

Antenna

YCIS001AA Datasheet

Antenna Services

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About the Document

Revision History

Version	Date	Author	Note
-	2022-04-28	Junsen LI/ Joye WANG	Creation of the document
1.0	2022-04-28	Junsen LI/ Joye WANG	First official release
1.1	2022-09-20	Junsen LI	Added Chapter 6.

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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

- 868 MHz, ISM, LoRa
- High efficiency
- Excellent performance
- Low profile, compact size
- SMT processes compatible



3 Product Specifications

Passive Electrical Specifications

Frequency Range	863–870 MHz
Input Impedence	50 Ω
VSWR	≤ 2.0
Gain	≤ 0 dBi
Polarization Type	Linear

Mechanical Specifications

Antenna Size (mm)	5.0 × 3.0 × 0.5
Materia	Ceramic
Cable Type	NA
Connector	NA
Antenna Color	Black
Weight	Typ. 0.025 g
Working Temperature	-40 °C to +85 °C
Mounting Type	SMD

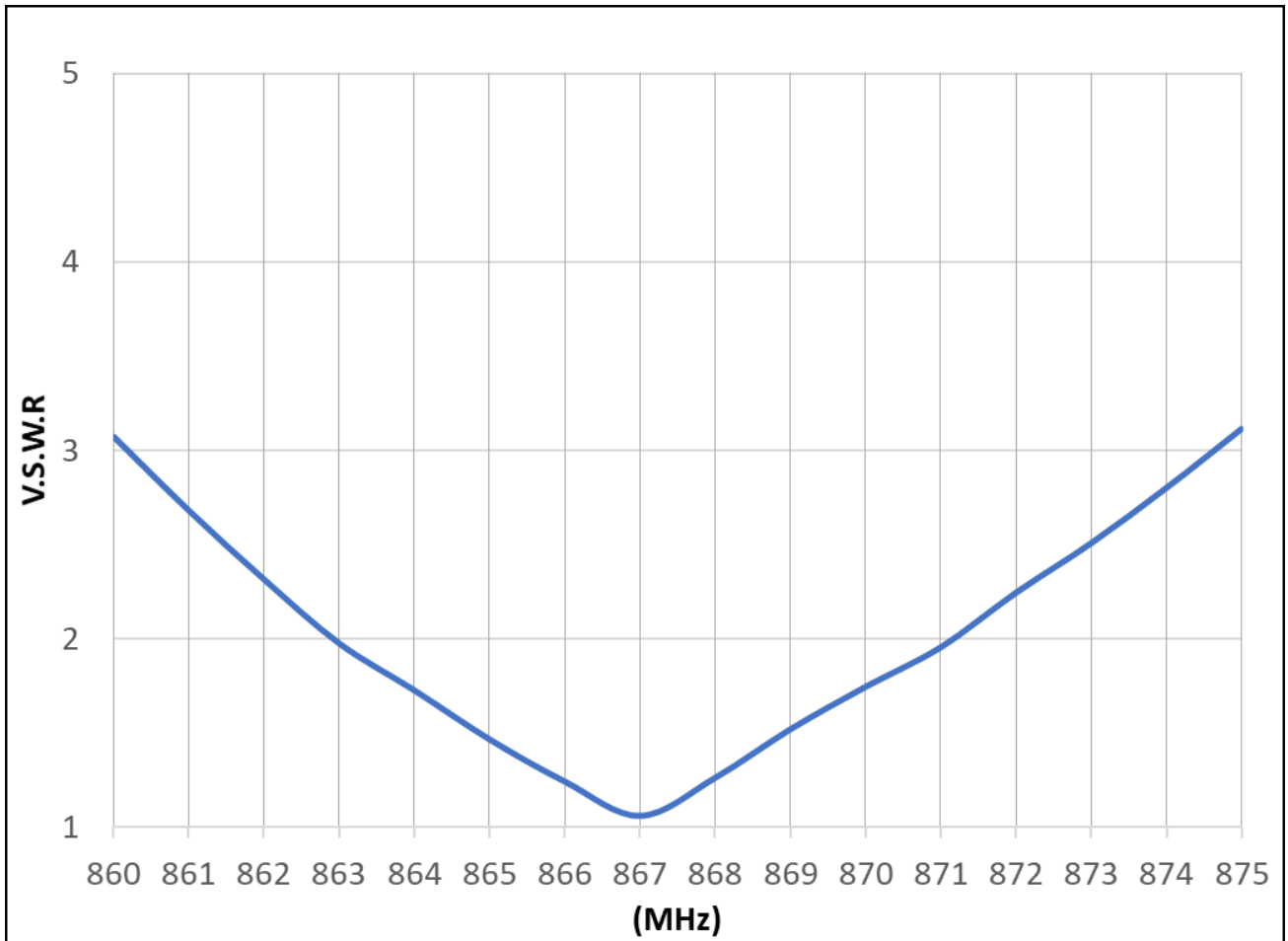
4 Overall Performance

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



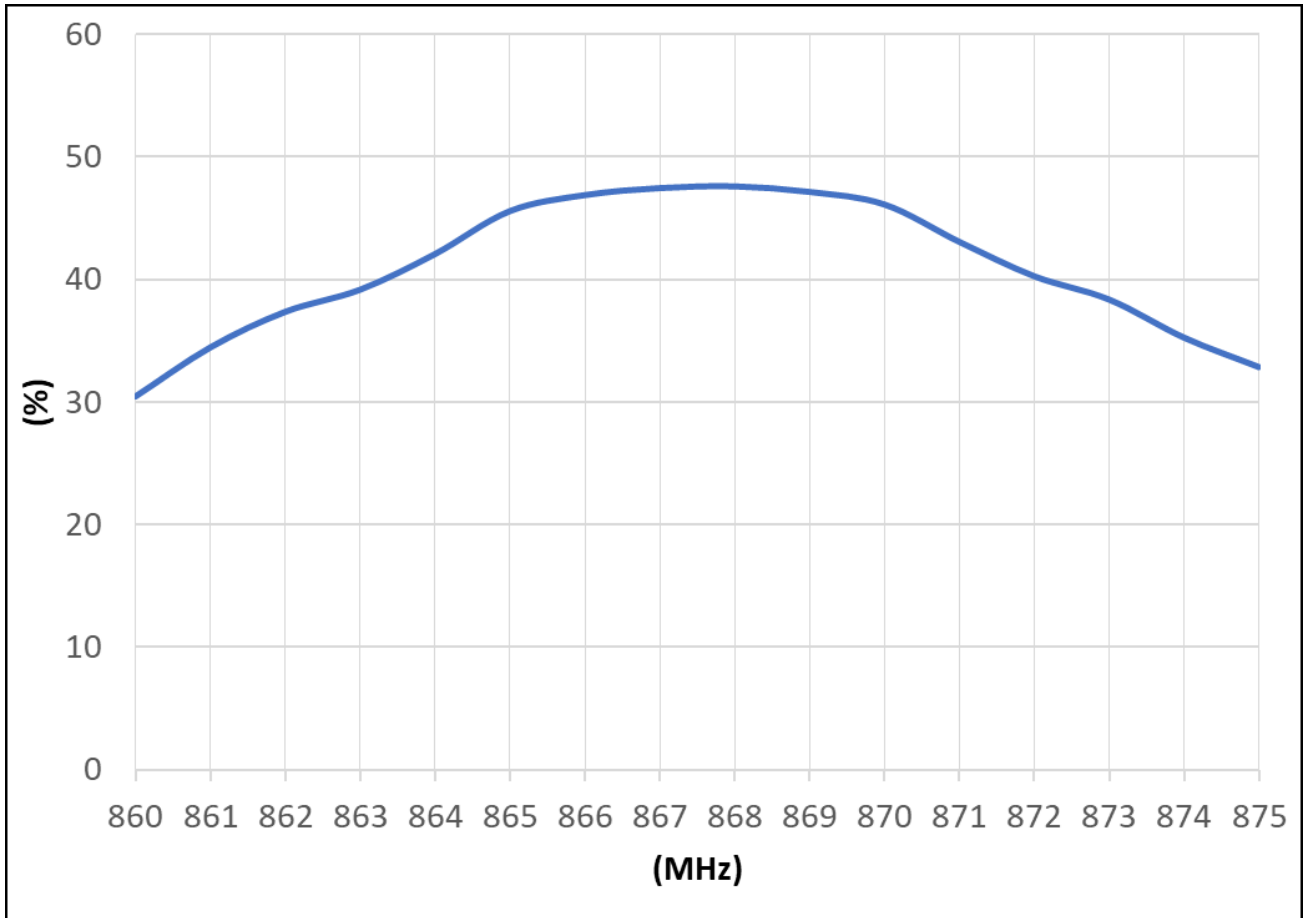
4.2. VSWR



Frequency (MHz)	860	861	862	863	864	865	866	867	868	869
VSWR	3.07	2.68	2.31	1.97	1.73	1.46	1.24	1.06	1.26	1.52

Frequency (MHz)	870	871	872	873	874	875
VSWR	1.74	1.95	2.24	2.51	2.80	3.11

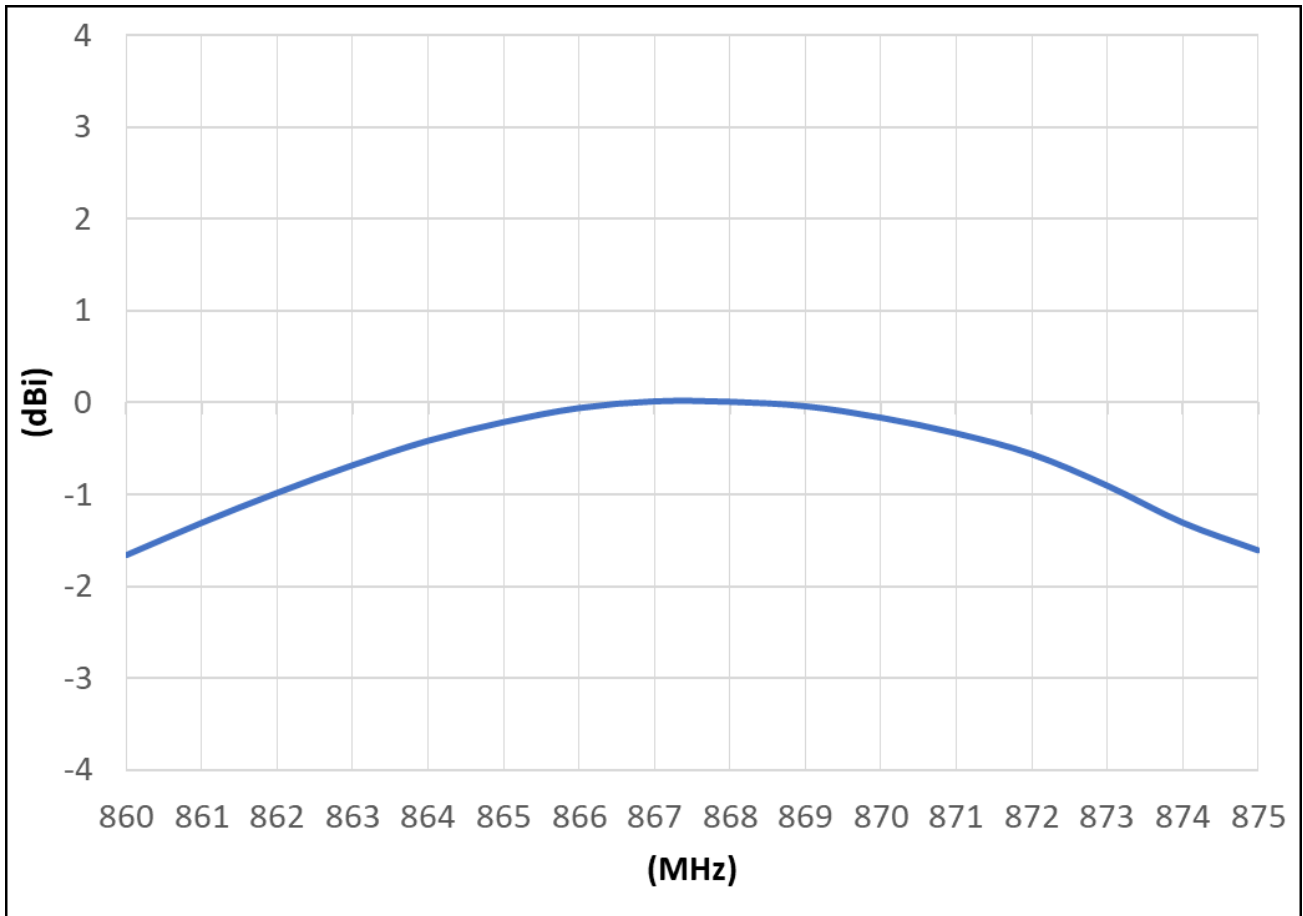
4.3. Efficiency



Frequency (MHz)	860	861	862	863	864	865	866	867	868	869
Efficiency (%)	30.50	30.50	30.50	30.50	30.50	30.50	30.50	30.50	30.50	30.50

Frequency (MHz)	870	871	872	873	874	875
Efficiency (%)	46.14	46.14	46.14	46.14	46.14	46.14

4.4. Gain

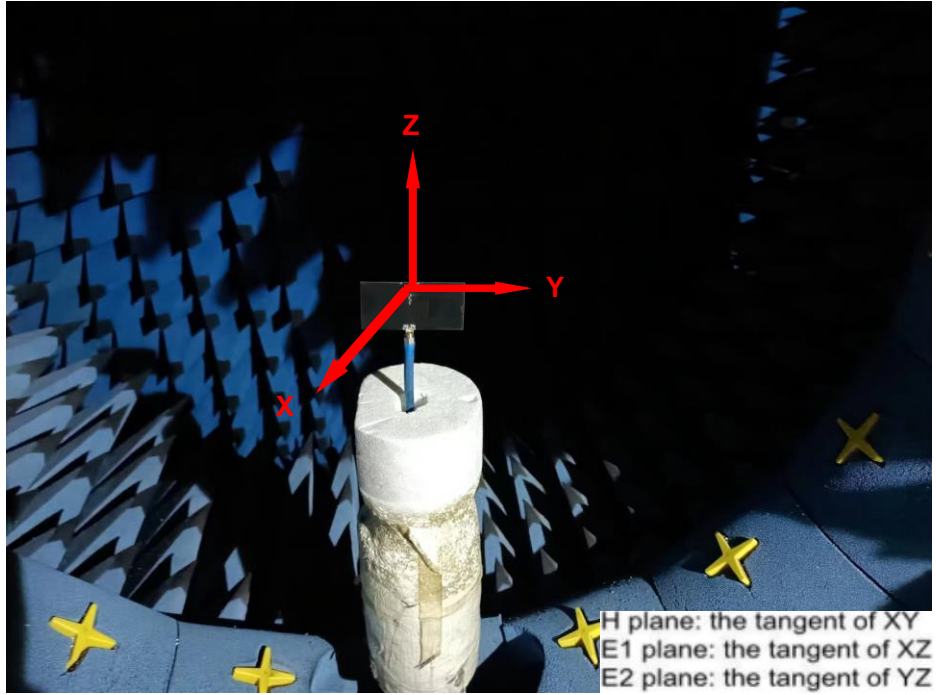


Frequency (MHz)	860	861	862	863	864	865	866	867	868	869
Gain (dBi)	-1.65	-1.30	-0.98	-0.68	-0.41	-0.21	-0.06	0.01	0.01	-0.04

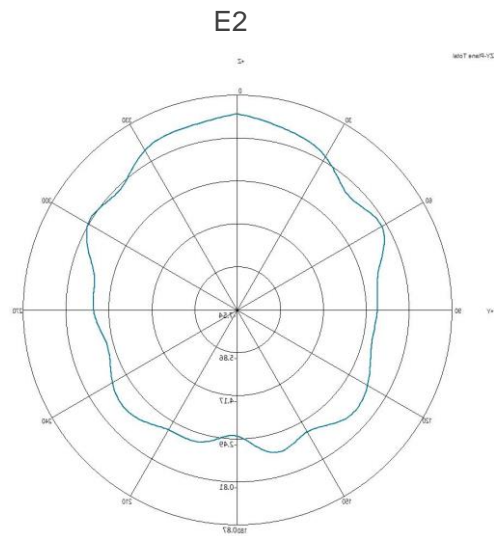
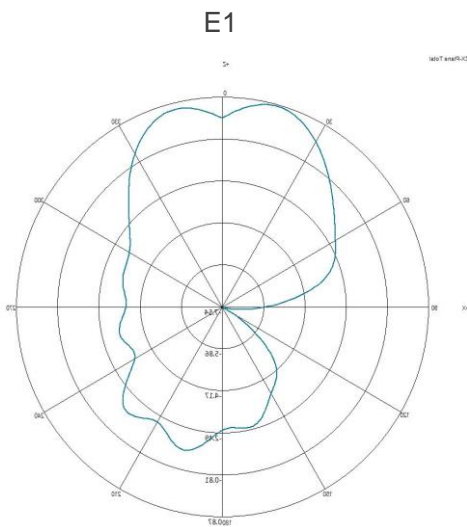
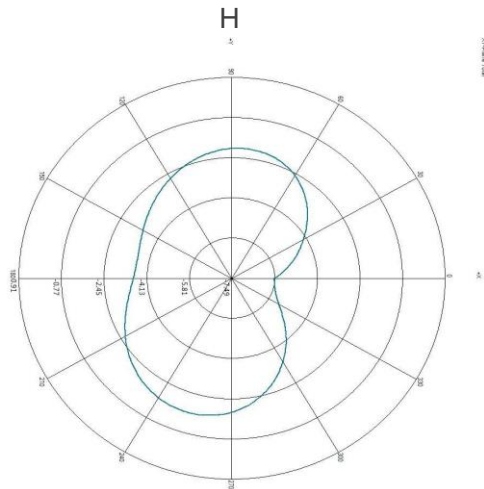
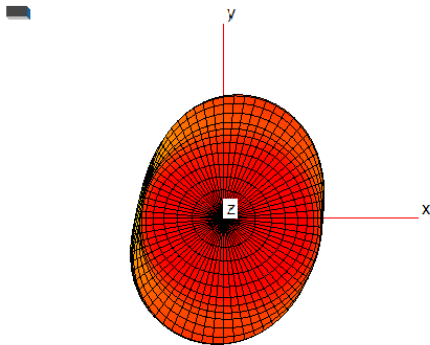
Frequency (MHz)	870	871	872	873	874	875
Gain(dBi)	-0.16	-0.33	-0.56	-0.90	-1.30	-1.60

4.5. Radiation Pattern

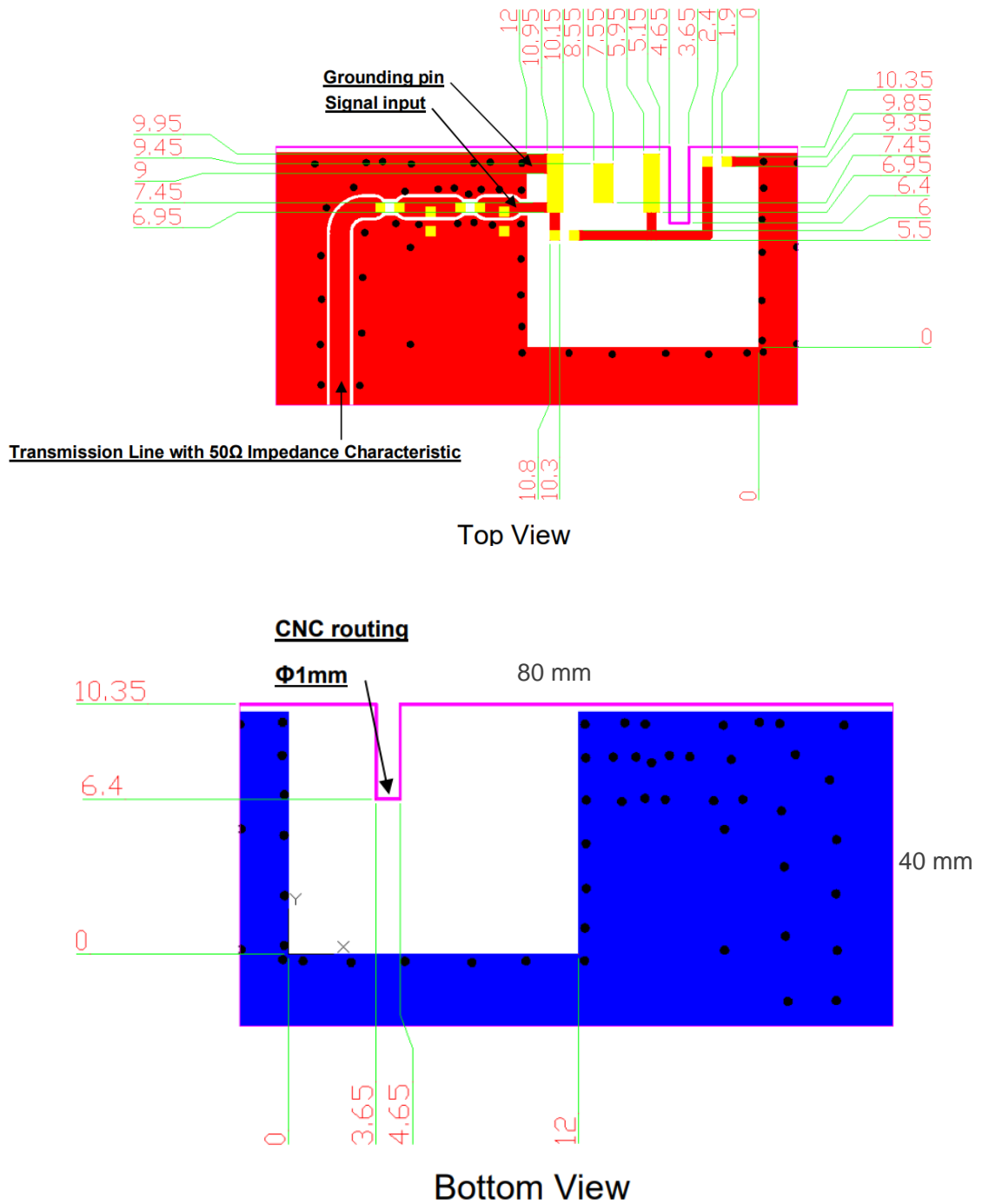
- Test condition: chip antenna on a ground plane (80 mm x 40 mm).



● 868 MHz

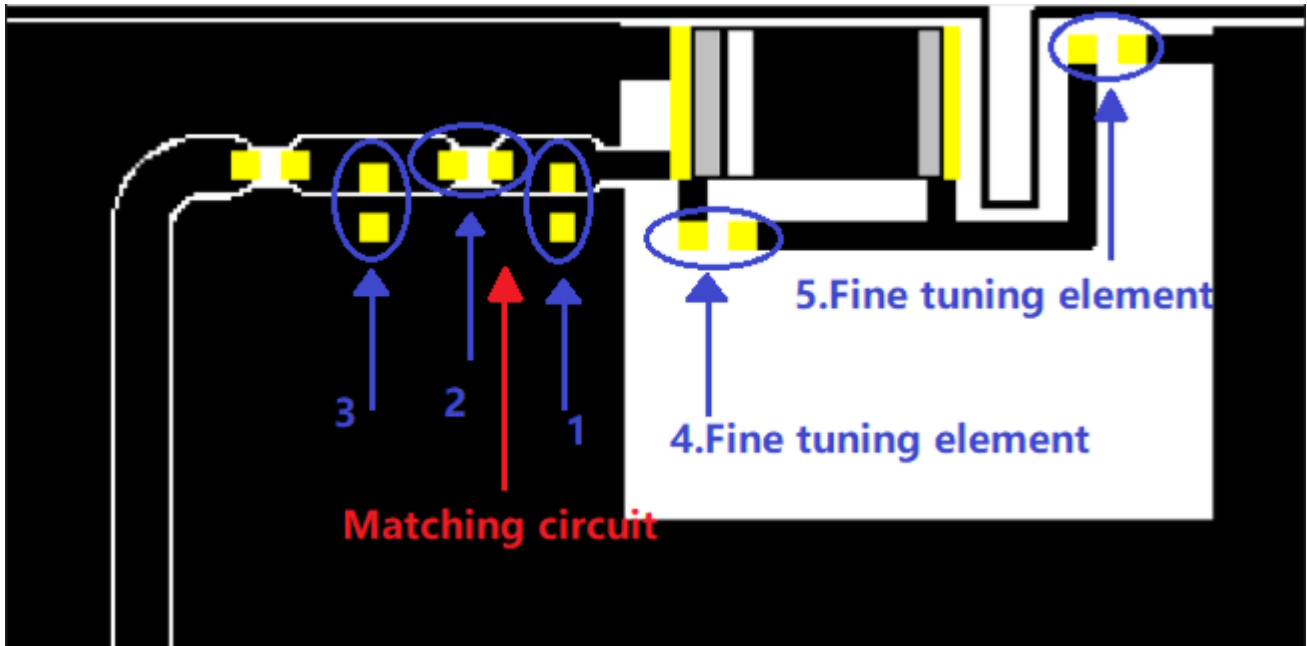


5 PCB Footprint Recommendation

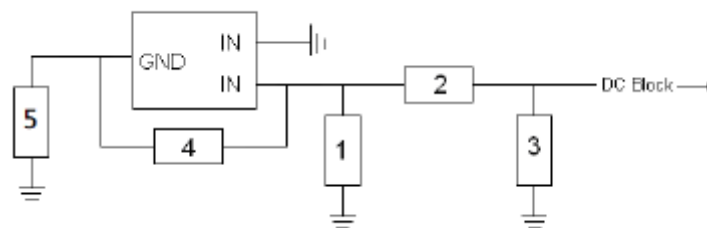


- **Note: The minimum PCB size is recommended to be 30 mm × 50 mm.**

6 Frequency Tuning and Matching Circuit

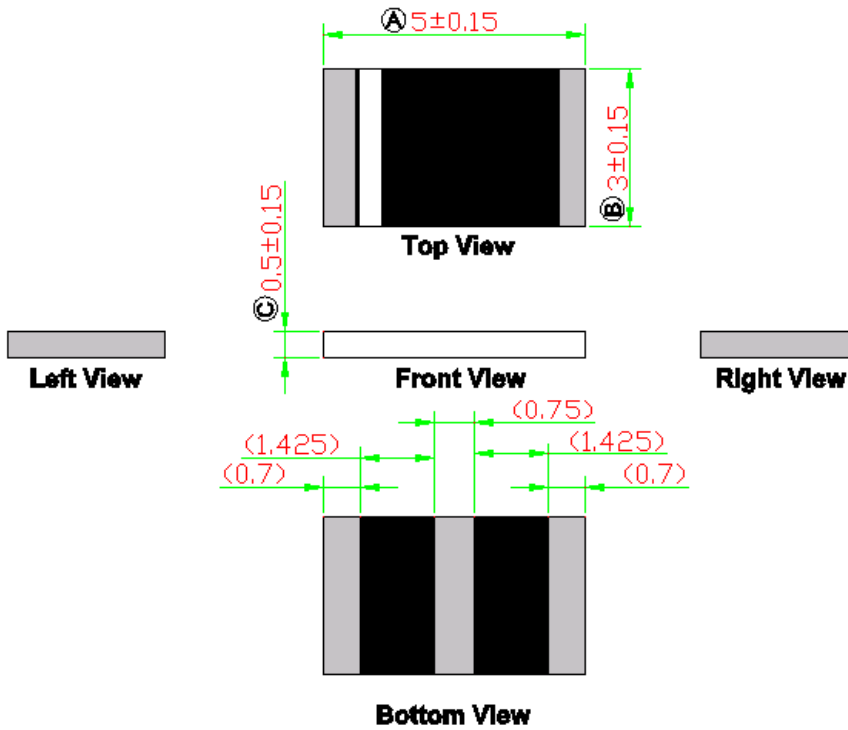


Matching circuit: (Center frequency is about 868 MHz at @ 80 x 40 mm² Evaluation Board)



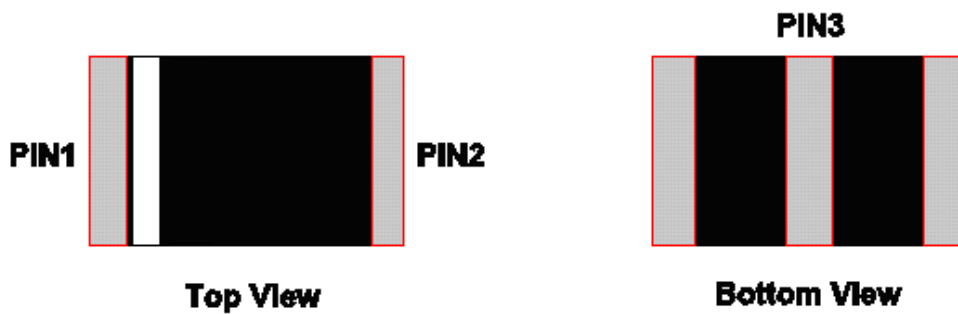
System Matching Circuit Component			
Location	Description	Vendor	Tolerance
1	N/A		
2	0Ω, (0402)		
3	12 nH,(0402)	Murata	5%
4.Fine tuning element	2.7 pF,(0402)	Murata	±0.05pF
5.Fine tuning element	2.7 pF,(0402)	Murata	±0.05pF

7 Product Size



NOTE:
 1. All materials are RoHS compliant.
 2. "A~C" Critical Dimensions.
 3. "()" Reference Dimensions.

7.1. PIN Definitions



PIN	Soldering Pad
1	Signal
2	Tuning/Ground
3	N/C

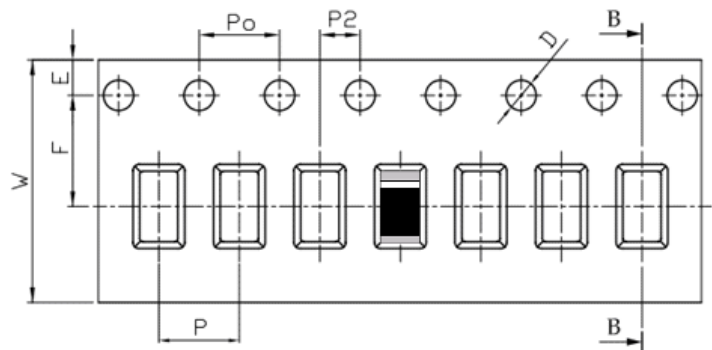
8 Packing Details

Quantity/Reel

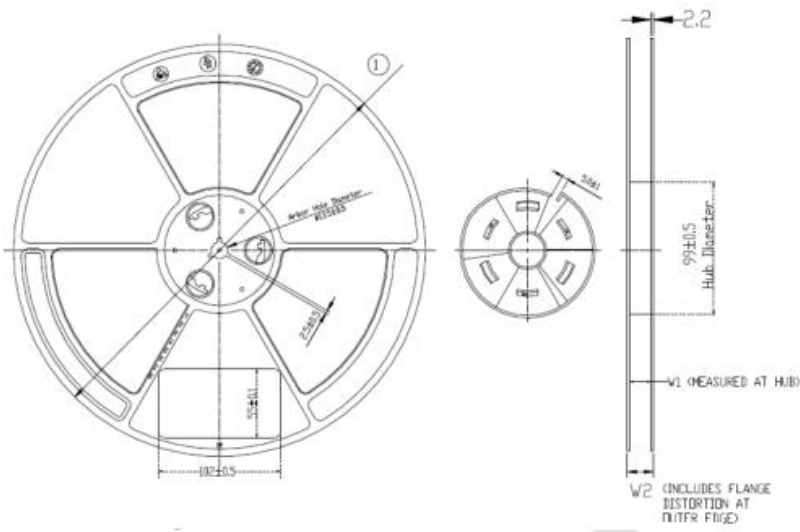
6000 PCS/Reel

Tape Dimensions (Unit: mm)

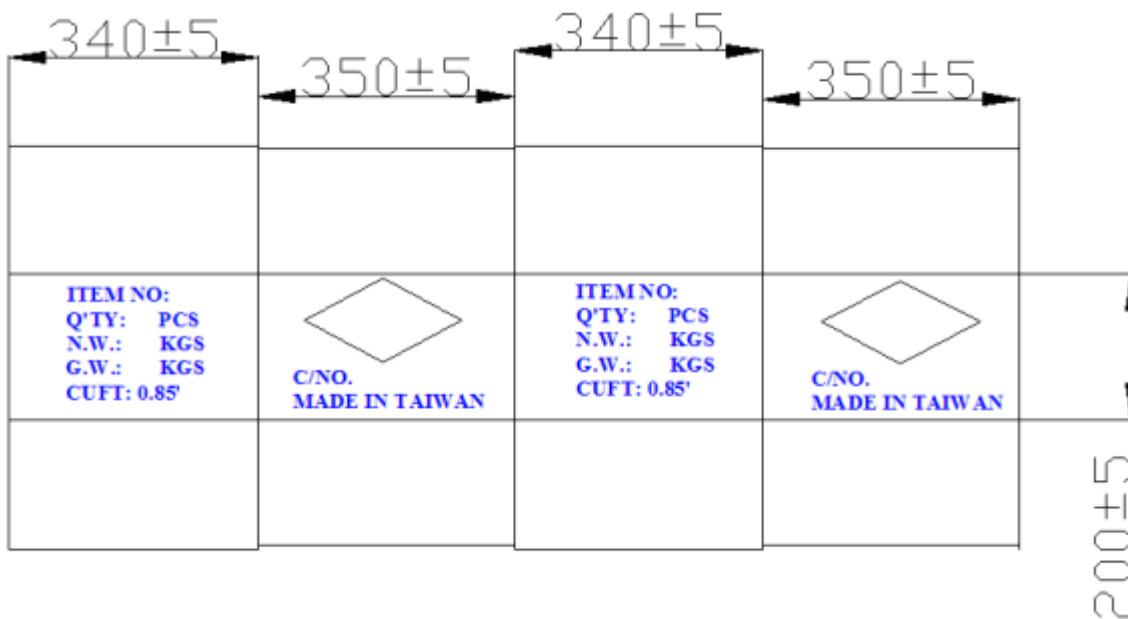
Feature	Specification	Tolerances
W	12.00	±0.30
P	8.00	±0.10
E	1.75	±0.10
F	5.50	±0.10
P2	2.00	±0.10
D	1.50	+0.10 -0.00
Po	4.00	±0.10
10Po	40.00	±0.20






8.1. Reel Drawing (Unit: mm)



8.2. Carton Size (Unit: mm)



8.3. Picture of Reel Label

Quectel O/C	XXXXXXXX	
P/N	Q8 – XXXX	
Quantity	XXXXPCS 	
Lot No	XXXXXXXX 	
D/C	XXXXXXXX 	RoHS

8.4. Process of Packing

1. Attach the reel label on the reel.



2. Seal the labeled reel in a vacuum and dry package.



3 Put ten reels into a carton. After sealing the carton, attach the labels.



4 Pictures of carton labels.

- Label 1



- Label 2



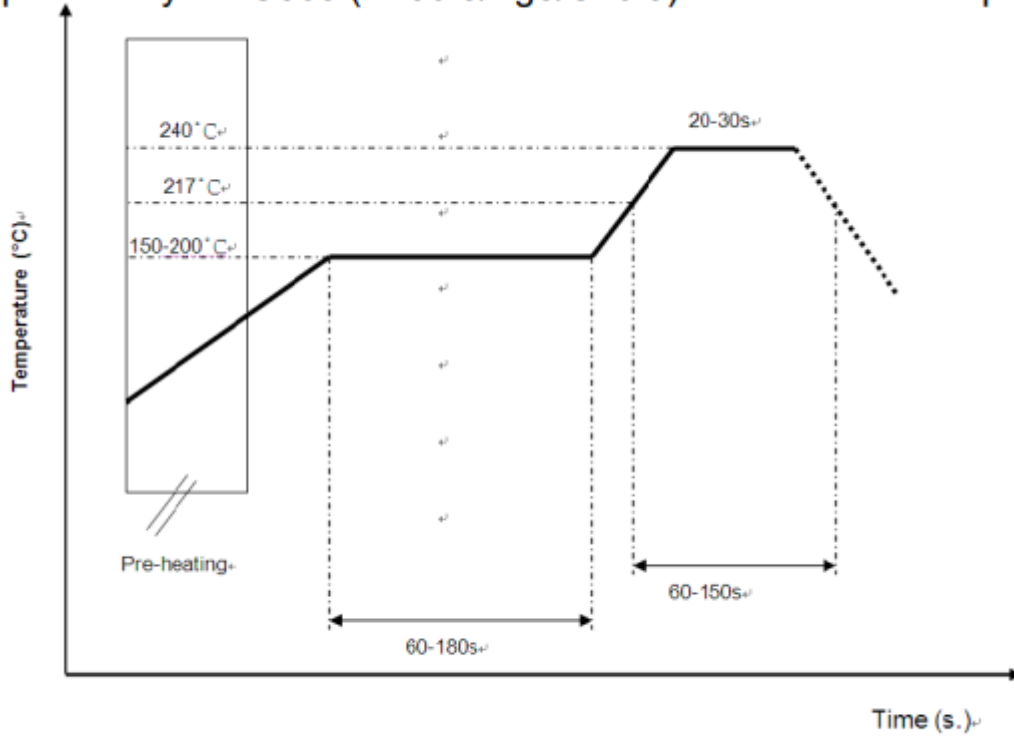
- Label 3

Paste this label in the carton containing the inspection report, if there are mantissa products.

<p>备注Remark:</p> <p>附检验报告 Attached Inspection Report</p> <p>QUECTEL[®] 上海移远通信技术股份有限公司</p>	<p>尾数箱</p>
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9 Soldering Conditions

Solder paste alloy: SAC305 (Sn96.5/Ag3/Cu0.5) Lead Free solder paste



*Recommended solder paste alloy: SAC305 (Sn96.5 /Ag3 /Cu0.5) Lead Free solder paste.