

Shanghai Sunnyway Communication Technology Limited Company

Skyline Acknowledgement Book

Customer: Shanghai ZoomSmart Technology Co., Ltd		The project: A8001
Operating frequency band: GSM850/ 900/1800/1900 +WCDMA1/2/5/8/+CDMABC0/TDA/F +LTE Band 1/2/3/4/5/7/8/17/20/28/38/39/40/41		
Motherboard version: A8001_MB_V2.0		
Shangyuan material specifications		
Specifications and models	Shangyuan material number	Customer part number
A8001_DIV_ANT	PQ002IB75-4	0101020118

Tel: +86-021-60835368 (Shanghai) ; +86-0755-82504258 (Shenzhen)

Shanghai R&D Center Address: 1st Floor, Building 4, No. 99, Lane 215, Gaoguang Road,
Qingpu District, Shanghai

Shenzhen R & D Center Address: Shenzhen Guangming District South Taiyun Chuanggu Center 5
Building 6 floor

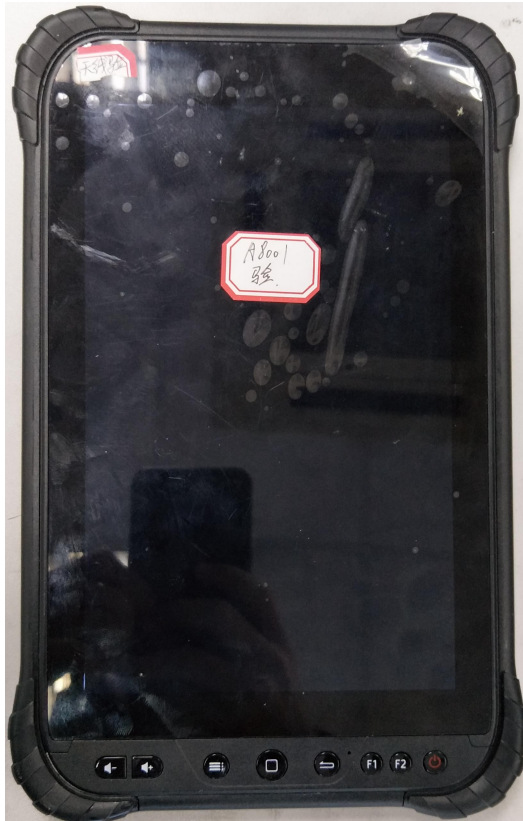
Chongqing R&D Center Address: C08-1 Building-1, No. 19 Xiantao Data Valley East Road,
Yubei District, Chongqing

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1. Project information

Machine information

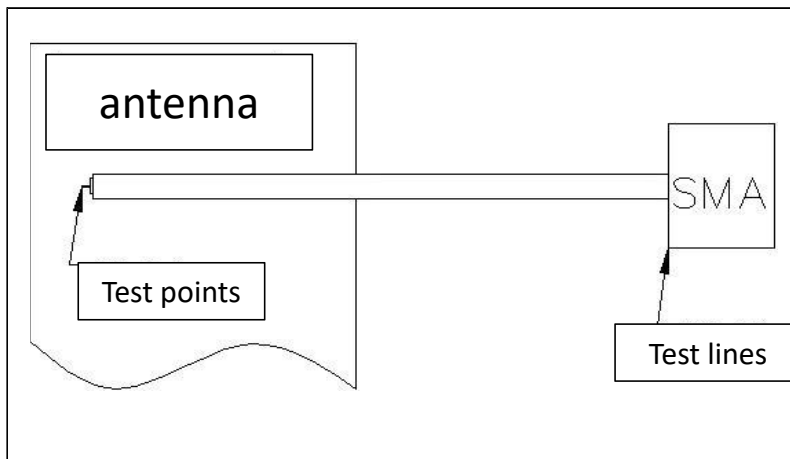


Note: The customer finally verified that the antenna performance prototype was retained in our company for at least one year, which is convenient for analysis and solution to abnormal situations in antenna mass production.
Ensure antenna shipment quality.

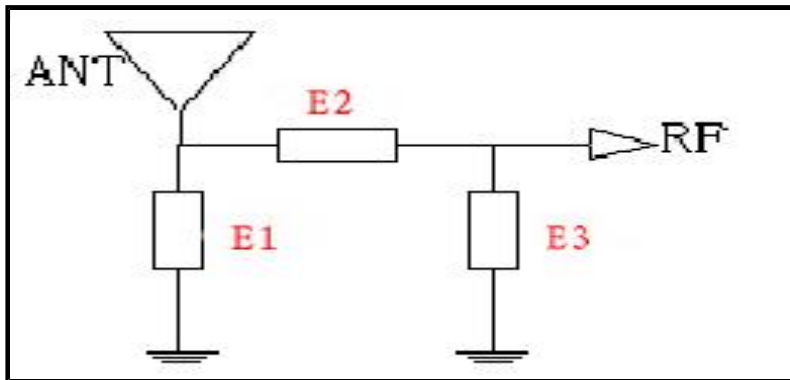
2. Test fixtures

Purpose: To test the passive parameters of the antenna as accurately as possible.

How to make: The prototyping mechanism is made of a 50 ohm coaxial cable, one end is connected to the test point at the back of the matching circuit of the prototype motherboard (the front of the RF test hole), and the other end is connected to the SMA connector. The schematic diagram is as follows:



3. Matching circuits



Element	Value	specification
E1	4.7nh	
E2	0Ω	
E3	N/A	

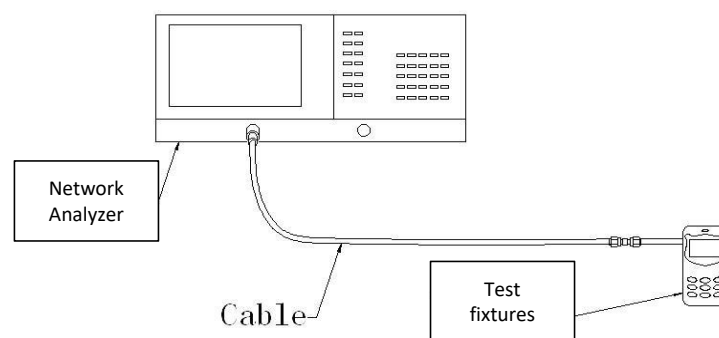
4. S11 test

4.1 S11 Test Method Description

Test Equipment: Network Analyzer (E5071C)

Test method: A 50 ohm CABLE cable is derived from the instrument test port, and the SMA connector of the prototype is connected after calibration using the calibrator to record the return loss and standing wave ratio corresponding to the relevant frequency point.

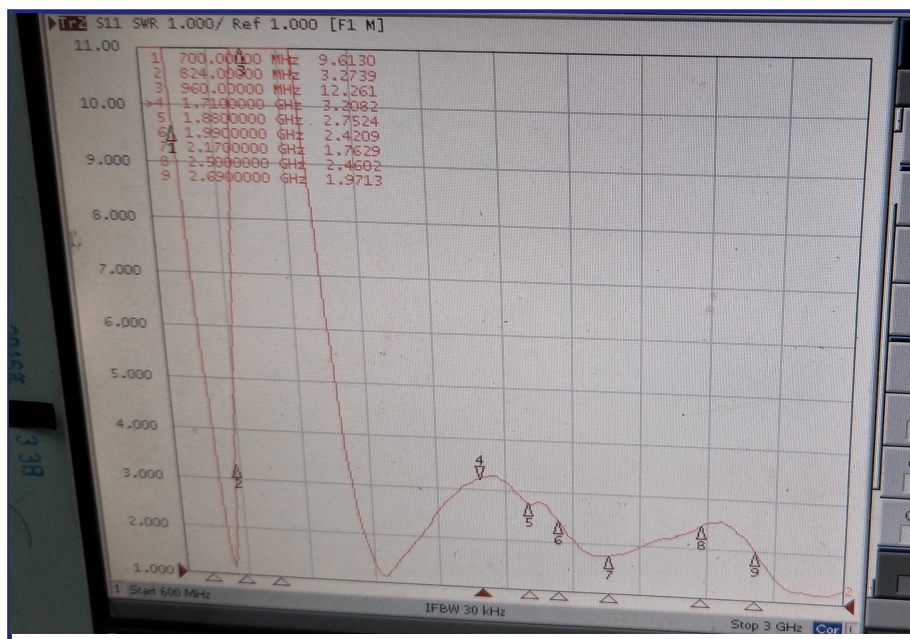
The test diagram is as follows:



Test the schematic

4.2 S11 parameter

Primary antenna/RF1



	Main antenna
frequency (MHz)	VSWR
824	3.2
1800	2.7
2170	1.7
2690	1.9

5.Darkroom test data

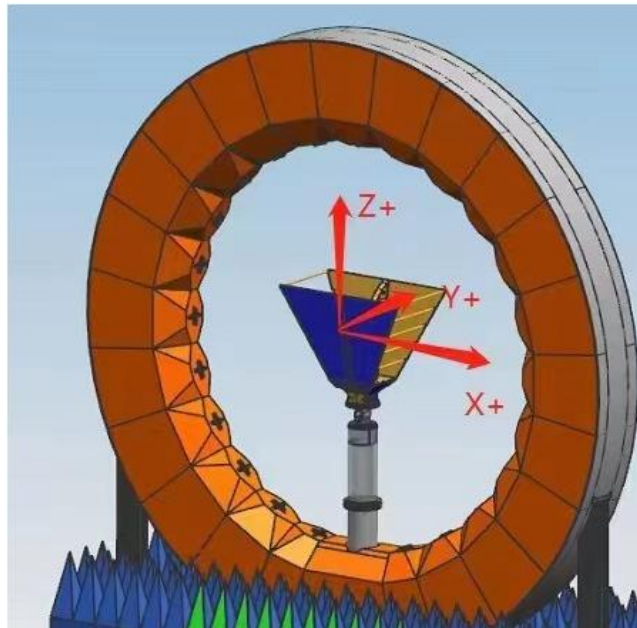
5.1 Passive test data

Diversity antenna passive efficiency

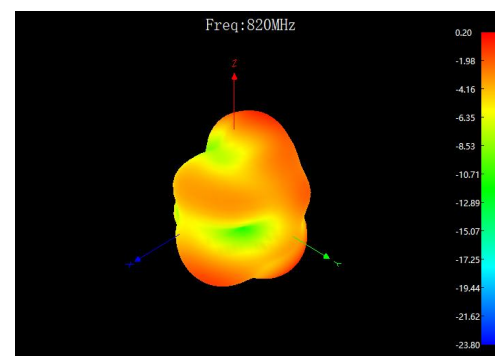
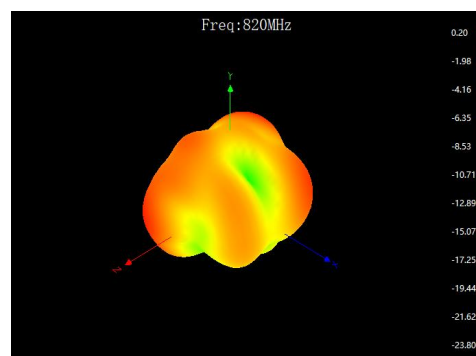
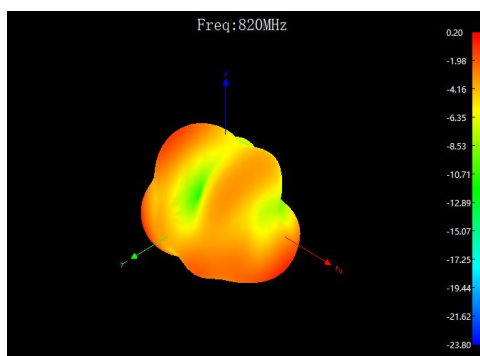
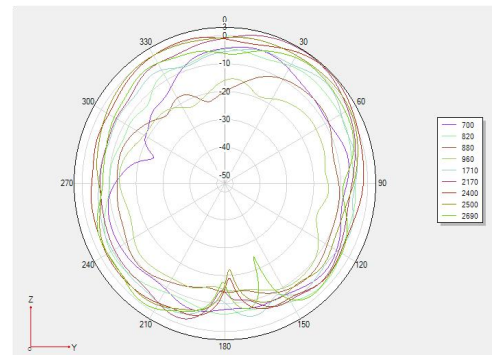
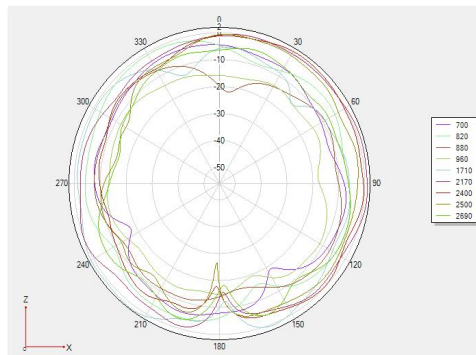
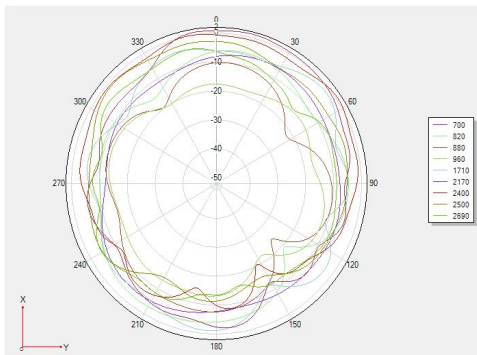
Freq	Effi	Effi	Gain	Freq	Effi	Effi	Gain
(MHz)	(%)	(dB)	(dBi)	(MHz)	(%)	(dB)	(dBi)
750	19.2	-7.17	-0.49	2070	48.9	-3.11	2.05
760	23.87	-6.22	-0.24	2080	39.86	-3.99	2.15
770	28.91	-5.39	0	2090	37.32	-4.28	1.96
780	32.13	-4.93	0.4	2100	36.47	-4.38	2.51
790	35.65	-4.48	0.8	2110	39.62	-4.02	2.22
800	37.57	-4.25	1.02	2120	33.51	-4.75	2.3
2400	42.25	-3.74	1.71	5410	38.58	-4.14	-1.04
2410	42.22	-3.75	1.27	5420	37.77	-4.23	-0.64
2420	44.67	-3.5	1.65	5430	36.99	-4.32	-0.77
2430	45.54	-3.42	1.97	5440	36.35	-4.4	-0.77
2440	46.28	-3.35	1.22	5450	36.91	-4.33	-0.81
2450	46.02	-3.37	1.85	5460	36.8	-4.34	-0.99
2460	46.97	-3.28	1.73	5470	37.56	-4.25	-1
2470	48.81	-3.11	0.88	5550	33.51	-4.75	-0.74
2480	52.24	-2.82	1.14	5560	33.33	-4.77	-0.74
2490	52.34	-2.81	0.53	5570	31.97	-4.95	-0.74
2500	51.55	-2.88	0.07	5580	30.73	-5.12	-1.19
5100	22.27	-6.52	-0.49	5590	29	-5.38	-1.2
5110	22.34	-6.51	-0.79	5600	26.54	-5.76	-1.29
5120	21.84	-6.61	-0.33	5610	26.52	-5.76	-1.24
5130	24.05	-6.19	0.14	5620	26.54	-5.76	-1
5140	23.67	-6.26	0.15	5630	26.68	-5.74	-0.61
5150	24.45	-6.12	0.01	5640	26.93	-5.7	-1.07
5160	24.42	-6.12	-0.17	5650	27.47	-5.61	-0.92
5170	25.5	-5.93	-0.05	5660	27.88	-5.55	-1.07
5180	25.44	-5.95	0.05	5670	27.75	-5.57	-0.37
5190	26.8	-5.72	0.16	5680	26.54	-5.76	-0.39
5200	28	-5.53	0.05	5690	25.52	-5.93	-0.28
5210	27.9	-5.54	-0.26	5700	25.1	-6	-0.57
5220	28.95	-5.38	-0.61	5710	24.25	-6.15	-0.67
5230	30.12	-5.21	-0.72	5720	23.16	-6.35	-0.66
5240	31.98	-4.95	-0.39	5730	22.15	-6.55	-0.25
5250	30.83	-5.11	-0.03	5740	21.51	-6.67	-0.44
5260	33.06	-4.81	0.11	5750	20.46	-6.89	-0.28
5270	31.76	-4.98	-0.13	5760	20.31	-6.92	-0.53
5280	31.79	-4.98	-0.11	5770	19.72	-7.05	-0.86
5290	32.17	-4.93	0.01	5780	19.21	-7.16	-0.92
5300	28.87	-5.4	0.28	5790	19.46	-7.11	-0.88
5310	28.75	-5.41	0.5	5800	19.72	-7.05	-0.58
5320	29.43	-5.31	0.4				
5330	29.57	-5.29	0.13				
5340	30.31	-5.18	-0.33				
5350	31.83	-4.97	-0.4				
5360	30.95	-5.09	-0.23				
5370	31.81	-4.97	-0.39				
5380	32.89	-4.83	-0.31				
5390	31.23	-5.05	-0.82				
5400	39.48	-4.04	-1.12				

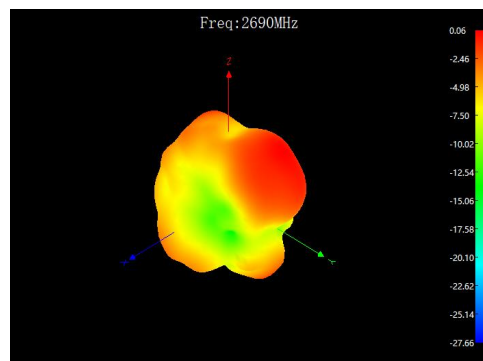
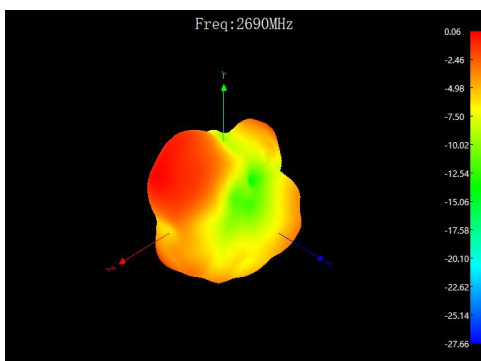
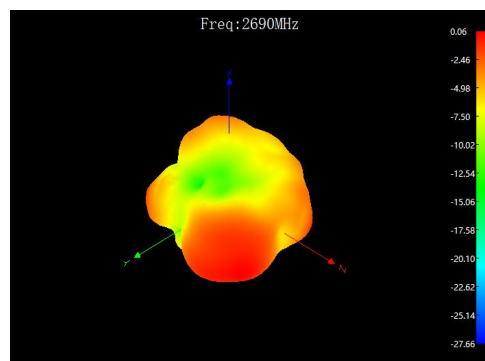
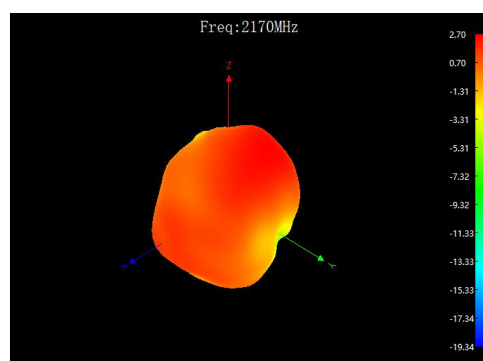
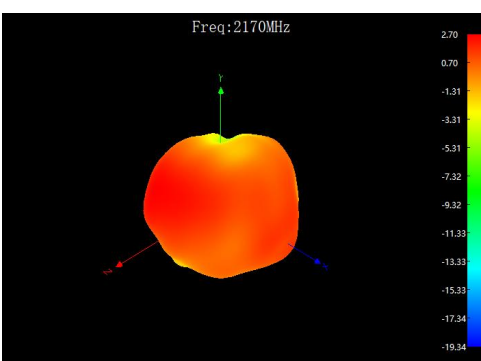
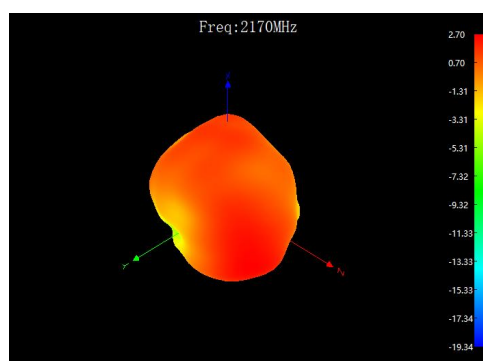
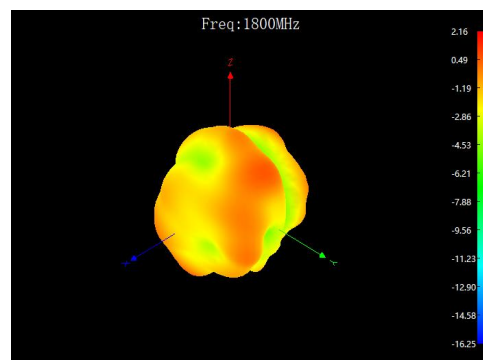
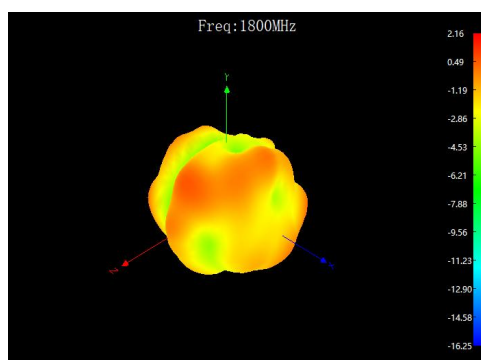
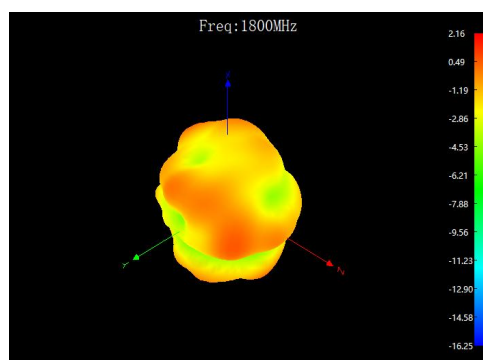
5.2 Radiation Pattern

Definition of darkroom axis:

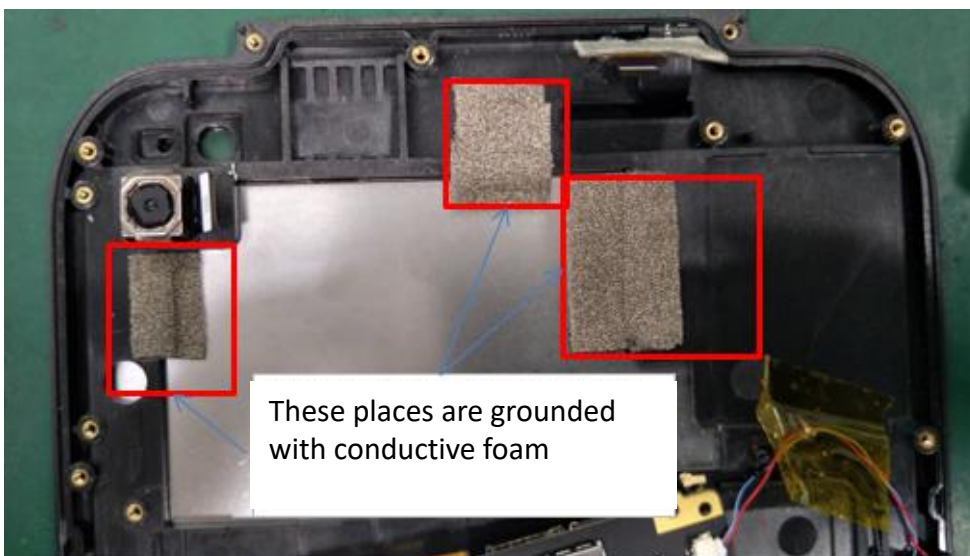


Diversity antenna





6. Prototype grounding



7. Mass production antenna indicators

When the antenna is mass-produced, the standing wave ratio is used as the mass production test standard. According to the differences in the project itself, the following criteria are given:

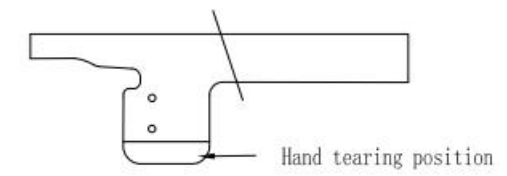
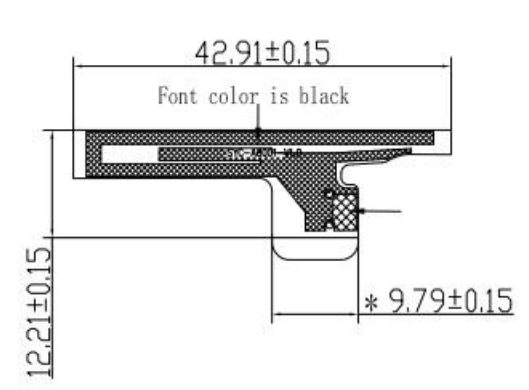
frequency (MHz)	Mass production standards
Main antenna 700--960; 1710—2690	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5
Diversity antenna 700--960; 1710--2690	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5
Three-in-one antenna 1575.42; 2400--2500	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5
5G WIFI antenna 5100-5850	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5

8 Drawings

版本	修改内容	修改人	日期

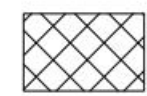
positive

Gummed surface

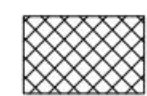


technical requirement

1. Shipping packaging requirements: (ordinary whole board shipping)
2. The copper berth surface is painted black/white matt;
3. The ink shall be uniform;
4. The dimension with "*" is the key dimension;
5. 3M467LSE for adhesive backing;
6. The base material uses PI T=1Mil;
7. Copper foil thickness 0.5oz;
8. The golden yellow thickness of the gilded area is 0.5 wheat, and the salt spray test has been conducted for 48H;
9. Undeclared fillets are 0.2, and the process edge is 0.2mm;
10. The unspecified tolerance shall be subject to the general tolerance table;
11. The product meets RoHS requirements.



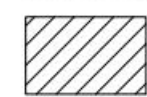
Copper foil area



gold-plated



Glue area



Hand tearing position

Sunnyway Technology (China) CO LTD			
	PART NAME: DIV (FPC) A8001	DATE:	2022. 9. 1
TOLERANCE	PART NO: PQ002IB75-4	DRAWN:	zhangyuanfang
X.X ±0.25	MATERIAL:	CHECKED:	
.XX ±0.20	FINISHING:	APPROVED:	
.XXX±0.05			
ANGULAR <±0.5°			
UNIT: mm	COLOUR: BLACK	SCALE: 1:1	REV: RB