

Antenna

YPCS001AA Datasheet

Antenna Services

Version: 2.0

OC (Antenna Only): **YPCS001AA**

OC (Antenna + EVB): **YPCS001AAEVB**

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Status: Released



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Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

Tel: +86 21 5108 6236

Email: info@quectel.com

Or our local offices. For more information, please visit:

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About the Document

Revision History

Version	Date	Author	Note
-	2021-03-16	Andy MIAO/ Toby WANG	Creation of the document
1.0	2021-03-16	Andy MIAO/ Toby WANG	First official release
2.0	2022-10-18	Andy MIAO/ Toby WANG	Second official release

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1 Product Description

This Quectel embedded 4G/5G SMD antenna covers main 4G/5G bands and is compatible with 3G/2G/LPWA bands. Featuring high efficiency and gain, it is an ideal antenna for a smooth and stable connection with high-efficiency data transmission even under the influence of the device's internal structure. Ground plane dependent, it's designed to be mounted directly to the device host PCB using a conventional PCB reflow process. Supplied tape and reel for high volume pick and place assembly, this SMD antenna can be tuned specifically for the final device environment with a simple PI matching circuit.

2 Product Features

- Cellular 5G
- High efficiency
- Excellent performance



3 Product Specifications

Passive Electrical Specifications

Frequency Range	1427–5850 MHz
Input Impedance	50 Ω
VSWR	≤ 4.5
Gain	≤ 3.0 dBi
Polarization Type	Linear

Detailed Passive Electrical Specifications

Frequency Range (MHz)	698–960	1176–1280	1427–1518	1710–2170	2170–2690	3300–4000	4000–5000	5150–5850
VSWR (Max.)	-	-	3.4	4.3	3.8	2.6	2.6	3.4
Average Efficiency (%)	-	-	33.1	42	43	46	43	37.8
Max. Peak Gain (dBi)	-	-	-0.34	1.2	1.2	1.5	1.5	2.37

Mechanical Specifications

Antenna Size (mm)	20 × 10 × 3
Color	Black
Weight	Typ. 1.2 g
Working Temperature	-40 °C to +85 °C
Mounting Type	SMD

EVB Mechanical Specifications

EVB Size (mm)	60 × 20 × 0.8
Material	PCB
Connector Type	SMA-K
Weight	Typ. 2.4g
Working Temperature	-40 °C to +85 °C
Mounting Type	Screw

4 Overall Performance

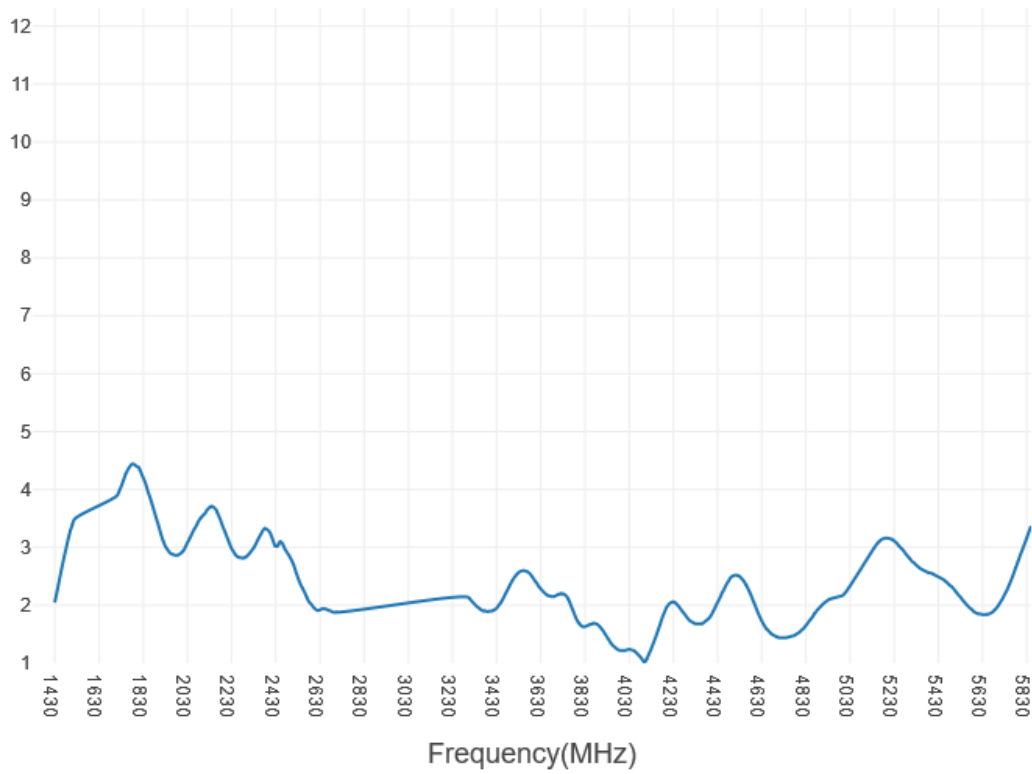
4.1. Test Environment

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



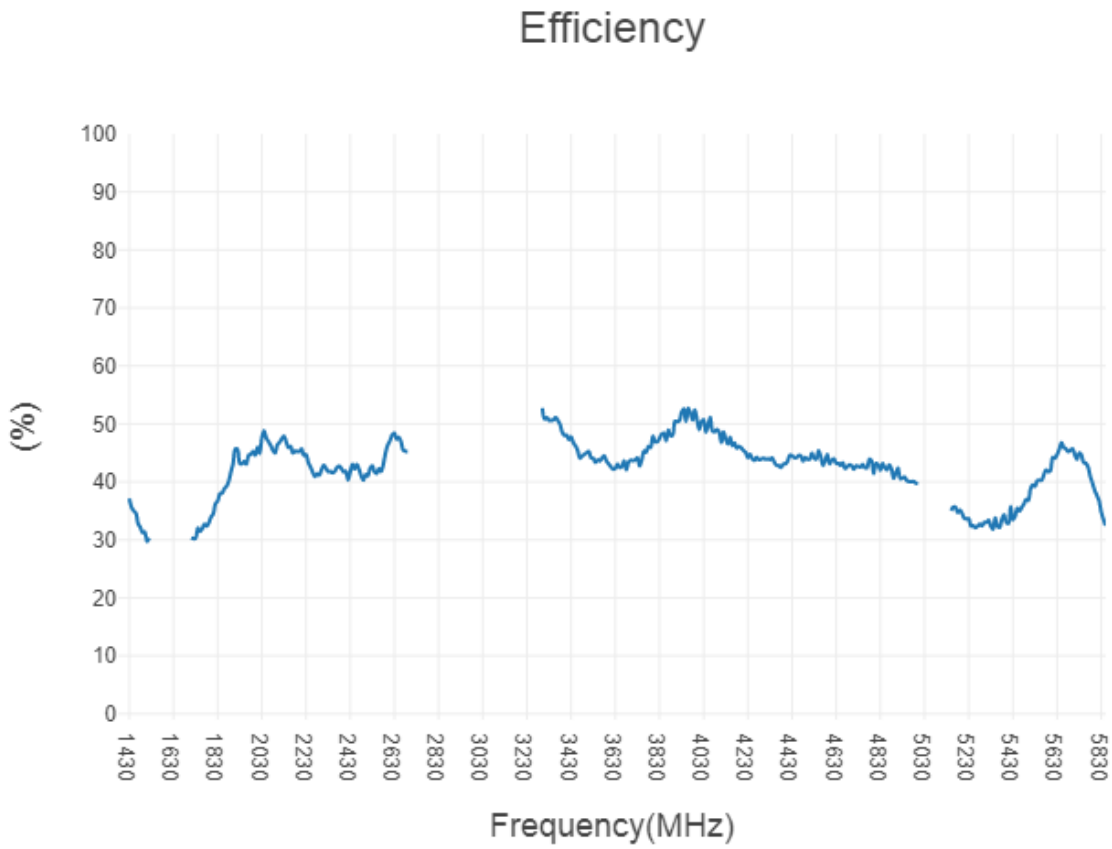
4.2. VSWR

VSWR



Frequency (MHz)	1427	1518	1710	2690	3300	5000	5150	5850
VSWR	1.9	3.4	3.9	1.9	2.1	2.2	3.1	3.4

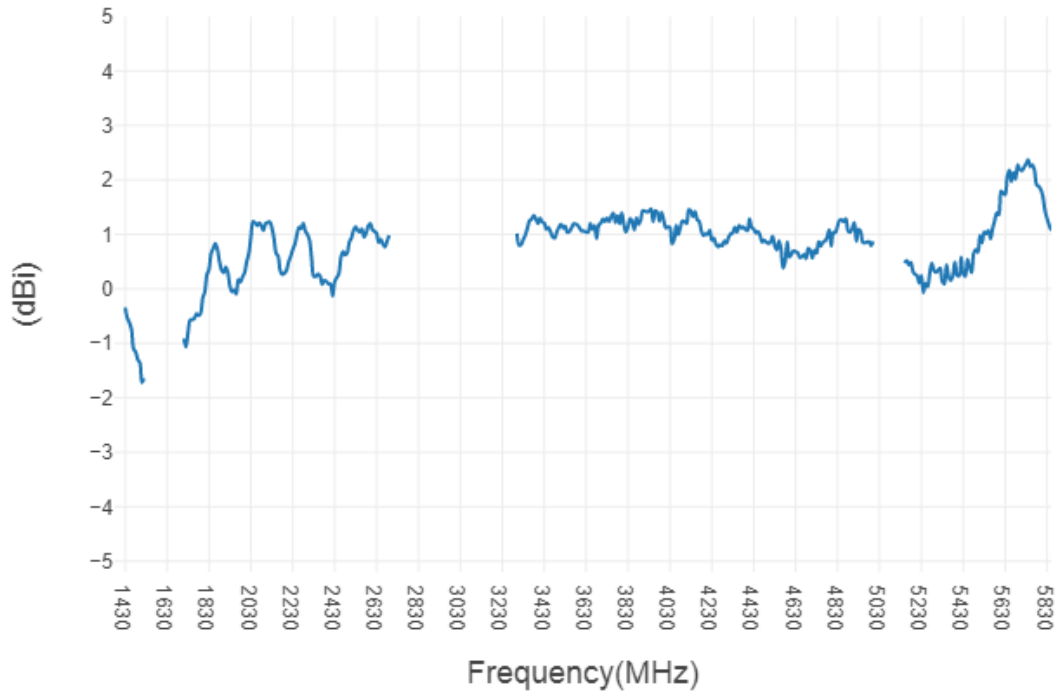
4.3. Efficiency



Frequency (MHz)	1427	1518	1710	2690	3300	5000	5150	5850
Efficiency (%)	37.12	30.32	30.33	45.22	52.71	39.7	35.02	32.44

4.4. Gain

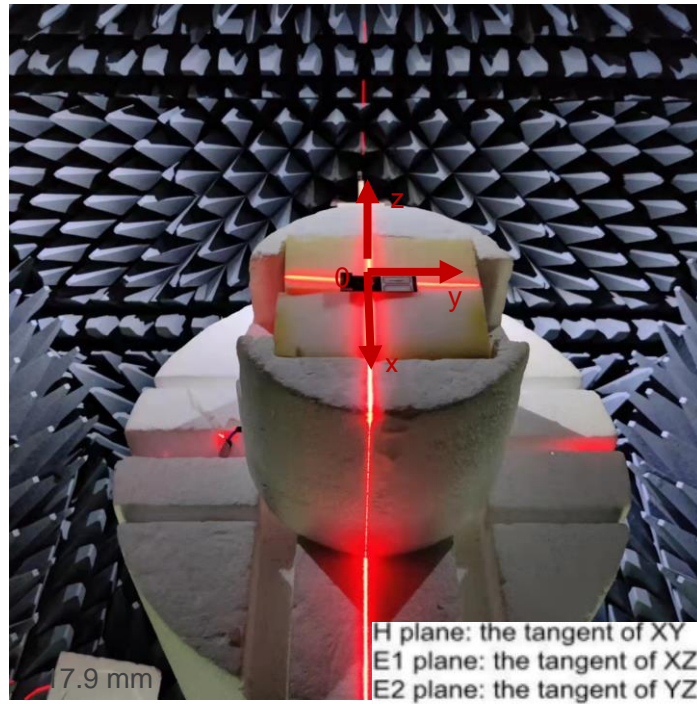
Peak Gain



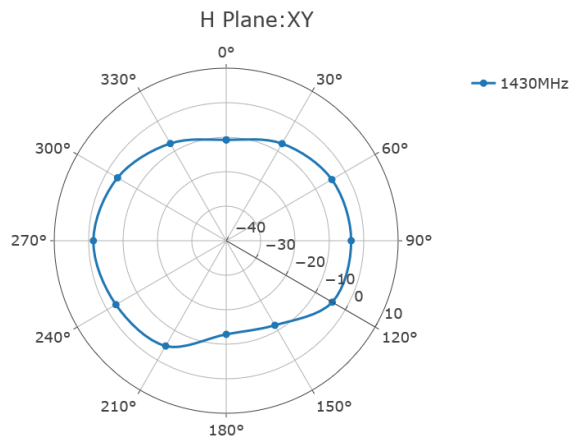
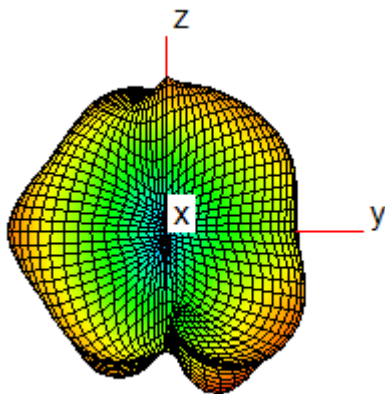
Frequency (MHz)	1427	1518	1710	2690	3300	5000	5150	5850
Gain (dBi)	-0.34	-1.64	-0.91	0.98	1.01	0.87	0.48	1.07

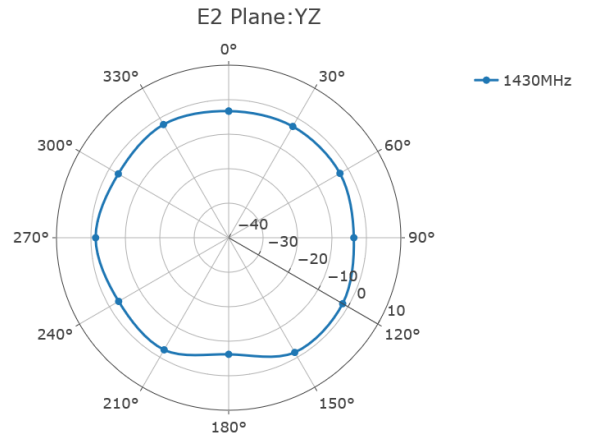
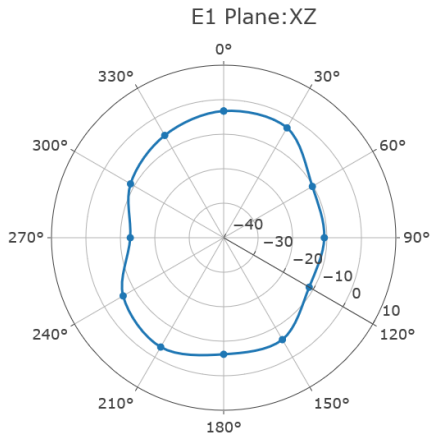
4.5. Radiation Pattern

- Test condition: assembled on EVB (60 mm × 20 mm).

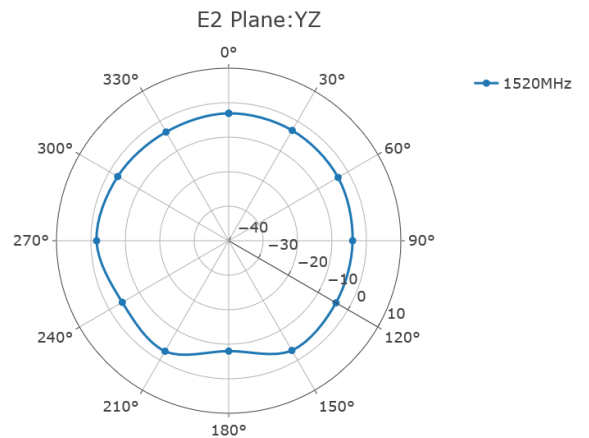
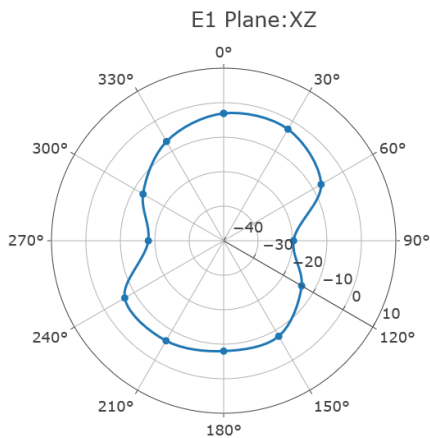
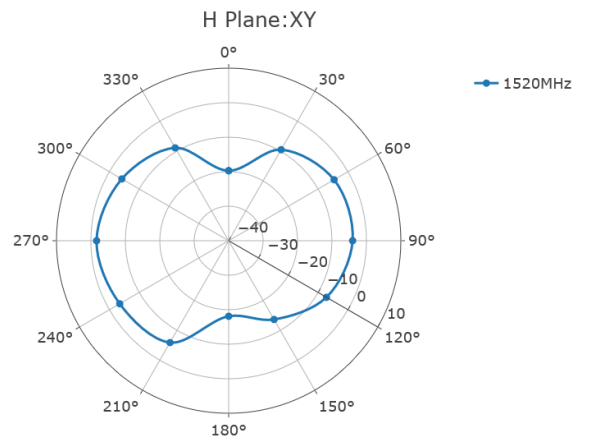
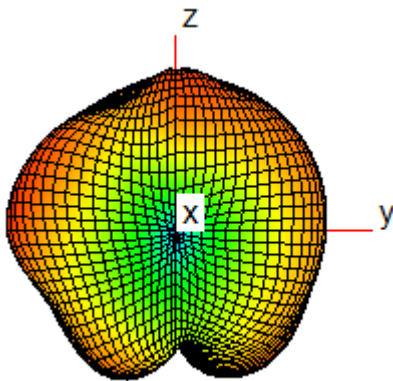


1427 MHz

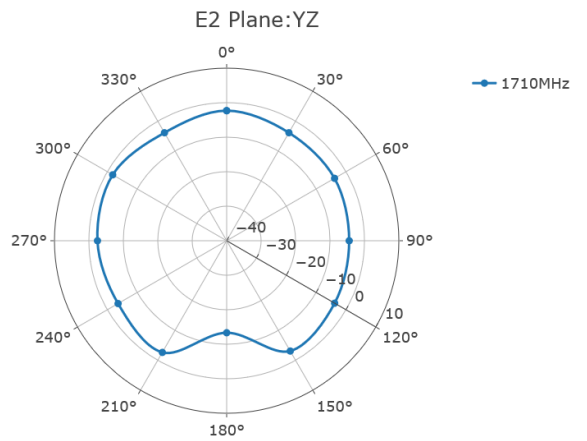
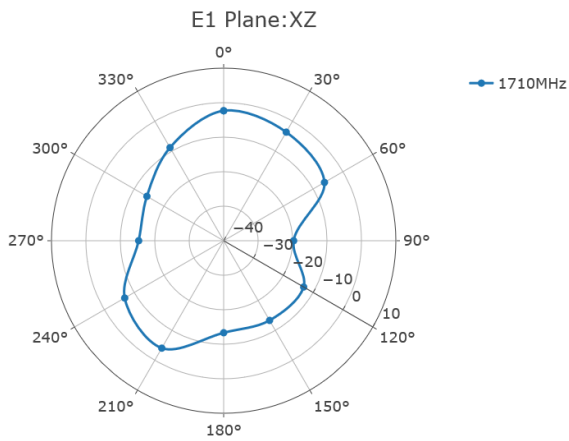
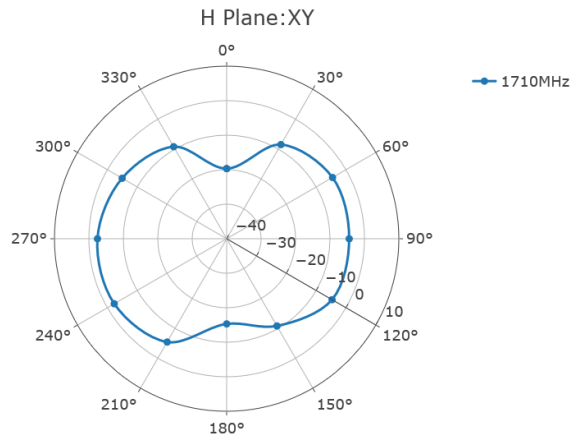
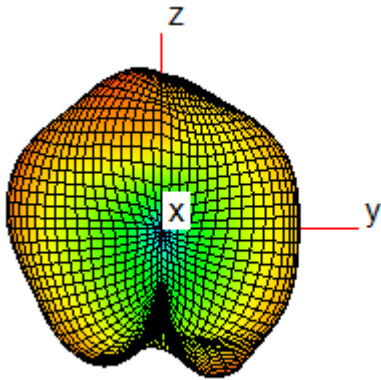




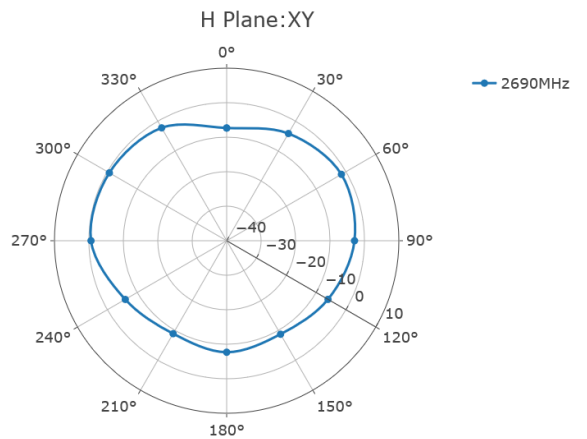
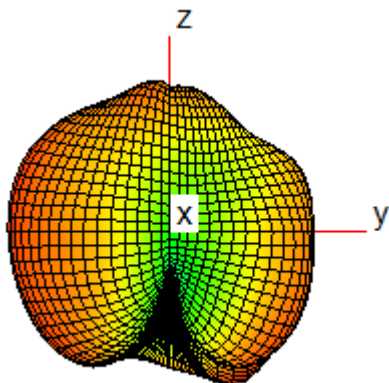
1520 MHz

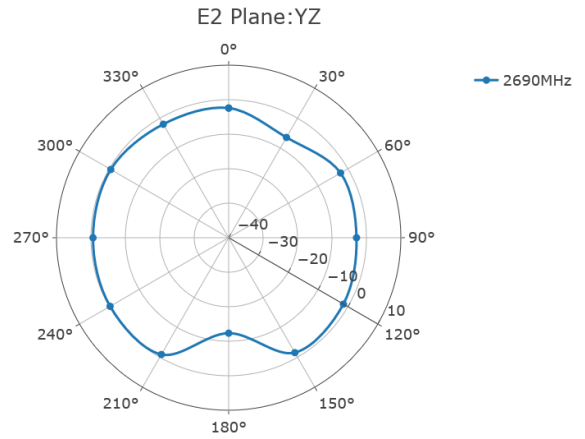
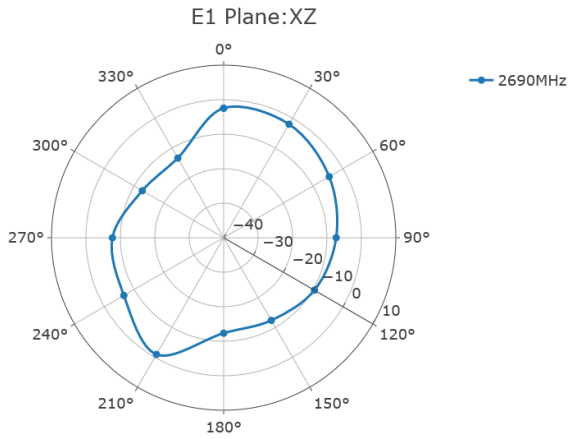


1710MHz

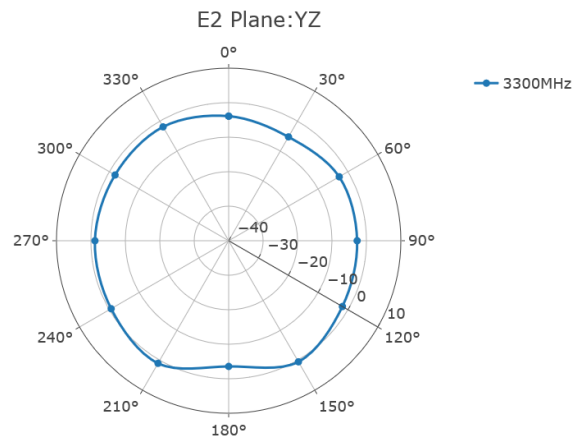
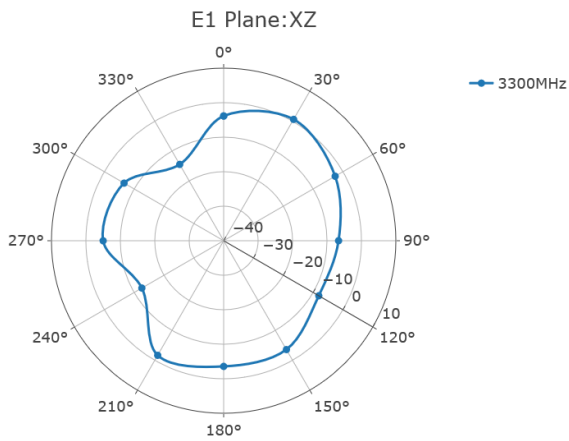
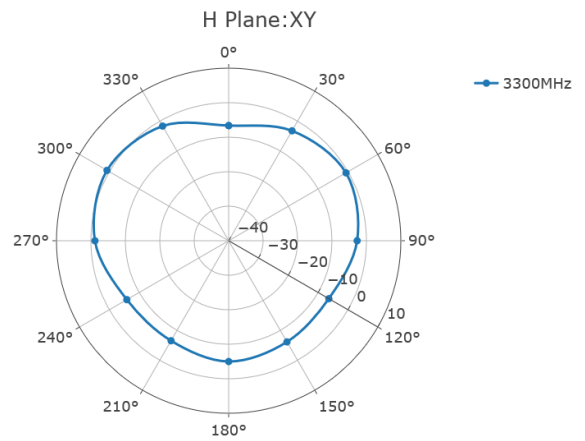
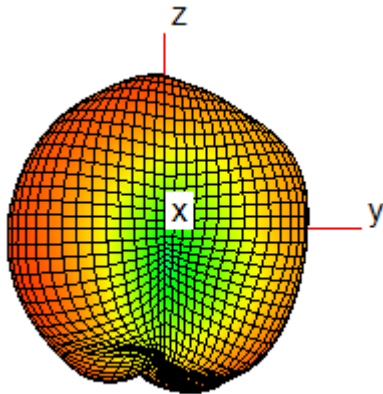


2690 MHz

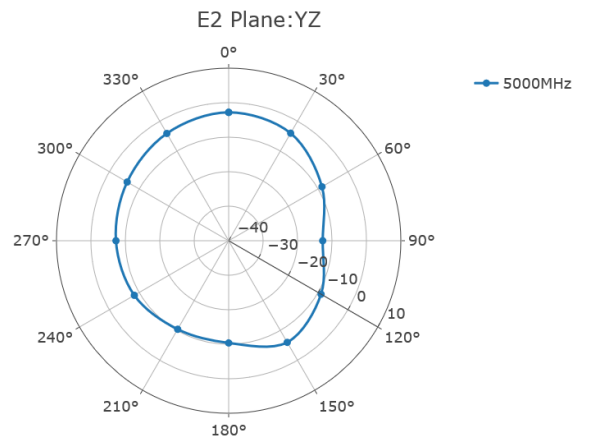
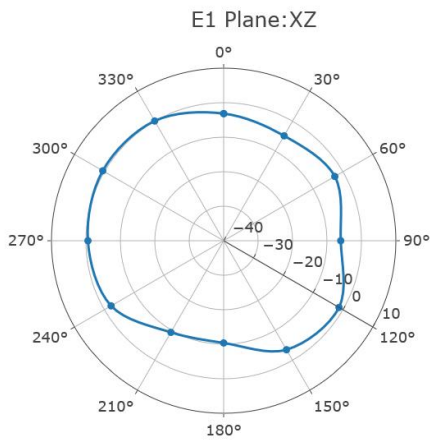
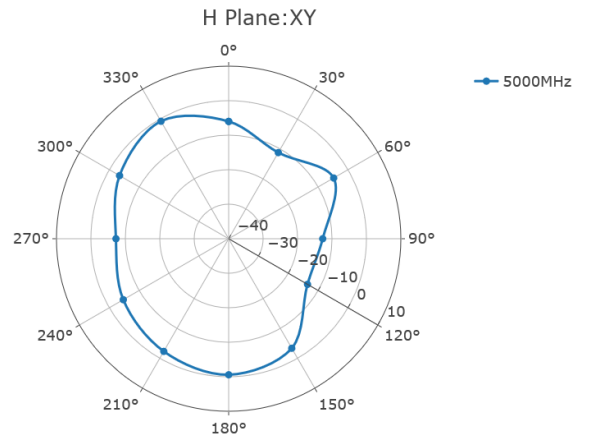
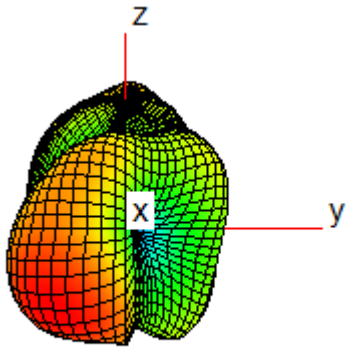




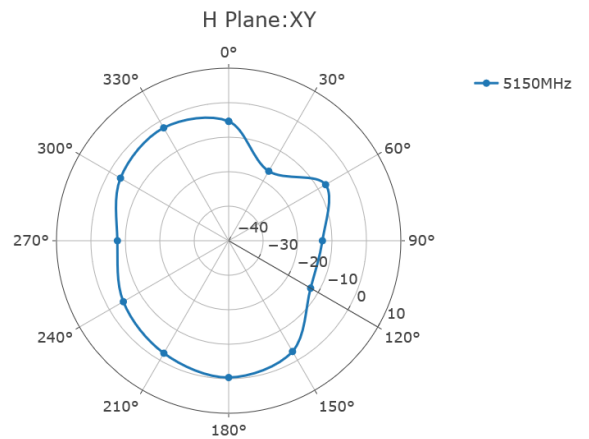
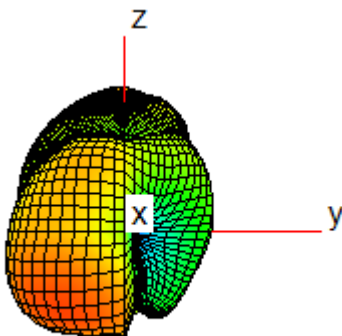
3300 MHz

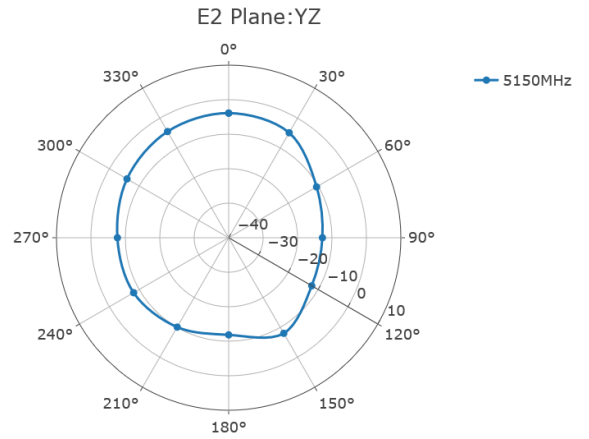
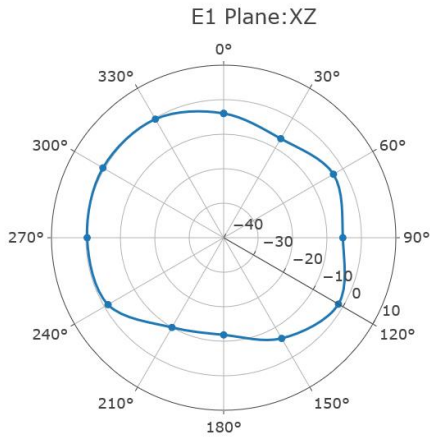


5000 MHz

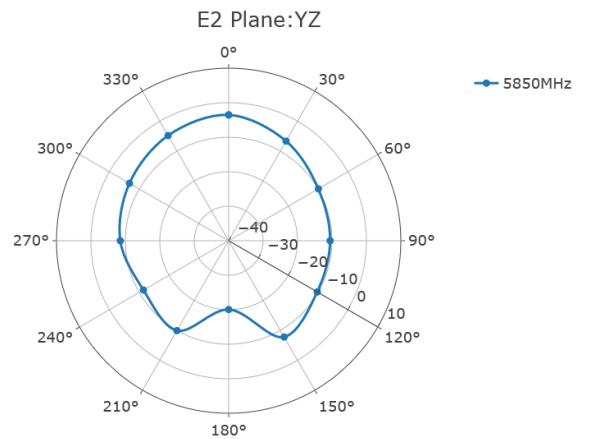
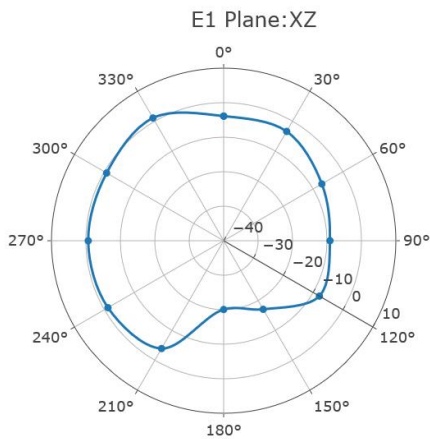
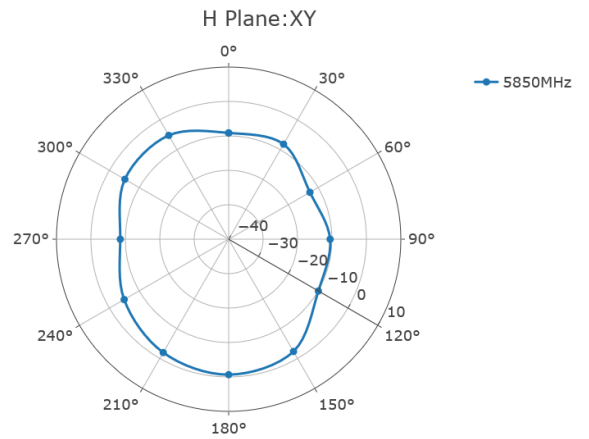
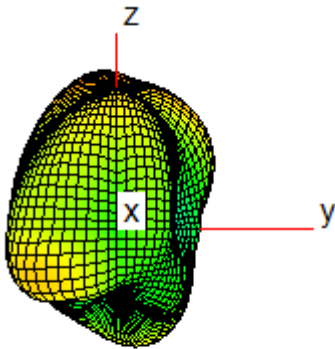


5150 MHz

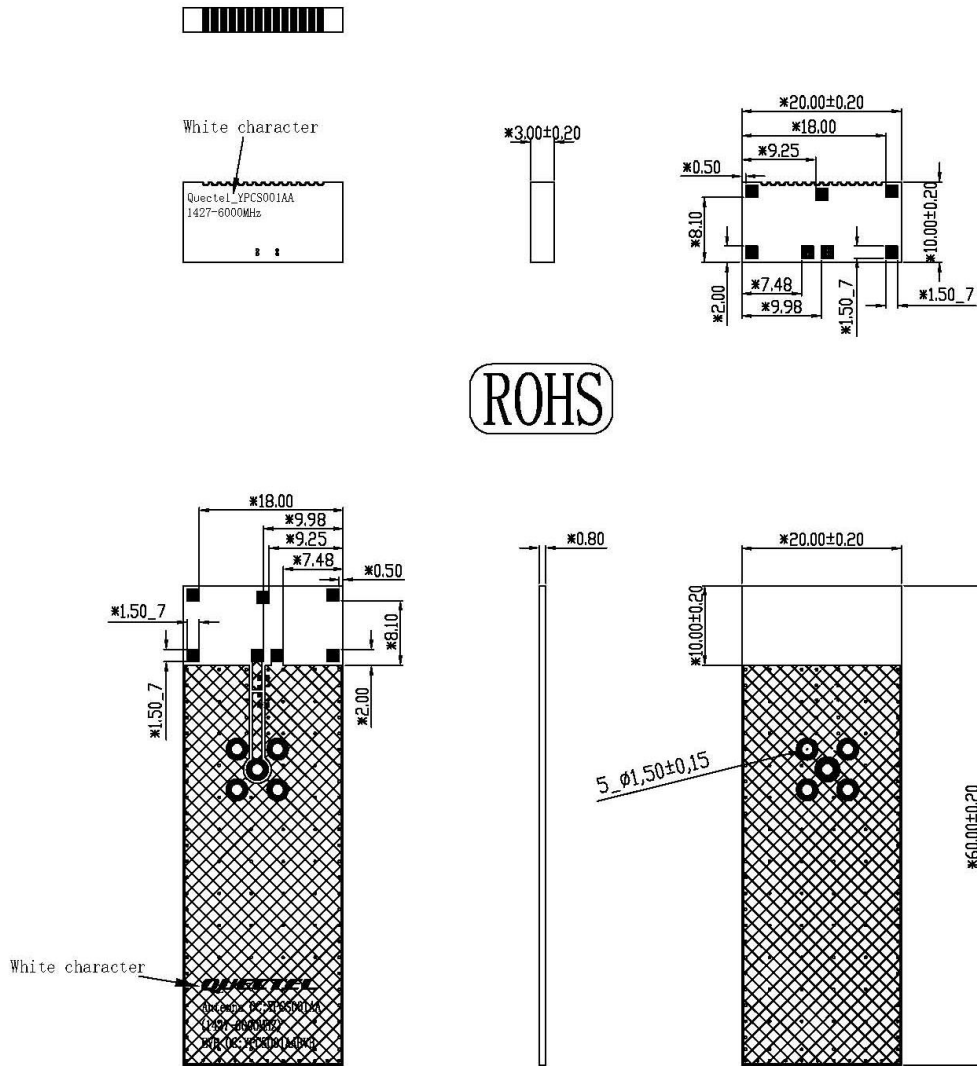


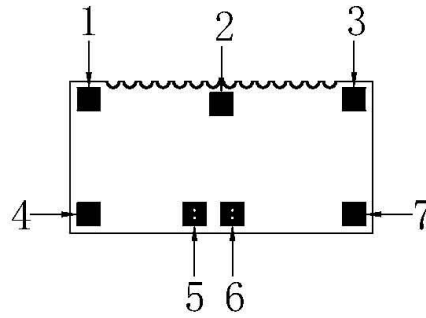


5850 MHz



5 Product Size

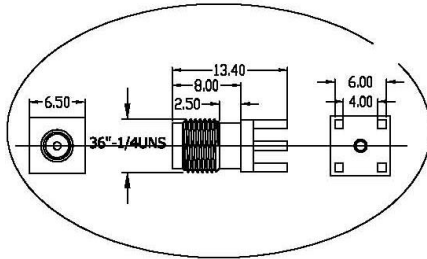




Front:Perspective View

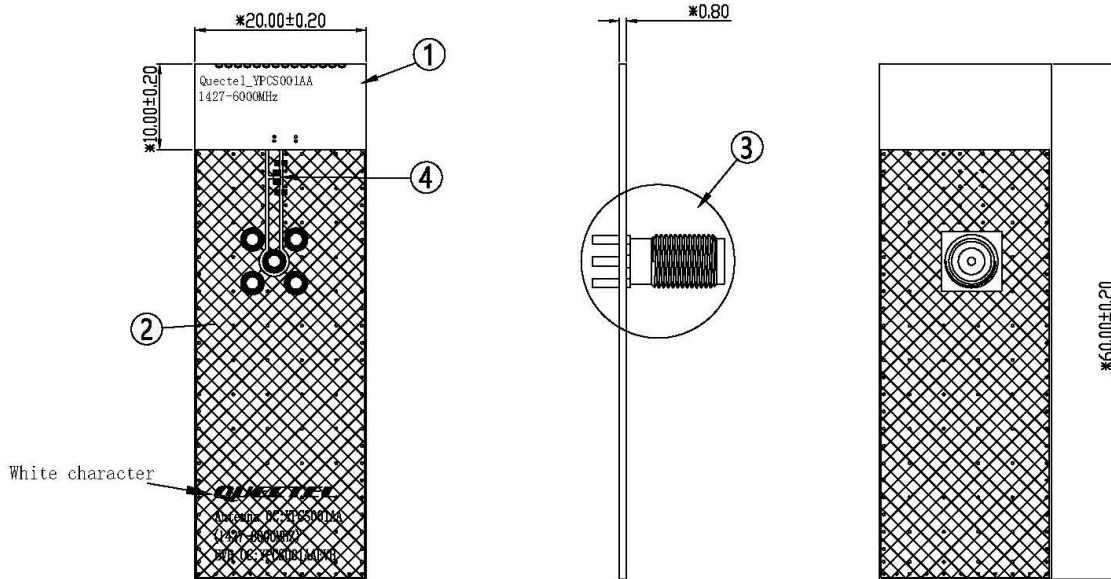
PAD NO.	Description
1	Not used(mechanical only)
2	Not used(mechanical only)
3	Not used(mechanical only)
4	Not used(mechanical only)
5	FEED
6	GND
7	Not used(mechanical only)

6 EVB Size



	Name	Material	Brand	QTY	NO
1	Antenna	FR4 3.0t	BLACK	1	
2	PCBA	FR4 0.8t	BLACK	1	
3	SMA-K	Brass	Gold Plated	1	
4	0 ohm Resistance(0402)	Ceramics	N/A	1	

ROHS



7 Soldering Temperature

Phase	Profile Features	PB-Free Assembly (Max.)
RAMP-UP	Avg. Ramp-up Rate (T _{smax} to T _p)	3 °C/second (Max.)
PREHEAT	Temperature Min. (T _{smin})	148 °C
	Temperature Max. (T _{smax})	190 °C
	Time (T _{smin} to T _{smax})	125 seconds (Max.)
REFLOW	Temperature (T _L)	220 °C
	Total Time above T _L (t _l)	50 seconds (Max.)
PEAK	Temperature (T _p)	260 °C
	Time (t _p)	10 seconds (Max.)
RAMP-DOWN	Rate	5 °C/second (Max.)

8 Reflow Profile

