

R811 Project Antenna Specification

Customer Name: 360

Customer product name: R811 base station

Product name: External Antenna; Shrapnel antenna

Product specifications: See BOM for details

material code: 231100291; 231100278 (Cameraking)

History of Change Content:

Serial Number	version	status	start and end dates	responsible person	page number	remarks
1	first edition	first edition	2023-11-13	Zhong QiuHong	16	

Supplier acknowledges signature:

Responsible person/date		IQC/date	Check/date	Approval/date
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RF	He Lei			

The purchaser acknowledges the signature
(please send it back after signing):

The judgment result: ☐ Qualified ☐ Unqualified			
Development and Design Engineer/Date	SQE Engineer/Date	Procurement Manager/Date	Development Manager Approval/Date

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1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirement specifications for R811 products. This requirement applies to the selection, testing, and acceptance of R811 antennas.

1.2 Basic project information

Antenna name:	R811 base station
Antenna frequency:	BT:2.4G-2.5G WIFI:2.4G-2.5G WIFI:5.1G-5.85G
Antenna material:	Shell+PCB+ Coaxial welding/Steel sheet

2. Technical indicators requirements

2.1 Introduction to testing projects and instrument

List	Test items	instrument
Active testing	TRP,TIS	Integrated tester, microwave anechoic chamber

2.2 Active report

2.2.1 Test instructions

Testing tools:

Agilent8960 comprehensive measuring instrument, R&SCMW500, full wave far-field ETS darkroom, high-precision positioning system and its controller, and computer with automatic testing program

Test environment:

Temperature $22\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$, humidity $50\% \pm 15\%$

Test method: The DUT is fixed at the center position of the turntable with the H-plane, and is on the same horizontal line as the center position of the horn antenna.

The positioning system enables the DUT to rotate throughout the entire sphere, achieving high-precision three-dimensional positioning. Each RF instrument, turntable controller, and PC with automatic testing software communicate through the GPIB interface.

2.2.2 WIFI Antenna active parameters - base station project

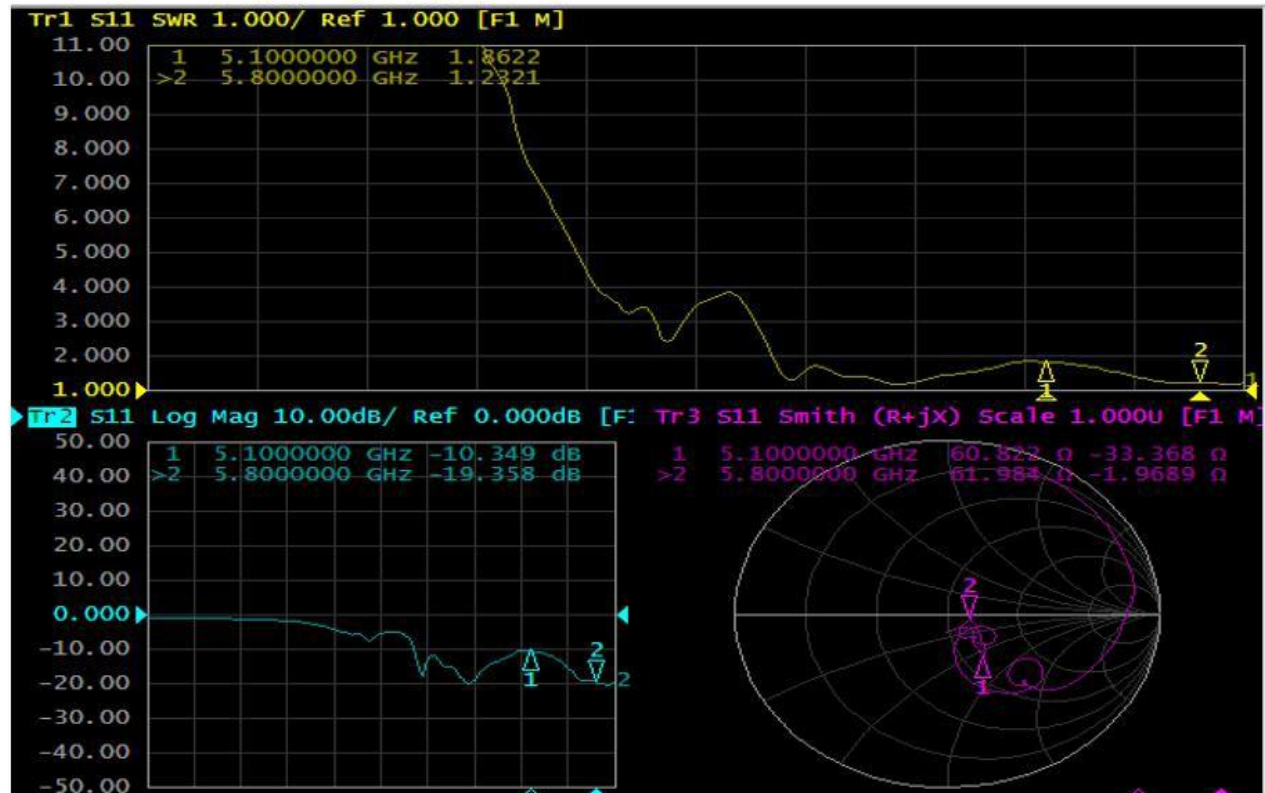
Test	WIFI (B模11M)			WIFI (G模54M)		
Result	1	7	13	1	7	13
TRP (dBm)	17.22	17.43	17.55	16.28	16.35	16.48
TIS (dBm)	-82.45	-83.13	-83.29	-72.68	-72.52	-72.41

Test	WIFI (N模MCS7)		
Result	1	7	13
TRP (dBm)	15.52	15.63	15.71
TIS (dBm)	-68.13	-68.85	-69.02

Test	WIFI (A模)		
Result	39	149	165
TRP (dBm)	9.44	9.56	9.54
TIS (dBm)	-69.22	-69.43	-69.38



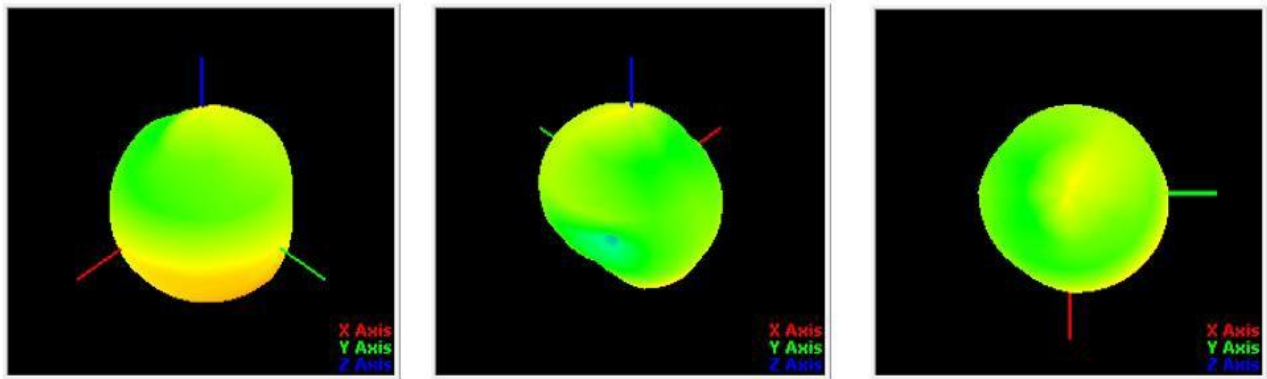
2.2.3 Steel sheet antenna (image file LOGMAG+VSWR+SMITH)



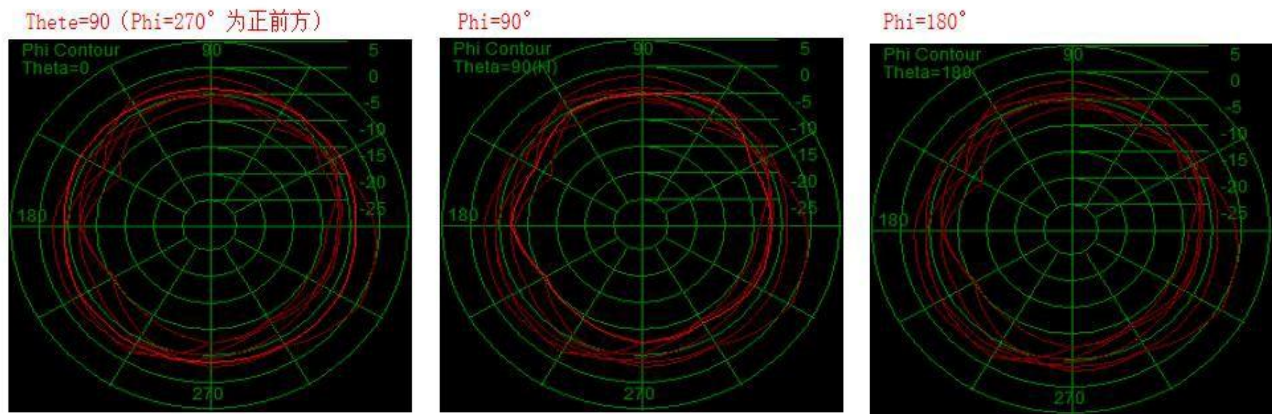
2.2.4 Steel sheet 5GWIFI- antenna efficiency and gain

Passive Test For 5100MHz~5850MHz				
Freq	Effi	Effi	Gain	
(MHz)	(%)	(dB)	(dBi)	
5100.0	42.7%	-3.70	1.21	
5130.0	43.3%	-3.64	1.24	
5170.0	42.5%	-3.72	1.28	
5210.0	43.6%	-3.61	1.37	
5250.0	44.1%	-3.56	1.48	
5290.0	45.2%	-3.45	1.54	
5330.0	46.3%	-3.34	1.66	
5370.0	45.8%	-3.39	1.74	
5410.0	47.2%	-3.26	1.78	
5450.0	47.6%	-3.22	1.87	
5490.0	46.3%	-3.34	1.76	
5530.0	47.7%	-3.21	1.69	
5570.0	45.4%	-3.43	1.61	
5610.0	45.3%	-3.44	1.52	
5650.0	44.6%	-3.51	1.44	
5690.0	43.9%	-3.58	1.35	
5730.0	42.7%	-3.70	1.25	
5770.0	43.3%	-3.64	1.36	
5810.0	44.2%	-3.55	1.41	
5850.0	45.6%	-3.41	1.47	

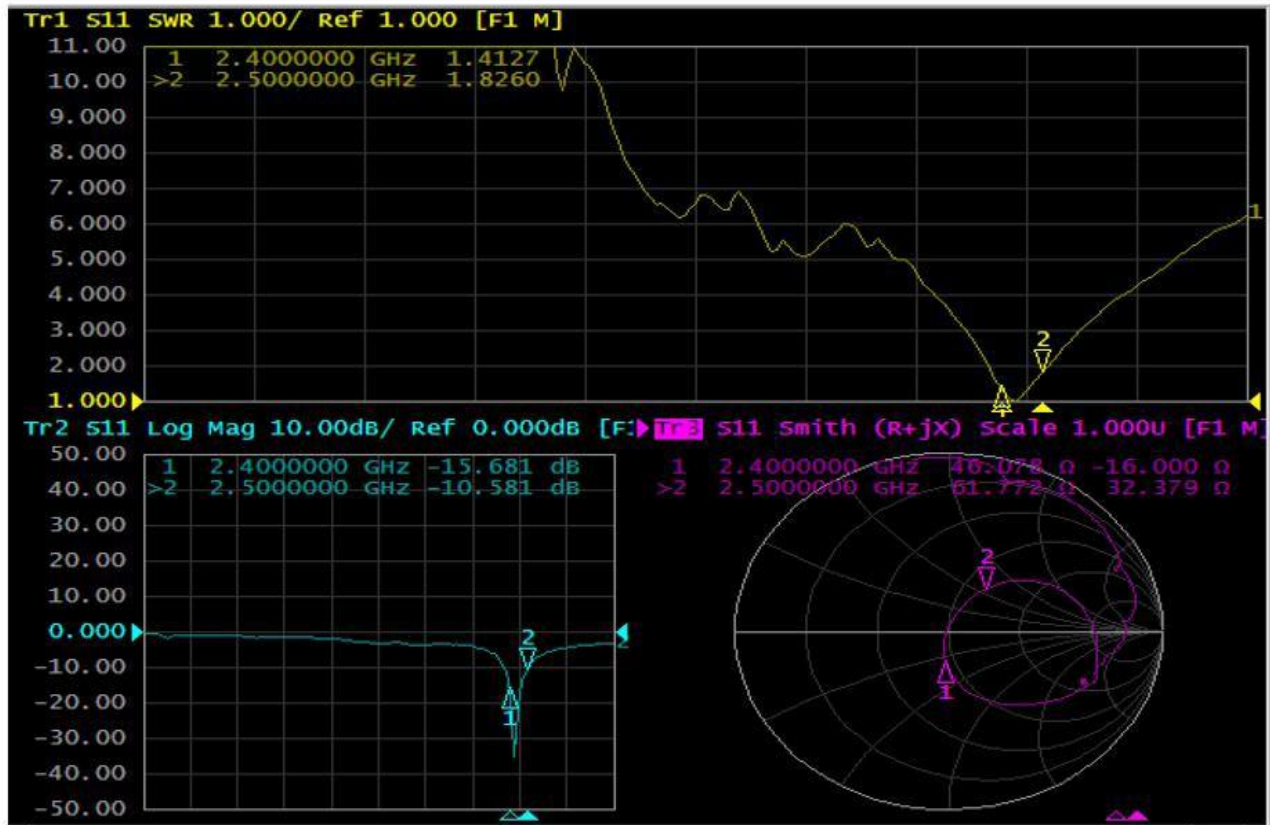
2.2.5 Passive antenna parameters -Steel sheet 5G WIFI apple diagram



2.2.6 Passive antenna parameters -5.8G Directional pattern



2.2.7 External PCB 1# 2.4GWIFI (image file LOGMAG+VSWR+SMITH)

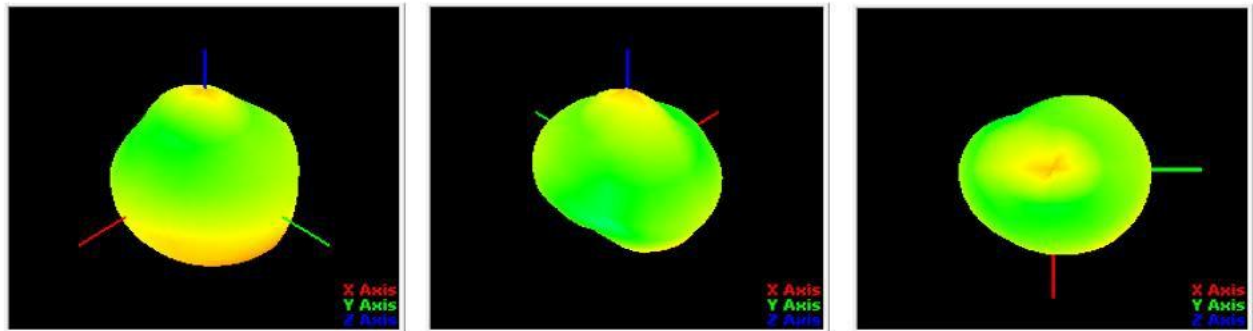


2.2.8 External PCB 1# 2.4GWIFI antenna efficiency and gain

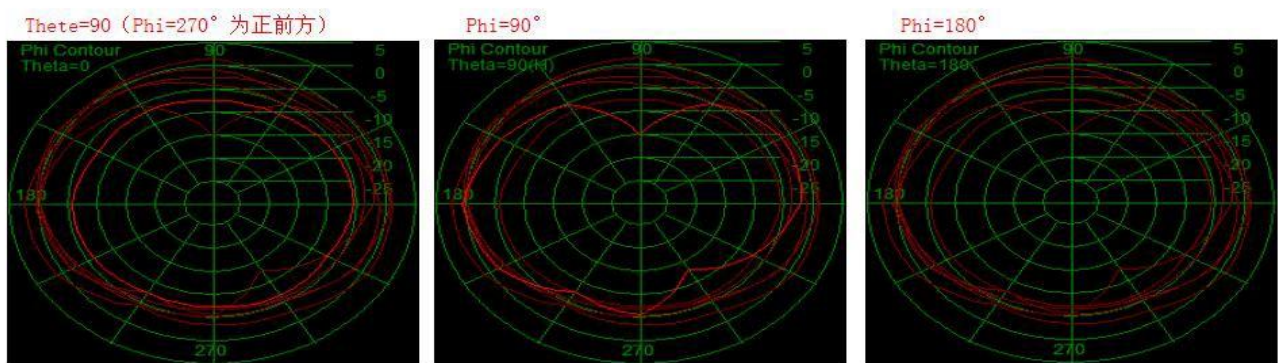
Passive Test For 2400MHz~2500MHz

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	54.7%	-2.62	2.04
2410	55.3%	-2.57	1.88
2420	55.9%	-2.53	1.93
2430	56.8%	-2.46	2.12
2440	57.9%	-2.37	2.27
2450	59.2%	-2.28	2.29
2460	58.7%	-2.31	2.11
2470	57.1%	-2.43	2.18
2480	56.4%	-2.49	1.94
2490	56.2%	-2.50	1.88
2500	55.3%	-2.57	1.93

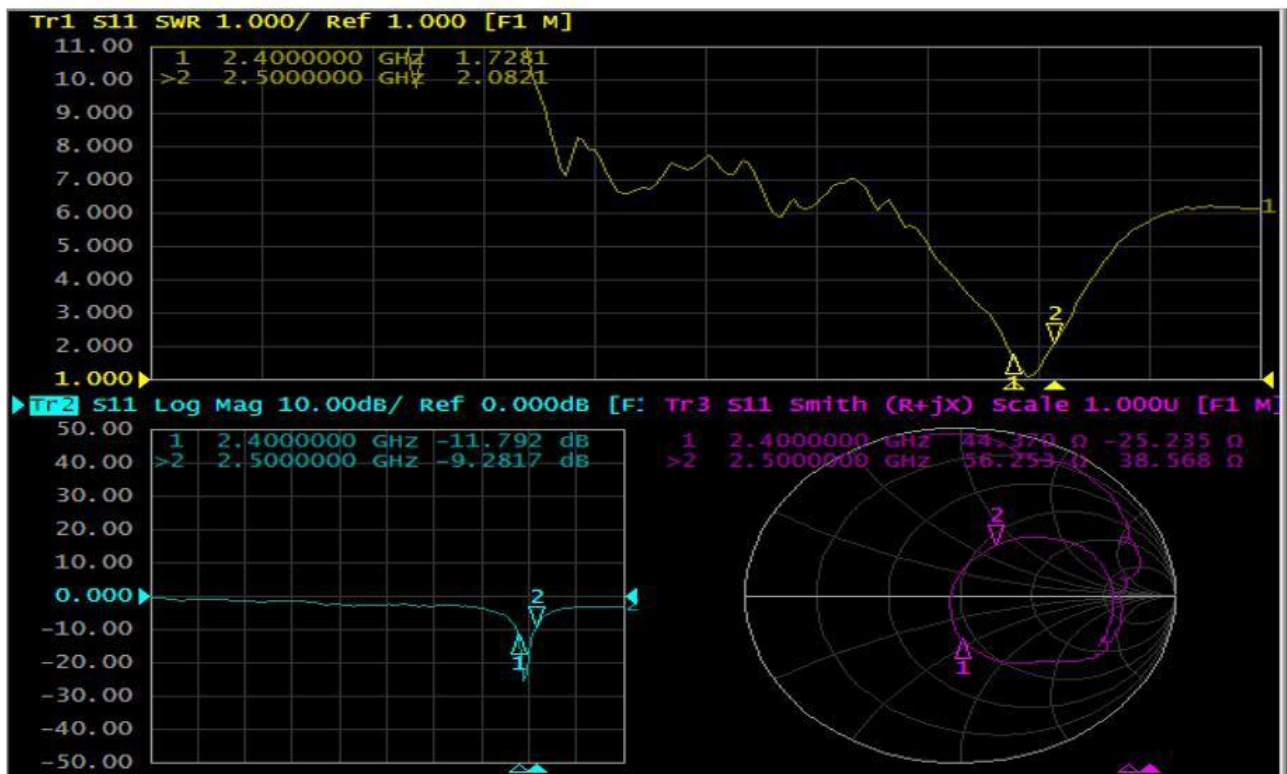
2.2.9 External PCB 1# 2.4GWIFI - apple diagram



2.3.0 External PCB 1# 2.4GWIFI- Directional pattern



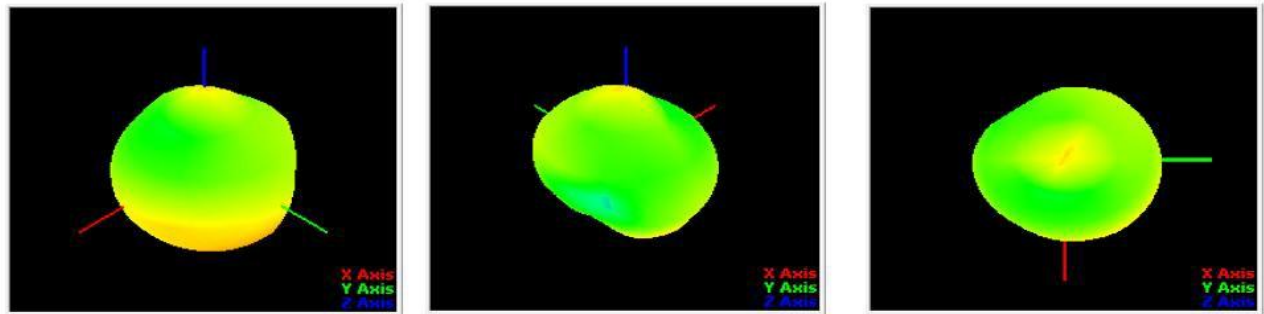
2.3.1 External PCB 2# 2.4GWIFI (image file LOGMAG+VSWR+SMITH)



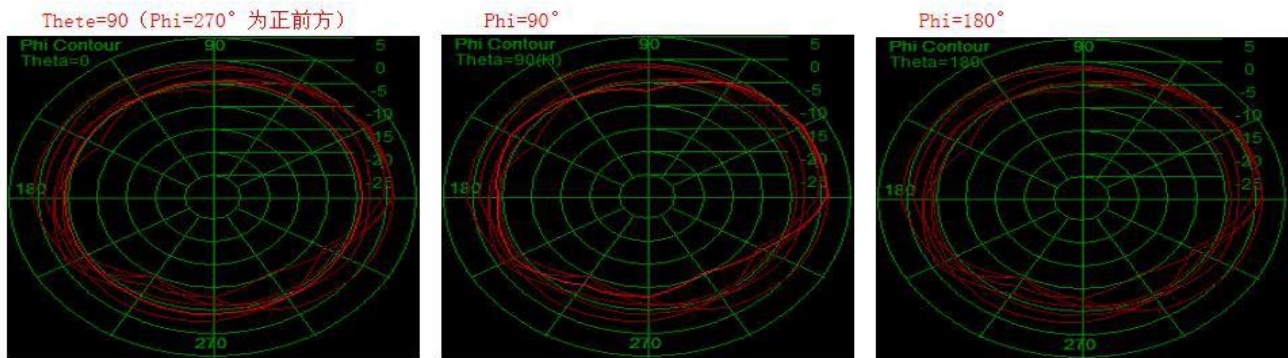
2.3.2 External PCB 2# 2.4GWIFI- antenna efficiency and gain

Passive Test For 2400MHz~2500MHz				
Freq	Effi	Effi	Gain	
(MHz)	(%)	(dB)	(dBi)	
2400	54.9%	-2.60	1.87	
2410	55.7%	-2.54	1.85	
2420	56.4%	-2.49	1.97	
2430	57.5%	-2.40	2.06	
2440	58.2%	-2.35	2.13	
2450	59.4%	-2.26	2.17	
2460	58.6%	-2.32	2.09	
2470	58.1%	-2.36	2.06	
2480	57.7%	-2.39	2.04	
2490	56.9%	-2.45	1.94	
2500	56.1%	-2.51	1.89	

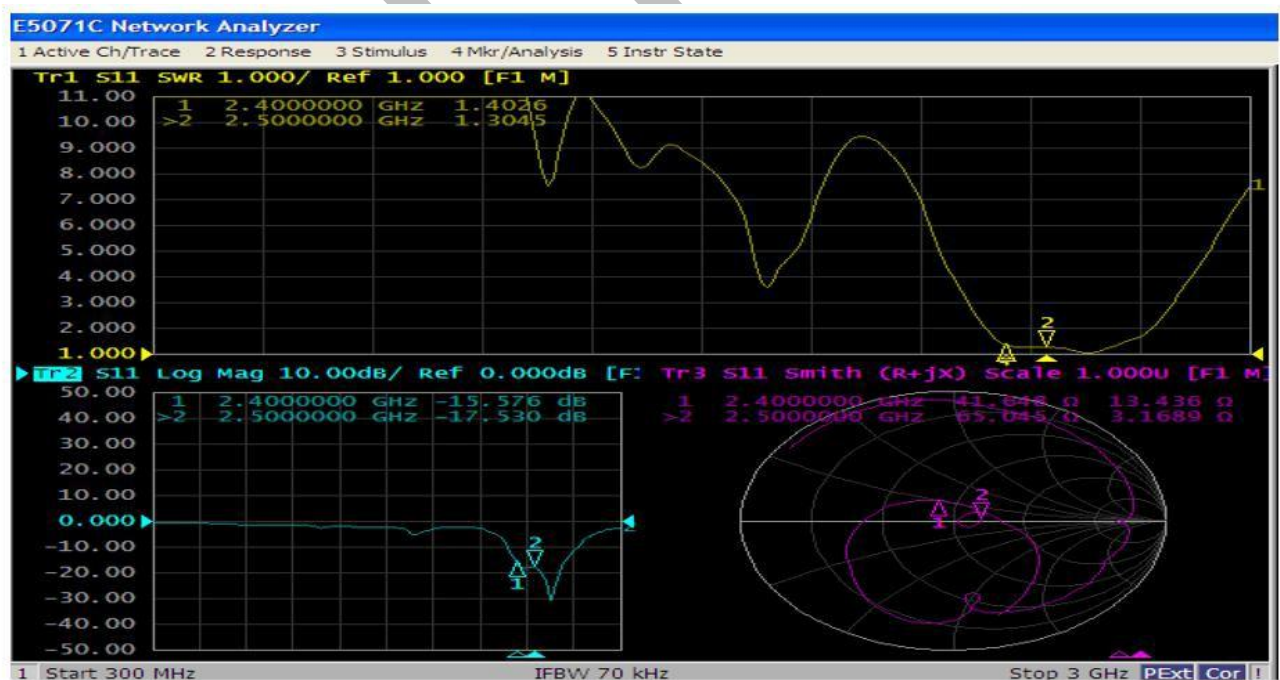
2.3.3 External PCB 2# 2.4GWIFI- apple diagram



2.3.4 External PCB 2# 2.4GWIFI- Directional pattern



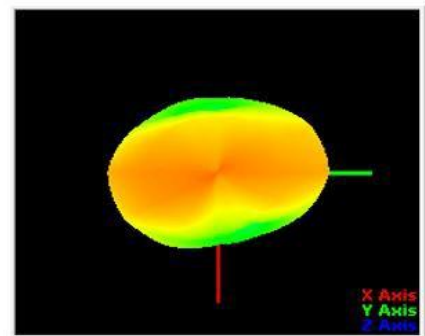
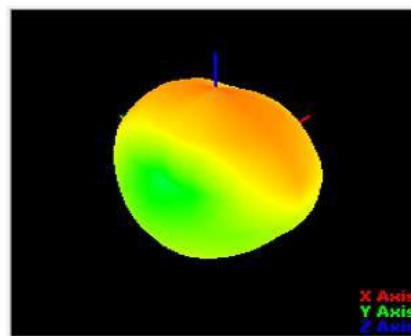
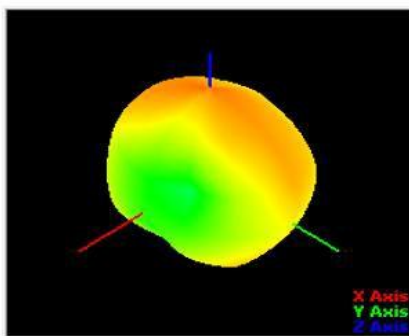
2.3.5 BT On board (image file LOGMAG+VSWR+SMITH)



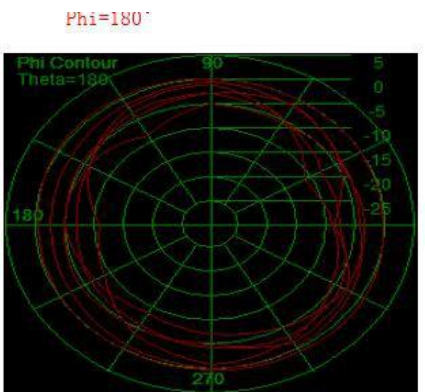
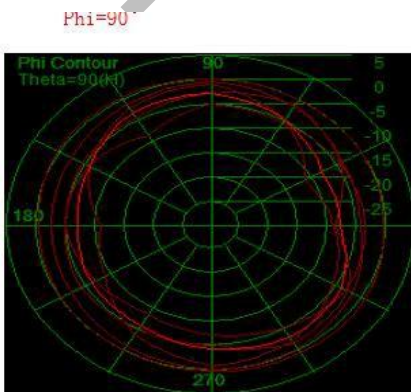
2.3.6 BT On board - antenna efficiency and gain

Passive Test For 2400MHz~2500MHz				
Freq	Effi	Effi	Gain	
(MHz)	(%)	(dB)	(dBi)	
2400	10.4%	-9.83	-6.43	
2410	10.1%	-9.96	-6.78	
2420	8.6%	-10.66	-7.32	
2430	8.2%	-10.86	-7.55	
2440	7.5%	-11.25	-7.85	
2450	6.4%	-11.94	-8.22	
2460	5.8%	-12.37	-8.47	
2470	5.1%	-12.92	-8.69	
2480	4.3%	-13.67	-9.41	
2490	5.2%	-12.84	-8.87	
2500	4.4%	-13.57	-9.39	

2.3.7 BT On board - apple diagram



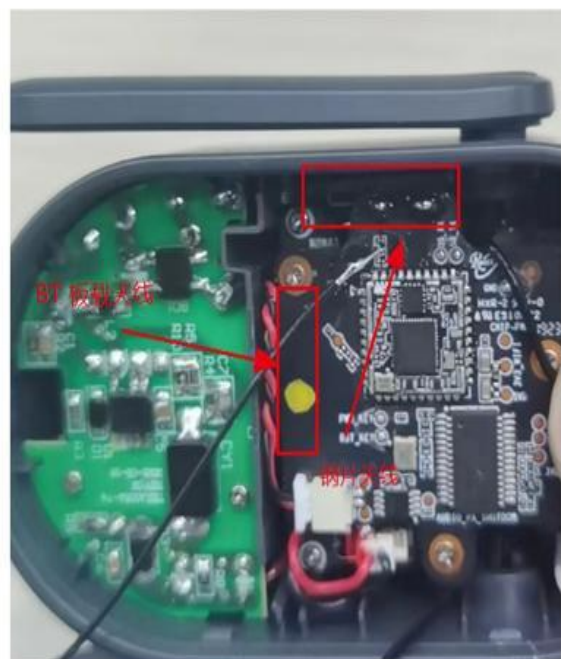
2.3.8 BT On board - Directional pattern



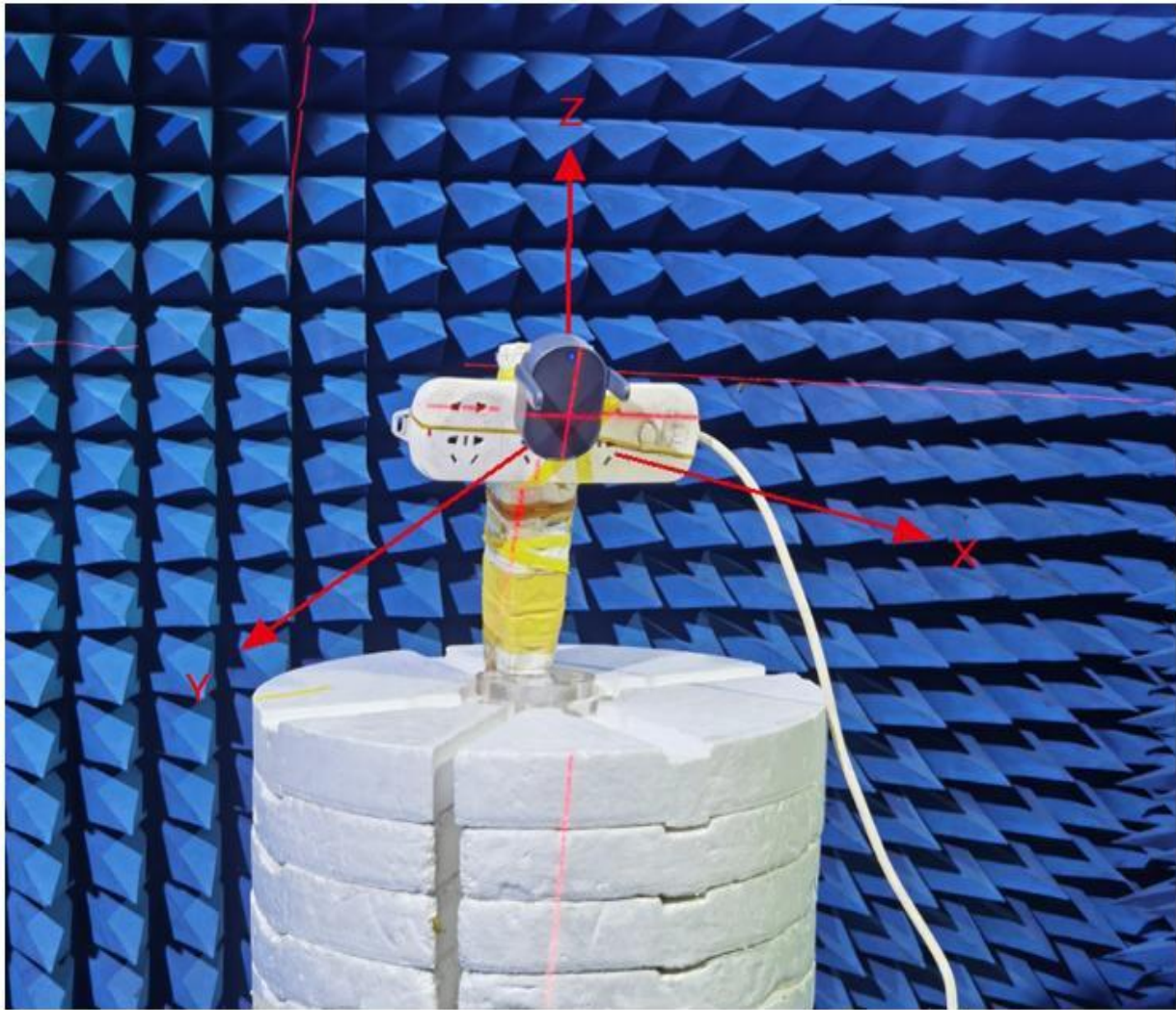
2.3.9 BT environmental treatment



2.4.0 Overall antenna layout

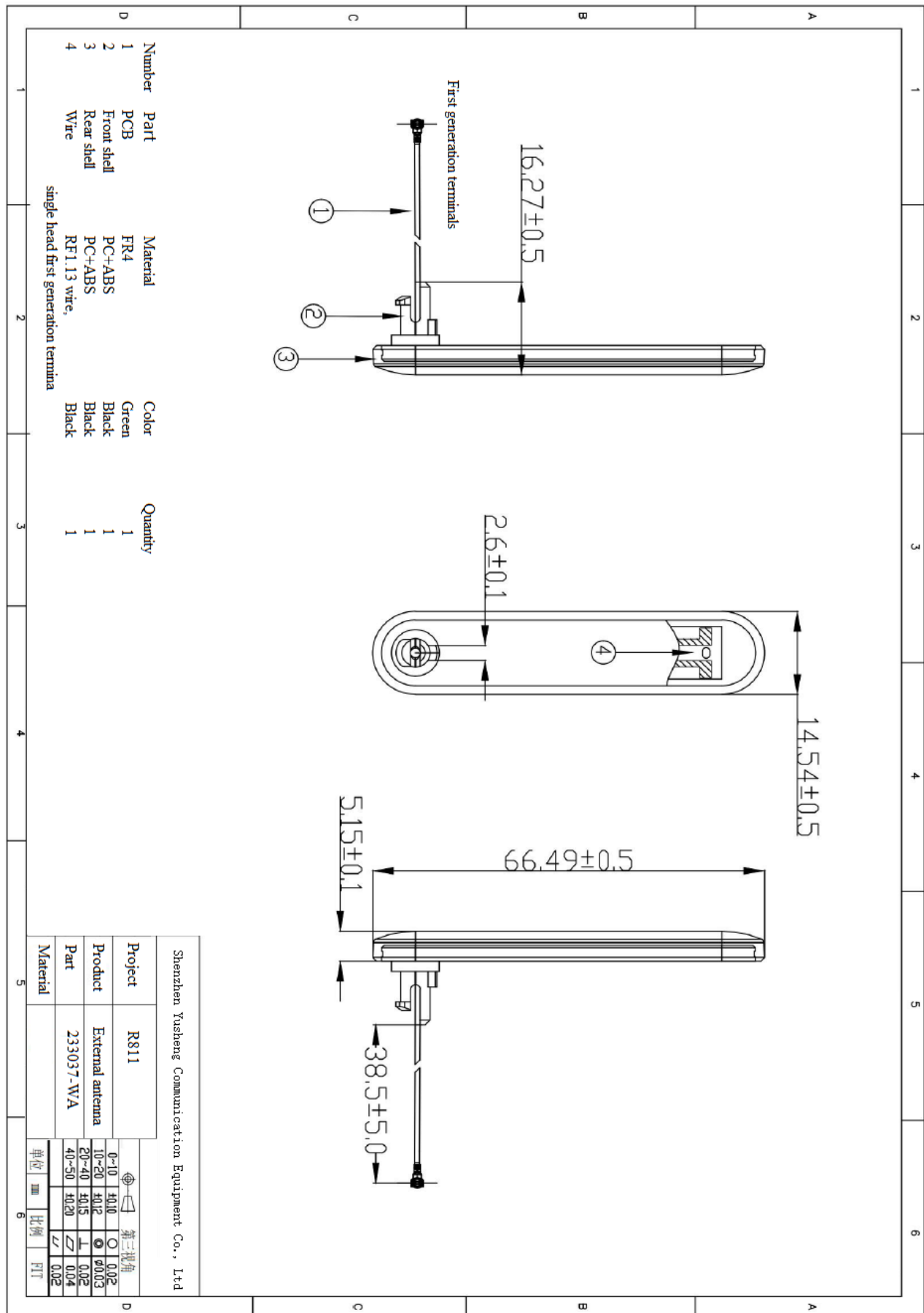


2.4.1 Test images

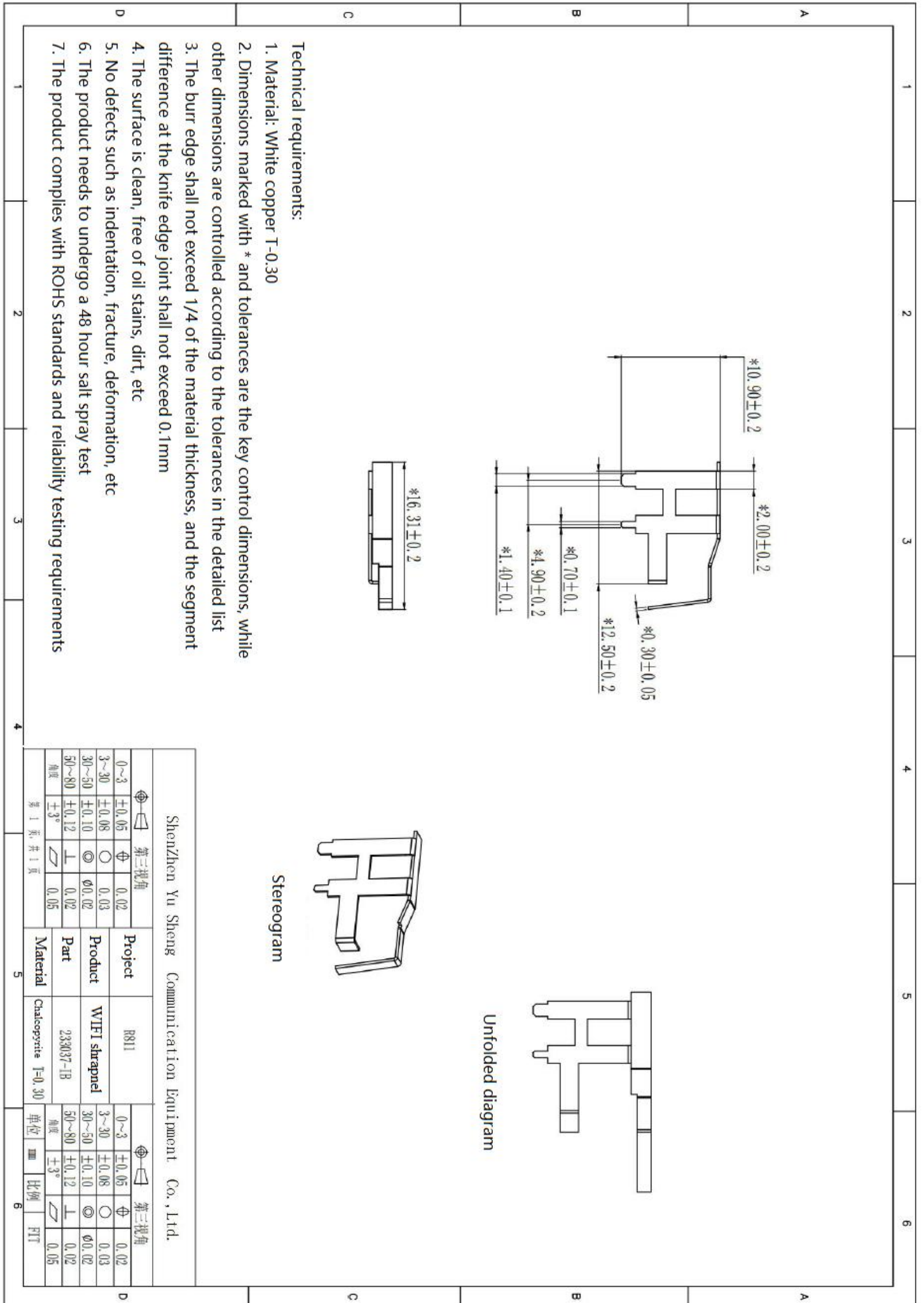


3. Structural drawings

External antenna



Steel sheet antenna



4.BOM

深圳市昱晟通讯设备有限公司

Shenzhen Yusheng Communication Equipment Co., Ltd

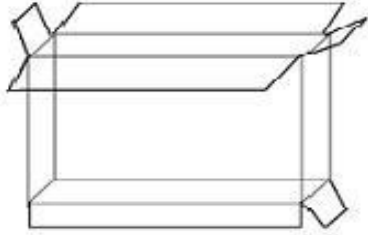
233037(R811)-BOM

Item	Part Number	Name	Type	Ver	Specifications	materials	Surface Treatment	Color	Unit	count	Process	remarks
1	233037-IB	Shrapnel antenna	Z	R: A	16.31*10.90*2.60mm	Chalcopyrite T=0.3mm			PCS	1		Single PCS
1.1	233037-IB-01	Shrapnel antenna	B	R: A	16.31*10.90*2.60mm	Chalcopyrite T=0.3mm			PCS	1		Single PCS
2	233037-WA	External antenna	Z	R: A	66.49*14.54*16.27mm	Exposed wire length 38mm	PC+ABS+Cable+PCB	black	PCS	2	assemble	Single PCS
2.1	233037-WA-01	Wire	B	R: A	RF1.13 wire, single ended first generation terminal, exposed wire length 38MM	Cable+CU		black	PCS	2		Single PCS
2.2	233037-WA-02	Front shell	C	R: A	66.49*14.54*5.15mm	PC+ABS		black	PCS	2		Single PCS
2.3	233037-WA-03	Rear shell	C	R: A	63.46*11.51*13.91mm	PC+ABS		black	PCS	2		Single PCS
2.4	233037-WA-04	PCB	B	R: A	47.80*9.20*0.60mm	FR4	Tin spraying	black	PCS	2		Single PCS

Type: W Sodium Purchase B Semi Product Z Finished Product C Customer supplied

above parts meet RoHS 2.0 HF Reach GF Environmental Protection Requirements

5. Package Drawing

Packaging method diagram														
Product name	External antenna+Steel sheet													
Part number	233037													
Project model	<u>R811 base station</u>													
Packing details	Carton Size1: 270*260*200MM Carton Size 2: 260*200*200MM Carton Size3: Depending on order quantity/volume													
	Packing method	Packaging according to order quantity												
	Total number of boxes packed	Packaging according to order quantity												
labeling requirement	Label size1: Universal 100*100mm Label size2: customization	Shenzhen Yu Sheng communication equipment Co., LTD <table border="1"> <tr> <td>Customer name</td> <td>*****</td> </tr> <tr> <td>Order number</td> <td>*****</td> </tr> <tr> <td>Project name</td> <td>*****</td> </tr> <tr> <td>Material code</td> <td>*****</td> </tr> <tr> <td>The number</td> <td>The amount ***</td> </tr> <tr> <td>Shipping date</td> <td>*** ** * day of the year</td> </tr> </table> Add: 4F 4A, Building 2, South Taiyun Chuanggu Park, Guangming Avenue, Guangming New District, Shenzhen	Customer name	*****	Order number	*****	Project name	*****	Material code	*****	The number	The amount ***	Shipping date	*** ** * day of the year
	Customer name	*****												
Order number	*****													
Project name	*****													
Material code	*****													
The number	The amount ***													
Shipping date	*** ** * day of the year													
NOTE														
1. Due to order quantity limitations, the packing method for each material is selected based on the total order quantity or physical volume, and the box size is selected.														
2. Storage temperature: room temperature														
3. Storage conditions: Store in a cool and dry place														

(This picture is only a packaging diagram, please refer to the actual mass production for details)