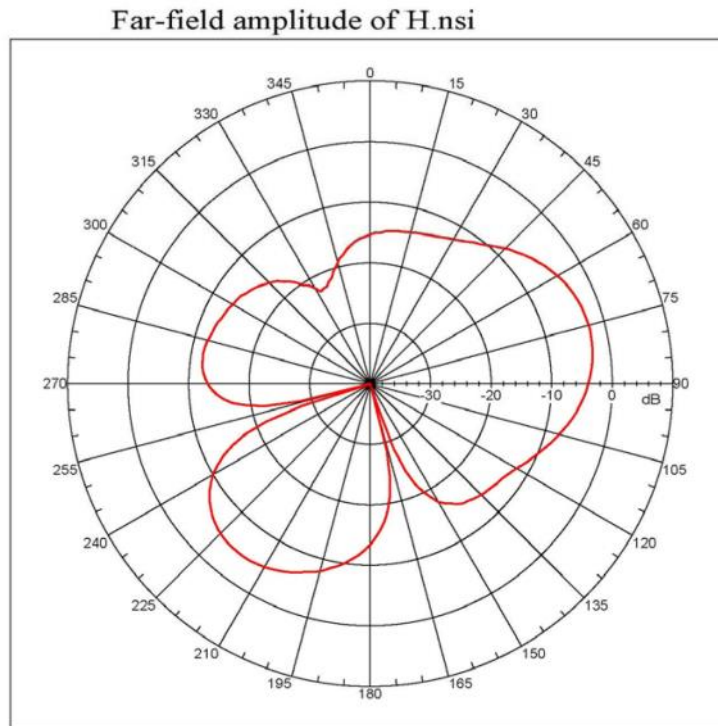
Far-field amplitude, #principal: Linear, Tau = 0.000 deg
Gain = -5.19633 dB
Max far-field (global) = -46.75603 dB, Max far-field (plot) =
-46.75605 dB
Normalization: Reference, Network offset = 0.000 dB
Mpeak at: 67.99999 deg, Upeak at: 0.000 deg
Plot centering: On

NFI2000 V4.0.124, Filename:C:\Documents and Settings\NFI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NFI-97
Far-field Cut Analysis:
Avg value: -10.752 dB
-3 dB beam width: 43.13 deg
-6 dB beam width: 65.64 deg
-10 dB beam width: Not Found
Left Sidelobe: -1.69 dB at -77.430 deg
Right Sidelobe: -4.81 dB at 177.989 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 12
Beam Frequency Azimuth Elevation Pol
-----
3 0.900 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 960MHz Horizontal Plane



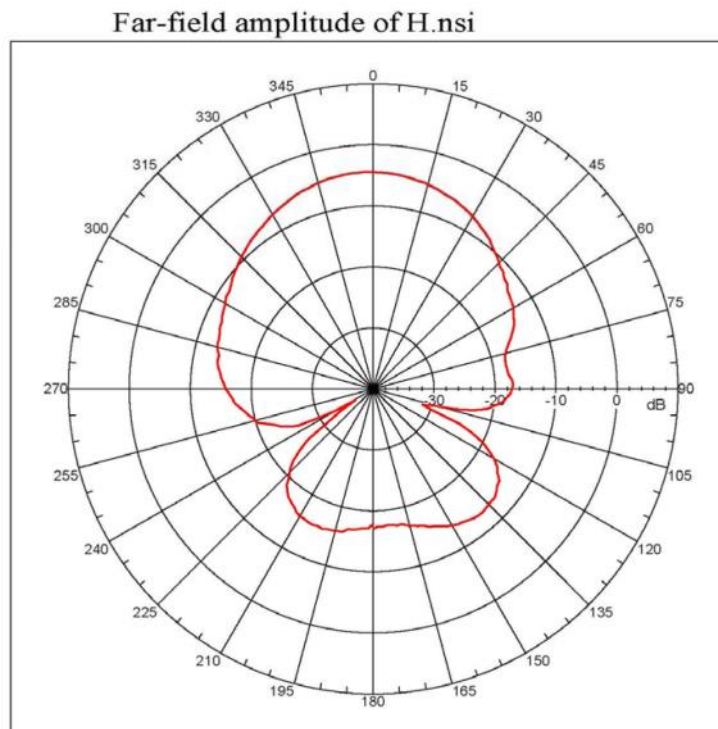
```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -2.61629 dB
Max far-field (global) = -45.24596 dB, Max far-field (plot) =
-45.246 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 15.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -10.1884 dB
-3. dB beam width: 43.69 deg
-6. dB beam width: 63.97 deg
-10. dB beam width: 94.19 deg
Left Sidelobe: -9.25 dB at -79.441 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 12
Beam Frequency Azimuth Elevation Pol
---- Frequency Azimuth Elevation Single-pol
4 0.960 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 1710MHz Horizontal Plane



```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -4.4025 dB
Max far-field (global) = -49.59309 dB, Max far-field (plot) =
-49.59309 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -2.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -12.481 dB
-3. dB beam width: 62.52 deg
-6. dB beam width: 94.20 deg
-10. dB beam width: 147.52 deg
Left Sidelobe: -21.28 dB at -152.866 deg
Right Sidelobe: -8.82 dB at 133.743 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

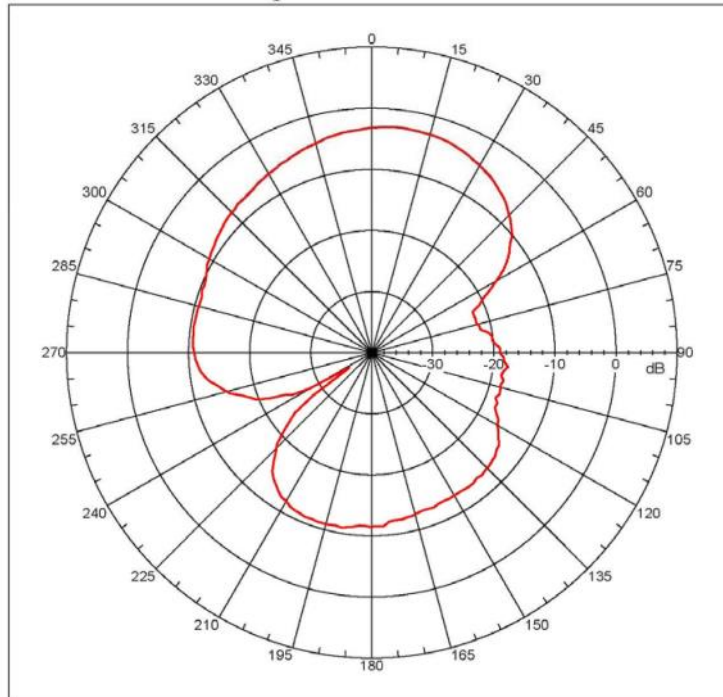
Selected beam(s) 1 of 12
Beam Frequency Azimuth Elevation Pol
---- Frequency Azimuth Elevation Single-pol
5 1.710 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 1800MHz Horizontal Plane

Far-field amplitude of H.nsi

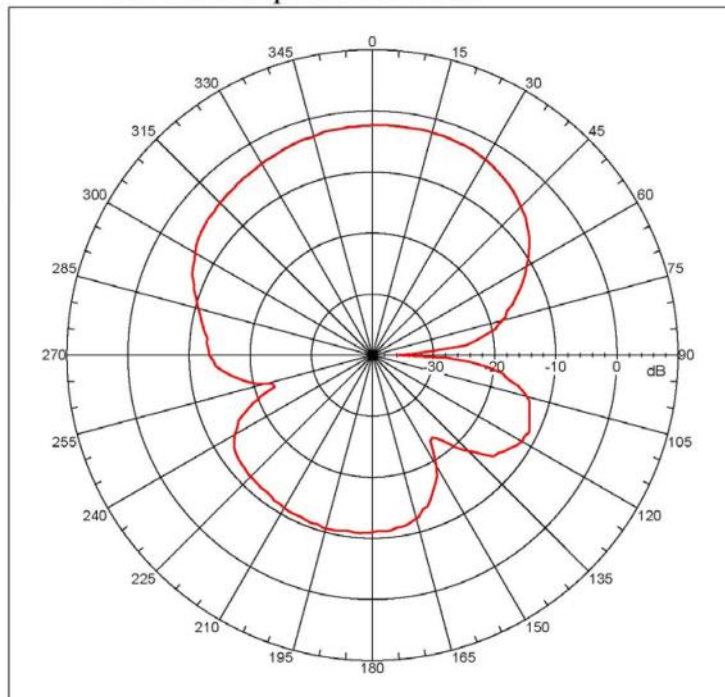


```
Far-field amplitude, Eprincipal: Linear, Ttu = 0.000 deg
Gain = -2.88059 dBi
Max far-field (global) = -49.70662 dB, Max far-field (plot) =
-49.70662 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 7.99999 deg, Vpeak at: 0.000 deg
Plot centering: on

NI12000 V4.0.124, Filename:C:\Documents and Settings\N1\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -10.422 dB
-3. dB beam width: 62.96 deg
-6. dB beam width: 104.00 deg
-10. dB beam width: 155.72 deg
Left Sidelobe: -8.08 dB at -157.877 deg
Right Sidelobe: -17.22 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 12
Beam Frequency Azimuth Elevation Pol
----
6 1.800 GHz Azimuth Elevation Single-pol
```

## Measured Performance at 1900MHz Horizontal Plane

Far-field amplitude of H.nsi



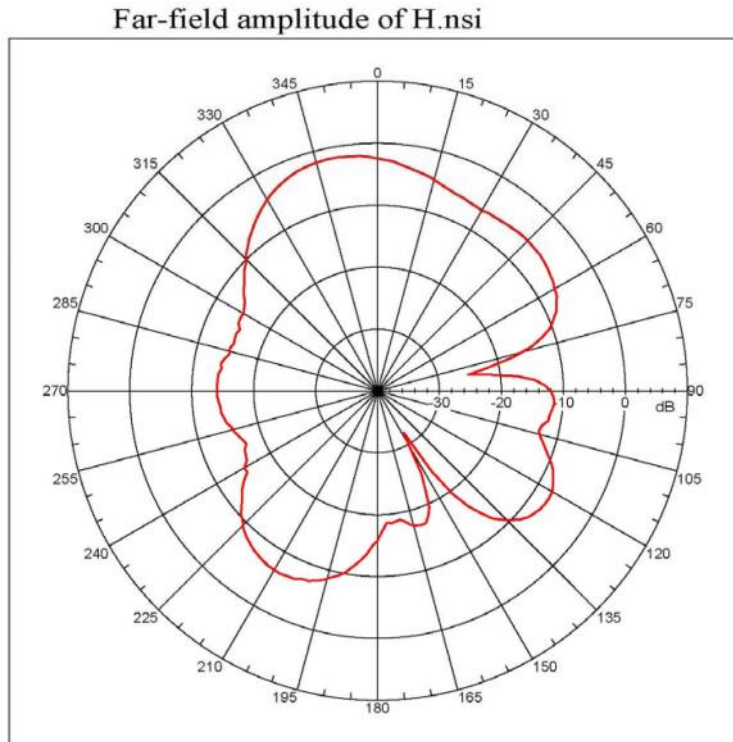
```
Far-field amplitude, Eprincipal: Linear, Ttu = 0.000 deg
Gain = -2.20998 dBi
Max far-field (global) = -49.24694 dB, Max far-field (plot) =
-49.24694 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 11.99999 deg, Vpeak at: 0.000 deg
Plot centering: on

NI12000 V4.0.124, Filename:C:\Documents and Settings\N1\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -0.565 dB
-3. dB beam width: 94.89 deg
-6. dB beam width: 121.91 deg
-10. dB beam width: 145.78 deg
Left Sidelobe: -9.64 dB at -152.743 deg
Right Sidelobe: -9.18 dB at 117.654 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 12
Beam Frequency Azimuth Elevation Pol
----
7 1.900 GHz Azimuth Elevation Single-pol
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 2100MHz Horizontal Plane



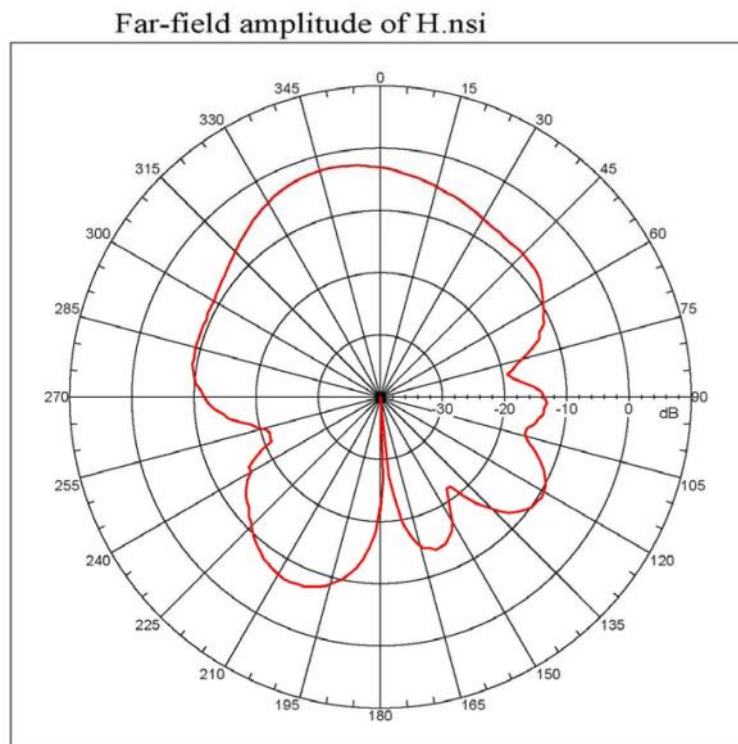
```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -1.74913 dB
Max far-field (global) = -49.07593 dB, Max far-field (plot) =
-49.07594 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -10.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -9.250 dB
-3. dB beam width: 66.59 deg
-6. dB beam width: 104.01 deg
-10. dB beam width: 121.82 deg
Left Sidelobe: -12.63 dB at -79.441 deg
Right Sidelobe: -9.65 dB at 95.521 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 12
Beam Frequency Azimuth Elevation Pol
-----
1 2.100 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 2170MHz Horizontal Plane



```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -2.31766 dB
Max far-field (global) = -49.84977 dB, Max far-field (plot) =
-49.84977 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -14.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -9.493 dB
-3. dB beam width: 54.18 deg
-6. dB beam width: 109.01 deg
-10. dB beam width: 160.73 deg
Left Sidelobe: -4.59 dB at -151.844 deg
Right Sidelobe: -10.83 dB at 93.520 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

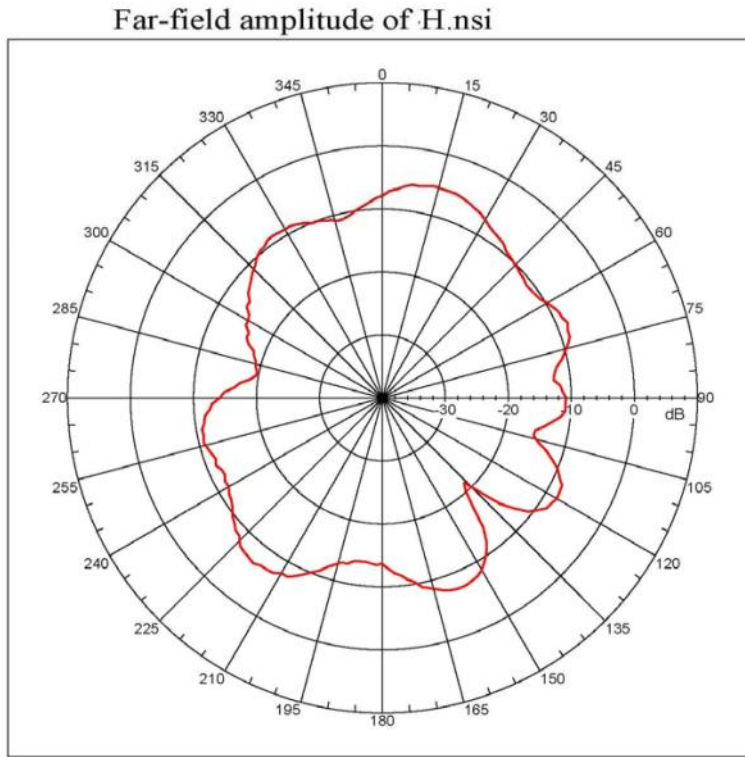
Selected beam(s) 1 of 12
Beam Frequency Azimuth Elevation Pol
-----
1 2.170 GHz Azimuth Elevation Single-pol
    
```



# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 2400MHz Horizontal Plane

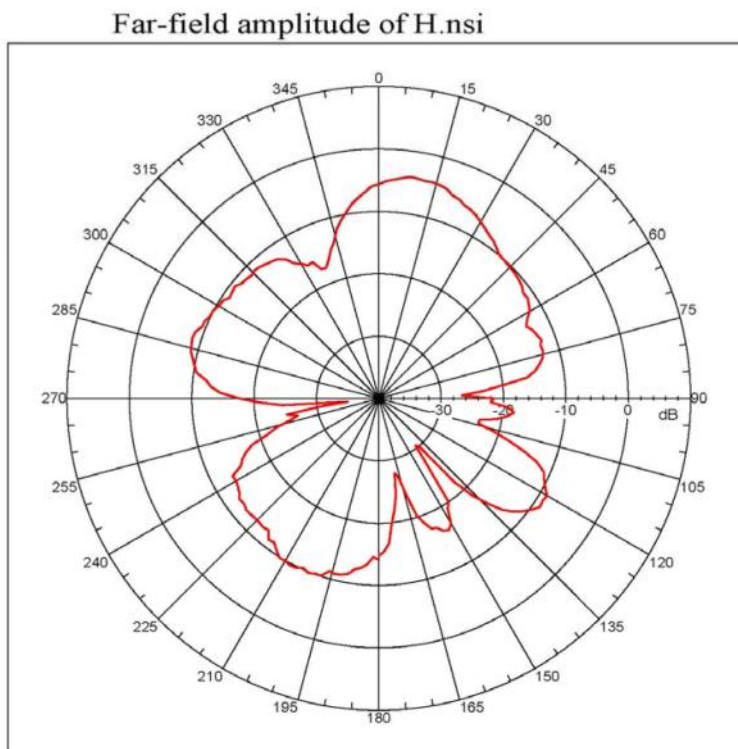


```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -3.40718 dBi
Max far-field (global) = -54.41481 dB, Max far-field (plot) =
-54.41483 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 13.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -10.360 dB
-3. dB beam width: 37.25 deg
-5. dB beam width: 123.89 deg
-10. dB beam width: 194.12 deg
Left Sidelobe: -3.66 dB at -27.151 deg
Right Sidelobe: -2.86 dB at 69.395 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 12
Beam Frequency Azimuth Elevation Pol
10 2.400 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 2500MHz Horizontal Plane



```

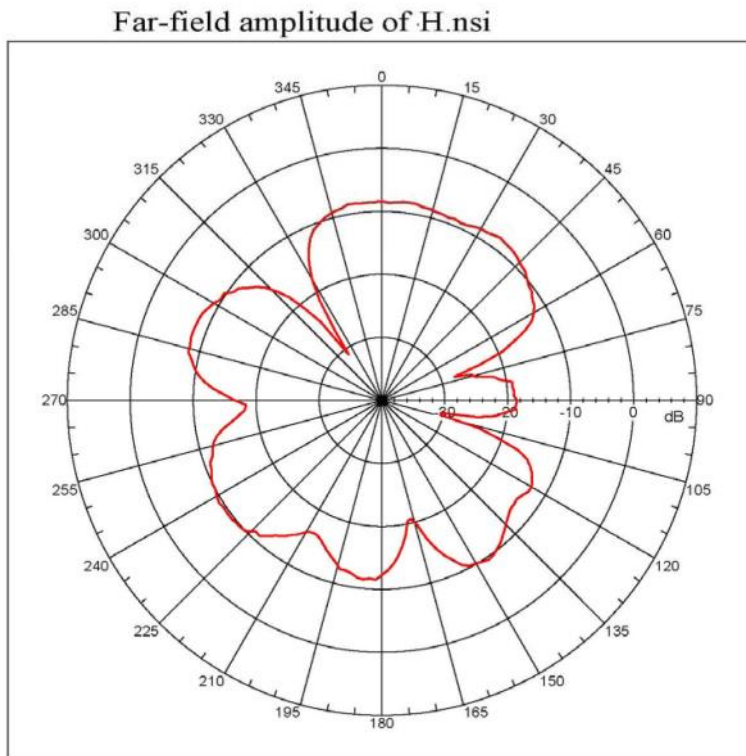
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -4.10371 dBi
Max far-field (global) = -54.2997 dB, Max far-field (plot) =
-54.29971 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 7.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -12.121 dB
-3. dB beam width: 34.22 deg
-5. dB beam width: 54.02 deg
-10. dB beam width: 95.06 deg
Left Sidelobe: -11.54 dB at -25.140 deg
Right Sidelobe: -8.12 dB at 71.397 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 12
Beam Frequency Azimuth Elevation Pol
11 2.500 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 2600MHz Horizontal Plane



Far-field amplitude, Principal: Linear, Tau = 0.000 deg  
 Gain = -8.0556 dB  
 Max far-field (global) = -58.3735 dB, Max far-field (plot) =  
 -59.2737 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Mpeak at: -70.00001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\MSI\Desktop\20

Measurement date/time: 5/9/2013 11:26:45 AM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: -22.222 dB

-3. dB beam width: 30.60 deg

-6. dB beam width: 40.88 deg

-10. dB beam width: 49.84 deg

Left Sidelobe: -1.92 dB at -115.643 deg

Right Sidelobe: -0.40 dB at -9.050 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

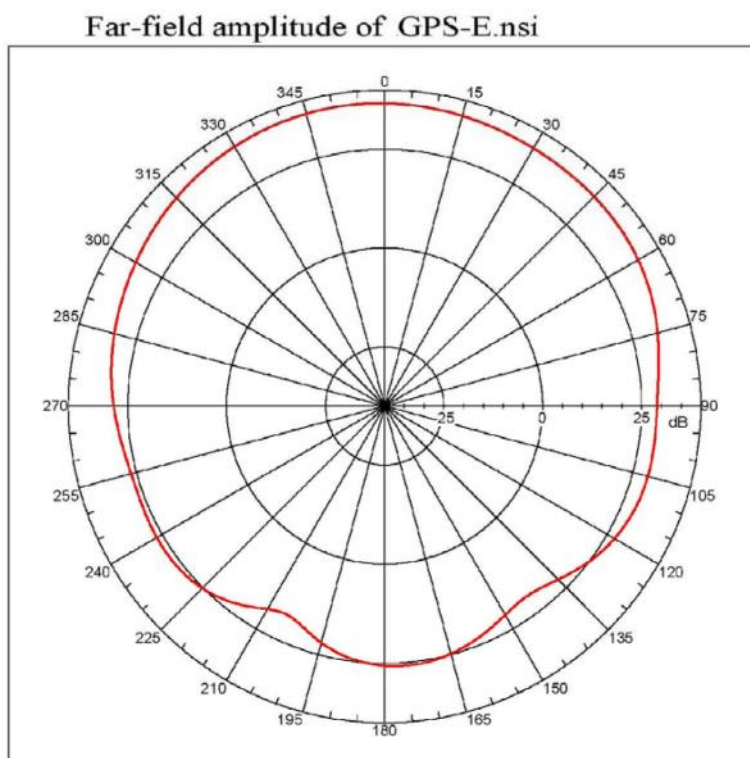
Elevation (deg)

Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 12

Beam	Frequency	Azimuth	Elevation	Pol
12	2.600 GHz	Azimuth	Elevation	Single-pol

## Measured Performance GPS Vertical Plane



Far-field amplitude, Principal: Linear, Tau = 0.000 deg  
 Gain = 36.7347 dB  
 Max far-field (global) = -8.83331 dB, Max far-field (plot) =  
 -9.03332 dB  
 Normalization: Reference, Network offset = 0.000 dB  
 Mpeak at: -8.80001 deg, Vpeak at: 0.000 deg  
 Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\MSI\Desktop\20

Measurement date/time: 5/9/2013 1:28:00 PM, Filetype: NSI-97

Far-field Cut Analysis:

Avg value: 30.513 dB

-3. dB beam width: 115.15 deg

-6. dB beam width: 154.72 deg

-10. dB beam width: 224.28 deg

Left Sidelobe: Not Found

Right Sidelobe: -10.03 dB at 177.089 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

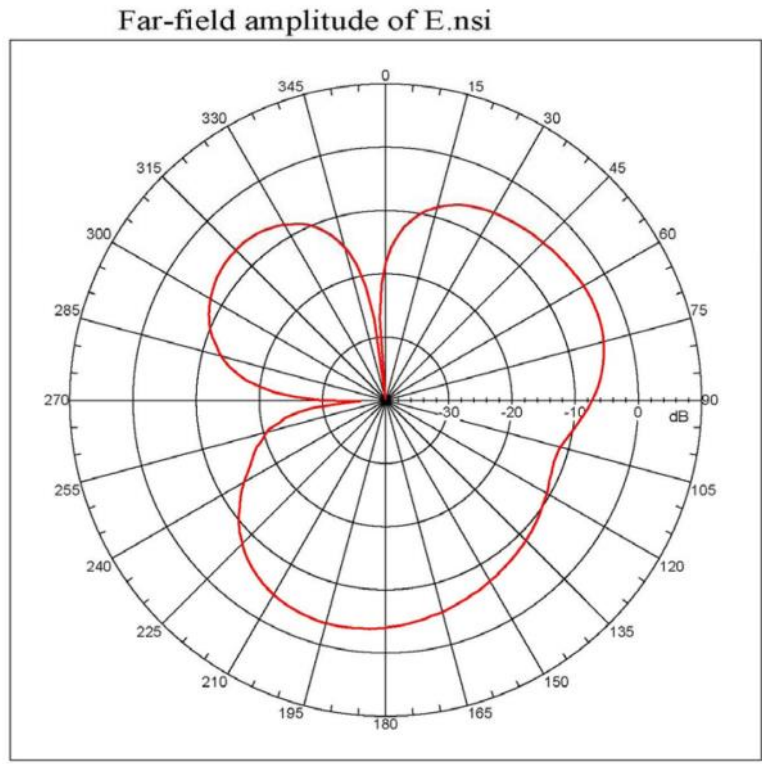
Selected beam(s) 1 of 1

Beam	Frequency	Azimuth	Elevation	Pol
1	1.57542 GHz	Azimuth	Elevation	Single-pol

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 824MHz Vertical Plane



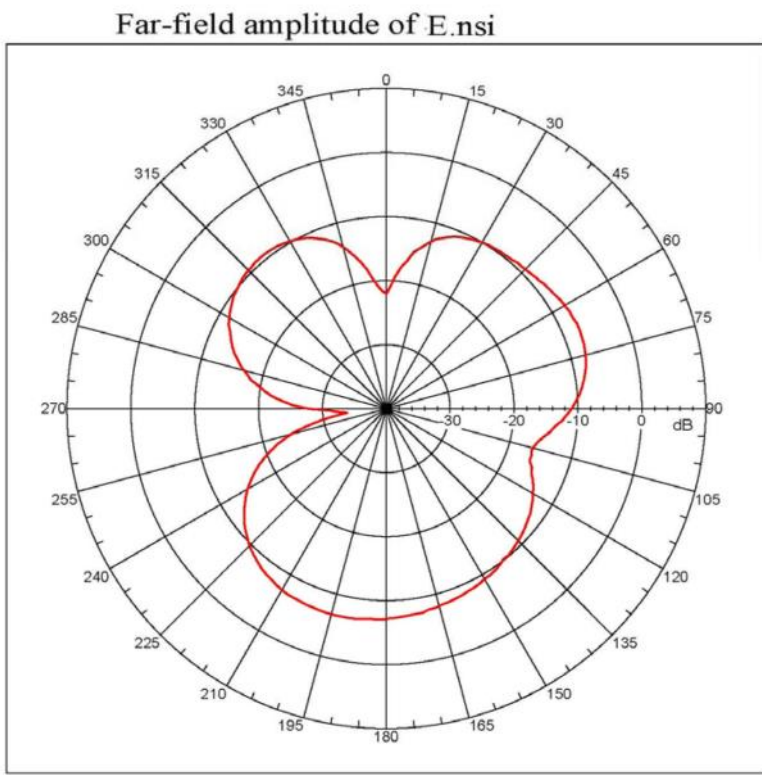
```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -3.49476 dB
Max far-field (global) = -46.49412 dB, Max far-field (plot) =
-46.49412 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -150.000 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2008 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -8.073 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: -2.98 dB at -62.240 deg
Far-field display setup
Azimuth (deg)
Span = 348.00001 deg, Center = 0.000 deg, #pts = 181
Start = -150.00001 deg, Stop = 150.00001 deg, Delta = 2.000
deg
Elevation (deg)
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 12
Beam Frequency Azimuth Elevation Pol
-----
1 0.824 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 850MHz Vertical Plane



```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -6.74011 dB
Max far-field (global) = -47.99697 dB, Max far-field (plot) =
-47.99697 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -150.000 deg, Vpeak at: 0.000 deg
Plot centering: On

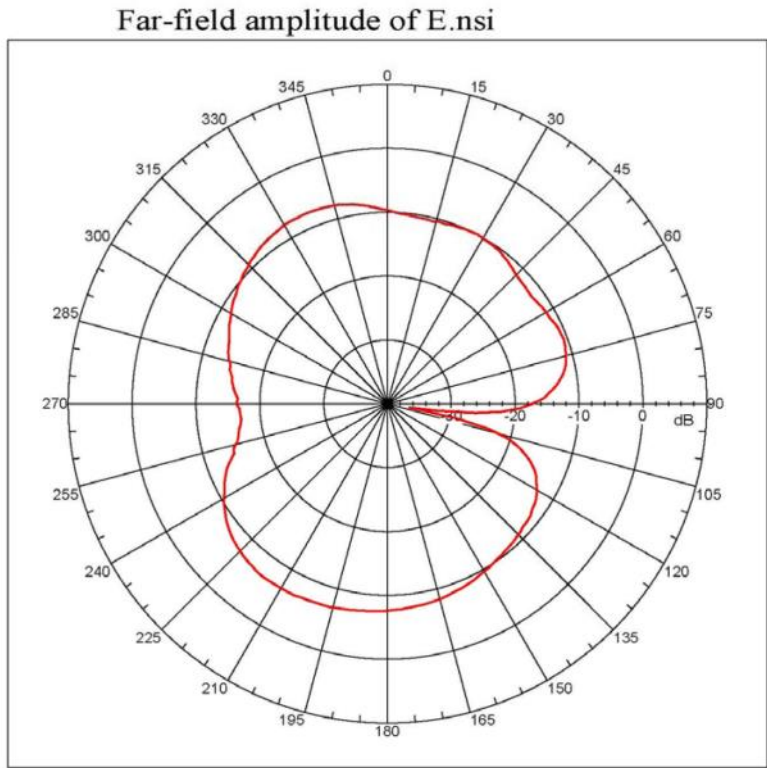
NSI2008 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -11.120 dB
-3. dB beam width: Not Found
-6. dB beam width: Not Found
-10. dB beam width: Not Found
Left Sidelobe: Not Found
Right Sidelobe: -2.54 dB at -37.207 deg
Far-field display setup
Azimuth (deg)
Span = 348.00001 deg, Center = 0.000 deg, #pts = 181
Start = -150.00001 deg, Stop = 150.00001 deg, Delta = 2.000
deg
Elevation (deg)
Center = 0.000 deg, #pts = 1

Selected beam(s) 1 of 12
Beam Frequency Azimuth Elevation Pol
-----
2 0.850 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 900MHz Vertical Plane

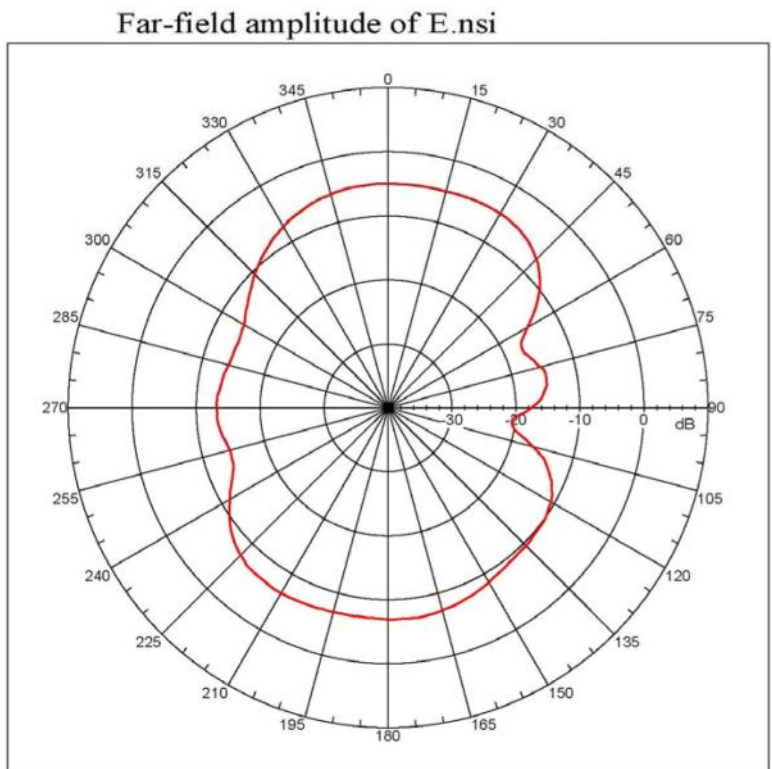


```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -6.52972 dBi
Max far-field (global) = -48.1884 dB, Max far-field (plot) =
-42.18849 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -144.0000 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -10.501 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: -1.83 dB at -27.151 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 12
Beam Frequency Azimuth Elevation Pol
-----
1 0.900 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 960MHz Vertical Plane



```

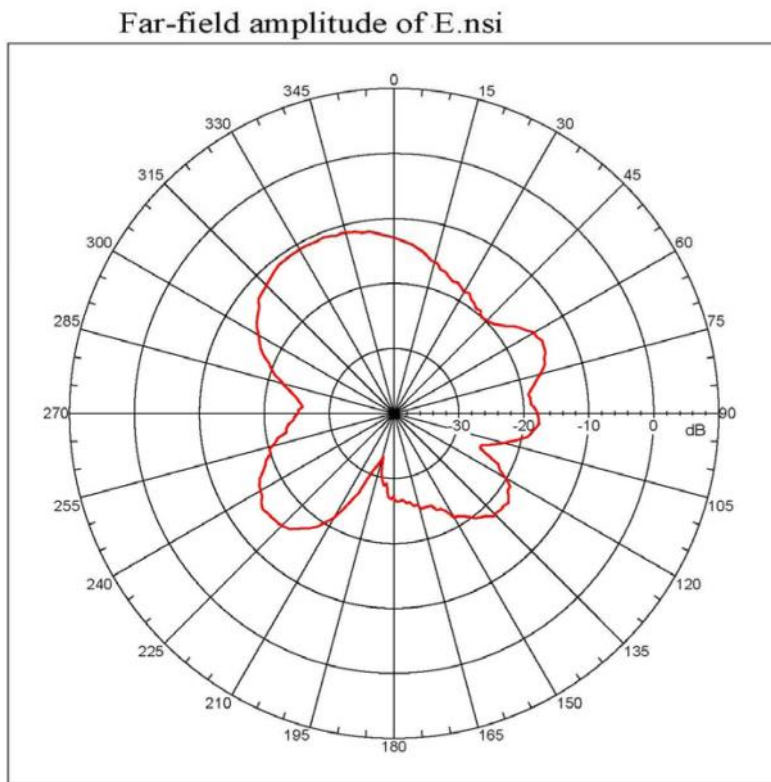
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -9.20416 dBi
Max far-field (global) = -47.48393 dB, Max far-field (plot) =
-47.48393 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 23.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -9.200 dB
-3. dB beam width: 88.48 deg
-6. dB beam width: 100.55 deg
-10. dB beam width: Not Found
Left Sidelobe: -8.34 dB at -89.497 deg
Right Sidelobe: -9.93 dB at 79.441 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 12
Beam Frequency Azimuth Elevation Pol
-----
4 0.960 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



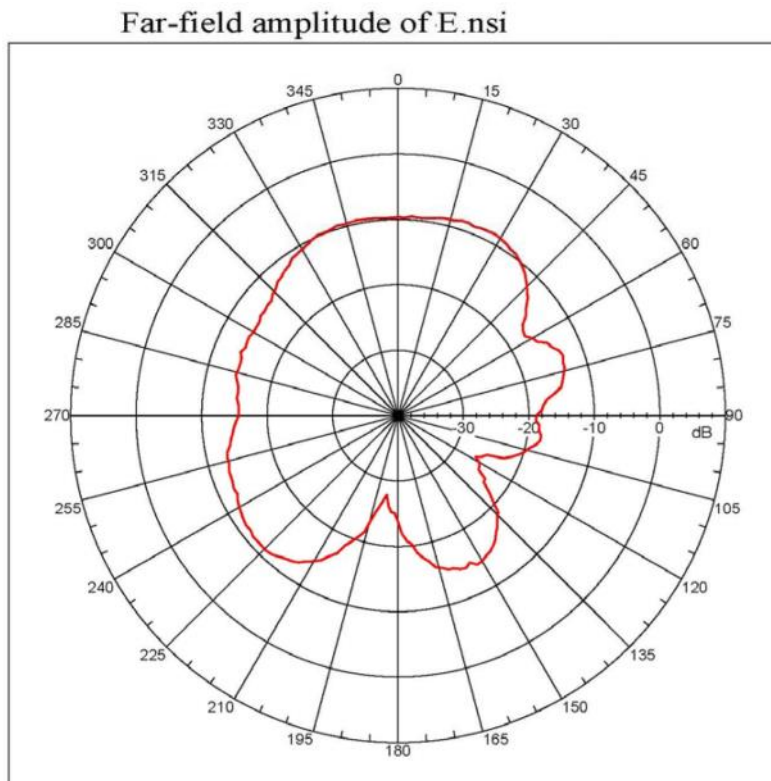
## Measured Performance at 1710MHz Vertical Plane



```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -10.92067 dB
Max far-field (global) = -56.81326 dB, Max far-field (plot) =
-56.81326 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -22.00001 deg, Vpeak at: 0.000 deg
Plot centering: on

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -17.857 dB
-3. dB beam width: 58.67 deg
-6. dB beam width: 82.47 deg
-10. dB beam width: 175.81 deg
Left Sidelobe: -4.18 dB at -125.690 deg
Right Sidelobe: -3.76 dB at 65.263 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 12
Beam Frequency Azimuth Elevation Pol
-----
5 1.710 GHz Azimuth Elevation Single-pol
```

## Measured Performance at 1800MHz Vertical Plane



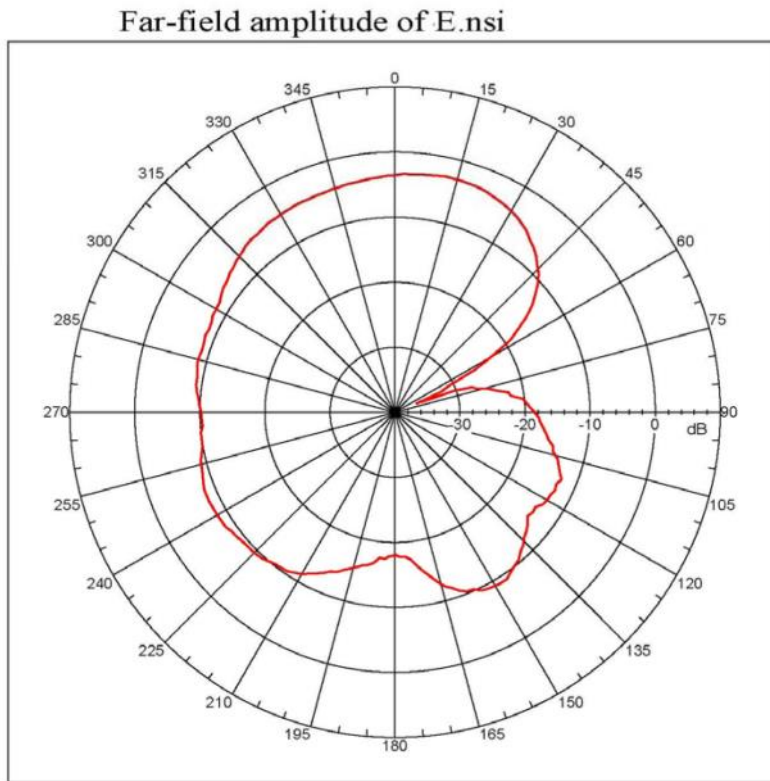
```
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -9.56537 dB
Max far-field (global) = -55.38741 dB, Max far-field (plot) =
-55.38741 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 27.99999 deg, Vpeak at: 0.000 deg
Plot centering: on

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -13.889 dB
-3. dB beam width: 79.57 deg
-6. dB beam width: 121.04 deg
-10. dB beam width: 248.52 deg
Left Sidelobe: -4.27 dB at -107.598 deg
Right Sidelobe: -4.62 dB at 71.397 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 12
Beam Frequency Azimuth Elevation Pol
-----
6 1.800 GHz Azimuth Elevation Single-pol
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 1900MHz Vertical Plane



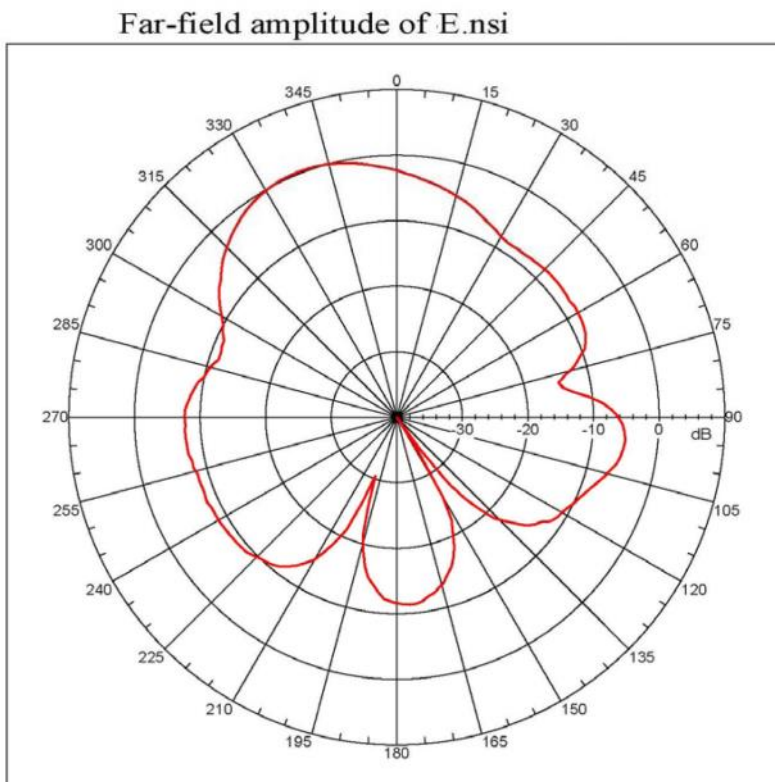
```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -9.368 dBi
Max far-field (global) = -49.96224 dB, Max far-field (plot) =
-49.96225 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: 11.99999 deg, Vpeak at: 0.000 deg
Plot centering: On

NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:18:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -9.368 dB
-3. dB beam width: 80.62 deg
-6. dB beam width: 123.21 deg
-10. dB beam width: 208.63 deg
Left sidelobe: -5.43 dB at 115.643 deg
Right sidelobe: -9.45 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 12
Beam Frequency Azimuth Elevation Pol
7 1.900 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 2100MHz Vertical Plane



```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -7.897 dBi
Max far-field (global) = -47.02798 dB, Max far-field (plot) =
-47.02798 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -22.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

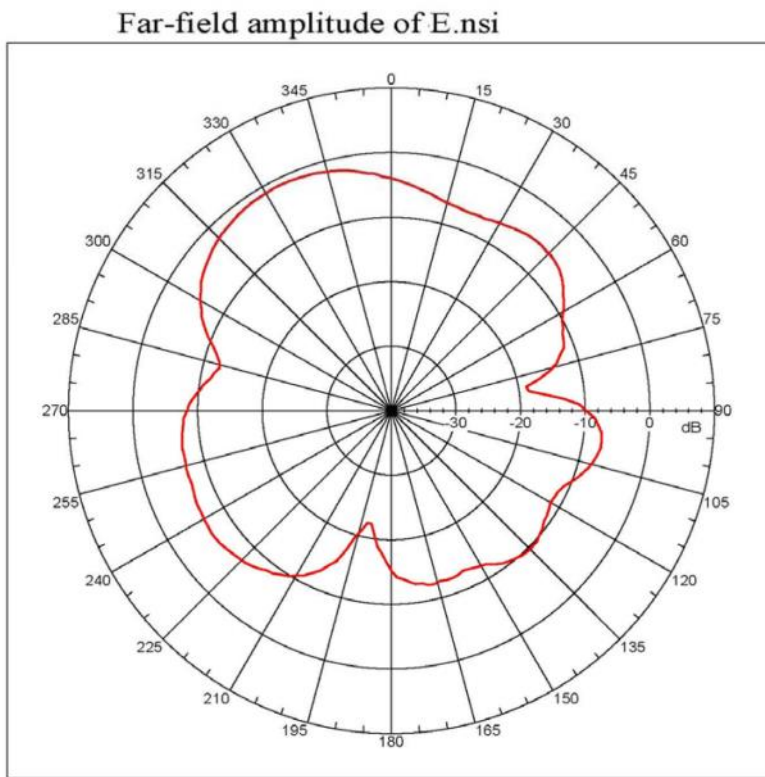
NSI2000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: NSI-97
Far-field Cut Analysis:
Avg value: -7.897 dB
-3. dB beam width: 44.62 deg
-6. dB beam width: 70.54 deg
-10. dB beam width: 122.27 deg
Left Sidelobe: -7.94 dB at 89.497 deg
Right Sidelobe: -5.32 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 12
Beam Frequency Azimuth Elevation Pol
8 2.100 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 2170MHz Vertical Plane

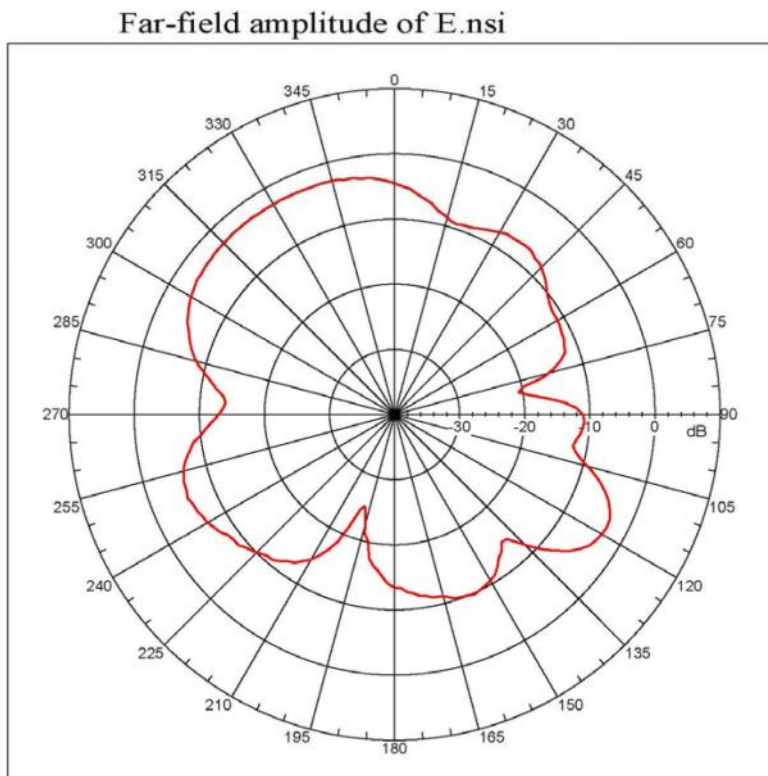


```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -1.04684 dBi
Max far-field (global) = -48.57895 dB, Max far-field (plot) =
-48.57895 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -28.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

N912000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: N91-97
Far-field Cut Analysis:
Avg value: -7.645 dB
-3. dB beam width: 34.68 deg
-6. dB beam width: 117.19 deg
-10. dB beam width: 158.26 deg
Left Sidelobe: -6.05 dB at -99.553 deg
Right Sidelobe: -4.39 dB at 43.240 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 12
Beam Frequency Azimuth Elevation Pol
-----
9 2.170 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 2400MHz Vertical Plane



```

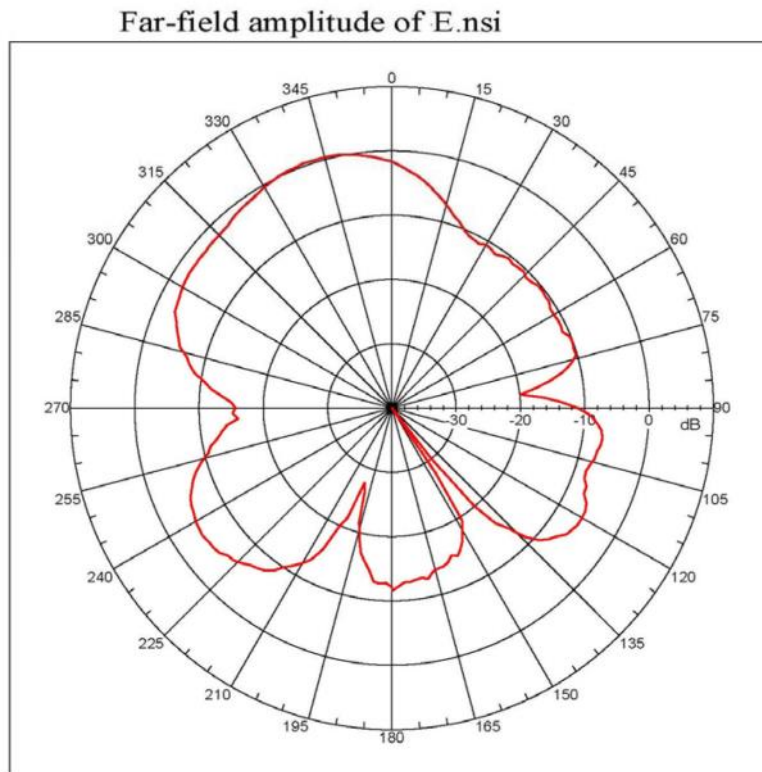
Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = -2.70525 dBi
Max far-field (global) = -51.71388 dB, Max far-field (plot) =
-51.7139 dB
Normalization: Reference, Network offset = 0.000 dB
Vpeak at: -36.00001 deg, Vpeak at: 0.000 deg
Plot centering: On

N912000 V4.0.124, Filename:C:\Documents and Settings\NSI\Desktop\20
Measurement date/time: 5/9/2013 1:10:59 PM, Filetype: N91-97
Far-field Cut Analysis:
Avg value: -9.107 dB
-3. dB beam width: 72.94 deg
-6. dB beam width: 95.78 deg
-10. dB beam width: 134.52 deg
Left Sidelobe: -3.01 dB at -111.620 deg
Right Sidelobe: -4.65 dB at 51.184 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 12
Beam Frequency Azimuth Elevation Pol
-----
10 2.400 GHz Azimuth Elevation Single-pol
    
```

# GSM & GPS Rugged 'Puck' Antenna IP67



## Measured Performance at 2500MHz Vertical Plane



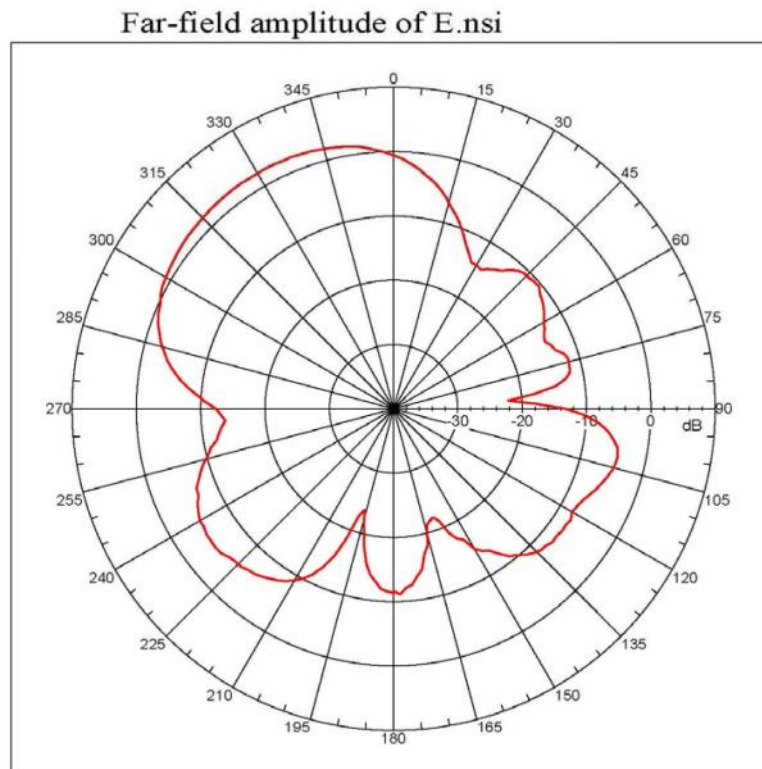
```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = 0.45901 dBi
Max far-field (global) = -49.67698 dB, Max far-field (plot) =
-49.67699 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -20.00001 deg, Vpeak at: 0.000 deg
Plot centering: on

NI12000 V4.0.124, Filename:C:\Documents and Settings\NFI\Desktop\20
Measurement date/time: 5/9/2013 1:18:59 PM, Filetype: NFI-97
Far-field Cut Analysis:
Avg value: -7.364 dB
-3. dB beam width: 63.89 deg
-6. dB beam width: 84.82 deg
-10. dB beam width: 102.12 deg
Left Sidelobe: -4.85 dB at -123.687 deg
Right Sidelobe: -10.56 dB at 71.397 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 12
Beam Frequency Azimuth Elevation Pol
-----
11 2.500 GHz Azimuth Elevation Single-pol
    
```

## Measured Performance at 2600Hz Vertical Plane



```

Far-field amplitude, Eprincipal: Linear, Tau = 0.000 deg
Gain = 2.23806 dBi
Max far-field (global) = -47.97873 dB, Max far-field (plot) =
-47.97873 dB
Normalization: Reference, Network offset = 0.000 dB
Hpeak at: -20.00001 deg, Vpeak at: 0.000 deg
Plot centering: on

NI12000 V4.0.124, Filename:C:\Documents and Settings\NFI\Desktop\20
Measurement date/time: 5/9/2013 1:18:59 PM, Filetype: NFI-97
Far-field Cut Analysis:
Avg value: -5.078 dB
-3. dB beam width: 69.09 deg
-6. dB beam width: 86.26 deg
-10. dB beam width: 100.88 deg
Left Sidelobe: -7.55 dB at -119.665 deg
Right Sidelobe: -12.82 dB at 51.285 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 12
Beam Frequency Azimuth Elevation Pol
-----
12 2.600 GHz Azimuth Elevation Single-pol
    
```



# GSM & GPS Rugged 'Puck' Antenna IP67



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### **ROHS Directive 2002/95/EC**

Specifies certain limits for hazardous substances.

### **WEEE Directive 2002/96/EC**

Waste electrical & electronic equipment. This product must be disposed of through a licensed WEEE collection point. RF Solutions Ltd., fulfills its WEEE obligations by membership of an approved compliance scheme.

[www.rfsolutions.co.uk](http://www.rfsolutions.co.uk)

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