Acknowledgment Letter

SPECIFICATION FOR APPROVAL

Customer Name	Yu Ke		
Customer Project Name	T87N	Project Name	T87N
Antenna type	Four in one antenna	SDC P/N	WG6070B-A
Band	WiFi2.4G/5.8G/BT/GPS		
Version	A0		
Designer Information			
RF Engineer	Yang YongHui	R&D Diretor	Fu Xuerong
ME Engineer	Huang ZongBao		

Approval				ustomer Approval	
	Prepared By	Checked By	Approval By	Checked By	Approval By
Signature	Huang Zongbao	Fu Xuerong	Xia Chenglei		
Date	2024.11.14	2024.11.14	2024.11.14		

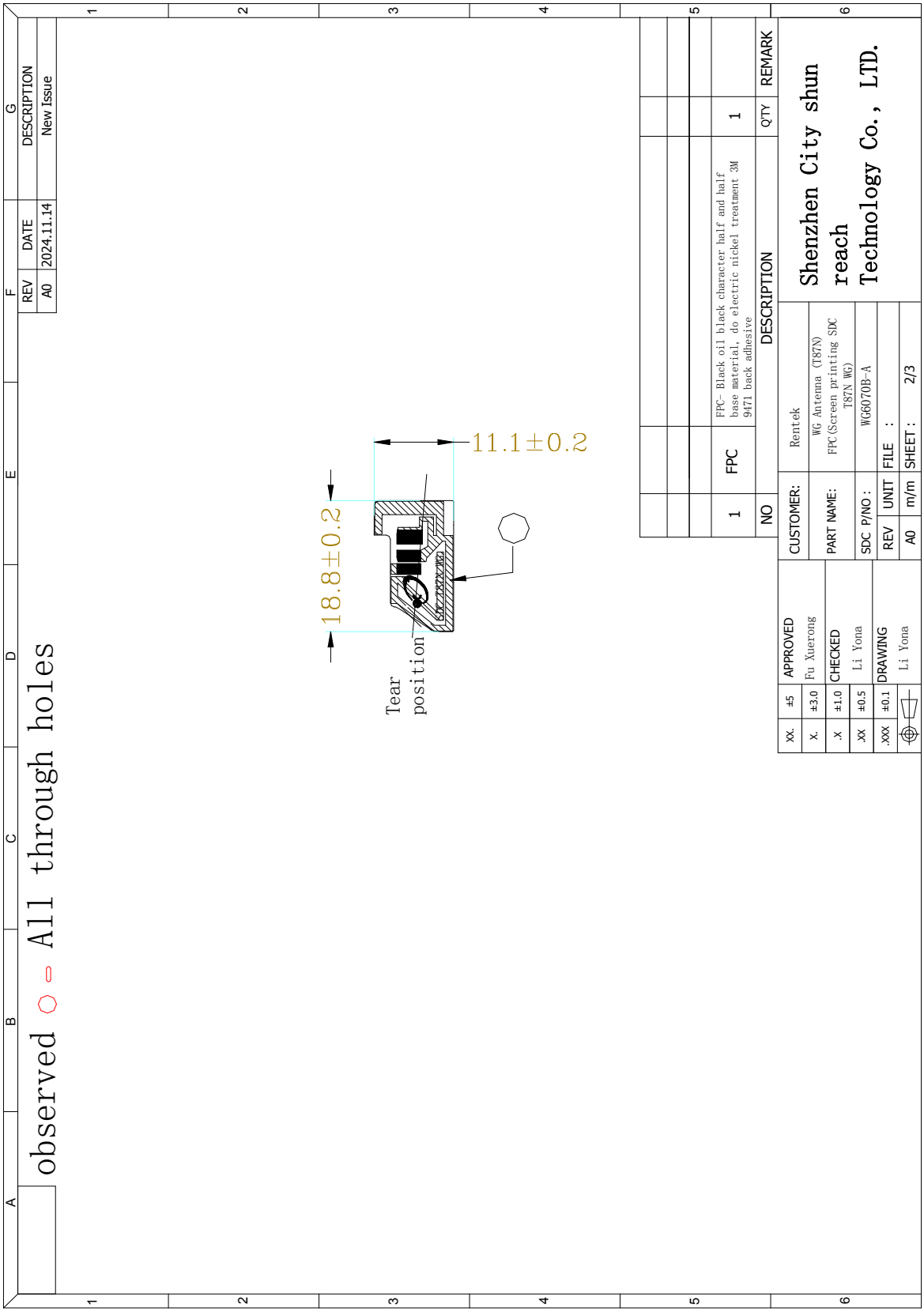
hange Log				
Version	Change Description	Person in Charge	Approval By	Date

Company Address: 4th Floor, Building B5, Xinfu Industrial Park, Chongqing Road, Fuyong Town, Bao'an District, Shenzhen TEL:0755-27211658 FAX:0755-29485750

Catalogue

Company Address: 4th Floor, Building B5, Xinfu Industrial Park, Chongqing Road, Fuyong Town, Bao'an District, Shenzhen TEL:0755-27211658 FAX:0755-29485750

Drawing or Product Image



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Shenzhen Shundacheng Technology Co., Ltd

Sample Dimensions Test Report

Test Date	2024.11.14	Sample Qty.	3	Inspector	Xu Yanfang
Dimension No.	Standard	Sample 1	Sample 2	Sample 3	Pass/NG
①length	18.8±0.2mm	18.8	18.9	18.8	Pass
②width	11.1±0.2mm	11.1	11.2	11.1	Pass
③ thickness	0.1±0.03mm	0.1	0.1	0.1	Pass
Conclusion					PASS
Inspector & Date	Xu Yanfang 2024.11.14		Approval &D ate		

Company Address: 4th Floor, Building B5, Xinfu Industrial Park, Chongqing Road, Fuyong Town, Bao'an District, Shenzhen TEL:0755-27211658 FAX:0755-29485750

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:

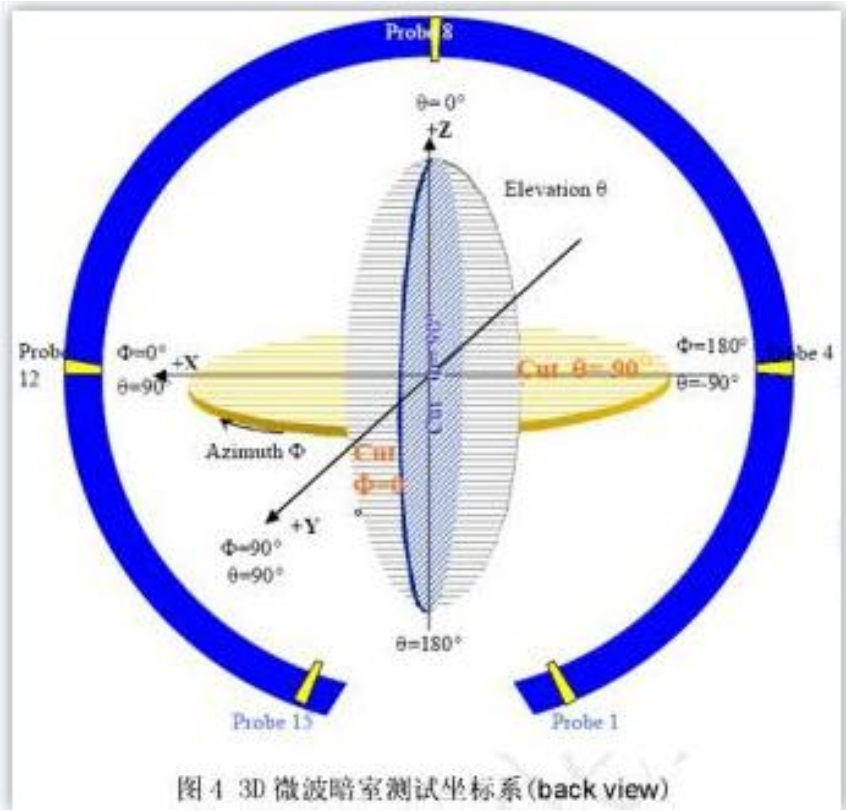


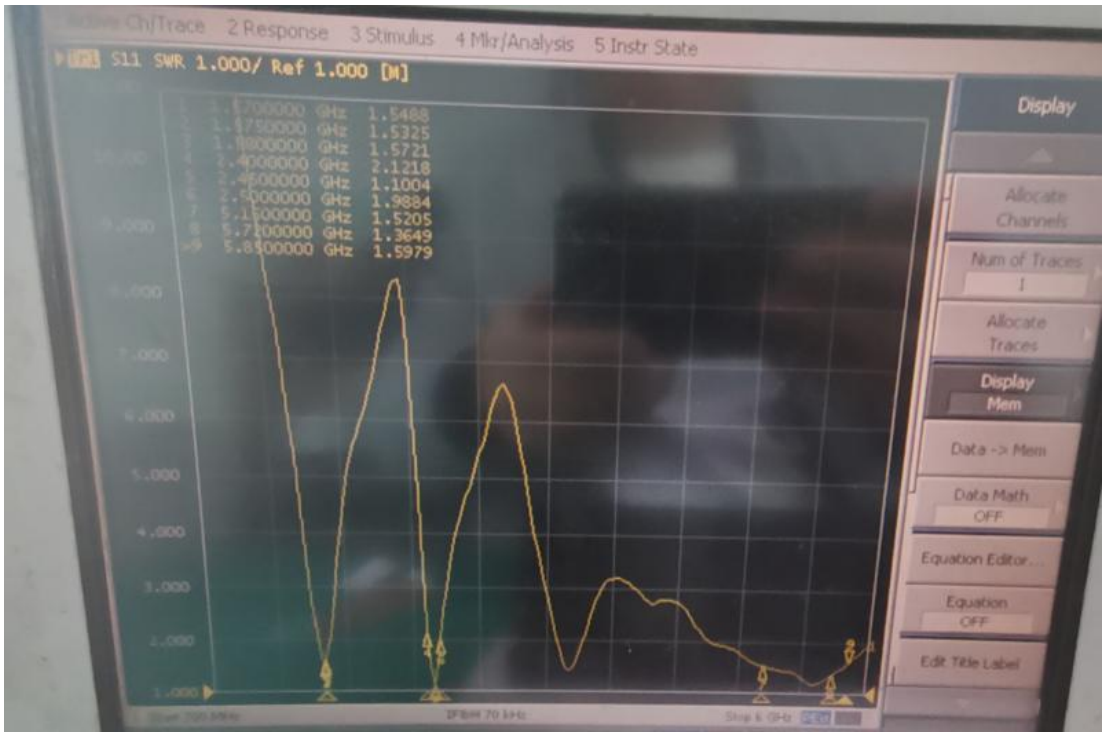
图 4 3D 微波暗室测试坐标系(back view)

1. *S11 Parameter-VSWR*

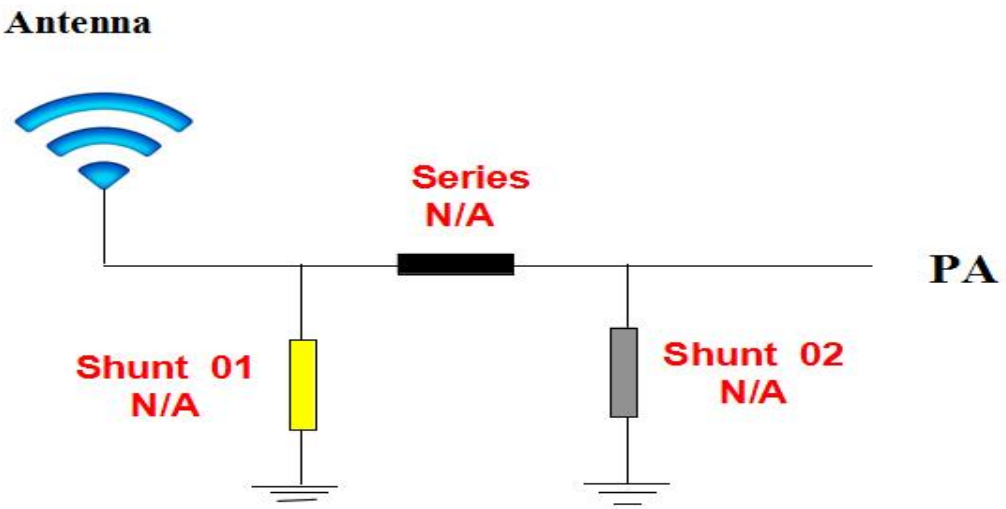
Measuring Method is a 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the S11 parameter, Keeping this fixture away from metal at least 20cm.

S11 Parameter-VSWR

Frequency(MHz)	1570	1575	1580	2400	2450	2500	5150	5720	5850
VSWR	1.54	1.53	1.57	2.12	1.10	1.98	1.52	1.36	1.59



2. *Antenna Matching Network*



3. Electrical parameter：

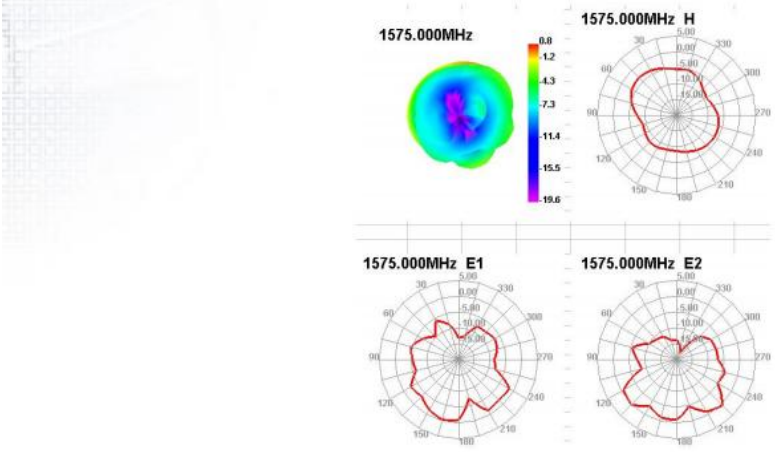
Electrical parameter	
（Frequency range）	1575-5850Mhz
Polarization mode	Horizontal and vertical polarization
Measurement program	Wide screen
Test equipment	Agilent(5071B ） /Agilent （ 8960 ） /ROHDE&SCHWARZ(CMW500)
Test Settings	Insert the testing white card, fix the entire machine on the testing turntable, open the testing software, and select the corresponding testing frequency band
Testing location	OTA microwave anechoic chamber
Antenna manufacturer	Shenzhen Shundacheng Technology Co., Ltd
Debugging mode	PIFA
Antenna material	FPC+coaxial line

4. Gain & Efficiency

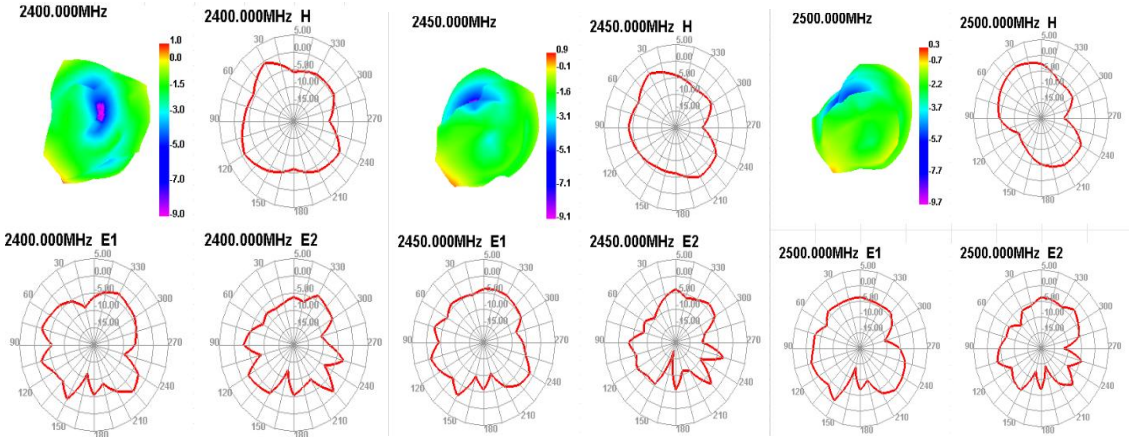
Passive Test For GPS-RB

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
1500	32.5	-3.14	2.8	0.65	16.66	31.838	0.8	-20.4	43.83	44.08
1525	32.86	-3.2	0.59	0.44	15.309	32.552	0.59	-21.47	43.89	43.93
1550	43.28	-3.64	1.82	-0.33	12.607	30.669	1.82	-15.36	44.11	44.11
1575	38.85	-4.58	0.81	-1.34	9.312	25.539	0.81	-19.56	44.82	44.78
1600	34.74	-4.59	0.67	-1.48	10.102	24.642	0.67	-20.95	46.1	45.91

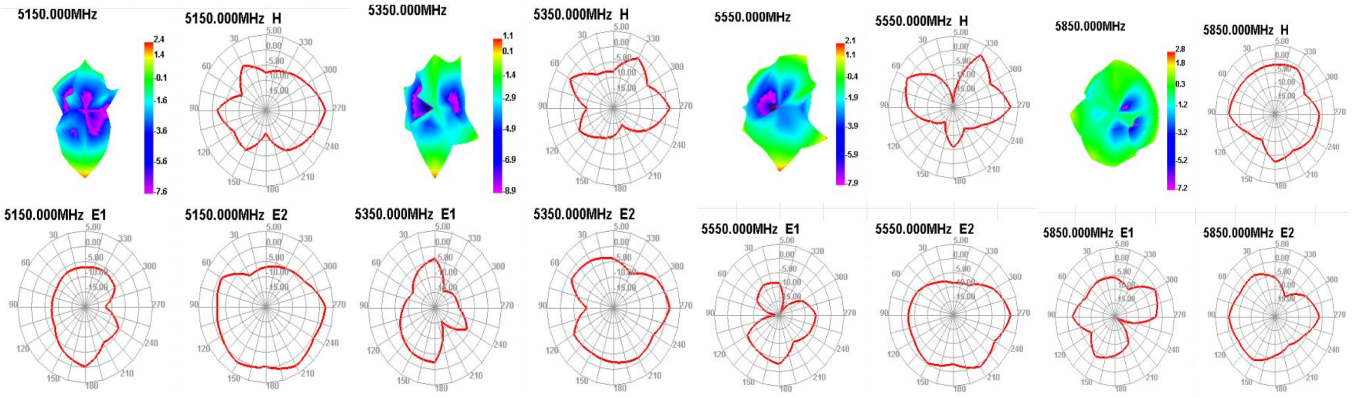
1500.00MHz - 1600.00MHz Gain



Passive Test For 2.4G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	43.54	-3.61	1.03	-1.12	20.581	22.962	1.03	-15.9	4.64	15	48.93	49.09
2425	45.48	-2.97	1.96	-0.19	23.926	26.555	1.96	-16.48	4.93	15	49.09	49.22
2450	36.53	-4.37	0.87	-1.28	17.136	19.397	0.87	-19.74	5.24	15	49.25	49.27
2475	35.97	-4.44	0.52	-1.63	17.205	18.763	0.52	-23.22	4.96	75	49.98	49.91
2500	36.94	-4.32	0.32	-1.83	17.676	19.267	0.32	-18.36	4.64	75	49.71	49.62



Passive Test For 5.8G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)	irectivit (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5150	42.13	-3.75	2.36	0.21	16.688	25.441	2.36	-12.69	6.11	0	58.6	58.01
5250	36.5	-4.38	1.37	-0.78	16.245	20.256	1.37	-11.52	5.75	30	58.53	57.74
5350	33.61	-4.73	1.07	-1.08	14.487	19.127	1.07	-15.18	5.81	60	57.99	57.08
5450	38.75	-4.12	2.03	-0.12	14.442	24.308	2.03	-15.14	6.15	0	59.19	57.9
5550	43.16	-3.65	2.14	-0.01	15.599	27.564	2.14	-19.43	5.79	60	60.21	58.81
5650	45.41	-3.43	2.1	-0.05	16.711	28.699	2.1	-20.47	5.53	0	60.31	59.42
5750	46.58	-3.32	2.17	0.02	17.996	28.581	2.17	-18	5.49	30	60.88	60.28
5850	44.83	-3.48	2.78	0.63	18.496	26.336	2.78	-23.77	6.27	30	61.09	60.41



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5. OTA data

2.4G	802.11b, (2.4G) 11M		
Channel	CH1	CH6	CH11
TRP	13.11	13.57	13.02
TIS	-80.92	-81.04	-81.39
5.8G	802.11a, (5.8G) 54M		
Channel	CH36	CH60	CH161
TRP	11.28	10.42	10.17
TIS	-70.24	-69.86	-68.78

6. GPS measurement map

Reliability Test Report

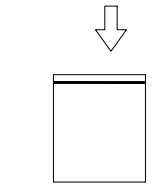
Test Date	2024.11.14	Sample Qty.	3	Inspector	Xu Yanfang	
Test Item	**Requirement**	**testing equipment**	**Sample 1**	**Sample 2**	**Sample 3**	**PASS/NG**
high temperature storage	Expose to+85 ℃ for 24 hours, recover for 2 hours, and conduct testing	Constant temperature and humidity box	OK	OK	OK	Pass
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 ℃	Constant temperature and humidity box	OK	OK	OK	Pass
Low temperature operation	Powered on for 24 hours at -20 ℃	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)℃ ☐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 2024.11.14		Approval &Date			

Company Address: 4th Floor, Building B5, Xinfu Industrial Park, Chongqing Road, Fuyong Town, Bao'an District, Shenzhen TEL:0755-27211658 FAX:0755-29485750

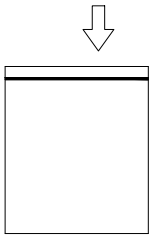
Packing rules

Project name: T87N	Product name: T87N

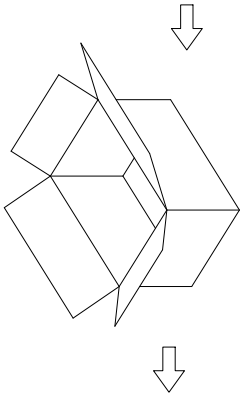
FPC antenna (one)



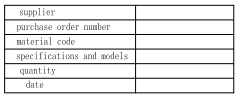
(two) Each PE bag contains 100pcs of products (subject to actual packaging)



(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)



(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;

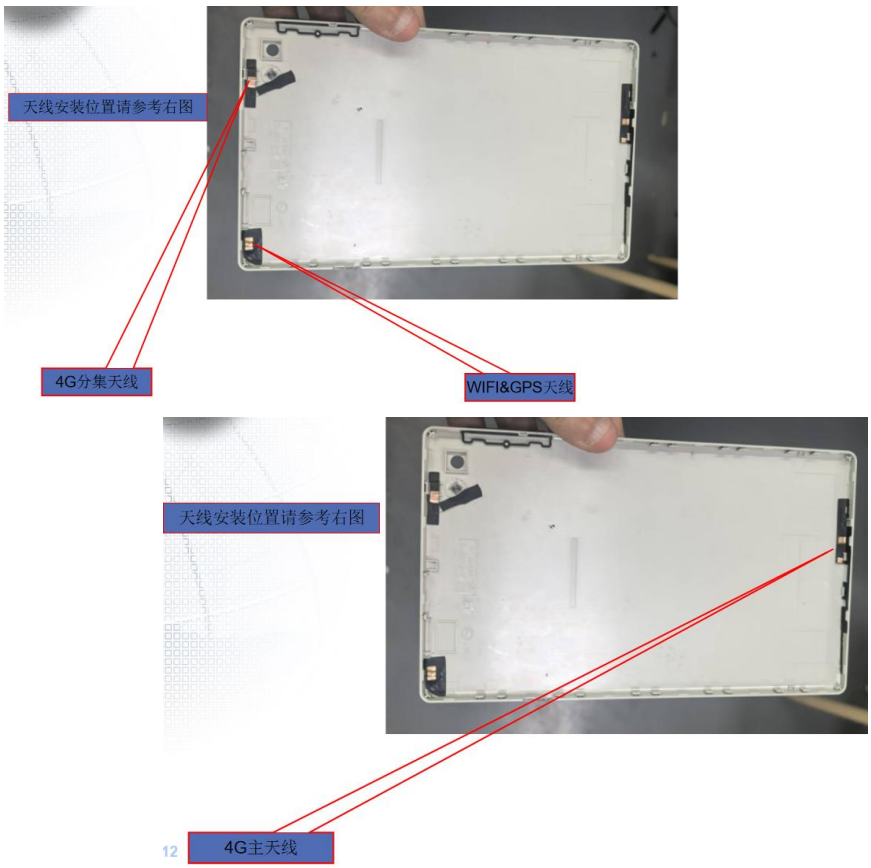
☐Align the positioning hole with the position of the casing positioning column;

☐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

Test equipment(The following equipment is calibrated every six months, inMarch/September of each year）



Certificate

Certificate Number: UNIB23083106HC-01

Product:	5G/4G/WIFI/GPS/BT antenna
Applicant:	ShenZhen ShunDaCheng Technology Co., Ltd.
	4th Floor, Building B5, Xinfu Industrial Zone, Fuyong Chongqing Road, Baoan District, Shenzhen
Manufacturer:	N/A
Model No.:	N/A
Trade Name:	N/A
Test Methods:	IEC 62321-2:2021, IEC 62321-3-1:2013, IEC 62321-4:2013 +A1:2017, IEC 62321-5:2013, IEC 62321-6:2015, IEC 62321-7-1:2015 IEC 62321-7-2:2017, IEC 62321-8:2017

The laboratory tested the product provided by the applicant according to the above test methods. According to the test results, the product conforms to RoHS Directive [(2011/65/EU and Amendment (EU) 2015/863)] issued by the European Commission. It is possible to use CE marking to demonstrate the compliance with RoHS Directive.

The certificate applies to the tested sample above mentioned only and shall not imply an assessment of the whole production. It is only valid in connection with the test report number: UNIB23083106HR-01.

Note: According to the requirements of the applicant for testing, details are shown in the test report.

RoHS

Sep. 06, 2023
Issue Date

Hoffer Lau

CE

Certificate of Compliance

Shenzhen United Testing Technology Co., Ltd.

Shenzhen: D101&D401, No. 107, Kaicheng High-Tech Park, Taoyuan Community, Dalang Sub-District, Longhua District, Shenzhen, Guangdong, China/518109

Guangzhou:No.47-3, Industrial Road, Zhushan, Dalong Street, Panyu District, Guangzhou, Guangdong, China/511450;

101/F, Building 2, Tongxin Industrial Park, Xinqiao Village, Dalong Street, Panyu District, Guangzhou, Guangdong, China/511450

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