

# Antenna

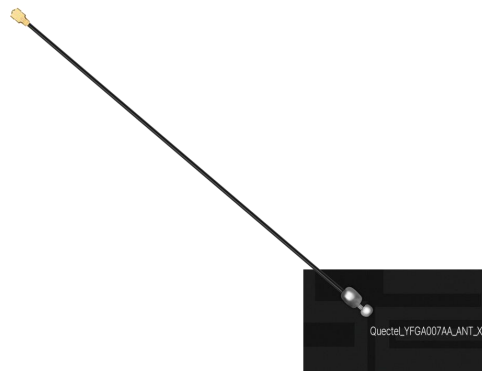
# YFGA007AA Datasheet

## Antenna Services

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# About the Document

## Revision History

Version	Date	Author	Note
-	2022-09-09	Knight HU/ Joye WANG	Creation of the document
1.0	2022-09-09	Knight HU/ Joye WANG	First official release

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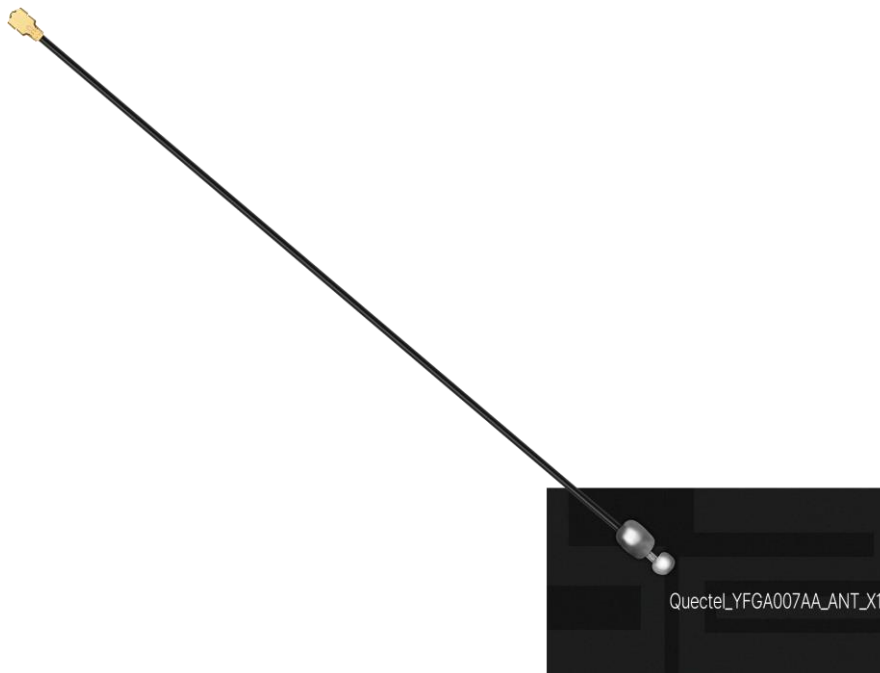
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## 1 Product Description

This Quectel GNSS antenna adopts a diversity of forms to guarantee the most suitable polarization type. Quectel's positioning products support single-band or multi-band operation modes to meet various high-precision positioning requirements of customers' products. Quectel provides both passive and active antennas to satisfy the customer demand for high gain. Such antenna supports different installation or connection methods such as pin mount, surface mount, magnetic mount, internal cable, and external SMA. Customized connector type and cable length are provided according to requirements.

## 2 Product Features

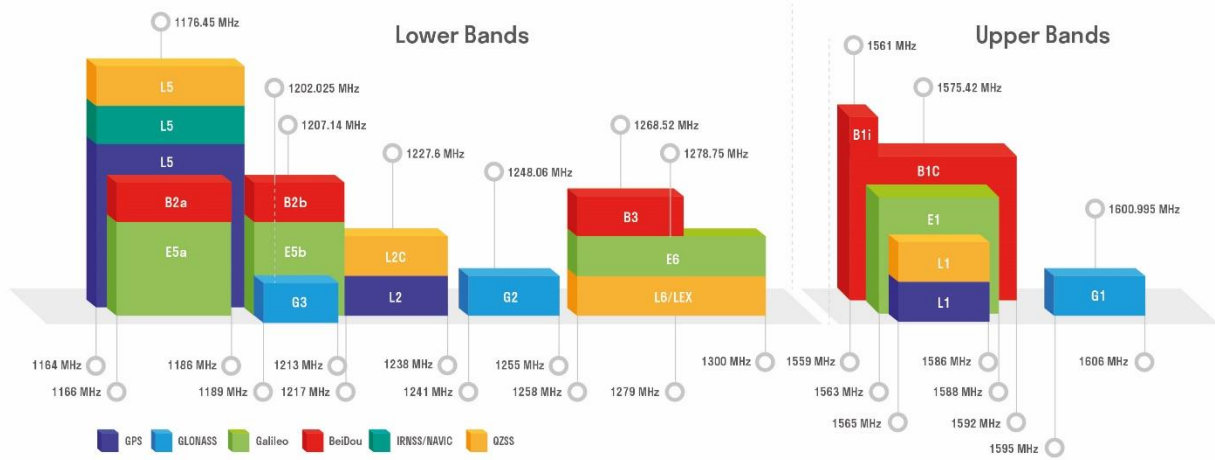
- GPS L1/ L5; BDS B1; GLONASS G1
- High efficiency
- Excellent performance



### 3 GNSS Frequency Band Checklist

GNSS Frequency Bands (MHz)					
<b>GPS</b>	<b>L1</b> Centre 1575.42 (1565–1586)	<b>L2</b> Centre 1227.6 (1217–1238)	<b>L5</b> Centre 1176.45 (1164–1189)		
	•	-	•		
<b>GLONASS</b>	<b>G1/ L10C/ L10F</b> Centre 1601 (1595–1606)	<b>G2/ L20C/ L20F</b> Centre 1248.06 (1241–1255)	<b>G3/ L30C</b> Centre 1202.025 (1189–1213)		
	•	-	-		
<b>GALILEO</b>	<b>E1</b> Centre 1575.42 (1563–1588)	<b>E5a</b> Centre 1176.45 (1166–1187)	<b>E5b</b> Centre 1207.14 (1197–1218)	<b>E6</b> Centre 1278.75 (1258–1300)	
	•	•	-	-	
<b>BEIDOU</b>	<b>B1I</b> Centre 1561.098 (1559–1564)	<b>B1C (BeiDou-3)</b> Centre 1575.42 (1559–1592)	<b>B2a/ B2I</b> Centre 1176.45 (1166–1187)	<b>B2b</b> Centre 1207.14 (1197–1217)	<b>B3</b> Centre 1268.52 (1258–1279)
	•	•	•	-	-
<b>QZSS</b>	<b>L1</b> Centre 1575.42 (1573–1578)	<b>L2C</b> Centre 1227.6 (1226–1229)	<b>L5</b> Centre 1176.45 (1166–1187)	<b>L6</b> Centre 1278.75 (1257–1300)	
	•	-	•	-	
<b>IRNSS</b>	<b>L5</b> Centre 1176.45 (1164–1189)				
	•				

### GNSS Bands and Constellations





## 4 Product Specifications

### Passive Electrical Specifications

Frequency Range	1176.45 MHz; 1575.42 MHz
Input Impedence	50 $\Omega$
VSWR	$\leq 3.0$
Gain	$\leq 1.0$ dBi
Polarization Type	Linear

### Mechanical Specifications

Antenna Size	43 mm x 24 mm
Material	FPC
Cable Type	$\Phi 1.13$ Black & 115.0 mm
Connector	IPEX 1
Color	Black
Weight	Typ: 0.8 g
Mounting Type	Adhesive
Working Temperature	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$

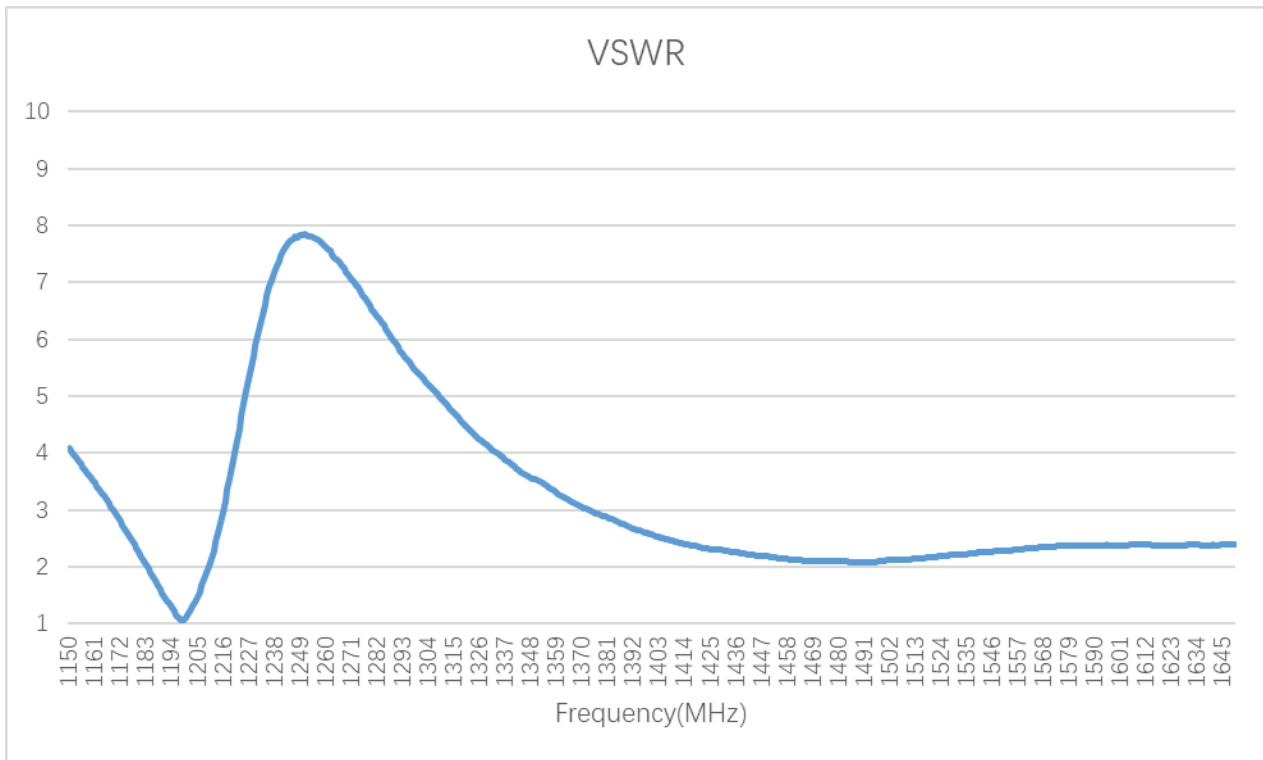
## 5 Overall Performance

### 5.1. Test Environment

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

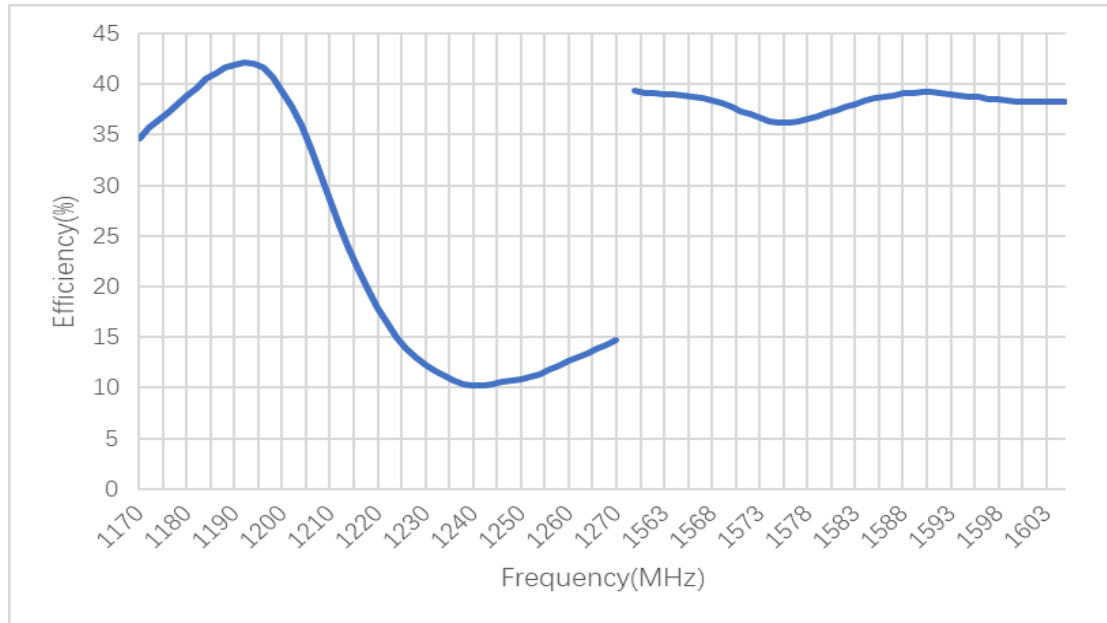


**5.2. VSWR**



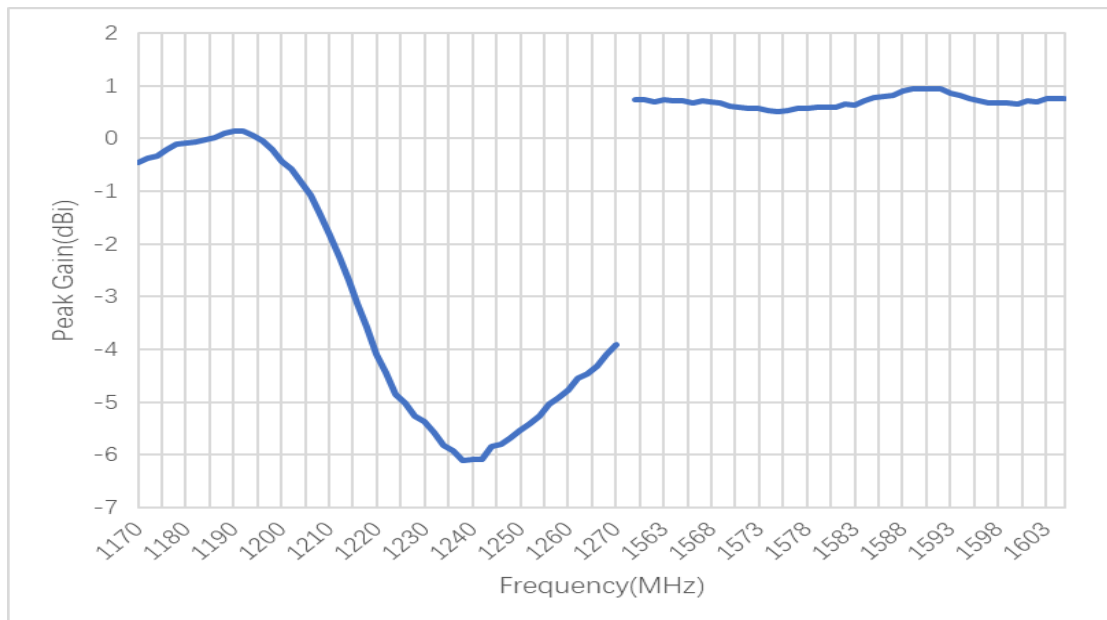
<b>Frequency (MHz)</b>	1176	1561	1575	1602
<b>VSWR</b>	2.53	2.32	2.36	2.38

### 5.3. Efficiency



<b>Frequency (MHz)</b>	1176	1561	1575	1602
<b>Efficiency (%)</b>	37.2	39.1	36.2	38.3

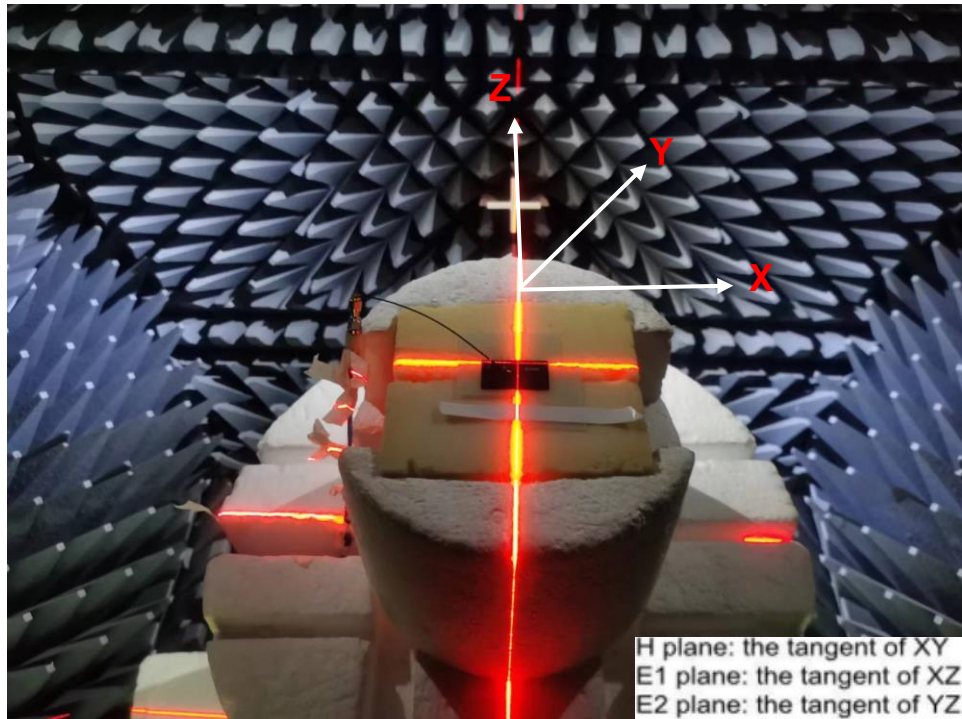
### 5.4. Gain



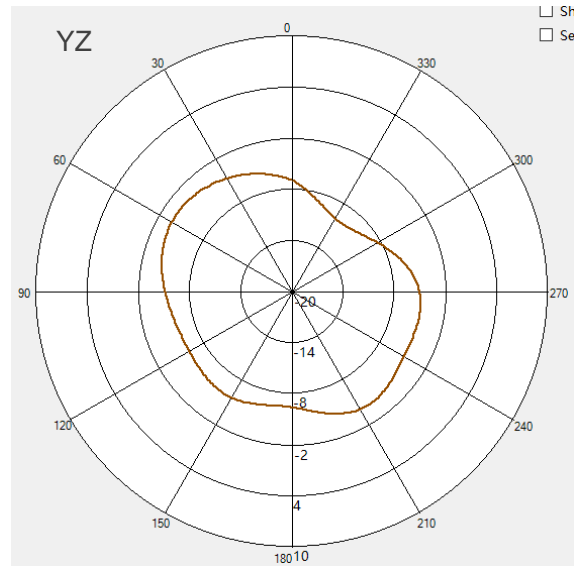
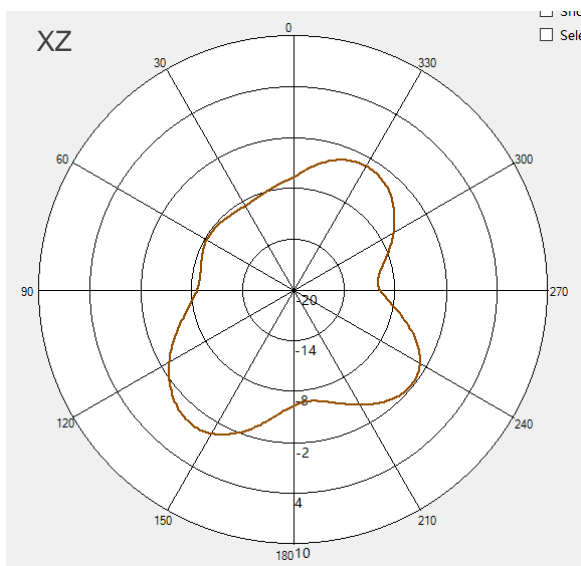
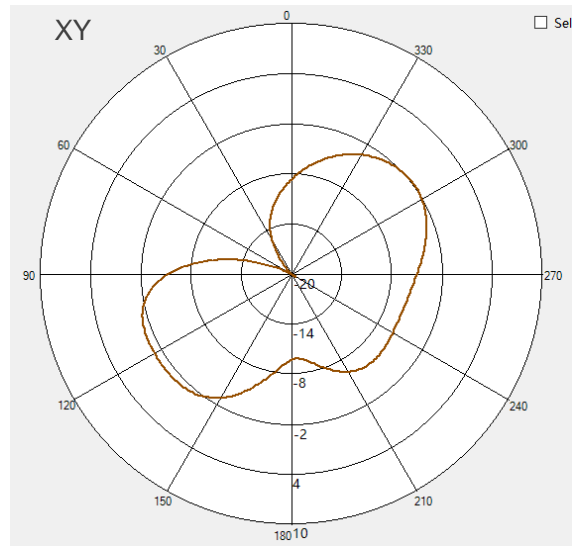
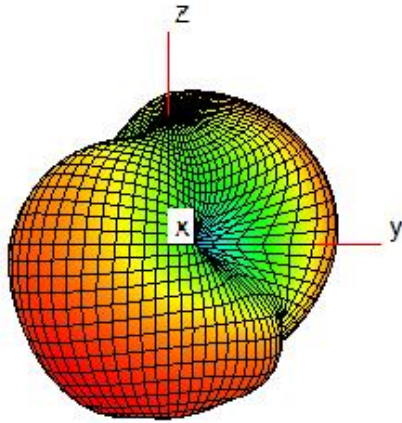
<b>Frequency (MHz)</b>	1176	1561	1575	1602
<b>Gain (dBi)</b>	-0.21	0.73	0.51	0.70

## 5.5. Radiation Pattern

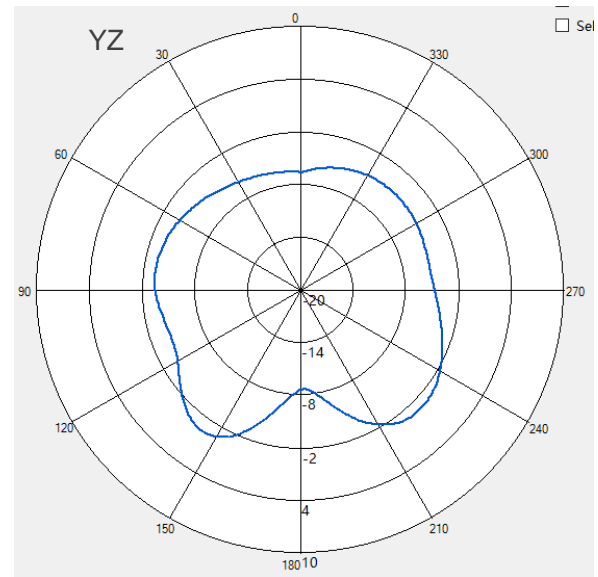
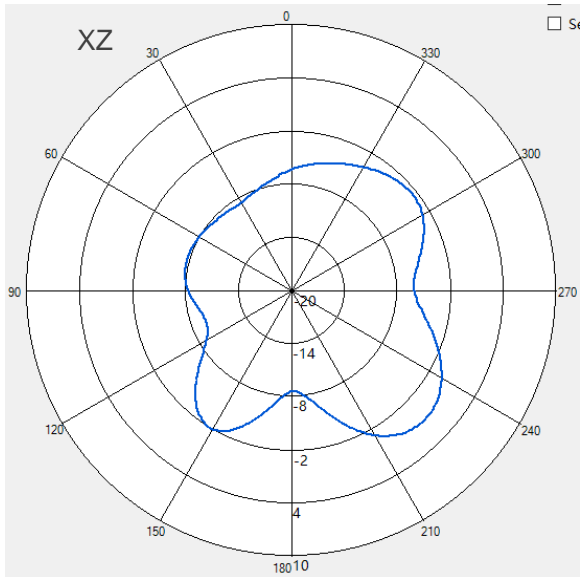
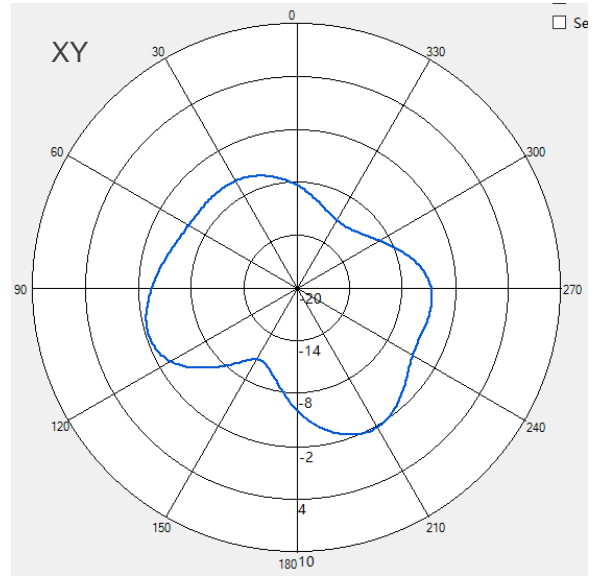
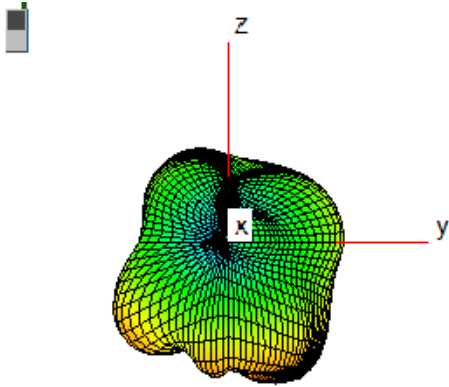
- Test condition: free space



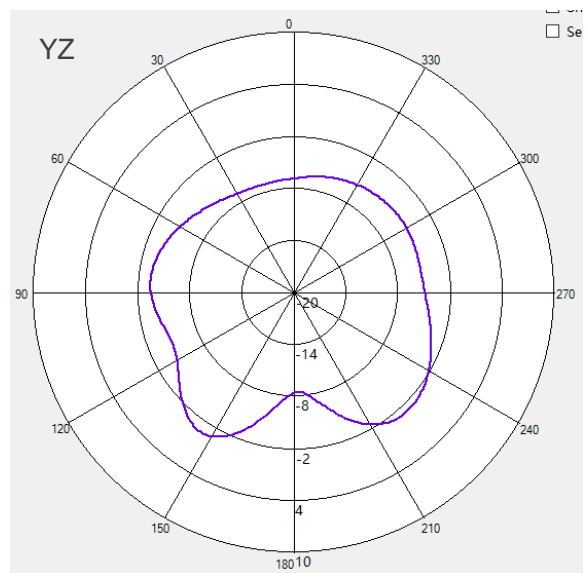
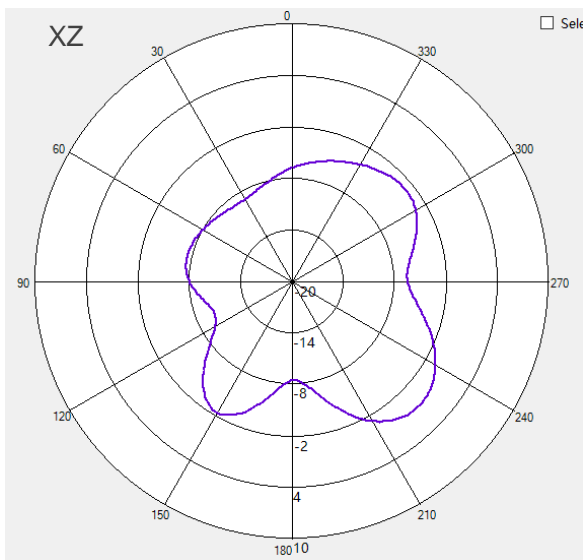
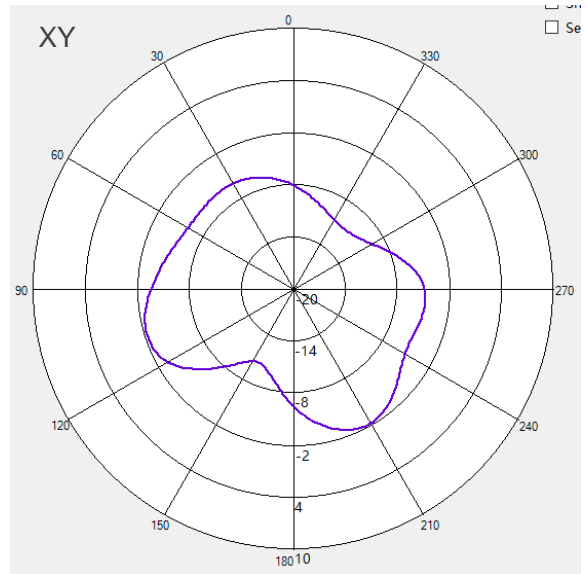
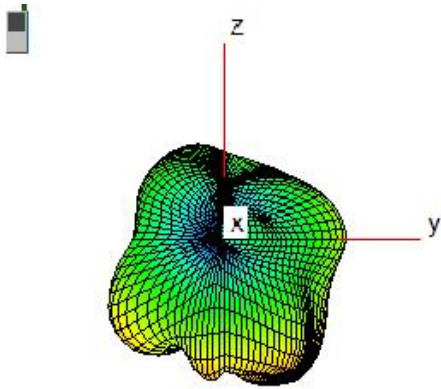
**5.5.1. 1176 MHz**



**5.5.2. 1561 MHz**

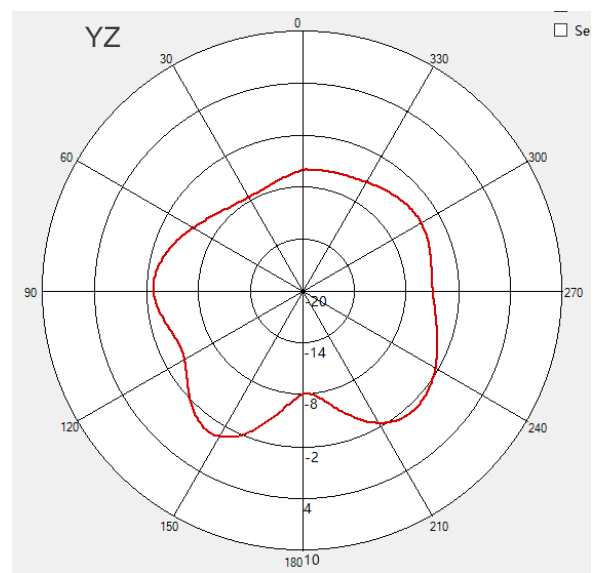
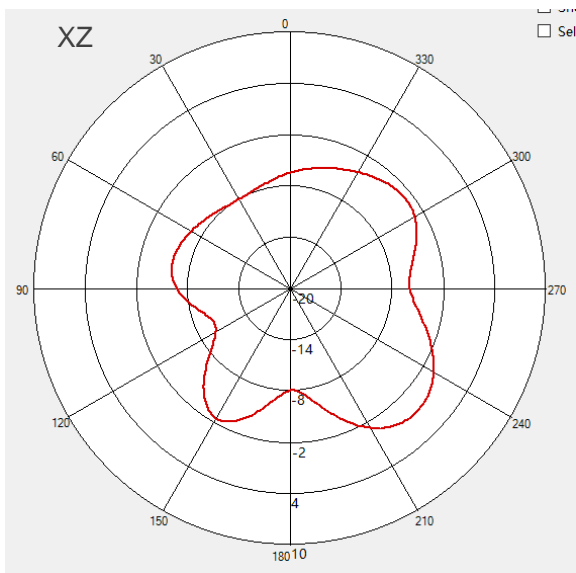
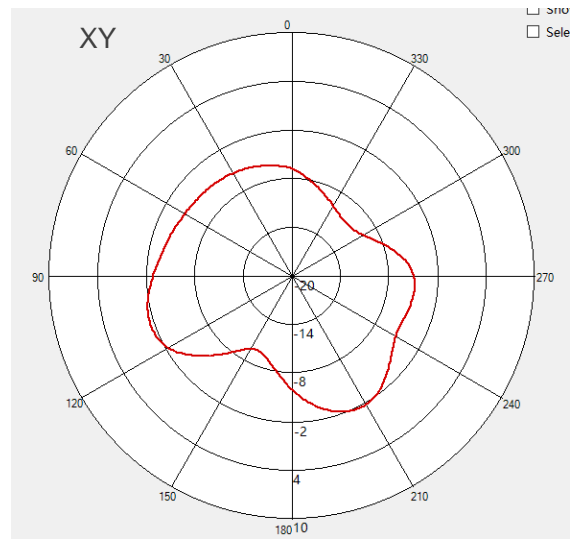
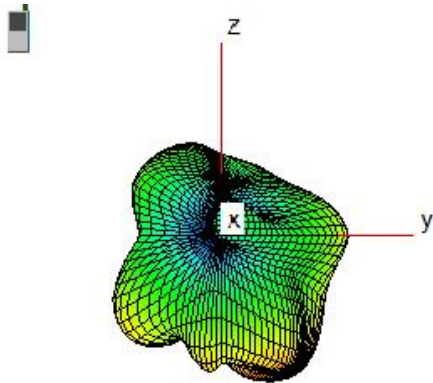


**5.5.3. 1575 MHz**





**5.5.4. 1602MHz**



## 6 Product Size

ROHS

