Antenna

YC0017DA Datasheet

Antenna Services

Version: 1.0

OC (Antenna Only): **YC0017DA**

OC (Antenna + EVB): **YC0017DAEVB**

Date: 2023-01-20

Status: Released

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About the Document

Revision History

Version	Date	Author	Note
-	2022-12-28	Andy MIAO/ Toby WNAG	Creation of the document
1.0	2023-01-20	Andy MIAO/ Toby WNAG	First official release

Contents

1 Product Description

This Quectel embedded 5G SMD antenna covers 5G NR Sub-6 GHz frequency bands and is compatible with 4G/3G/2G/LPWA bands. 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. Used with other 5G antennas, it can achieve MIMO (multiple input, multiple output) antenna technology for wireless communications in which multiple antennas are used at both the source (transmitter) and the destination (receiver).

2 Product Features

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

3 Product Specifications

Passive Electrical Specifications	
Frequency Range	698–3800 MHz
Input Impedance	50 Ω
VSWR	≤ 5.15
Gain	≤ 3.12 dBi
Polarization Type	Linear

Detailed Passive Electrical Specifications								
Frequency Range (MHz)	**700–960**	**1176–1280**	**1500–1710**	**1710–2170**	**2170–2300**	**2300–2690**	**3300–3500**	**3500–3800**
VSWR (Max.)	3.92	-	-	1.91	3.94	5.15	2.82	3.41
Average Efficiency (%)	40.3	-	-	63.2	49.8	51.8	63.6	59.2
Max. Peak Gain (dBi)	-0.48	-	-	2.58	1.98	1.76	3.12	2.83

Mechanical Specifications	
Antenna Size	25 × 7 × 3 mm
Material	PCB
Color	Black
Working Temperature	-40 °C to +85 °C
Mounting Type	Soldering

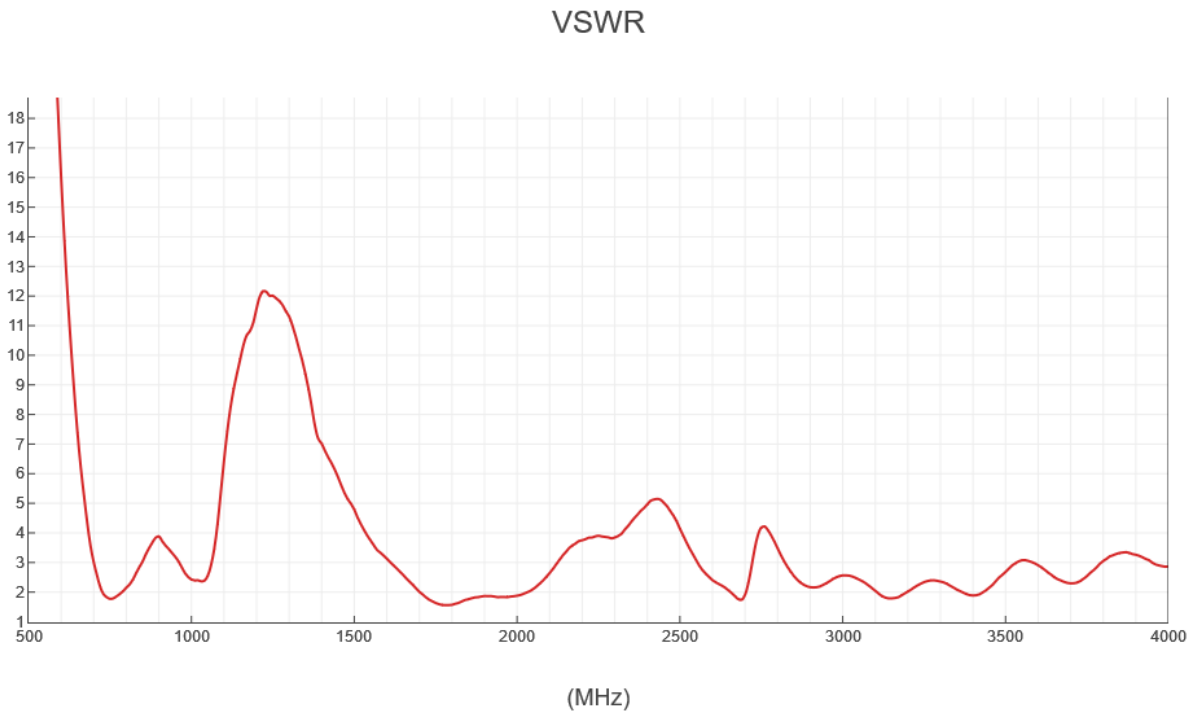
EVB Mechanical Specifications	
EVB Size	140 × 36 × 0.8 mm
Material	FR4
Connector Type	SMA-K
Weight	Typ. 14.5g
Working Temperature	-40 °C to +85 °C
Mounting Type	Screw

4 Overall Performance

4.1. Test Environment

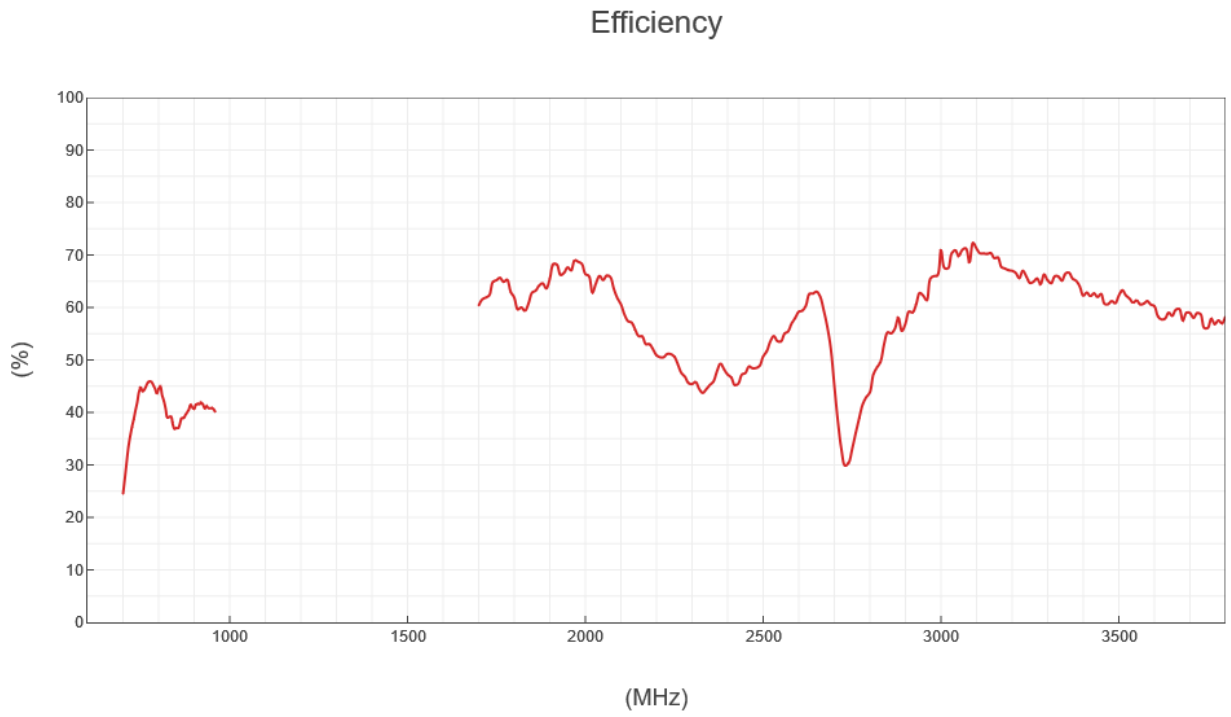
- KEYSIGHT ENA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 600 MHz – 8.5 GHz

4.2. VSWR



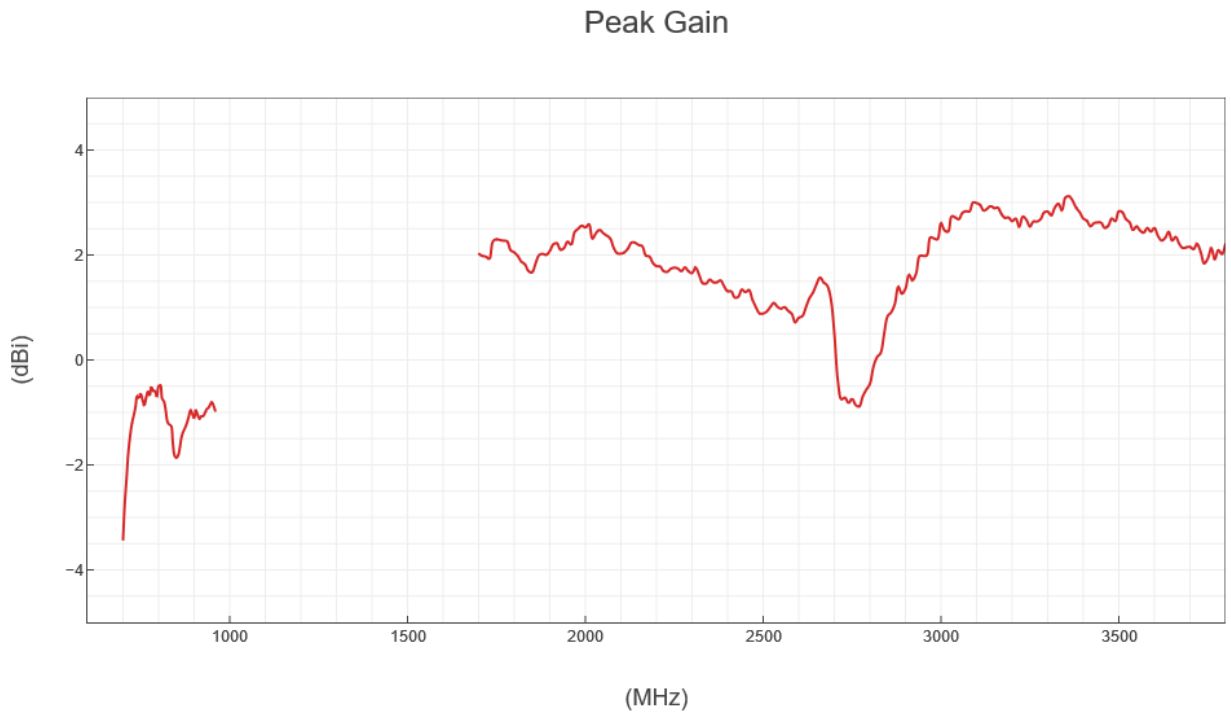
Frequency (MHz)	698	830	960	1710	1950	2170	2300	2690	3500	3800
VSWR	3.05	2.64	3.03	1.91	1.83	3.54	3.88	1.73	2.69	3.03

4.3. Efficiency



Frequency (MHz)	698	830	960	1710	1950	2170	2300	2690	3500	3800
Efficiency (%)	24.4	39.1	40.1	61.5	67.6	53.1	45.4	52.2	62.3	58.3

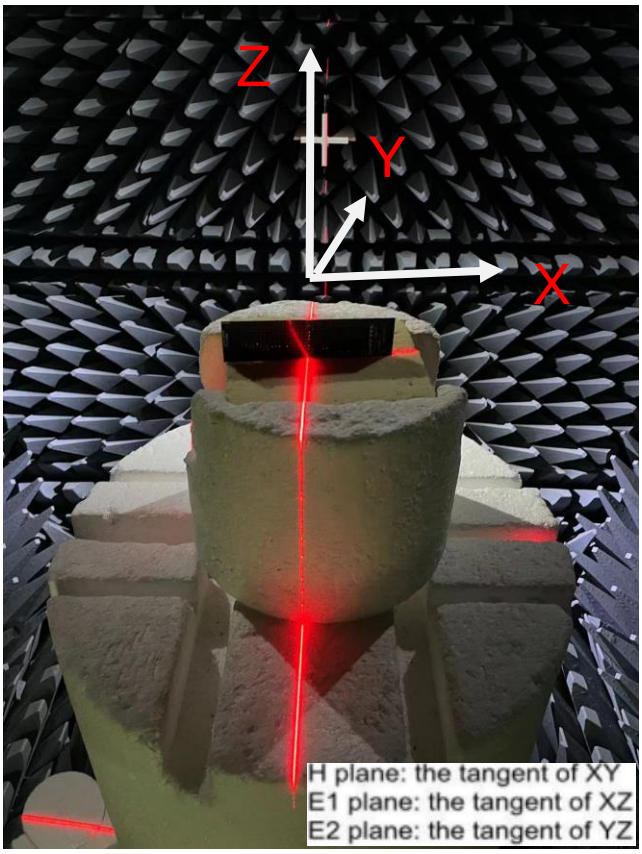
4.4. Gain



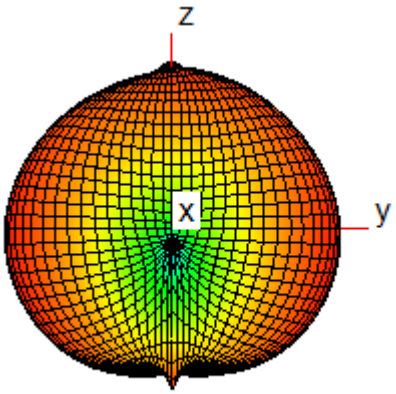
Frequency (MHz)	698	830	960	1710	1950	2170	2300	2690	3500	3800
Gain (dBi)	-3.42	-1.23	-0.99	1.98	2.25	1.98	1.65	1.17	2.83	2.22

4.5. Radiation Pattern

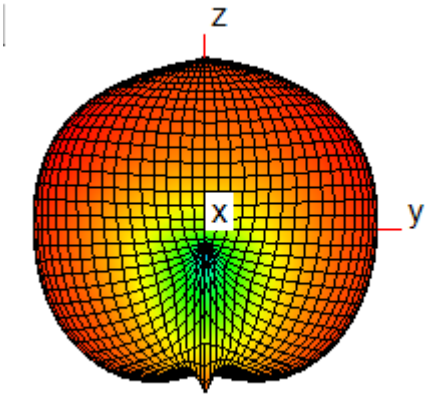
- Test condition: free space.



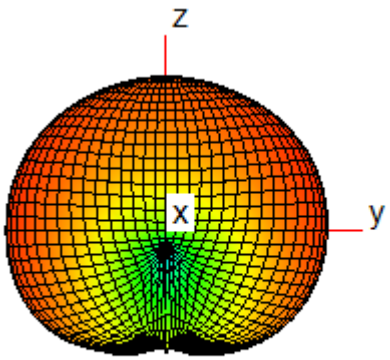
700 MHz



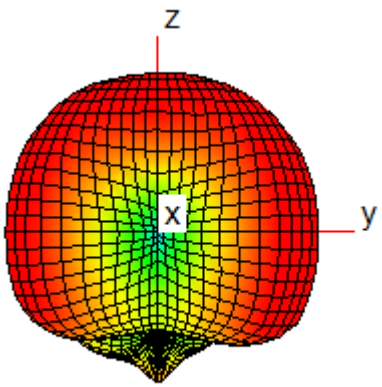
830 MHz



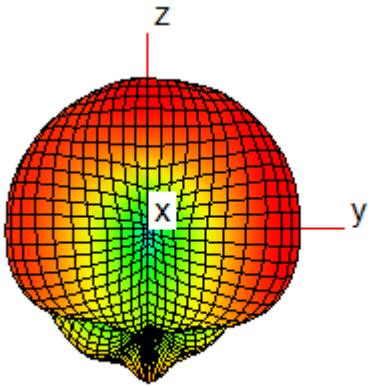
960 MHz



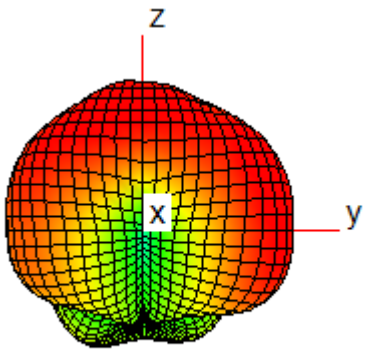
1710 MHz



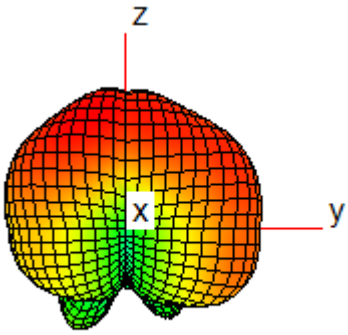
1950 MHz



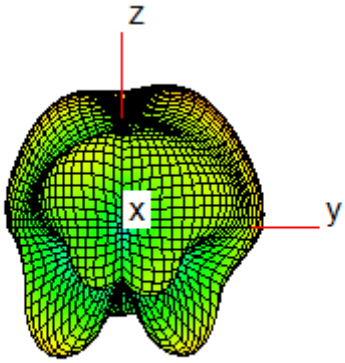
2170 MHz



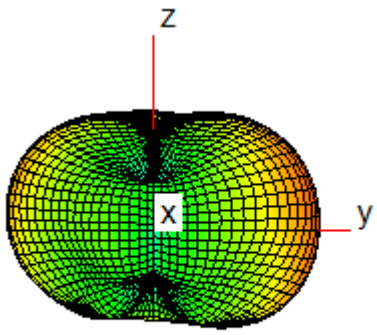
2300 MHz



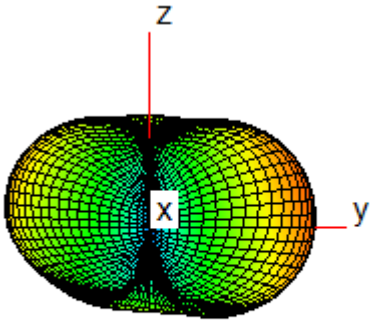
2690 MHz



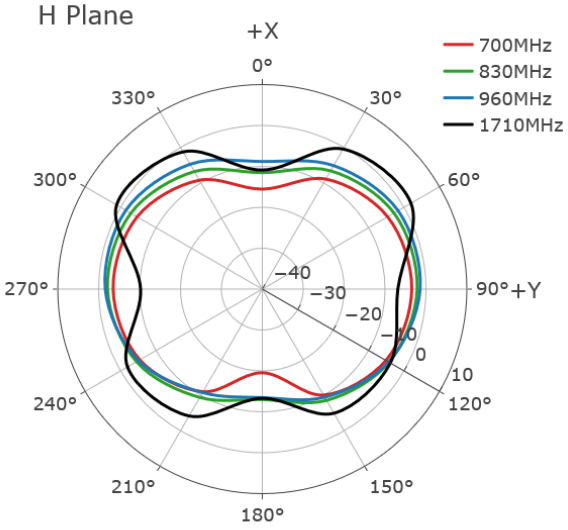
3500 MHz



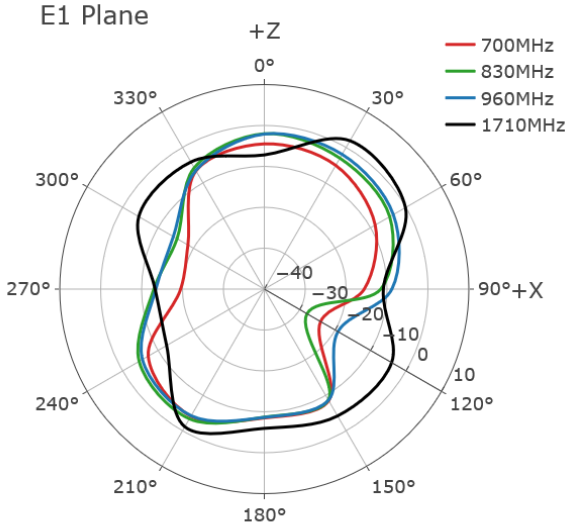
3800 MHz



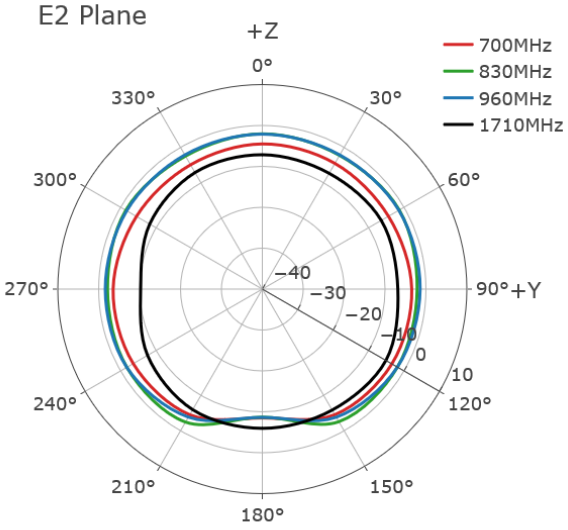
H Plane



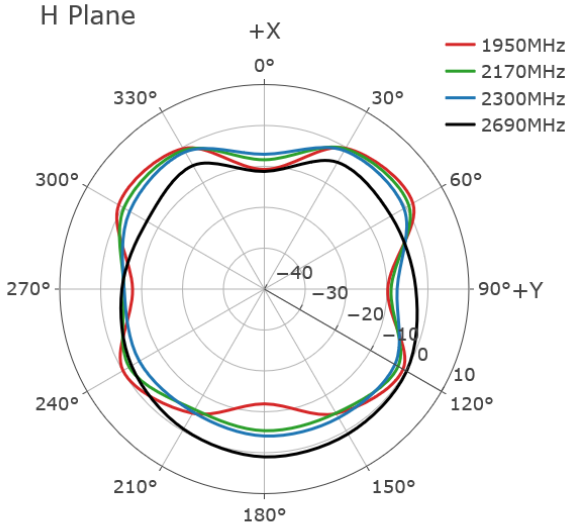
E1 Plane



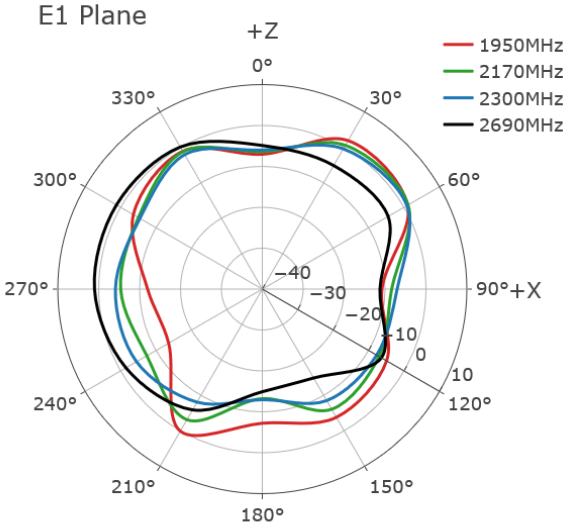
E2 Plane



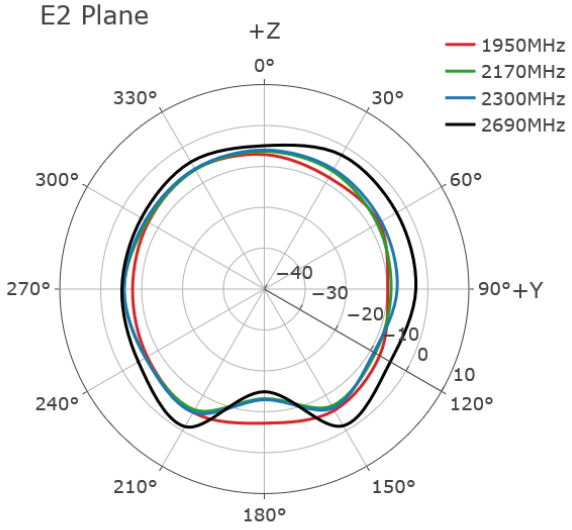
H Plane



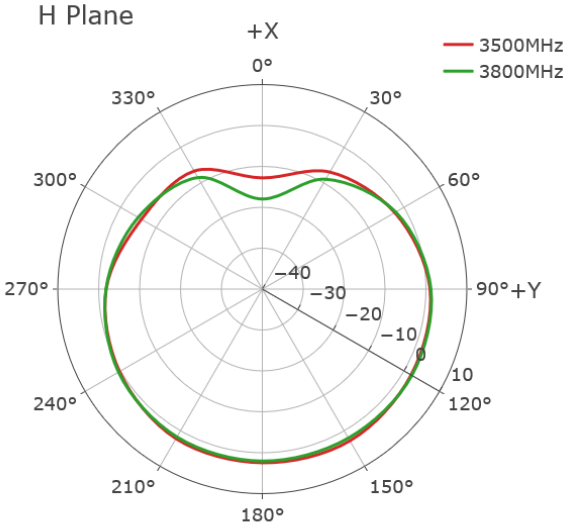
E1 Plane



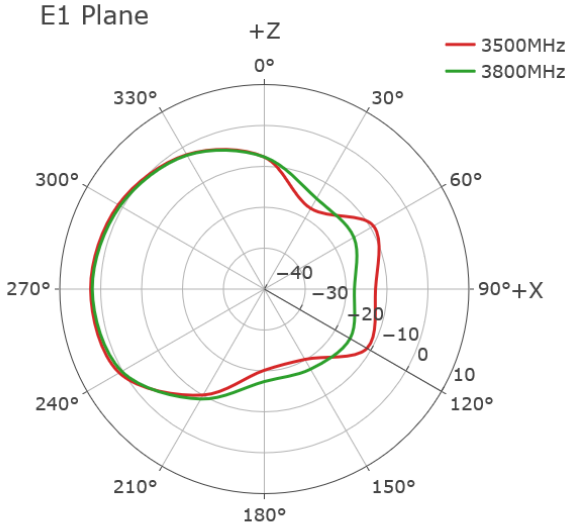
E2 Plane



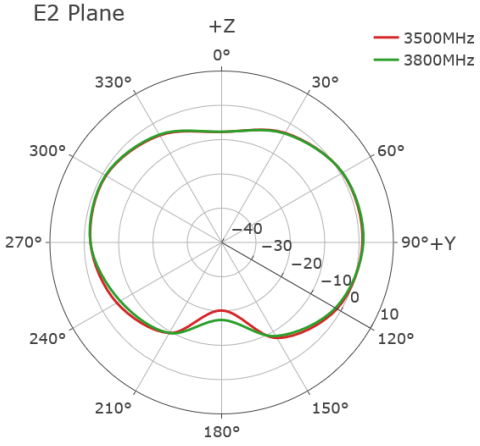
H Plane



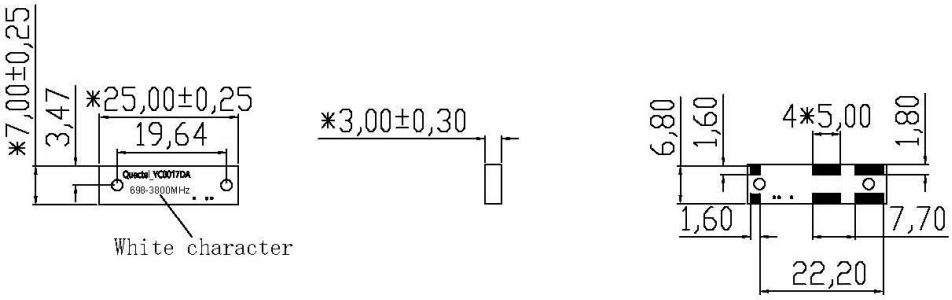
E1 Plane



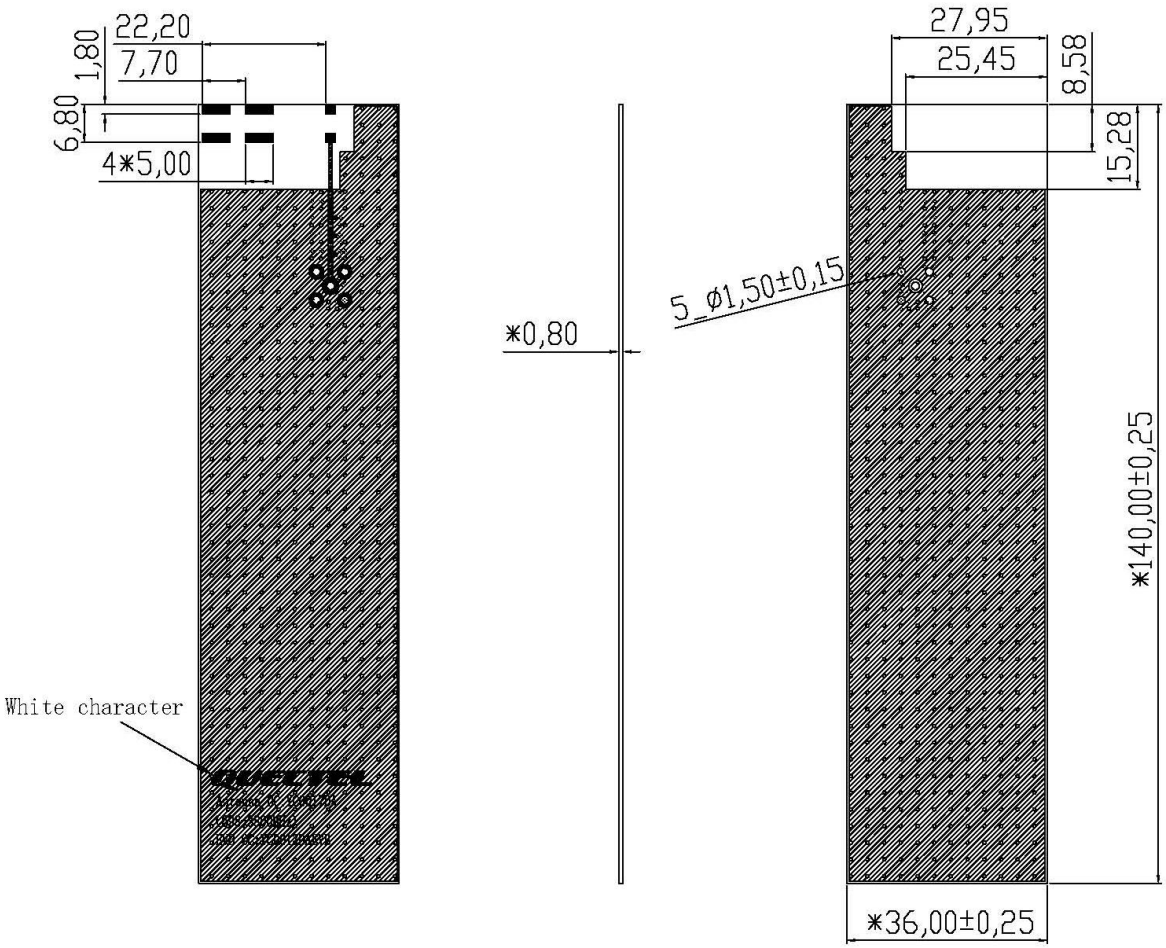
E2 Plane

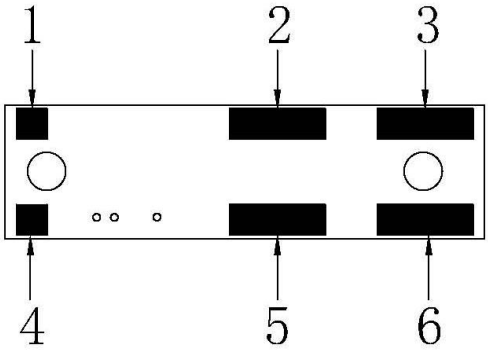


5 Product Size



ROHS



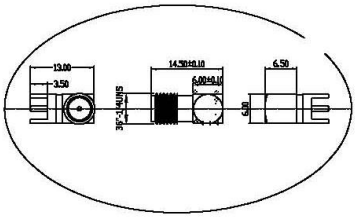


Front:Perspective View

PAD NO.	Description
1	Not used(mechanical only)
2	Not used(mechanical only)
3	Not used(mechanical only)
4	FEED
5	Not used(mechanical only)
6	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 Inductor(0402)	Ceramics	MURATA	1	
5	10 nH Inductor(0402)	Ceramics	MURATA	1	LQG15HS10NJ02
6	2.4 pF Inductor(0402)	Ceramics	MURATA	1	GCM1555C1H2R4BA16
7	1.5 nH Inductor(0402)	Ceramics	MURATA	1	LQG15HS1N5S02



ROHS