Specification

CUSTOMER：

CUSTOMER P/N:

DESCRIPTION：

HC P/N: C168-JL-6280

PART NO：NDS-2.4G Antenna

Revision：V1.1

Customer approval	Approval	Check	Preparation
	Frank	WenSen	Vivi
	2023.10.18	2023.10.18	2023.10.18

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Content

Version Description

Date	Approval	Version	Description
2023-10-18		V1.1	The line length is changed to 50mm
2023-02-11		V1.0	First edition

1. Product Performance

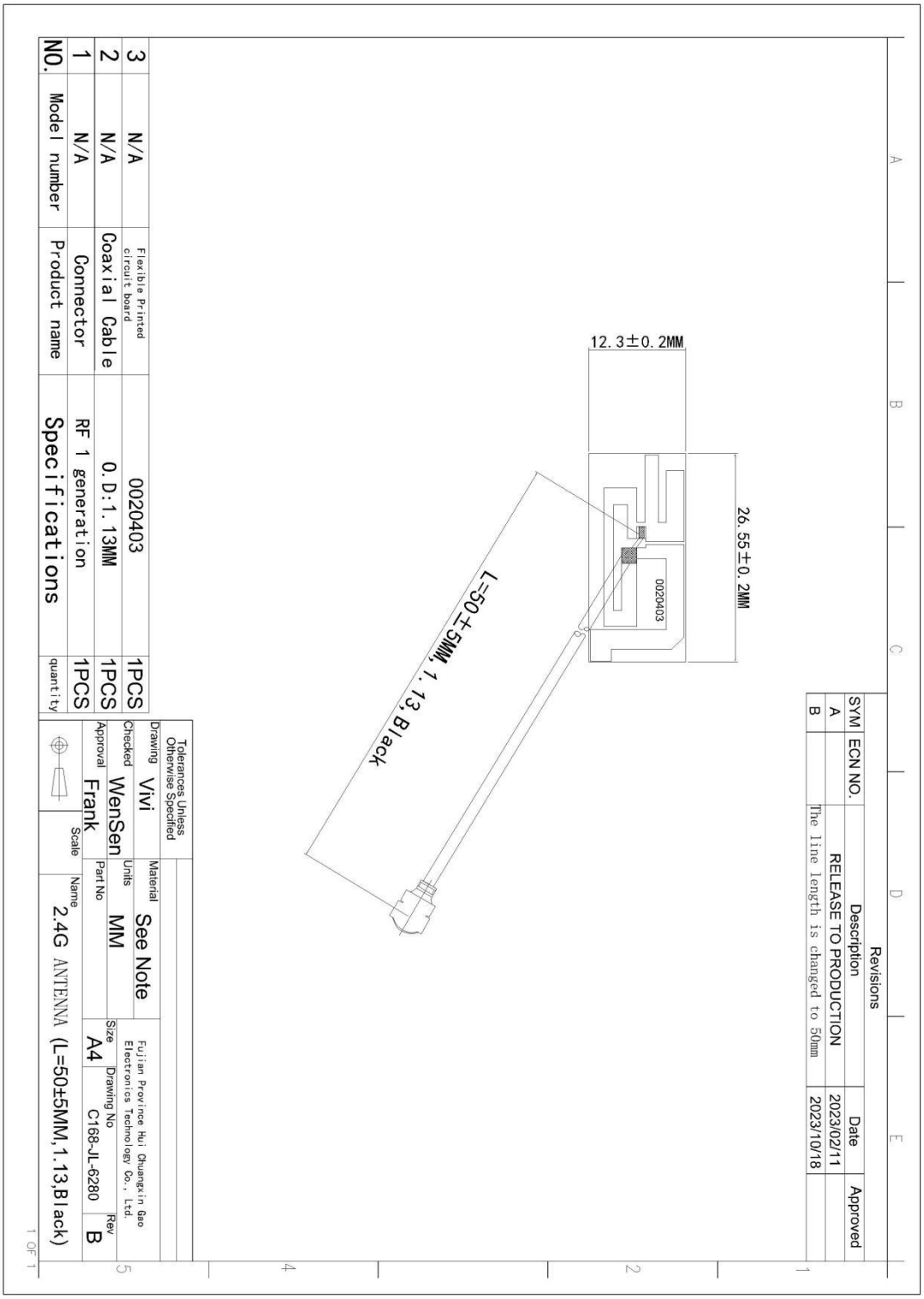
Electrical specifications	
Antenna type	Dipole
Antenna Number	0020403_2.4G
Frequency range(MHz)	2400~2500
VSWR	≤2.0
Impedance(Ohm)	50
Peak Gain(dBi)	3.2@2400~2500
Mechanical specifications	
Dimensions(mm)	26.5*12.3
Connector Type	RF 1Generation for 1.13
Cable Type	1.13，L=50mm，Black
Operation Temperature（℃）	-40~85
Storage Temperature（℃）	-40~85

2. Environmental Performance Test

NO	Item	Test Condition	Requirement	Conclusion
1	Appearance	Visual by eye Light:＞1.0 Lamp:200~300Lx Space:0.3~0.6m	1、 Plastic part:smooth and flat surface without discolor,broken,crack distortion defects is acceptable 2、 Metal part:No obvious mechanical damage and other defects on the surface 3、 PCB (or FPCB) ： The surface is free of dirt, damage, oxidation, no obvious mechanical damage and other defects, screen printing clear. 4、 Wire:clearing surface without discolor,broken defects.	☑Pass ☐Fail ☐NA
2	Terminal Retention Force	Apply axial pull out force at the speed rate of not more 25mm/min on the pin assembled in the housing.	12N MIN	☑Pass ☐Fail ☐NA
3	Solder Retention Force	Apply axial pull out force at the speed rate of not more 25mm/min on the pin assembled in the housing.	15N MIN	☑Pass ☐Fail ☐NA
4	Salt spray test	Refer to GB-T2423.17, NACL solution with 5% concentration, PH 6.5-7.2, temperature 35 ℃, test time 48 hours.	After drying at room temperature, check appearance, the sample surface no obvious corrosion and other abnormal phenomena or according to the drawing specifications.	☑Pass ☐Fail ☐NA
5	High temperature test	Refer to GB-T2423.2, the temperature is 70 ℃ and the time is 24 hours.	After drying at room temperature, check appearance, samples without deformation, stripping, cracks, wrinkles, different color, fish scale lines.	☑Pass ☐Fail ☐NA
6	Low temperature test	Refer to GB-T2423.1, the temperature is-40 ℃ for 24 hours.	After drying at room temperature, check appearance, samples without deformation, stripping, cracks, wrinkles, different color, fish scale lines.	☑Pass ☐Fail ☐NA
7	High	Refer to GB-T2423.3	After drying at room temperature, check	☑Pass

	temperature and high humidity test	specification, temperature 70℃, humidity 95% , time 24H.	appearance, samples without deformation, stripping, cracks, wrinkles, different color, fish scale lines.	☐Fail ☐NA
8	Temperature shock test	Refer to GB-T2423.3 specification, temperature-30 ℃, 1 hour, temperature 75℃, 1 hour, total 22 cycles.	After drying at room temperature, check appearance, samples without deformation, stripping, cracks, wrinkles, different color, fish scale lines.	☑Pass ☐Fail ☐NA
9	Drop test	One corner, three edges, six sides, free fall at an altitude of 1M.	Electrical and mechanical properties are normal.	☑Pass ☐Fail ☐NA
10	Simulate Transport Vibration	Testing according to ISTA standards	Electrical and mechanical properties are normal.	☑Pass ☐Fail ☐NA

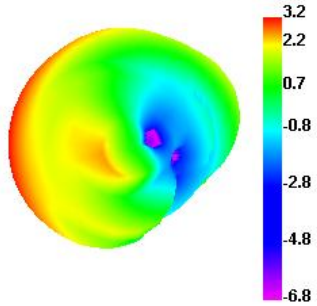
3. Mechanical Dimension Drawing



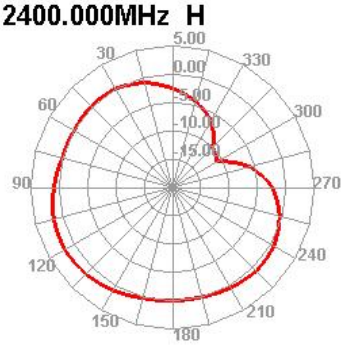
4. Sample Test Report

2.4G Radiation Pattern
2.4G

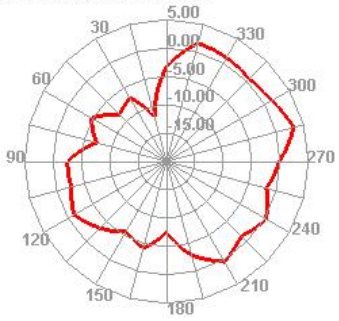
2400.000MHz



2400.000MHz H



2400.000MHz E1



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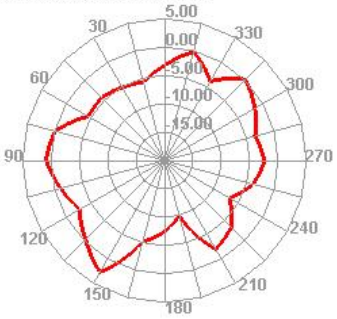
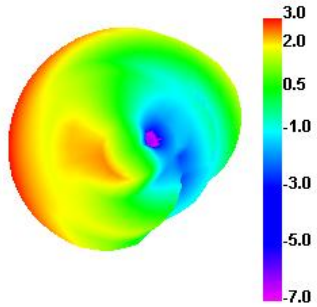


2410.000MHz



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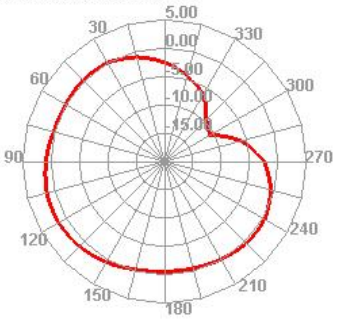

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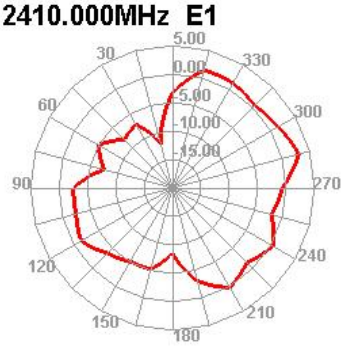

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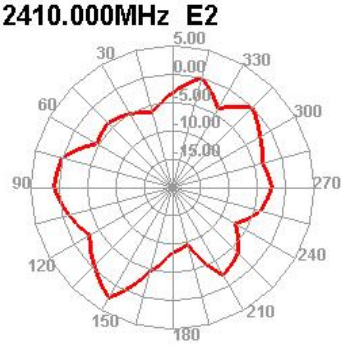

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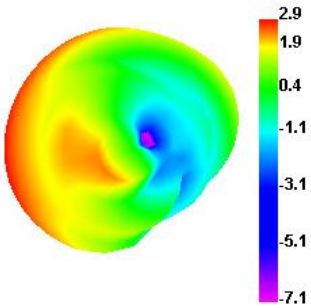

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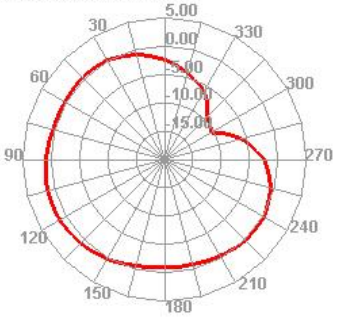

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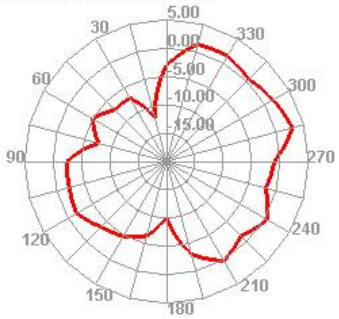

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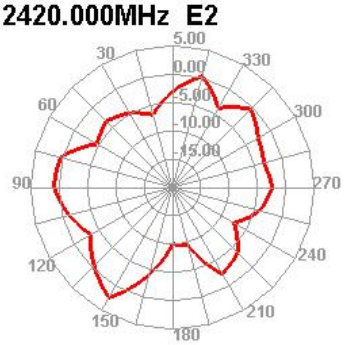

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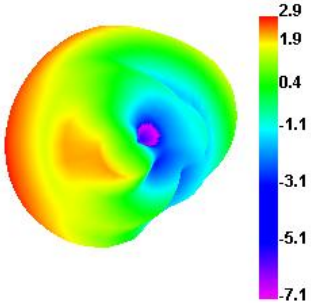

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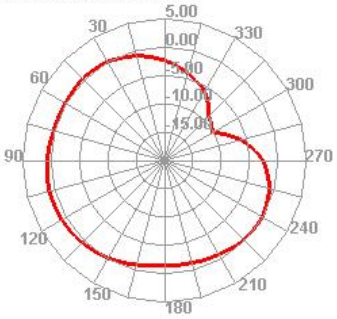

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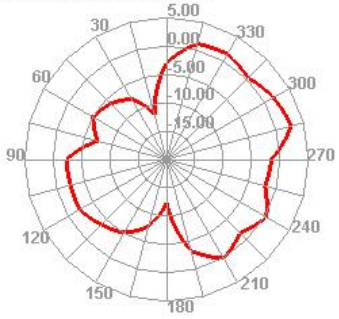

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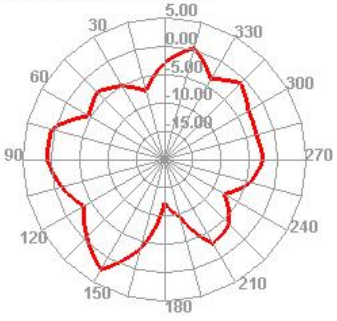

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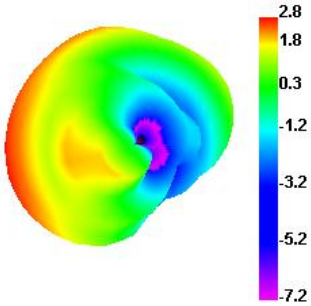

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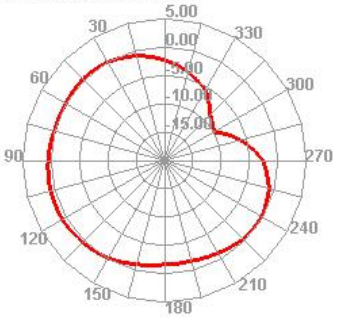

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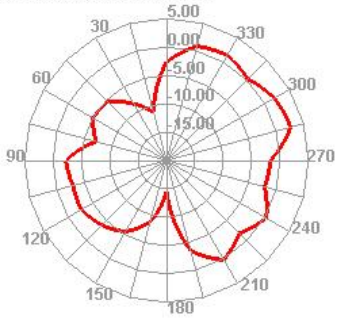

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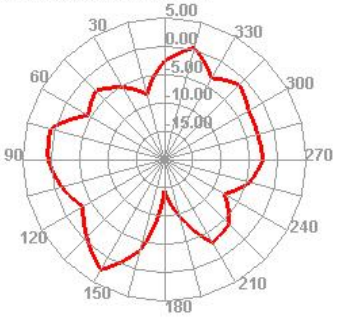
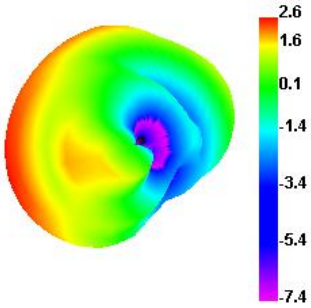


2450.000MHz



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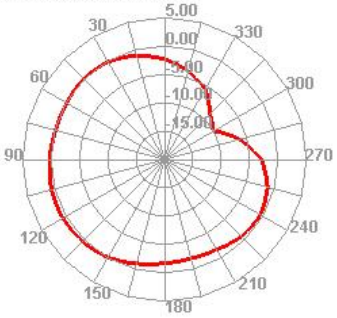

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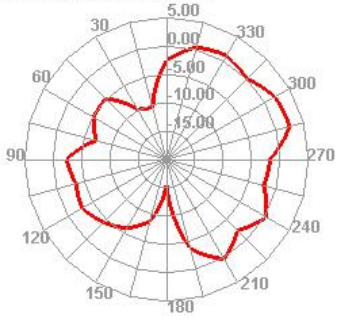

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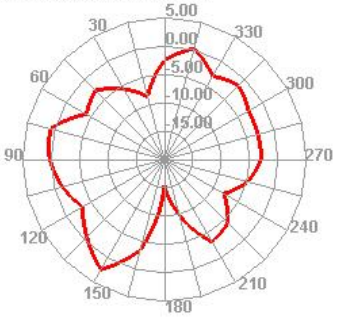
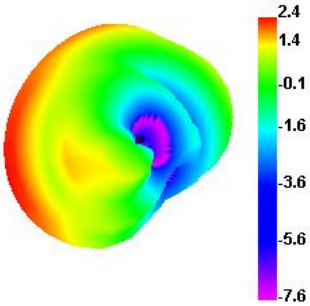


2460.000MHz



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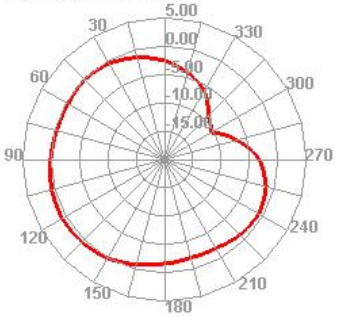

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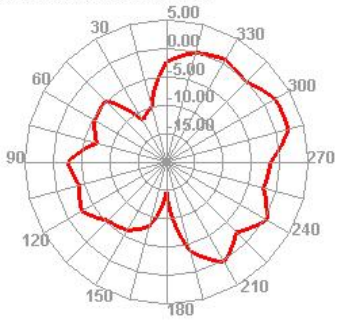

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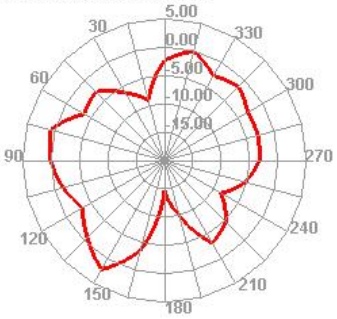
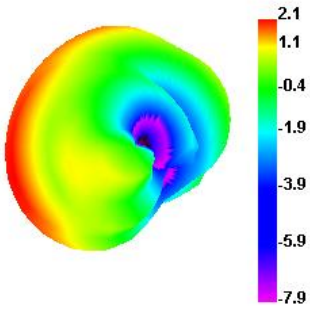


2470.000MHz



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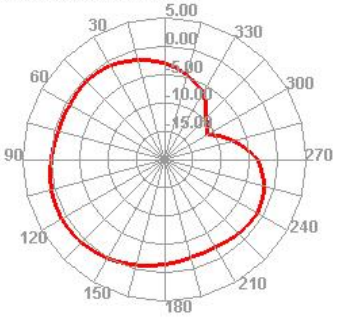
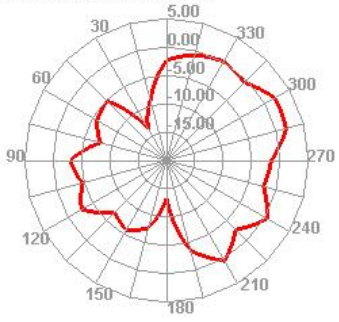


2470.000MHz E1



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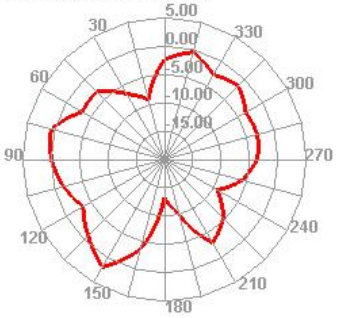
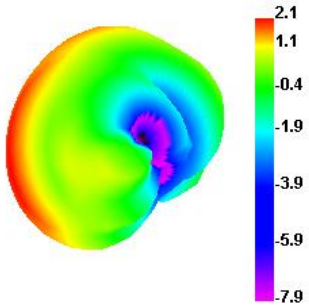


2480.000MHz



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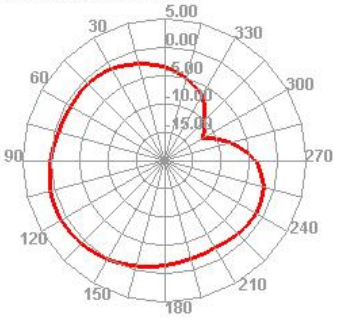

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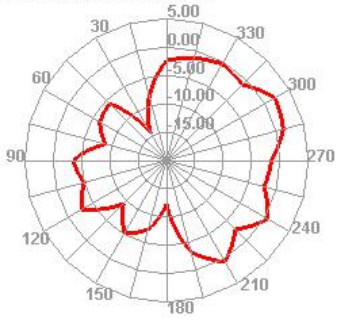

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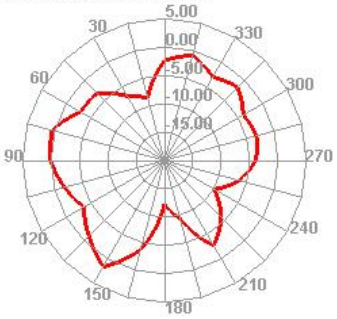
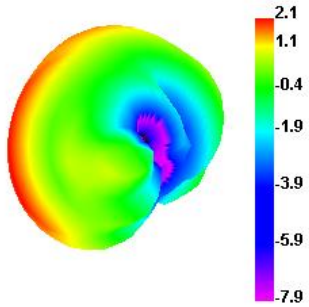


2490.000MHz



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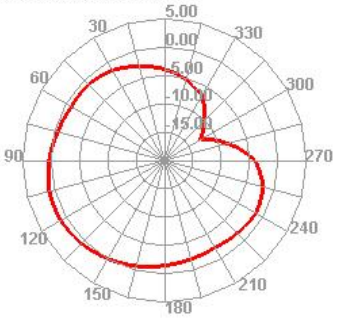

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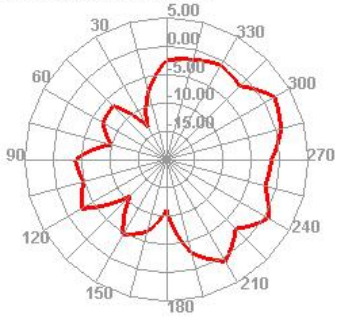

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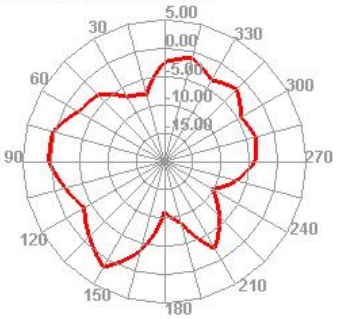
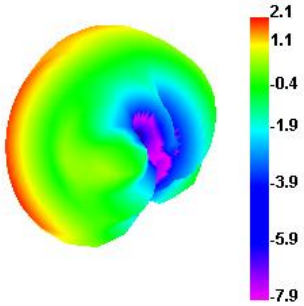


2500.000MHz



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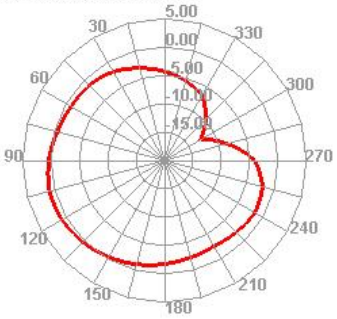

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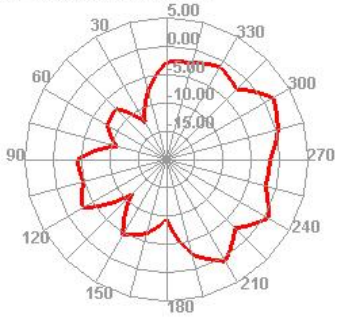
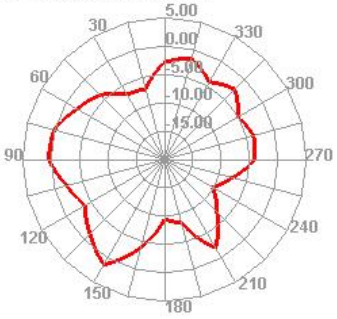


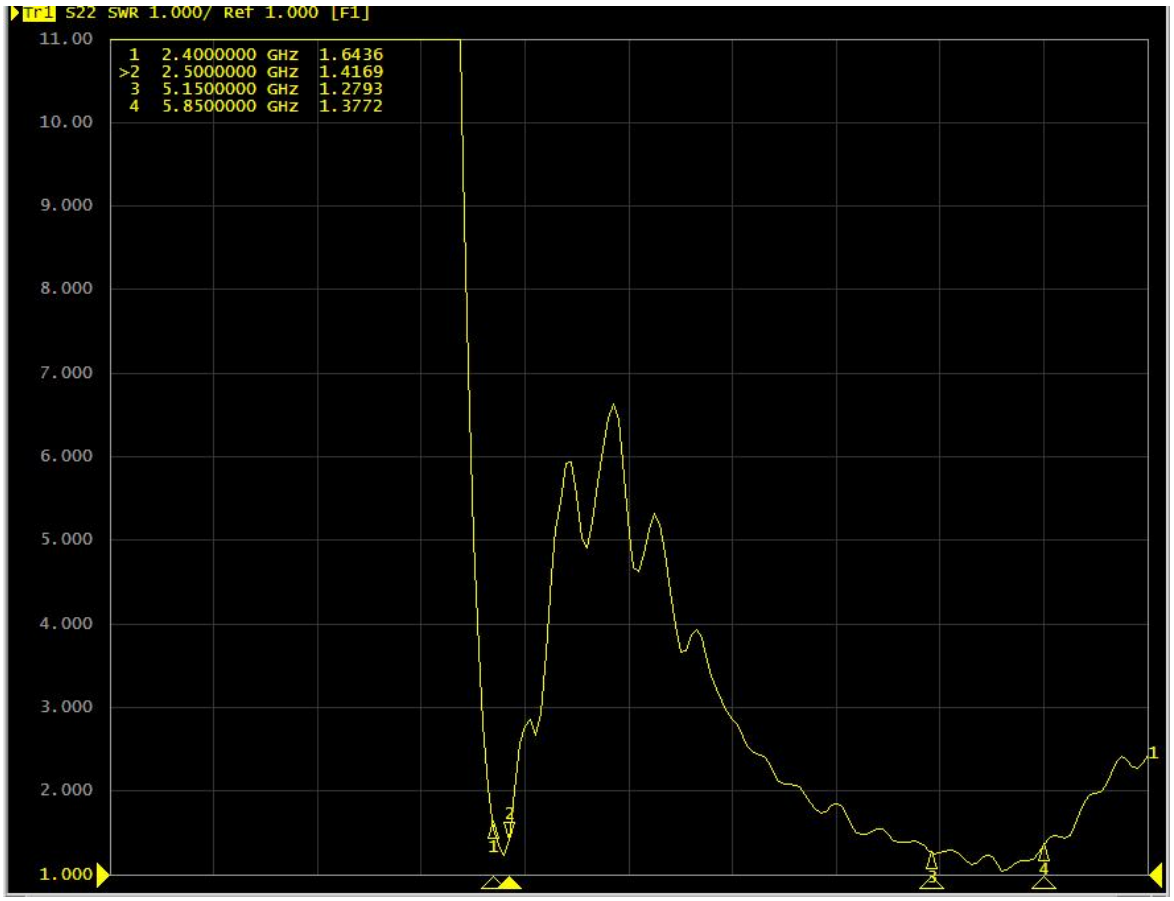
2500.000MHz E2



Efficiency（%%）/Max（dB）

Freq (MHz)	Effi (%%)	Max (dB)
2400	62.82	3.2
2410	64.02	3.02
2420	63.44	2.94
2430	64.62	2.86
2440	67.87	2.81
2450	67.42	2.58
2460	65.45	2.37
2470	65.90	2.13
2480	66.66	2.11
2490	65.51	2.05
2500	65.05	2.05

VSWR


Tr1 S22 SWR 1.000/ Ref 1.000 [F1]
1 2.4000000 GHz 1.6436
>2 2.5000000 GHz 1.4169
3 5.1500000 GHz 1.2793
4 5.8500000 GHz 1.3772
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000

5.QC Engineering Table

QC engineering drawing

Production type:			Document number:				Standardized/date:				
Approval:				Check:				Formulate:			
Control type	Flowchart	Process flow	equipment	Key control points			Method		Responsible person	Control record	Abnormal disposal
				Process	characteristic	Specification requirements	Inspection method	Sampling plan / Frequency			
Incoming materials		Material receipt		One	Incoming inspection	Incoming inspection specifications	According to inspection requirements	GB2828.1-2012 / Each batch of incoming materials	IQC	Incoming inspection report	Return: Special purchase;SCAR
				Two	Test material	According to the product drawing	Test tool	According to the / When necessary	Engineering	Record of Trial Production of Materials	
		Material storage		Theer	Material storage	Warehouse Management System	Warehouse Management System	Each batch / 100%	Warehouse keeper	Incoming Materials Register	Abandon or return to the supplier
Molding process		Cut line	Wire stripper	Four	Wire gauge, Wire color, Length	Refer to SOP	Measure by eye; measure with a ruler	First piece / Present continuous tense	Group leader	Self-inspection of production line	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		Stripping wire	Wire stripper	Five	Stripping size	Refer to SOP	Measure by eye; measure with a ruler	First piece / Present continuous tense	Group leader	Self-inspection of production line	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		Upgrade the tin	Tin stove	Six	Position of soldering, Effect, Temperature of soldering pot	Refer to SOP	Estimate by eye; thermometer	First piece / Present continuous tense	Group leader	Tin furnace temperature inspection chart	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		End the game	Terminal	Seven	Shaping appearance; tensile force	Refer to SOP、One-generation pull≥12N、Three-generation end-pulling≥8N	Estimate by eye; pull tester	First piece / Each batch	Group leader	Terminal pull force record	Notify maintenance adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		Welding	Welding table	Eight	Welding effect; temperature	Correct, uniform, full welding position, no pull tip, no false welding, temperature reference SOP	Estimate by eye; thermometer	100% / Self-inspection	Operator	Welding table temperature spot check	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		Attach auxiliary material		Nine	Copper foil, Aluminum foil, Conductive fabric, Glue types	The sticker is correctly and firmly positioned, and the size is in accordance with the SOP	Measure by eye	100% / Self-inspection	Operator	Self-inspection of production line	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
Inspection		Electrical detection	Network division	Ten	S11、VVSR	Refer to SOP	Network division inspection	100% / Self-inspection	Operator	Self-inspection of	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		Look at the appearance		Eleven	Finished product appearance, Size length	Refer to SOP	Measure by eye; measure with a ruler	100% / Self-inspection	Operator	Self-inspection of production line	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
Packing shipment		Packaging	Taping machine; strapping machine	Twelve	Packaging bag; Label; Foam; Outer box	Refer to SOP	Estimate by eye; weighing	100% / Self-inspection	Operator	Self-inspection of production line	Operator adjustment
								Inspection	IPQC	IPQC inspection record	Notice of production line adjustment, exception
		Shipping Inspection	Related instrument	Thirteen	Electrical performance; Appearance; Packaging	Shipping Inspection Specification	According to the shipment inspection requirements	GB2828.1-2012 / Each batch	OQC	Shipping inspection records	Work order
		Delivery		Fourteen	Transport, Express bill	Safety, stability, record	Measure by eye	100% / Each batch	Shipment	Waybill	Rework

Incoming materials　Operation　Inspection　Shipment

6.Packing Specification