

# Antenna

# YE0001BA Datasheet

**Antenna Services**

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# About the Document

## Revision History

Version	Date	Author	Note
-	2020-08-27	Kenny YIN	Creation of the document
1.0	2020-08-27	Kenny YIN	First official release
1.1	2020-12-16	Kenny YIN	Updated the antenna image in Chapter 2.
1.2	2021-01-27	Kenny YIN	Added IP rating description.
1.3	2021-07-25	Kenny YIN	1. Updated working temperature. (Chapter 3). 2. Added detailed passive electrical specifications. (Chapter 3).
1.4	2021-11-30	Kenny YIN	Updated the product description in Chapter 1.
1.5	2022-01-14	Kenny YIN	Updated the drawing (Chapter 5).

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## 1 Product Description

This Quectel external 5G antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal omni-directional antenna solution to ensure high-speed data transmission, which can be widely used in a diversity of wireless communication devices such as AP, routers, outdoor equipment, real-time monitoring equipment, and many more. The antenna is designed to work with any ground plane size or in free space for ease of integration. Quectel also offers flexible installation with custom cable length and connector options.

## 2 Product Features

- Cellular LTE 4G & 5G
- High efficiency
- Excellent performance



### 3 Product Specifications

#### Passive Electrical Specifications

Frequency Range	600–6000 MHz
Input Impedence	50 $\Omega$
VSWR	$\leq 3.0$
Gain	$\leq 3.8$ dBi
Polarization Type	Linear

#### Detailed Passive Electrical Specifications

Frequency Range (MHz)	698–960	1176–1280	1400–1610	1710–2170	2170–2690	3300–4000	4000–5000	5000–6000
VSWR (Max.)	2.6	-	-	2.8	2.3	2.7	3.0	2.2
Average Efficiency (%)	48	-	-	53	65	45	44	51
Max. Peak Gain (dBi)	2.78	-	-	2.62	3.49	1.22	2.67	3.8

#### Mechanical Specifications

Antenna Size	221 mm × 27.30 mm × 13.45 mm
Casing	ABS
Connector Type	SMA Male (Center Pin)
Working Temperature	-40 °C to +85 °C
Radome Color	Black
IP Rating	IP55

## 4 Overall Performance

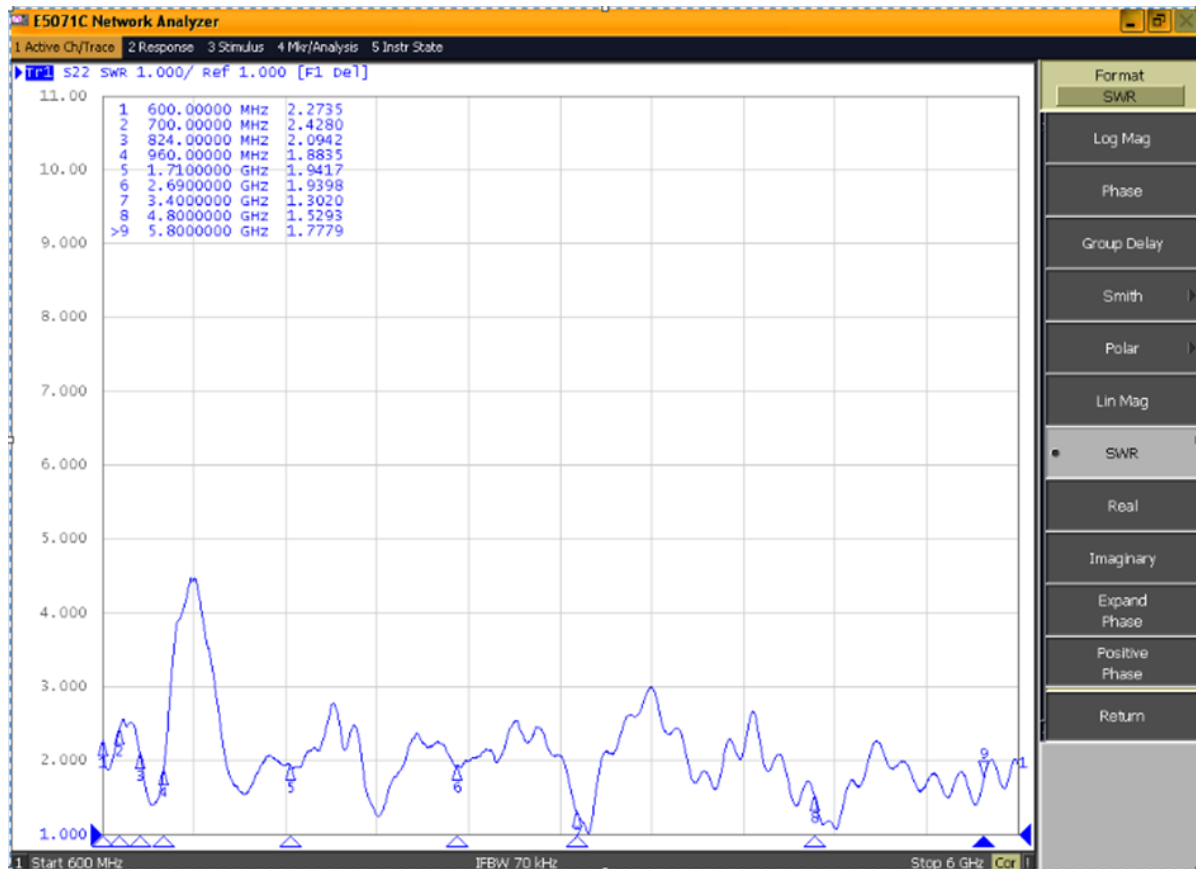
### 4.1. Test Environment

- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz.
- RayZone®2800 Chamber 5G (FR1) SISO/MIMO, 600 MHz – 8.5 GHz.





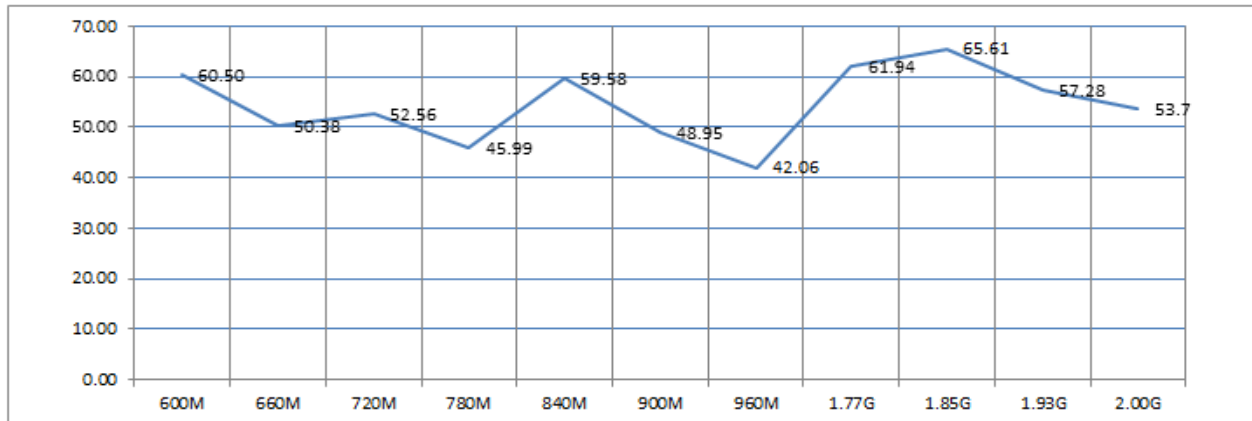
## 4.2. VSWR



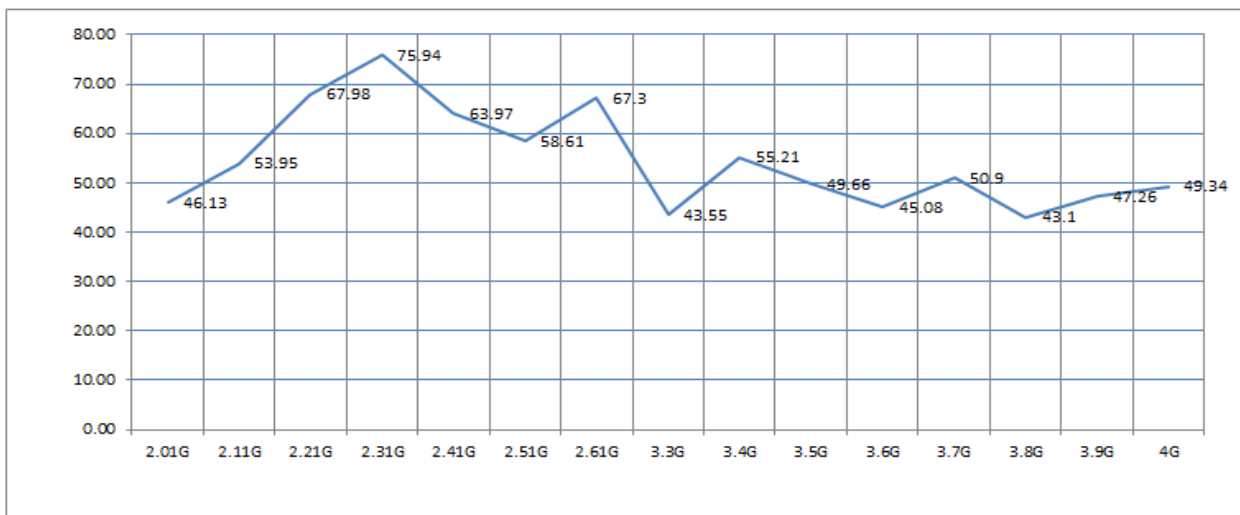
Frequency (MHz)	600	700	824	960	1710	2690	3400	4800	5800
VSWR	2.27	2.42	2.09	1.88	1.94	1.94	1.30	1.53	1.78

### 4.3. Efficiency

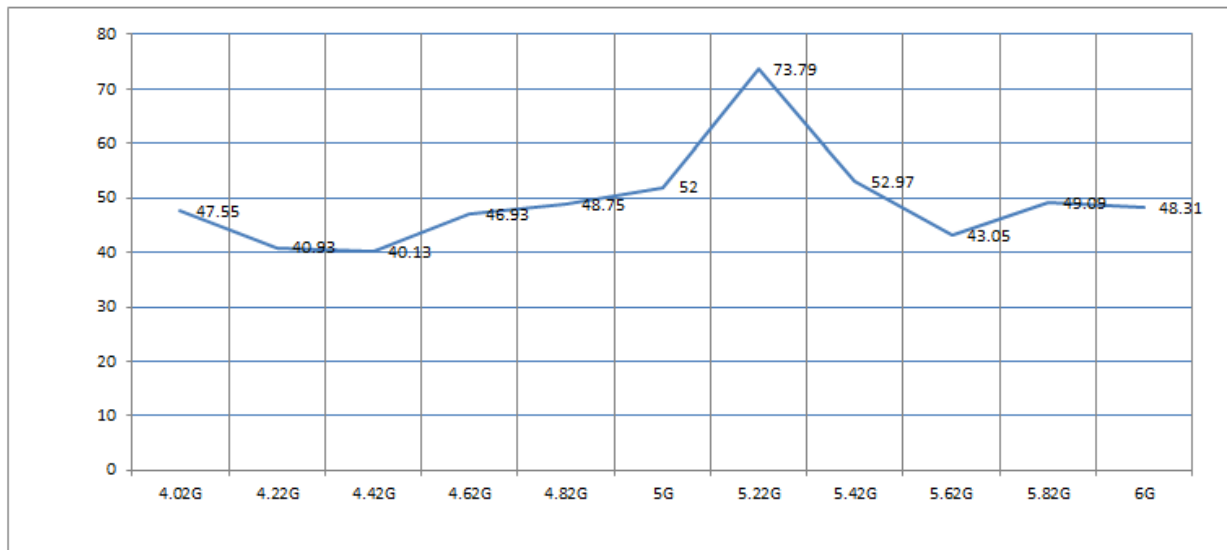
**600.00MHZ-2000.000MHZ Efficiency**



**2000.00MHZ-4000.000MHZ Efficiency**



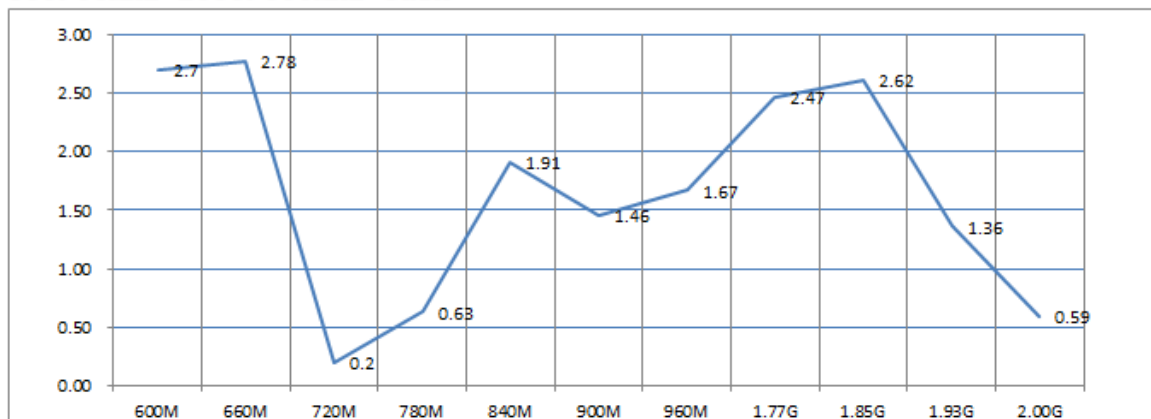
#### 4000.00MHZ-6000.000MHZ Efficiency



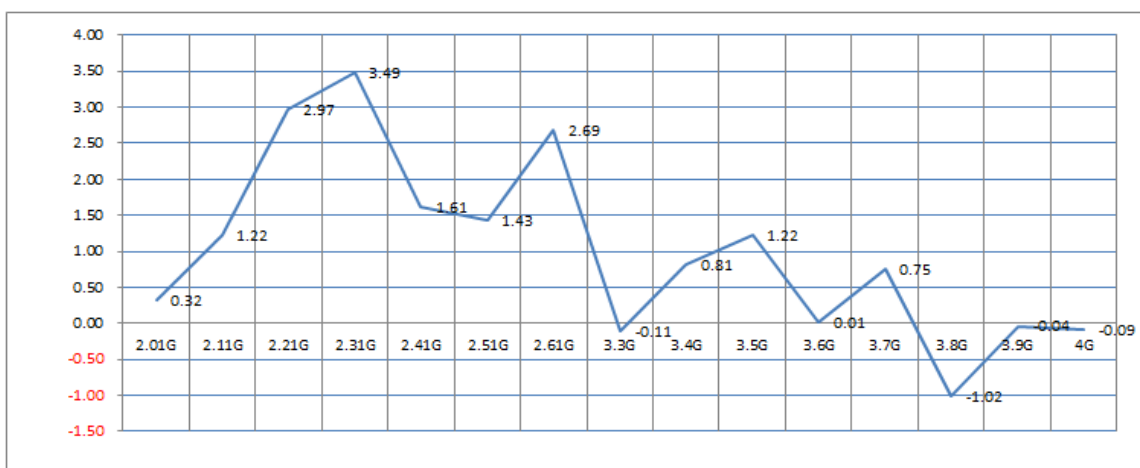
Frequency (MHz)	600	824	960	1710	1850	2150	2690	3500	5000	6000
Efficiency (%)	60.5	54.08	42.06	57.94	65.61	62.09	72.72	49.66	52.00	48.31

## 4.4. Gain

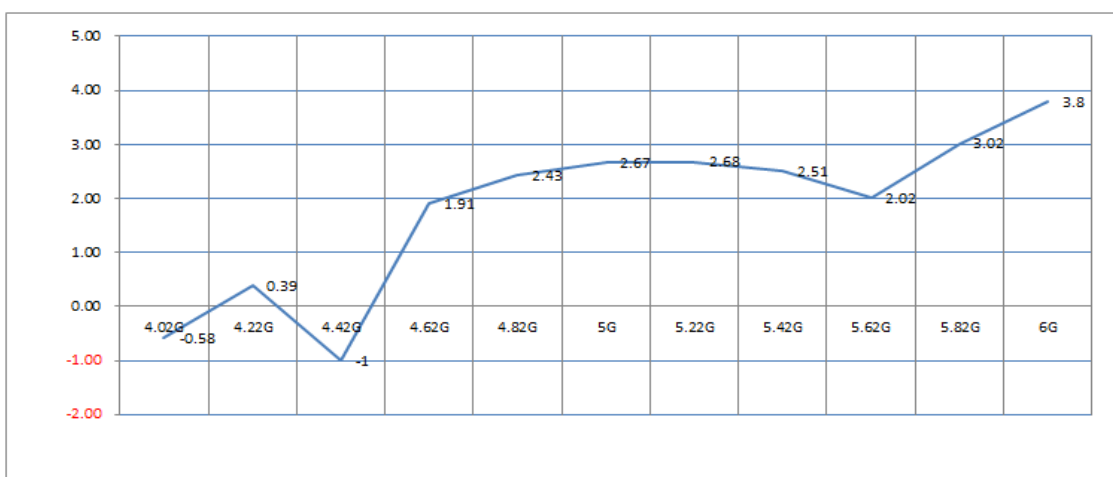
#### 600.00MHZ-2000.000MHZ Gain



**2000.00MHz-4000.000MHz Gain**

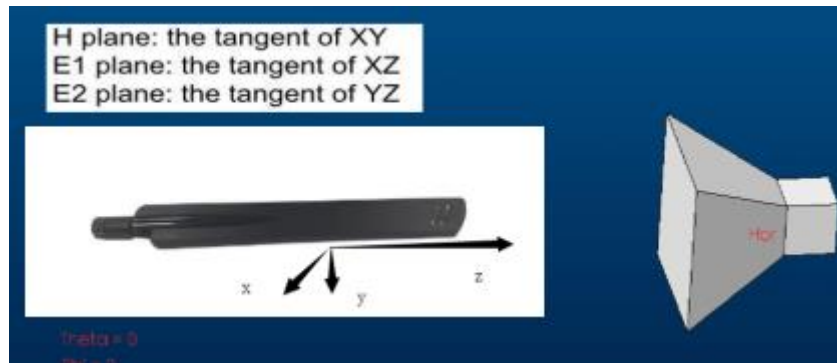


**4000.00MHz-6000.000MHz Gain**

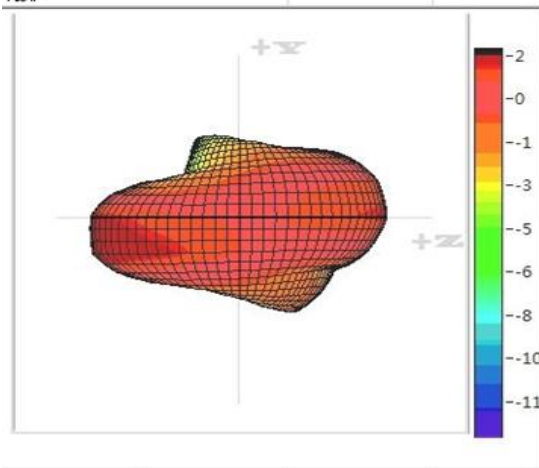


Frequency (MHz)	600	824	960	1710	1850	2150	2690	3500	5000	6000
Gain (dBi)	2.70	1.50	1.67	2.20	2.62	2.38	2.36	1.22	2.67	3.80

## 4.5. Radiation Pattern



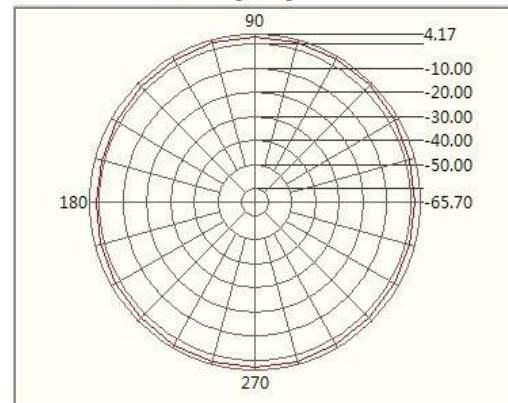
600MHzRight-Left  
View



600MHz@Theta  
90.0

Horizontal

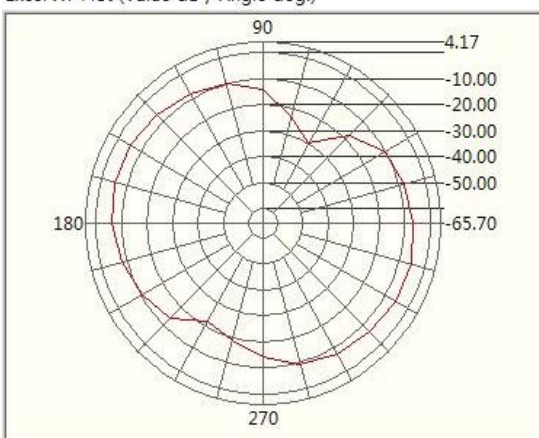
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600MHz@Theta  
90.0

Vertical

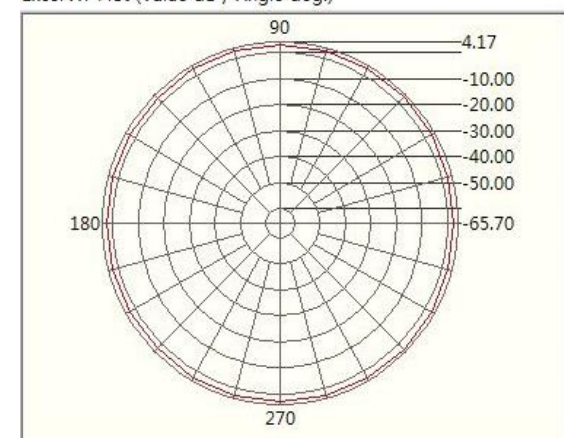
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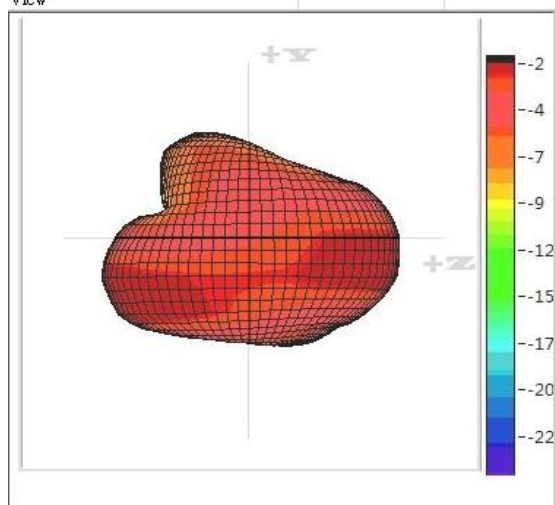
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Total

Excel XY Plot (Value dB / Angle deg.)



705MHzRight-Left  
View

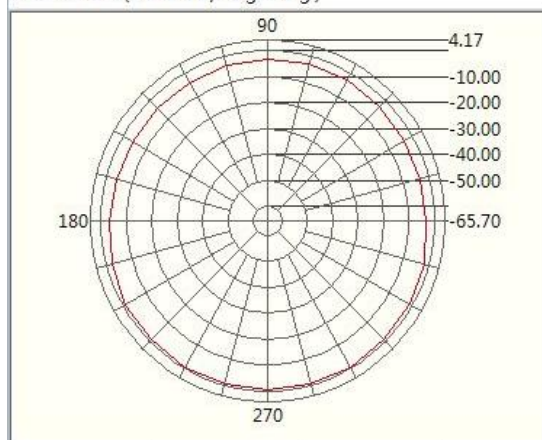


705MHz@Theta

90.0

Horizontal

Excel XY Plot (Value dB / Angle deg.)

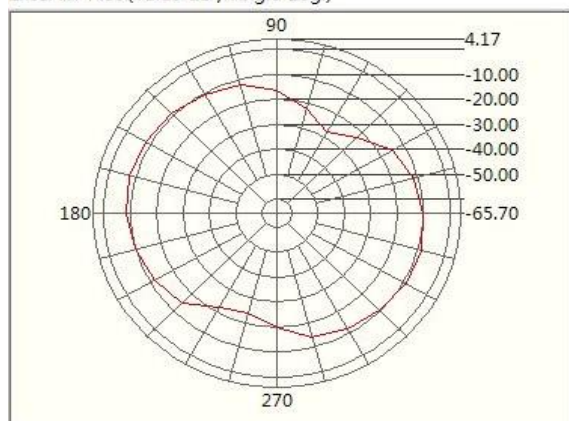


705MHz@Theta

90.0

Vertical

Excel XY Plot (Value dB / Angle deg.)

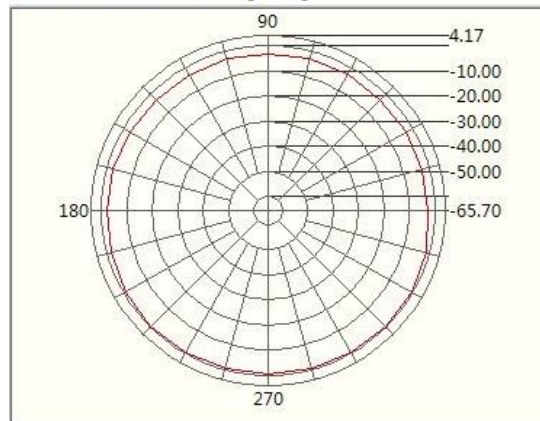


705MHz@Theta

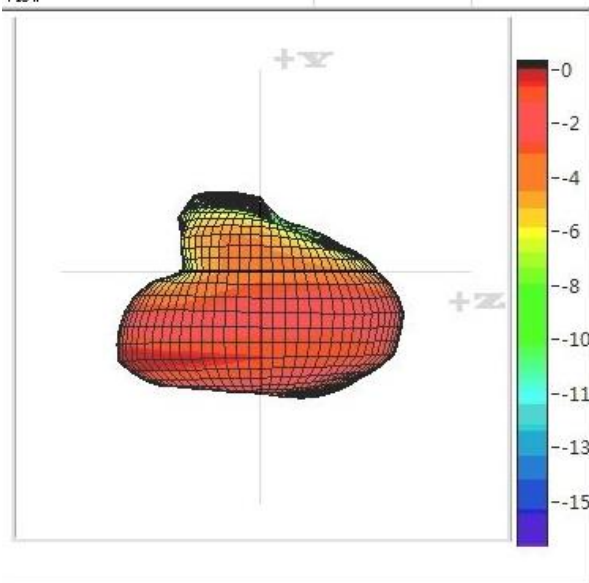
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Total

Excel XY Plot (Value dB / Angle deg.)



825MHzRight-Left  
View

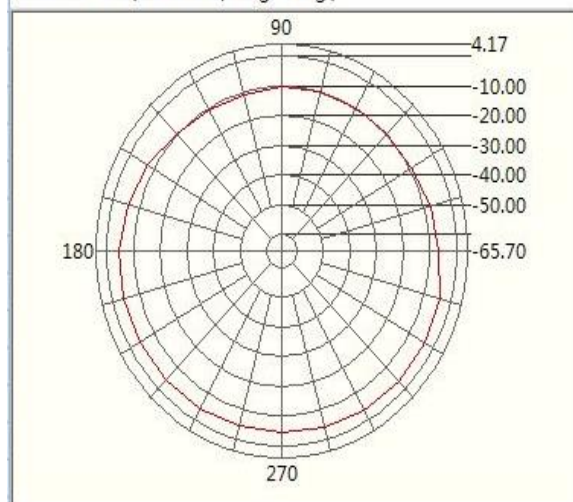


825MHz@Theta

90.0

Horizontal

Excel XY Plot (Value dB / Angle deg.)

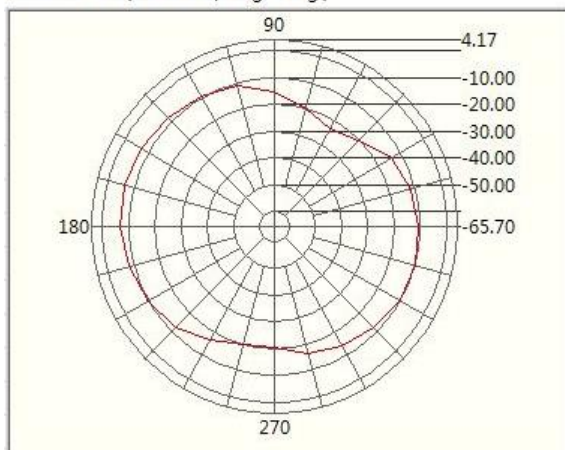


825MHz@Theta

90.0

Vertical

Excel XY Plot (Value dB / Angle deg.)

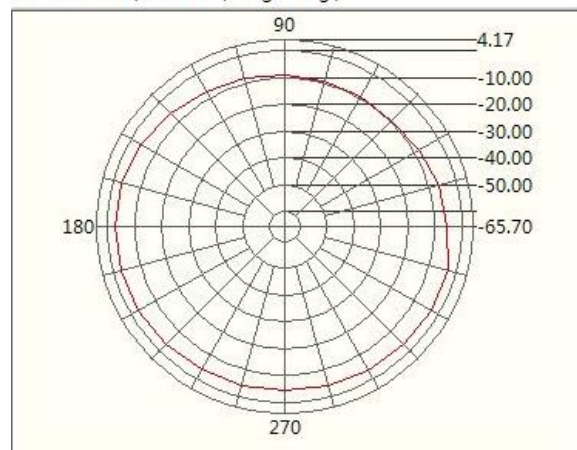


825MHz@Theta

90.0

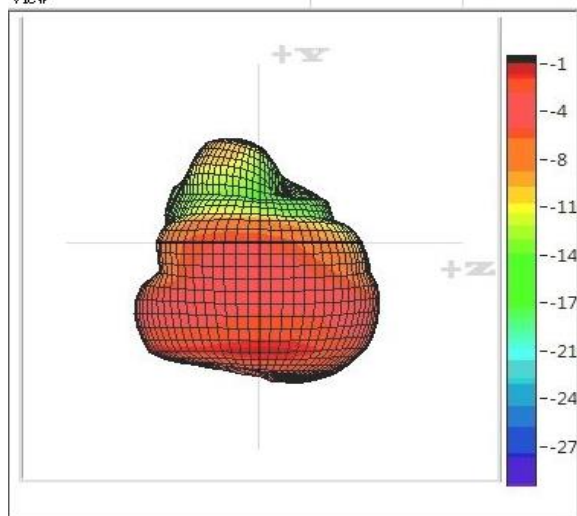
Total

Excel XY Plot (Value dB / Angle deg.)





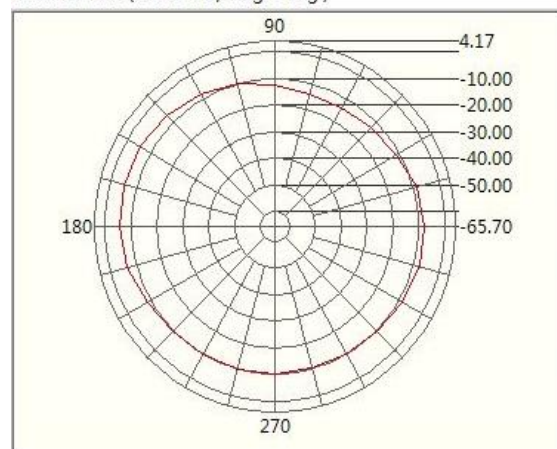
960MHzRight-Left  
View



960MHz@Theta  
90.0

Horizontal

Excel XY Plot (Value dB / Angle deg.)

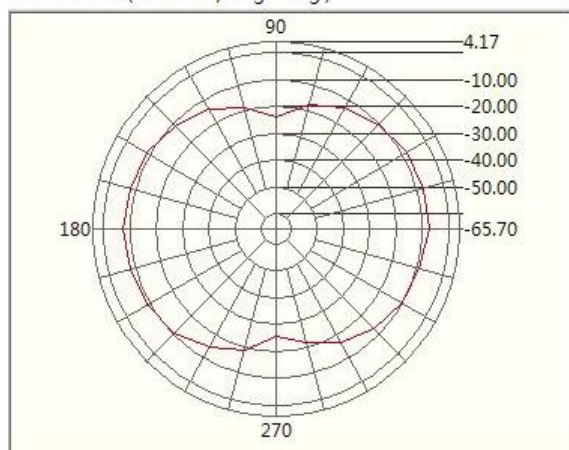


960MHz@Theta

90.0

Vertical

Excel XY Plot (Value dB / Angle deg.)

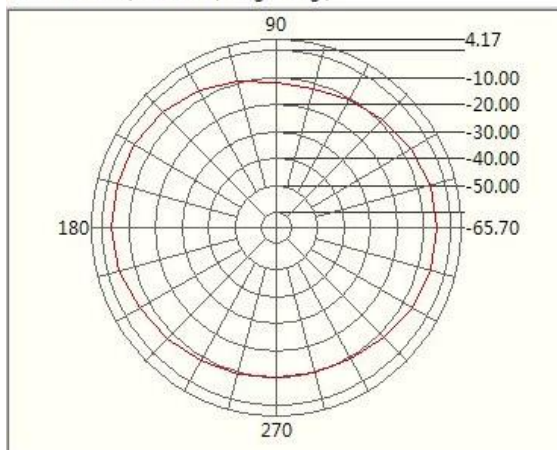


960MHz@Theta

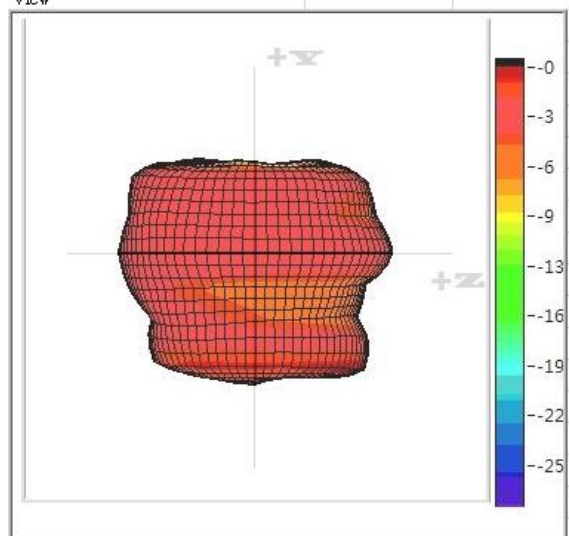
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Total

Excel XY Plot (Value dB / Angle deg.)



1.71GHzRight-Left  
View

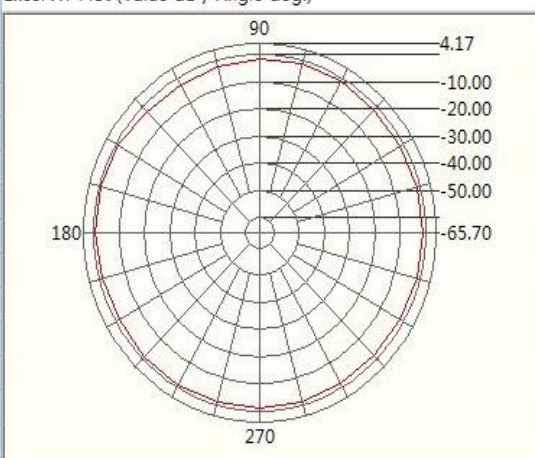


1.71GHz@Theta

90.0

Horizontal

Excel XY Plot (Value dB / Angle deg.)



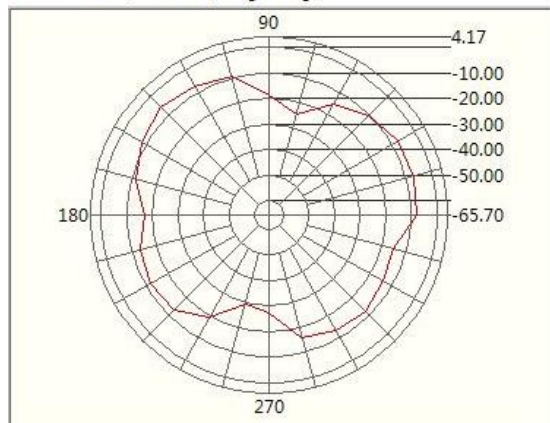


1.71GHz@Theta

90.0

Vertical

Excel XY Plot (Value dB / Angle deg.)

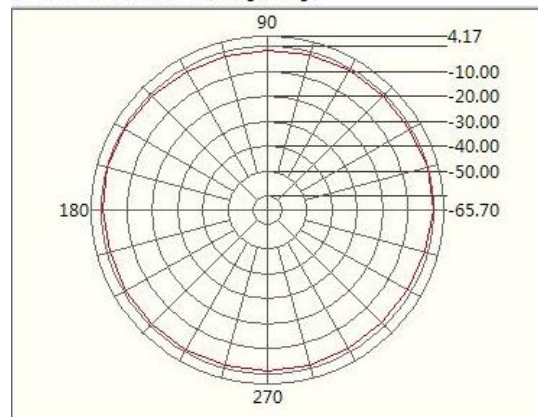


1.71GHz@Theta

90.0

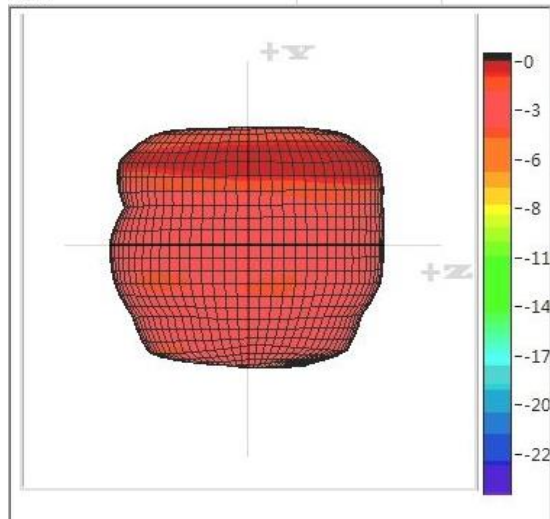
Total

Excel XY Plot (Value dB / Angle deg.)



2.69GHzRight-Left

View

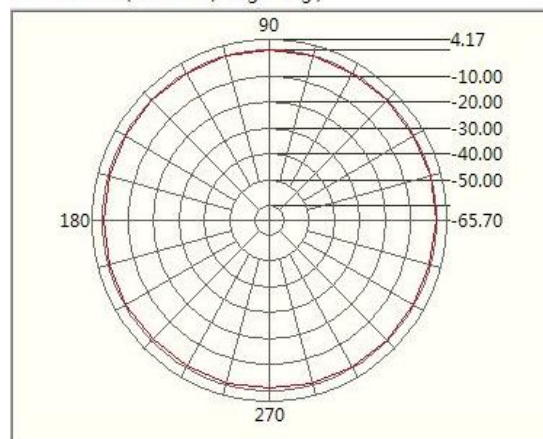


2.69GHz@Theta

90.0

Horizontal

Excel XY Plot (Value dB / Angle deg.)

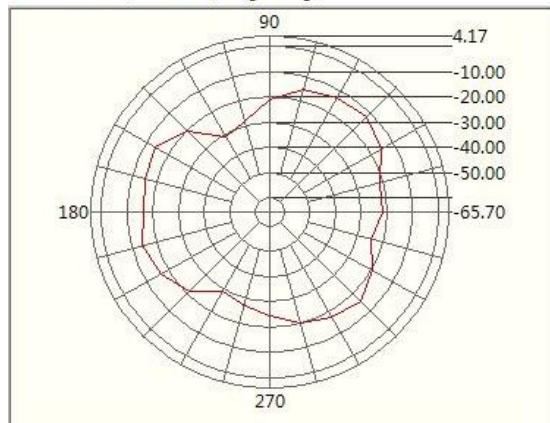


2.69GHz@Theta

90.0

Vertical

Excel XY Plot (Value dB / Angle deg.)

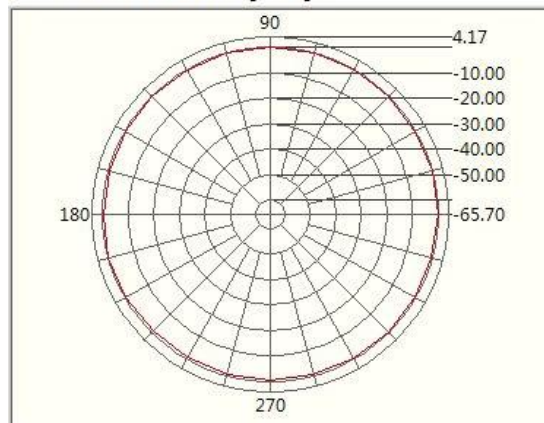


2.69GHz@Theta

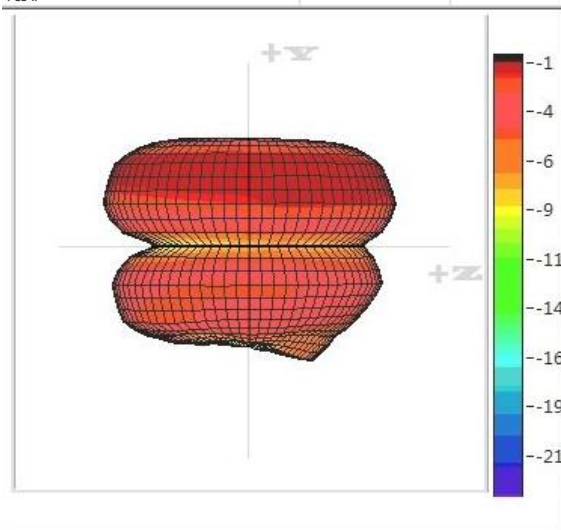
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Total

Excel XY Plot (Value dB / Angle deg.)



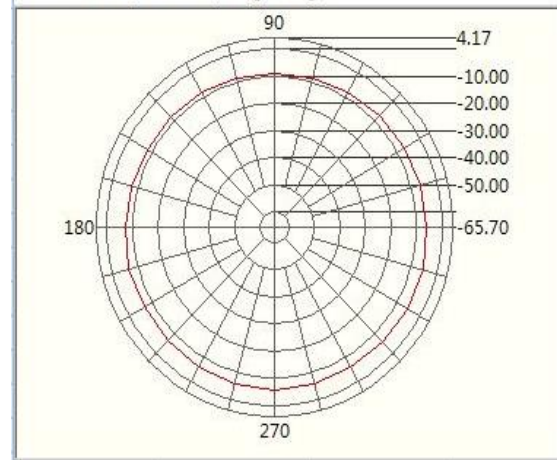
3.4GHzRight-Left  
View



3.4GHz@Theta  
90.0

Horizontal

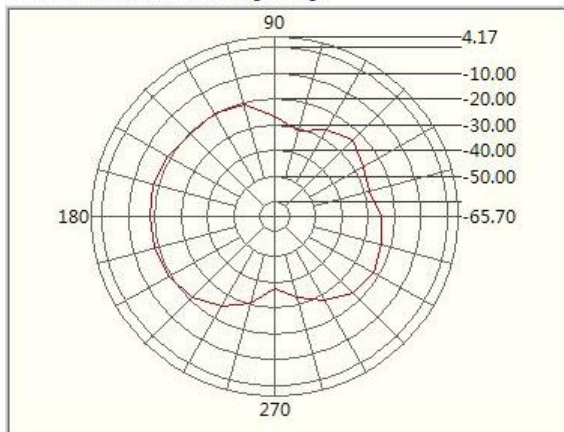
Excel XY Plot (Value dB / Angle deg.)



3.4GHz@Theta  
90.0

Vertical

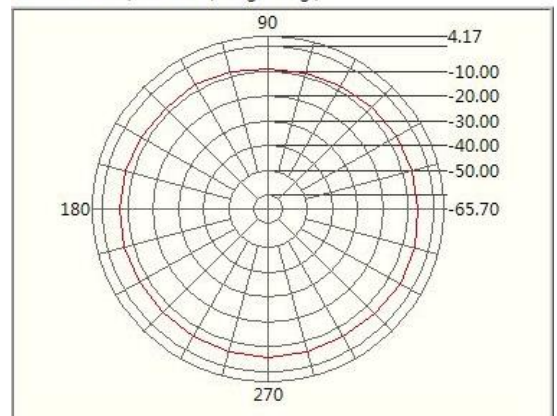
Excel XY Plot (Value dB / Angle deg.)



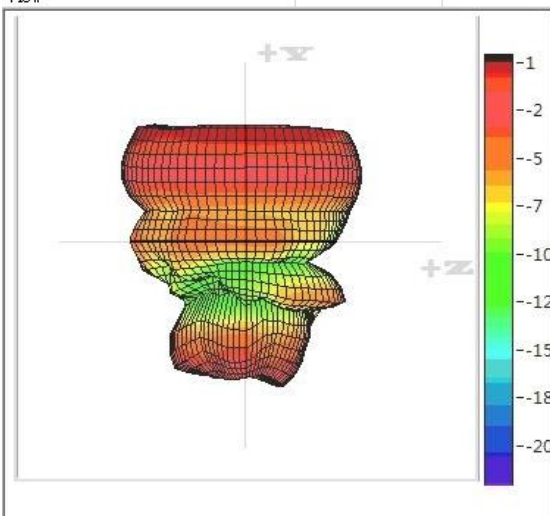
3.4GHz@Theta  
90.0

Total

Excel XY Plot (Value dB / Angle deg.)



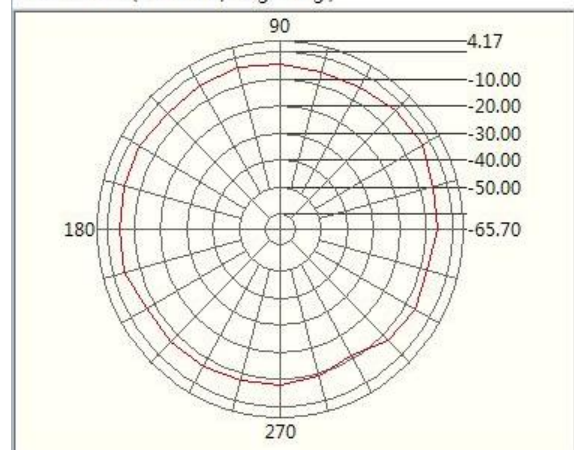
4.8GHzRight-Left  
View



4.8GHz@Theta  
90.0

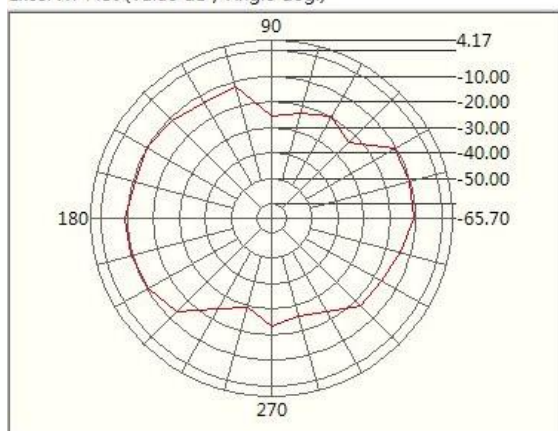
Horizontal

Excel XY Plot (Value dB / Angle deg.)

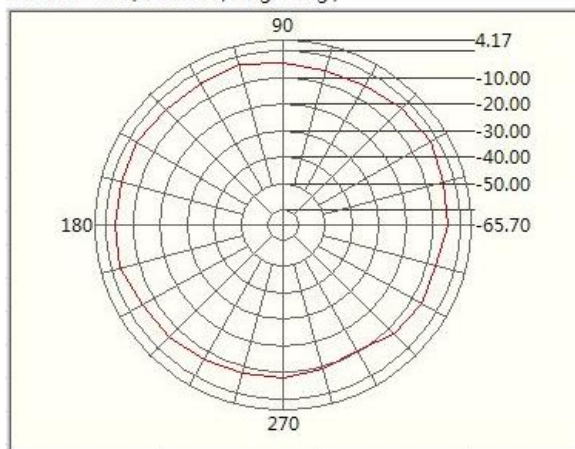




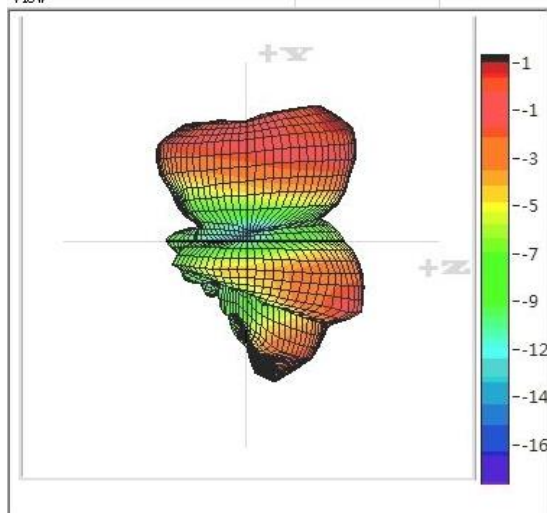
4.8GHz@Theta  
90.0  
Vertical  
Excel XY Plot (Value dB / Angle deg.)



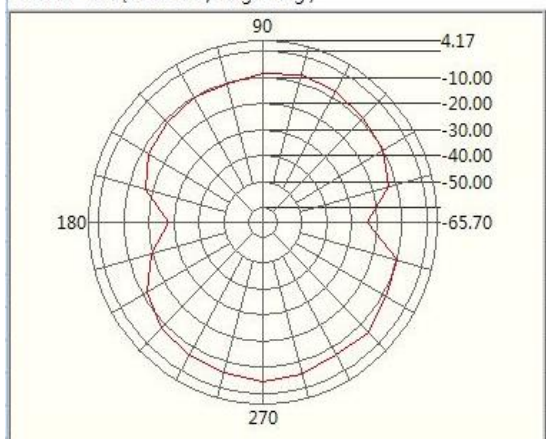
4.8GHz@Theta  
90.0  
Total  
Excel XY Plot (Value dB / Angle deg.)



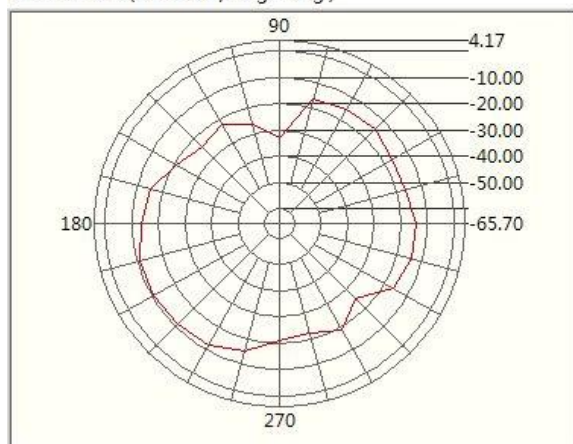
5.8GHzRight-Left  
View



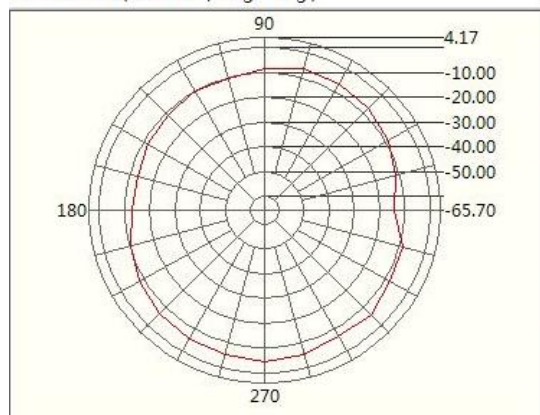
5.8GHz@Theta  
90.0  
Horizontal  
Excel XY Plot (Value dB / Angle deg.)



5.8GHz@Theta  
90.0  
Vertical  
Excel XY Plot (Value dB / Angle deg.)



5.8GHz@Theta  
90.0  
Total  
Excel XY Plot (Value dB / Angle deg.)



## 5 Product Size

