

Antenna

YC0002AA Datasheet

Antenna Services

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Status: Released



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About the Document

Revision History

Version	Date	Author	Note
1.0	2020-06-03	Kenny YIN	Initial
2.0	2020-06-22	Kenny YIN	Updated the specifications.
2.1	2020-12-16	Kenny YIN	Updated the antenna image in Chapter 2.
2.2	2021-01-27	Kenny YIN	Added return loss and package, and updated the direction map.

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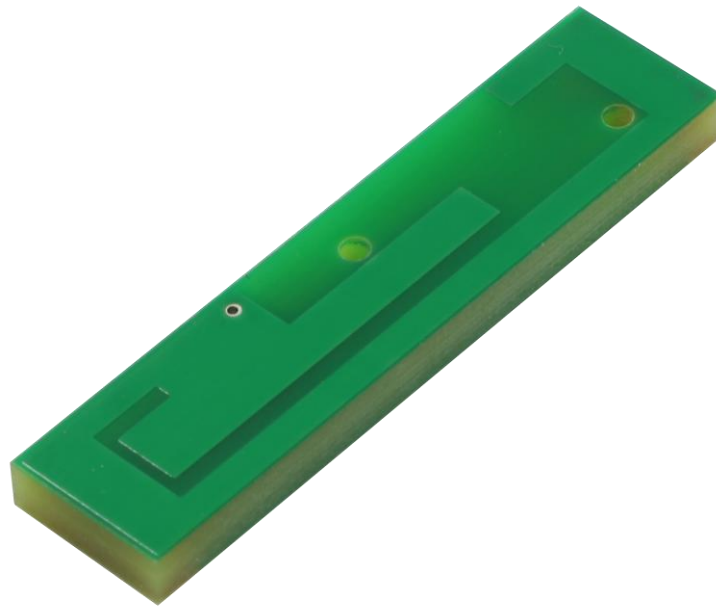
1 Product Description

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

- 4G LTE SMD Antenna
- High efficiency
- Excellent performance



3 Product Specifications

Passive Electrical Specifications

Frequency Range	698–960 MHz, 1710–2690 MHz
Input Impedance	50 Ω
VSWR	≤ 3.0
Gain	≤ 3 dBi
Polarization Type	Linear

Mechanical Specifications

Antenna Size	42 mm x 10 mm x 3 mm
Casing	FR4
Connector Type	SMD
Working Temperature	-20 °C to +80 °C
Radome Color	Green

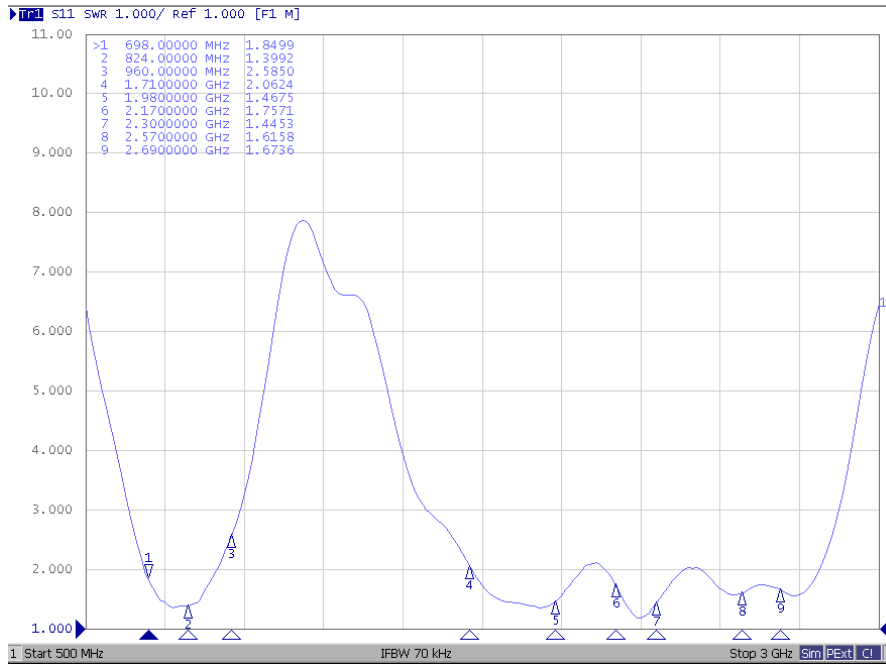
4 Overall Performance

4.1. Test Environment

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

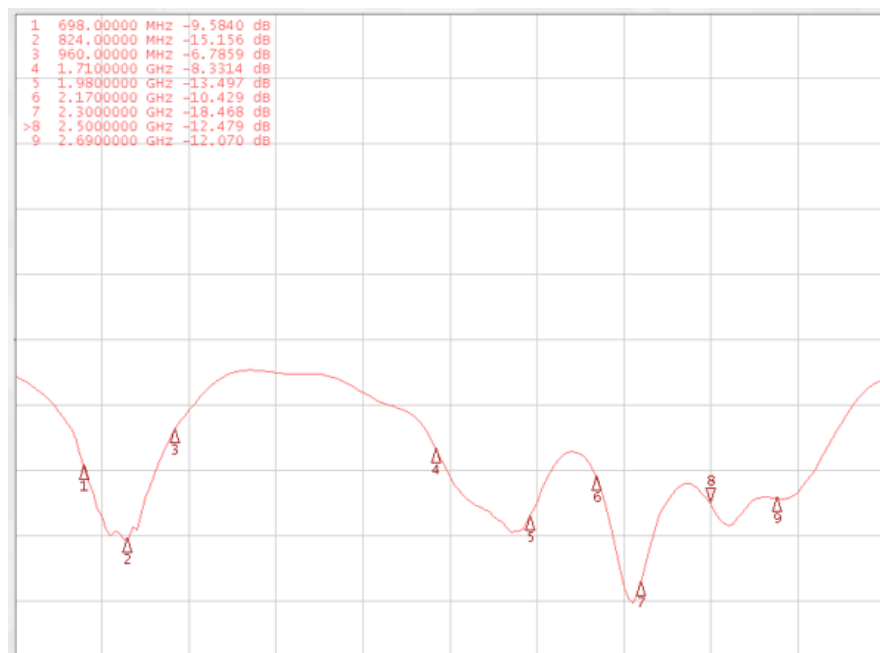


4.2. VSWR

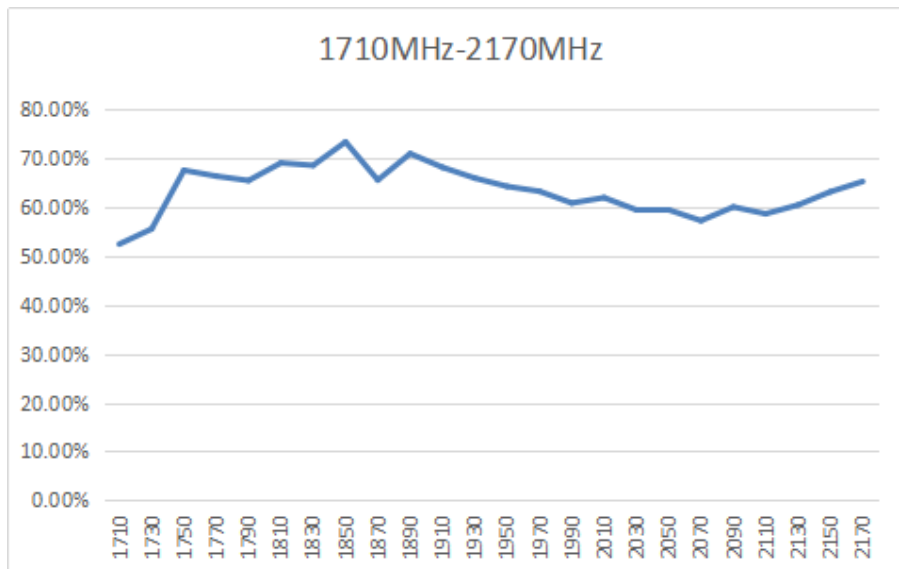
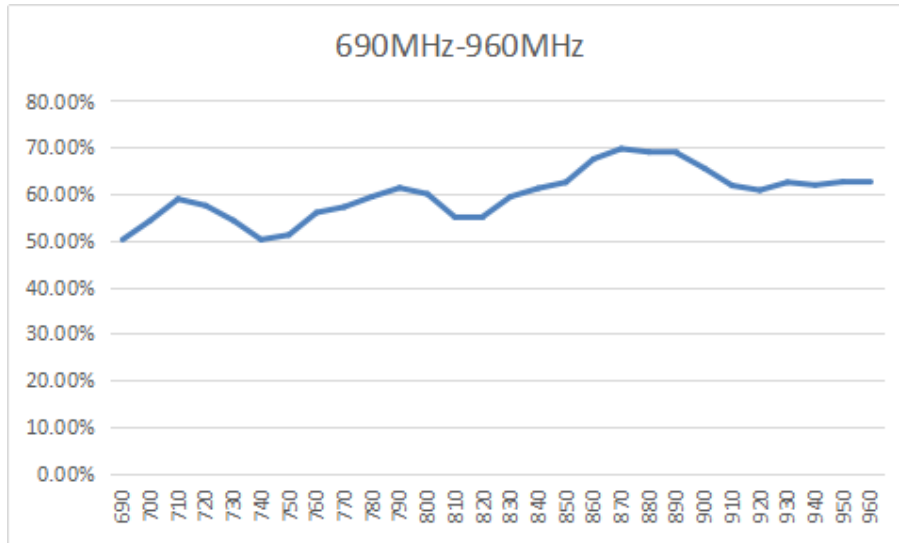


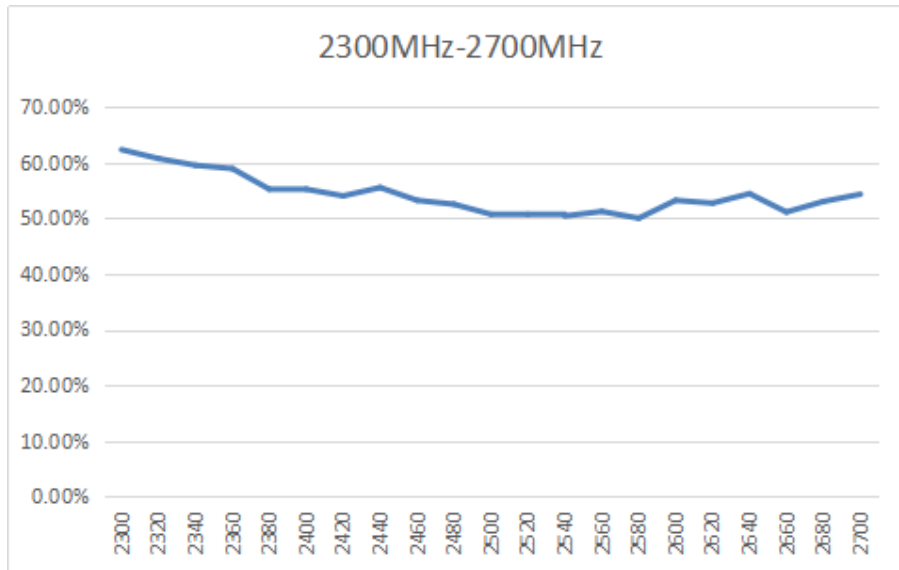
Frequency (MHz)	698	824	960	1710	1980	2170	2300	2570	2690
VSWR	1.85	1.40	2.59	2.06	1.47	1.76	1.45	1.62	1.67

4.3. Return Loss



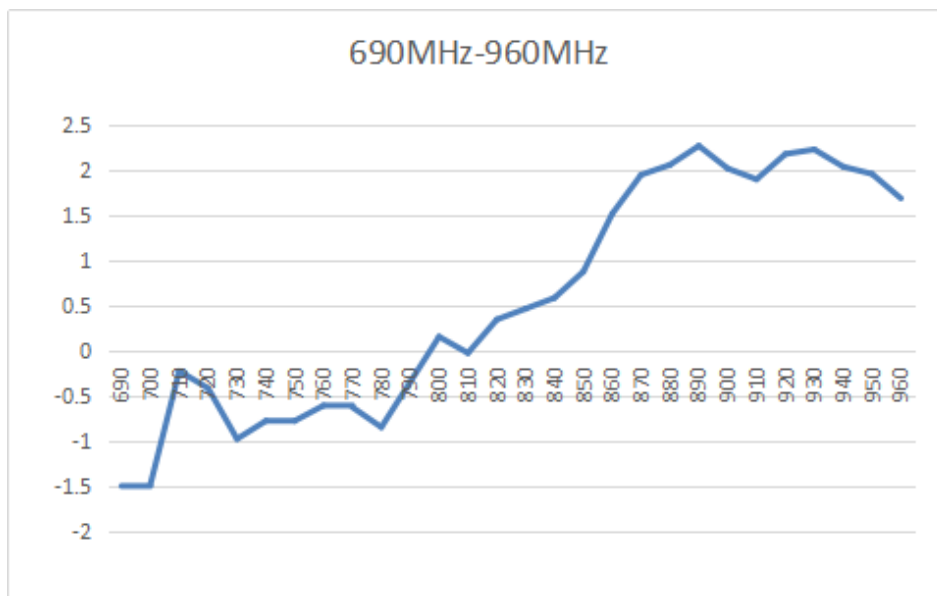
4.4. Efficiency

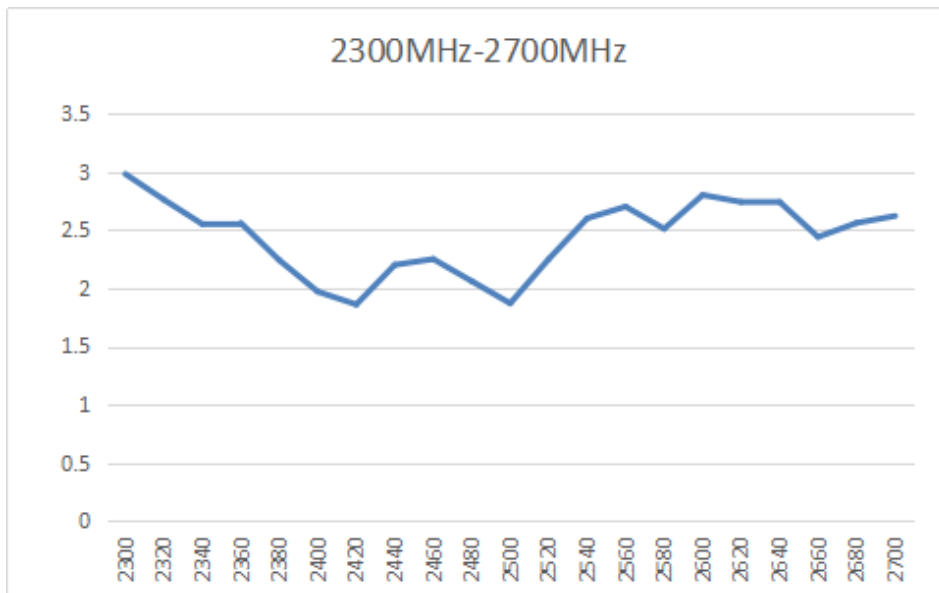
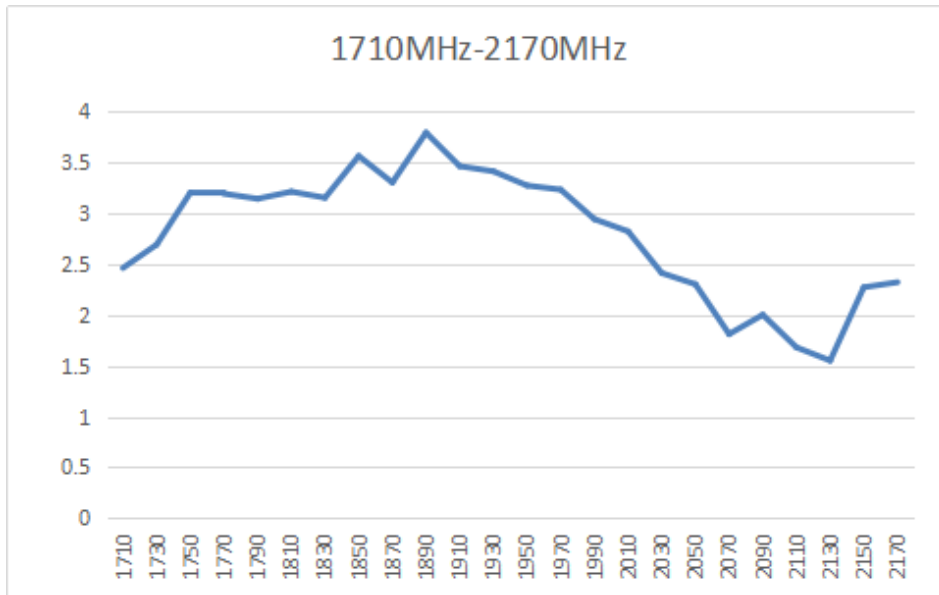




Frequency (MHz)	690	820	960	1710	1990	2170	2300	2580	2680
Eff. (%)	50.20	55.10	62.5	52.4	60.8	65.2	62.3	50	53

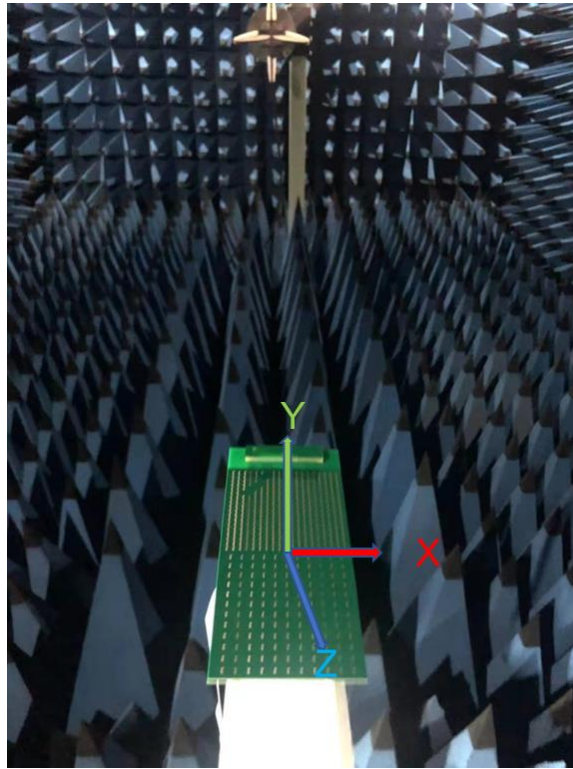
4.5. Gain



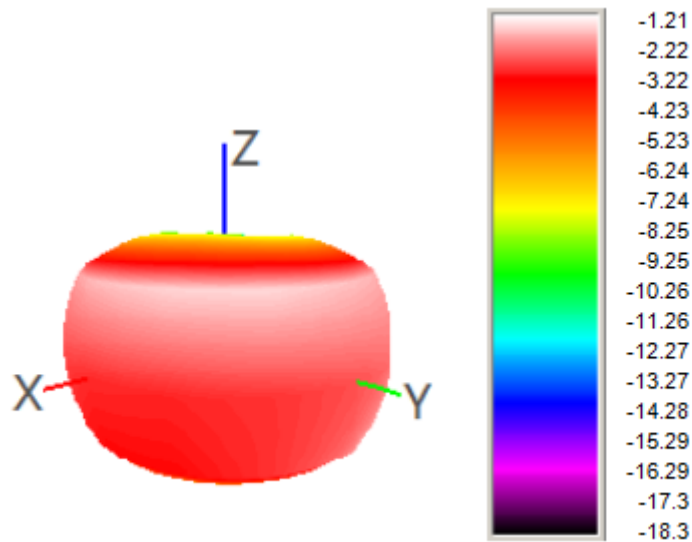


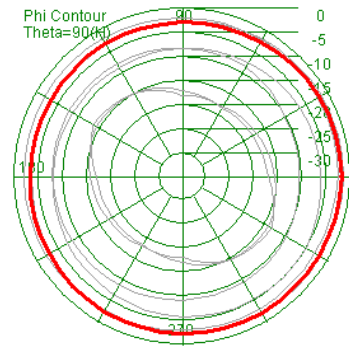
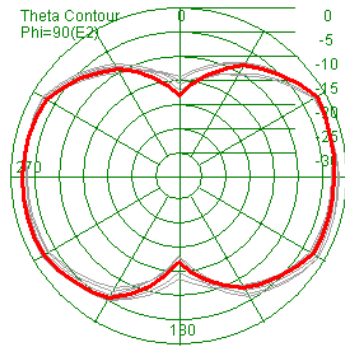
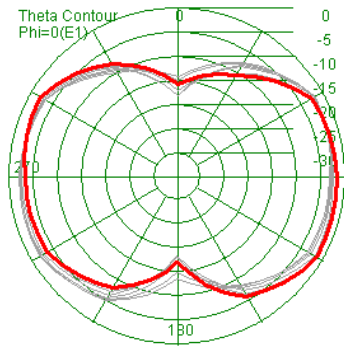
Frequency (MHz)	690	820	960	1710	1990	2170	2300	2580	2680
Gain (dBi)	-1.5	0.34	1.68	2.46	2.94	2.32	2.98	2.51	2.56

4.6. Radiation Patterns

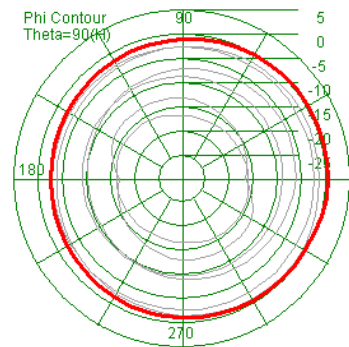
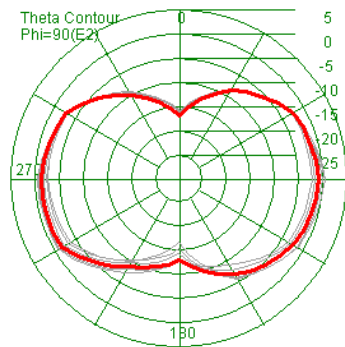
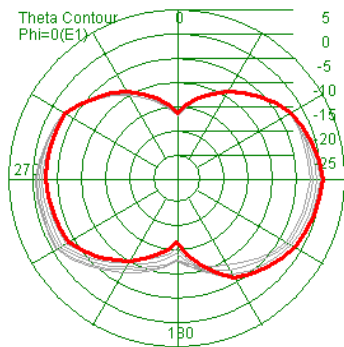
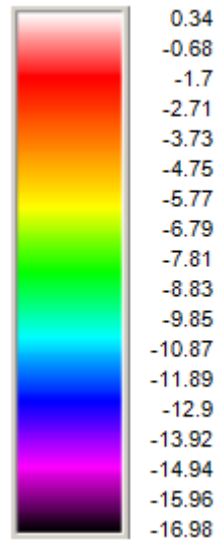
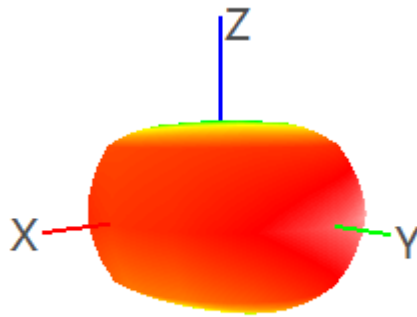


690MHz

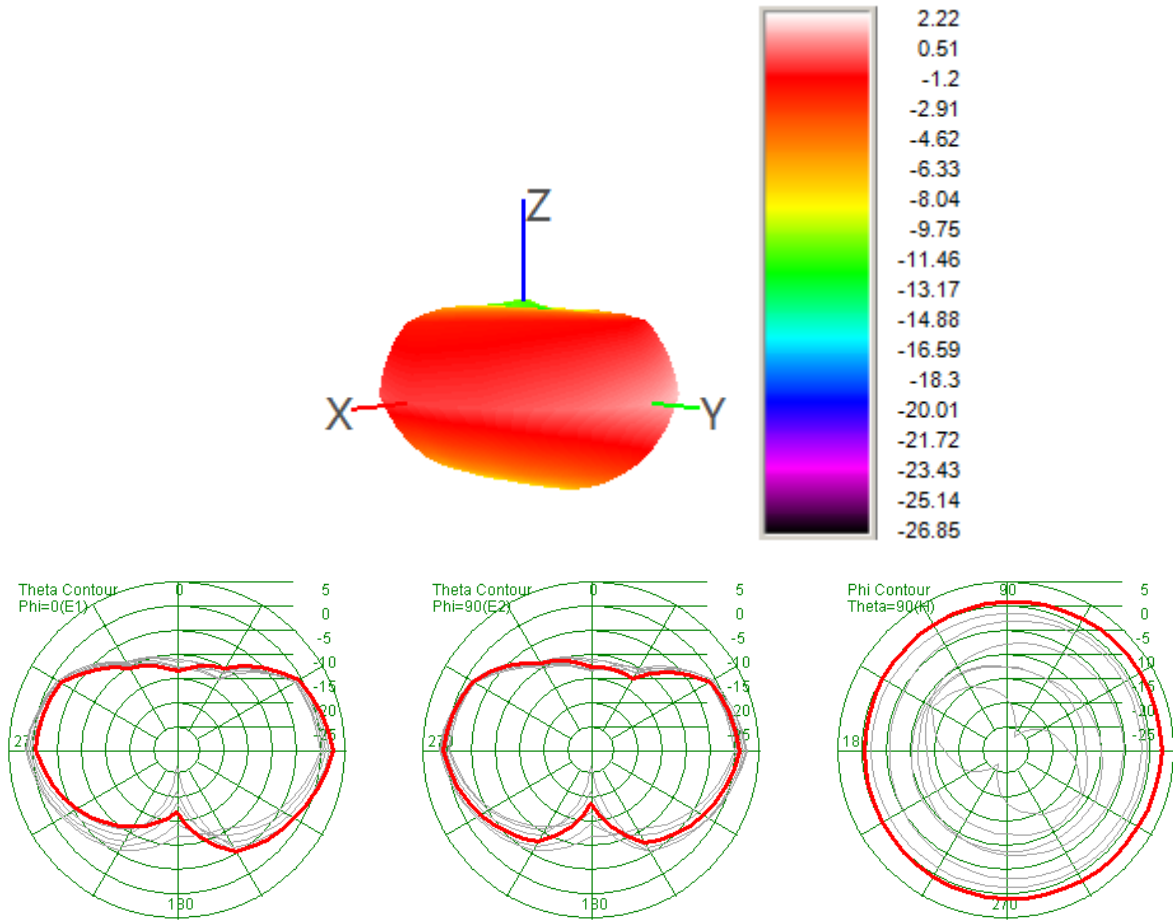




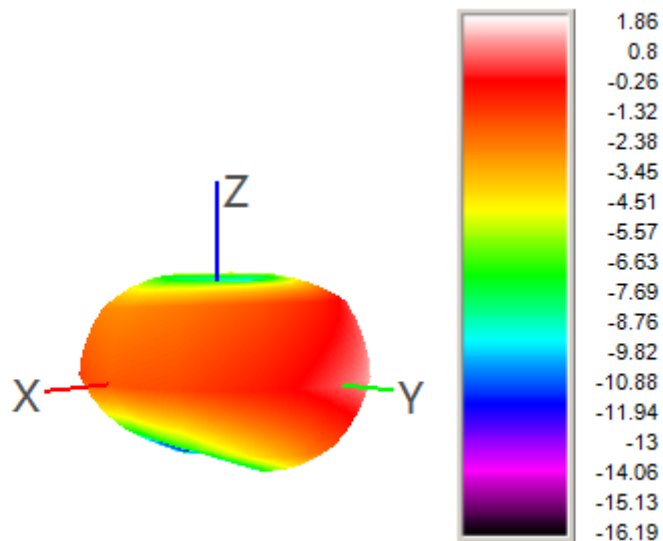
820MHz

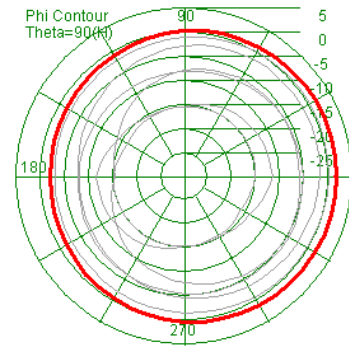
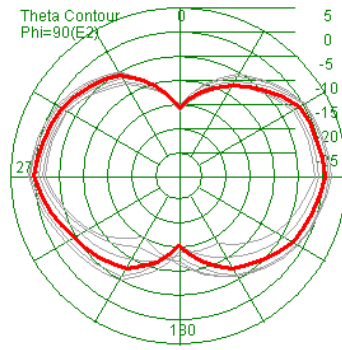
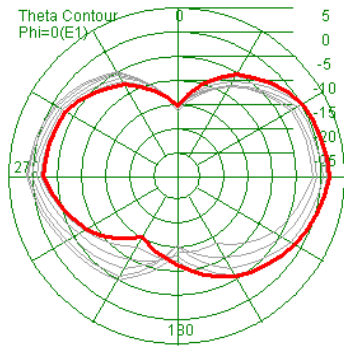


890MHz

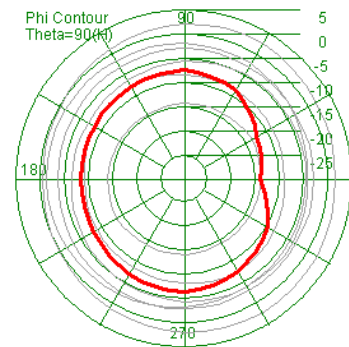
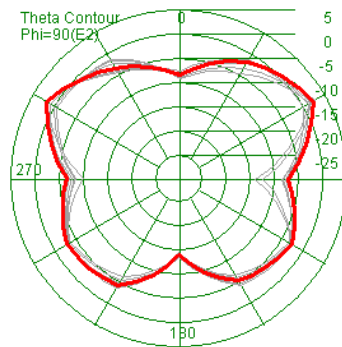
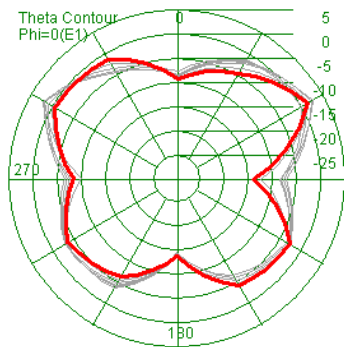
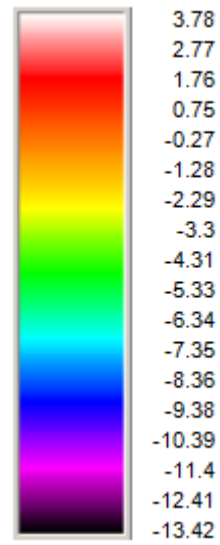
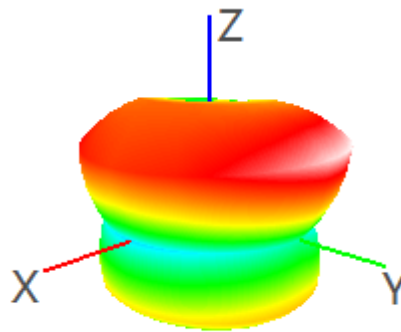


960MHz

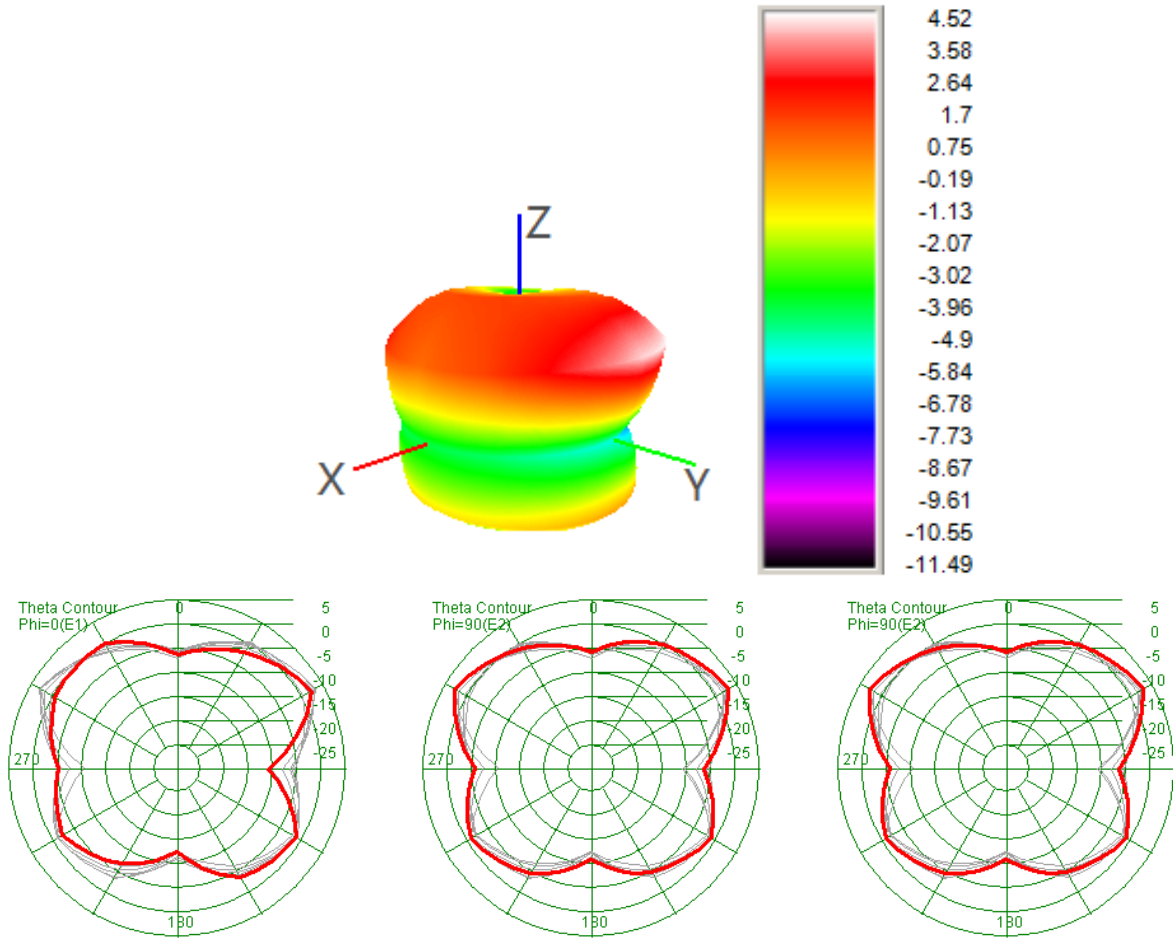




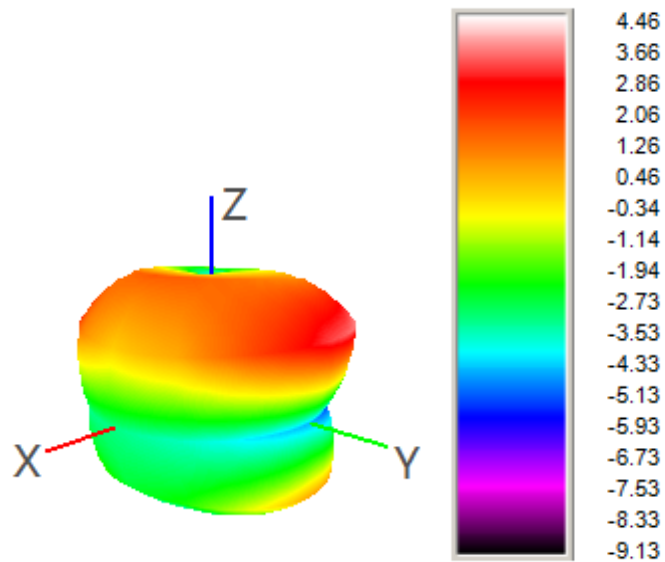
1710MHz

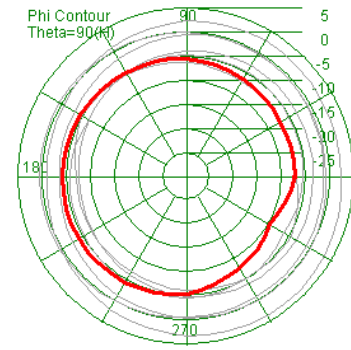
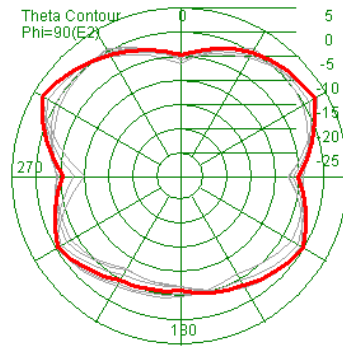
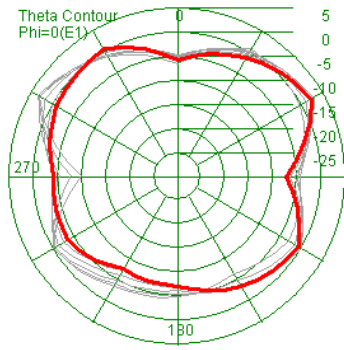


1810MHz

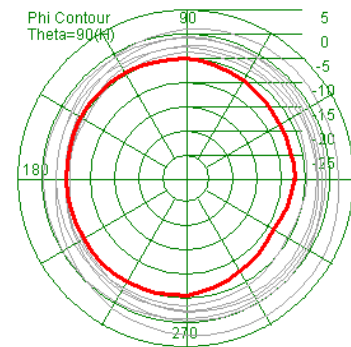
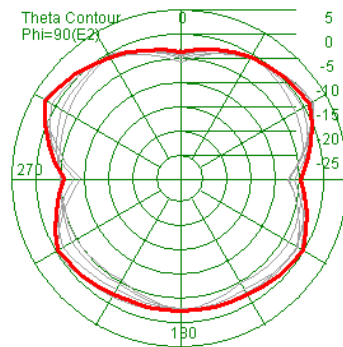
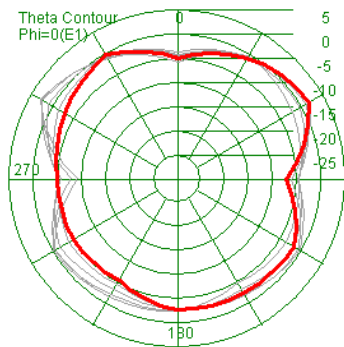
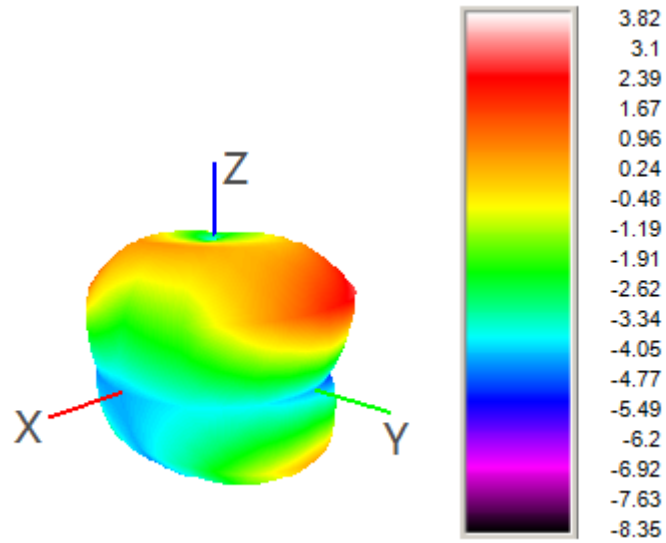


1910MHz

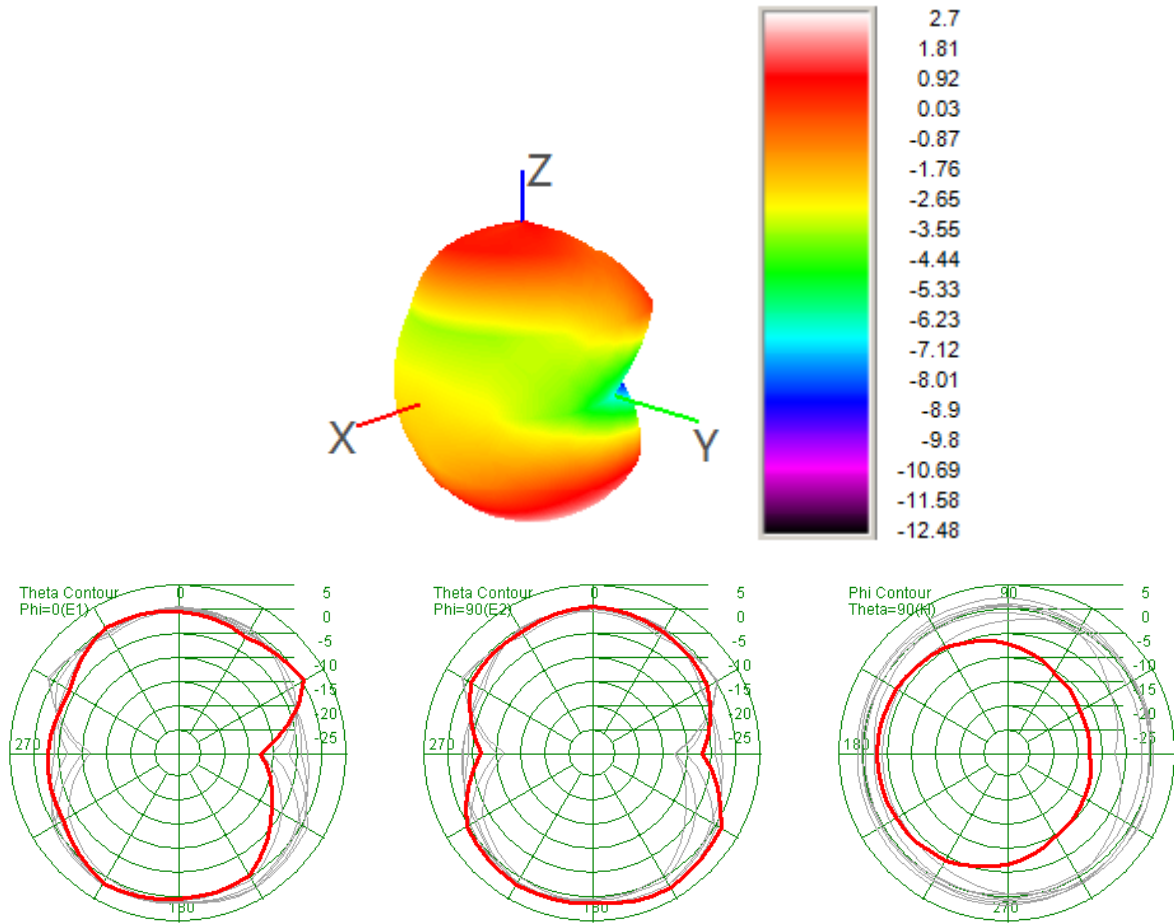




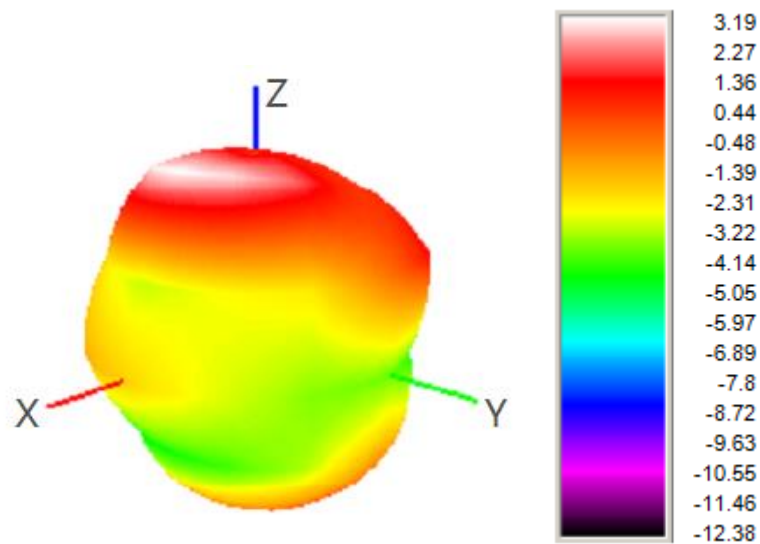
1990MHz

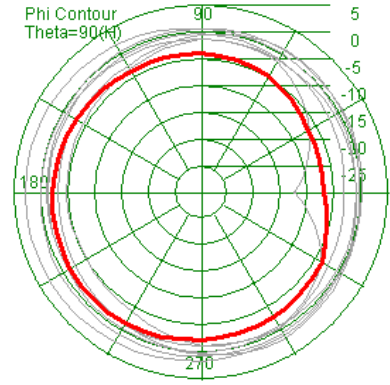
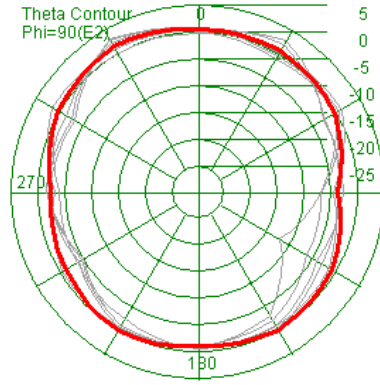
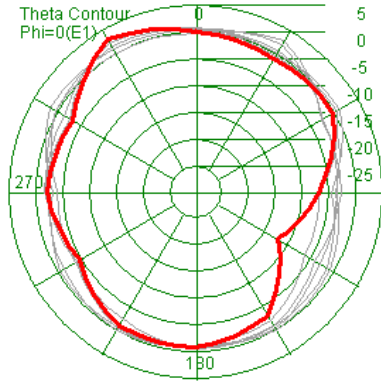


2170MHz

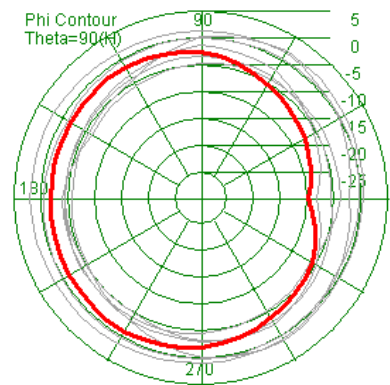
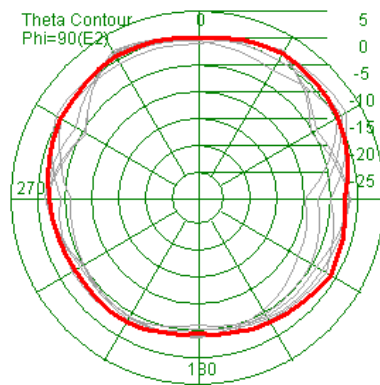
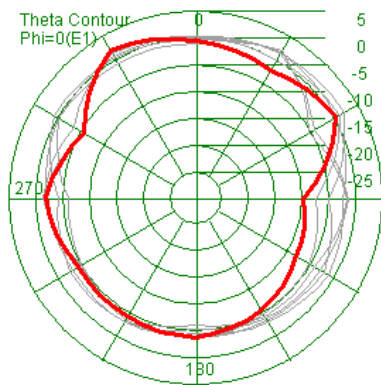
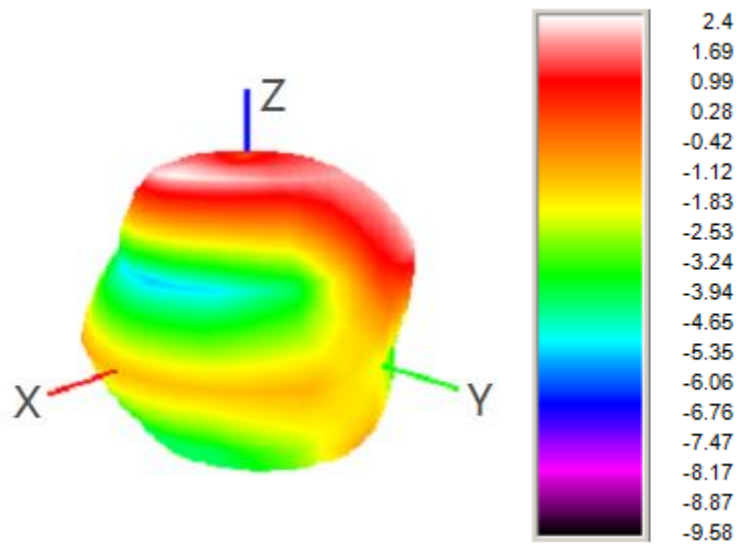


2300MHz

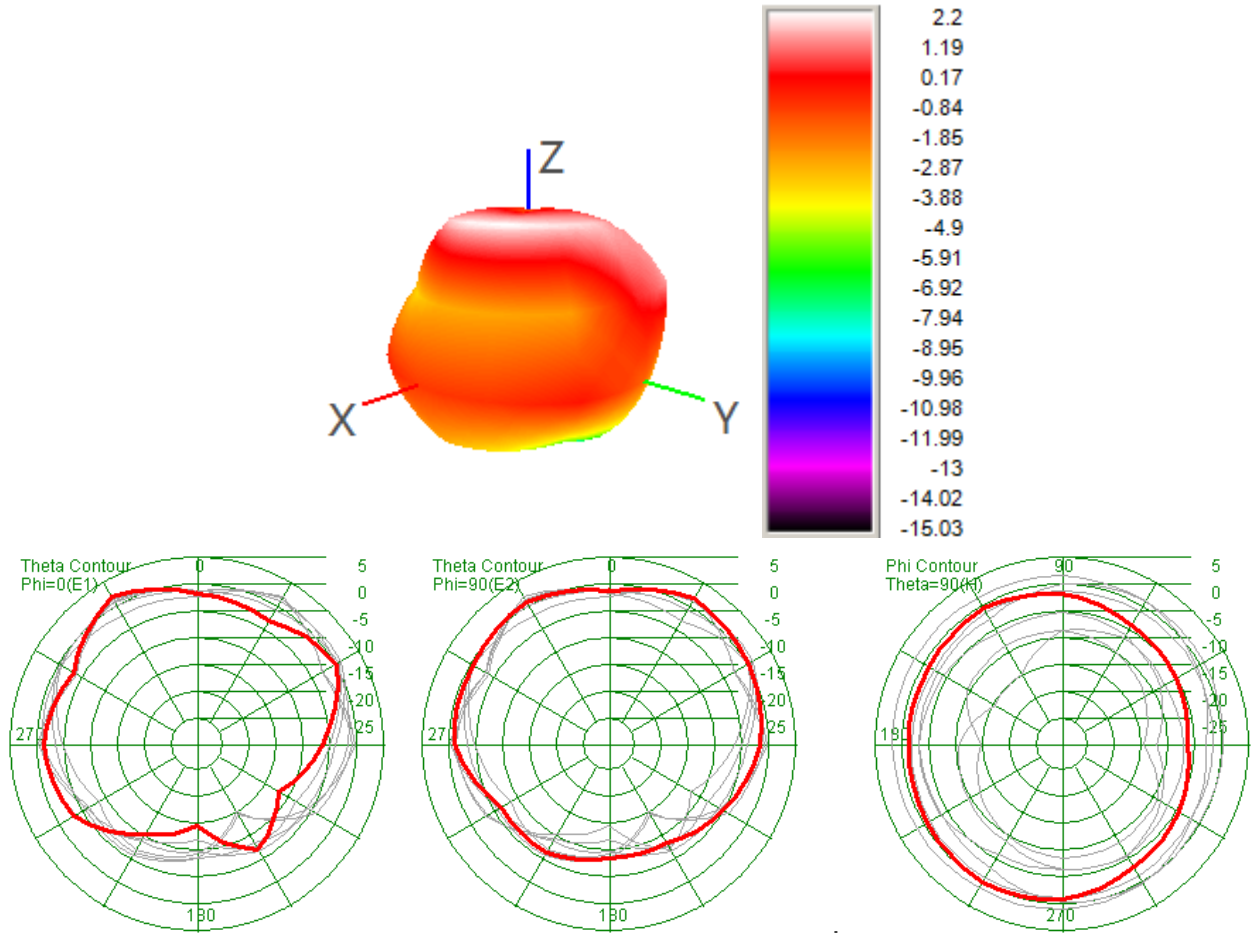




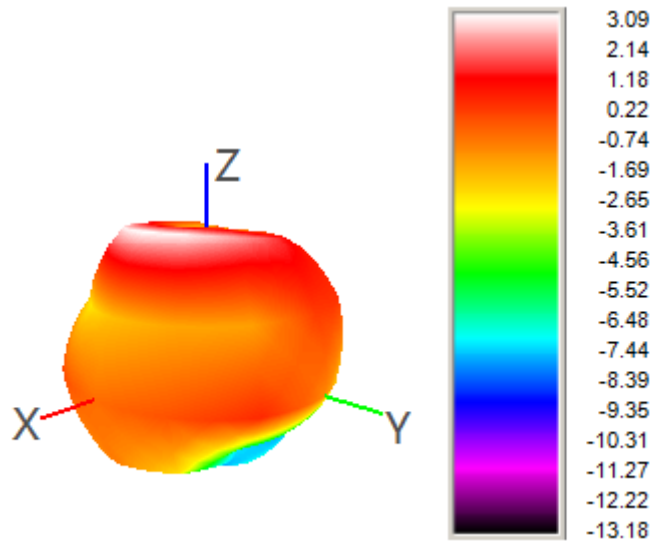
2400MHz

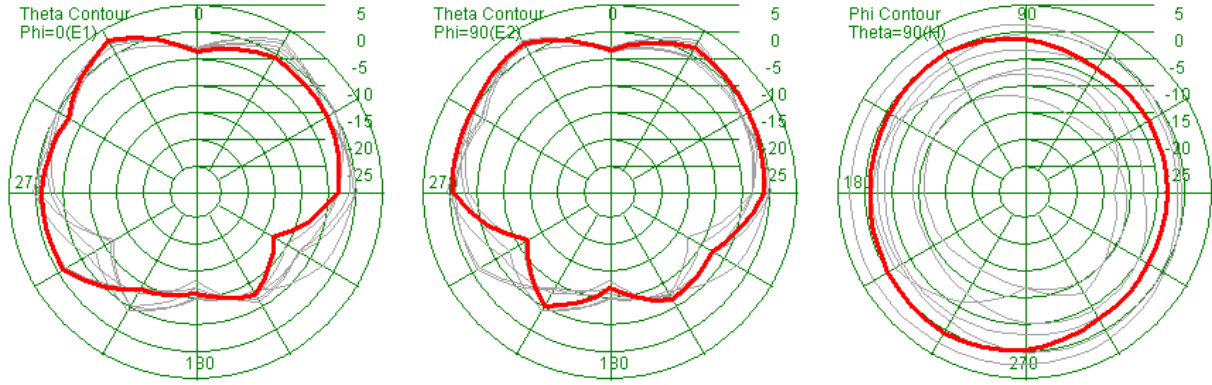


2500MHz

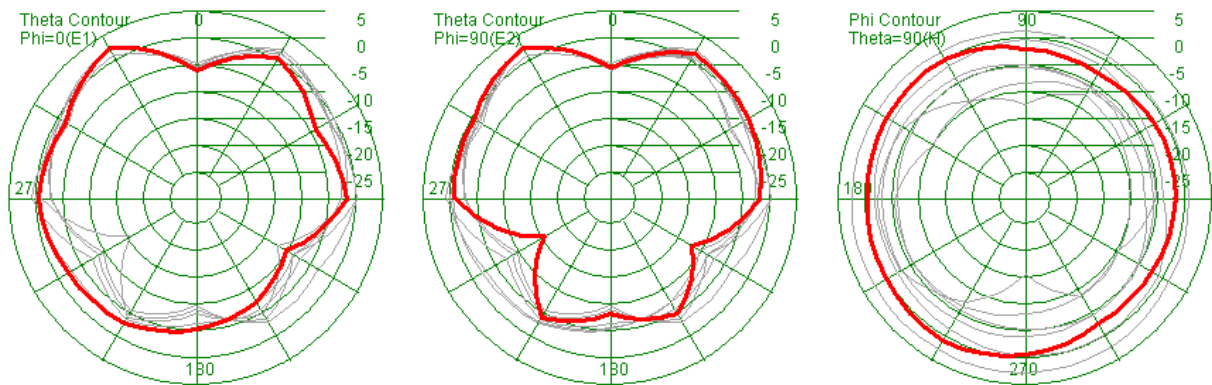
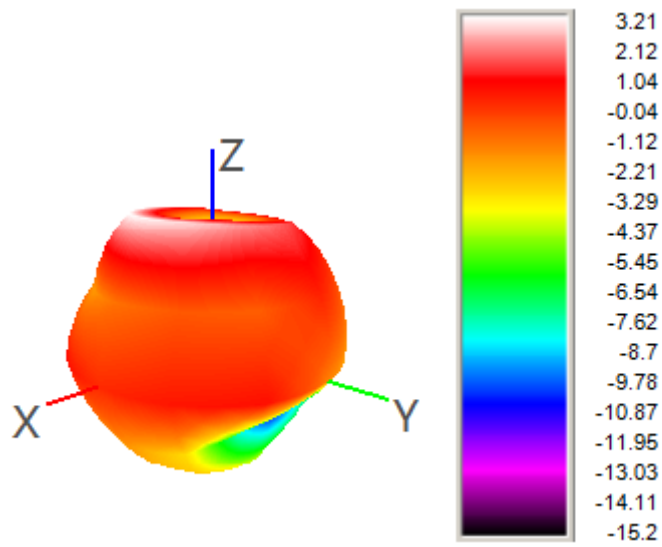


2600MHz



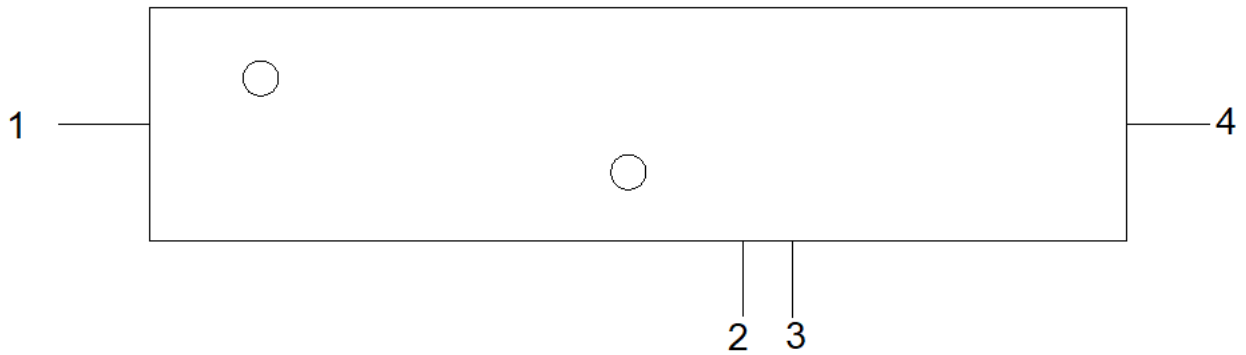


2700MHz



5 Schematic Symbol and Pin definition

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

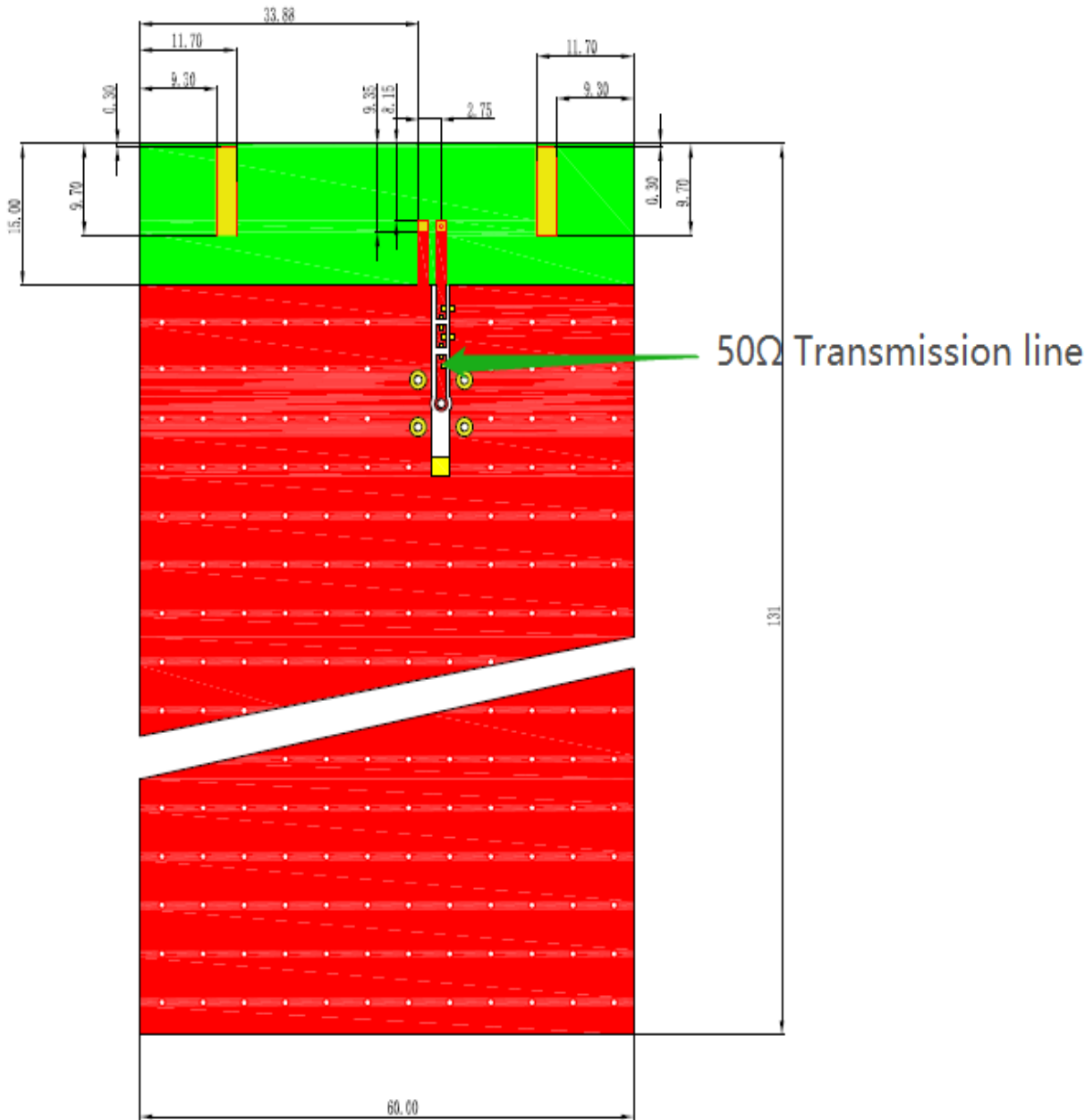


Pin No.	Description
3	Feed
2	Return/GND
1.4	Not used (Mechanical only)

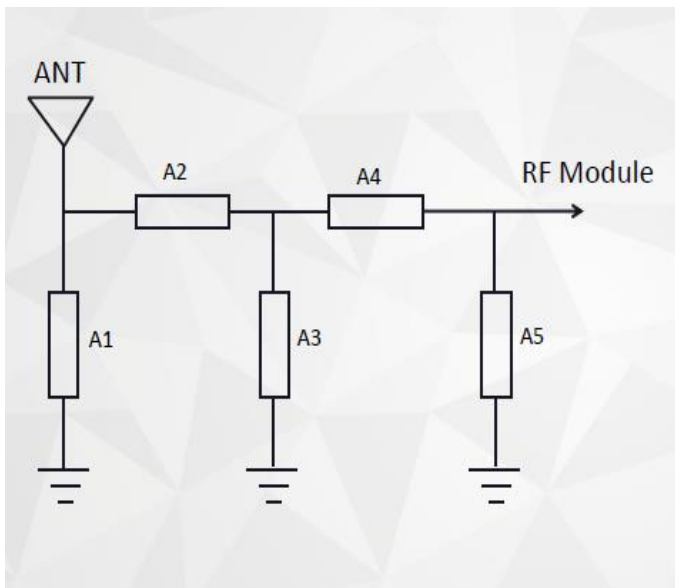
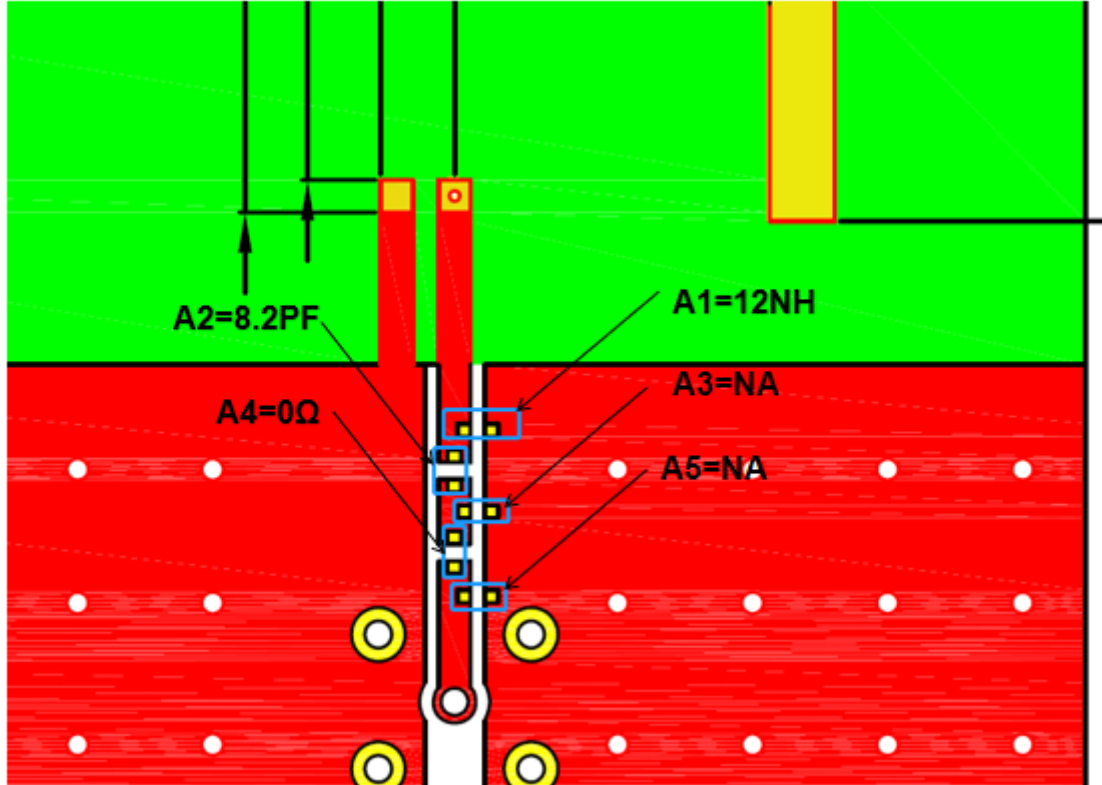
6 Transmission Line

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 .



7 Matching Circuit

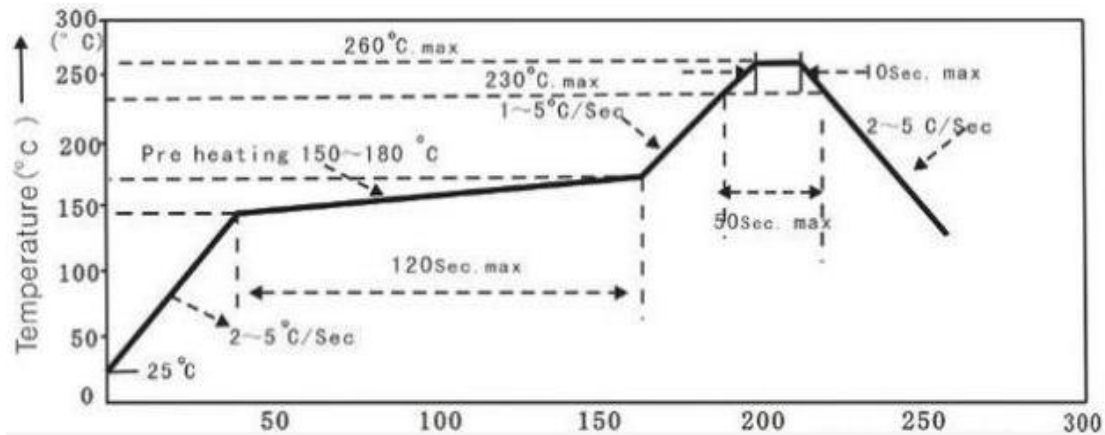


A1	12 nH
A2	8.2 pF
A3	nA
A4	0 Ω
A5	nA

9 Soldering Temperature

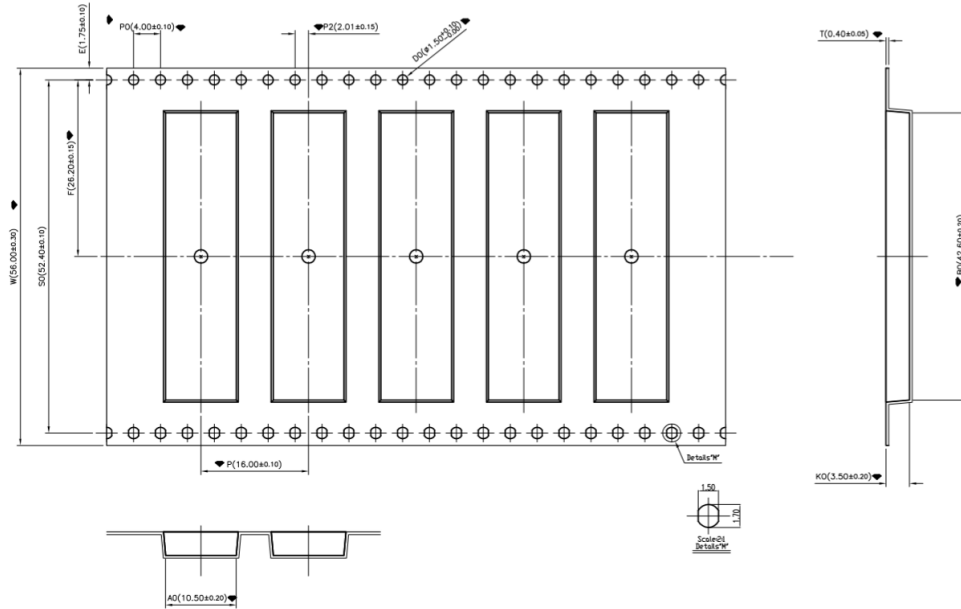
PHASE	Profile Features	PB-Free Assembly (Max.)
RAMP-UP	Avg. Ramp-up Rate (T _{smax} to T _p)	3 °C /second (max.)
PREHEAT	Temperature Min. (T _{smin})	150 °C
	Temperature Max. (T _{smax})	180 °C
	Time (T _{smin} to T _{smax})	120 seconds max.
REFLOW	Temperature (T _L)	210 °C
	Total Time above T _L (t _l)	50 seconds max.
PEAK	Temperature (T _p)	260 °C
	Time (t _p)	10 seconds max.
RAMP-DOWN	Rate	5 °C/second max.

10 Reflow Profile

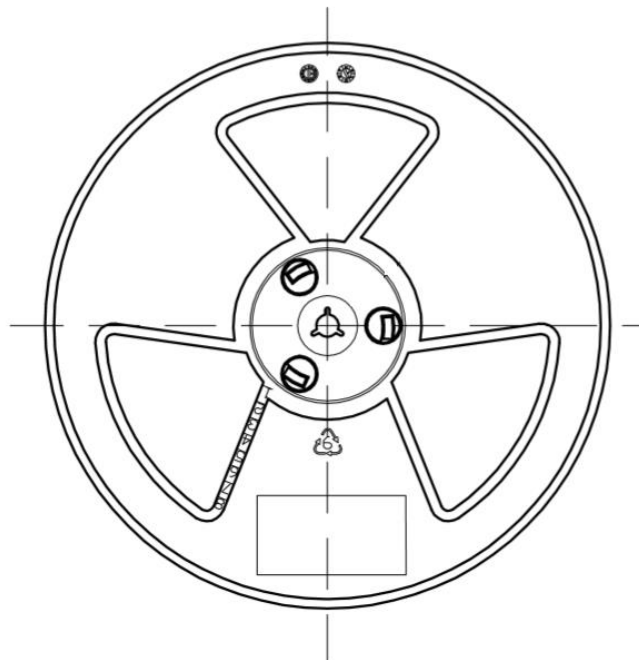


11 Package

- Quantity/Reel: 1100 pcs/Reel
- Carrier tape dimensions (mm)

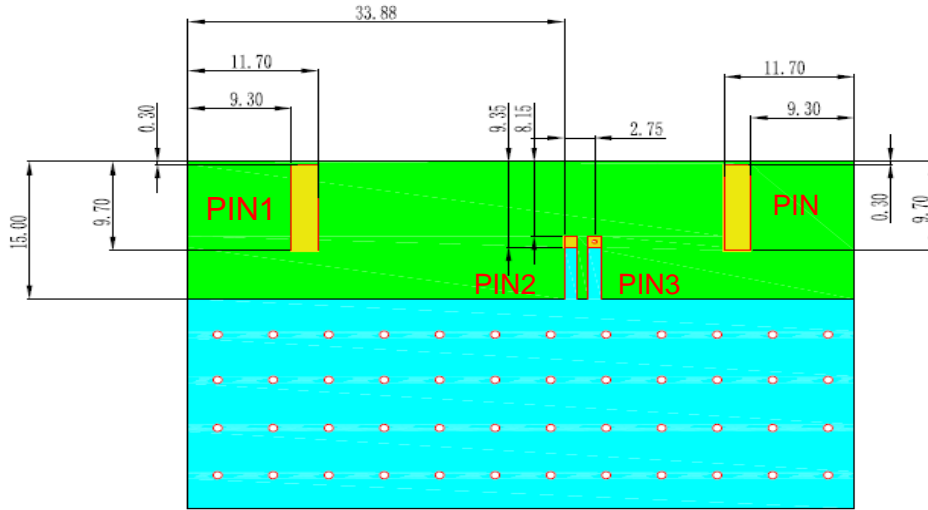


- Taping reel dimensions (mm)



330 mm × 100 mm × 56.4 mm

12 Product Size



PCB Reference Pad

