Antenna

YC0003AA Datasheet

Antenna Services

Version: 2.1

Date: 2020-12-11

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

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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.

Contents

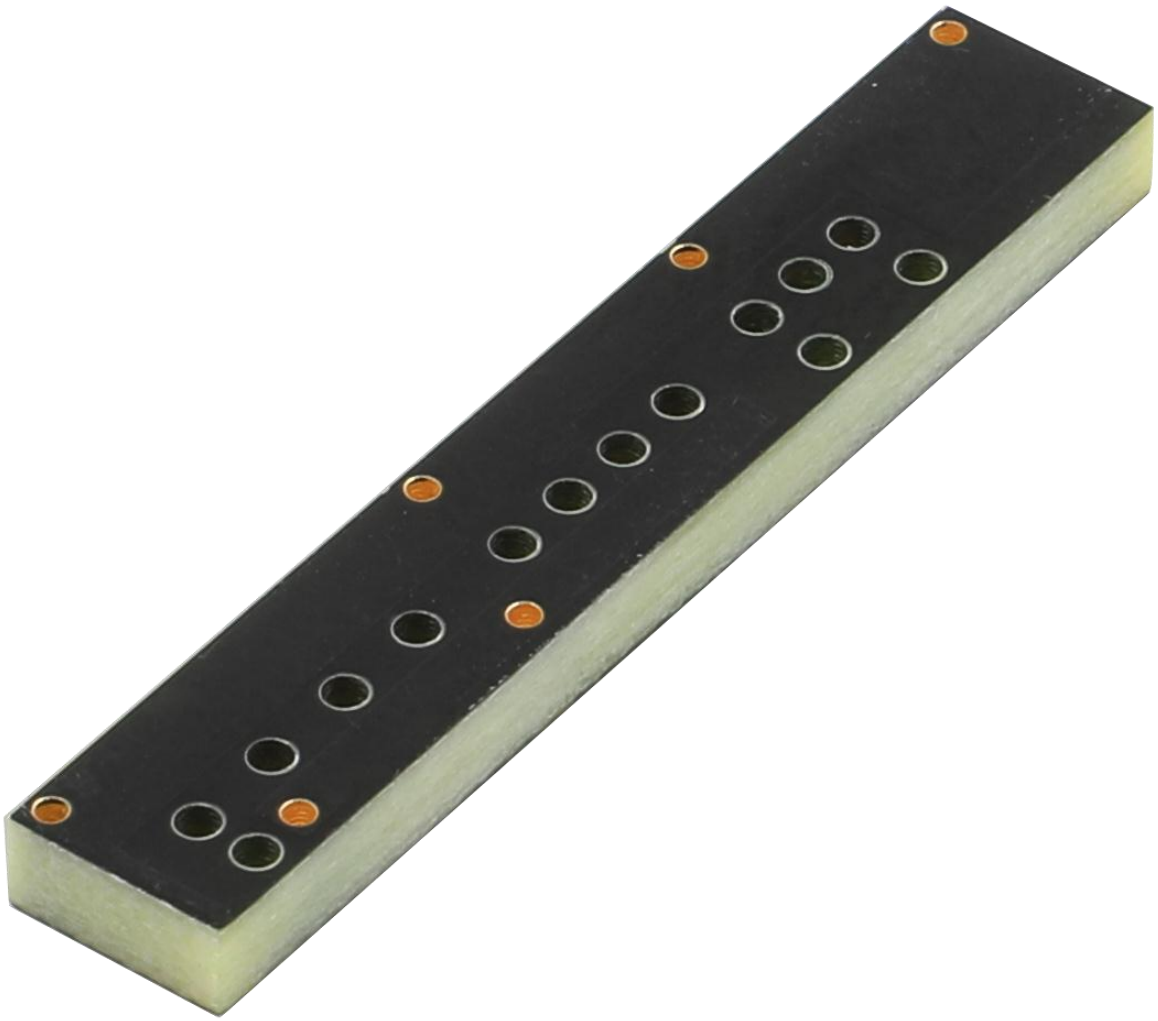
1 Product Description

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



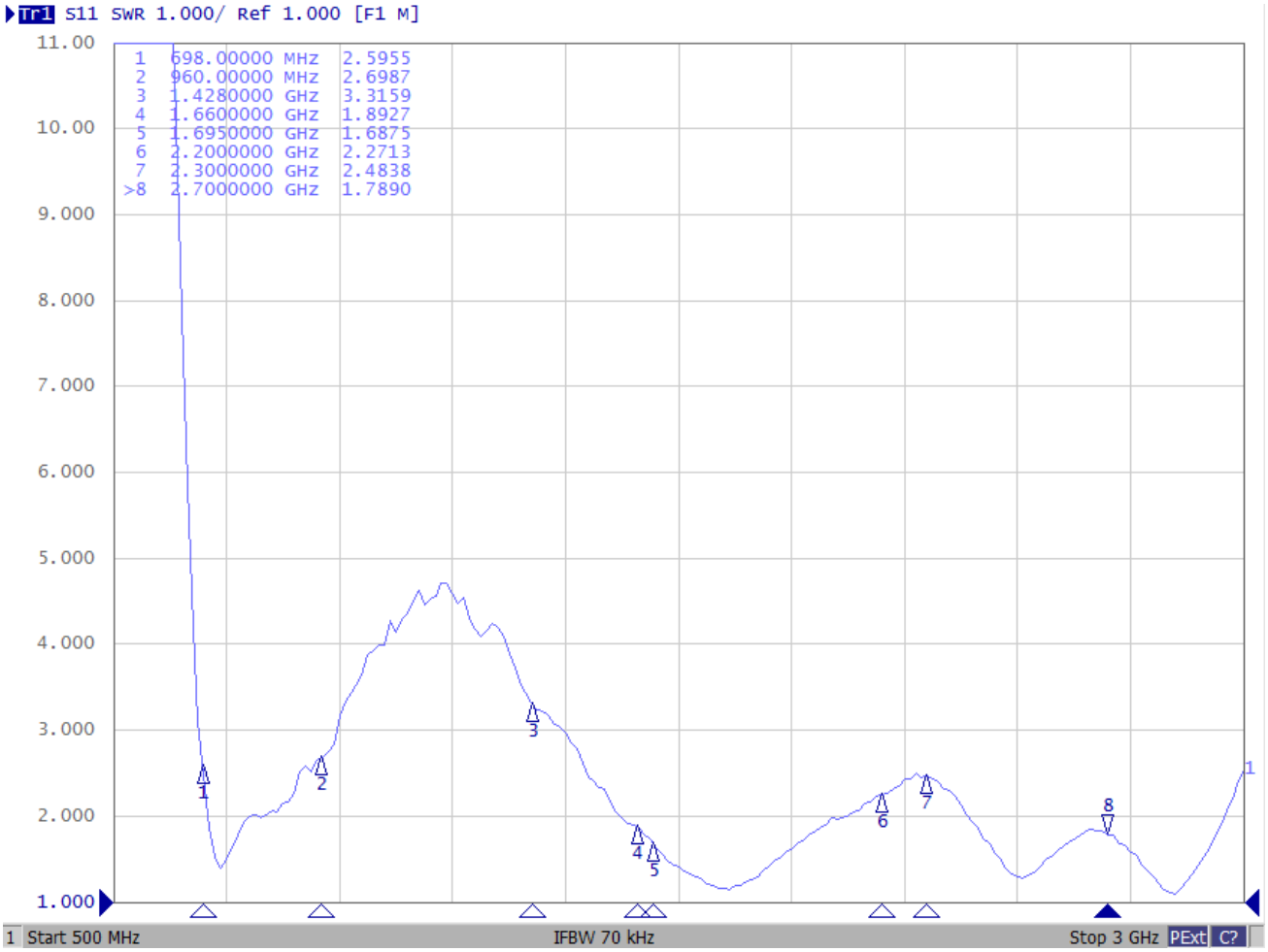
3 Product Specifications

Passive Electrical Specifications	
Frequency Range (MHz)	698–960 MHz, 1695 – 2200 MHz, 2300–2700 MHz
Input Impendence (Ω)	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

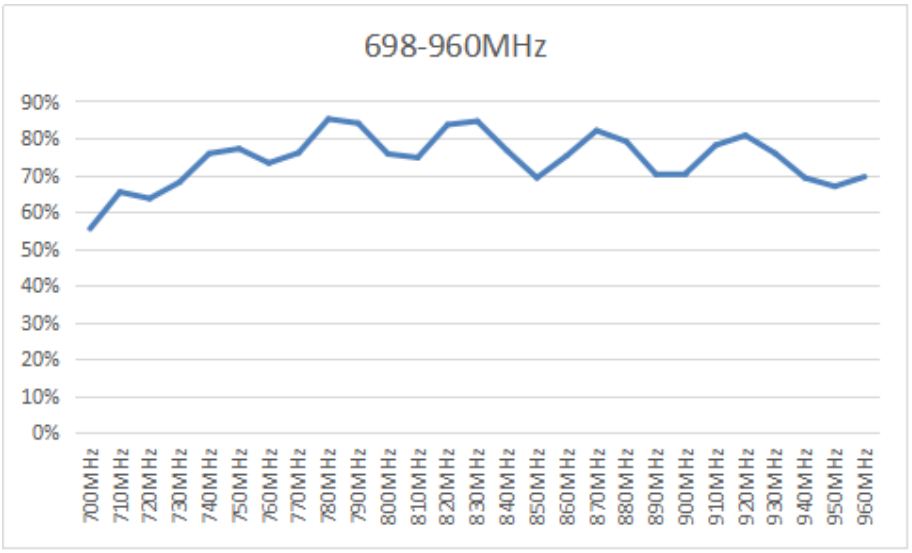
- Test Environment
  - KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 6.5 GHz.
  - RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 6.0 GHz.

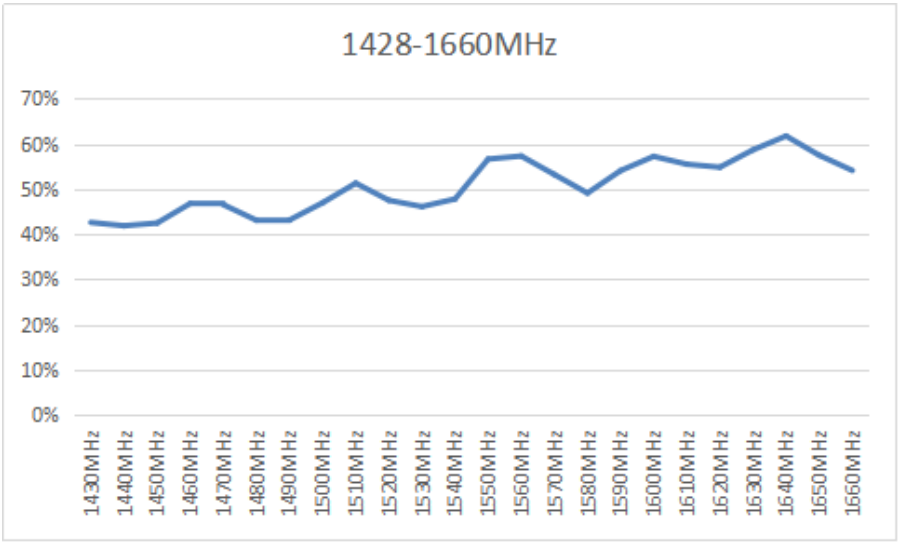
- VSWR

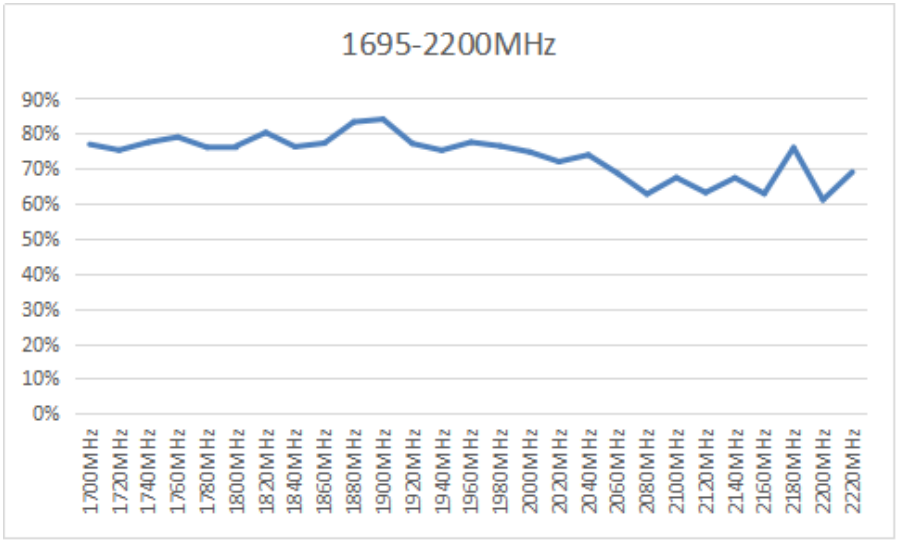


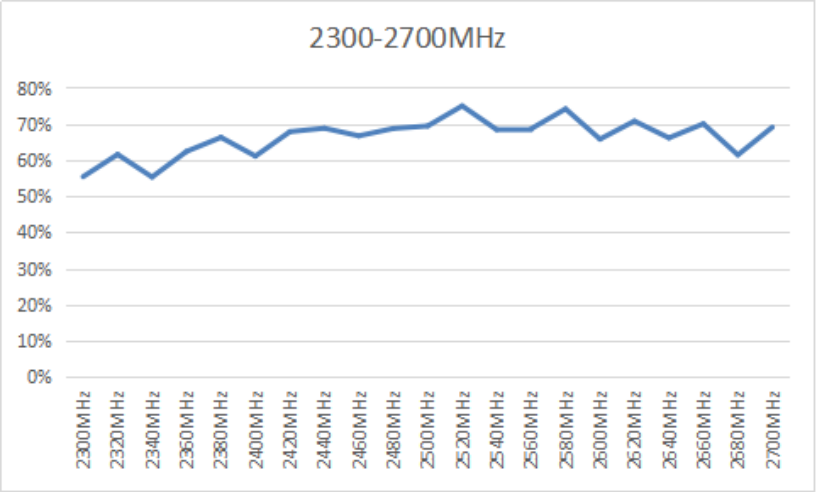
Frequency (MHz)	698	960	1428	1660	1695	2200	2300	2700
VSWR	2.5	2.6	3.3	1.8	1.6	2.2	2.4	1.7

- Efficiency


698-960MHz
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
700MHz
710MHz
720MHz
730MHz
740MHz
750MHz
760MHz
770MHz
780MHz
790MHz
800MHz
810MHz
820MHz
830MHz
840MHz
850MHz
860MHz
870MHz
880MHz
890MHz
900MHz
910MHz
920MHz
930MHz
940MHz
950MHz
960MHz

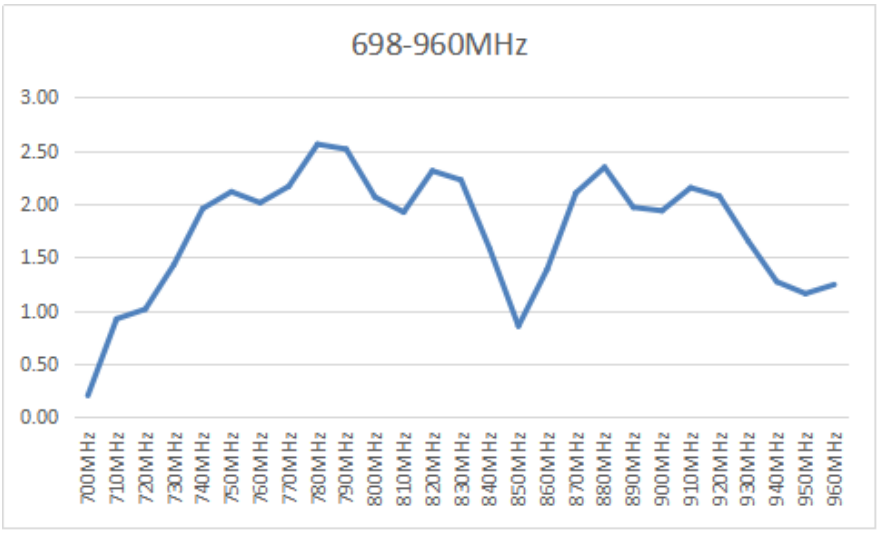

1428-1660MHz
70%
60%
50%
40%
30%
20%
10%
0%
1430MHz
1440MHz
1450MHz
1460MHz
1470MHz
1480MHz
1490MHz
1500MHz
1510MHz
1520MHz
1530MHz
1540MHz
1550MHz
1560MHz
1570MHz
1580MHz
1590MHz
1600MHz
1610MHz
1620MHz
1630MHz
1640MHz
1650MHz
1660MHz

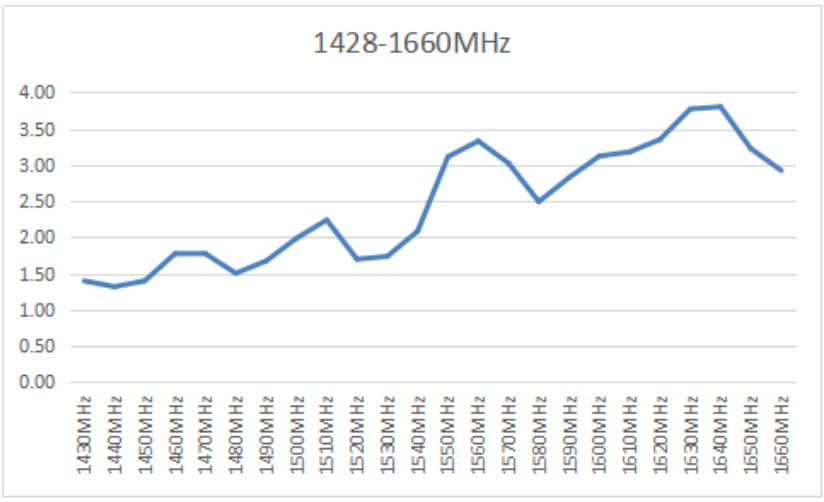

1695-2200MHz
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1700MHz
1720MHz
1740MHz
1760MHz
1780MHz
1800MHz
1820MHz
1840MHz
1860MHz
1880MHz
1900MHz
1920MHz
1940MHz
1960MHz
1980MHz
2000MHz
2020MHz
2040MHz
2060MHz
2080MHz
2100MHz
2120MHz
2140MHz
2160MHz
2180MHz
2200MHz
2220MHz

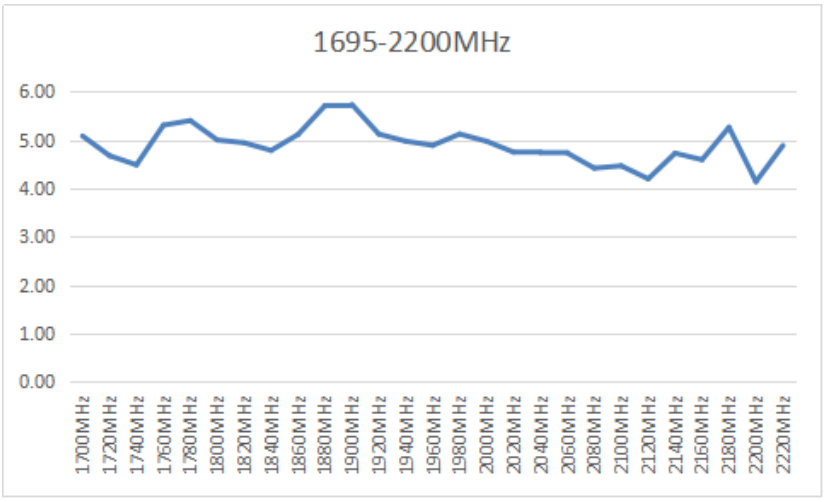


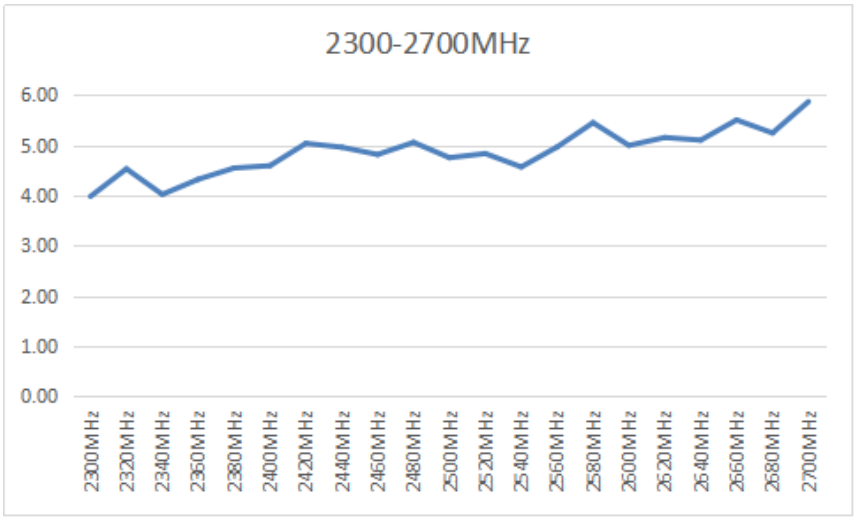
Frequency (MHz)	698	960	1428	1660	1695	2200	2300	2700
Efficiency (%)	55%	69%	43%	54%	77%	69%	55%	69%

- Gain





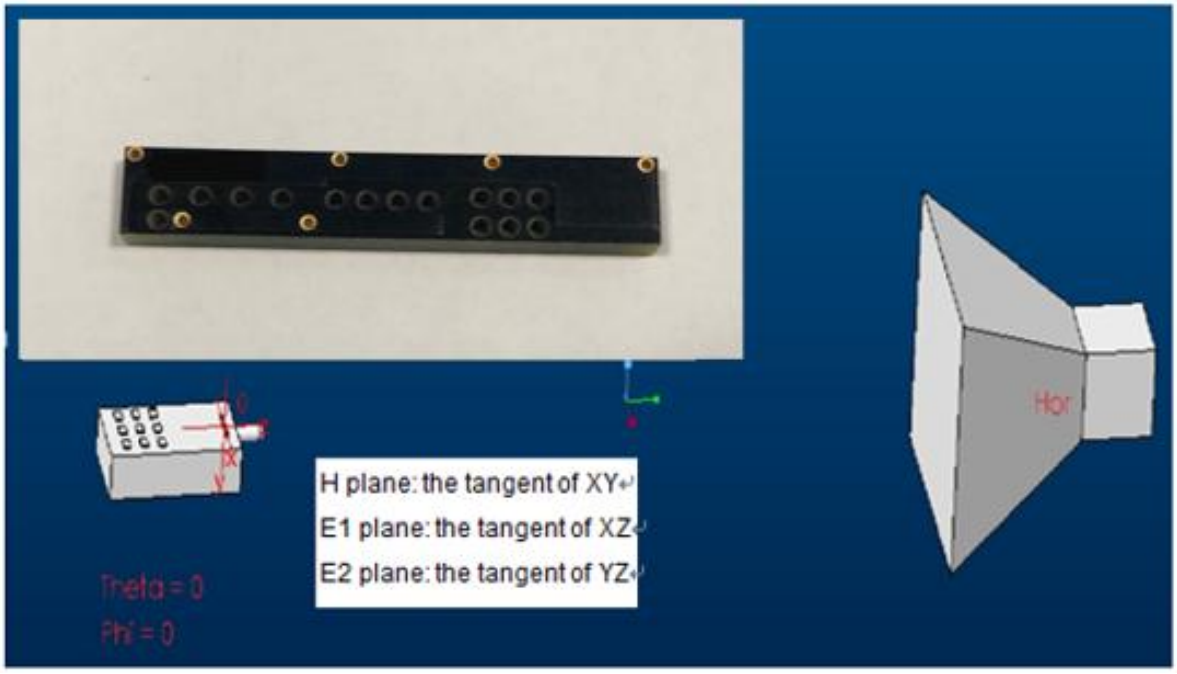


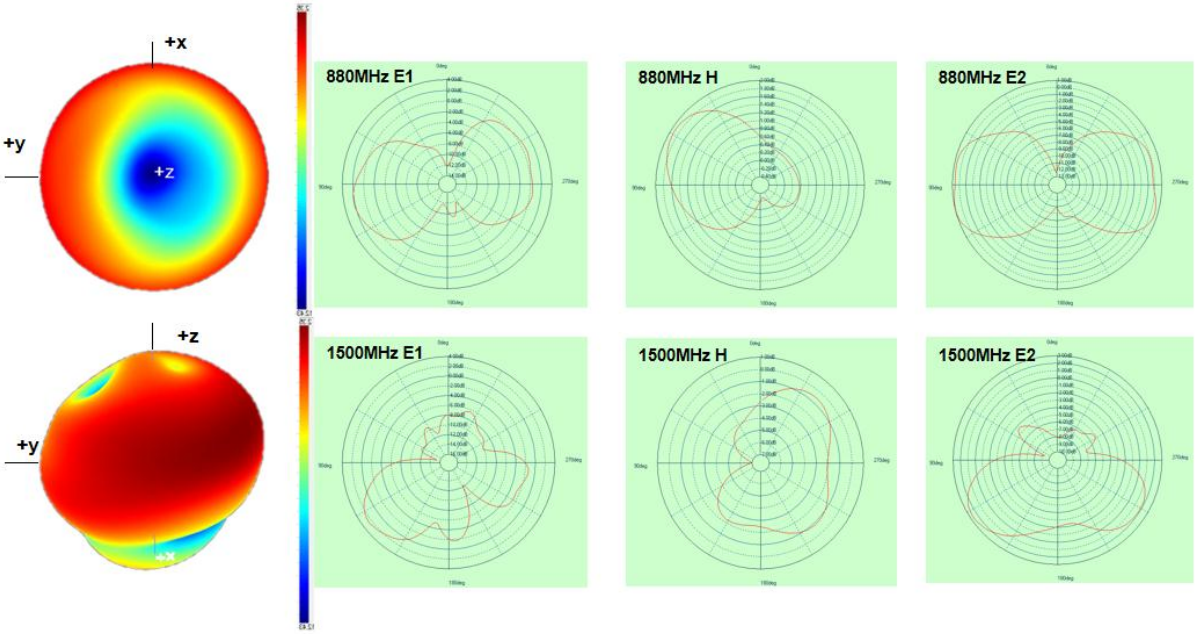


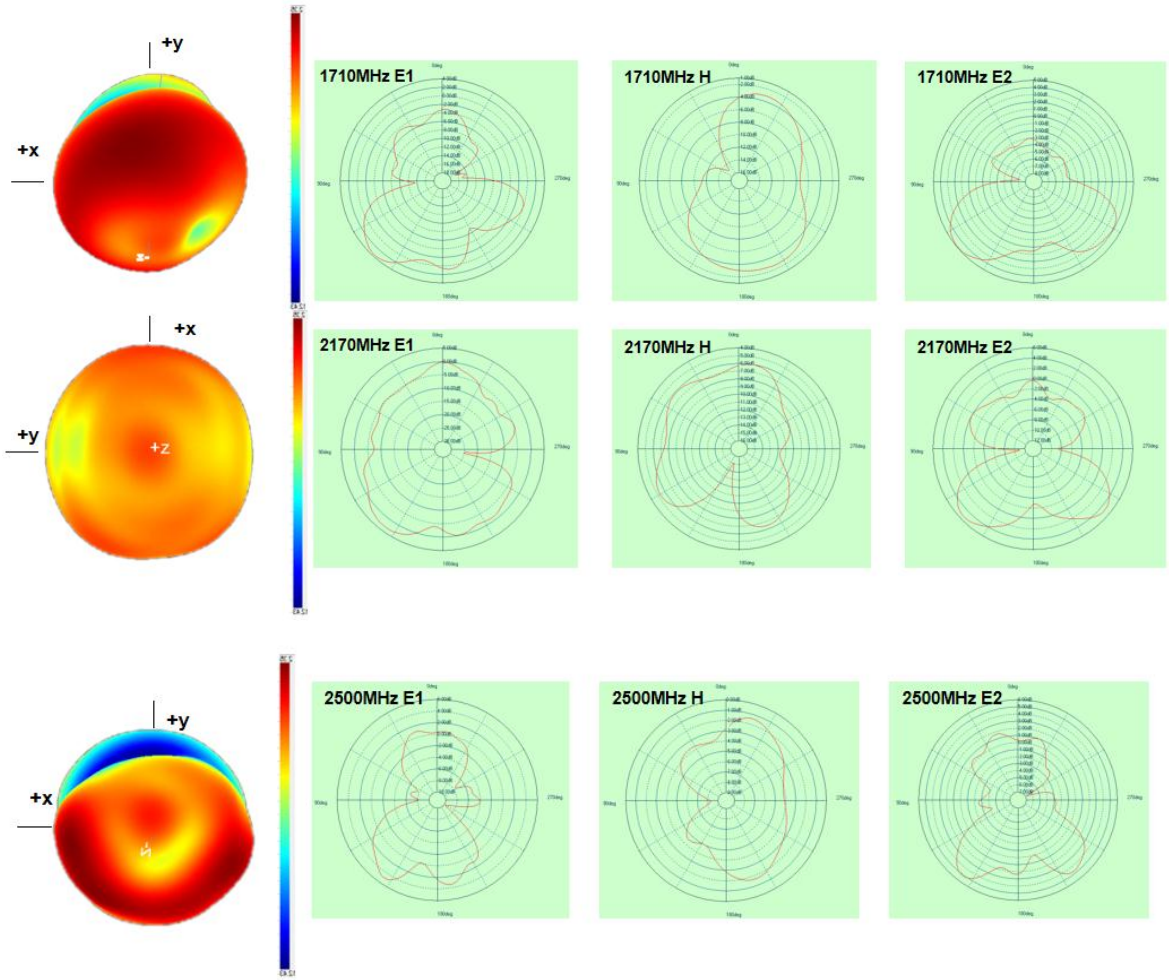
Frequency (MHz)	698	960	1428	1660	1695	2200	2300	2700
Gain (dB)	0.20	1.24	1.40	2.92	5.09	4.89	3.98	5.87

- Radiation Patterns

  Board length 135 mm

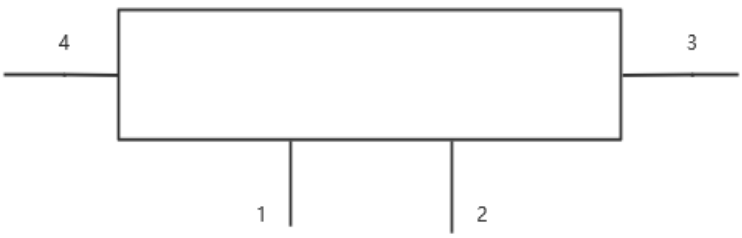






- Schematic symbol and Pin definition

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)

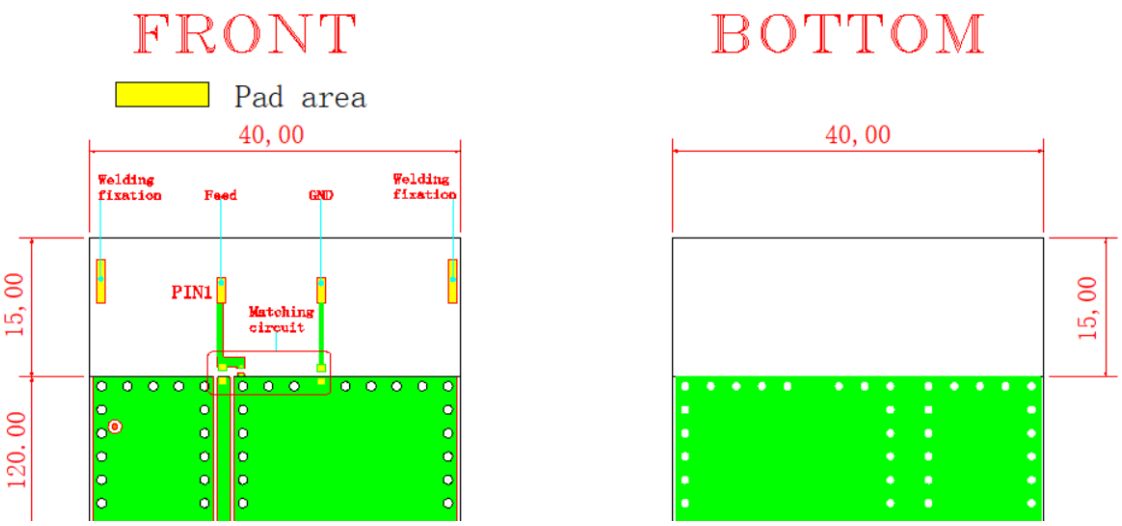
- Transmission Line

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

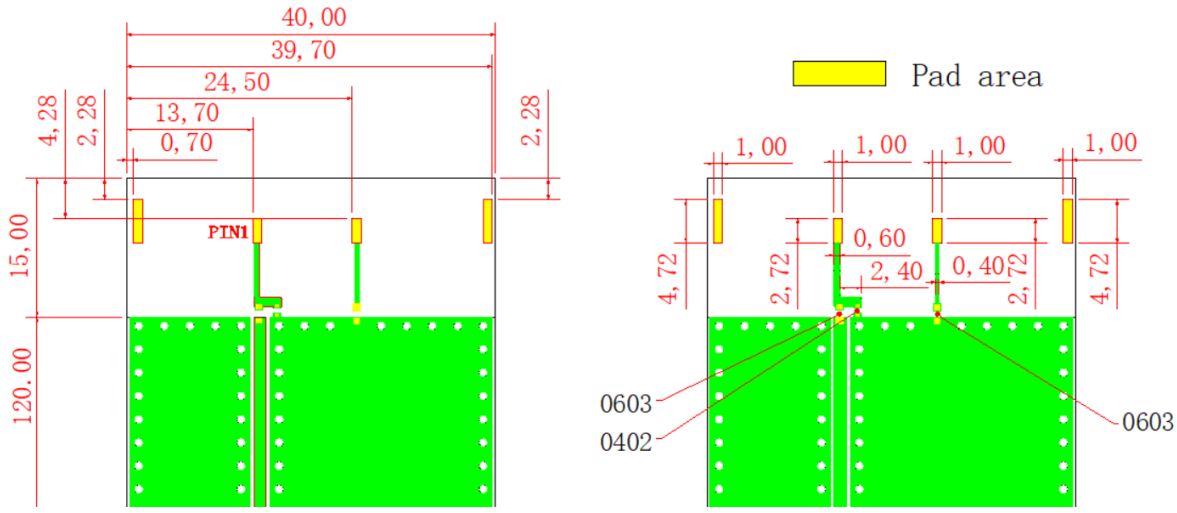
• The length of the transmission lines should be kept to as short as possible
• Any other part of the RF system, such as transceiver, power amplifiers, etc., shall also be designed with an impedance of 50 Ω

- Recommend PCB Layout : (Unit: mm)

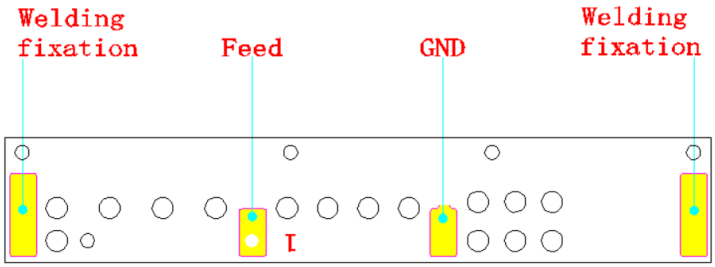
TEST PCB SIZE:135 × 40, PCB clearance area:15 × 40



Layout front Details

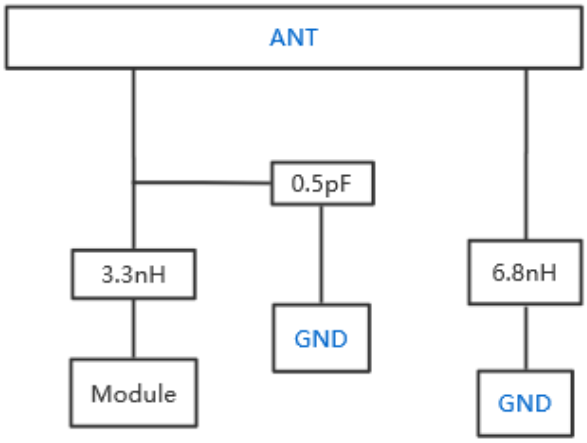


Antenna pad

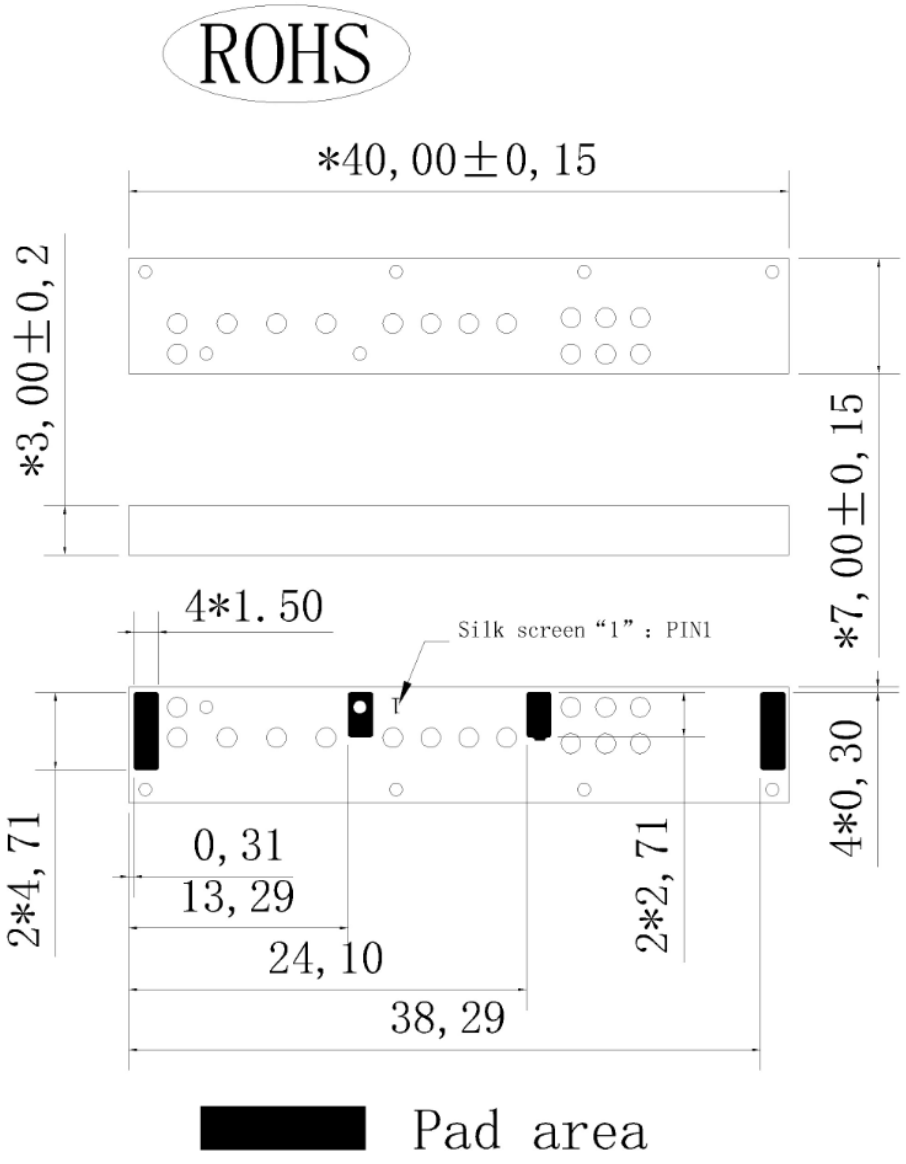


Front: Perspective view

- Matching circuit



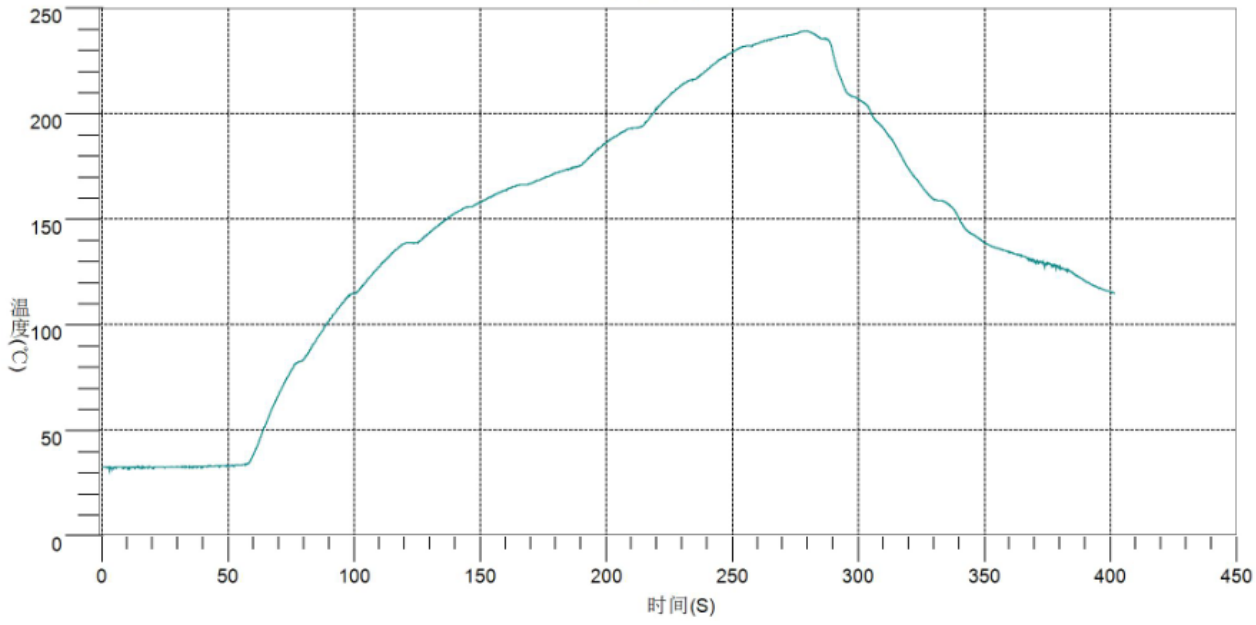
5 Product Size



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) Temperature Max (Tsmax) Time(tsmin to tsmax)	150 °C 190 °C 110 seconds max.
REFLOW	Temperature(TL) Total Time above TL (tl)	220 °C 90 seconds max.
PEAK	Temperature (Tp)	230–250 °C
RAMP-DOWN	Rate	-1 °C/second max.

7 Reflow Profile



No	Probe name	150-190℃		>220℃	peak temperature℃
		60-110s	slope 0.0-3.0	40-90s	230-250℃
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

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