

SPECIFICATION FOR APPROVAL

(Product Approval Certificate)

Product Name: **E938802-WIFI** Antenna

Product Model: **E938802**

Customer's part number (material code): **18600000011292**

Customer's Name (Material Name) : **IPC E938802 WIFI Antenna C107**

Customer specifications (specification description): **2.4G frequency , built-in FPC antenna, black coaxial cable with terminals, length L=60mm± 3mm, RoHS compliant.**

Change history:

Serial Number	Original version of the content before	The revised version	Change date, version	page number	responsible person	
0	the change		2024-0723	A0	12 He Ye/Gu	Guangyu

Supplier Name: Shenzhen Kaipu Deep Communication Technology Co., Ltd.

Supplier Address: 2nd Floor , Yulong Office Building, Longcheng Industrial Zone, No. 440 Longguan Avenue, Longhua New District, Shenzhen

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(Supplier's signature)

Responsible person/date	Review/Date	Approval/Date

This acknowledgment includes the following: (all are required)

- I. Cover
- II. Specifications
- III. Structural Dimensions
- IV. Packaging Image
- V. Bill of Materials (BOM)
- VI. Production Process Flow Chart
- VII. Certification Testing Status

Client Name (Company Name): Shenzhen Aoni Electronics Co., Ltd.

Customer's (Buyer's) Judgment: ☐Qualified ☐Unqualified

The buyer (customer) acknowledges (please sign and return the entire acknowledgment form after confirmation).

Development and Design Engineer / Date	SQE Engineer / Date	Purchasing Department Head/Date	Development Department Manager Approval/Date

II. Specifications

2.1 Electrical performance parameters

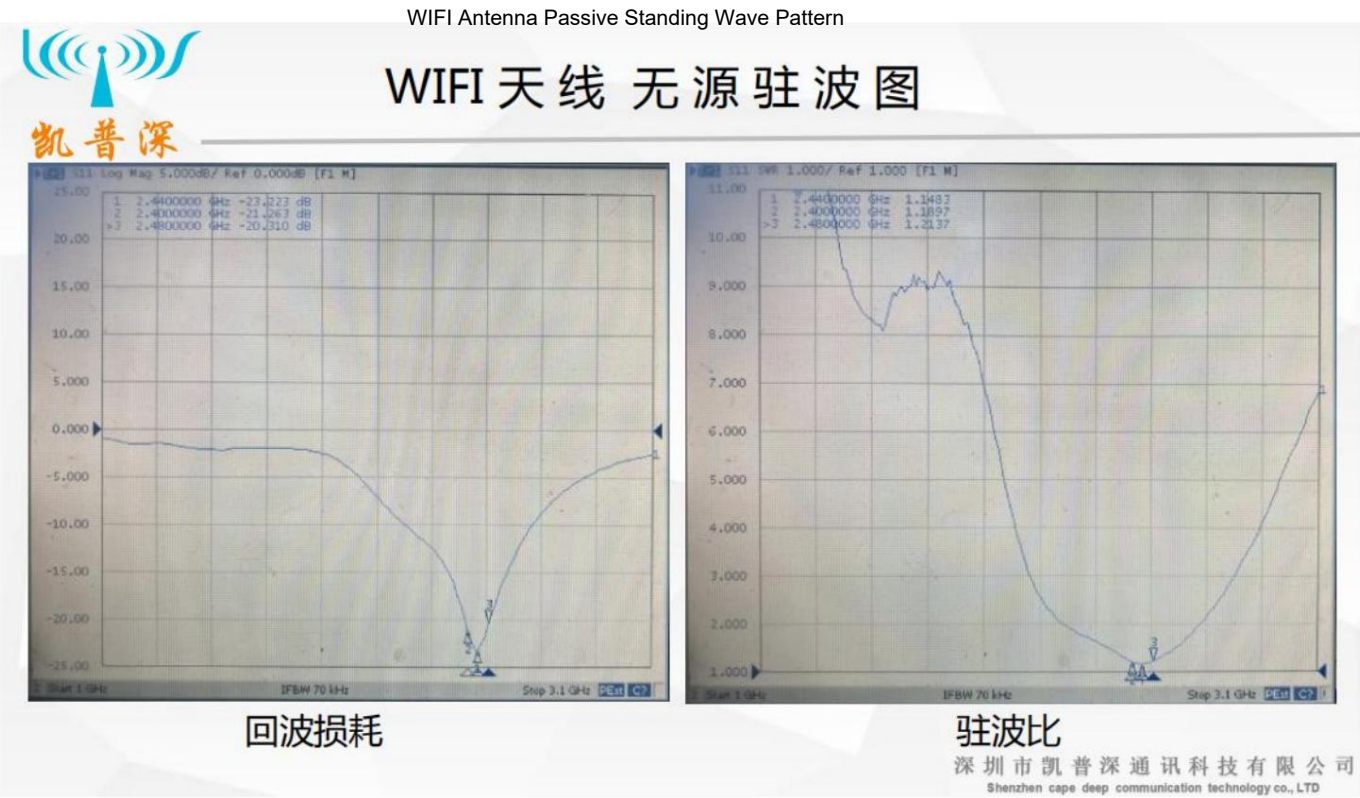
sequence Number	project	Parameters and Specifications	Test conditions
1	frequency	2.4G-2.5GHz	The network analyzer is set to a frequency of 2.4-2.5 GHz.
2	Voltage Standing Wave Ratio	≤1.8	The network analyzer is set to a frequency of 2.4-2.5 GHz. The upper limit parameter of VSWR, during antenna testing, the surrounding area No metal parts or other objects are allowed within a 30cm radius. The medium of the interfering antenna.
3	Gain (dBi)	≥2dBi	Place the antenna in a 3D microwave anechoic chamber for use. Data obtained from 3D testing software
4	efficiency(%)	≥50%	Place the antenna in a 3D microwave anechoic chamber for use. Data obtained from 3D testing software

2.2 Mechanical performance parameters

sequence Number	project	Parameters and Specifications	Test conditions
1	Wire length	65±1mm	Use calipers to measure the IPEX center pin to the wire. Conductor end dimensions
2	FPC length	27±0.2(mm) 16.9±0.2	Use calipers to measure the length of the FPC.
3	FPC width	±mm 0.12±0.05mm	Use calipers to measure the width of the FPC.
4	FPC Thickness		Use calipers to measure the thickness of the FPC.

2.3 Test Report

Network Analyzer Test Report



Echo loss

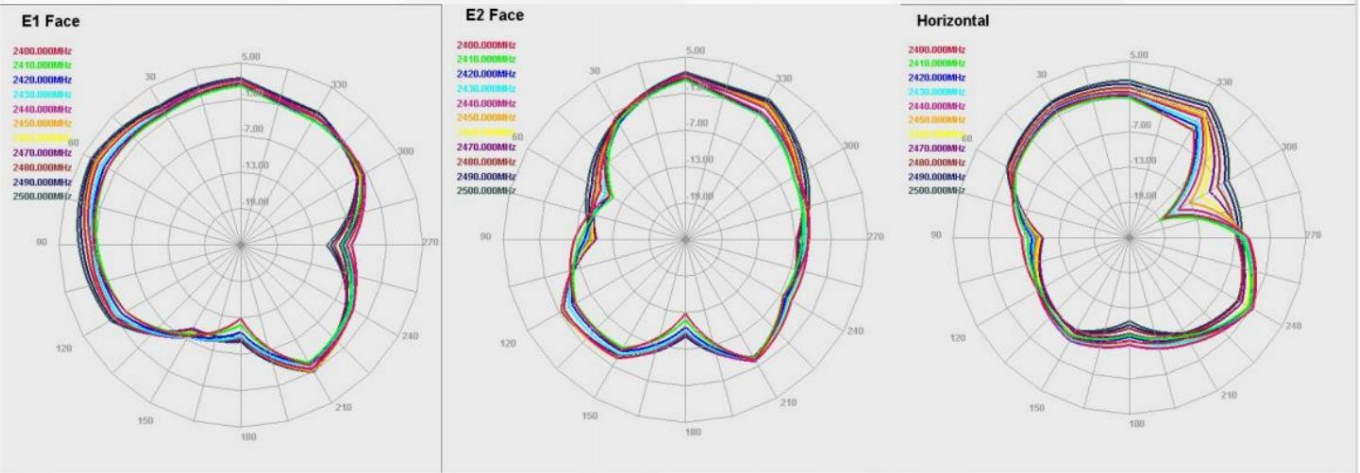
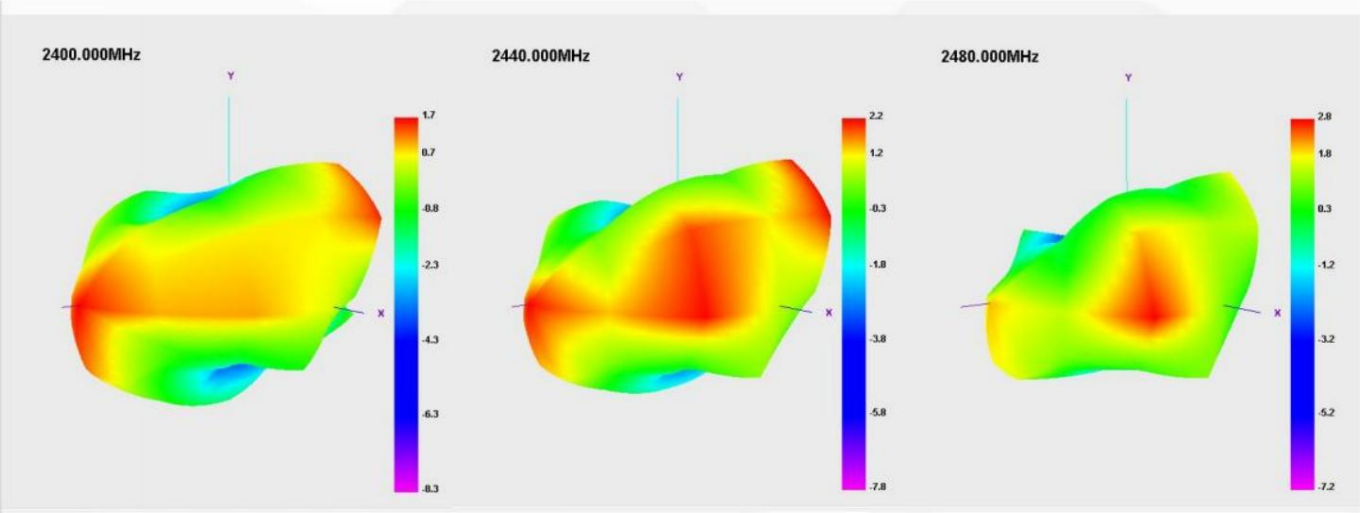
Standing wave ratio

Gain, efficiency

自由空间

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	66.94	-1.74	2.87
2410	67.25	-1.72	2.91
2420	66.27	-1.79	2.64
2430	69.34	-1.59	2.76
2440	76.02	-1.19	3.17
2450	75.04	-1.25	3.13
2460	72.82	-1.38	3.06
2470	67.58	-1.7	2.83
2480	71.14	-1.48	3.11

Antenna radiation pattern

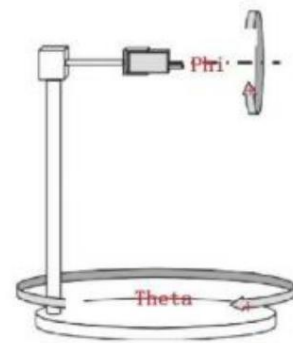




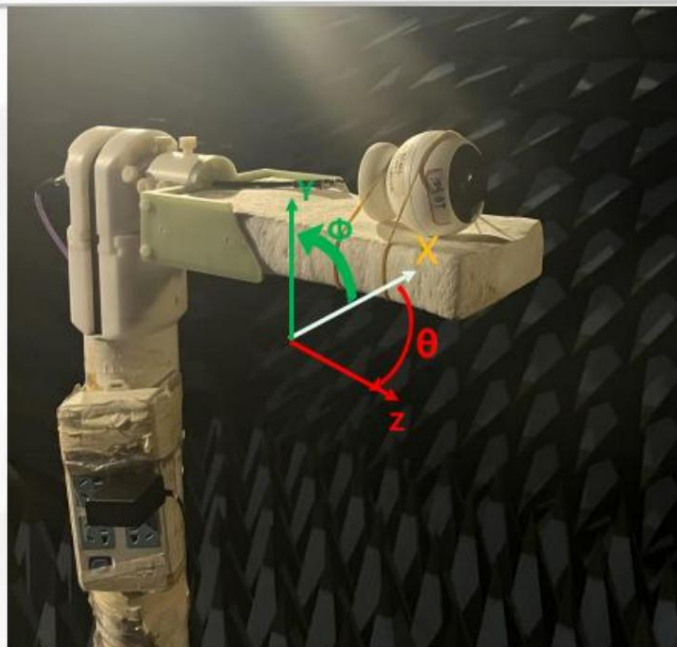
暗室坐标方向图



E1: XZ的切面 $\Phi=0$
E2: YZ的切面 $\Phi=90$
H: XY的切面 $\Theta=90$



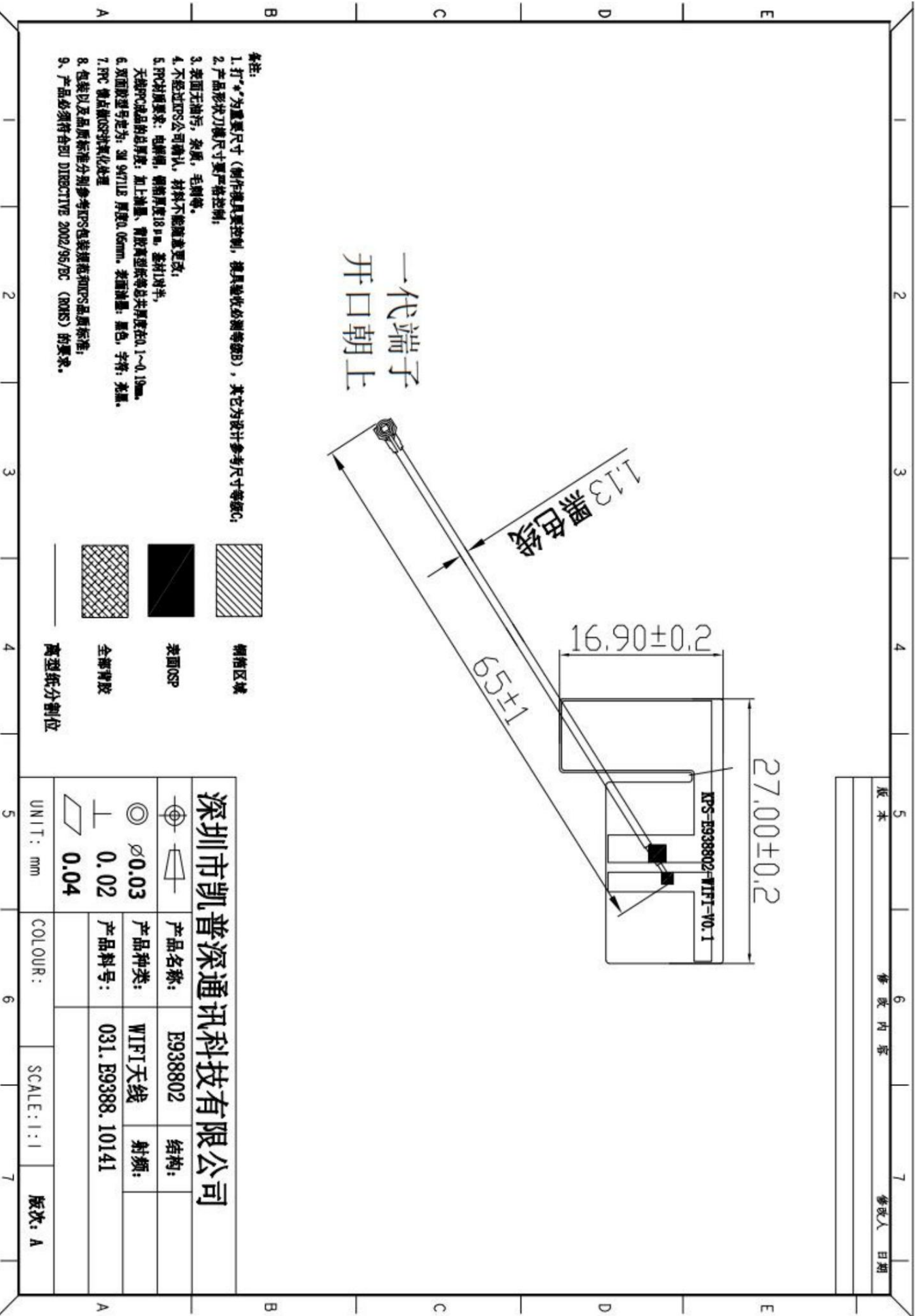
暗室坐标方向图



2.4 Reliability Testing

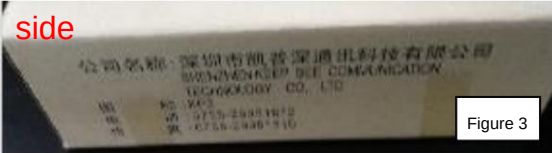
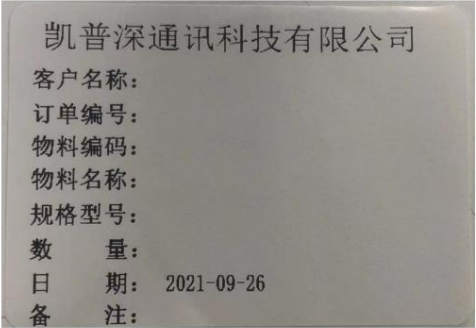
applicant	Kepp Deep	applicant	Wu Xing Tuo	Number of samples	5PCS
Sample Name: ES38802; Sample Model: Built-in Antenna			Built-in antenna (FPC 27×16.9) - Black 1.13 Line - Generation 1 Terminal, L=65mm	Material Code	
Start time	July 23, 2024		Test termination time	July 23, 2024	
The purpose of the test is to ensure product quality.					
Test Project					
1. Tensile test		2. Salt spray test		3. High temperature test	
4. Low temperature test		5. High and low temperature tests		6. Solderability test	
7.--		8.--		9.--	
Instruments/equipment used: Salt spray tester, high and low temperature tester, constant temperature soldering iron					
Experimental results:					
Test Project Number		Test methods and judgment criteria		Description of test results and remarks	
Tensile test 1~5#		Test method: 1. Adjust the height of the upper and lower crossbeams to ensure proper clamp spacing; 2. Clamp the upper end of the specimen with the upper clamp, and press the zeroing button to adjust the pointer. To reset to zero, press the force gauge pointer lock switch; 3. Clamp the lower end of the specimen with the lower clamp; rotate the handle to make the lower crossbar... Lower the specimen to apply tension; Standard requirements: y0.5KG		Test tensile test value For: 0.59KG 0.62KGy0.58KGy 0.58KGy0.59KGy All y0.5KG OK	
Salt spray test 1~5#		Test method: 1. The temperature inside the salt spray chamber is 35±2y; the laboratory temperature is 22~30y. 2. The salt spray settling velocity after 24 hours of spraying is as follows: per 80cm area 1-2 mL/h, sodium chloride concentration of 50 ± 10 g/L, pH value of 6.5/7. Standard requirements: 1. After 24 hours, the product surface showed no oxidation, and the electrical test met the standards. Require; 2. Electrical tests meet standard requirements: Voltage standing wave ratio (VSWR) test passed.		1. The product surface is oxygen-free. Chemical and electrical testing compliant Standard requirements: 2. Voltage Standing Wave Ratio (VSWR) Test Passed OK	
High temperature test 1~5#		Test method: 1. Set the high temperature value to 85±2y for a total of 24 hours, every hour. Check once; 2. Set the high-temperature constant value operation mode for testing; 3. During testing, the time difference required for temperature conversion is usually set... Set to 0.01 minutes; 4. After the 24-hour test is completed, allow the sample to stand in the test chamber for 1 hour. The sample was then removed for observation and the corresponding required tests were performed. Standard requirements: 1. The plating on the metal surface should be free from peeling, cracks, wrinkles, separation, etc. Non-metallic parts should not exhibit discoloration, cracking, deformation, delamination, or other defects. good; 2. Electrical tests meet standard requirements: Voltage standing wave ratio (VSWR) test passed.		1. Metal surface coating is absent Peeling, cracking, and wrinkling. Separation; non-metallic parts No discoloration or cracking occurred. Defects such as deformation and delamination; 2. Voltage Standing Wave Ratio (VSWR) Test Passed OK	

Low temperature test 1-5#		Test method: 1. Set the low temperature to -40y for 24 hours, and check every hour. Check once; 2. Set the low-temperature constant value operation mode for testing; 3. During testing, the time difference required for temperature conversion is usually set... Set to 0.01 minutes; 4. After the 24-hour test is completed, allow the sample to stand in the test chamber for 1 hour. The sample was then removed for observation and the corresponding required tests were performed. Standard requirements: 1. The plating on the metal surface should be free from peeling, cracks, wrinkles, separation, etc. Non-metallic parts should not exhibit discoloration, cracking, deformation, delamination, or other defects. good; 2. Electrical tests meet standard requirements: Voltage standing wave ratio (VSWR) test passed.	1. Metal surface coating is absent Peeling, cracking, and wrinkling. Separation; non-metallic parts No discoloration or cracking occurred. Defects such as deformation and delamination; 2. Voltage Standing Wave Ratio (VSWR) Test Passed	OK	
High and low temperature cycles 1-5#		Test method: 1. Set the high and low temperature values to 85±2j/-40y, and switch 1 every 2 hours. This cycle repeats 6 times in total. 2. Set the operating mode of the high and low temperature thermal cycling shock test program; 3. During testing, the time difference required for temperature conversion is usually set... Set to 0.01 minutes; After the 24-hour test is completed, let the sample stand in the test chamber for 1 hour before taking it out. Take out the samples for observation and perform the corresponding required tests. Standard requirements: 1. The plating on the metal surface should be free from peeling, cracks, wrinkles, separation, etc. Non-metallic parts should not exhibit discoloration, cracking, deformation, delamination, or other defects. good; 2. Electrical tests meet standard requirements: Voltage standing wave ratio (VSWR) test passed. Test method:	1. Metal surface coating is absent Peeling, cracking, and wrinkling. Separation; non-metallic parts No discoloration or cracking occurred. Defects such as deformation and delamination; 2. Voltage Standing Wave Ratio (VSWR) Test Passed	OK	
Solderability Tests 1-5#		1. Welding temperature: 380y±20y. 2. Hold the wire with your left hand, place the soldering end on the solder pad, adjust the soldering position, and use the soldering iron in your right hand to add solder. 3. The solder must cover at least 95% of the solder pad. The entire process takes approximately 3-5 minutes. Second. Standard requirements: 1. Solder joints should be bright and smooth; 2. Cold soldering, incomplete soldering, and dielectric burn-in are not allowed; 3. The solder coverage needs to reach over 95%;	1. The solder joints are bright and smooth; 2. No cold welds or incomplete welds. Scalding phenomenon caused by the medium; 3. Tinning amount reaches 95%. That's all;	OK	
Remark:					
Appendix: yNone yYes:_____		Qualified	y Unqualified		



IV. Packaging Images (Instructions: Inserted images must be clearly visible) 1.

Packaging Photos (Images):

1. Photos or pictures of individual material packages  Remark:	2. Photos or pictures of the inner packaging arranged in a single layer.  Remark:
3. Photos or pictures of the outer packaging  Note: Front  top  side Figure 3 Remark:	4. Anti-counterfeiting marks on supplier material packaging  Remark:

V. Bill of Materials (BOM)

sequence Number	Material Name	Material Specifications	Is the material anti-static?	Number of boxes per shipment	Single carton packaging weight (KG)	Remark
1	FPC Built-in Antenna	WIFI antenna (FPC 27×26.9) -Black 1.13 wire-Generation terminal, L=65mm	PI	yes	10000PCS	Weight: 5KG/box
2	PE bag	380*305*18 mm	PE plastic	no	200PCS	
3	Cardboard boxes	36 × 25 × 30cm cardboard box K737K	K = K paper material	no	10000PCS	
The shipping packaging methods are (4): 1. Roll packaging; 2. Tile packaging; 3. Bulk packaging; 4. Carton packaging; 5. Plastic box packaging; 6. Other. _____						

[Supplier Material Coding Rules]:

Product/Material Code Reference Table

Example of incoming material part number: Part number is: 10.HY802.10A02. The code reference table is as follows:

1		2	3						备注
客户名	客户代码	项目代码	材质信息	材质代码	天线类别	天线代码	颜色	颜色代码	
**	10	XXXXX	材质信息	材质代码	天线类别	天线代码	颜色	颜色代码	10. HY802. 10A02
			FPC	10	无	10		0	前面两位是客户代码. 中间是项目型号. 后面5五位是材质代码+ 天线类别+颜色代码
			五金弹片	11	2/3G/GSM 主天线	11	黑色	1	
			LDS	12	WIFI/BT/GPS 天线	12	白色	2	
			塑胶支架	13	WIFI/BT 天线	13	灰色	3	
			同轴线	14	WIFI 天线	14	银色	4	
			导线	15	GPS	15	黄色	5	
			顶针	16	BT	16	粉红色	6	
			陶瓷	17	LTE主天线	17	绿色	7	
			泡棉	18	GSM 副天线 (LTE)	18	香槟金	8	
			天线组件 (FPC+支架)	19	分集天线	19		9	
			天线组件 (五金+支架)	20	FM	20			
			外置天线	21	NFC	21			
			弹簧天线	22	CDMA	22			
			PCB	23	组件天线	23			
			喷涂	24	4G/三合一/分集天线	24			
			PCBA	25		25			
			背胶	26		26			

Certification Testing Status (Instructions: If relevant testing and certification have been conducted, please check the boxes in parentheses and indicate the corresponding certification or report number)

() **UL** certification or report number: _____

() **VDE** certification or report number: _____

() **CE** certification or report number: _____

() **FCC** certification or report number: (y) _____

RoHS certification or report number: SHAEC2118730101 ETR21A04957M01 SHAEC2202460504 _____

A2210137408101E ETR21805816 SZXEC2102641804 A2220058173101001E A2220058173101003ER1 _____

() **REACH** certification or report number: _____

() **EMC** certification or report number: _____

() **CCC** certification or report number: _____

() **SRRC** certification or report number: () _____

Other certification or report number: () _____

No product certification