

Shenzhen Helixun Technology Co., Ltd

APPLICATION FOR APPROVAL

Customer Name	Dongguan Chenxin Electronic Technology Co., LTD
Model Name.	CR38
Part NO.	FPC antenna
Customer P/N.	58AA.0004R.1030H
Environmental Requirement	ROHS/REACH
Description	Coaxial antenna, Fourth-generation terminal, Line length30+3mm, HLX0088-CR38-V1, 2.4G, 42*8*0.2mm
Publish Date	
Versions	A0

Manufacturer sign

APPROVED BY	CHECKED BY	DRAWN BY

Customer sign

Structural engineer confirms	Electronic engineer confirms	Acoustic engineer confirms	Engineering Confirmation	Quality confirmation
Confirm index	Confirm index	Confirm index	Confirm index	Confirm index

Shenzhen Helixun Technology Co., Ltd

Address: Room 1004, JinhuanYu Building, No. 56, Tiezi Road, Xixiang Street, Bao'an District, Shenzhen

SPECIFICATION FOR APPROVAL

Customer Name	Dongguan Chenxin Electronic Technology Co., LTD		
Customer Project Name	CR38	Helixun Project Name	CR38
Customer P/N		Helixun P/N	HLX0088-CR38-V1
Band	2400-2500MHz		
Version			
Designer Information			
RF Engineer	黄亚飞	EE Engineer	
ME Engineer	黄亚飞		

Helixun Approval				Customer Approval	
	Prepared By	Checked By	Approval By	Checked By	Approval By
Signature	刘智荣				
Date	2026-01-10				

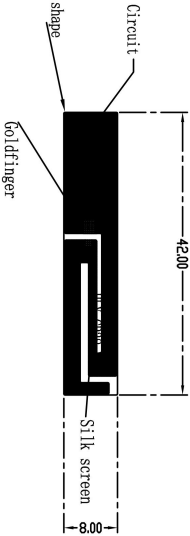
Change Log				
Version	Change Description	Person in Charge	Approval By	Date

Catalogue

No.	Item	Page No.
1	Drawing or Product Image	3-4
2	Dimensions Test Report	5
3	RF Performance Test Report	6-12
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5	Packing criterion	14
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产品图纸或实物图片
Drawing or Product Image

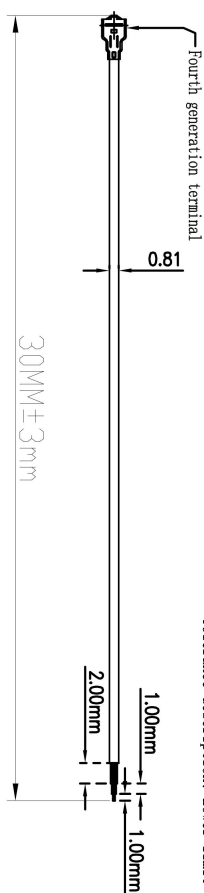
Silk screen white, antenna black



Concentrate:

1. The adhesive is made of 3M 9471 300SE, the viscosity is more than 300MP, the shape of the adhesive is consistent with the substrate, covered on the back of the substrate, and the adhesive is cut in half;
2. The material is one-sided, a pair of half substrate, and the elasticity should be good;
3. There is no crack on the surface of the product after being bent at 180° after being oiled, and the flexibility should be good;
4. The surface of the gold finger is plated with gold 0.5 μ m, no oxidation, and there is no crack or conduction phenomenon after 180° bending at the junction of copper foil;
5. The precise tolerance range of wiring and holes: $\pm 0.03\text{mm}$, and the tolerance of external dimensions is controlled within 0.1mm;
6. The $\star$ size is strictly controlled, marked with $\star$ as the key size, and the unmarked size is measured according to the CAD electronic drawing file 1:1;
7. Printing on the surface, see the figure for the specific content and location;
8. The non-appearance needs to be cut and sent to our company after the sample is sent.

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				Shenzhen Helixun Technology Co., Ltd																																			
D <table><tr><td>No.</td><td>Layer</td><td>Description (thickness)</td><td>Manufacturer &/N</td></tr><tr><td>1</td><td>Adhesive backing</td><td>3M9471LM</td><td>3M</td></tr><tr><td>2</td><td>Substrate</td><td>KUM-800F NH63<10 μm></td><td>China rengetti</td></tr><tr><td>3</td><td>Ink</td><td>PSM-800FSDM-ASMH-80</td><td>Yuri</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr></table>				No.	Layer	Description (thickness)	Manufacturer &/N	1	Adhesive backing	3M9471LM	3M	2	Substrate	KUM-800F NH63<10 μm>	China rengetti	3	Ink	PSM-800FSDM-ASMH-80	Yuri	1	2	3	4	The third corner		Models		date		2025-08-06		drawing		黄亚飞		page number		10/1	
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0~10		±0.10		○		0.02		Product name		BT																													
10~20		±0.12		◎		Ø.03		Part number		HM088-C38-11		structure		黄亚飞																									
20~40		±0.15		⊥		0.02		Material		PPC-3M9471																													
40~		±0.20		∇		0.04		Die face treatment		RF		黄亚飞																											
				✓		0.02						unit		mm		proportion 1:1		version																					
Do not measure the drawing				Location		Appearance treatment												REV.A																					
				5		6		7		8																													



Tolerance description: Lower limit 0, upper limit 0.5mm

Note: 4th generation terminals are used Total length: 30mm

1. Technical parameters
1. Rated voltage: 60VAC (R. M. S)
2. Frequency testing range: 0-60kHz
3. Characteristic impedance: 50 ± 2 ohms
4. Working temperature range: -40 °C to+85 °C
5. Working humidity: 95% R.H. Max
2. Electrical performance
1. Insulation impedance: 500M ohms
2. Contact resistance: Center PIN pin 25m ohms Max
- External iron shell 15m ohms Max
3. Voltage endurance: 200V AC 2 Min
4. Line loss: 900M Hz 0.5db Max
- 1800M Hz 0.7db Max
5. VSWR (Voltage Standing Wave Ratio): 0.1-3GHz 1.3 Max
- 3~6GHz 1.5 Max.
3. Mechanical performance
1. Pull out force: 4N Min. After 30 cycles, 2N Min
2. Tensile strength: 7N Min

Shenzhen Helixun Technology Co., Ltd								
	The third corner	Models	CR38	date	2025-08-06	drawing	黄亚飞	page number
0~10	±0.10	○	0.02				Audite	approved
10~20	±0.12	◎	0.03					
20~40	±0.15	⊥	0.04	structure	黄亚飞			
40~	±0.20	∇	0.04	Material	PPC+3M947I			
		∟	0.02	Die face treatment	RF	黄亚飞		
Do not measure the drawing Location				appearance treatment		unit	mm	proportion 1:
								version
								REV.A

Shenzhen Helixun Technology Co., Ltd

Appearance	Gilding area	line area	Release liner	tear-off position
				
V.1.1	V.2.2	V.3.3	V.4.4	V.5.5

Sample Dimensions Test Report

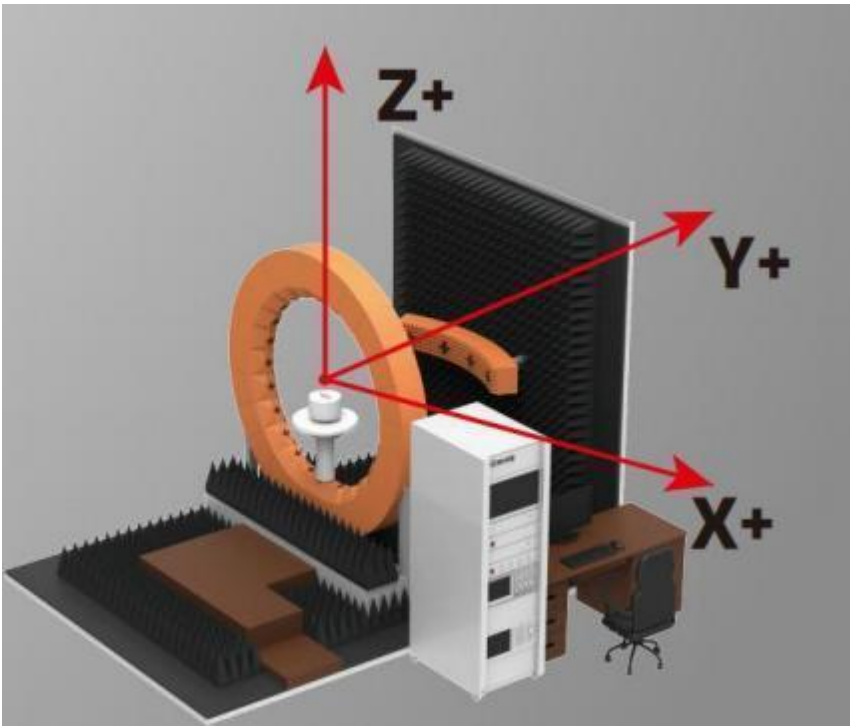
Customer Name	Dongguan Chenxin Electronic Technology Co., LTD	Customer P/N		Helixun P/N	HLX0088-CR38-V1
Test Date	2026-01-10	Sample Qty.	3	Inspector	刘智荣
Dimension No.	Standard	Sample 1	Sample 2	Sample 3	Pass/NG
①length	42.00±0.2mm	42.03mm	42.03mm	42.03mm	Pass
②width	8.00±0.2mm	8.01mm	8.01mm	8.01mm	Pass
③thickness	0.2±0.05mm	0.20mm	0.22mm	0.21mm	Pass
④line length	30.00±3mm	31.27mm	32.69mm	30.14mm	Pass
⑤					
⑥					
⑦					
Conclusion					PASS
Inspector & Date	刘智荣2026-01-10		Approval &Date		

RF Performance Test Report

Customer Name	Dongguan Chenxin Electronic Technology Co., LTD	Project Name	CR38	Helixun P/N	HLX0088-CR38-V1
Band	2400-2500MHz	Test Date	2026-01-10	Inspector	刘智荣

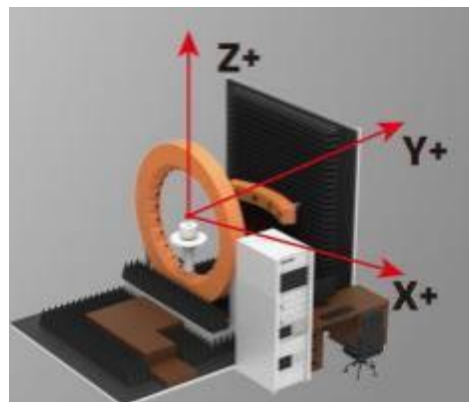
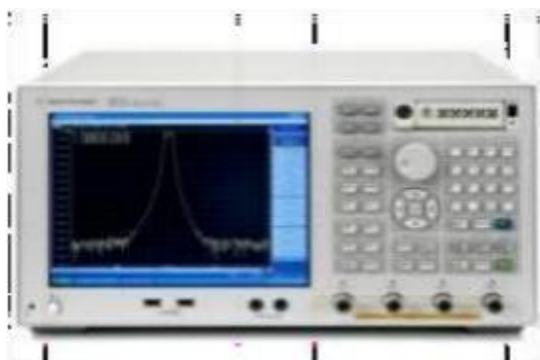
Antenna Test Equipment Introduction

Test of antenna input characteristics using **Agilent E5071C** and **Agilent 5071B** vector network analyzer ; The radiation pattern of the antenna are tested using the ETS star lab 3D near field Anechoic Chamber, and the instrument is used to agilent8960 E5515 and Agilent E4438C. The test coordinates of the darkroomare as follows :



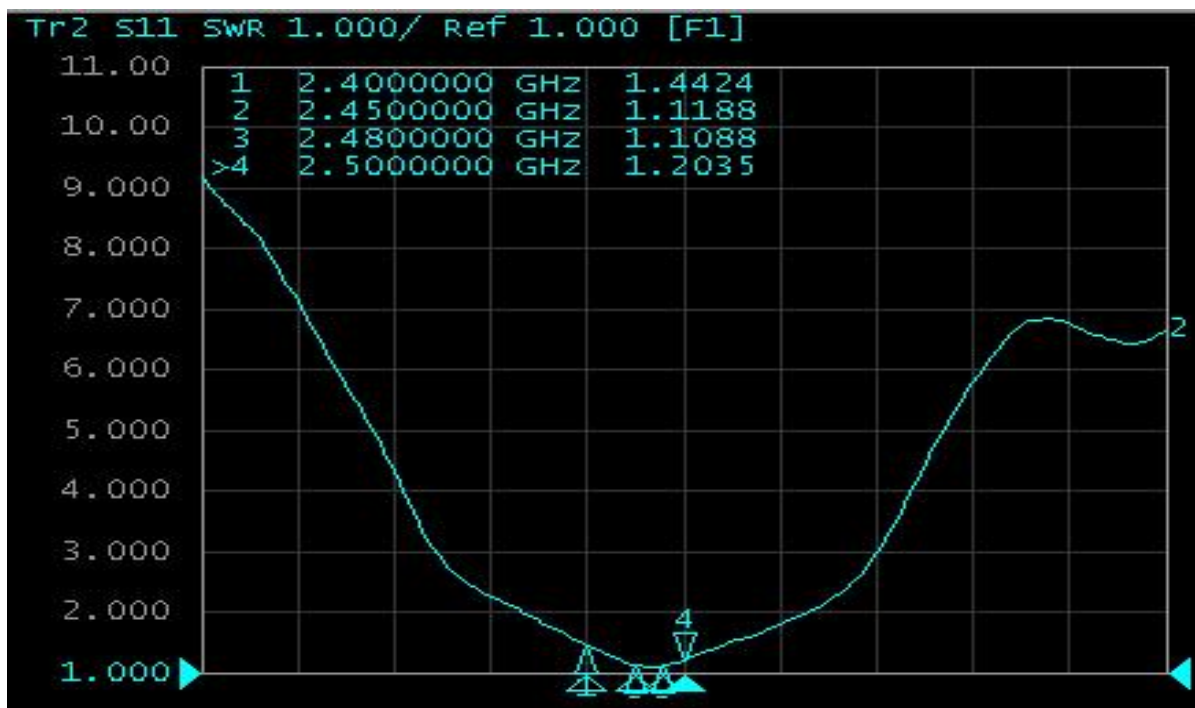
TestSystem

Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5062A
OTA Test	TRP&TIS	Agilent 8960 E5515C& Agilent 4438C&CMW500 ETS&SATIMO
Gain & Efficiency	Gain & Efficiency	ETS&SATIMO Agilent 5071C



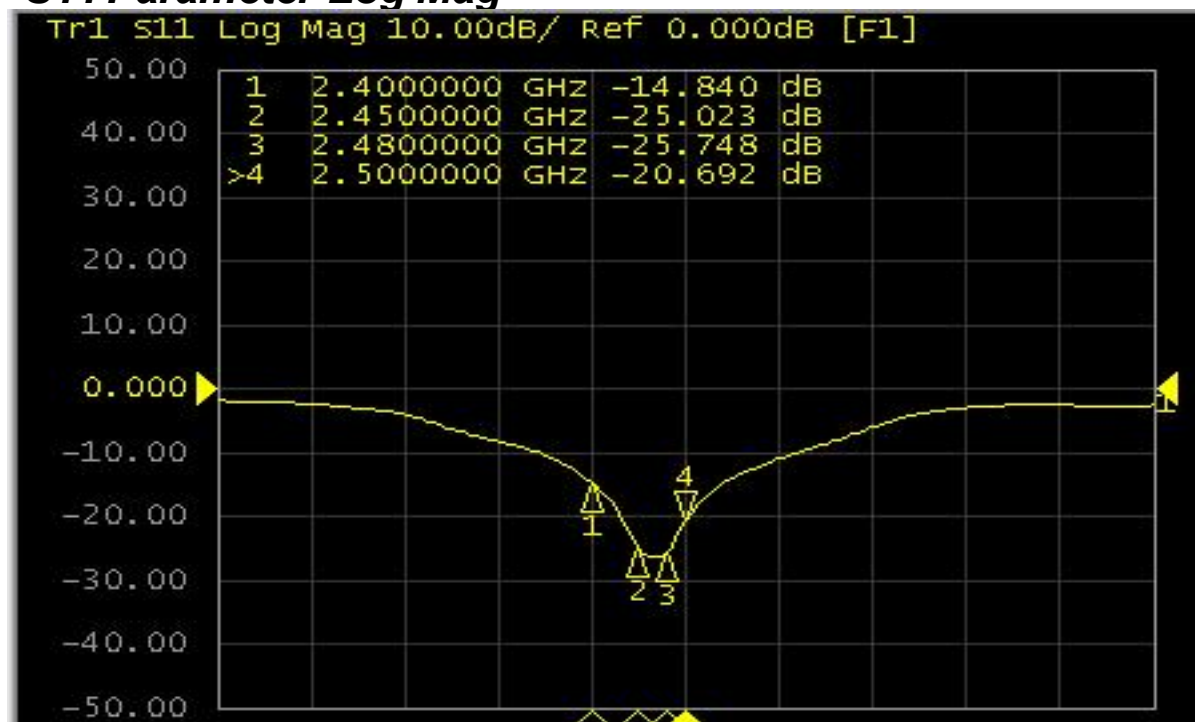
Test Result

S11 Parameter-VSWR



Frequency (MHz)	2400	2450	2480	2500
VSWR	1.44	1.11	1.10	1.20

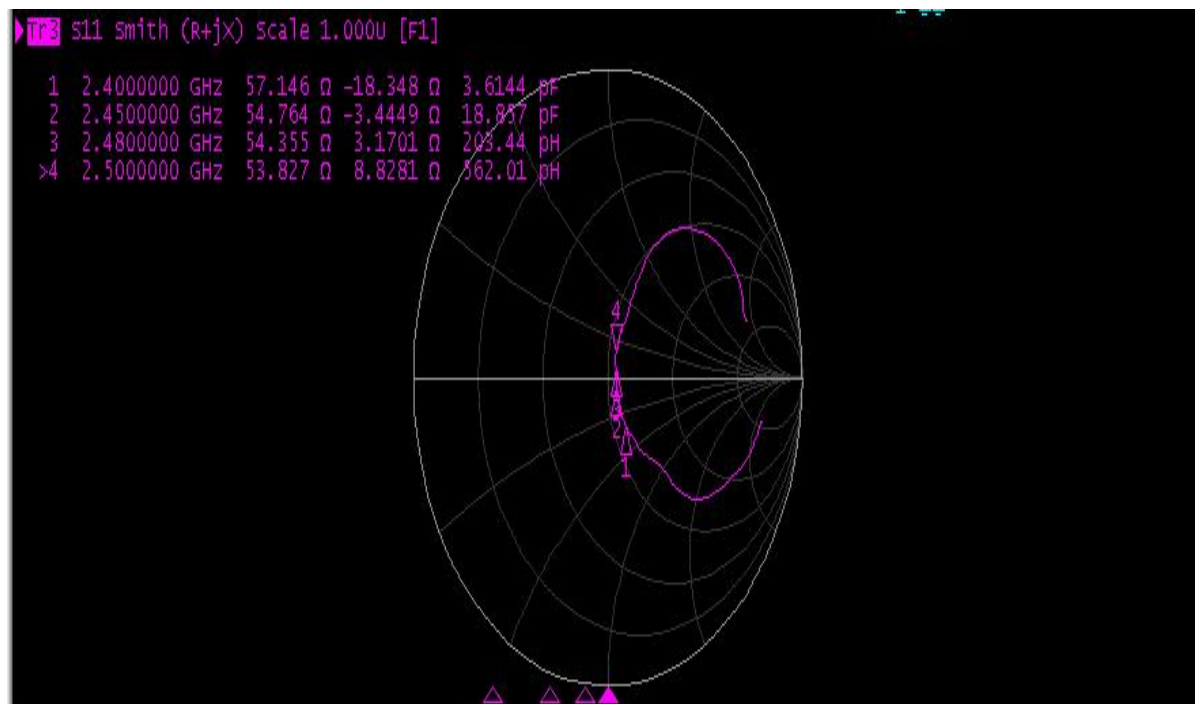
S11 Parameter-Log Mag



Frequency (MHz)	2400	2450	2480	2500
Log Mag	-14.84	-25.02	-25.74	-20.69

Test Result

S11 Parameter-Smith



Frequency (MHz)	2400	2450	2480	2500
S11 th(Ω)	57.14	54.76	54.35	53.82

Test Result

Gain & Efficiency—ANT

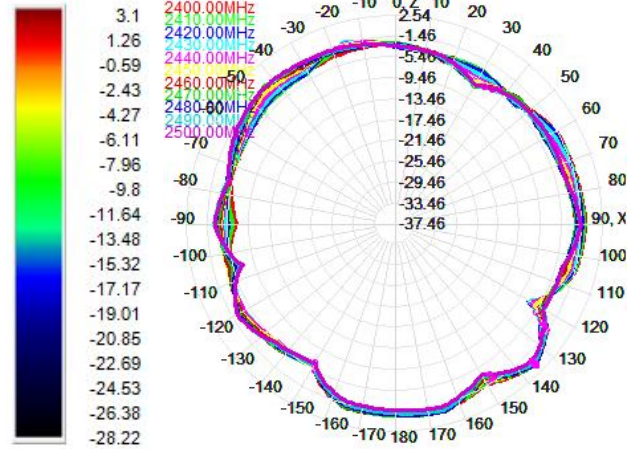
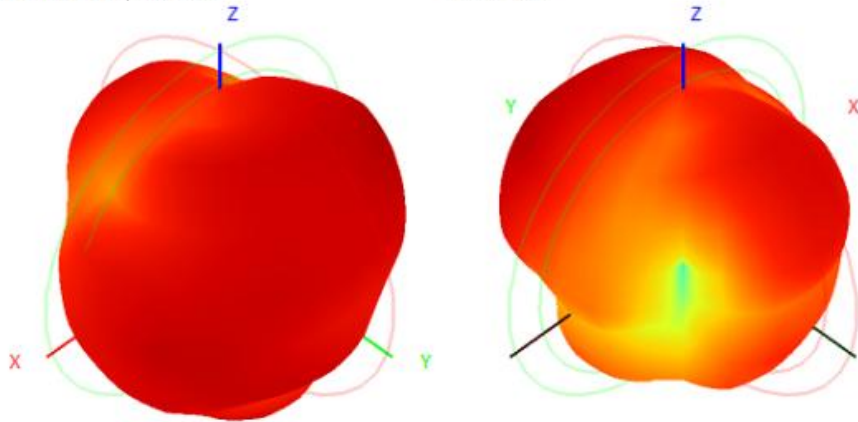
Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	56.42%	3.10
2410	56.36%	3.11
2420	56.32%	3.05
2430	56.80%	3.00
2440	57.48%	3.21
2450	58.17%	3.60
2460	58.72%	3.89
2470	59.42%	3.96
2480	60.09%	3.81

Test Result

2D Pattern——BTANT

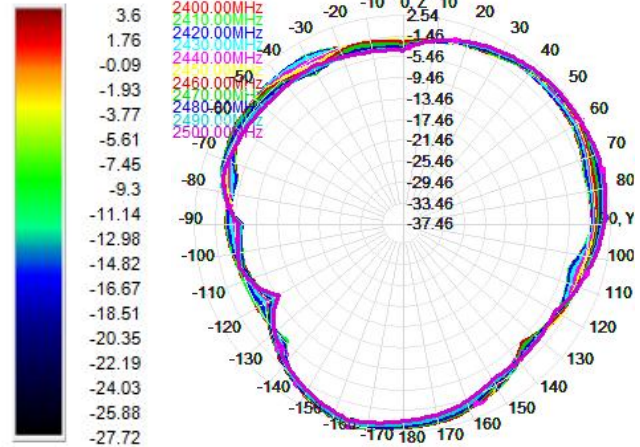
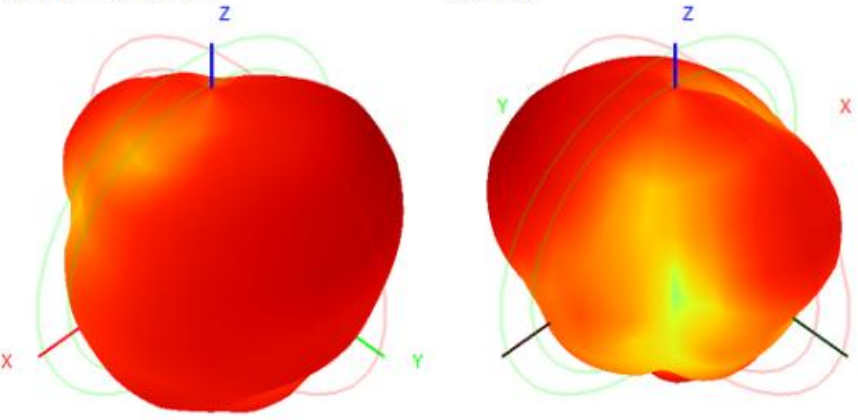
2400.0MHz Total, Eff: 56.4%

Back View



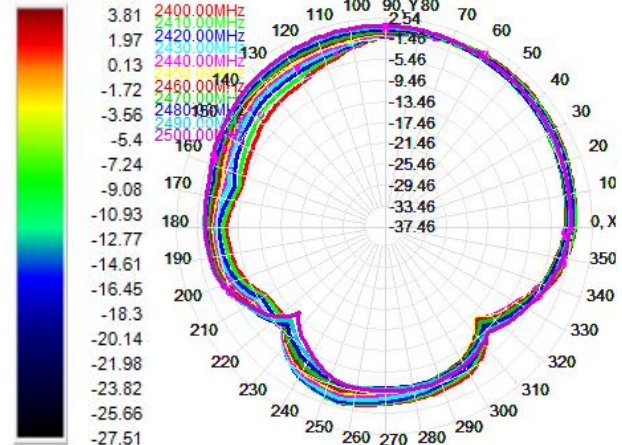
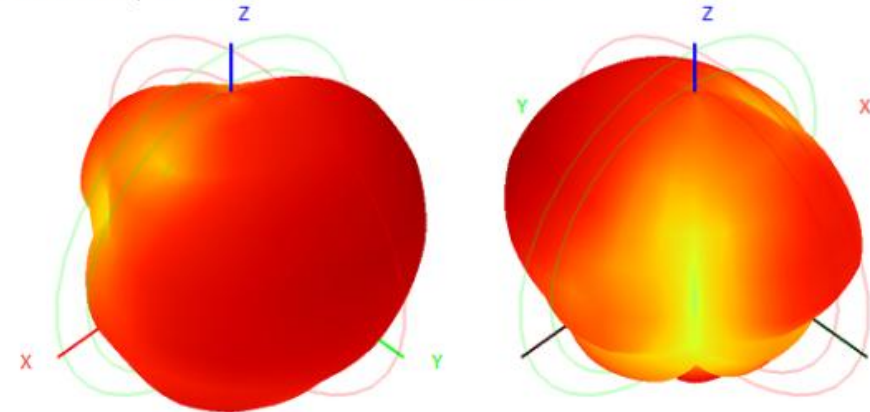
2450.0MHz Total, Eff: 58.2%

Back View



2480.0MHz Total, Eff: 60.1%

Back View



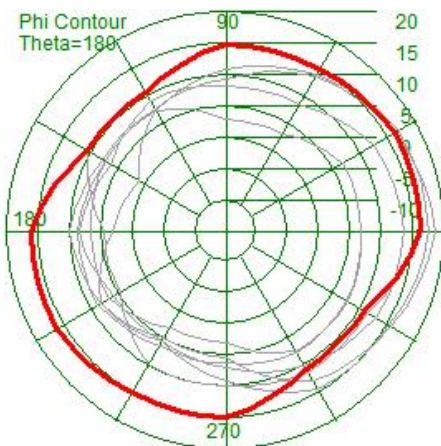
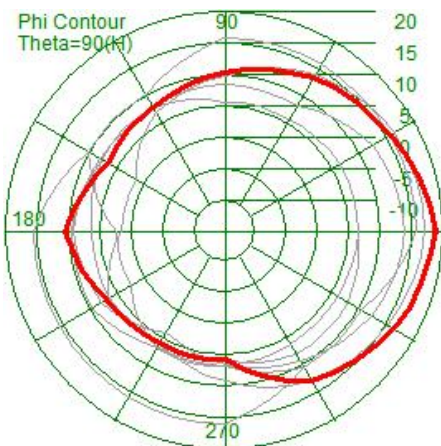
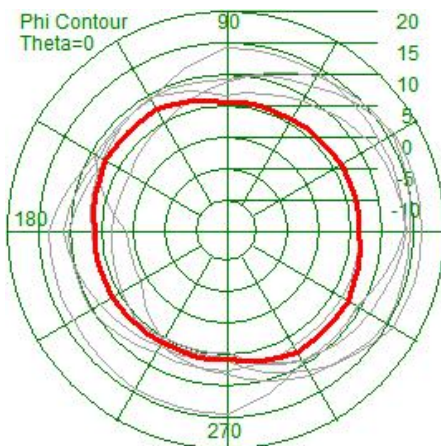
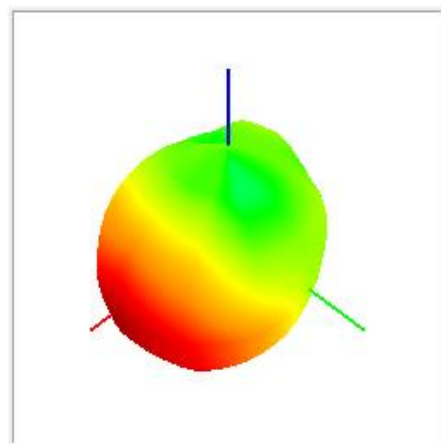
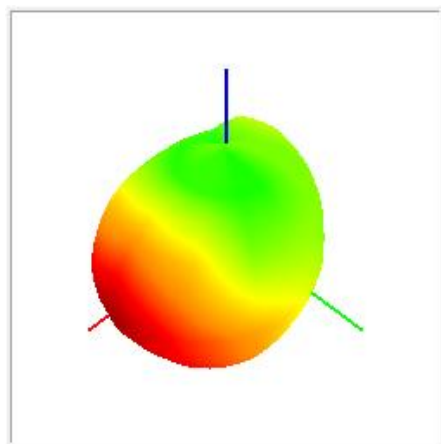
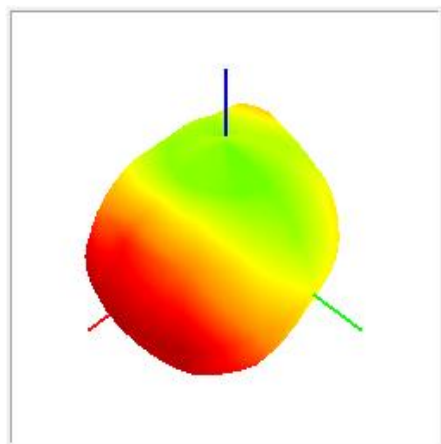
OTA Data

Test Equipment:	R&S CMW500		
Test Condition:	2 D chamber		
Band	Channel	TRP(dBm)	TIS(dBm)
BT	0	8.53	-94.53
	39	8.88	-93.50
	78	8.92	-93.11

Test Result

2D Pattern——**BTANT**

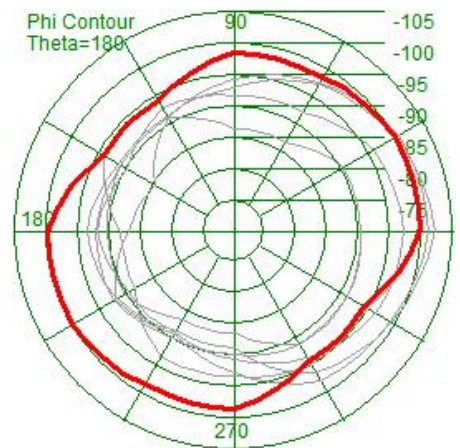
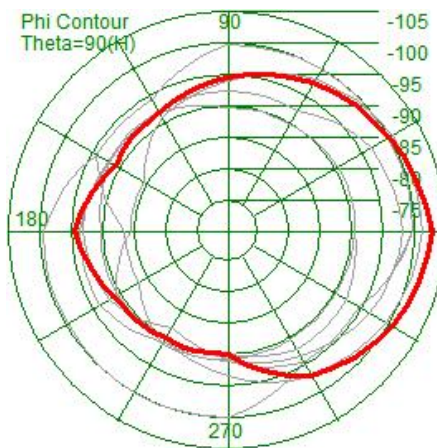
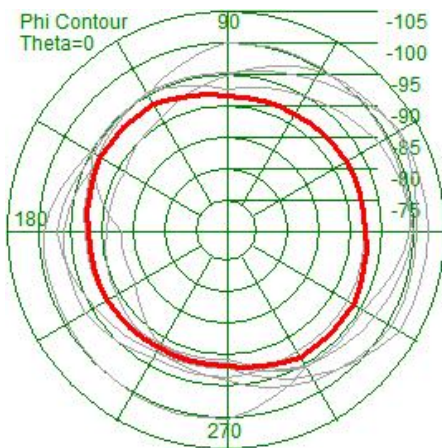
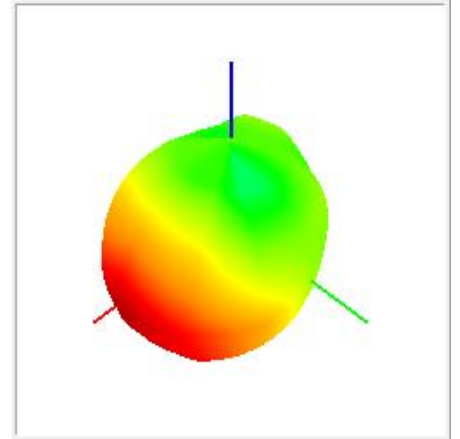
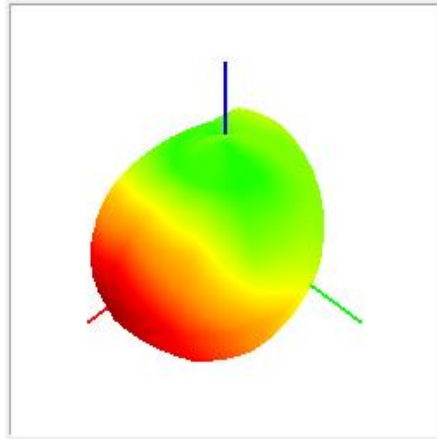
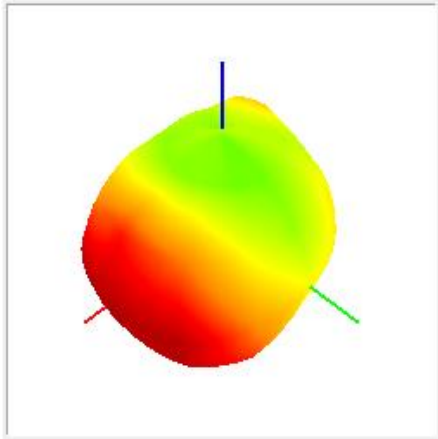
TRP



Test Result

2D Pattern——**BTANT**

TIS



Reliability Test Report

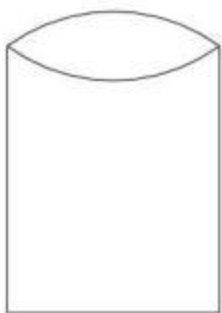
Customer Name	Dongguan Chenxin Electronic Technology Co., LTD	Customer P/N		Helixun P/N	HLX0088-CR38-V1	
Test Date	2026-01-10	Sample Qty.	3	Inspector	刘智荣	
Test Item	Requirement	testing equipment	Sample 1	Sample 2	Sample 3	PASS/NG
High-temperature storage	The test was conducted after exposure to +85°C for 24 hours and recovery for 2 hours	Constant temperature and humidity chamber	OK	OK	OK	Pass
Low-temperature storage	The test was conducted after exposure to -40°C for 24 hours and recovery for 2 hours	Constant temperature and humidity chamber	OK	OK	OK	Pass
High-temperature work	It can be powered on and operate for 24 hours at +60°C	Constant temperature and humidity chamber	OK	OK	OK	Pass
Low-temperature work	Operate on power for 24 hours at -20°C	Constant temperature and humidity chamber	OK	OK	OK	Pass
Salt spray test	Sodium chloride (5 ± 0.5)%, pH value 6.5-7.2, temperature of the experimental chamber (35±2)°C ☒ 24H ☐ 48H	Salt spray testing machine	OK	OK	OK	Pass
Riveting and drawing force of connectors	1.13 Wire diameter ≥10N 0.81 Wire diameter ≥8N RG174 ≥60N RG178 ≥50N	Push-pull force gauge	8N	8N	8N	Pass
Conclusion						Pass
Inspector & Date	刘智荣2026-01-10		Approval & Date			

Product packaging specifications

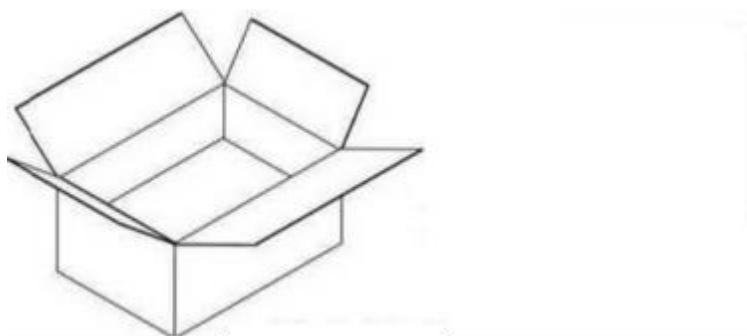
1. Individual product (based on actual packaging)



2. Large PE bag packaging (full page/single 100pcs)
(subject to actual packaging)



3. Seal the box and label the outer box with our company's production label and ROHS label. (Based on actual packaging)



Environmental requirements

MSDS	☒ Provided	☐ Not provided	☐ N/A
COC	☒ Provided	☐ Not provided	☐ N/A
Yunshi Technical Standards for Environmental Protection Hazardous Substances	☒ Provided	☐ Not provided	☐ N/A
Specific environmental protection requirements	☒ In line with ROHS2.0 ☒ In line with REACH ☒ It complies with halogen-free standards ☒ In line with California 65		

Install Wizard or Other

Installation process:

Take 1 piece of the product, tear off the release paper on the back of the FPC by hand, then align the positioning hole position of the FPC with the positioning hole position of the shell (positioning rib position or positioning line), and stick it flat onto the shell. The specific position is shown in the following figure:

Installation process precautions:

- ☒ After pasting the antenna, ensure that the FPC is fully attached to the housing;
- ☒ The positioning holes are aligned with the positioning columns of the casing;
- ☒ Align the FPC edge with the edge of the housing
- ☒ When connecting the terminals of the terminal antenna to the PCBA end of the motherboard, please first connect the terminals and then connect them vertically;
- ☒ When removing the antenna terminals, a tool (such as a special crowbar) should be used to lift the terminals vertically. Do not directly pull the wires to remove them