

Material specification

Customer name: Dongguan Binshi Electronic Technology Co., LTD

Product name:T098 FP antenna -R L9.9*W11*H0.1/ Single side back 3M glue (gilding 5u")

Customer material umber:01.1.16.5090

Material number:HLX0018-T098-L-V2

Sample delivery date:2022/12/06

Supplier seal	Shenzhen Helixun Technology Co., LTD			
	make	audit		approve
	Guo Saisai			
Customer stamp	Dongguan Binshi Electronic Technology Co., LTD			
	confirm	audit	review	approve

DONGGUAN BINSHI ELECTRONIC TECHNOLOGY CO.,LTD

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Material specification

Customer Name	DONGGUAN BINSHI ELECTRONIC TECHNOLOGY CO.,LTD		
Customer Project Name	T098	Helixun Project Name	T098
Customer P/N	01. 1. 16. 5090	Helixun P/N	HLX0018-T098-R-V2
Band	2400-2500MHz		
Version	A0		
Designer Information			
RF Engineer	Huang Yafei	EE Engineer	Huang Yafei
ME Engineer	He Qinwen		

Helixun Approval				Customer Approval	
	Prepared By	Checked By	Approval By	Checked By	Approval By
Signature	Guo Saisai				
Date	2022-12-06				

Change Log				
Version	Change Description	Person in Charge	Approval By	Date

Catalogue

No.	Item	Page No.
1	Drawing or Product Image	3
2	Dimensions Test Report	4
3	RF Performance Test Report	5-9
4	Reliability Test Report1	10
5	Package Document	11
6	Environmental requirements	12
7	Install Wizard or Other	12

Drawing or Product Image

Silk screen white, black antenna

丝印白色, 天线黑色

Hand tear position

手撕位

Silk screen printing

丝印

外形 shape

镀金区

9.90±0.2

10.94±0.2

gilding area

外形 shape

镀金区

线路区

离型纸手撕位

Release paper hand tear position

remarks

1.The back glue is 3M 9471 300LSE, the viscosity is above 300MP, the shape of the back glue is consistent with the substrate, covering the back of the substrate, and the back glue is cut in half

2.Single-sided material, half-to-half substrate, better flexibility

3.After the material is oiled, there is no crack on the surface after 180° bending, and the flexibility is better

4.The surface of the gold finger is gold-plated and should not be oxidized. There is no crack or no conduction at the joint of the copper foil connection after bending 180°

5.The precise tolerance range of wiring and holes: ±0.03mm, and the tolerance of external dimensions is controlled within 0.1mm

6.The mark ★ is the size that needs to be strictly controlled, the marked * is the key size, and the unmarked size is extracted according to the 1:1 ratio of the CAD electronic file

7.Surface printing and process, see the picture for specific content and location

8. The shape of the product is different. After the shape is cut, the sample should be sent to our company.

Shenzhen Helixun Technology Co., LTD

Type of package	Third Angle method	date	design	audit	He Qianwen	Page number
BT antenna	0~10 ±0.10	2022-12-05	HLX0018-7098-R-V2	approve	1 of 1	
Material number	10~20 ±0.12		PPC-309471			
material	20~40 ±0.15					
Surface treatment	40~ ±0.20					
position	please not measure the drawing					

No.	Layer	Description(Thickness)	Manufacturer &/N
1	Back glue	300LSEMP (12 μm)	Jiufang fulakesi
2	substrate	KTM-800F NHG3 (10 μm)	贝力 bei li
3	stamp-pad ink	Cu (EP) <18 μm>+PI <12.5 μm>	郭耀 kai yao

unit	prop	ortho	1:1	version	REV:A
7					

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Sample Dimensions Test Report

Customer Name	Dongguan Binshi Electronic Technology Co.	Customer P/N	01. 1. 16. 5090	Helixun P/N	HLX0018-T098-R-V2
Test Date	2022/12/06	Sample Qty.	3	Inspector	Huang Yafei
Dimension No.	Standard	Sample 1	Sample 2	Sample 3	Pass/NG
①length	10.94±0.2mm	10.92mm	10.92mm	10.94mm	Pass
②Width	9.9±0.2mm	9.8mm	9.9mm	9.9mm	Pass
③thickness	0.2±0.05mm	0.2mm	0.2mm	0.2mm	Pass
④					
⑤					
⑥					
⑦					
Conclusion					PASS
Inspector & Date	Huang Yafei 2022/12/06		Approval & Date		

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RF Performance Test Report

Customer Name	Dongguan Binshi Electronic Technology Co., LTD	Project Name	T098	Helixun P/N	HLX0018-T098-R-V2
Band	2400-2500MHz	Test Date	2022/12/06	Inspector	Huang Yafei

Antenna Test Equipment Introduction

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

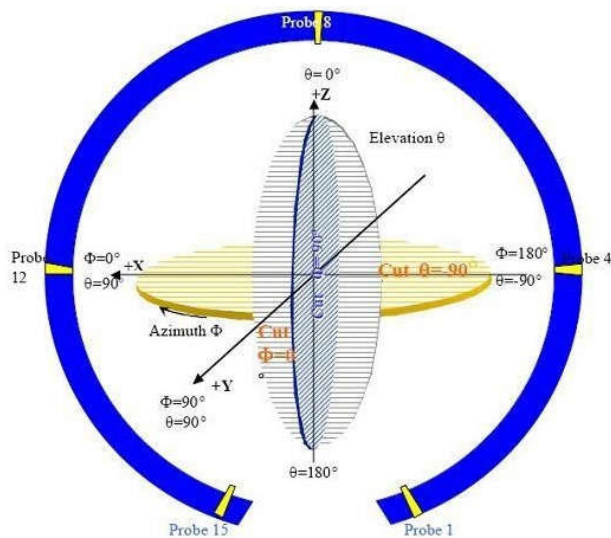


图 4 3D 微波暗室测试坐标系(back view)

Figure 4: 3D microwave anechoic chamber test coordinate system (black view)

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S11 Parameter-VSWR



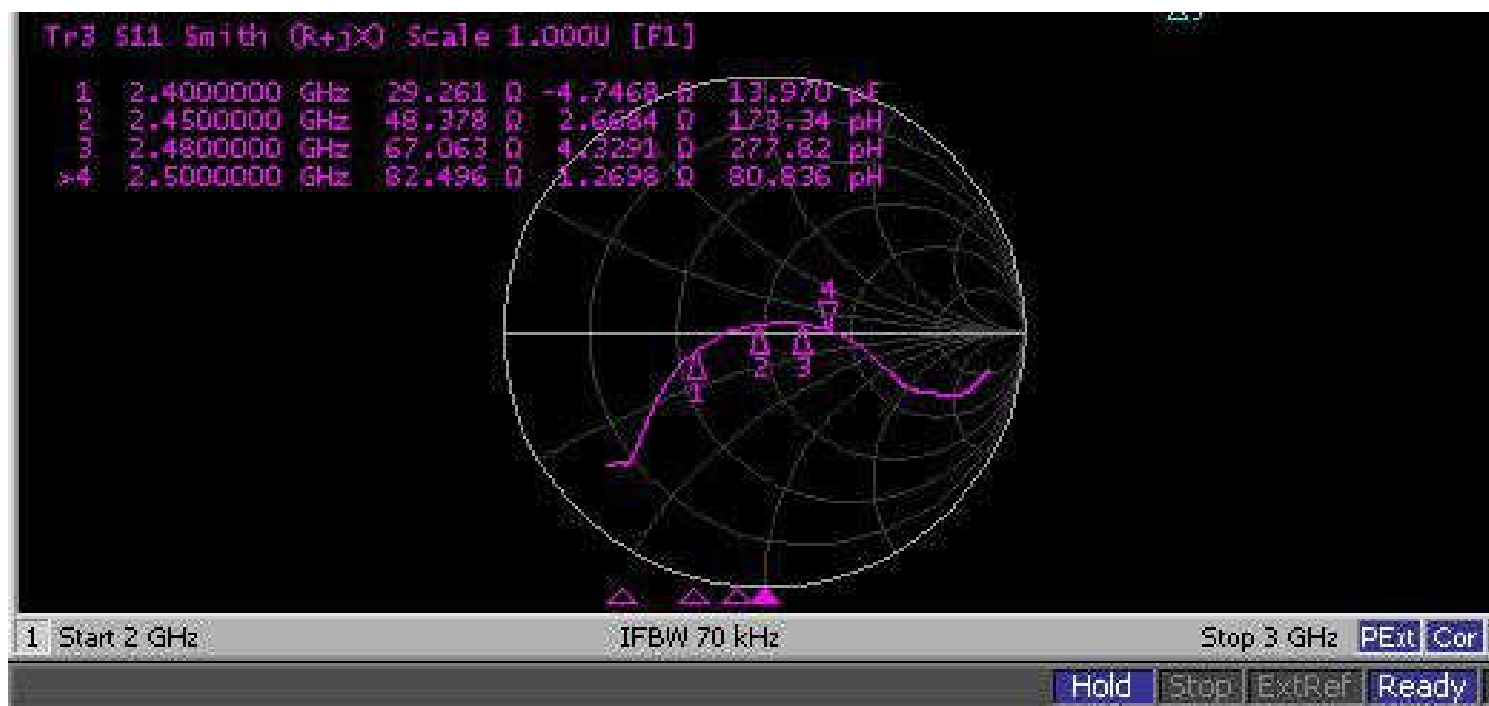
Frequency (MHz)	2400	2450	2480	2500
VSWR	1.73	1.06	1.35	1.65

S11 Parameter-Smith



Frequency (MHz)	2400	2450	2480	2500
Log Mag	-11.43	-29.97	-16.46	-12.20

S11 Parameter-Log mag



Frequency (MHz)	2400	2450	2480	2500
Smith(Ω)	29.26	48.37	67.06	82.49

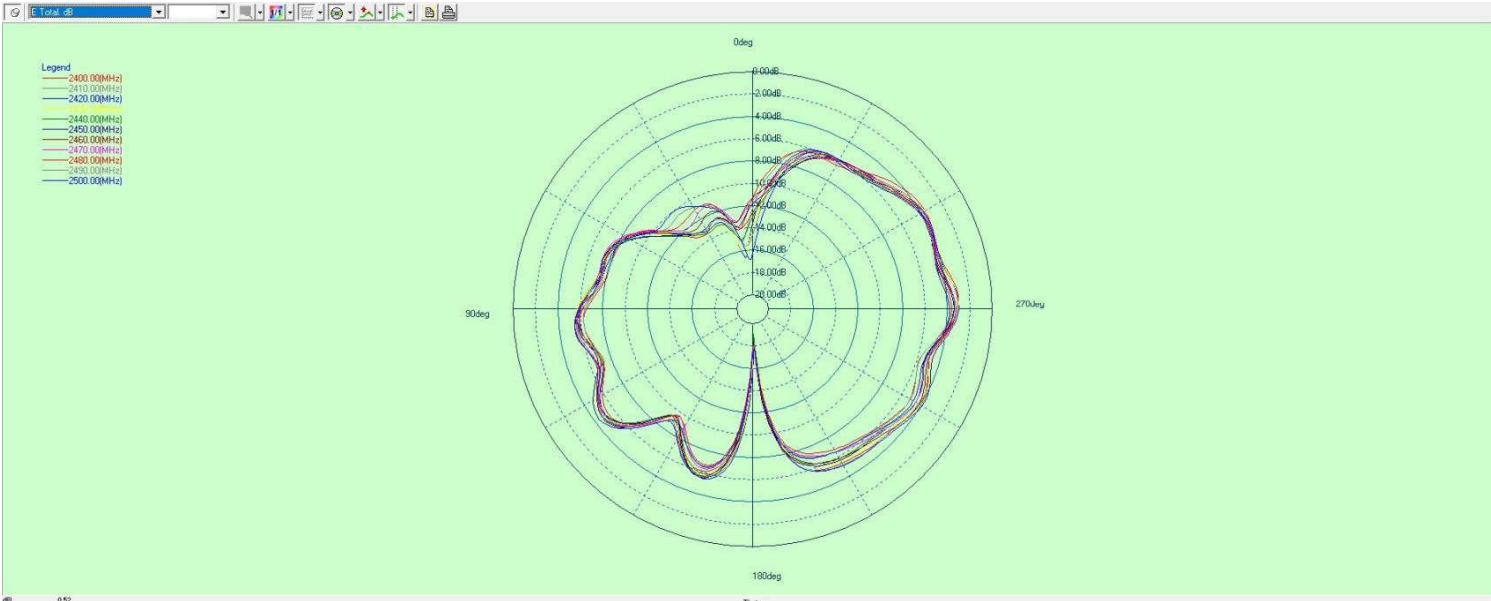
Gain & Efficiency-R

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	22.31%	-2.21
2410	23.34%	-2.09
2420	24.65%	-2.76
2430	26.89%	-1.27
2440	27.43%	-1.14

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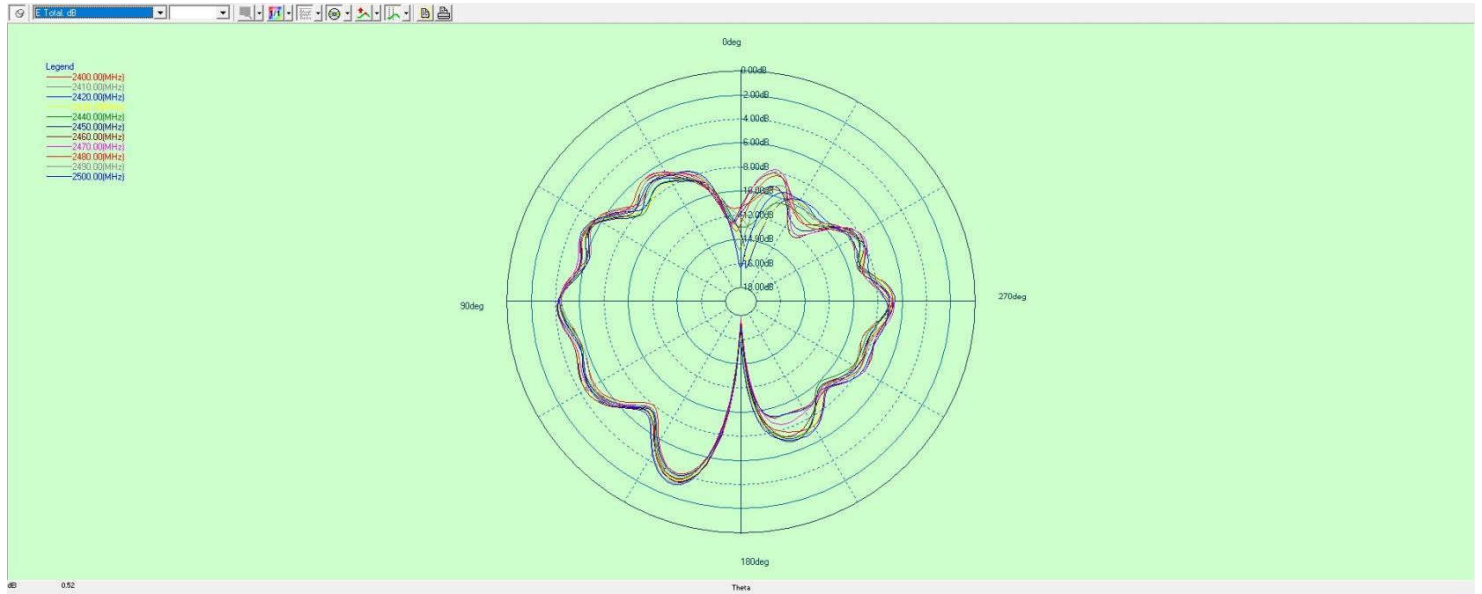
2450	29.57%	-0.95
2460	29.42%	-0.88
2470	30.55%	-0.78
2480	30.73%	-1.27

2D Pattern——BT ANT



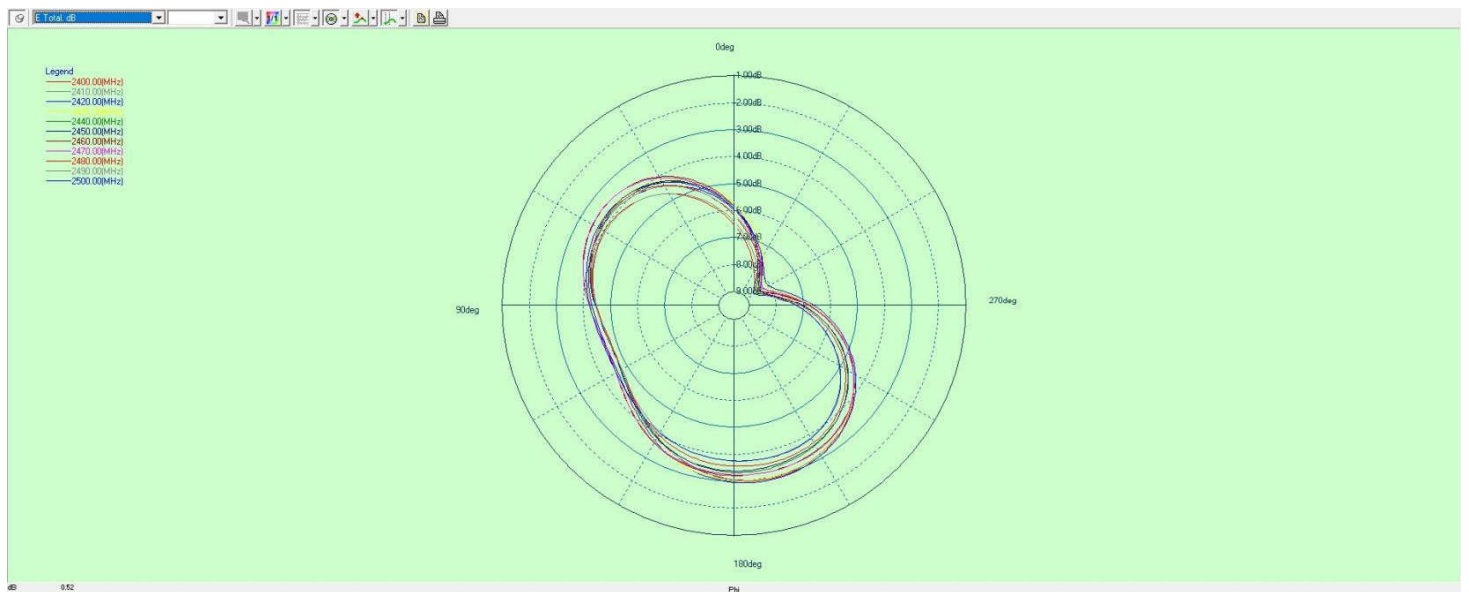
X-Z Plane

2D Pattern——BT ANT



Y-Z Plane

2D Pattern——BT ANT



Y-Z Plane

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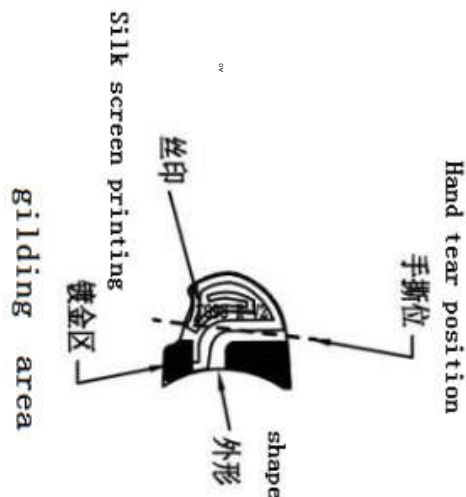
Reliability Test Report

Customer Name	Dongguan Binshi Electronic	Customer P/N	01. 1. 16. 5090	Helixun P/N	HLX0018-T098-R-V2	
Test Date	2022/12/06	Sample Qty.	3	Inspector	Huang Yafei	
Test Item	Requirement	testing equipment	Sample 1	Sample 2	Sample 3	PASS/NG
High temperature storage	24H exposure at + 85 °C and tested after 2H recovery	Constant temperature and humidity box	OK	OK	OK	Pass
Storage of low temperature	24H exposure at-40°C and tested after 2H recovery	Constant temperature and humidity box	OK	OK	OK	Pass
High temperature work	Power-on operation for 24H at + 60°C	Constant temperature and humidity box	OK	OK	OK	Pass
Low temperature work	24H at-20°C	Constant temperature and humidity box	OK	OK	OK	Pass
salt spray test	(5 x 0.5) Sodium chloride, pH value of 6.5~7.2, experimental chamber temperature (35 ± 2) °C (24H (48H	Salt mist test machine	OK	OK	OK	Pass
Connector riveting and pulling force	1.13 Line diameter ≥10N 0.81 Line diameter ≥8N RG174 ≥60N RG178 ≥50N	pull and push dynamometer	/	/	/	
Conclusion						Pass
Inspector & Date	Huang Yafei 2022/12/06		Approval & Date			

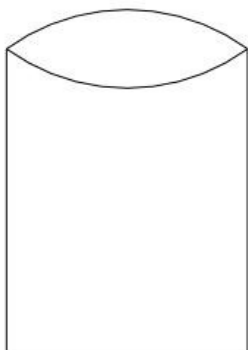
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PACKING CRITERION

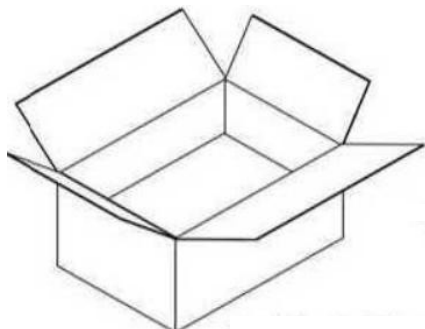
1. Individual product (subject to the actual packaging)



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



3、 Box sealing, box our production label and ROHS label. (Subject to the actual packaging.)



栋1905

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Environmental requirements

MSDS (The Material Safety Data Sheet)	⚙ p. f.	● n. p. f.	● N/A
COC (Environmental agreement)	⚙ p. f.	● n. p. f.	● N/A
Environmental protection and hazardous substances cloud shi technical standards	⚙ p. f.	● n. p. f.	● N/A
Specific environmental requirements	⚙ Compliance with ROHS 2.0 ⚙ Consistent with halogen free ⚙ Comply with California 65 ⚙ accord with REACH		

Install Wizard or Other

Installation process:

Take 1 PCS product, tear off the shaped paper on the back of FPC by hand, then align the position of FPC positioning hole with the shell positioning hole (positioning tendon or positioning line), and attach flat to the shell. The specific position is as shown in the figure below:

Notes for the installation process:

- ☒ After pasting the antenna, ensure that the FPC is fully attached to the enclosure;
- ☒ Aligning the positioning hole with the housing positioning column position;
- ☒ The FPC edge and the housing edge are placed against it
- ☐ With the terminal antenna in the terminal buckle to the main board PCBA terminal, please first to the terminal, and then vertical buckle;
- ☐ When removing the antenna terminal, use tools (such as special crowbar) to raise the terminal vertically, and not remove the wire directly.



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