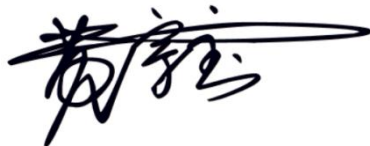


Acknowledgment Letter

SPECIFICATION FOR APPROVAL

Customer Name	Weiheide		
Customer Project Name	M1000S	Project Name	M1000S
Antenna type	Four in one antenna	SDC P/N	WF4528B-1131R-120 (Black) WF4528B-1131R-80 (Grey) WF4528B-1131R-160 (Grey)
Band	WIFI2. 4G/5. 8G/BT		
Version	A0		
Designer Information			
RF Engineer		R&D Director	
ME Engineer			

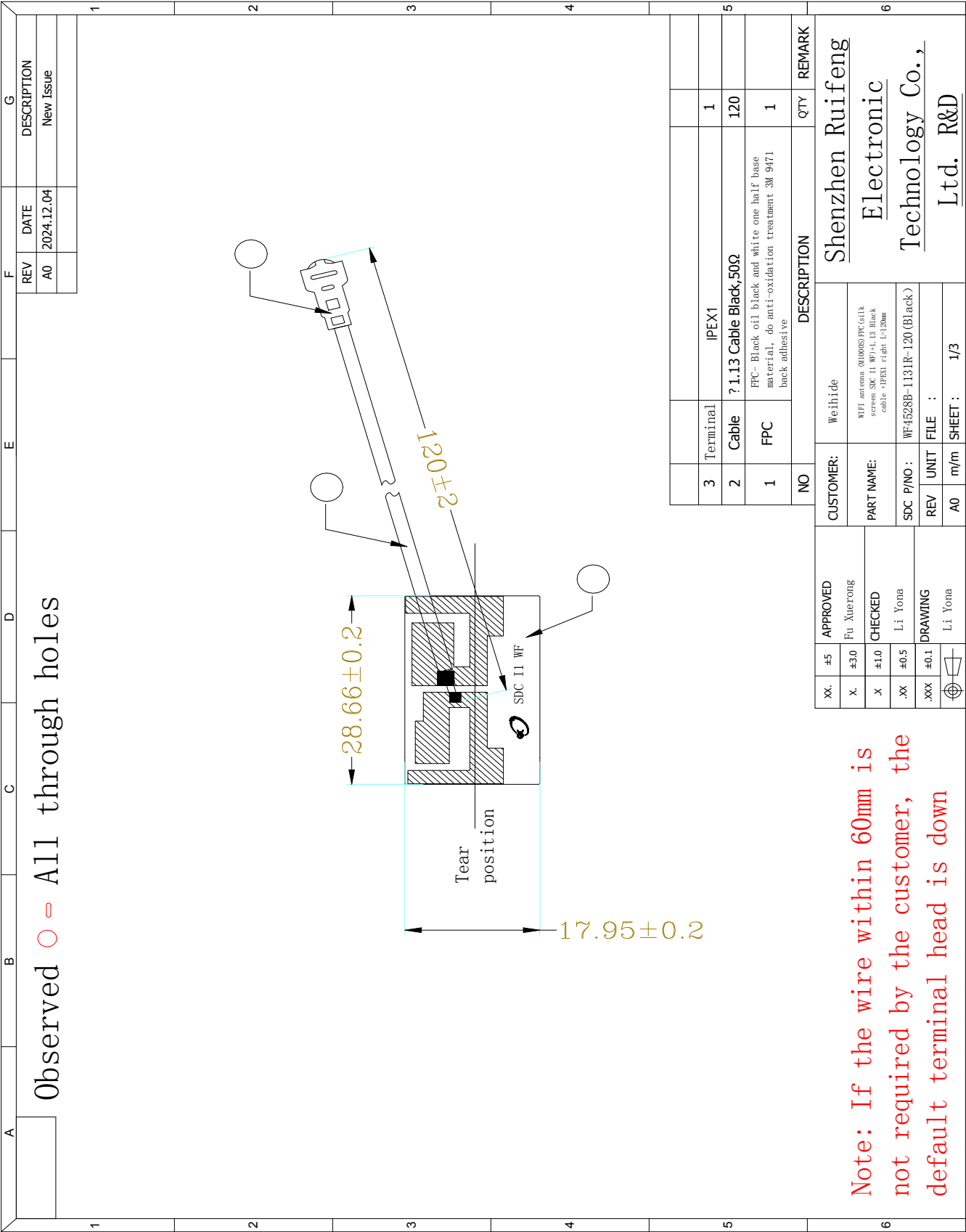
Approval				ustomer Approval	
	Prepared By	Checked By	Approval By	Checked By	Approval By
Signature	Huang Zongbao	Fu Xuerong	Xia Chenglei		
Date	2024. 12. 4	2024. 12. 4	2024. 12. 4		

hange 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	5-7
4	Reliability Test Report1	8
5	Package Document	9
6	RoHS Control list for Sample	10
7	Install Wizard or Other	10

Drawing or Product Image



Observed O - All through holes

Note: If the wire within 60mm is not required by the customer, the default terminal head is down

Sample Dimensions Test Report

Test Date	2024. 12. 4	Sample Qty.	3	Inspector	Xu Yanfang
Dimension No.	Standard	Sample 1	Sample 2	Sample 3	Pass/NG
①length	28.66±0.2mm	28.66	28.7	28.7	Pass
②width	17.95±0.2mm	18	17.95	17.95	Pass
③thickness	0.1±0.03mm	0.1	0.1	0.1	Pass
④Line length	120±2mm	120	121	120	Pass
⑤Line length	80±2mm	80	81	80	Pass
⑥Line length	160±2mm	160	161	160	Pass
Conclusion					PASS
Inspector & Date	Xu Yanfang 2024. 12. 4		Approval & Date		

RF Performance Test Report

Antenna Test Equipment Introduction

Test of antenna input characteristics using **Agilent E5071C** and **Agilent 5062A** vector network analyzer; The radiation pattern of the antenna are tested using the guangping 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:

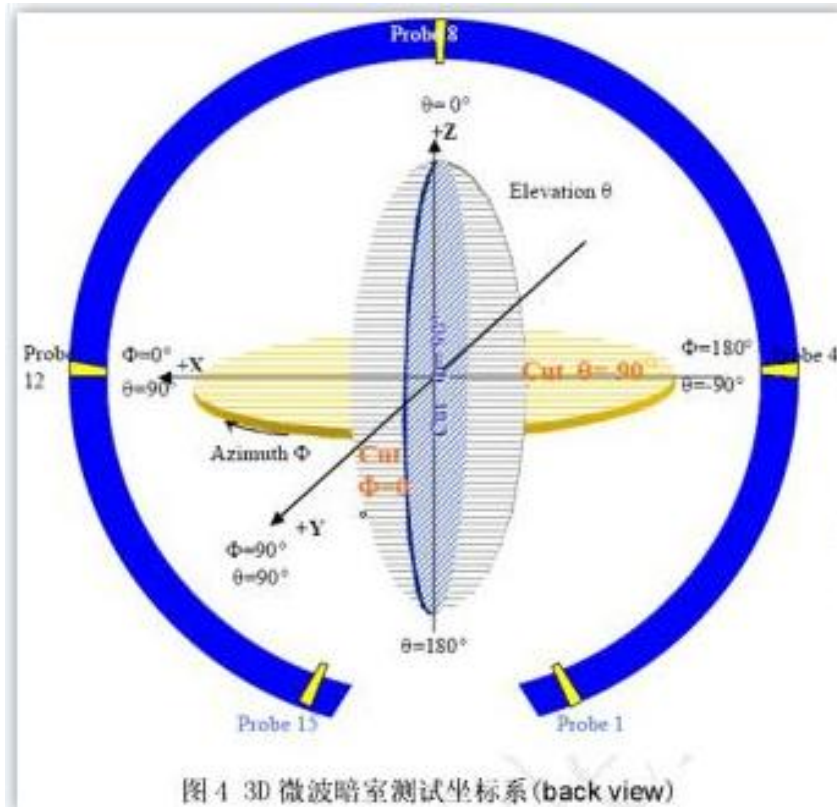


图 4 3D 微波暗室测试坐标系 (back view)

1. **S11 Parameter-VSWR**

Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

S11 Parameter-VSWR

S11 SWR /Smith/ Log Mag--WIFI 1



频率 (MHZ)	2400	2450	2500	5150	5300	5500	5700	5850
驻波比	1.5	1.3	1.3	1.0	1.2	1.2	1.2	1.0
阻抗	49.7 Ω	61.6 Ω	64.8 Ω	48.5 Ω	45.1 Ω	39.7 Ω	45.9 Ω	51.4 Ω
回损	-13.9	-17	-17.4	-26.7	-20.6	-18.8	-20.3	-26.6

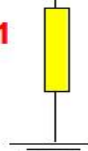
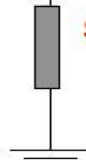
S11 SWR /Smith/ Log Mag--WIFI 2



频率 (MHZ)	2400	2450	2500	5150	5300	5500	5700	5850
驻波比	1.2	1.5	1.9	1.1	1.3	1.3	1.3	1.4
阻抗	49.5 Ω	45.0 Ω	41.3 Ω	51.6 Ω	61.1 Ω	61.3 Ω	66.7 Ω	70.1 Ω
回损	-17.7	-12.7	-9.6	-25	-17.2	-16.5	-16.3	-15.5

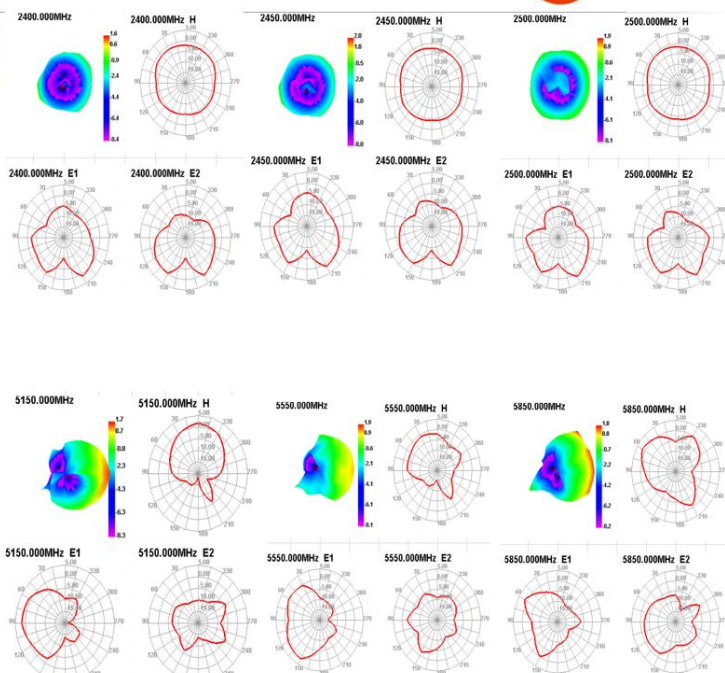
S11 SWR /Smith/ Log Mag--BT

频率 (MHZ)	2400	2450	2500	5150	5300	5500	5700	5850
驻波比	1.1	1.3	1.5	1.0	1.2	1.5	1.0	1.1
阻抗	54.2 Ω	60.2 Ω	57.2 Ω	49.4 Ω	41.1 Ω	33.4 Ω	46.4 Ω	44.8 Ω
回损	-26.1	-17.4	-13.2	-32.8	-18.5	-13.9	-26.7	-24.1

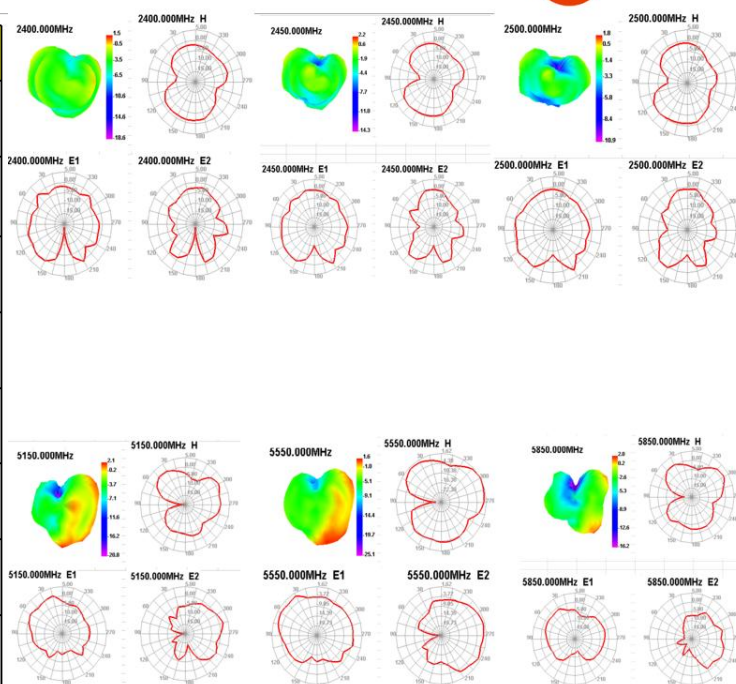
2. Antenna Matching Network**Antenna****Series
N/A****PA****Shunt 01
N/A****Shunt 02
N/A****3. Gain & Efficiency**

Gain & Efficiency-WIFI1

Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	49.85	1.59
2450	50.62	2.02
2500	49.54	1.93
5150	52.35	1.72
5350	53.62	1.83
5550	52.17	1.85
5750	50.55	1.63
5850	51.43	1.77

**Gain & Efficiency-WIFI2**

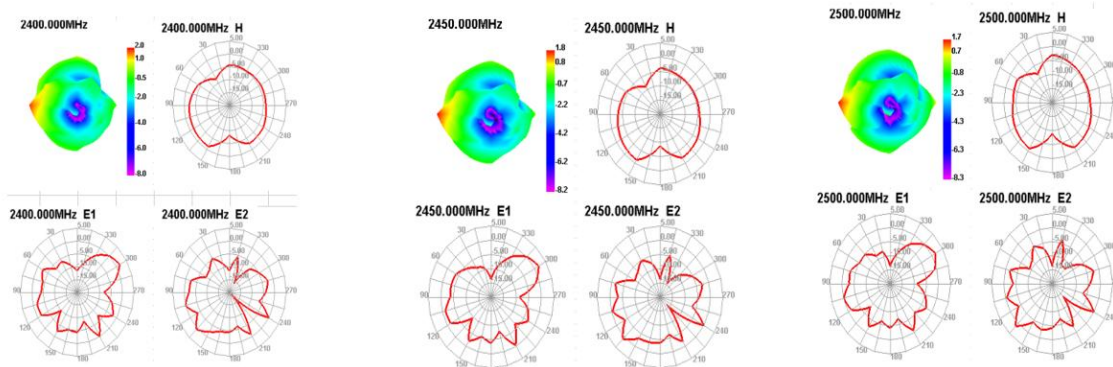
Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	46.36	1.54
2450	48.42	2.16
2500	48.52	1.83
5150	47.36	2.06
5350	51.45	1.72
5550	50.13	1.63
5750	50.78	1.55
5850	52.61	1.97



Gain & Efficiency-BT



Frequency (MHz)	Efficiency (%)	Peak GAIN (dBi)
2400	50.53	1.97
2450	51.28	1.85
2500	49.7	1.65



4.WIFI OTA Data

2.4G WIFI	TRP			TIS		
Channel	CH1	CH6	CH12	CH1	CH6	CH12
802.11 b , 11M	12.49	12.92	12.38	-83.78	-82.65	-82.59
802.11 g , 54M	13.2	13.63	13.46	-72.59	-72.28	-72.27
802.11 n , MCS7 (65M)	13.66	13.75	13.68	-70.36	-70.29	-70.18

5.8G WIFI	TRP			TIS		
Channel	CH36	CH60	CH165	CH36	CH161	CH165
802.11 A , 54M	13.85	10.06	13.22	-73.39	-72.67	-72.53

Shenzhen Ruifeng Electronic Technology Co., Ltd. R&D

Reliability Test Report

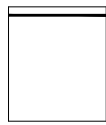
Test Date	2024. 12. 4	Sample Qty.	3	Inspector	Xu Yanfang	
Test Item	Requirement	testing equipment	Sample 1	Sample 2	Sample 3	PASS/NG
high temperature storage	Expose to+85 °C for 24 hours, recover for 2 hours, and conduct testing	Constant temperature and humidity box	OK	OK	OK	Pass
low temperature storage	Expose to -40 ° C for 24 hours, recover for 2 hours, and perform testing	Constant temperature and humidity box	OK	OK	OK	Pass
High temperature operation	Powered on for 24 hours at+60 °C	Constant temperature and humidity box	OK	OK	OK	Pass
Low temperature operation	Powered on for 24 hours at -20 °C	Constant temperature and humidity box	OK	OK	OK	Pass
Salt spray test	(5 ± 0. 5)%sodium chloride、pHValue is6.5~7.2, Temperature of experimental chamber (35±2) °C ☐ 24H ☒ 48H	Salt spray testing machine	OK	OK	OK	Pass
Connector riveting and pulling force	1.13Wire diameter ≥ 10N 0.81Wire diameter ≥ 8N RG174 ≥60N RG178 ≥50N	Push-pull force gauge	≥10N	≥10N	≥10N	Pass
Conclusion						Pass
Inspector & Date	Xu Yanfang 2024. 12. 4		Approval & Date			

Packing rules

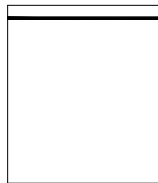
Project name: M1000S

Product name: FPC antenna

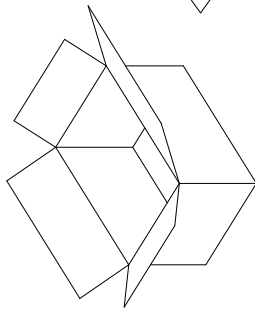
FPC antenna (one)



(two) Each PE bag contains 100pcs of products (subject to actual packaging)



(three) Then put the small antenna bag neatly into (Figure 3) and fill 10 small bags (the actual packaging shall prevail).



(four) The packaged antenna can be put into a carton, which can hold 5 large bags, each box can hold 5000PCS (Figure 4). (Subject to actual packaging)



supplier	
purchase order number	
material code	
specifications and models	
quantity	
date	

(five) After the packaging is completed, the shipping label should be affixed (Figure 5).

Install Wizard or Other

setup script:

Take 1 PCS of product, tear off the release paper on the back of the FPC by hand, and then align the FPC positioning hole position with the shell positioning hole position (positioning rib position or positioning line), and attach it flat to the shell, as shown in the following figure:

Installation process precautions:

- ☐ Ensure that the FPC is fully attached to the housing after pasting the antenna;
- ☐ Align the positioning hole with the position of the casing positioning column;
- ☐ Align FPC edge with shell edge;
- ☐ When attaching the terminal to the PCBA end of the motherboard, please first align the terminals and then snap them vertically;
- ☐ When disassembling antenna terminals, it is necessary to use a tool (such as a special pry bar) to vertically lift the terminals and not directly pull the wires for disassembly

