

Shanghai Sunnyway Communication Technology Limited Company

Skyline Acknowledgement Book

Customer: 隽梦		The project: A8003B
Operating frequency band: GSM850/ 900/1800/1900 +WCDMA1/2/5/8/+CDMA BC0/TDA/F +LTE Band 1/2/3/4/5/7/8/17/19/20/26/28/38/39/40/41/66		
Motherboard version:		
Shangyuan material specifications		
Specifications and models	Shangyuan material number	Customer part number
0101020223	PQ002IB75-1V2.0	2019.5.31

The record of project changes			
Date of preparation/change	Changes	Change of person	version

Sunnyway counter-signature bar				
Research and development	ME:	Auditor:	QE:	Approver:
	RF:	Auditor:		
Client Counter-signature bar				
EE	PM	RF	QE	

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

1. Project picture.....	3
2. Test fixtures.....	4
3. Matching circuits.....	4
4. S11Test.....	6
4.1 S11 Test Method Description.	6
4.2 S11 parameter.....	6
5. Darkroom test data.....	10
5.1 Passive test data.....	11
5.1.1 Main antenna passive efficiency.....	11
5.2 Active test data.....	16
5.2.1 Main antenna active test data.....	16
5.2.2 Main antenna passive test data.	17
6. Prototype grounding.....	18
7. Mass production antenna indicators.....	19
8. Drawings	19

1. Project information

Machine information

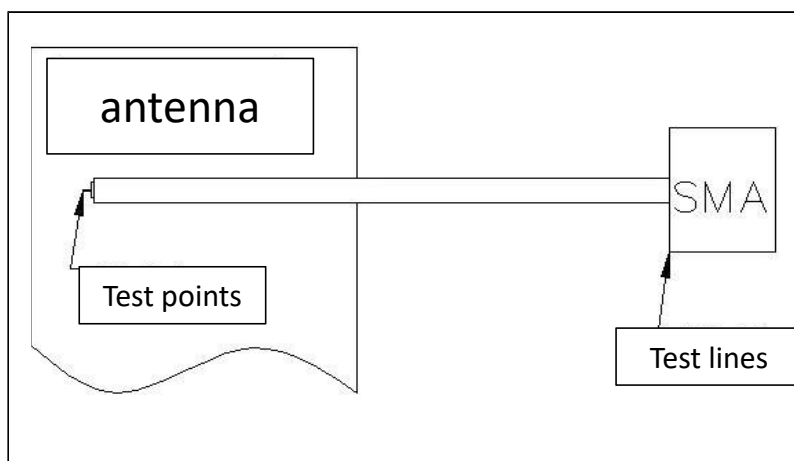


Note: The customer finally verified that the antenna performance prototype was retained in our company for at least one year, which is convenient for analysis and solution to abnormal situations in antenna mass production.
Ensure antenna shipment quality.

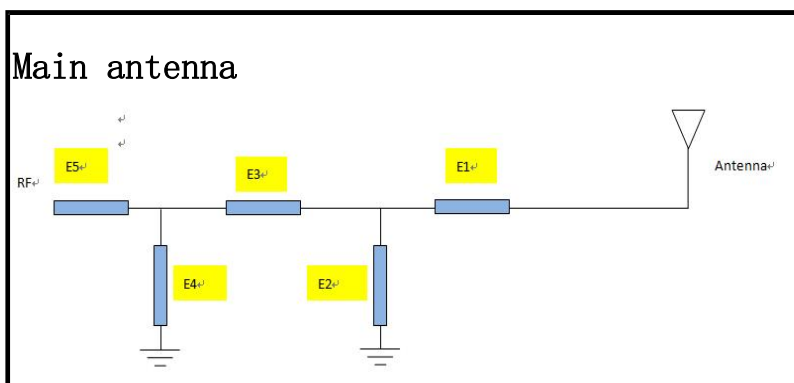
2. Test fixtures

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	0Ω	
E2	N/A	
E3	0Ω	
E4	N/A	
E5	0Ω	

Tuner electronic components	
RF1	4.7nH
RF2	2.7pF
RF3	15nH
RF4	0Ω

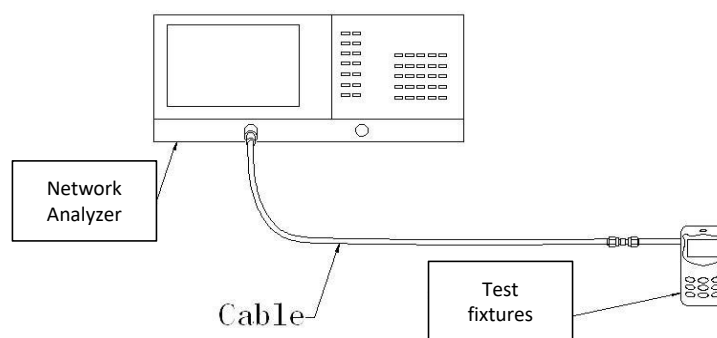
4. S11 test

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.

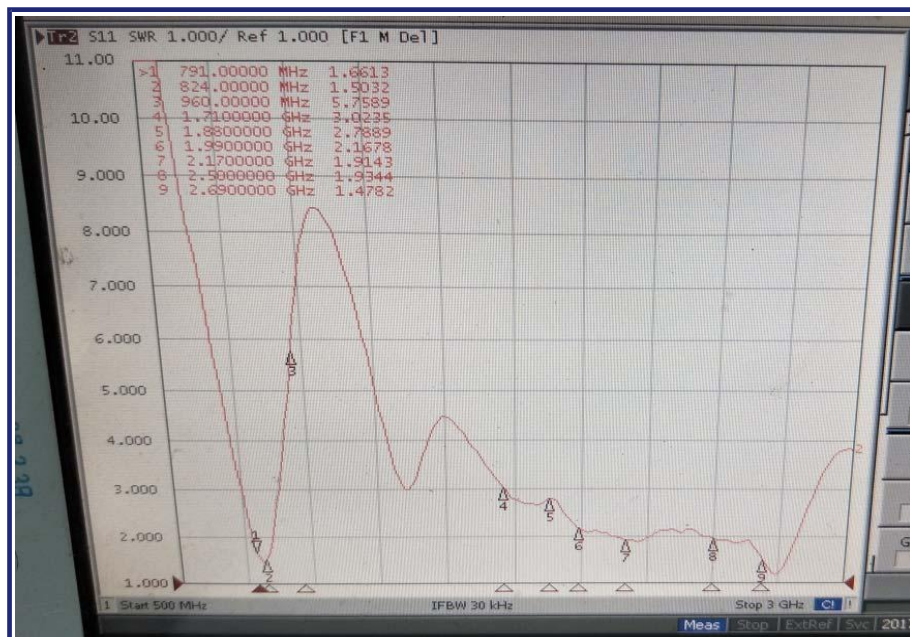
The test diagram is as follows:



Test the schematic

4.2 S11 parameter

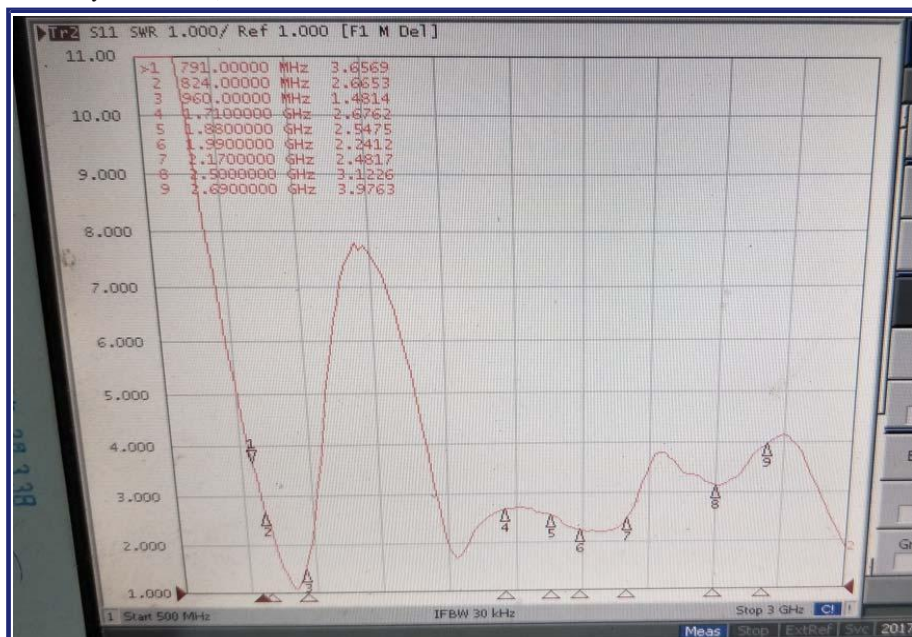
Primary antenna/RF1



	Main antenna
frequency (MHz)	VSWR
791	1.6
824	1.9
1710	3.0
2170	1.9
2690	1.4

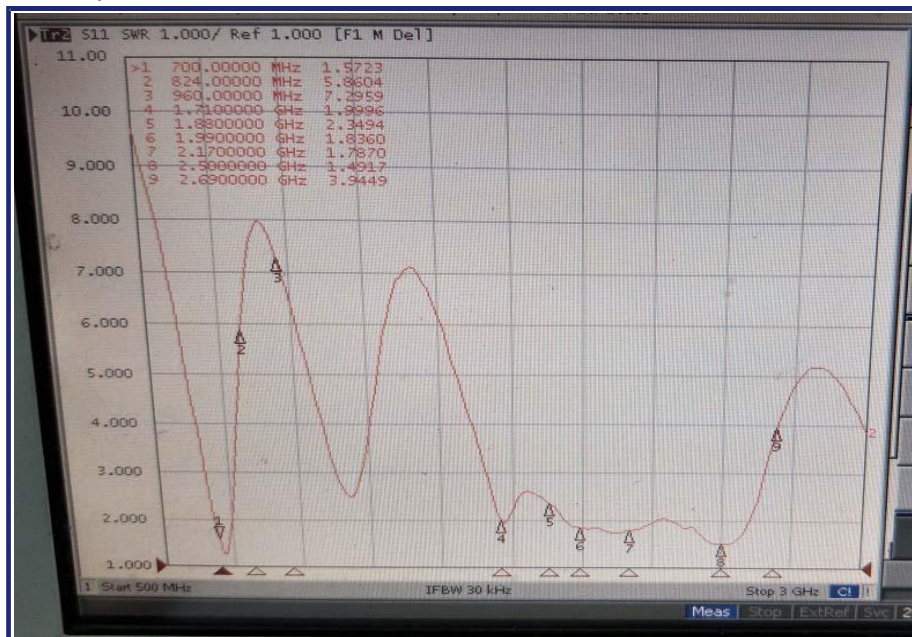
Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition

Primary antenna/RF2



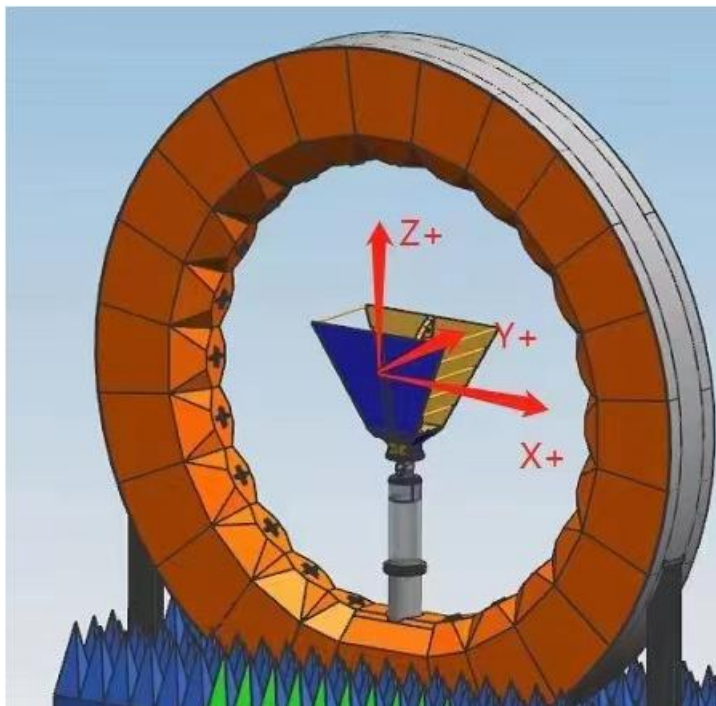
	Main antenna
frequency (MHz)	VSWR
824	2.6
960	1.4
1710	2.6
2170	2.4
2690	3.9

Primary antenna/RF3

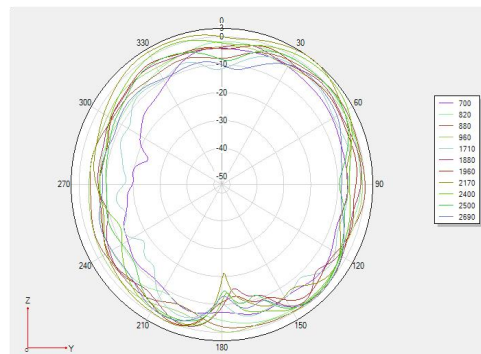
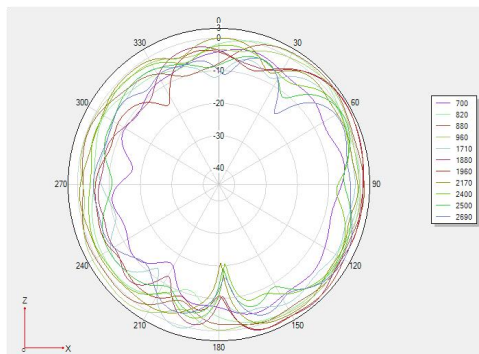
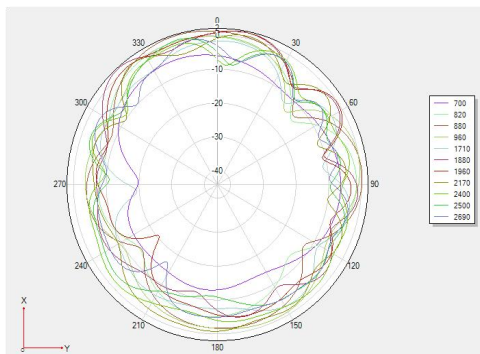


	Main antenna
frequency (MHz)	VSWR
700	1.5
1710	1.9
2170	1.7
2690	3.9

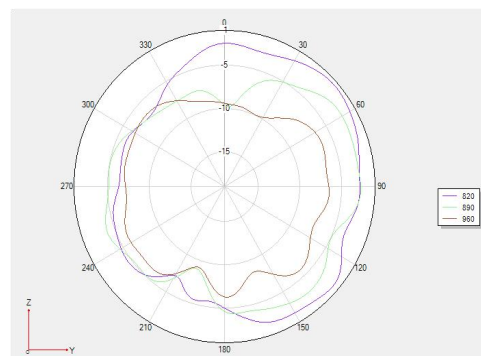
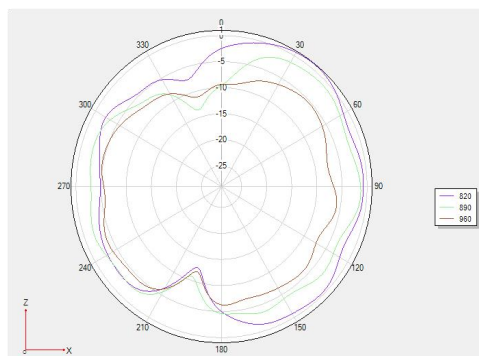
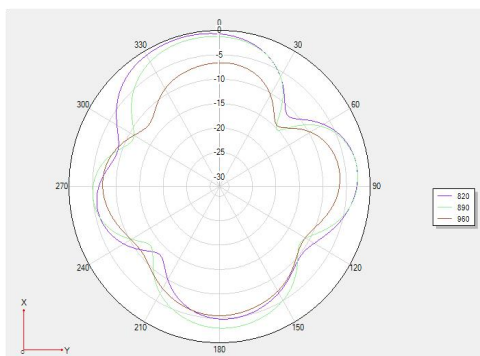
Definition of darkroom axis:



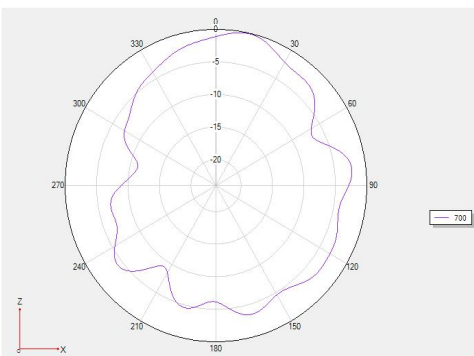
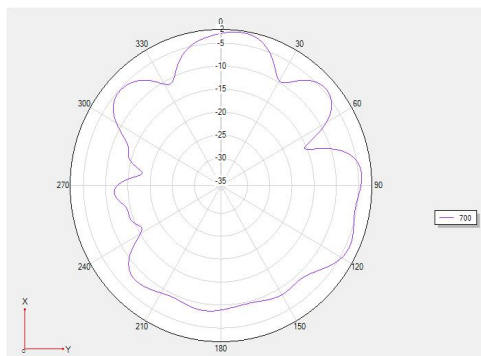
Primary antenna/RF1



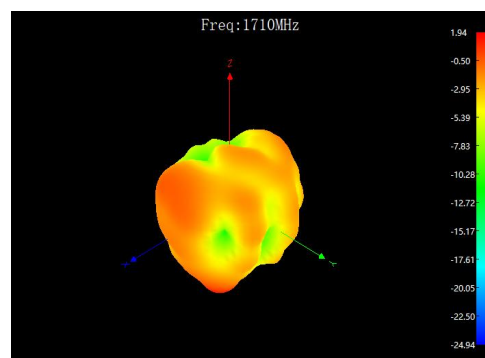
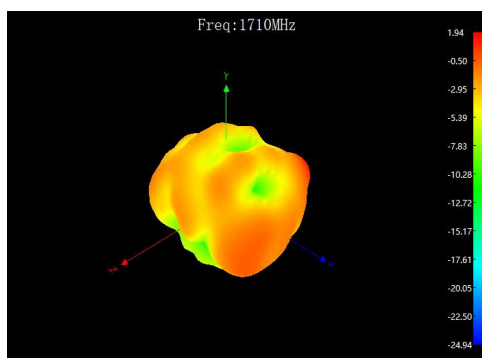
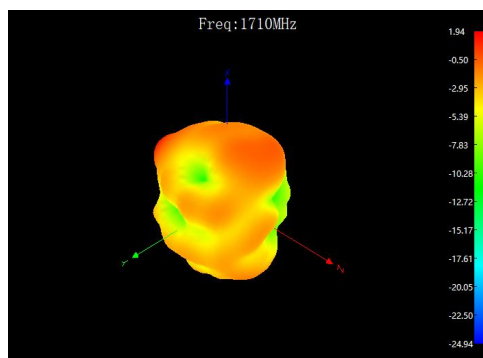
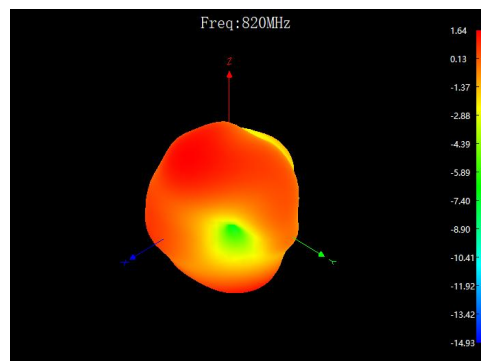
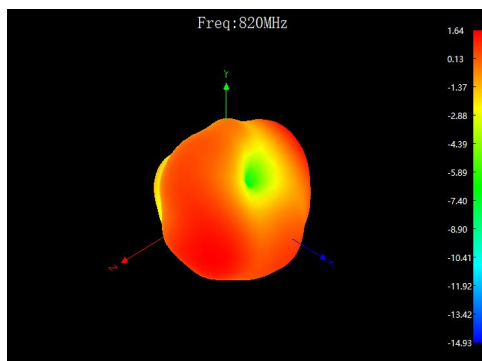
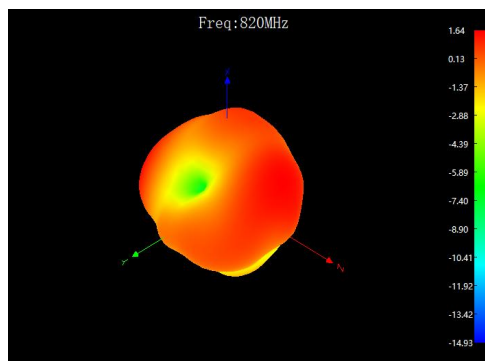
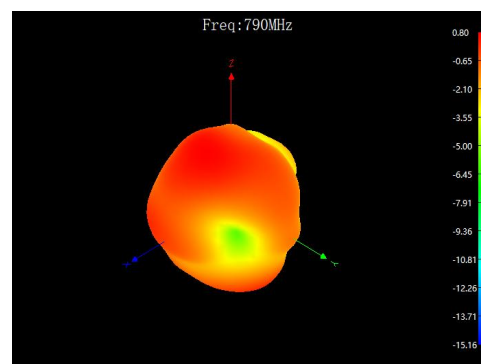
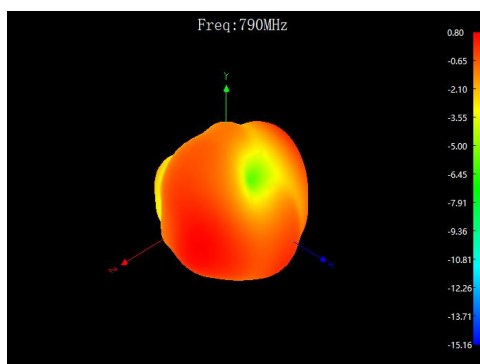
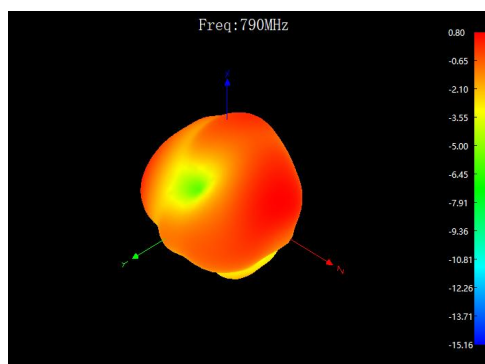
Primary antenna/RF2

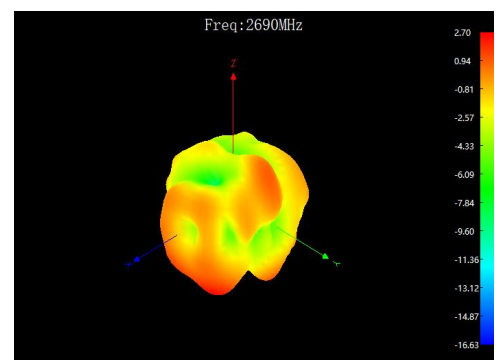
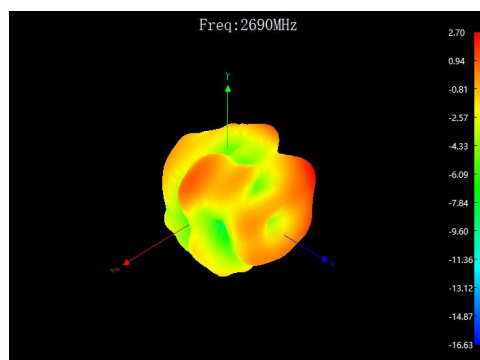
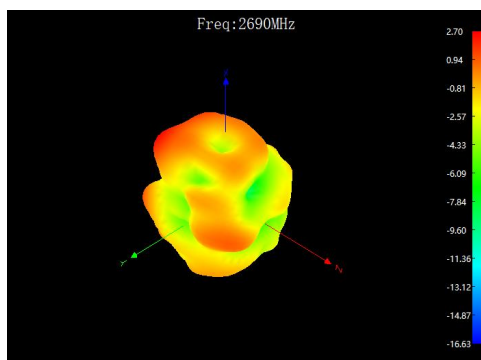
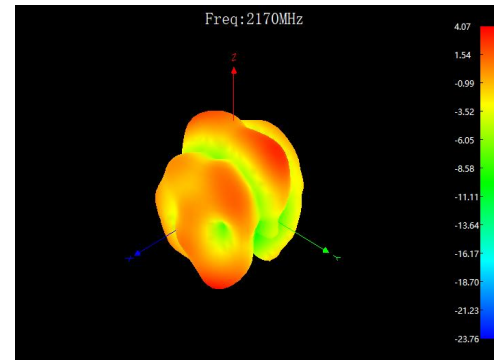
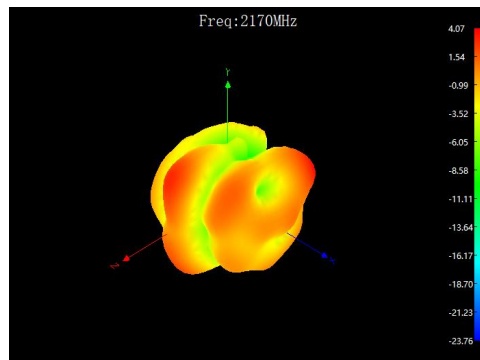
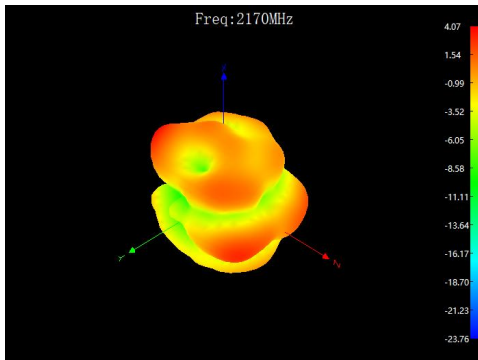


Primary antenna/RF3

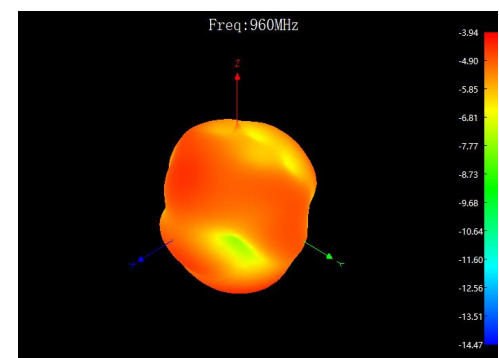
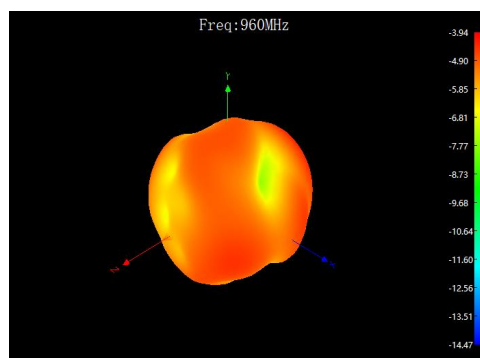
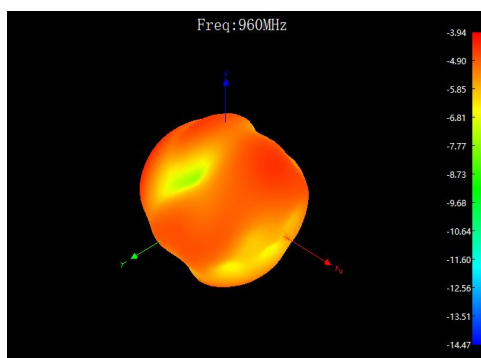
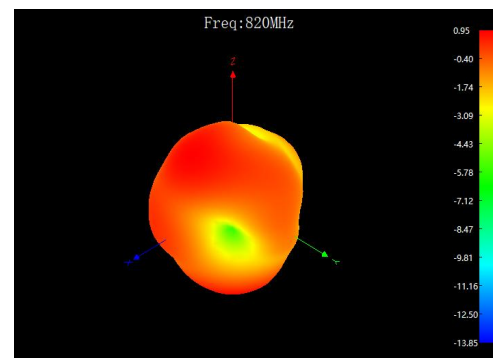
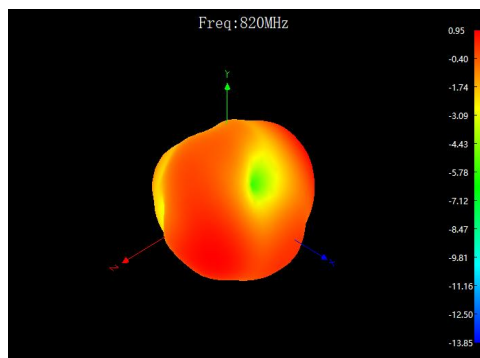
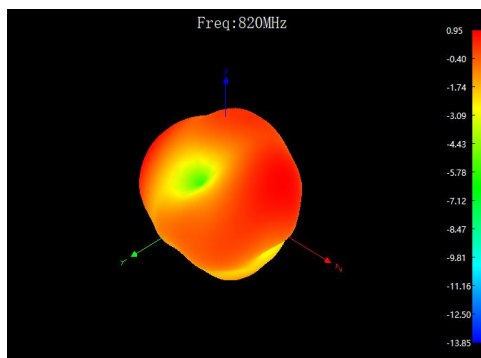


Primary antenna/RF1

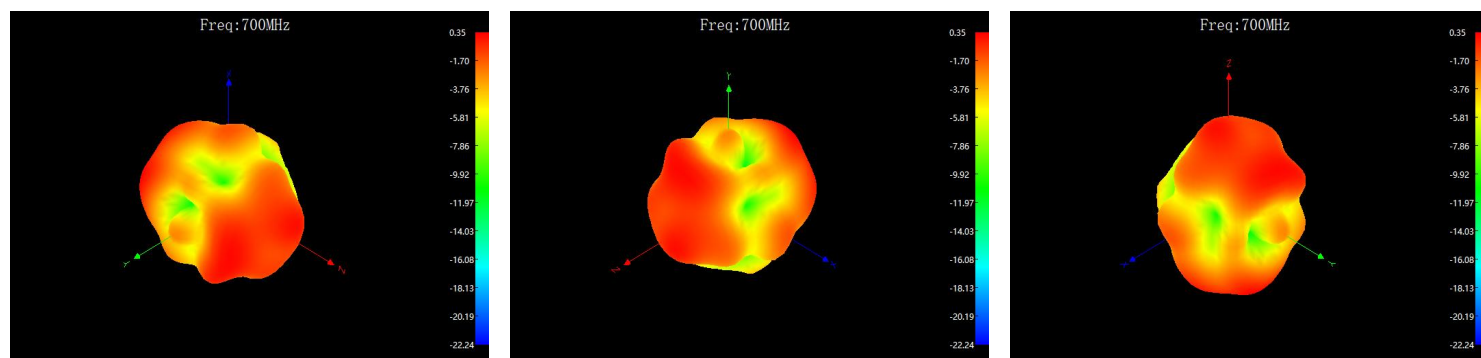




Primary antenna/RF2



Primary antenna/RF3



5.2 Active test data

Main antenna active test data (free space, bright screen)

Band	channel	frequency (MHz)	OTA (dB)		Band	channel	frequency (MHz)	OTA (dB)	
			TRP	TIS				TRP	TIS
GSM_850	128	824.2	27.54		FDD_B4 (10M)	20000	1715	18.85	
	190	836.6	26.60			20175	1732.5	18.94	
	251	848.8	26.42	-102.30		20350	1750	19.06	-93.51
GSM_900	1	880.2	27.58		FDD_B5 (10M)	20450	829	18.66	
	38	897.6	27.46			20525	836.5	18.74	
	124	914.8	27.63	-102.10		20600	844	18.84	-90.59
GSM_1800	512	1710.2	25.69		FDD_B7 (10M)	2505	16.73	18.48	
	698	1747.6	25.31			2535	17.15	18.58	
	885	1784.8	25.00	-103.23		2565	17.03	18.96	-90.61
GSM_1900	512	1850.2	24.07		FDD_B8 (10M)	23060	885.0	18.88	
	661	1880	24.59			23095	897.5	18.95	
	810	1909.8	25.19	-103.14		23130	910.0	18.99	-90.68
WCDMA_B1	9612	1922.4	18.62		FDD_B17 (10M)	23780	709.0	16.65	
	9750	1950	18.81			23790	710.0	17.04	
	9888	1977.6	18.98	-105.63		23800	711.0	17.23	-92.85
WCDMA_B2	9262	1852.4	17.06		FDD_B20 (10M)	24200	837.0	18.21	
	9400	1880	17.14			24300	847.0	18.09	
	9538	1907.6	17.85	-104.2		24400	857.0	18.59	-89.8
WCDMA_B5	4132	826.4	18.57		FDD_B28 (10M)	27260	708.0	16.7	
	4183	836.6	18.70			27435	725.0	17.66	
	4233	846.6	18.82	-105.20		27610	743.0	18.48	-89.98
WCDMA_B8	2712	882.4	18.62		FDD_B38 (10M)	37850	2570	18.21	
	2787	897.4	18.72			38000	2595	17.62	
	2863	912.6	18.93	-105.71		38150	2620	17.53	-89.8
FDD_B1 (10M)	18050	1925	18.33		FDD_B39 (10M)	38350	1880	18.43	
	18300	1950	18.88			38450	1900	18.03	
	18550	1975	18.91	-94.08		38550	1920	18.55	-90.89
FDD_B2 (10M)	18650	1855	17.48		FDD_B40 (10M)	38750	2300	18.49	
	18900	1880	17.38			39150	2350	18.89	
	19150	1905	18.25	-93.49		39550	2400	18.69	-89.89
FDD_B3 (10M)	19250	1715	18.69		FDD_B41 (10M)	40340	2496	18.98	
	19575	1747.5	18.94			40740	2590	18.16	
	19900	1780	17.85	-91.87		41140	2690	17.69	-88.73

Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition

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

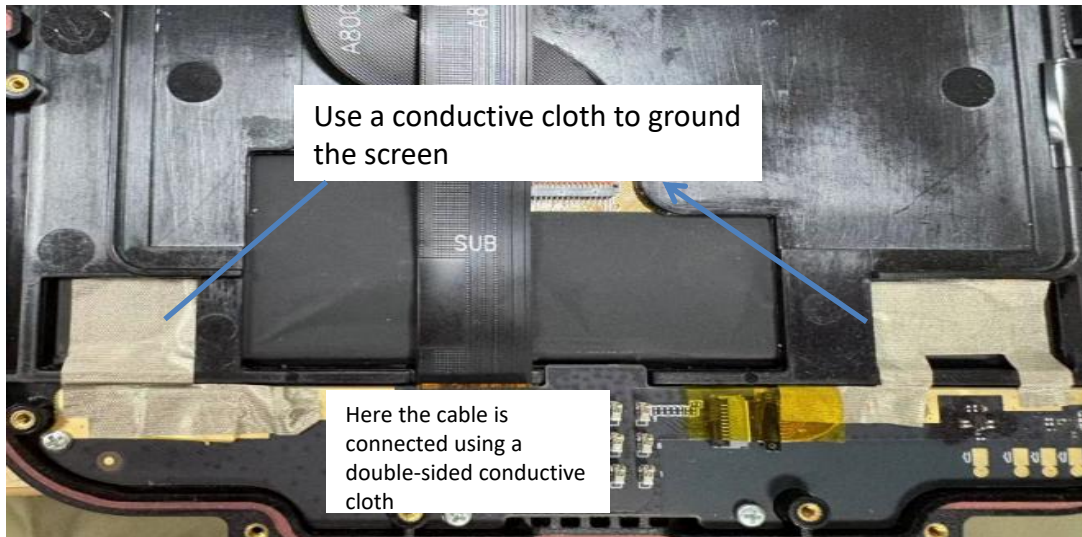
Band	channel	frequency (MHz)	OTA (dB)	
			TRP	TIS
2.4G 802.11B (11Mbps)	1	2412	11.45	
	6	2437	10.61	
	11	2472	12.10	-81.44

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
700	4.16	-13.81	-6.93	-9.08
710	4.47	-13.5	-6.6	-8.75
720	4.91	-13.09	-5.69	-7.84
730	5.39	-12.68	-5.19	-7.34
740	5.9	-12.29	-4.69	-6.84
750	6.99	-11.56	-4.07	-6.22
760	8.25	-10.83	-3.55	-5.7
770	9.61	-10.17	-3.28	-5.43
780	10.79	-9.67	-3.05	-5.2
790	13.02	-8.85	-2.33	-4.48
800	15.7	-8.04	-1.72	-3.87
810	18.68	-7.29	-1.35	-3.5
820	20.19	-6.95	-1.48	-3.63
830	21.46	-6.68	-1.54	-3.69
840	21.31	-6.71	-1.72	-3.87
850	23.67	-6.26	-1.07	-3.22
860	27.7	-5.58	-0.41	-2.56
870	33.76	-4.72	0.14	-2.01
880	39.5	-4.03	0.25	-1.9
890	47.99	-3.19	0.89	-1.26
900	51.37	-2.89	1.24	-0.91
910	52.96	-2.76	1.33	-0.82
920	51.54	-2.88	1.37	-0.78
930	50.3	-2.98	1.4	-0.75
940	49.57	-3.05	1.29	-0.86
950	45.63	-3.41	0.91	-1.24
960	47.83	-3.2	1.09	-1.06

1710	35.51	-4.5	-0.83	-2.98
1720	36.83	-4.34	-0.12	-2.27
1730	39.72	-4.01	0.34	-1.81
1740	37.33	-4.28	-0.1	-2.25
1750	39.6	-4.02	0.48	-1.67
1760	40.03	-3.98	0.24	-1.91
1770	41.56	-3.81	0.74	-1.41
1780	40.46	-3.93	0.57	-1.58
1790	40.94	-3.88	0.22	-1.93
1800	44.27	-3.54	0.64	-1.51
1810	45.3	-3.44	1.9	-0.25
1820	47.52	-3.23	1.83	-0.32
1830	48.58	-3.14	2.42	0.27
1840	49.48	-3.06	2.9	0.75
1850	53.97	-2.68	2.83	0.68
1860	53.75	-2.7	2.87	0.72
1870	54.52	-2.63	3.2	1.05
1880	58.57	-2.32	3.36	1.21
1890	53.1	-2.75	3.14	0.99
1900	57.27	-2.42	3.55	1.4
1910	59.51	-2.25	3.62	1.47
1920	53.07	-2.75	3.26	1.11
1930	49.94	-3.02	2.75	0.6
1940	49.75	-3.03	2.17	0.02
1950	55.31	-2.57	2.7	0.55
1960	59.21	-2.28	3.48	1.33
1970	58.12	-2.36	3.15	1
1980	57.34	-2.42	3.28	1.13
1990	57.82	-2.38	3.64	1.49
2000	57.58	-2.4	3.18	1.03
2010	58.83	-2.3	3.25	1.1
2020	57.09	-2.43	2.79	0.64

(MHz)	(%)	(dB)	(dBi)	(dBd)	2320	48.95	-3.1	2.92	0.77
2020	57.09	-2.43	2.79	0.64	2330	49.24	-3.08	3.29	1.14
2030	57.55	-2.4	2.33	0.18	2340	47.85	-3.2	2.83	0.68
2040	55.73	-2.54	2.71	0.56	2350	49.45	-3.06	2.32	0.17
2050	56.14	-2.51	2.03	-0.12	2360	44.98	-3.47	2.18	0.03
2060	56.56	-2.47	1.64	-0.51	2370	41.24	-3.85	2.04	-0.11
2070	57.92	-2.37	2.56	0.41	2380	43.72	-3.59	2.07	-0.08
2080	64.66	-1.89	1.79	-0.36	2390	43.17	-3.65	2.21	0.06
2090	62.12	-2.07	1.4	-0.75	2400	43.22	-3.64	2	-0.15
2100	60.68	-2.17	1.63	-0.52	2410	40.31	-3.95	1.4	-0.75
2110	60.51	-2.18	2.14	-0.01	2420	46.17	-3.36	2.09	-0.06
2120	55.73	-2.54	1.53	-0.62	2430	44.39	-3.53	2	-0.15
2130	49.97	-3.01	1.43	-0.72	2440	47.09	-3.27	2	-0.15
2140	56.57	-2.47	2.11	-0.04	2450	49.43	-3.06	0.89	-1.26
2150	56.26	-2.5	2.09	-0.06	2460	49.64	-3.04	1.94	-0.21
2160	55.34	-2.57	2.42	0.27	2470	47.02	-3.28	0.26	-1.89
2170	53.31	-2.73	2.82	0.67	2480	50.72	-2.95	1.67	-0.48
2180	56.78	-2.46	2.47	0.32	2490	48.76	-3.12	1.5	-0.65
2190	53.55	-2.71	2.93	0.78	2500	48.07	-3.18	1.03	-1.12
2200	58.14	-2.36	3.28	1.13	2510	50.24	-2.99	1.66	-0.49
2210	55.2	-2.58	3.21	1.06	2520	55.64	-2.55	1.92	-0.23
2220	59.25	-2.27	3.89	1.74	2530	51.05	-2.92	1.92	-0.23
2230	60.11	-2.21	4.29	2.14	2540	47.05	-3.27	1.39	-0.76
2240	62.2	-2.06	4.3	2.15	2550	47.87	-3.2	1.68	-0.47
2250	60.99	-2.15	4.17	2.02	2560	46.6	-3.32	1.33	-0.82
2260	58.9	-2.3	3.82	1.67	2570	41.34	-3.84	0.9	-1.25
2270	60.78	-2.16	3.75	1.6	2580	42.27	-3.74	0.6	-1.55
2280	65.76	-1.82	4.07	1.92	2590	40.04	-3.98	0.3	-1.85
2290	63.66	-1.96	4.07	1.92	2600	38.46	-4.15	0.13	-2.02
2300	58.05	-2.36	3.58	1.43	2610	35.7	-4.47	0.38	-1.77
2310	47.17	-3.26	3	0.85	2620	35.33	-4.52	0.1	-2.05
					2630	33.1	-4.8	-0.29	-2.44
					2640	31.91	-4.96	-0.27	-2.42
					2650	30.49	-5.16	-0.75	-2.9
					2660	30.29	-5.19	-0.31	-2.46
					2670	29.11	-5.36	-1.21	-3.36
					2680	29.76	-5.26	-0.98	-3.13
					2690	32.76	-4.85	-0.1	-2.25

6. Prototype grounding



7. Mass production antenna indicators

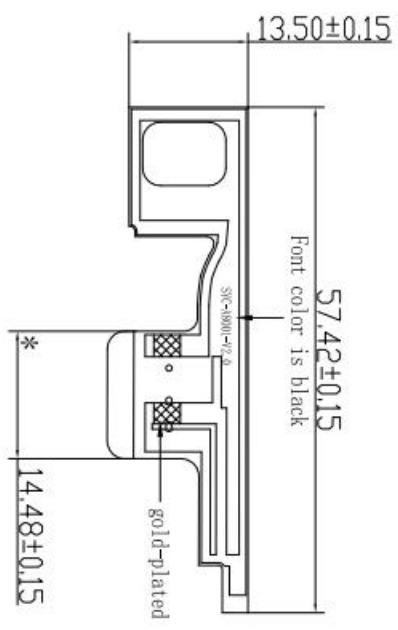
When the antenna is mass-produced, the standing wave ratio is used as the mass production test standard. According to the differences in the project itself, the following criteria are given:

frequency (MHz)	Mass production standards
Main antenna 600--960; 1710—2690	VSWR (Mass production performance) <VSWR(Acknowledge performance)+0.5
Diversity antenna 600--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

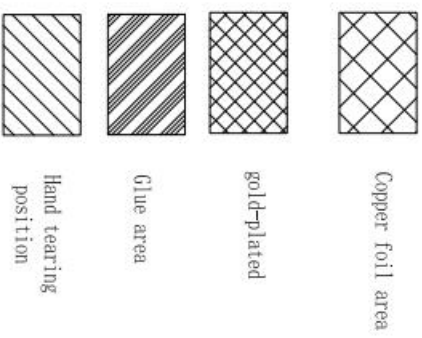
版本	修改内容	修改人	日期

positive



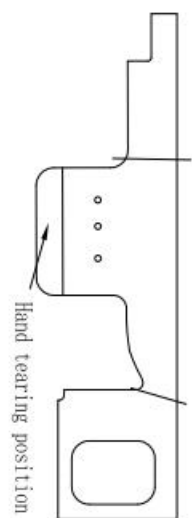
technical requirement

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=1M11;
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.



0.12±0.03

Gummed surface



Sunnyway Technology (China) CO LTD

Sunnyway Technology (China) CO LTD				
	PART NAME: MAIN(FPC) A8001		DATE: 2019.5.24	
	PART NO: PQ0021B75-1V2.0		DRAWN: zhangyuanfang	
	MATERIAL:		CHECKED:	
	FINISHING:		APPROVED:	
	TOLERANCE			
	X.X ±0.25			
	.XX ±0.20			
.XXX±0.05				
ANGULAR <±0.5°				
UNIT: mm	COLOUR: BLACK		SCALE: 1:1	REV: RB

Shanghai Sunnyway Communication Technology Limited Company

Skyline Acknowledgement Book

Customer: 隼梦		The project: A8003B
Operating frequency band: BT/WIFI/5G		
Motherboard version:		
Shangyuan material specifications		
Specifications and models	Shangyuan material number	Customer part number
0101020119	PQ002IB75-3	2017.12.8

The record of project changes			
Date of preparation/change	Changes	Change of person	version

Sunnyway counter-signature bar				
Research and development	ME:	Auditor:	QE:	Approver:
	RF:	Auditor:		
Client Counter-signature bar				
EE	PM	RF	QE	

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

1. Project picture.....	3
2. Test fixtures.....	4
3. Matching circuits.....	4
4. S11Test.....	6
4.1 S11 Test Method Description.	6
4.2 S11 parameter.....	6
5. Darkroom test data.....	10
5.1 Passive test data.....	11
5.1.3 WIFI antenna passive efficiency.....	15
5.2 Active test data.....	16
5.2.2 3-in-1 antenna active test data.....	1
5.2.2 3-in-1 antenna passive test data.	17
	.
6. Mass production antenna indicators.....	19
7. Drawings.....	19

1. Project information

Machine information



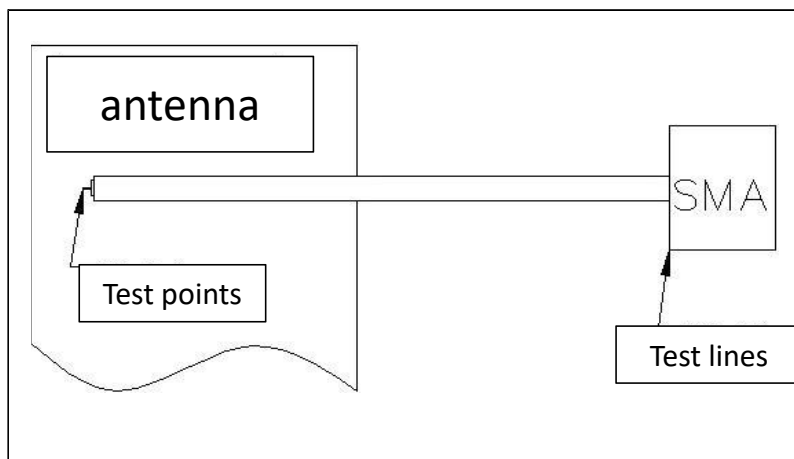
WIFI

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.

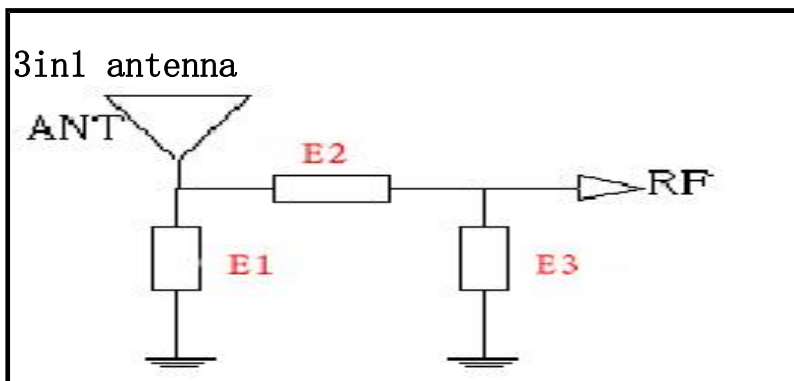
2. Test fixtures

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	

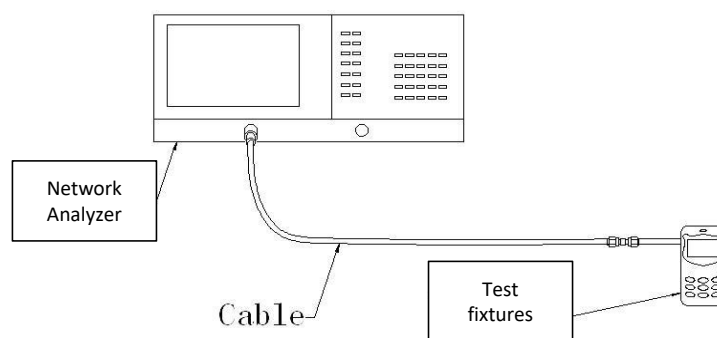
4. S11 test

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.

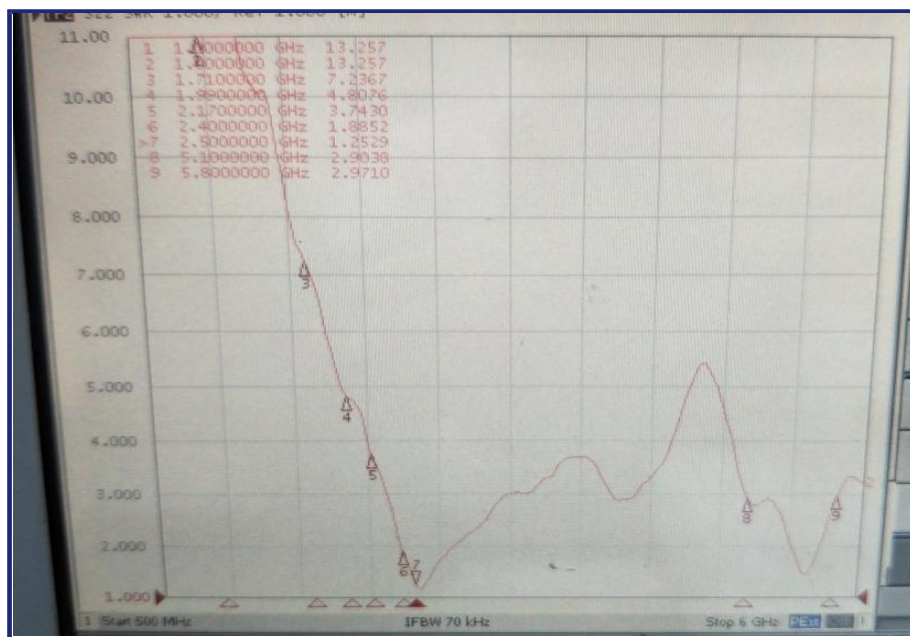
The test diagram is as follows:



Test the schematic

4.2 S11 parameter

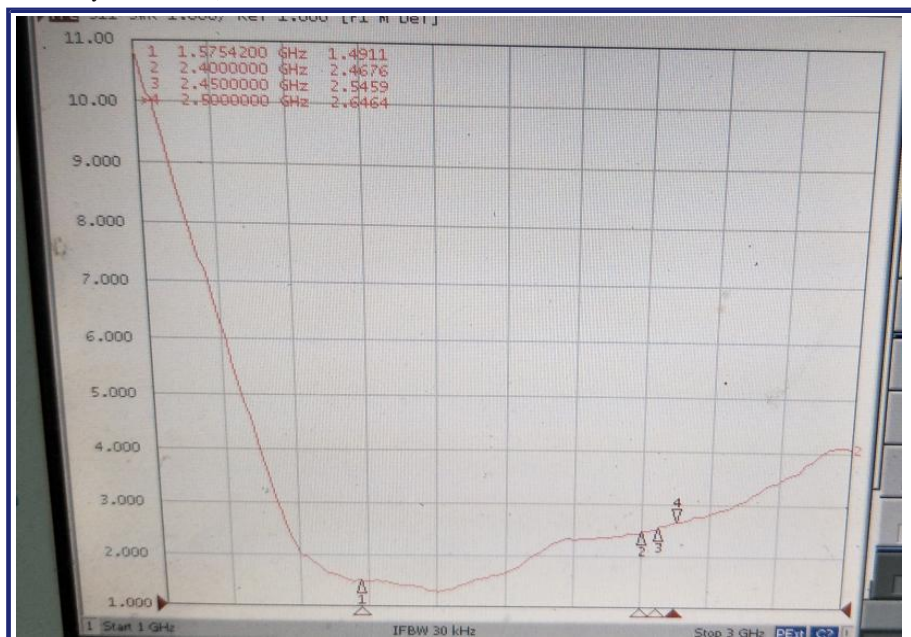
Primary antenna/RF1



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

Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition

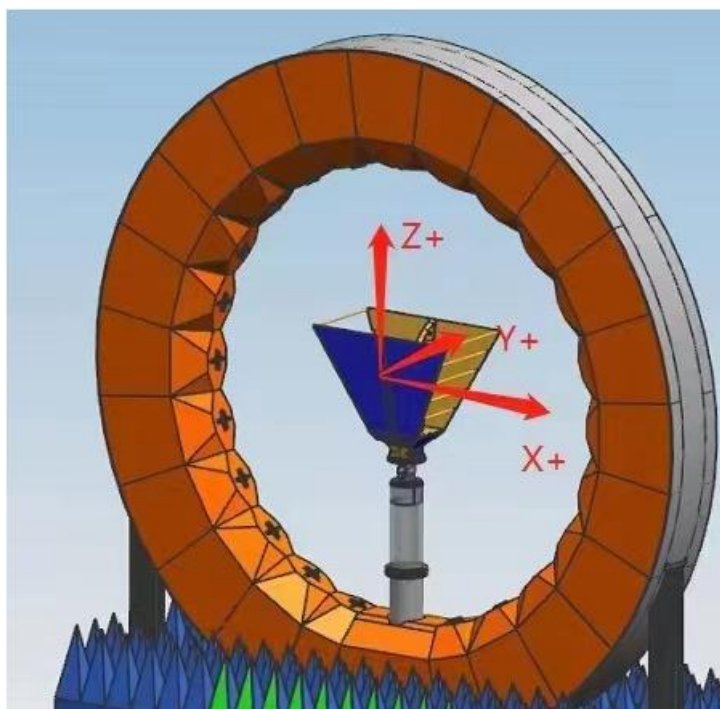
Primary antenna/RF2



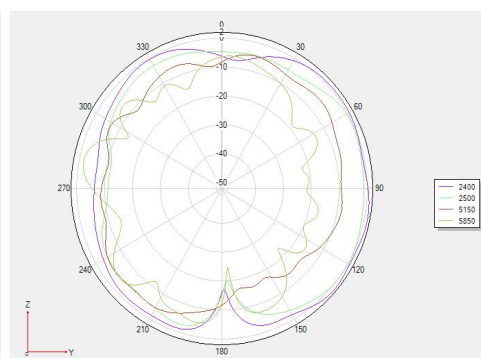
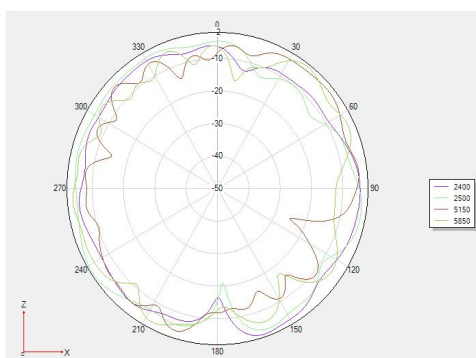
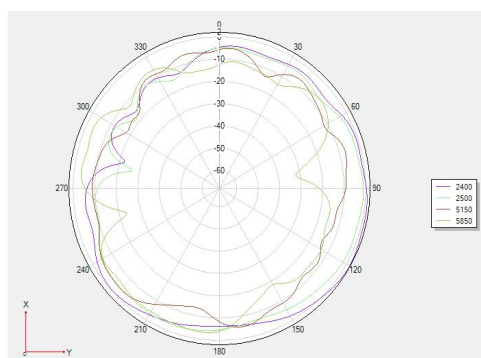
	Main antenna
frequency (MHz)	VSWR
1575	1.4

5.1 Passive test data

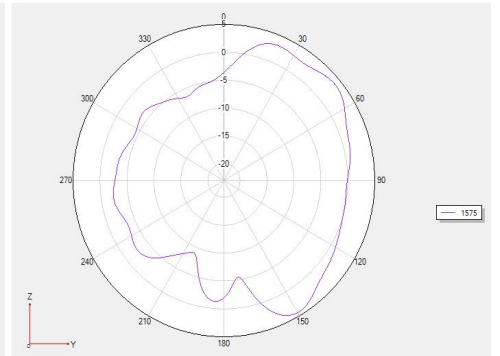
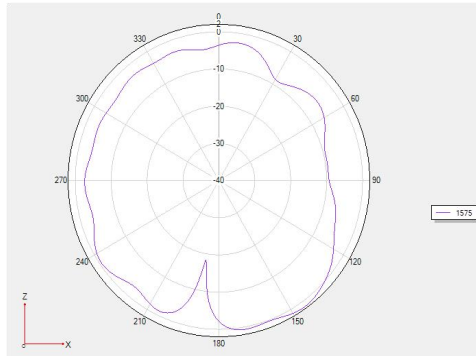
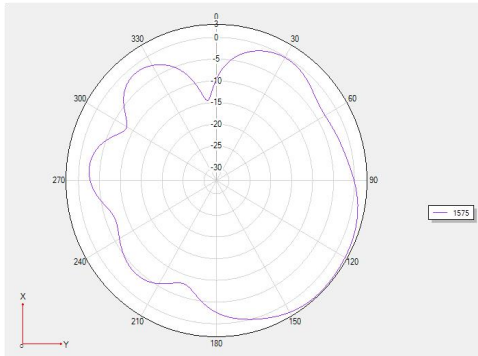
Definition of darkroom axis:



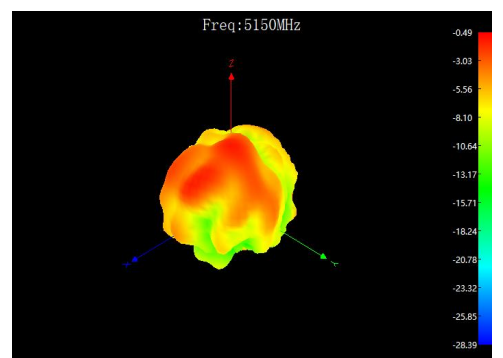
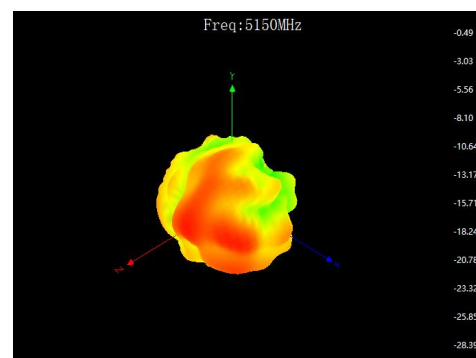
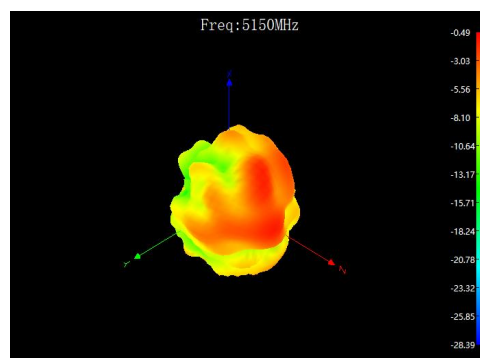
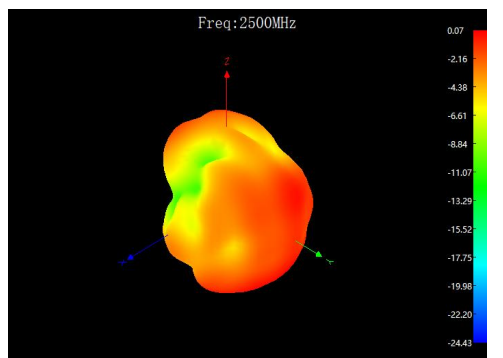
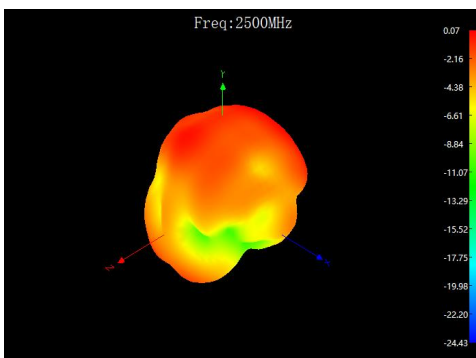
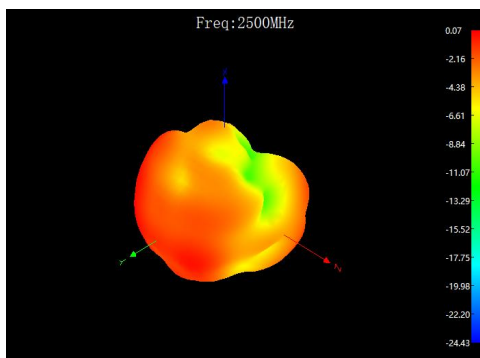
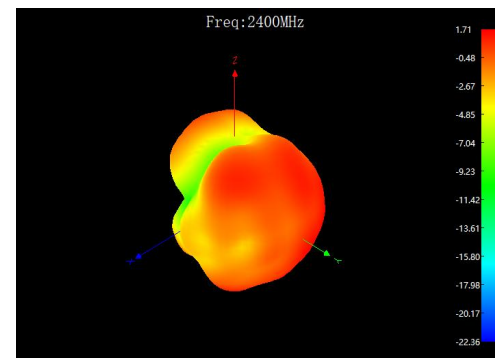
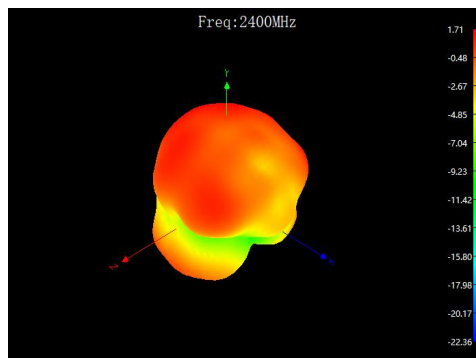
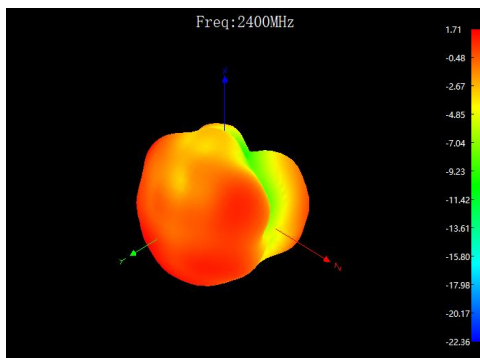
2. 4G+5GWIFI antenna



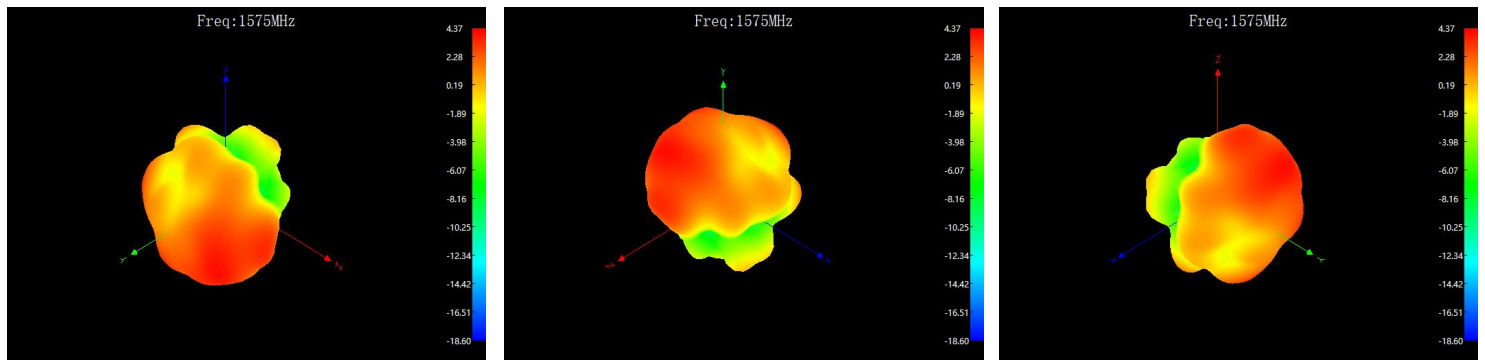
GPS antenna



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

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	36.58	-4.25	2.51	0.43	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. Mass production antenna indicators

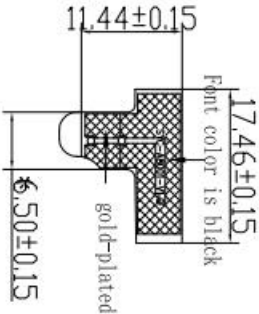
When the antenna is mass-produced, the standing wave ratio is used as the mass production test standard. According to the differences in the project itself, the following criteria are given:

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

7 Drawings

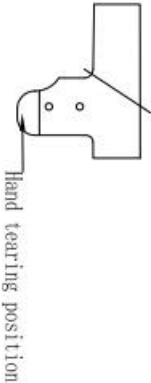
原 本	修 改 内 容	修 改 人	日 期

positive



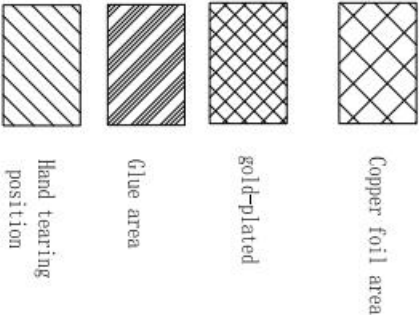
0.12±0.10

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.



Sunnyway Technology (China) CO LTD

		PART NAME: WIF1 (PPC) A8001	DATE: 2022.9.1
TOLERANCE	PART NO: PQ0021B75-3	DRAWN: zhengyuanfang	
X.X ±0.25	MATERIAL:	CHECKED:	
.XX ±0.20	FINISHING:	APPROVED:	
.XXX±0.05	UNIT: mm	SCALE: 1:1	REV: RB
ANGULAR ≤±0.5°	COLOUR: BLACK		

Catalog

1. Summary	2
2. Antenna Structure	2
3. Device Conditions	2
4. Test Environment	3
5. Antenna Test Results	3
5.1 Antenna Photos	3
5.2 Matching Network	4
5.3 Smith Chart	4
5.4 Type Card distance test	5
6. Mechanical Drawings	6

1. Summary

This is the NFC antenna approval sheet

Working band is 13.56MHz.

2. Antenna Structure

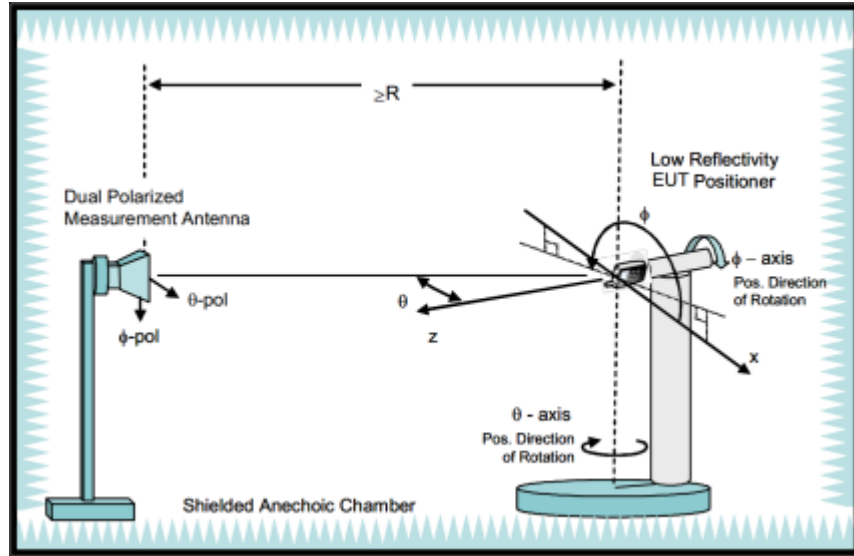
FPC+ferrite

3.Device Conditions

Address: Room 3, No. 78 Chenggong Road, Yushan Town, Kunshan, Suzhou, Jiangsu, China

Project Name: A8003_NFC antenna		Document: A8003_NFC antenna Approval Sheet_A	2
Date:2025/10/28	Version: A		

4.Test Environment



Picture 2 Test Environment photo

5.Antenna Test Results

5.1 Antenna Photos



Picture 3 NFC antenna photograph

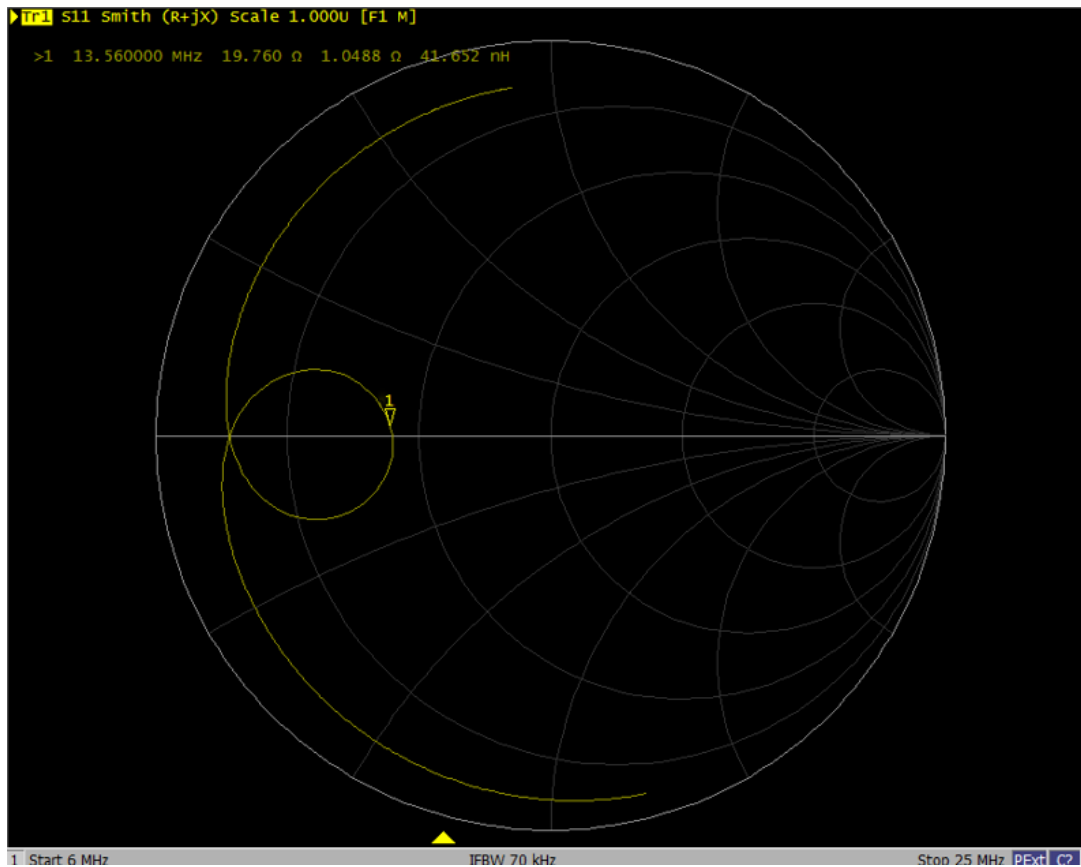
Project Name: A8003_NFC antenna		Document: A8003_NFC antenna Approval Sheet_A	3
Date:2025/10/28	Version: A		

5.2 Matching Network

Matching	Value
C638/C640	39pF
C639/C641	3.3pF
C642/C643	15pF
C644/C645	100pF

Picture 4 Matching network of NFC antenna

5.3 Smith Chart



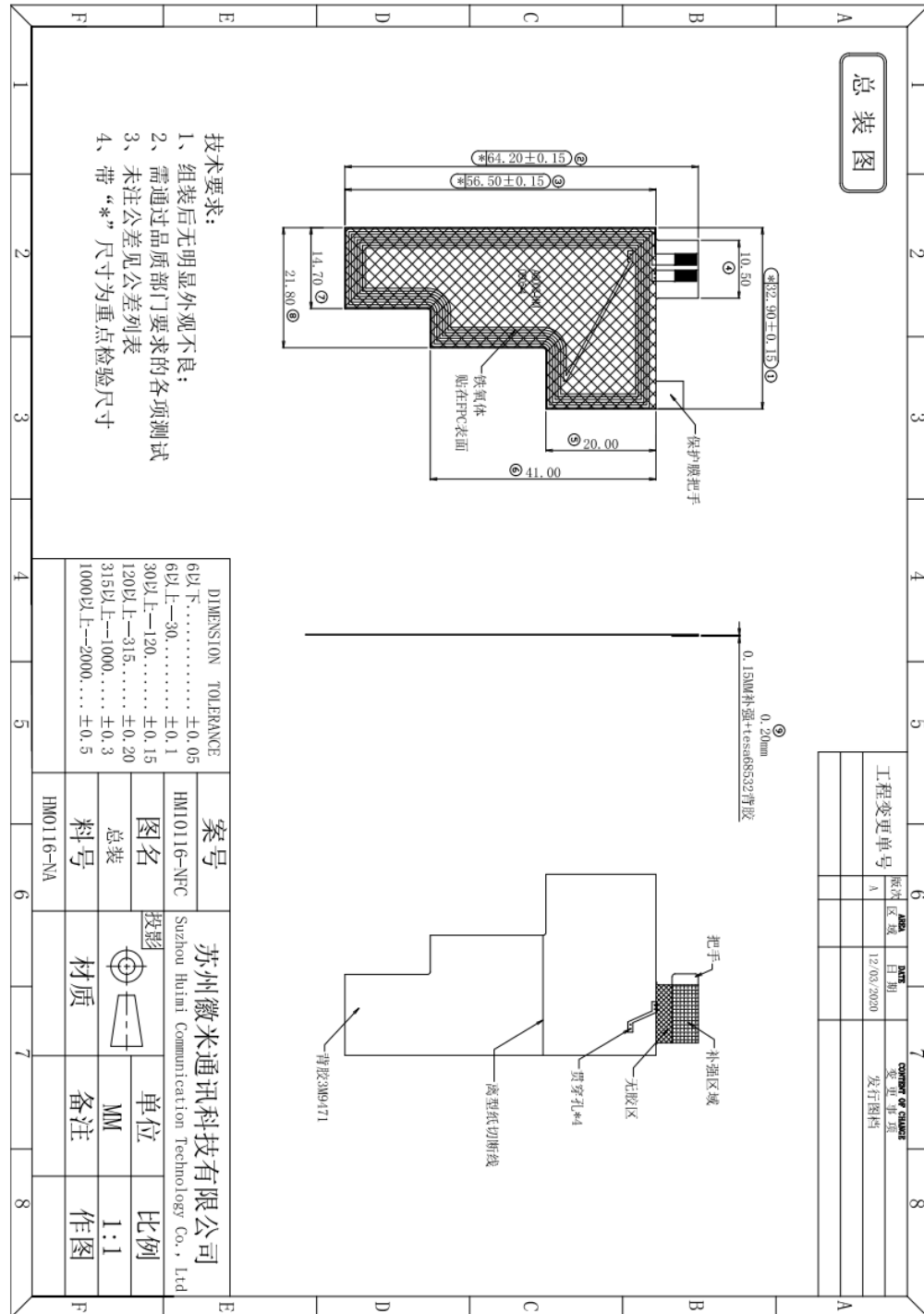
Picture 5 NFC antenna reflection coefficients (Smith)



5.4 Type Card distance test

Type Tag	Distance(mm)
NFC Type 1 Tag Readonly	43
NFC Type 5 Tag R/W Free	53
身份证	20

6. Mechanical Drawings



We statement that All measurements were performed radiated and therefore additional antenna gain documentation is not required.

Project Name: A8003_NFC antenna		Document: A8003_NFC antenna Approval Sheet_A	6
Date:2025/10/28	Version: A		