

# Antenna

# YC0003AA Datasheet

## Antenna Services

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Status: Released



**Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:**

**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](mailto:info@quectel.com)

**Or our local office. For more information, please visit:**

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# About the Document

## Revision History

Version	Date	Author	Note
1.0	2020-06-23	Kenny YIN	Initial
2.0	2020-08-28	Kenny YIN	Updated the specifications.
2.1	2020-12-11	Kenny YIN	Updated the antenna image in Chapter 2.

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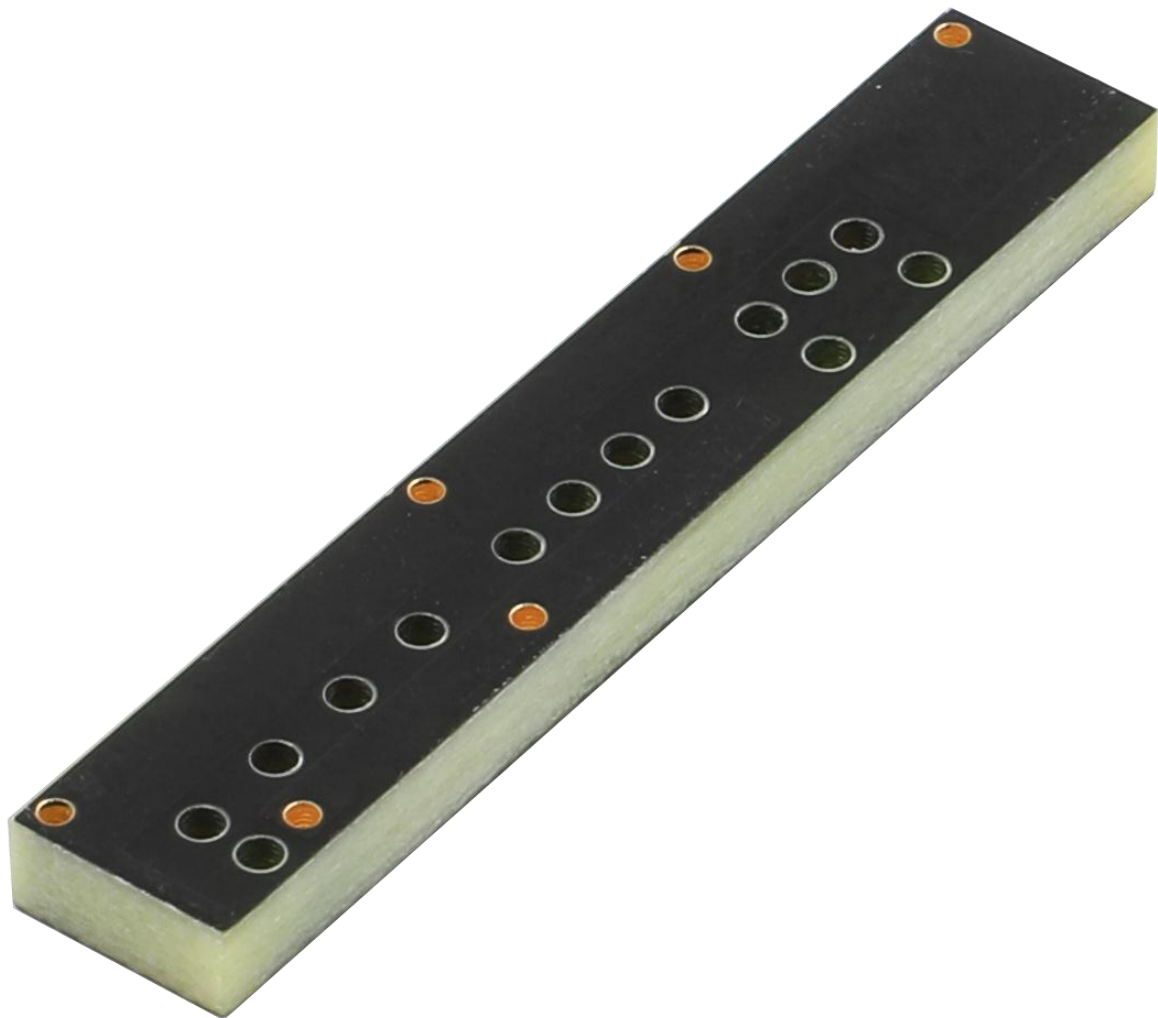
## 1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless applications.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

## 2 Product Features

- LTE
- High efficiency
- Excellent performance



### 3 Product Specifications

#### Passive Electrical Specifications

Frequency Range (MHz)	698–960 MHz, 1695 – 2200 MHz, 2300–2700 MHz
Input Impedance ( $\Omega$ )	50
VSWR	< 3
Gain (dBi)	< 5.5
Polarization Type	Linear

#### Mechanical Specifications

Antenna Size (mm)	40 (L) × 7 (W) × 3 (H)
carrier	FR4
Radiator	Cuprum
Connect Type	SMD
Working Temperature (°C)	-40 to +85
Radome Color	Black

## 4 Overall Performance

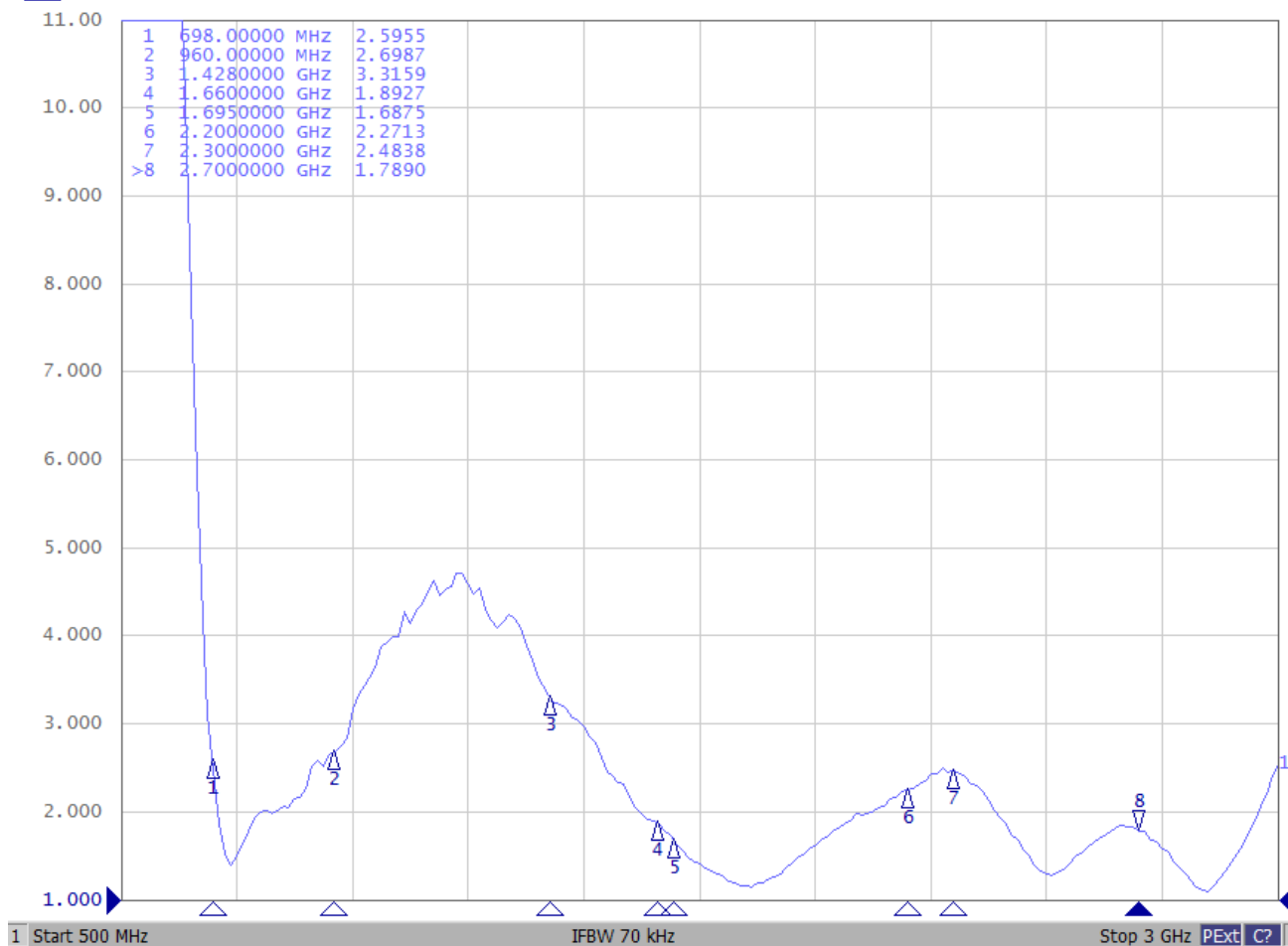
- Test Environment
  - KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 6.5 GHz.
  - RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 6.0 GHz.





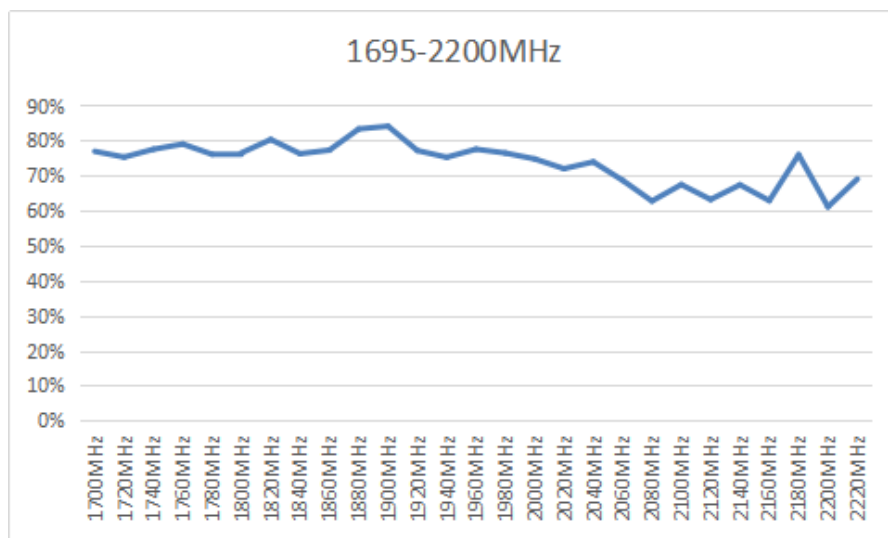
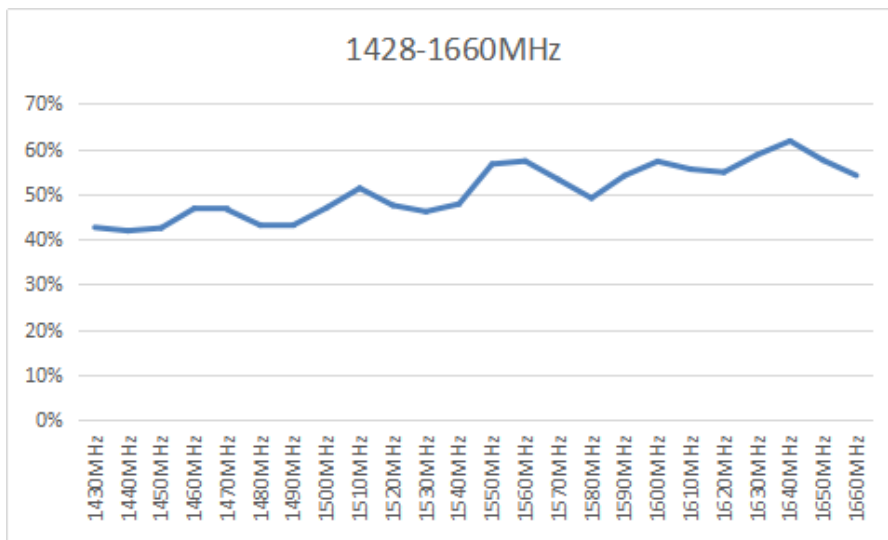
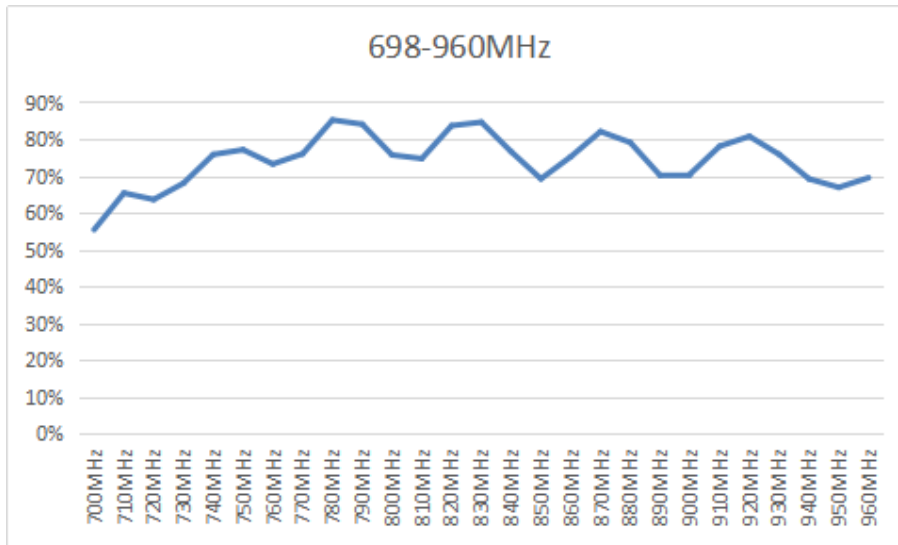
● VSWR

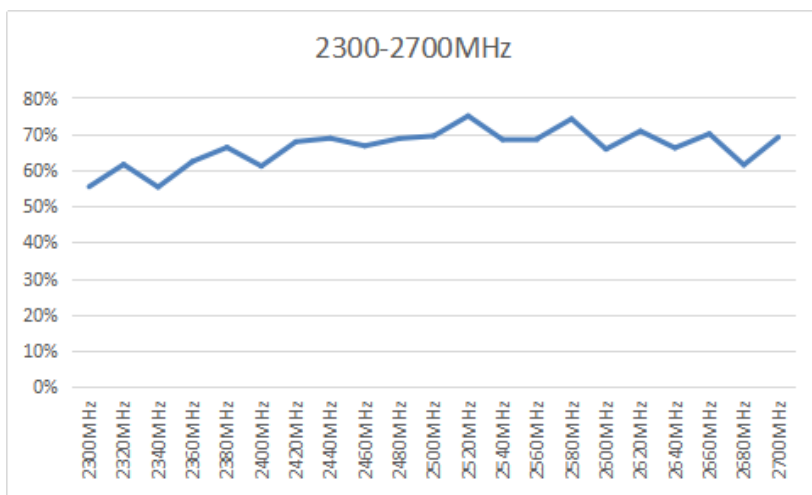
▶ **S11** SWR 1.000/ Ref 1.000 [F1 M]



Frequency (MHz)	698	960	1428	1660	1695	2200	2300	2700
VSWR	2.5	2.6	3.3	1.8	1.6	2.2	2.4	1.7

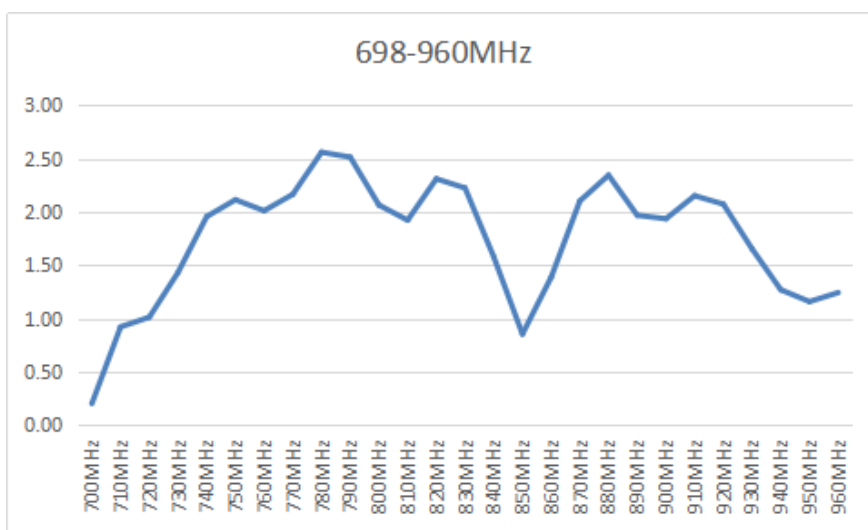
● Efficiency

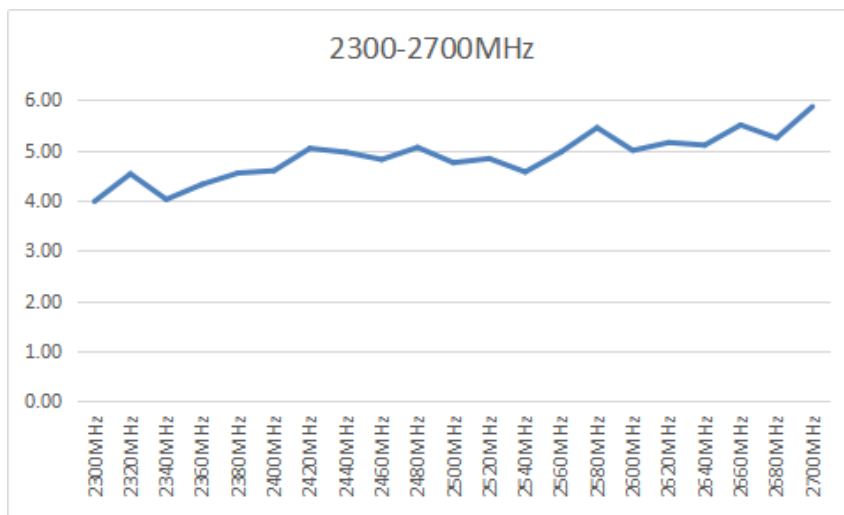
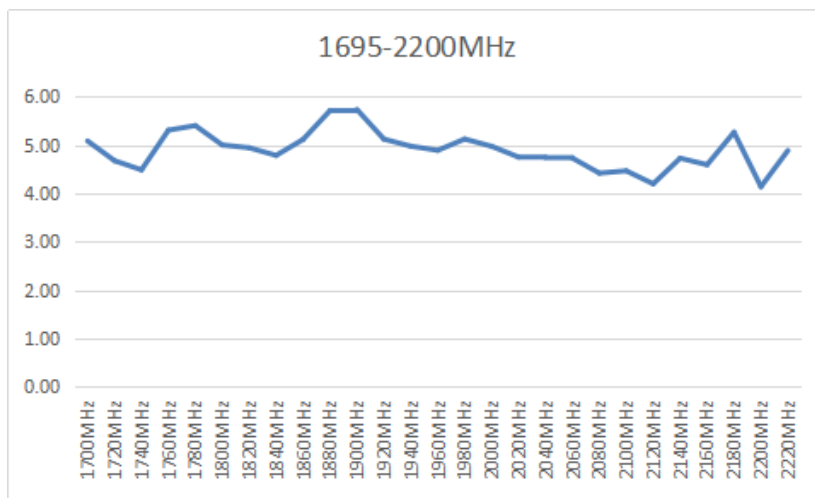
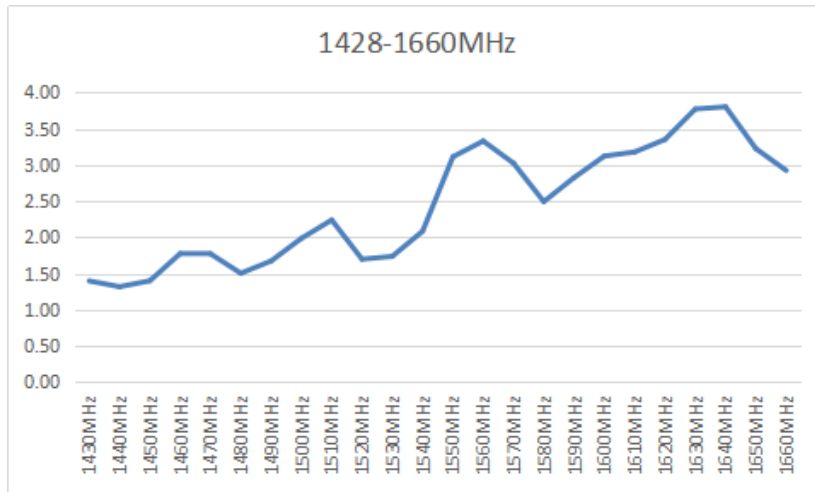




<b>Frequency (MHz)</b>	698	960	1428	1660	1695	2200	2300	2700
<b>Efficiency (%)</b>	55%	69%	43%	54%	77%	69%	55%	69%

- Gain

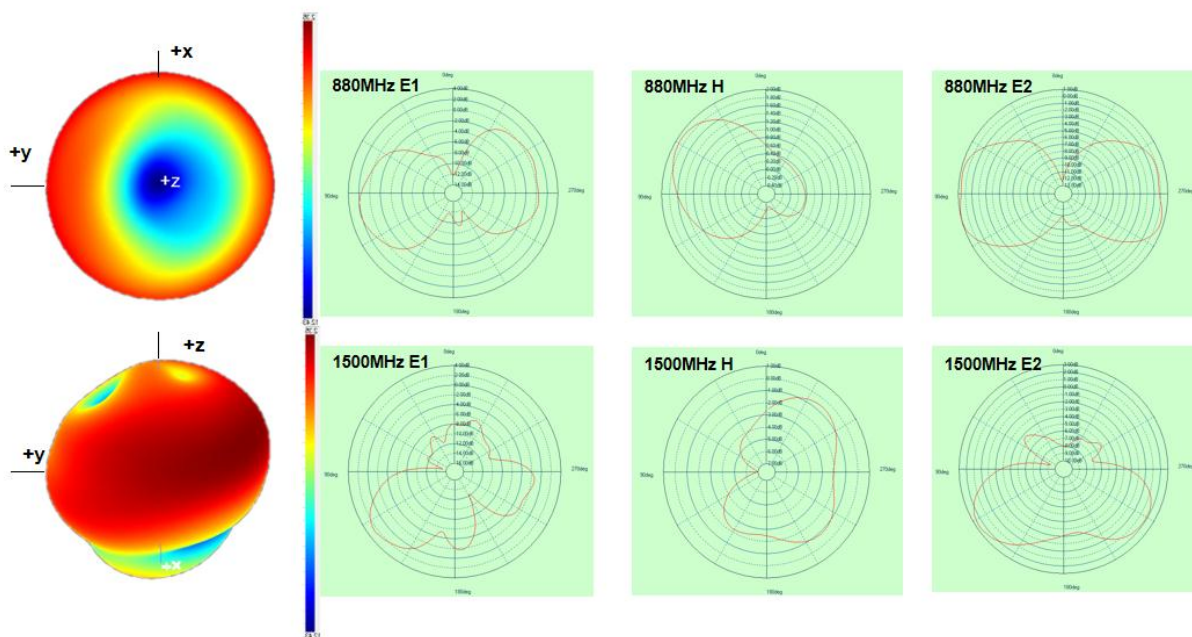
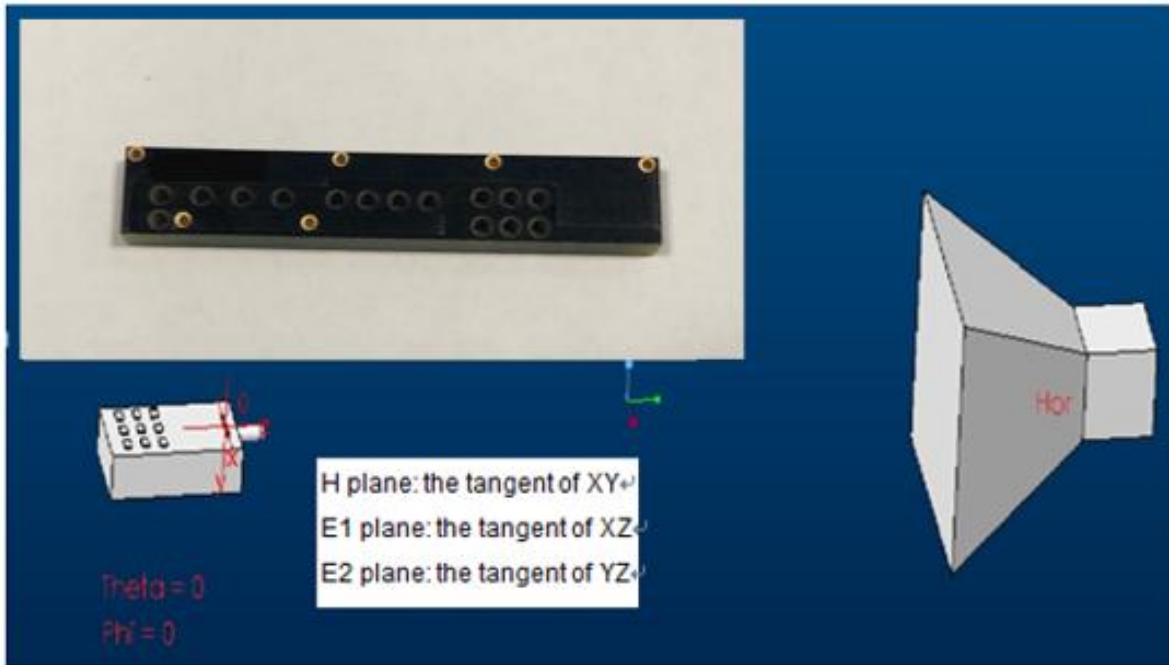


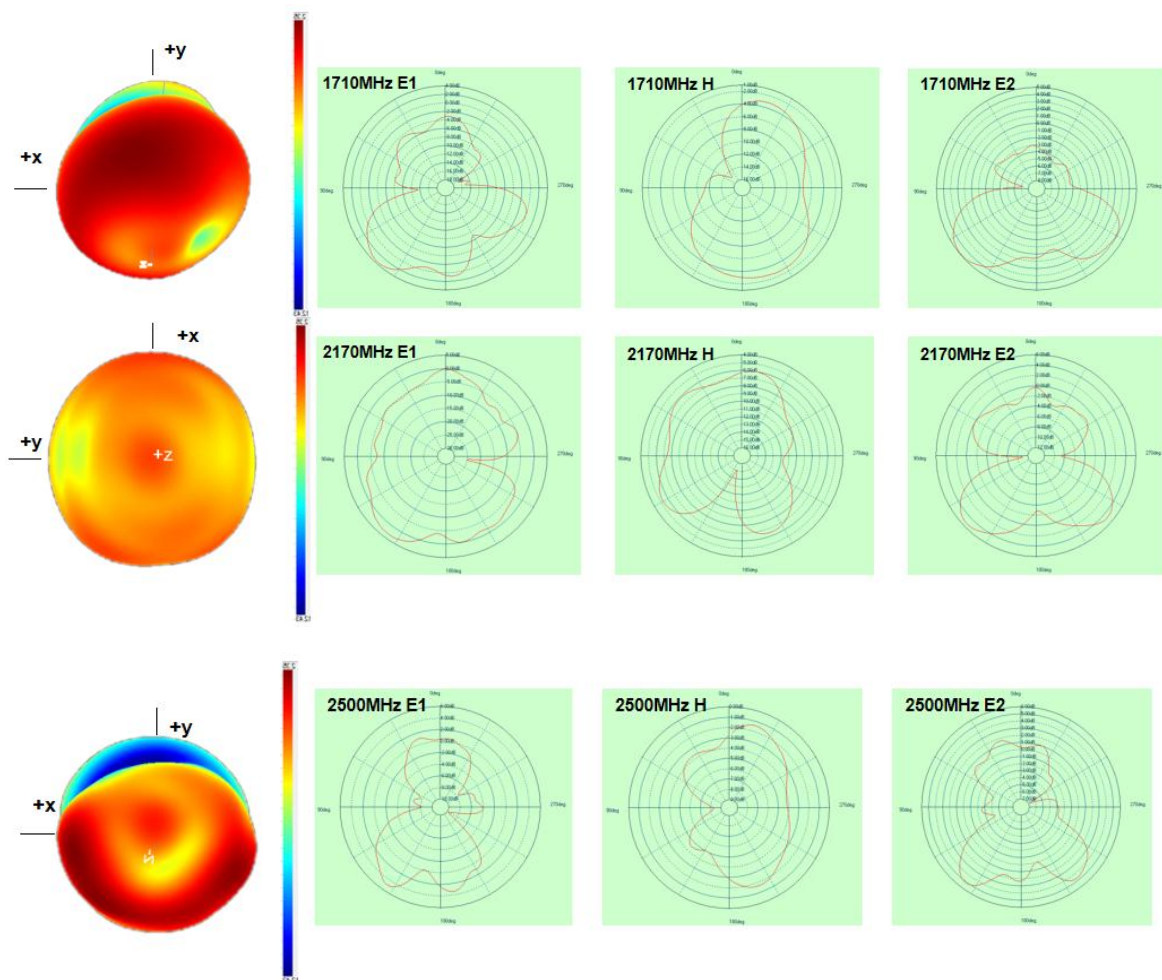


<b>Frequency (MHz)</b>	698	960	1428	1660	1695	2200	2300	2700
<b>Gain (dB)</b>	0.20	1.24	1.40	2.92	5.09	4.89	3.98	5.87

- Radiation Patterns

Board length 135 mm





- Schematic symbol and Pin definition

The pin assignment for the antenna are as follows. The antenna has 4 pins and only two work. All other pins are designed for mechanical strength.



Pin No.	Description
1	Feed
2	Return/GND
3、4	Not used (Mechanical only)

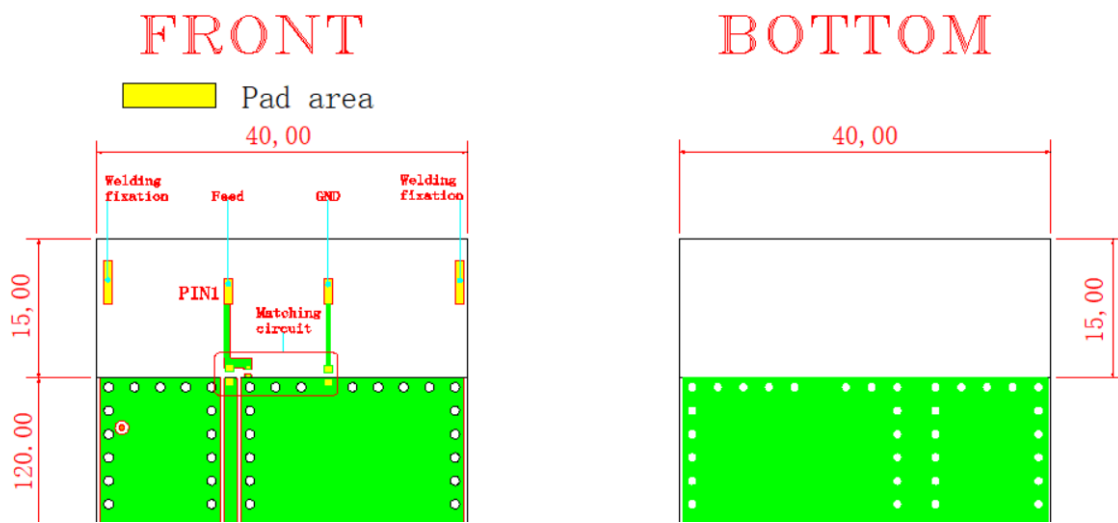
- Transmission Line

The characteristic impedance of all transmission lines shall be designed as 50 Ω.

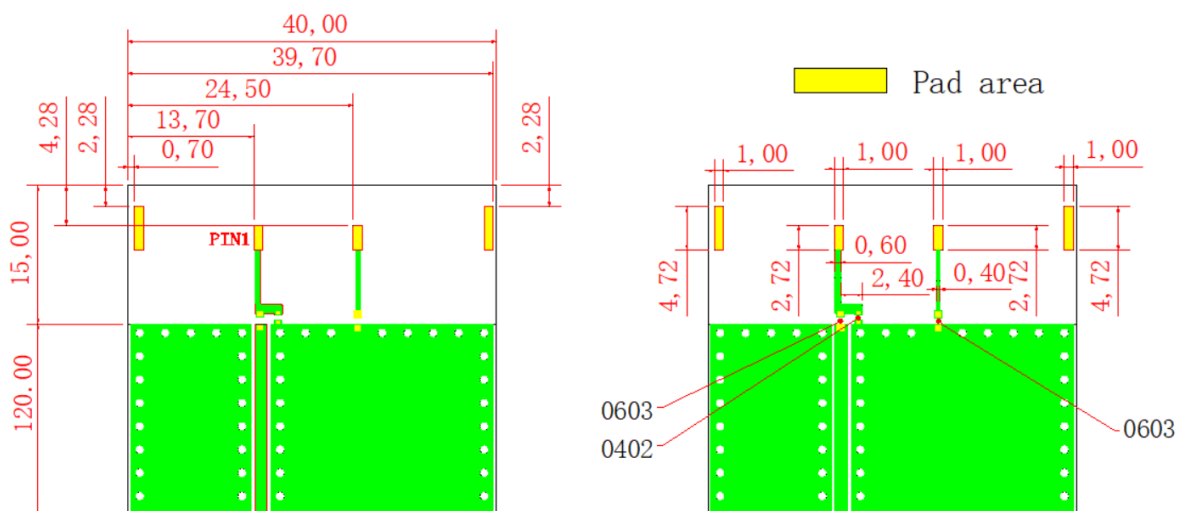
- The length of the transmission lines should be kept to as short as possible
- Any other part of the RF system, such as transceiver, power amplifiers, etc., shall also be designed with an impedance of 50 Ω

- Recommend PCB Layout : (Unit: mm)

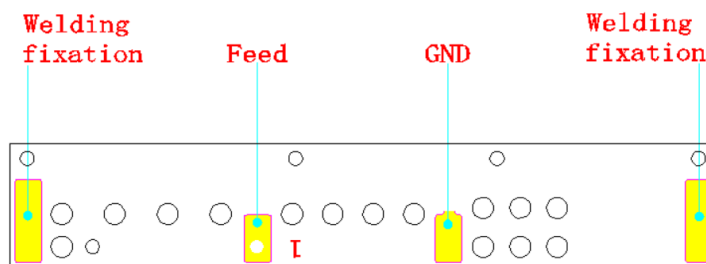
TEST PCB SIZE:135 × 40, PCB clearance area:15 × 40



Layout front Details

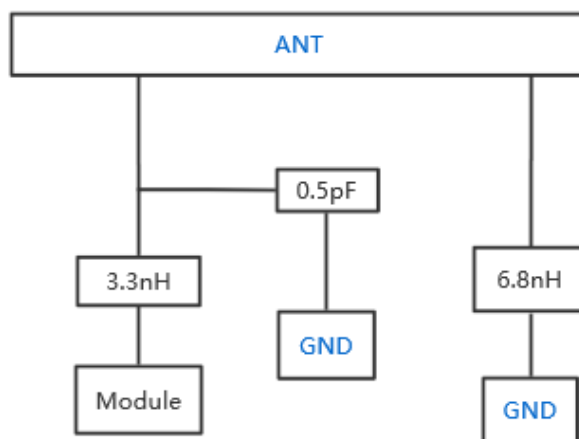


Antenna pad



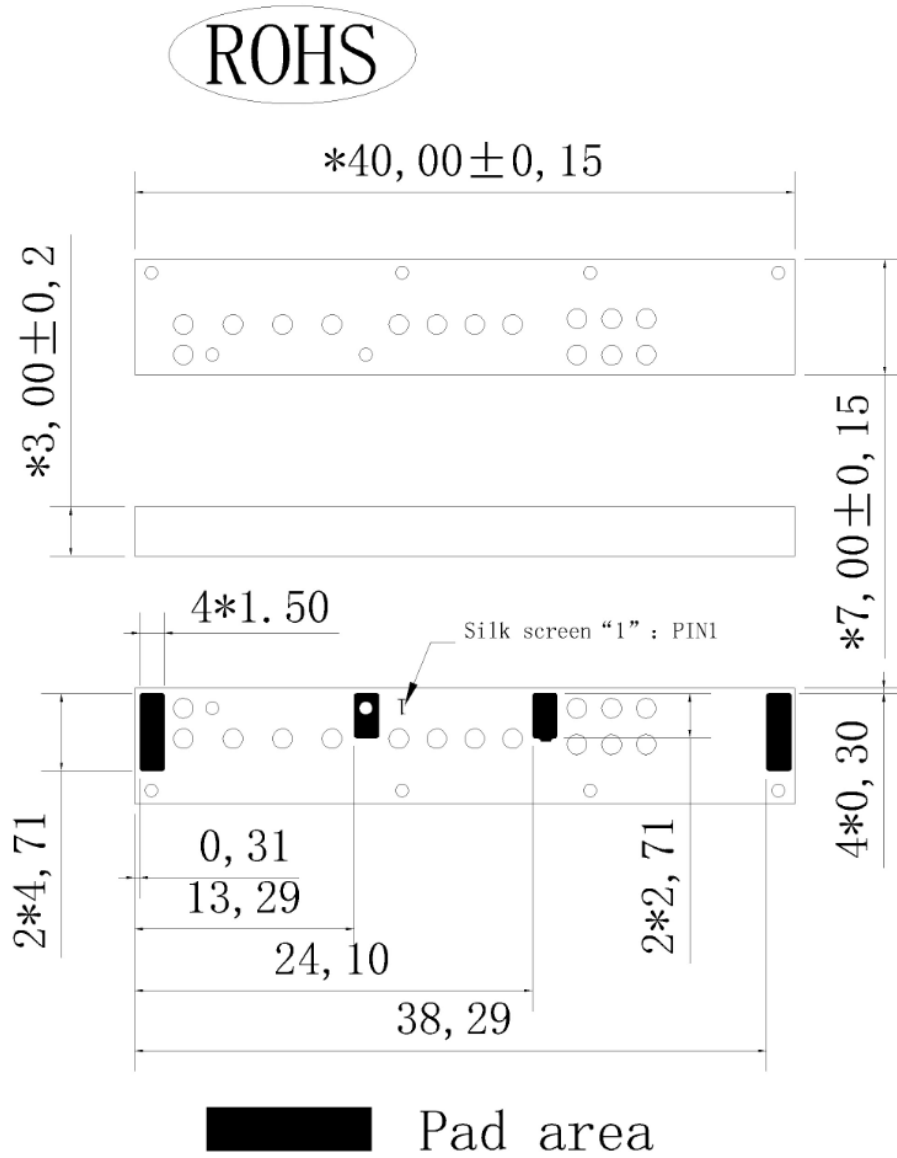
Front: Perspective view

- Matching circuit





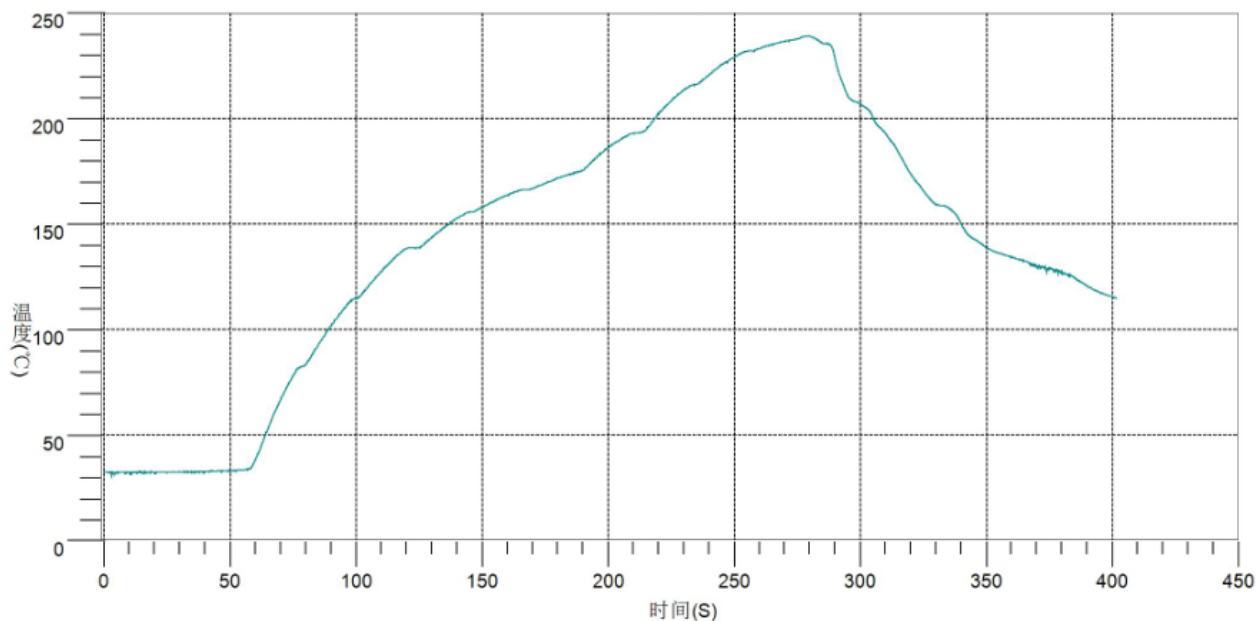
## 5 Product Size



## 6 Soldering Temperature

Phase	Profile Features	PB-Free Assembly
RAMP-UP	Avg.Ramp-up Rate(Tsmax to Tp)	3 °C/second (max.)
PREHEAT	Temperature Min (Tsmin)	150 °C
	Temperature Max (Tsmax)	190 °C
	Time(tsmin to tsmax)	110 seconds max.
REFLOW	Temperature(TL)	220 °C
	Total Time above TL (tl)	90 seconds max.
PEAK	Temperature (Tp)	230–250 °C
RAMP-DOWN	Rate	-1 °C/second max.

## 7 Reflow Profile



No	Probe name	150-190°C		>220°C	peak temperature°C
		60-110s	slope 0.0-3.0	40-90s	230-250°C
No.1	J1	67.9	0.59	52.4	239

furnace parameter	1	2	3	4	5	6	7	8	9	10	11	12
Up Temperature zone	175.0	185.0	185.0	185.0	190.0	195.0	230.0	275.0	275.0	275.0		
Down Temperature zone	175.0	185.0	185.0	185.0	190.0	195.0	230.0	275.0	275.0	275.0		
Temperature zone length	0	0	0	0	0	0	0	0	0	0	0	0