

Shanghai Sunnyway Communication Technology Limited Company

Skyline Acknowledgement Book

Customer: Shanghai ZoomSmart Technology Co., Ltd		The project: A8001
Operating frequency band: BT/WIFI/5G/GPS		
Motherboard version: A8001_MB_V2.0		
Shangyuan material specifications		
Specifications and models	Shangyuan material number	Customer part number
A8001_WIFI_ANT	PQ002IB75-3	0101020119

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

directory

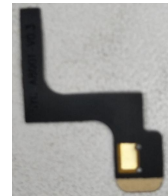
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1. Project information

Machine information



WIFI



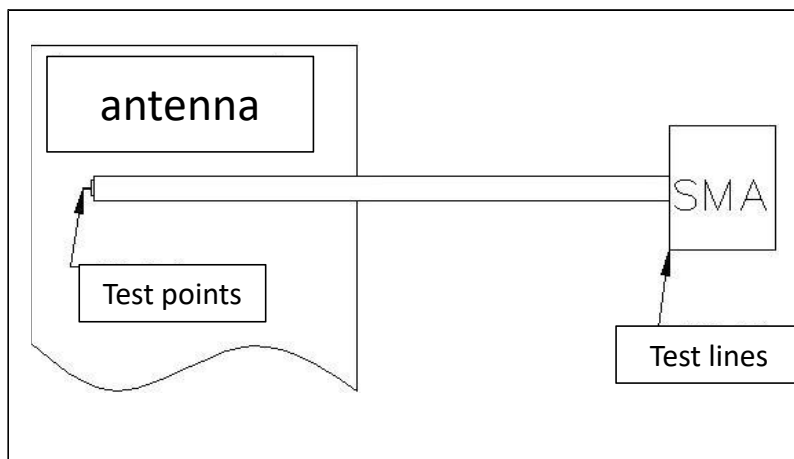
GPS

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.

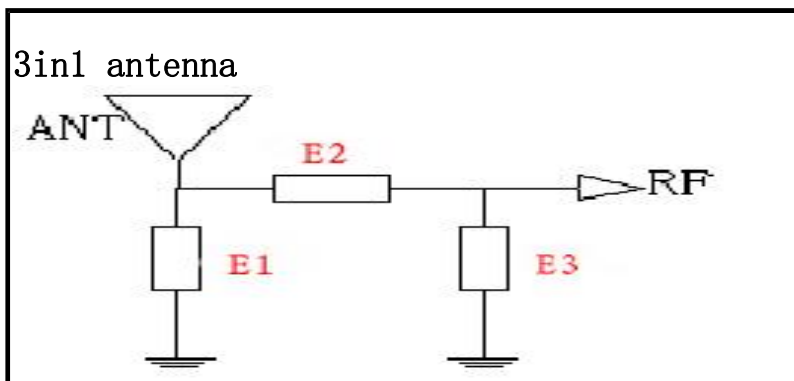
2. Test fixtures

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	N/A	
E2	0Ω	
E3	N/A	

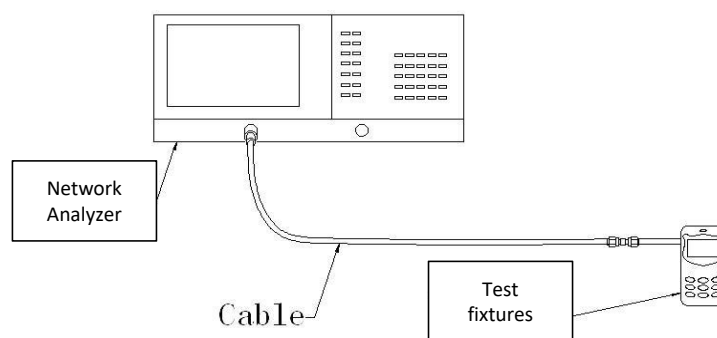
4. S11 test

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.

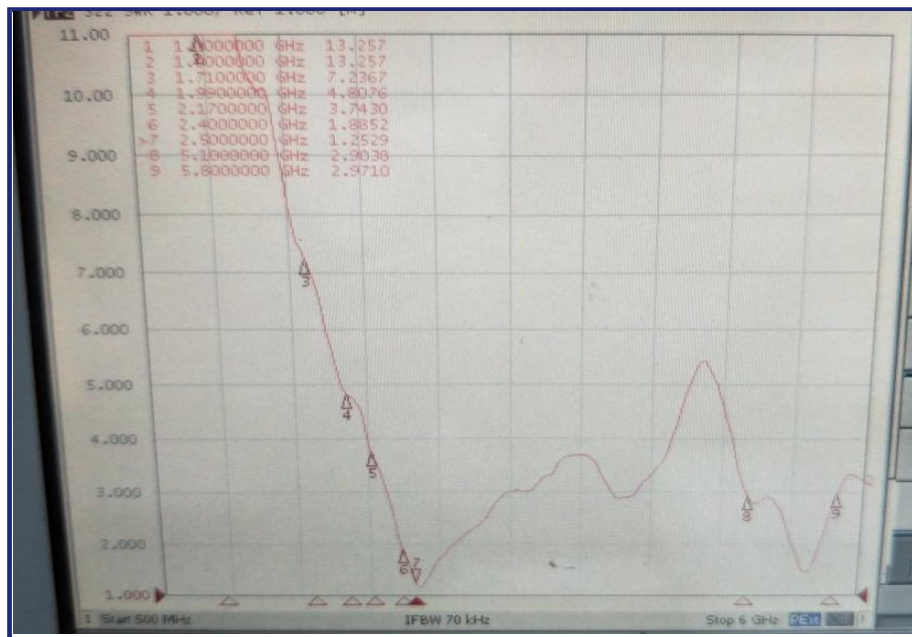
The test diagram is as follows:



Test the schematic

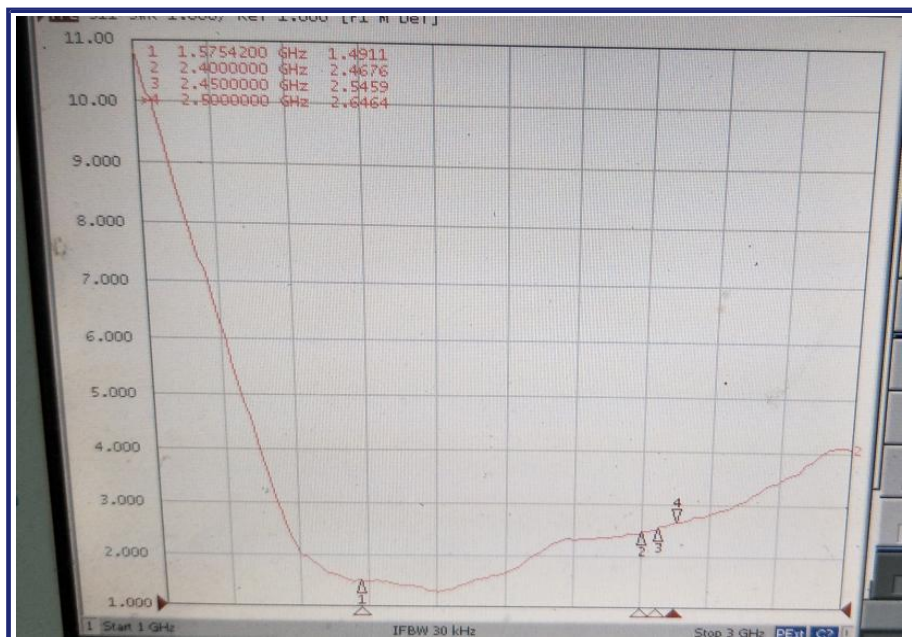
4.2 S11 parameter

WIFI antenna



	Main antenna
frequency (MHz)	VSWR
2400	1.8
2500	1.2
5100	2.9
5800	2.9

GPS antenna

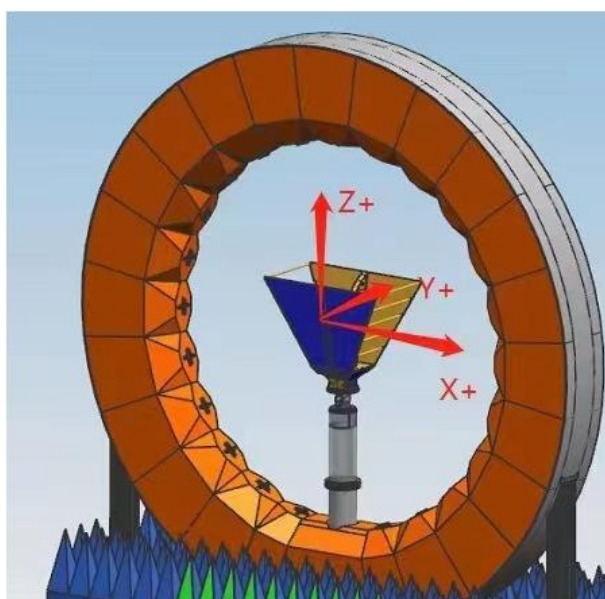


	Main antenna
frequency (MHz)	VSWR
1575	1.4

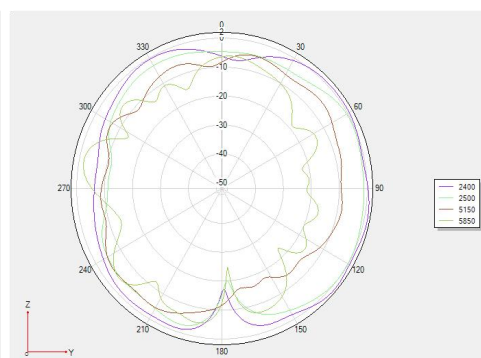
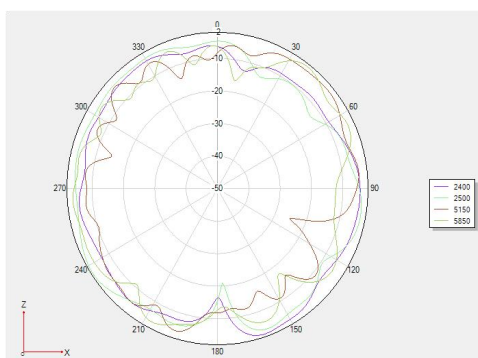
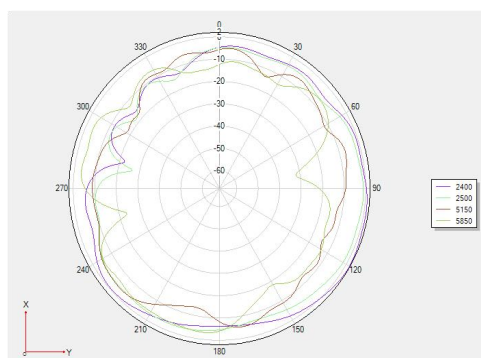
5.Darkroom test data

5.1 Radiation Pattern

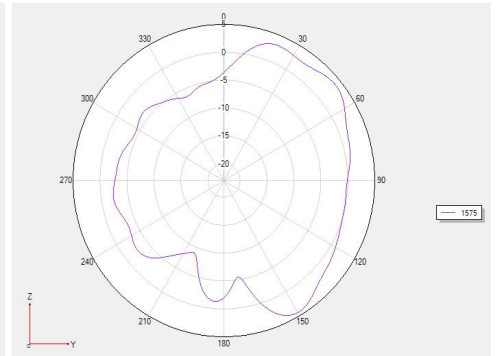
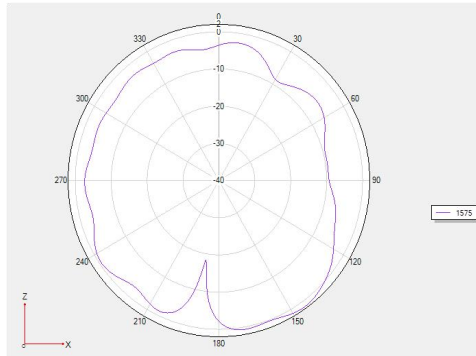
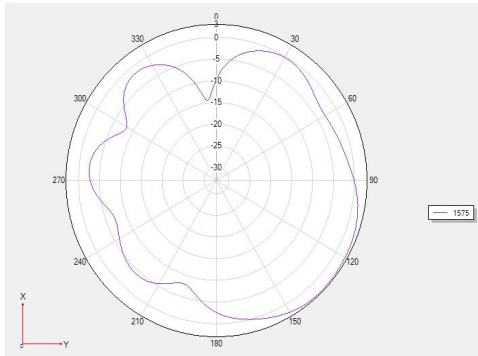
Definition of darkroom axis:



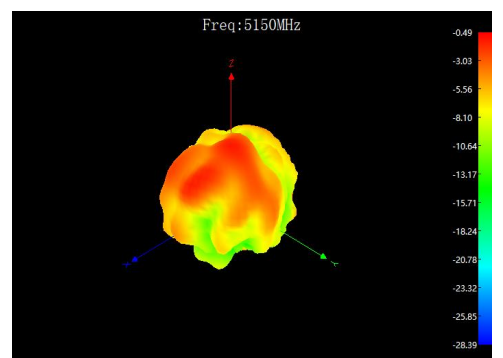
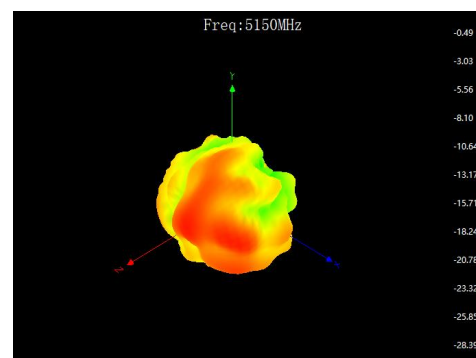
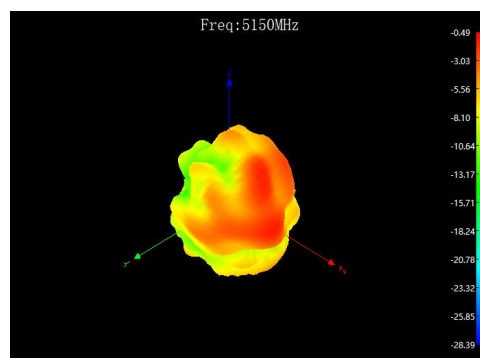
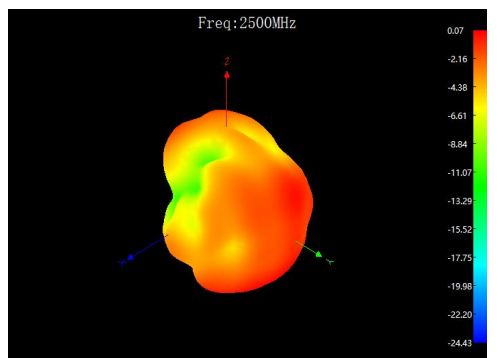
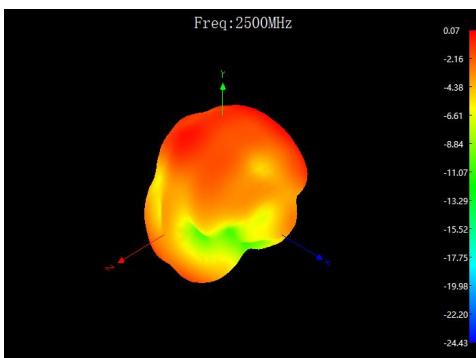
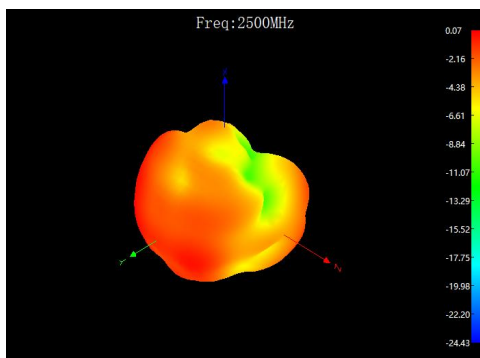
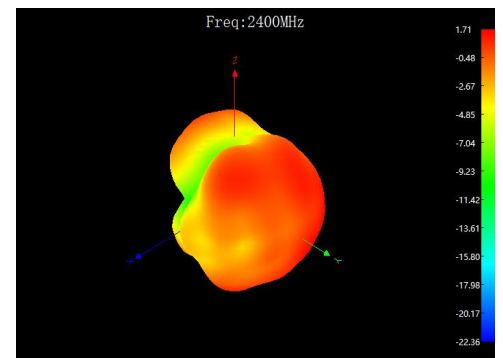
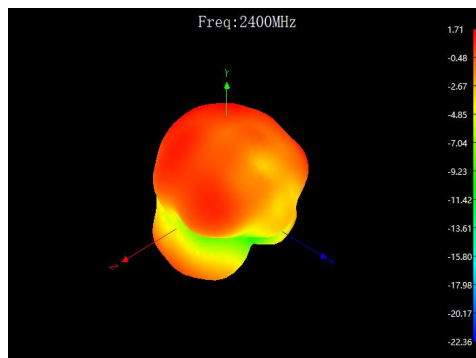
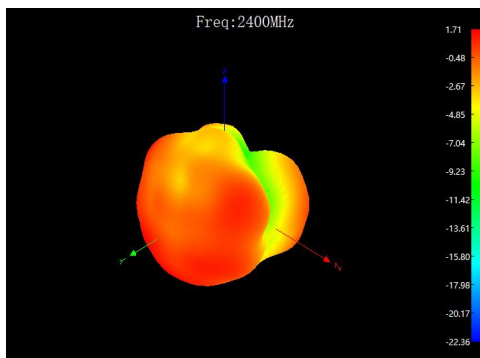
2. 4G+5GWIFI antenna



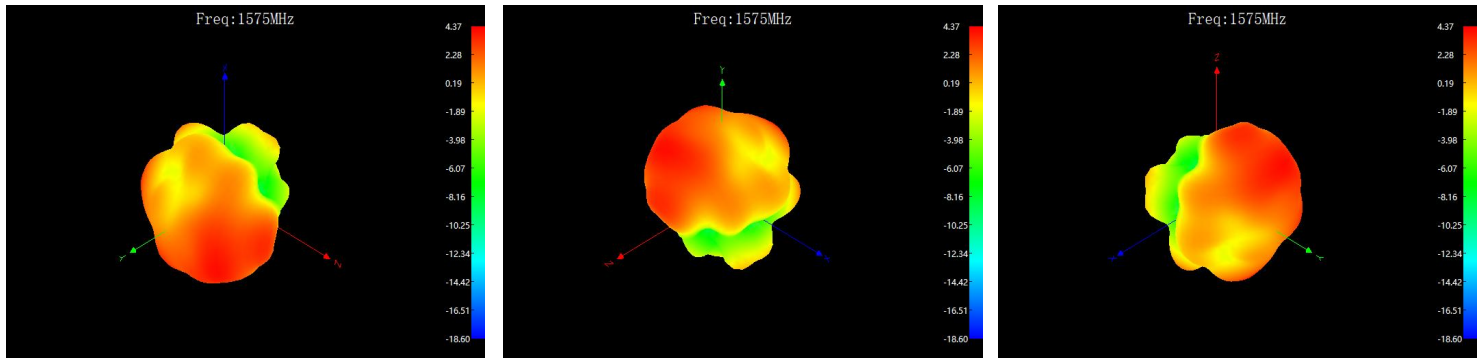
GPS antenna



2. 4G+5GWIFI antenna



GPS antenna



5.2 Active test data

3-in-1 antenna active test data (free space, bright screen measurement 100%)

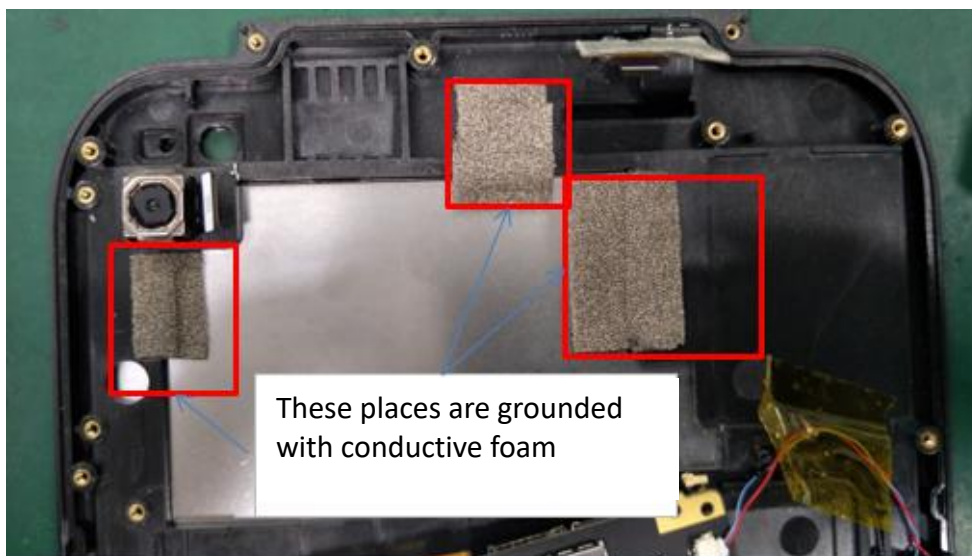
Band	channel	frequency (MHz)	OTA (dB)	
			TRP	TIS
2.4G 802.11B (11Mbps)	1	2412	11.45	
	6	2437	10.61	
	11	2472	12.10	-81.44

Band	channel	frequency (MHz)	OTA (dB)	
			TRP	TIS
GPS		1575.42		-146.72

5.3 Passive test data

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	5410	41.48	-3.82	2.72	0.57
					5420	43.82	-3.58	3.63	1.48
2400	34.28	-4.65	0.97	-1.18	5430	38.27	-4.17	1.73	-0.42
2410	33.34	-4.77	0.57	-1.58	5440	38.55	-4.14	0.41	-1.74
2420	36.85	-4.34	1.38	-0.77	5450	39.93	-3.99	2.09	-0.06
2430	35.72	-4.47	1.31	-0.84	5460	40.26	-3.95	1.52	-0.63
2440	37.27	-4.29	1.38	-0.77	5470	35.01	-4.56	0.19	-1.96
2450	41.34	-3.84	1.62	-0.53	5480	36.66	-4.36	0.95	-1.2
2460	42.7	-3.7	2.03	-0.12	5490	31.7	-4.99	1.14	-1.01
2470	40	-3.98	1.66	-0.49	5500	32.92	-4.83	1.05	-1.1
2480	41.91	-3.78	1.51	-0.64	5510	29.95	-5.24	-0.52	-2.67
2490	40.38	-3.94	1.96	-0.19	5520	33.81	-4.71	1.37	-0.78
5100	38.61	-4.13	3.87	1.72	5530	33.75	-4.72	1.38	-0.77
5110	36.09	-4.43	2.47	0.32	5540	30.9	-5.1	0.54	-1.61
5120	38.36	-4.16	3.41	1.26	5550	28.92	-5.39	-0.2	-2.35
5130	37.97	-4.21	1.85	-0.3	5560	30.62	-5.14	0.36	-1.79
5140	39.56	-4.03	3.06	0.91	5570	31.33	-5.04	1.78	-0.37
5150	35.48	-4.5	2.18	0.03	5580	34.43	-4.63	2.17	0.02
5160	35.01	-4.56	1.89	-0.26	5590	29.13	-5.36	0.15	-2
5170	37.21	-4.29	2.08	-0.07	5600	31.04	-5.08	-0.4	-2.55
5180	35.2	-4.53	2.61	0.46	5610	35.66	-4.48	3.24	1.09
5190	34.17	-4.66	1.72	-0.43	5620	32.25	-4.91	-0.11	-2.26
5200	34.34	-4.64	1.76	-0.39	5630	33.29	-4.78	0.68	-1.47
5210	39.6	-4.02	1.09	-1.06	5640	33.62	-4.73	1.81	-0.34
5220	46.53	-3.32	2.2	0.05	5650	33.88	-4.7	0.97	-1.18
5230	41.48	-3.82	0.88	-1.27	5660	31.95	-4.96	2.04	-0.11
5240	36.16	-4.42	1.72	-0.43	5670	27.17	-5.66	-0.3	-2.45
5250	39.64	-4.02	1.97	-0.18	5680	34.4	-4.63	2.15	0
5260	40.31	-3.95	1.88	-0.27	5690	30.47	-5.16	0.5	-1.65
5270	38.02	-4.2	2.59	0.44	5700	34.58	-4.61	0.95	-1.2
5280	35.59	-4.49	1.46	-0.69	5710	32.88	-4.83	2.89	0.74
5290	37.78	-4.23	0.72	-1.43	5720	33.15	-4.79	1.95	-0.2
5300	34.37	-4.64	0.11	-2.04	5730	30.97	-5.09	0.52	-1.63
5310	32.71	-4.85	0.53	-1.62	5740	35.18	-4.54	2.93	0.78
5320	32.89	-4.83	0.4	-1.75	5750	31.07	-5.08	0.8	-1.35
5330	33.91	-4.7	0.54	-1.61	5760	30.49	-5.16	0.58	-1.57
5340	28.89	-5.39	-0.42	-2.57	5770	33.35	-4.77	1.43	-0.72
5350	29.27	-5.34	-0.35	-2.5	5780	34.21	-4.66	0.16	-1.99
5360	26.84	-5.71	-0.64	-2.79	5790	32.53	-4.88	2.25	0.1
5370	29.84	-5.25	-0.33	-2.48	5800	33.24	-4.78	0.98	-1.17
5380	34.13	-4.67	0.77	-1.38	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
5390	30.55	-5.15	0.91	-1.24	1500	48.67	-3.13	1.1	-1.05
5400	35	-4.56	0.41	-1.74	1510	44.69	-3.5	0.68	-1.47
					1520	41.8	-3.79	0.38	-1.77
					1530	42.04	-3.76	0.54	-1.61
					1540	44.55	-3.51	0.84	-1.31
					1550	49.87	-3.02	1.35	-0.8
					1560	48.35	-3.16	1.7	-0.45
					1570	47.92	-3.19	1.99	-0.16
					1580	50.47	-2.97	2.16	0.01
					1590	50.83	-2.94	2.03	-0.12
					1600	46.86	-3.29	1.77	-0.38
					1610	42.63	-3.7	1.63	-0.52
					1620	39.75	-4.01	1.16	-0.99

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:

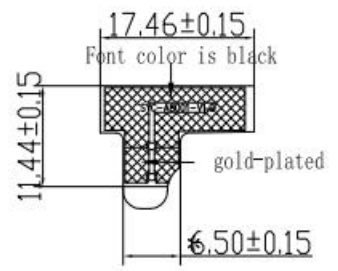
frequency (MHz)	Mass production standards
Main antenna 700--960; 1710—2690	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5
Diversity antenna 700--960; 1710--2690	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5
Three-in-one antenna 1575.42; 2400--2500	VSWR (Mass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

8 Drawings

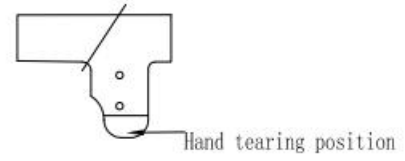
版本	修改内容	修改人	日期

positive

Gummed surface

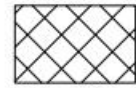


0.12 ± 0.10

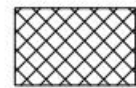


technical requirement

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: WIFI (FPC) A8001		DATE: 2022.9.1
	PART NO: PQ0021B75-3		DRAWN: zhangyuanfang
	MATERIAL:		CHECKED:
	FINISHING:		APPROVED:
TOLERANCE X.X ±0.25 .XX ±0.20 .XXX±0.05 ANGULAR $\angle \pm 0.5^\circ$		UNIT: mm	COLOUR: BLACK
		SCALE: 1:1	REV: RB