

样品承认书

SAMPLE SPECIFICATION FOR APPROVAL

供应商名称 SUPPLIER	Sunnyway Technology Co.,Ltd
客户名称 CUSTOMER	Shanghai Guangyi Zhilian Technology Co., LTD
物料名称 DESCRIPTION	FH22
物料规格 SPECIFICATION	Main antenna assembly
物料编码 CUSTOMER PART NO	320300000174
供应商审核(公章) SUPPLIER APPROVAL	
客户审核 CUSTOMER APPROVAL	
承认日期 APPROVAL DATE	25.7.2

Confirm and sign off			
base band	RF	ME	ID
resource	SQE	PQM	

目 录

1、 sample

need ☒ ; no need ☐

2、 Specification sheet, drawings, material report, physical property table, and SOP for fixture inspection

paper archive ☒ ; electronic document ☒

3、 Appearance Inspection report

paper archive ☒ ; electronic document ☒

4、 dimension report

paper archive ☒ ; electronic document ☒

5、 functional test report

paper archive ☐ ; electronic document ☒

6、 Reliability Test Report

paper archive ☒ ; electronic document ☒

7、 Key dimension CPK

paper archive ☒ ; electronic document ☒

8、 Flow chart

paper archive ☐ ; electronic document ☒

9、 manner of packing

paper archive ☒ ; electronic document ☒

10、 Environmental protection materials (only electronic files are required)

Material composition questionnaire ☒ ; RoHS ☒ ; Reach ☒ ; HF ☒

remark: ☒ Provide as needed ; ☐ It is not necessary to provide

1. Project information

Machine information

Antenna information



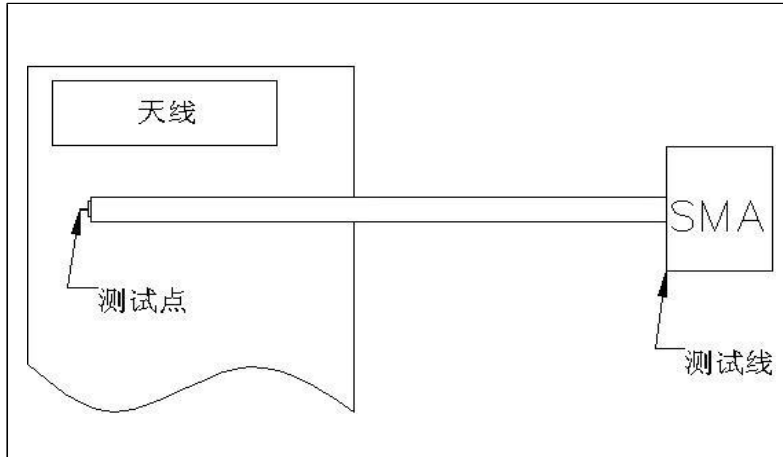
	Version
Antenna	FH22-V0.2
Small Motheboard	FH22_USB_PCB_V1.1
Mainboard	FH22_MB_PCB_V1.1

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.

2. Test fixtures

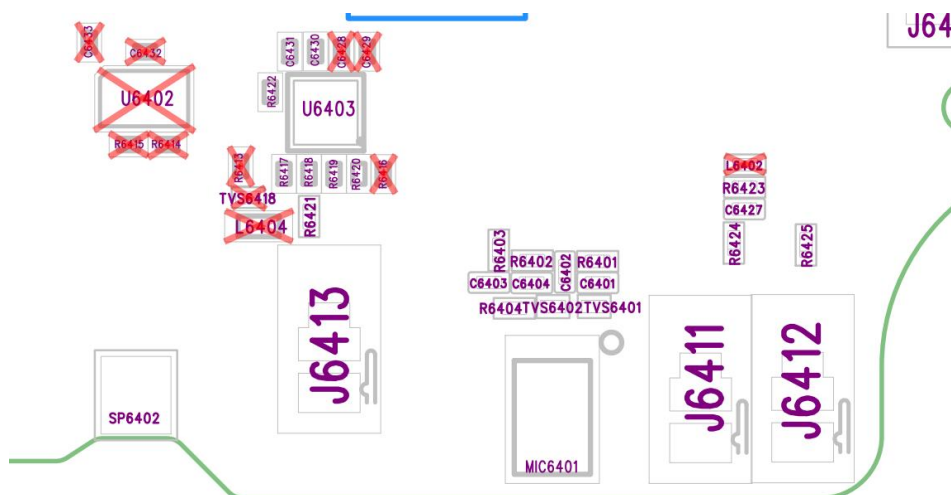
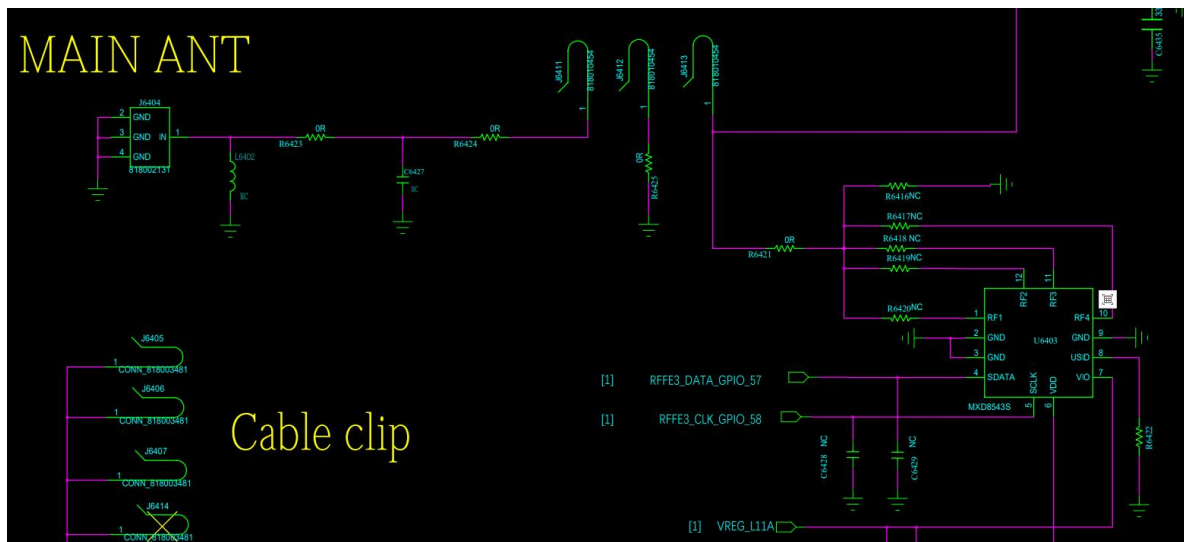
Purpose: To test the passive parameters of the antenna as accurately as possible.

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

ANTO antenna



ANT0					
J6413		J6411		J6412	
R6421	OR	R6424	OR	R6425	OR
R6416	NC	C6427	9.1NH		
R6420 (RF1)	OR	R6423	OR		
R6419 (RF2)	10PF	L6402	NC		
R6418 (RF3)	15NH				
R6417 (RF4)	9.1NH				

ANT0逻辑

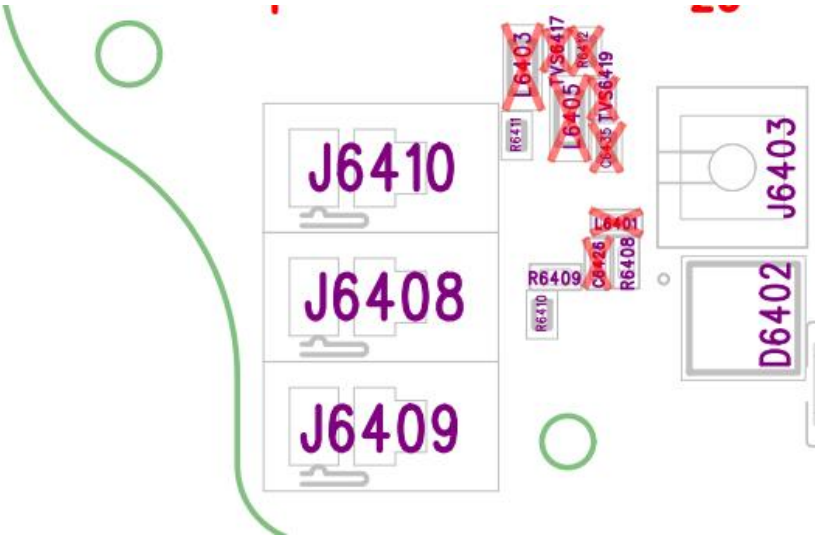
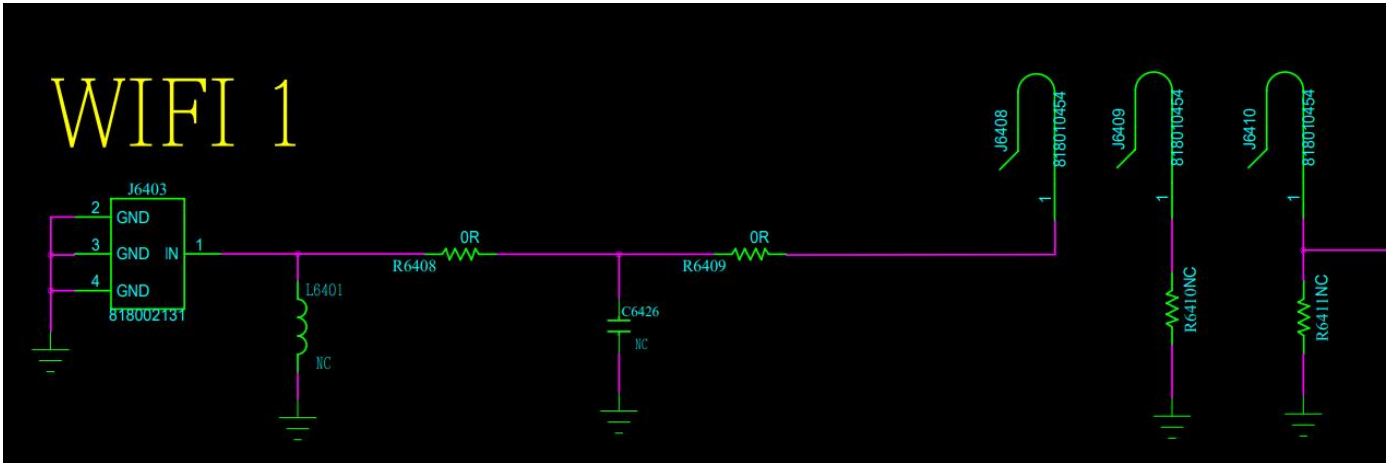
RF1: GSM850/1800/1900 W1/2/5 B1/2/3/4/5/20/39

RF2: GSM900 W8 B8

RF3: B7/12/17/28/38/41

RF4: B14

ANT3 antenna



ANT3					
J6408		J6409		J6410	
R6409	0R	R6410	0R	R6411	0R
C6426	NC				
R6408	0R				
L6401	NC				

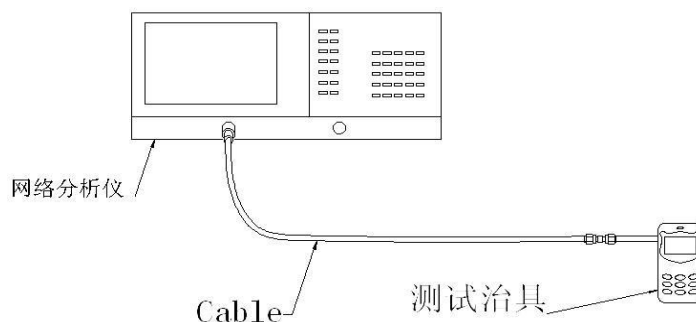
4. S11 test

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.

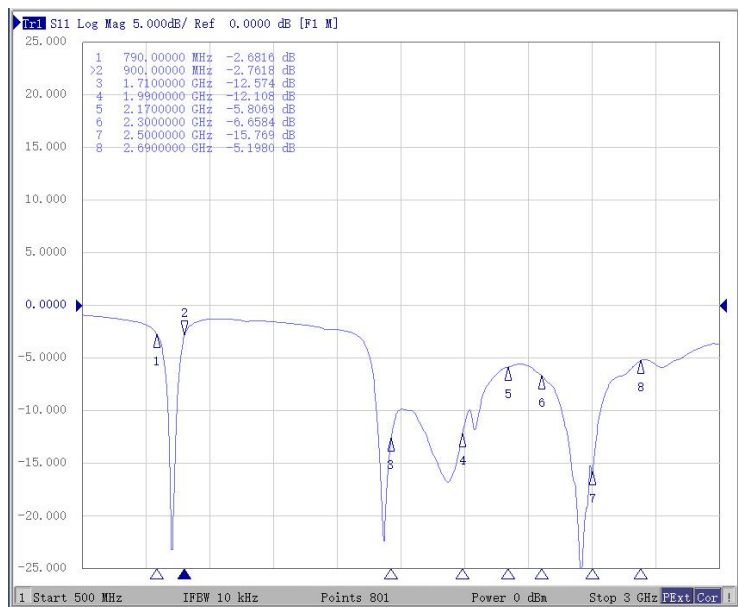
The test diagram is as follows:



Test the schematic

4.2 S11 parameter

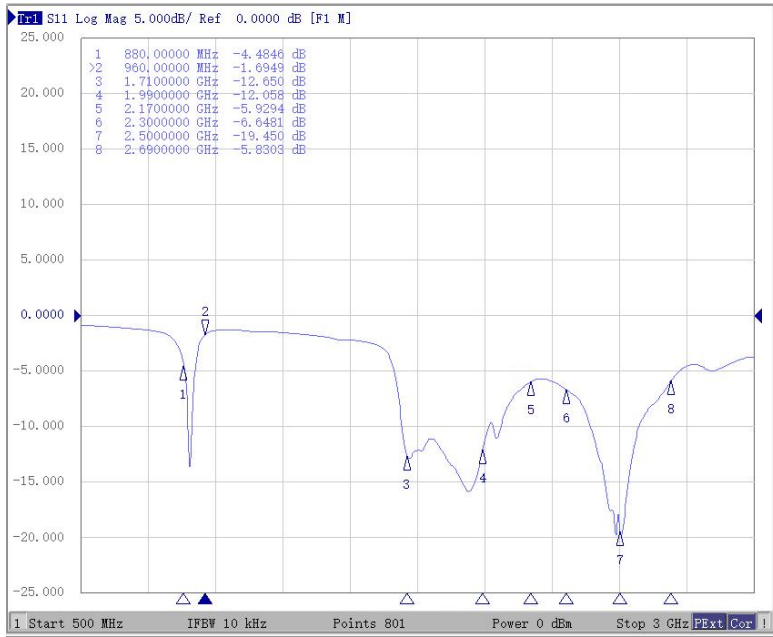
ANT0/RF1



ANT1antenna	
frequency (MHz)	Log Mag
790	-2.68
900	-2.76
1710	-12.57
1990	-12.10
2170	-5.80
2300	-6.65
2500	-15.76
2690	-5.19

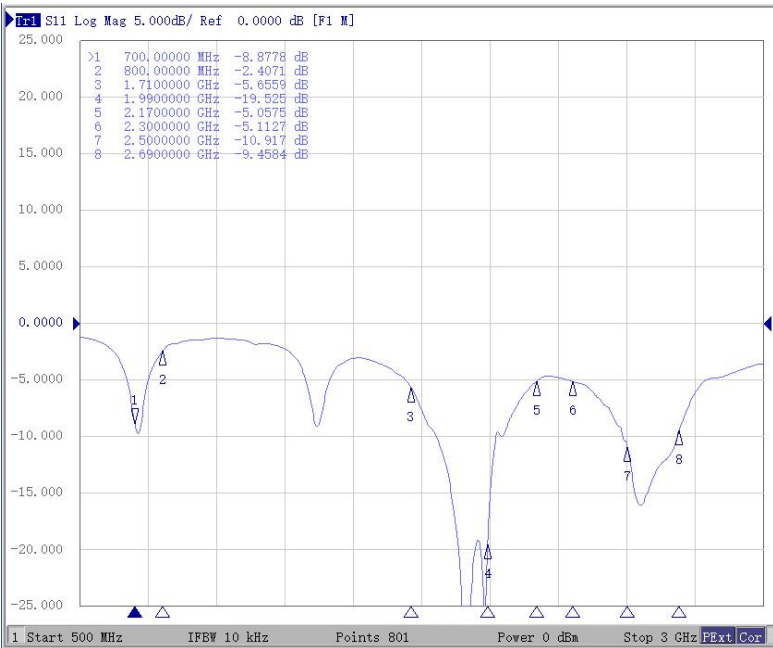
Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition

ANTO/RF2



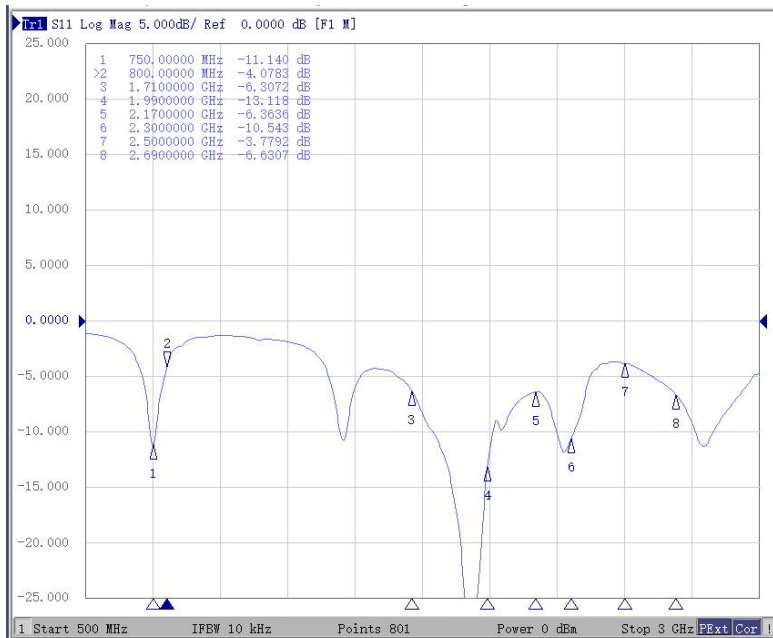
ANT1antenna	
frequency (MHz)	Log Mag
880	-4.48
960	-1.69

ANTO/RF3



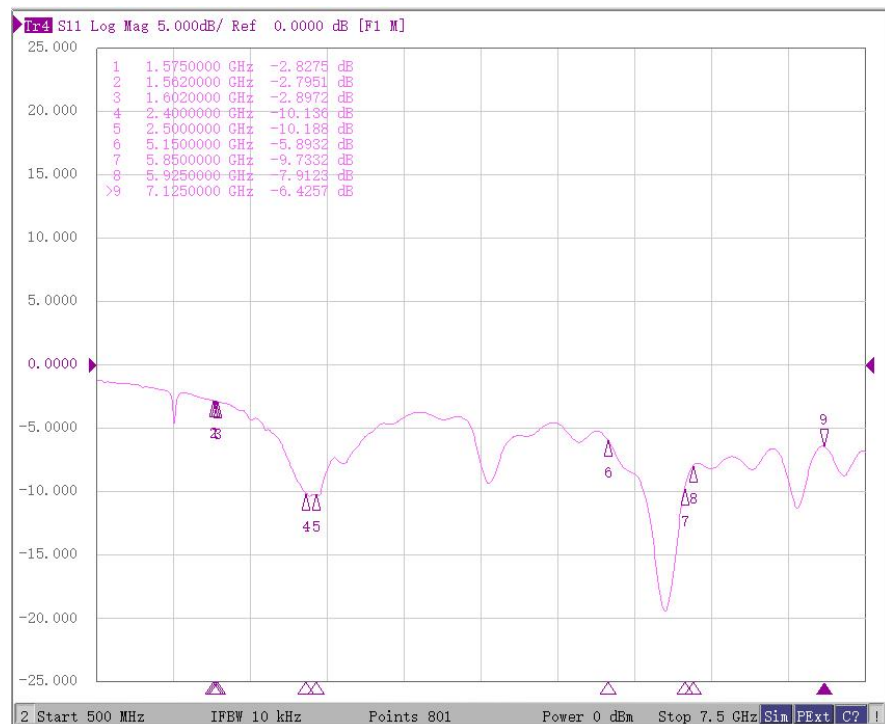
ANT1antenna	
frequency (MHz)	Log Mag
700	-8.87
800	-2.40

ANTO/RF4



ANT1antenna	
frequency (MHz)	Log Mag
750	-11.14
800	-4.07

ANT3



ANT1antenna	
frequency (MHz)	Log Mag
2400	-10.12
2500	-10.18
5150	-5.89
5850	-9.73
5925	-7.91
7125	-6.42

5.1 Passive test data

ANT0-RF1 efficiency

Freq.	Effi	Effi	peak Gain	Freq.	Effi	Effi	peak Gain
(MHz)	(dB)	(%)	(dB)	(MHz)	(dB)	(%)	(dB)
700	-17.25	1.88	-14.45	2010	-4.36	36.64	0.49
710	-16.95	2.02	-14.06	2020	-4.76	33.42	-0.40
720	-16.70	2.14	-13.78	2030	-4.52	35.32	-0.55
730	-16.36	2.31	-13.08	2040	-3.89	40.83	0.52
740	-15.74	2.67	-12.56	2050	-3.70	42.66	0.77
750	-15.06	3.12	-11.74	2060	-3.79	41.78	0.70
760	-14.45	3.59	-11.30	2070	-3.93	40.46	0.32
770	-13.42	4.55	-10.31	2080	-4.05	39.36	0.33
780	-12.35	5.82	-9.35	2090	-4.09	38.99	0.22
790	-11.33	7.36	-4.79	2100	-4.02	39.63	0.47
800	-10.19	9.57	-6.79	2110	-4.04	39.45	0.67
810	-9.07	12.39	-5.23	2120	-4.11	38.82	0.93
820	-7.89	16.26	-4.11	2130	-4.10	38.90	1.08
830	-6.83	20.75	-2.93	2140	-4.11	38.82	1.25
840	-6.32	23.33	-2.26	2150	-4.03	39.54	1.30
850	-6.28	23.55	-1.94	2160	-4.04	39.45	1.23
860	-5.59	27.61	-1.01	2170	-4.10	38.90	-1.32
870	-5.43	28.64	-1.24	2300	-4.86	32.66	0.77
880	-6.04	24.89	-2.11	2310	-4.76	33.42	0.32
890	-7.34	18.45	-3.66	2320	-4.58	34.83	0.56
900	-8.81	13.15	-6.09	2330	-4.47	35.73	0.82
910	-10.24	9.46	-6.88	2340	-4.51	35.40	0.84
920	-11.45	7.16	-7.42	2350	-4.45	35.89	0.77
930	-11.47	7.13	-7.65	2360	-4.29	37.24	0.76
940	-12.09	6.18	-7.80	2370	-4.18	38.19	0.71
950	-12.73	5.33	-8.54	2380	-3.97	40.09	0.92
960	-13.28	4.70	-9.39	2390	-3.87	41.02	0.99
1700	-3.42	45.50	0.47	2400	-3.72	42.46	1.68
1710	-3.30	46.77	-0.28	2410	-3.67	42.95	0.34
1720	-3.21	47.75	0.27	2420	-3.63	43.35	0.53
1730	-3.10	48.98	0.41	2430	-3.62	43.45	0.62
1740	-3.00	50.12	0.63	2440	-3.61	43.55	1.08
1750	-2.94	50.82	0.88	2450	-3.49	44.77	1.10
1760	-3.01	50.00	1.04	2460	-3.62	43.45	1.34
1770	-3.18	48.08	0.88	2470	-3.57	43.95	1.38
1780	-3.13	48.64	1.05	2480	-3.60	43.65	0.96
1790	-3.05	49.55	1.04	2490	-3.76	42.07	0.76
1800	-2.99	50.23	1.30	2500	-3.75	42.17	2.91
1810	-2.89	51.40	1.53	2510	-4.07	39.17	2.01
1820	-2.88	51.52	1.79	2520	-4.57	34.91	1.43
1830	-2.89	51.40	1.73	2530	-4.82	32.96	1.23
1840	-2.98	50.35	1.64	2540	-5.11	30.83	0.96
1850	-3.07	49.32	1.66	2550	-5.18	30.34	0.65
1860	-3.13	48.64	1.66	2560	-5.37	29.04	0.30
1870	-3.29	46.88	1.64	2570	-5.79	26.36	-0.01
1880	-3.14	48.53	1.61	2580	-6.02	25.00	-0.29
1890	-3.24	47.42	1.77	2590	-6.24	23.77	-0.59
1900	-3.21	47.75	1.95	2600	-6.27	23.60	-0.49
1910	-3.29	46.88	2.26	2610	-6.26	23.66	-0.47
1920	-3.31	46.67	2.12	2620	-6.15	24.27	-0.11
1930	-3.23	47.53	1.94	2630	-6.24	23.77	-0.07
1940	-3.28	46.99	1.93	2640	-6.55	22.13	-0.27
1950	-3.19	47.97	1.87	2650	-7.06	19.68	-0.83
1960	-3.20	47.86	2.02	2660	-7.45	17.99	-1.35
1970	-3.16	48.31	2.17	2670	-7.86	16.37	-1.90
1980	-3.26	47.21	2.16	2680	-7.12	19.41	-1.70
1990	-3.56	44.06	1.88	2690	-7.46	17.95	-1.66
2000	-3.93	40.46	1.32	2700	-7.68	17.06	-2.54

5.1 Passive test data

ANT0-RF2 efficiency

Freq.	Effi	Effi	peak Gain	Freq.	Effi	Effi	peak Gain
(MHz)	(dB)	(%)	(dB)	(MHz)	(dB)	(%)	(dB)
700	-25.28	0.30	-22.52	2010	-4.01	39.72	1.97
710	-24.79	0.33	-22.07	2020	-4.58	34.83	0.99
720	-24.42	0.36	-21.74	2030	-4.86	32.66	0.59
730	-24.05	0.39	-21.09	2040	-4.38	36.48	1.46
740	-23.45	0.45	-20.77	2050	-4.03	39.54	1.90
750	-22.88	0.52	-20.23	2060	-4.00	39.81	1.86
760	-22.31	0.59	-19.78	2070	-4.05	39.36	1.54
770	-21.48	0.71	-18.83	2080	-4.16	38.37	1.50
780	-20.72	0.85	-18.03	2090	-4.25	37.58	1.36
790	-20.01	1.00	-17.08	2100	-4.28	37.33	1.45
800	-19.12	1.22	-16.11	2110	-4.42	36.14	1.40
810	-18.12	1.54	-14.69	2120	-4.58	34.83	1.43
820	-17.03	1.98	-13.28	2130	-4.63	34.43	1.23
830	-15.96	2.54	-11.98	2140	-4.65	34.28	1.16
840	-14.90	3.24	-10.61	2150	-4.56	34.99	1.22
850	-13.78	4.19	-8.83	2160	-4.54	35.16	1.31
860	-12.33	5.85	-6.94	2170	-4.60	34.67	1.43
870	-10.30	9.33	-5.05	2300	-5.32	29.38	1.45
880	-8.34	14.66	-4.56	2310	-5.19	30.27	1.57
890	-6.83	20.75	-2.22	2320	-5.00	31.62	1.79
900	-5.71	26.85	-1.56	2330	-4.86	32.66	1.83
910	-5.85	26.00	-2.00	2340	-4.84	32.81	1.85
920	-7.65	17.18	-3.69	2350	-4.71	33.81	1.99
930	-7.82	16.52	-3.61	2360	-4.49	35.56	2.25
940	-9.21	11.99	-4.45	2370	-4.31	37.07	2.43
950	-10.54	8.83	-5.64	2380	-4.03	39.54	2.80
960	-11.65	6.84	-7.83	2390	-3.84	41.30	3.08
1700	-4.64	34.36	-0.49	2400	-3.67	42.95	2.50
1710	-3.97	40.09	0.30	2410	-3.54	44.26	2.55
1720	-3.59	43.75	0.79	2420	-3.40	45.71	2.73
1730	-3.35	46.24	1.19	2430	-3.30	46.77	2.82
1740	-3.19	47.97	1.51	2440	-3.24	47.42	2.72
1750	-3.13	48.64	1.64	2450	-3.04	49.66	2.29
1760	-3.24	47.42	1.54	2460	-3.10	48.98	2.06
1770	-3.46	45.08	1.29	2470	-3.00	50.12	2.32
1780	-3.45	45.19	1.38	2480	-2.96	50.58	2.93
1790	-3.36	46.13	1.52	2490	-2.96	50.58	3.23
1800	-3.34	46.34	1.74	2500	-3.01	50.00	2.87
1810	-3.23	47.53	1.98	2510	-3.12	48.75	4.00
1820	-3.16	48.31	2.16	2520	-3.38	45.92	3.92
1830	-3.11	48.87	2.17	2530	-3.42	45.50	4.08
1840	-3.11	48.87	2.23	2540	-3.55	44.16	4.22
1850	-3.18	48.08	2.35	2550	-3.54	44.26	4.38
1860	-3.23	47.53	2.41	2560	-3.69	42.76	4.27
1870	-3.40	45.71	2.38	2570	-4.05	39.36	4.00
1880	-3.25	47.32	2.37	2580	-4.25	37.58	3.90
1890	-3.30	46.77	2.68	2590	-4.48	35.65	3.84
1900	-3.24	47.42	2.88	2600	-4.58	34.83	3.72
1910	-3.23	47.53	3.41	2610	-4.61	34.59	3.68
1920	-3.17	48.19	3.46	2620	-4.52	35.32	3.59
1930	-3.02	49.89	3.65	2630	-4.52	35.32	3.29
1940	-3.04	49.66	3.77	2640	-4.70	33.88	2.81
1950	-2.96	50.58	3.83	2650	-5.00	31.62	2.33
1960	-3.01	50.00	3.89	2660	-5.21	30.13	2.02
1970	-2.95	50.70	3.96	2670	-5.50	28.18	1.63
1980	-3.02	49.89	3.82	2680	-4.69	33.96	1.83
1990	-3.26	47.21	3.49	2690	-5.03	31.41	1.30
2000	-3.58	43.85	2.83	2700	-5.29	29.58	0.80

5.1 Passive test data

ANT0-RF3 efficiency

Freq.	Effi	Effi	peak Gain	Freq.	Effi	Effi	peak Gain
(MHz)	(dB)	(%)	(dB)	(MHz)	(dB)	(%)	(dB)
700	-6.43	22.75	-4.57	2010	-4.57	34.91	0.39
710	-6.10	24.55	-2.64	2020	-4.78	33.27	-0.18
720	-6.13	24.38	-2.67	2030	-4.60	34.67	-0.42
730	-6.35	23.17	-2.54	2040	-3.96	40.18	0.60
740	-6.60	21.88	-2.86	2050	-3.73	42.36	0.81
750	-7.03	19.82	-3.17	2060	-3.83	41.40	0.79
760	-7.67	17.10	-3.96	2070	-3.98	39.99	0.36
770	-7.96	16.00	-4.42	2080	-4.10	38.90	0.38
780	-8.59	13.84	-5.26	2090	-4.16	38.37	0.19
790	-9.12	12.25	-5.53	2100	-4.11	38.82	0.38
800	-9.73	10.64	-6.48	2110	-4.16	38.37	0.47
810	-10.54	8.83	-6.37	2120	-4.27	37.41	0.72
820	-11.16	7.66	-6.98	2130	-4.31	37.07	0.78
830	-11.84	6.55	-7.52	2140	-4.36	36.64	0.89
840	-12.18	6.05	-7.63	2150	-4.33	36.90	0.90
850	-12.48	5.65	-7.57	2160	-4.39	36.39	0.80
860	-12.38	5.78	-7.45	2170	-4.50	35.48	0.58
870	-12.63	5.46	-8.21	2300	-6.21	23.93	-1.04
880	-13.00	5.01	-8.92	2310	-6.12	24.43	-1.04
890	-13.45	4.52	-9.52	2320	-5.96	25.35	-0.89
900	-14.01	3.97	-10.28	2330	-5.85	26.00	-0.75
910	-14.71	3.38	-11.24	2340	-5.90	25.70	-0.68
920	-15.49	2.82	-11.16	2350	-5.84	26.06	-0.66
930	-14.66	3.42	-10.67	2360	-5.72	26.79	-0.58
940	-14.72	3.37	-10.28	2370	-5.63	27.35	-0.61
950	-14.83	3.29	-10.52	2380	-5.44	28.58	-0.53
960	-14.93	3.21	-10.91	2390	-5.28	29.65	-0.61
1700	-5.55	27.86	-0.38	2400	-5.07	31.12	-0.92
1710	-5.23	29.99	-0.34	2410	-5.02	31.48	-0.93
1720	-4.91	32.28	-0.32	2420	-4.93	32.14	-0.93
1730	-4.57	34.91	-0.06	2430	-4.76	33.42	-0.60
1740	-4.24	37.67	0.26	2440	-4.75	33.50	-0.44
1750	-3.93	40.46	0.70	2450	-4.58	34.83	-0.89
1760	-3.81	41.59	0.99	2460	-4.62	34.51	-0.65
1770	-3.84	41.30	1.01	2470	-4.40	36.31	-0.01
1780	-3.68	42.85	1.29	2480	-4.22	37.84	-0.48
1790	-3.46	45.08	1.40	2490	-4.06	39.26	-0.22
1800	-3.26	47.21	1.77	2500	-4.06	39.26	-0.15
1810	-3.04	49.66	2.10	2510	-4.01	39.72	0.95
1820	-2.91	51.17	2.47	2520	-4.08	39.08	0.85
1830	-2.81	52.36	2.48	2530	-3.86	41.11	1.10
1840	-2.84	52.00	2.43	2540	-3.70	42.66	1.51
1850	-2.87	51.64	2.50	2550	-3.35	46.24	2.05
1860	-2.89	51.40	2.54	2560	-3.19	47.97	2.30
1870	-3.00	50.12	2.51	2570	-3.31	46.67	2.20
1880	-2.84	52.00	2.47	2580	-3.36	46.13	2.29
1890	-2.94	50.82	2.58	2590	-3.47	44.98	2.32
1900	-2.92	51.05	2.74	2600	-3.44	45.29	2.56
1910	-3.01	50.00	3.03	2610	-3.41	45.60	2.71
1920	-3.09	49.09	2.85	2620	-3.27	47.10	2.83
1930	-3.10	48.98	2.70	2630	-3.21	47.75	2.75
1940	-3.28	46.99	2.64	2640	-3.28	46.99	2.60
1950	-3.42	45.50	2.42	2650	-3.51	44.57	2.21
1960	-3.82	41.50	2.19	2660	-3.64	43.25	1.92
1970	-4.25	37.58	1.72	2670	-3.84	41.30	1.45
1980	-4.55	35.08	1.40	2680	-2.87	51.64	1.92
1990	-4.55	35.08	1.25	2690	-3.05	49.55	1.65
2000	-4.48	35.65	1.03	2700	-3.18	48.08	1.63

5.1 Passive test data

ANT0-RF4 efficiency

Freq.	Effi	Effi	peak Gain	Freq.	Effi	Effi	peak Gain
(MHz)	(dB)	(%)	(dB)	(MHz)	(dB)	(%)	(dB)
700	-9.11	12.27	-5.90	2010	-4.61	34.59	0.20
710	-8.64	13.68	-5.36	2020	-4.88	32.51	-0.66
720	-7.88	16.29	-4.58	2030	-4.59	34.75	-0.74
730	-7.46	17.95	-3.80	2040	-3.97	40.09	0.36
740	-6.81	20.84	-3.27	2050	-3.77	41.98	0.62
750	-6.20	23.99	-6.24	2060	-3.87	41.02	0.63
760	-6.14	24.32	-2.60	2070	-3.99	39.90	0.24
770	-6.01	25.06	-2.61	2080	-4.09	38.99	0.26
780	-6.19	24.04	-2.90	2090	-4.11	38.82	0.06
790	-6.76	21.09	-3.19	2100	-4.03	39.54	0.32
800	-7.46	17.95	-5.79	2110	-4.04	39.45	0.48
810	-8.32	14.72	-4.21	2120	-4.09	38.99	0.80
820	-9.19	12.05	-5.10	2130	-4.07	39.17	0.85
830	-9.87	10.30	-5.66	2140	-4.06	39.26	0.98
840	-10.56	8.79	-6.12	2150	-3.97	40.09	1.08
850	-10.98	7.98	-6.18	2160	-3.97	40.09	1.02
860	-10.92	8.09	-6.03	2170	-4.01	39.72	0.86
870	-11.21	7.57	-6.74	2300	-6.01	25.06	-1.43
880	-11.74	6.70	-7.59	2310	-6.27	23.60	-1.63
890	-12.50	5.62	-8.63	2320	-6.52	22.28	-1.62
900	-13.22	4.76	-9.53	2330	-6.93	20.28	-1.54
910	-14.03	3.95	-10.59	2340	-7.74	16.83	-1.82
920	-14.90	3.24	-10.72	2350	-8.64	13.68	-2.26
930	-14.16	3.84	-10.42	2360	-9.53	11.14	-2.95
940	-14.33	3.69	-10.14	2370	-10.16	9.64	-3.70
950	-14.56	3.50	-10.49	2380	-10.22	9.51	-4.24
960	-14.75	3.35	-10.98	2390	-9.91	10.21	-4.55
1700	-4.89	32.43	-0.46	2400	-10.21	9.53	-5.30
1710	-4.62	34.51	-0.52	2410	-10.35	9.23	-5.78
1720	-4.36	36.64	-0.60	2420	-9.88	10.28	-5.80
1730	-4.09	38.99	-0.44	2430	-9.61	10.94	-5.41
1740	-3.82	41.50	-0.16	2440	-10.08	9.82	-5.82
1750	-3.58	43.85	0.22	2450	-9.84	10.38	-6.19
1760	-3.51	44.57	0.44	2460	-9.64	10.86	-6.04
1770	-3.58	43.85	0.39	2470	-9.21	11.99	-5.16
1780	-3.46	45.08	0.64	2480	-9.24	11.91	-5.25
1790	-3.27	47.10	0.75	2490	-8.88	12.94	-4.85
1800	-3.11	48.87	1.05	2500	-9.20	12.02	-5.50
1810	-2.92	51.05	1.33	2510	-9.03	12.50	-4.33
1820	-2.83	52.12	1.69	2520	-8.99	12.62	-4.45
1830	-2.77	52.84	1.70	2530	-8.75	13.34	-4.19
1840	-2.83	52.12	1.66	2540	-8.51	14.09	-3.97
1850	-2.89	51.40	1.75	2550	-8.09	15.52	-3.50
1860	-2.94	50.82	1.76	2560	-7.81	16.56	-3.11
1870	-3.08	49.20	1.72	2570	-7.82	16.52	-3.10
1880	-2.95	50.70	1.69	2580	-7.73	16.87	-3.03
1890	-3.08	49.20	1.82	2590	-7.66	17.14	-3.06
1900	-3.10	48.98	1.98	2600	-7.43	18.07	-2.94
1910	-3.24	47.42	2.26	2610	-7.27	18.75	-2.91
1920	-3.37	46.03	2.03	2620	-6.93	20.28	-2.61
1930	-3.43	45.39	1.80	2630	-6.61	21.83	-2.35
1940	-3.67	42.95	1.68	2640	-6.37	23.07	-2.13
1950	-3.81	41.59	1.42	2650	-6.30	23.44	-1.86
1960	-4.01	39.72	1.36	2660	-6.14	24.32	-1.55
1970	-4.01	39.72	1.38	2670	-5.99	25.18	-1.19
1980	-3.99	39.90	1.50	2680	-4.67	34.12	-0.27
1990	-4.11	38.82	1.36	2690	-4.46	35.81	0.03
2000	-4.31	37.07	0.94	2700	-4.17	38.28	0.50

ANT3

Freq. (MHz)	Effi (dB)	Effi (%)	peak Gain (dB)	Freq. (MHz)	Effi (dB)	Effi (%)	peak Gain (dB)
2400	-3.94	40.36	-1.96	5150	-7.68	17.06	-2.87
2410	-4.10	38.90	-2.42	5200	-6.70	21.38	-1.78
2420	-4.02	39.63	-2.01	5250	-6.26	23.66	-2.24
2430	-3.94	40.36	-1.23	5300	-5.92	25.59	-2.02
2440	-4.04	39.45	-1.74	5350	-5.25	29.85	-1.87
2450	-4.03	39.54	-1.22	5400	-5.05	31.26	-1.62
2460	-4.13	38.64	-0.84	5450	-4.65	34.28	-0.62
2470	-3.81	41.59	-0.9	5500	-4.24	37.67	0.7
2480	-3.83	41.40	-0.66	5550	-4.23	37.76	0.95
2490	-3.82	41.50	-0.59	5600	-4.01	39.72	0.96
2500	-3.90	40.74	-0.44	5650	-3.73	42.36	0.15
				5700	-3.92	40.55	-0.59
				5750	-4.03	39.54	-1.14
				5800	-4.17	38.28	-1.54
				5850	-4.54	35.16	-2.14
				5900	-5.25	29.85	-2.5
				5950	-5.37	29.04	0.07
				6000	-5.43	28.64	0.45
				6050	-5.30	29.51	0.85
				6100	-5.33	29.31	1.32
				6150	-5.54	27.93	-1.97
				6200	-5.87	25.88	0.57
				6250	-6.20	23.99	0.17
				6300	-6.46	22.59	-0.11
				6350	-6.42	22.80	0.28
				6400	-6.13	24.38	0.54
				6450	-6.11	24.49	1.05
				6500	-5.91	25.64	-0.62
				6550	-6.45	22.65	0.54
				6600	-6.68	21.48	-0.03
				6650	-7.06	19.68	-1.22
				6700	-7.07	19.63	-1.77
				6750	-6.87	20.56	-2.20
				6800	-6.63	21.73	-1.95
				6850	-6.02	25.00	-1.53
				6900	-6.33	23.28	-1.76
				6950	-6.60	21.88	-1.19
				7000	-7.33	18.49	-1.93
				7050	-8.09	15.52	-2.25
				7100	-8.21	15.10	-2.29
				7150	-8.22	15.07	-3.1

5.2 Active test data

ANT0 Active test data (Free space, Bright screen)

Band	OTA (dBm)	
	TRP	TIS
850	27.47	
	27.33	
	26.13	-101.68
900	25.19	
	26.43	
	24.52	-99.84
1800	23.36	
	23.64	
	25.43	-106.59
1900	24.43	
	23.45	
	23.88	-106.28
WCDMA_B1	20.40	
	20.79	
	20.81	-107.51
WCDMA_B2	18.70	
	18.21	
	19.24	-107.55
WCDMA_B5	17.56	
	17.64	
	17.24	-106.13
WCDMA_B8	16.87	
	18.43	
	15.93	-103.13

Band	OTA (dBm)	
	TRP	TIS
FDD_B1	20.87	
	20.57	
	20.99	-94.80
FDD_B2	19.11	
	20.15	
	19.21	-97.46
FDD_B3	19.03	
	20.21	
	19.26	-96.67
FDD_B4	20.23	
	19.58	
	20.27	-94.58
FDD_B5	16.88	
	17.22	
	16.05	-93.67
FDD_B7	20.07	
	20.72	
	21.44	-95.10
FDD_B8	15.40	
	17.38	
	15.81	-90.75
FDD_B12	17.83	
	18.04	
	17.88	-92.97
FDD_B14	15.74	
FDD_B17	16.75	
	17.90	
	17.75	-93.02
FDD_B20	16.72	
	16.95	
	16.57	-92.68
FDD_B28	17.56	
	17.25	
	16.27	-91.07
TDD_B38 (20MHz)	21.05	
	21.26	
	21.05	-90.68
TDD_B39 (20MHz)	20.19	
	20.38	
	19.78	-92.84
TDD_B41 (20MHz)	19.68	
	21.45	
	20.88	-90.19

ANT3 Active test data (Free space, Bright screen)

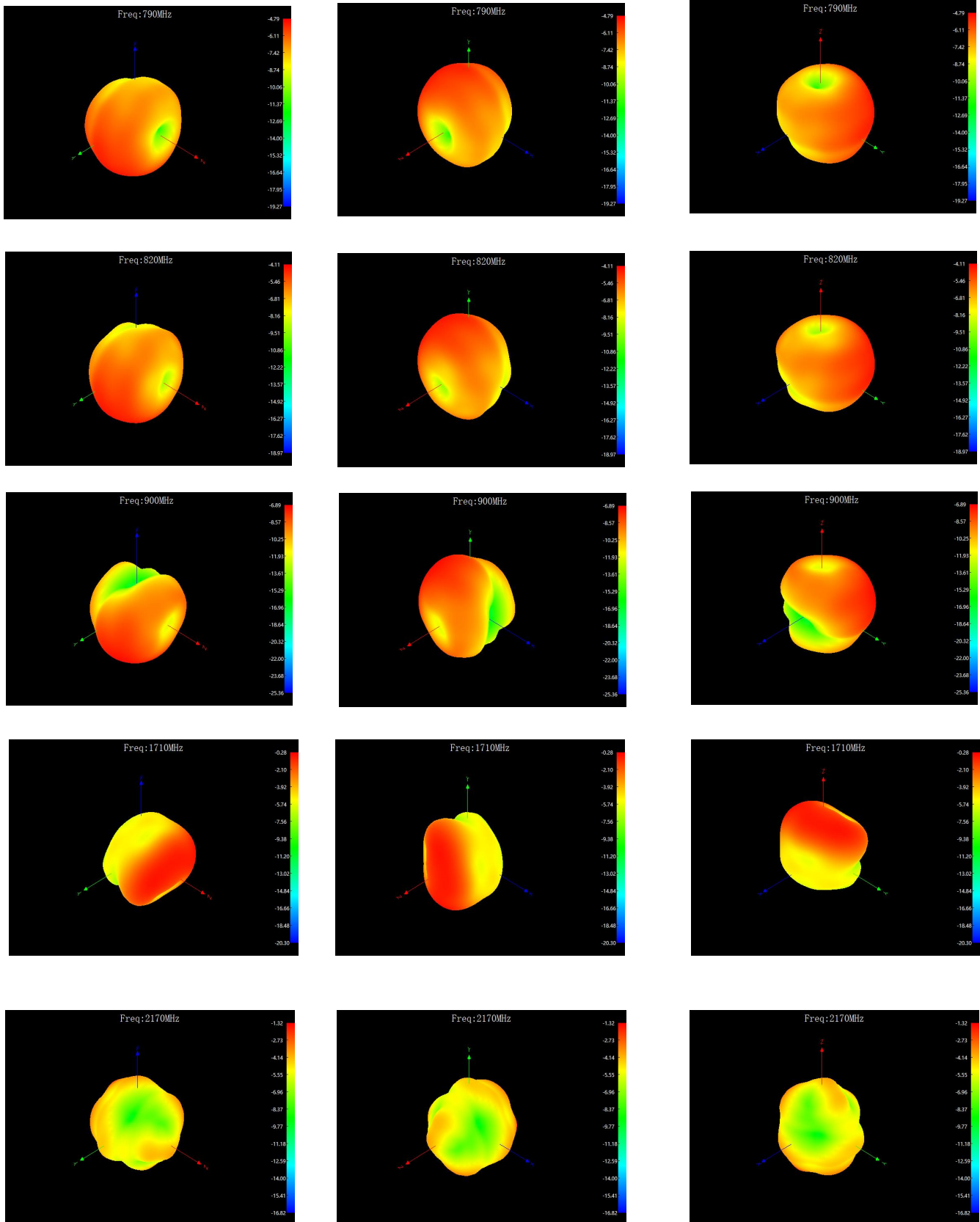
Band	OTA (dBm)		
	CH	TRP	TIS
WiFi-A	36	20.09	
	149	21.21	
	165	21.55	-73.51
WiFi-B	1	13.71	
	6	11.84	
	11	13.06	-82.96

ANT2+ANT3 Coupler Active test data (Free space, Bright screen)

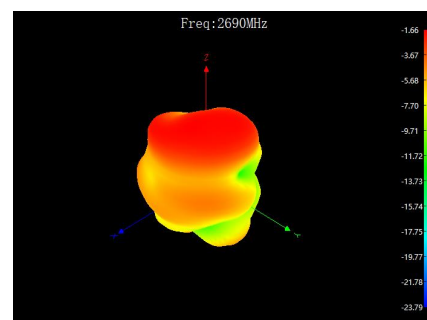
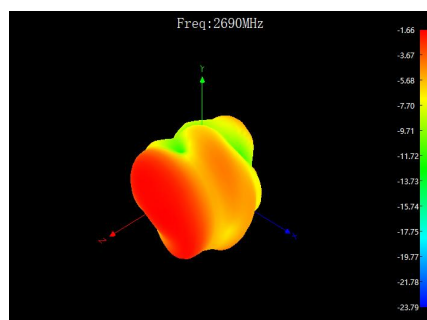
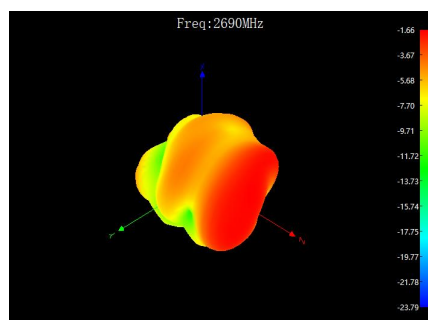
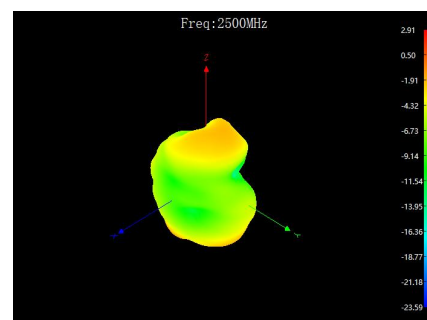
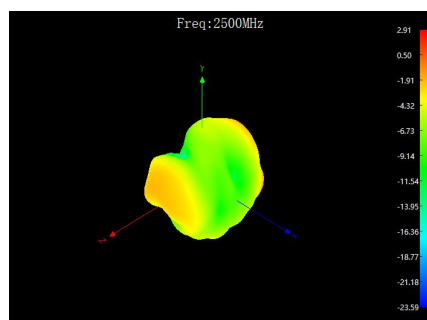
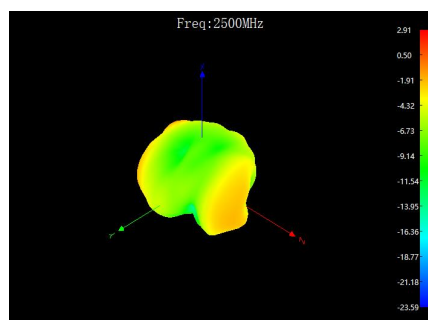
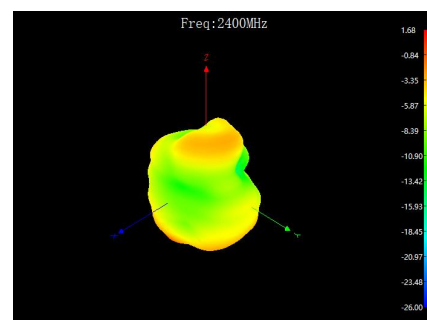
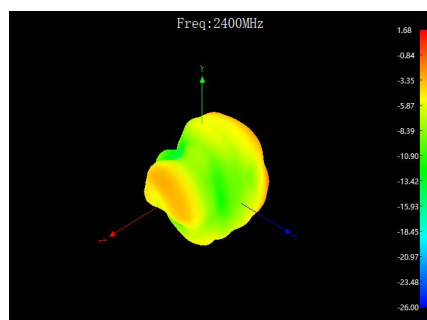
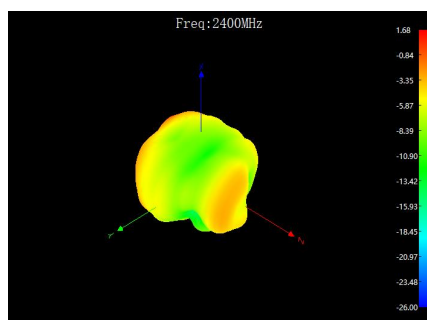
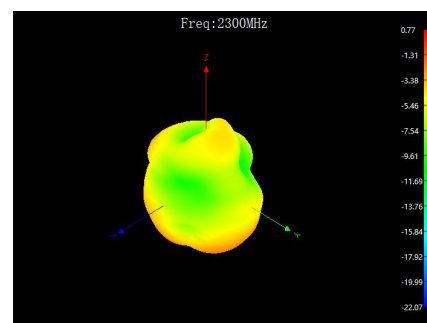
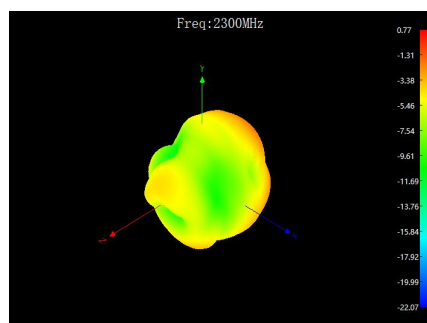
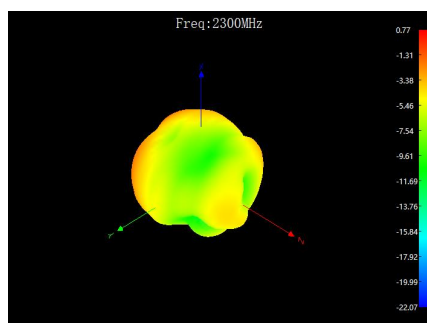
Band	OTA (dBm)		
	CH	TRP	TIS
WiFi-A	36	20.90	
	149	23.75	
	165	24.04	-74.64
WiFi-B	1	16.64	
	6	15.59	
	11	16.47	-83.05
GPS	-148.62		

5.3 3D diagram

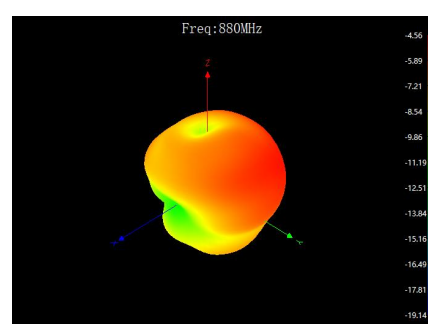
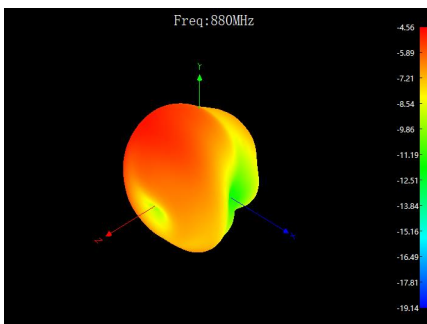
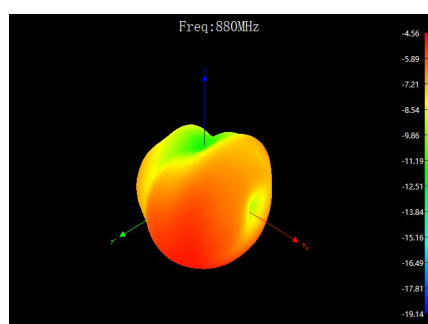
ANT0-RF1

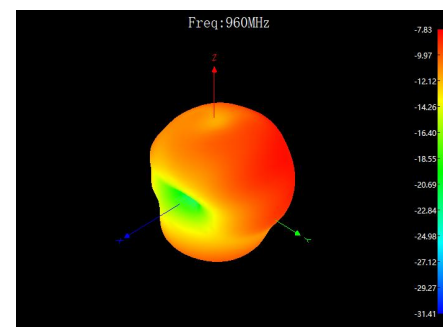
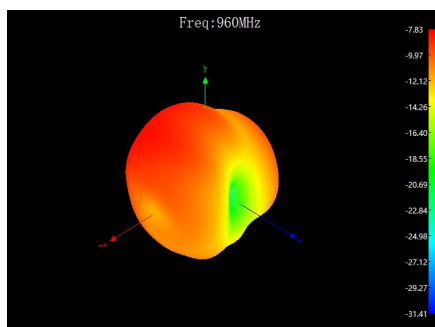
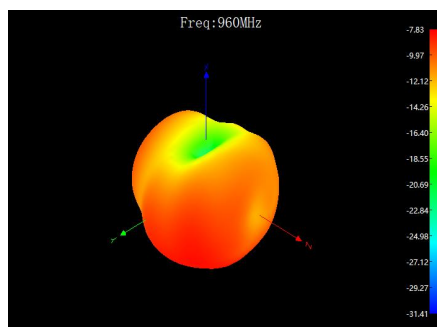


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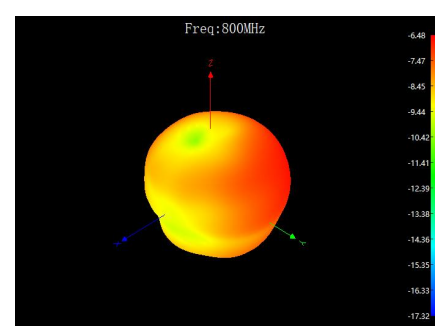
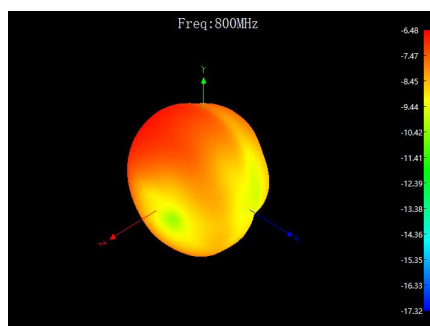
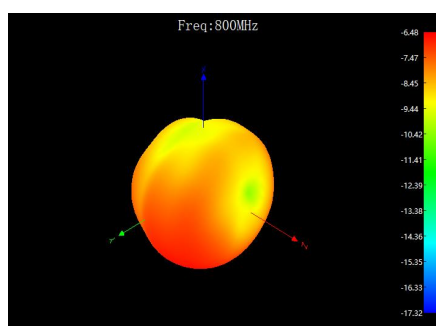
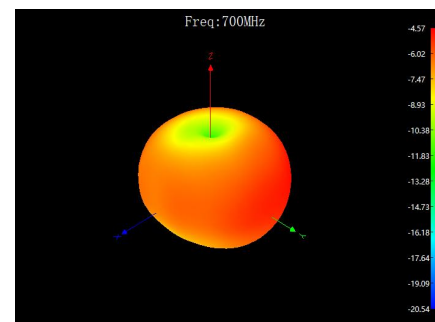
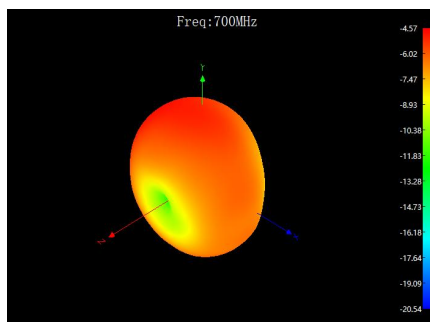
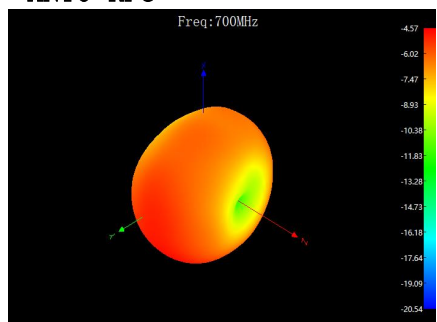


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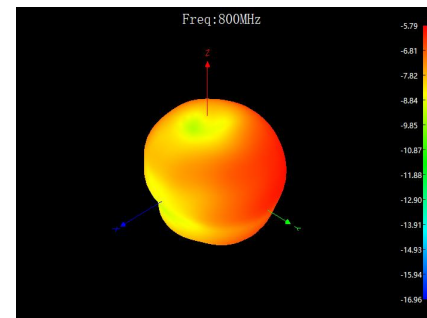
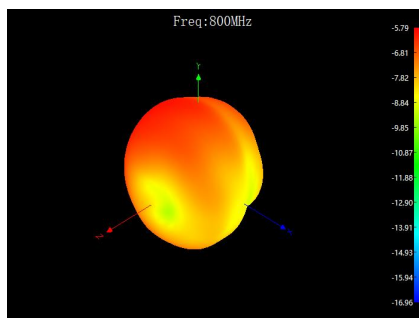
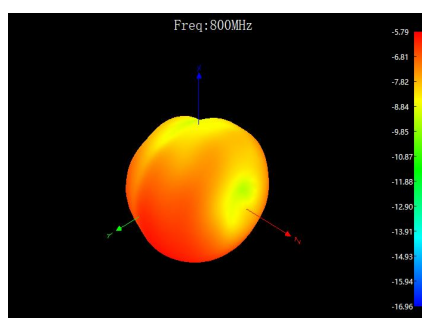
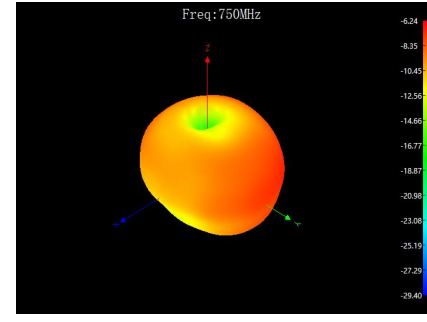
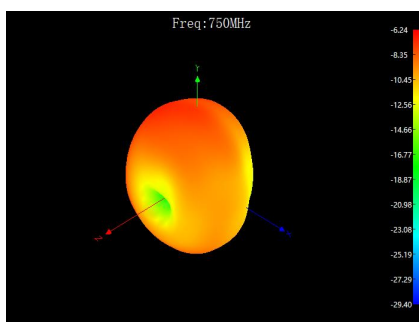
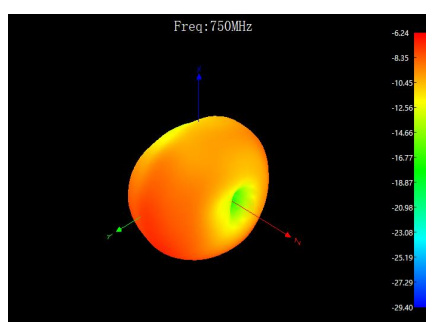




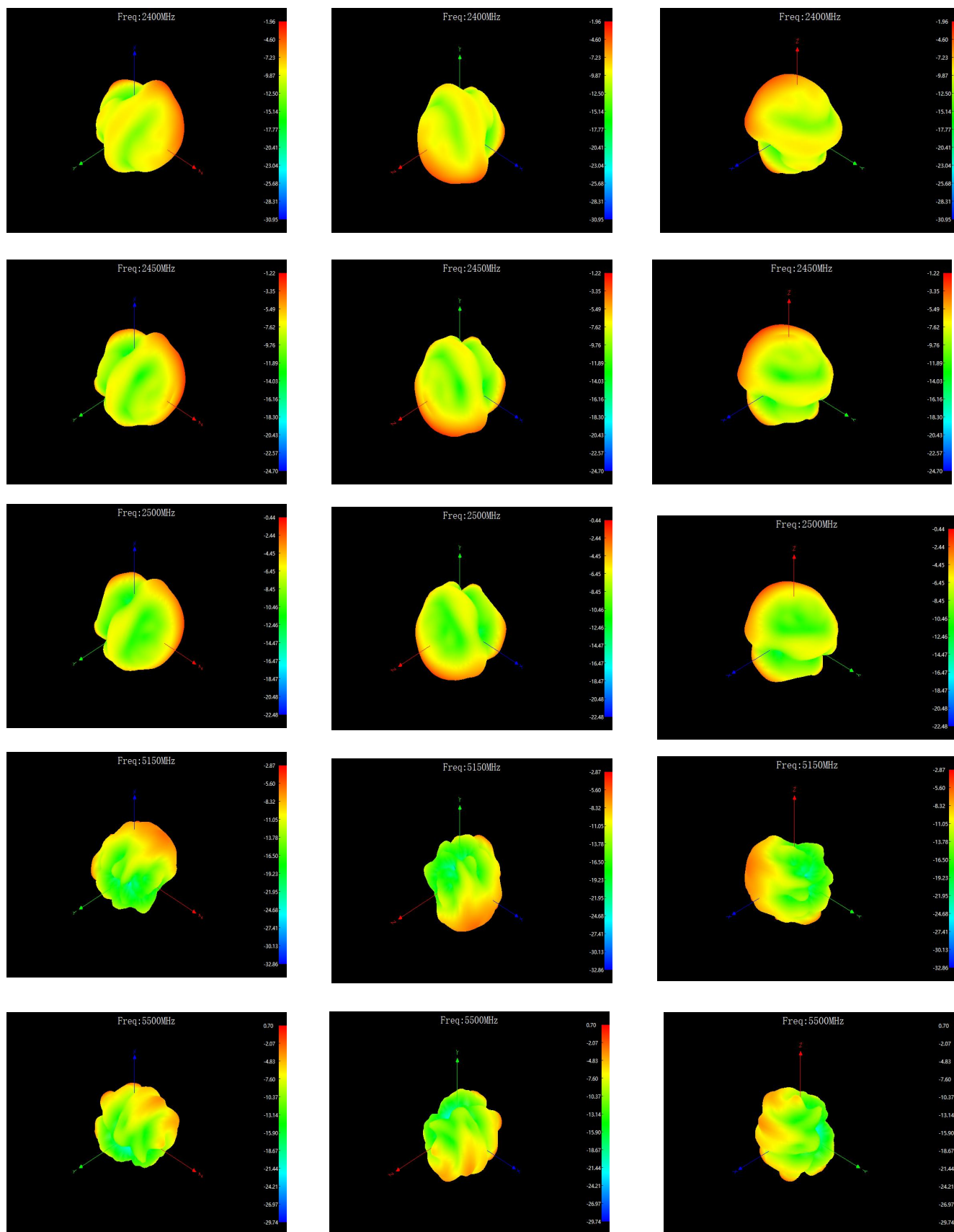
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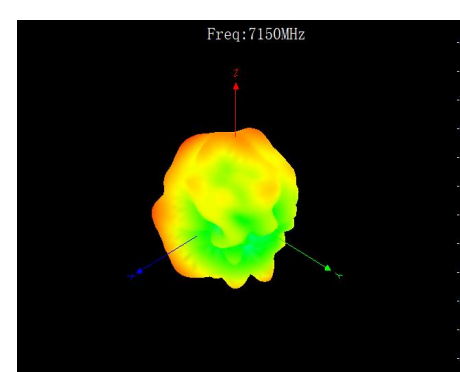
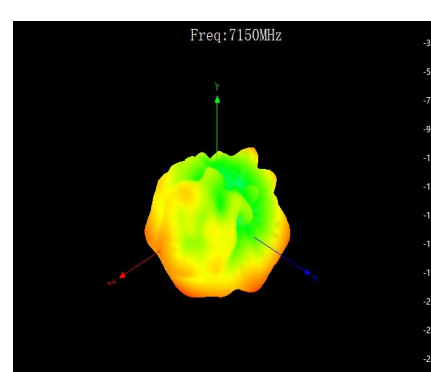
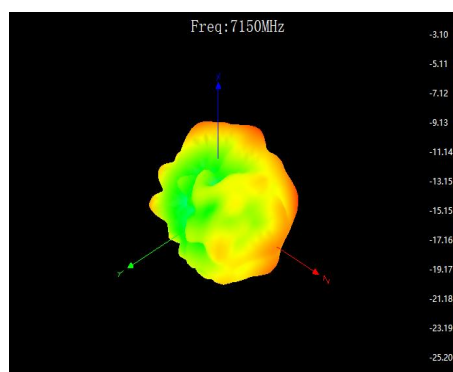
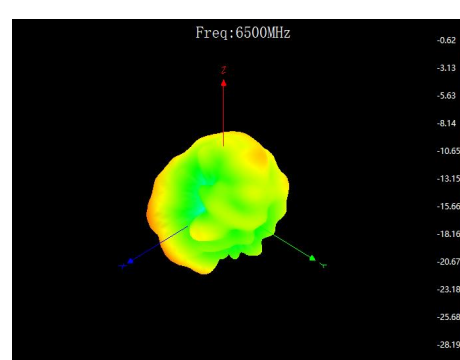
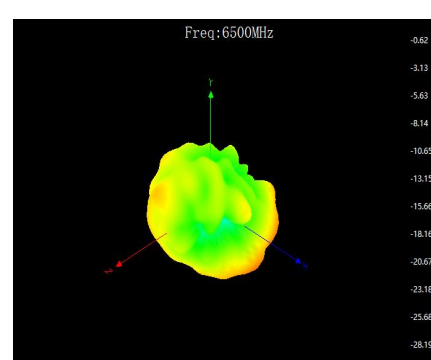
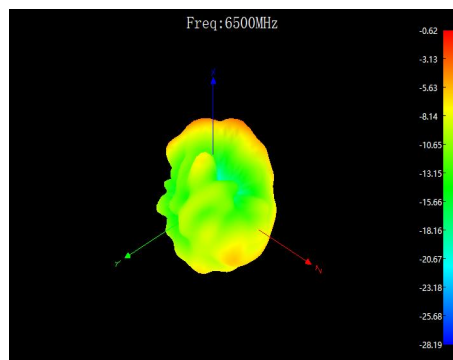
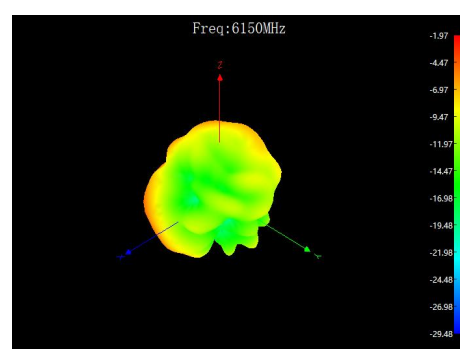
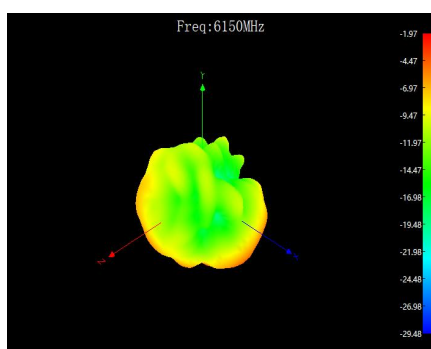
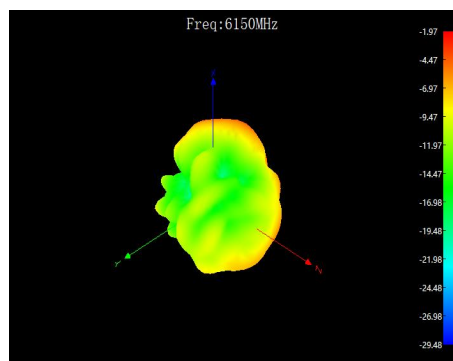


ANT0-RF4



ANT3





6. Prototype grounding treatment

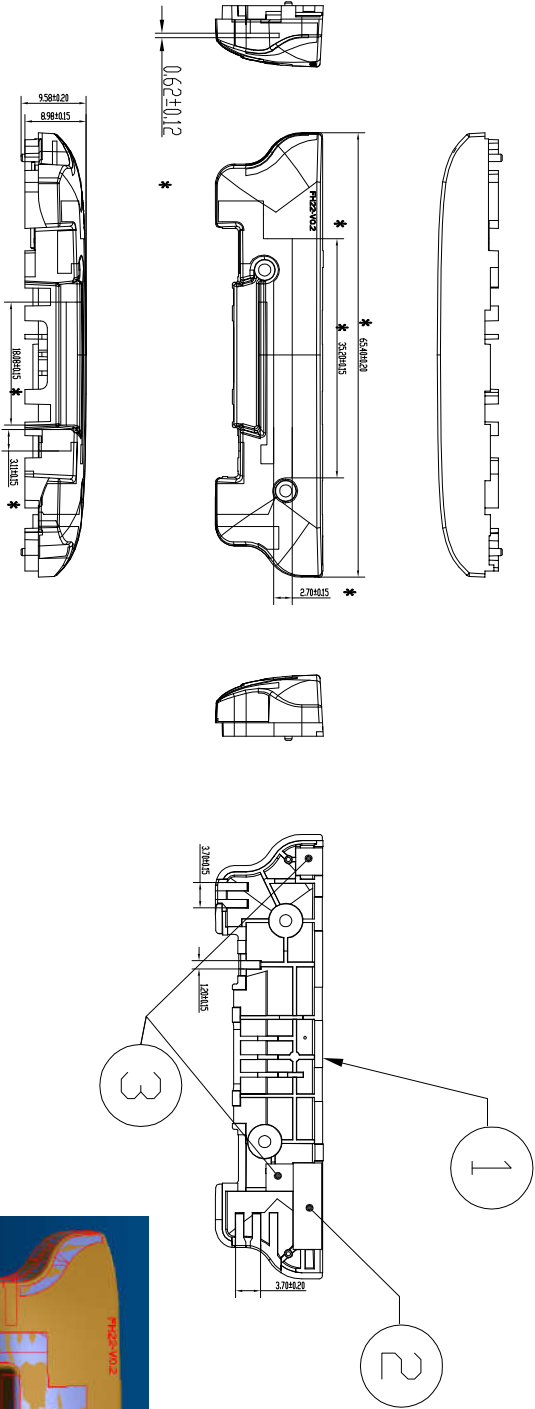
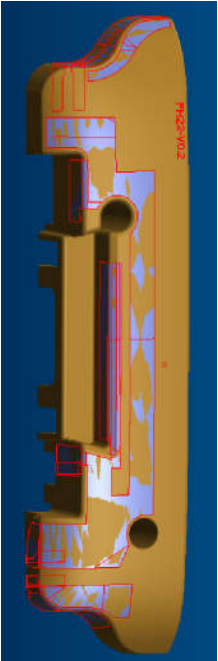


7. Mass production antenna indicators

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
ANT0 791--960; 1710--2690	VSWR (量产性能) < VSWR(承认性能)+1
ANT3 2400--2500; 5150--7125	VSWR (量产性能) < VSWR(承认性能)+1

版 本	修 改 内 容	修 改 人	日 期



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Sunnyway Technology (China) Co., Ltd.

PART NAME: FH22 MAIN	DATE: 2025.2.25
PART NO: SH242651B87-1	DRAWN: zhangyuanfang

RF: yangshaoping	Tel:
PM: yuyan	Tel:

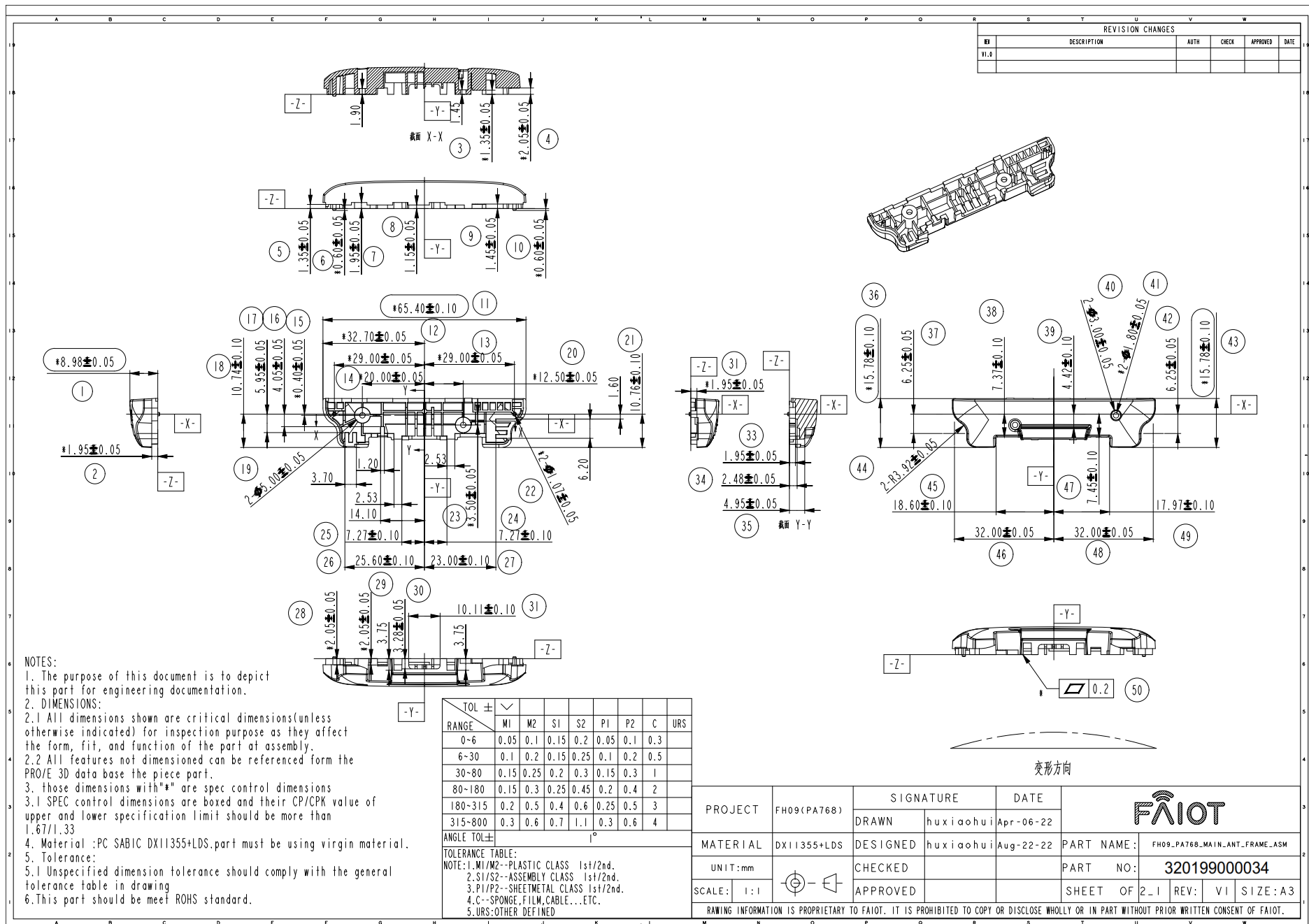
MATERIAL: .XXX ±0.05	CHECKED: yujiang
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FINISHING: ANGULAR $\angle \pm 0.5^{\circ}$	APPROVED:
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UNIT:mm	COLOR: Black	SCALE:1:1	REV:ta
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Serial Number	Part name	P/N	material	quantity
④	LBS	SH242651B84-1	LBS	
③	防撞垫圈 5 RHS-F-008-01006-2	SH220981B86-2	清漆	2
②	防撞垫圈 10 RHS-F-008-01006-1	SH220981B86-1	清漆	1
①	bracket	SH220981B87-1	DX11355	1

- Technical requirements:
- 1: The key inspection size is marked with “*”;
 - 2: Auxiliary materials cannot be pasted off center;
 - 3: The appearance requirements shall comply with the antenna inspection standards;
 - 4: The bracket has no deformation, burrs, material defects, etc;
 - 5: Refer to the general tolerance table for unmarked tolerances;
 - 6: ♦ Size as reference, subject to matching
 - 7: Conduct incoming material inspection;

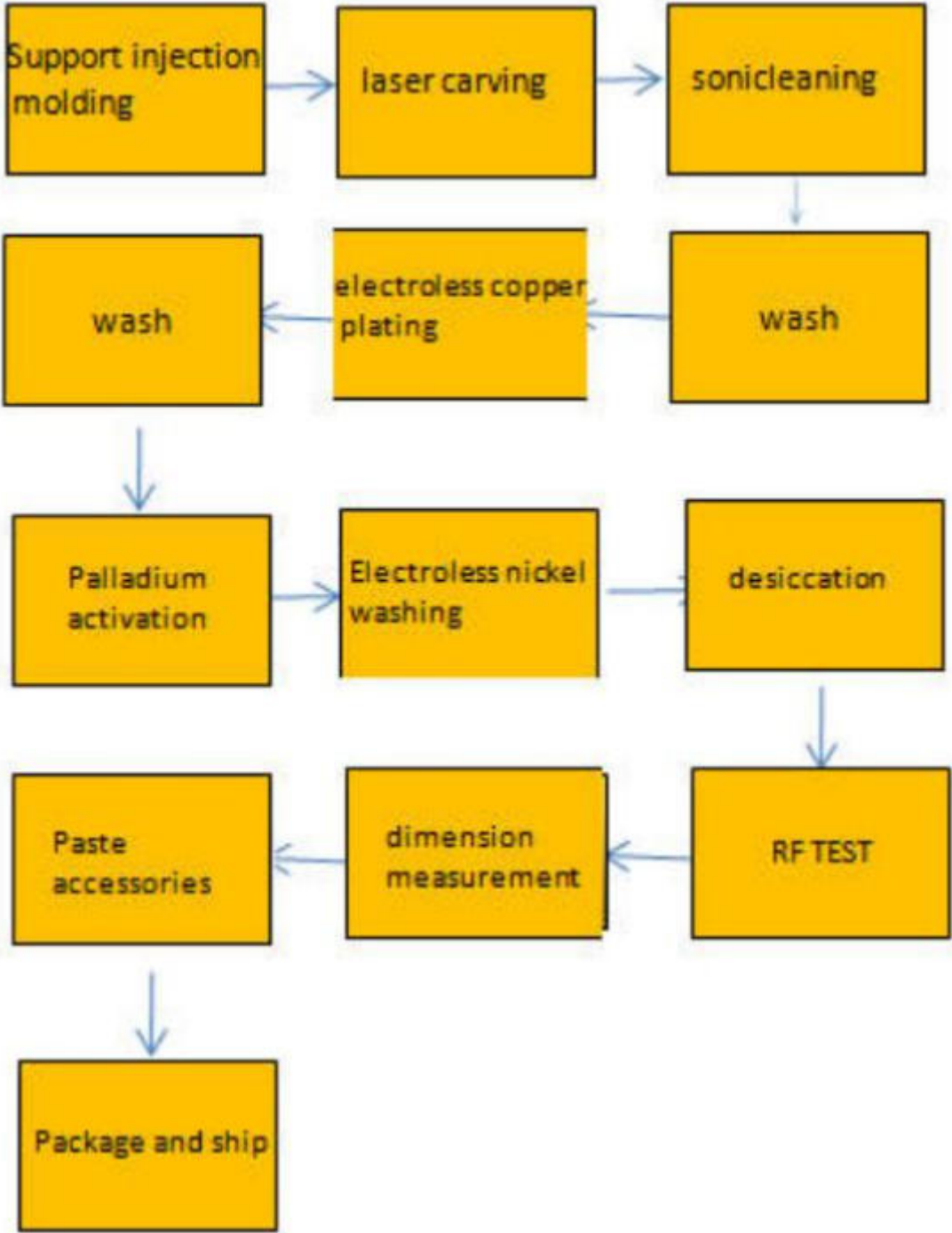


Full - sizemeasurementreport																								
Vendor(供应商)		Material Name	LDS			Part NO (料号)		320300000174			Tool Number(模号)		Cav. Number(穴数)				Unit(单位)					Comments(设计者签字)		
SUNNYWAY		Material Code	LDS			Part Name (零件名称)		Main antenna assembly					/				☐ INCHES ☒ MILLIMET							
Data		2025.4.8				MEASURED DIMENSION (实测尺寸)					% TOLERANCE USED (公差使用百分比)		DISPOSITION							ACCEPTABLE VARIANCE				
DIM. #	DIMENSION	DRAWING ZONE	+ TOL	- TOL	NOTE	SAMPL E 1	SAMPL E 2	SAMPL E 3	SAMPL E 4	SAMPL E 5	UPPER	LOWER	0%-25%	25%-50%	50%-75%	75%-100%	100%+	Re-Measure	Accept	Fix Tool	Accept With Variance	DIMENSION	+ TOL.	- TOL.
1	65.40		0.20	0.20		65.38	65.41	65.39	65.37	65.42		15%	X											
2	32.50		0.20	0.20		32.48	32.51	32.49	32.47	32.52		15%	X											
3	20.20		0.20	0.20		20.18	20.21	20.19	20.17	20.22		15%	X											
4	3.76		0.10	0.10		3.74	3.77	3.75	3.73	3.78		30%		X										
5	6.26		0.10	0.10		6.24	6.27	6.25	6.23	6.28		30%		X										
6	49.81		0.20	0.20		49.79	49.82	49.80	49.78	49.83		15%	X											
7	11.26		0.20	0.20		11.24	11.27	11.25	11.23	11.28		15%	X											
8	40.46		0.20	0.20		40.44	40.47	40.45	40.43	40.48		15%	X											
9	1.35		0.05	0.05		1.33	1.36	1.34	1.32	1.37		60%			X									
10	2.05		0.05	0.05		2.03	2.06	2.04	2.02	2.07		60%			X									
11	8.98		0.05	0.05		8.96	8.99	8.97	8.95	9.00		60%			X									
12	1.95		0.05	0.05		1.93	1.96	1.94	1.92	1.97		60%			X									
13	1.35		0.05	0.05		1.33	1.36	1.34	1.32	1.37		60%			X									
14	0.60		0.05	0.05		0.58	0.61	0.59	0.57	0.62		60%			X									
15	1.95		0.05	0.05		1.93	1.96	1.94	1.92	1.97		60%			X									
16	1.15		0.05	0.05		1.13	1.16	1.14	1.12	1.17		60%			X									
17	1.45		0.05	0.05		1.43	1.46	1.44	1.42	1.47		60%			X									
18	0.60		0.05	0.05		0.58	0.61	0.59	0.57	0.62		60%			X									
19	10.74		0.10	0.10		10.72	10.75	10.73	10.71	10.76		30%		X										
20	5.95		0.05	0.05		5.93	5.96	5.94	5.92	5.97		60%			X									
21	4.05		0.05	0.05		4.03	4.06	4.04	4.02	4.07		60%			X									
22	0.40		0.05	0.05		0.38	0.41	0.39	0.37	0.42		60%			X									
23	32.70		0.05	0.05		32.68	32.71	32.69	32.67	32.72		60%			X									
24	29.00		0.05	0.05		28.98	29.01	28.99	28.97	29.02		60%			X									
25	20.00		0.05	0.05		19.98	20.01	19.99	19.97	20.02		60%			X									
26	29.00		0.05	0.05		28.98	29.01	28.99	28.97	29.02		60%			X									
27	7.27		0.05	0.05		7.25	7.28	7.26	7.24	7.29		60%			X									

28	25.60		0.05	0.05		25.58	25.61	25.59	25.57	25.62		60%		X								
29	23.00		0.05	0.05		22.98	23.01	22.99	22.97	23.02		60%		X								
30	5.00		0.05	0.05		4.98	5.01	4.99	4.97	5.02		60%		X								
31	3.50		0.05	0.05		3.48	3.51	3.49	3.47	3.52		60%		X								
32	7.27		0.05	0.05		7.25	7.28	7.26	7.24	7.29		60%		X								
33	12.50		0.05	0.05		12.48	12.51	12.49	12.47	12.52		60%		X								
34	10.76		0.10	0.10		10.74	10.77	10.75	10.73	10.78		30%		X								
35	2.05		0.05	0.05		2.03	2.06	2.04	2.02	2.07		60%		X								
36	3.28		0.05	0.05		3.26	3.29	3.27	3.25	3.30		60%		X								
37	10.11		0.10	0.10		10.09	10.12	10.10	10.08	10.13		30%		X								
38	1.95		0.05	0.05		1.93	1.96	1.94	1.92	1.97		60%		X								
39	2.48		0.05	0.05		2.46	2.49	2.47	2.45	2.50		60%		X								
40	4.95		0.05	0.05		4.93	4.96	4.94	4.92	4.97		60%		X								
41	15.78		0.10	0.10		15.76	15.79	15.77	15.75	15.80		30%		X								
42	6.25		0.05	0.05		6.23	6.26	6.24	6.22	6.27		60%		X								
43	7.37		0.10	0.10		7.35	7.38	7.36	7.34	7.39		30%		X								
44	4.42		0.10	0.10		4.40	4.43	4.41	4.39	4.44		30%		X								
45	6.25		0.05	0.05		6.23	6.26	6.24	6.22	6.27		60%		X								
46	15.78		0.10	0.10		15.76	15.79	15.77	15.75	15.80		30%		X								
47	18.60		0.10	0.10		18.58	18.61	18.59	18.57	18.62		30%		X								
48	32.00		0.05	0.05		31.98	32.01	31.99	31.97	32.02		60%		X								
49	7.45		0.10	0.10		7.43	7.46	7.44	7.42	7.47		30%		X								
50	17.97		0.10	0.10		17.95	17.98	17.96	17.94	17.99		30%		X								
51	3.00		0.05	0.05		2.98	3.01	2.99	2.97	3.02		60%		X								
52	1.80		0.05	0.05		1.78	1.81	1.79	1.77	1.82		60%		X								
53	5.00		0.05	0.05		4.98	5.01	4.99	4.97	5.02		60%		X								

Process Flow Chart(制造流程图)

Customer(客户)	GUANGYI	Written By(制作)	林锋	Orig. Date(制作日期)	2025.4.8
Part Number(料号)	320300000174	Revised By(校订)	于姜	Revised Date(校订日期)	2025.4.8
Description(零件名称)	Main antenna assembly	Approved By(确认)	曹进茂	Approved Date(确认日期)	2025.4.8



RoHS 2.0 Restricted Substance Composition Survey Form

SALEABLE PART	
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Part number	Part name/model	Supplier material number	Manufacturer's name	The green material identification method for suppliers
320300000174	Main antenna assembly	SH24285IB87-1	SUNNYWAY	RoHS

SUB-PART	
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[illegible]

produce : weiyueli	check: chenxiaoping	data : 2025.4.8
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produce : weiyueli	check: chenxiaoping	data : 2025.4.8
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produce : weiyueli	check: chenxiaoping	data : 2025.4.8
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BOM

受

■ ROHS2.0

serial number	Part number	name of parts	Part Description	name of the supplier	Supplier model	quantit y	YES/NO ROSH	备注 Remark
1	320300000174	Main antenna assembly	LDS	sunnyway	SH24285IB87-1	1	YES	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

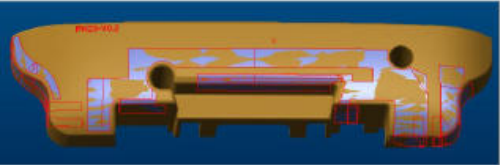
produce : weiyueli

check: chenxiaoping

data : 2025.4.8

manner of packing

1.Single product packaging photos or 2D images (for materials with individual packaging)



2. Single-layer product packaging photos or 2D images (demonstrating neatness and reliability)

reference picture



product name

Main antenna assembly

Product material number

320300000174

material description

Description of packaging methods or packaging materials

Pallet + carton

The quantity of packaging inside the box

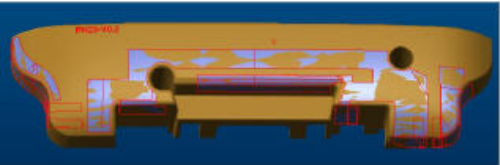
The quantity of each layer or each package

The number of layers or packages

The quantity of each box

remark

3. Photos of all layers of products placed inside the box (demonstrating sealing and



4. Overall photos or 2D images of the entire box after sealing (overall sealing status)

reference picture



5. Single package product labels (material number, product name, quantity, etc.)

customer name:	Shanghai Guangyi Zhilian Technology Co., LTD
product name:	FH22
order number:	
Shangyuan Technology Coding:	SH24285IB87-1
Customer material code:	320300000174
quantity:	1PCS
supplier:	Sunnyway Technology Co.,Ltd
inspector:	
delivery date:	

6. Outer box labels (material number, product name, quantity and other information)

customer name:	Shanghai Guangyi Zhilian Technology Co., LTD
product name:	FH22
order number:	
Shangyuan Technology Coding:	SH24285IB87-1
Customer material code:	320300000174
quantity:	1PCS
supplier:	Sunnyway Technology Co.,Ltd
inspector:	
delivery date:	

1. Prepare the required packaging materials and place them in a favorable position for work. W n2. According to the packaging specification of SYC-BZ01, use cartons (SYC-01) and pallets for packaging. 3. Each box is subject to the actual packaging

Supplier's signature

chenxiaoping

data

2025.5.20