

Shenzhen 3good Wireless Technology Co., Ltd

Specification

客户 Customer	乐目	规格型号 Specs	EA530
三好料号 Part Number		频 段 Frequency Band	BT&2.5G WIFI:2400~2483.5MHZ 5G WIFI:5100~5800MHZ GSM850/900/1800/1900 WCDMA1/2/4/5/8 B1.2.3.4.5.7.8.12.17.19.20.28.66.38.39.40.41.66
颜 色 Color	black	版 本 Edition	
销 售 Salesperson		设 计 Design	官炳坤
结 构 Structure	李富伦	确 认 Confirm	周武
日 期 Date		签字日期 Signing Date	
客户确认 Customer confirmation:			
Join hands to create the future			

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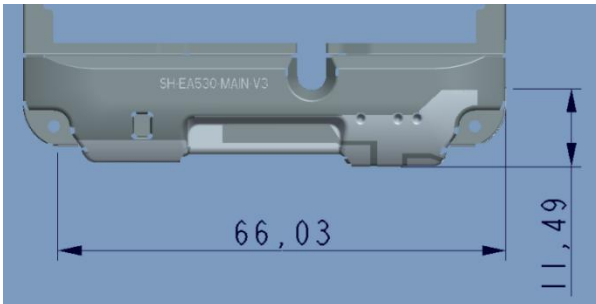
目录

一、产品规格(Product specification).....	3
二、电器性能(Electrical performance).....	3
1.规格标准(Specification standard).....	3
2.天线的匹配电路(Matching circuit).....	3
三、参数的测试(Parameter test).....	4
1.测试的设置(Test settings).....	4
2.测试结果(Test result).....	4
四、有源测试的设置(Active test setup).....	5
1.测试的场地(Test site).....	5
2.测试结果(Test result).....	5
3.环境处理 Environmental treatment.....	5

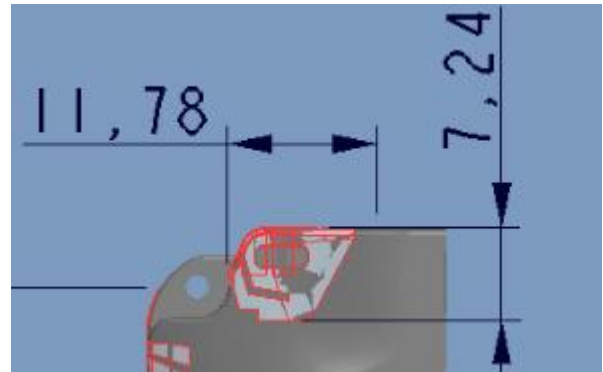
一、Product specifications

The report mainly provides parameter tests of S105 antenna performance. S105 antenna is 4G antenna. (As shown in the figure below)

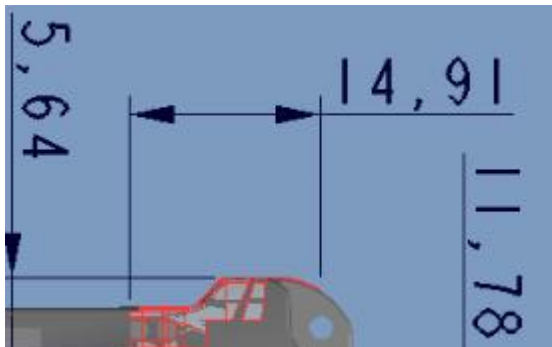
Main set antenna



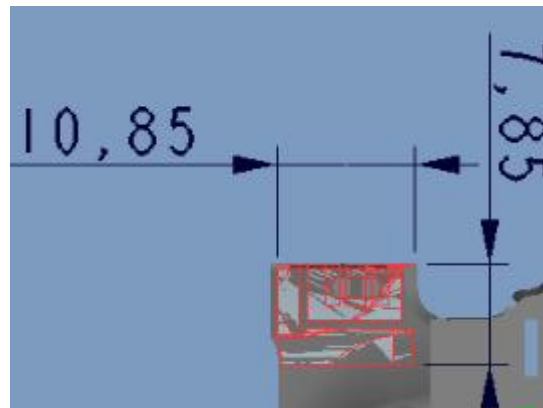
GPS antenna



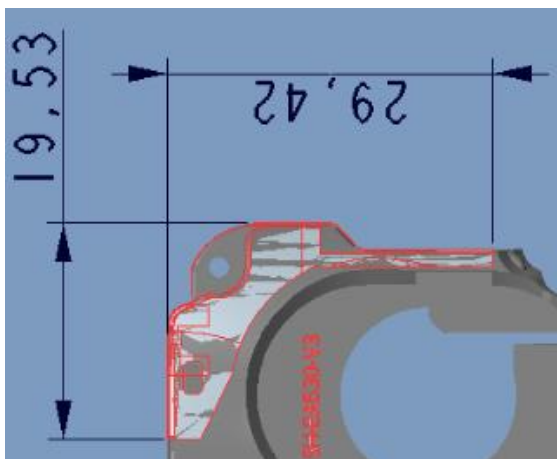
WIFI 0 antenna



WIFI 1 antenna



Diversity antenna

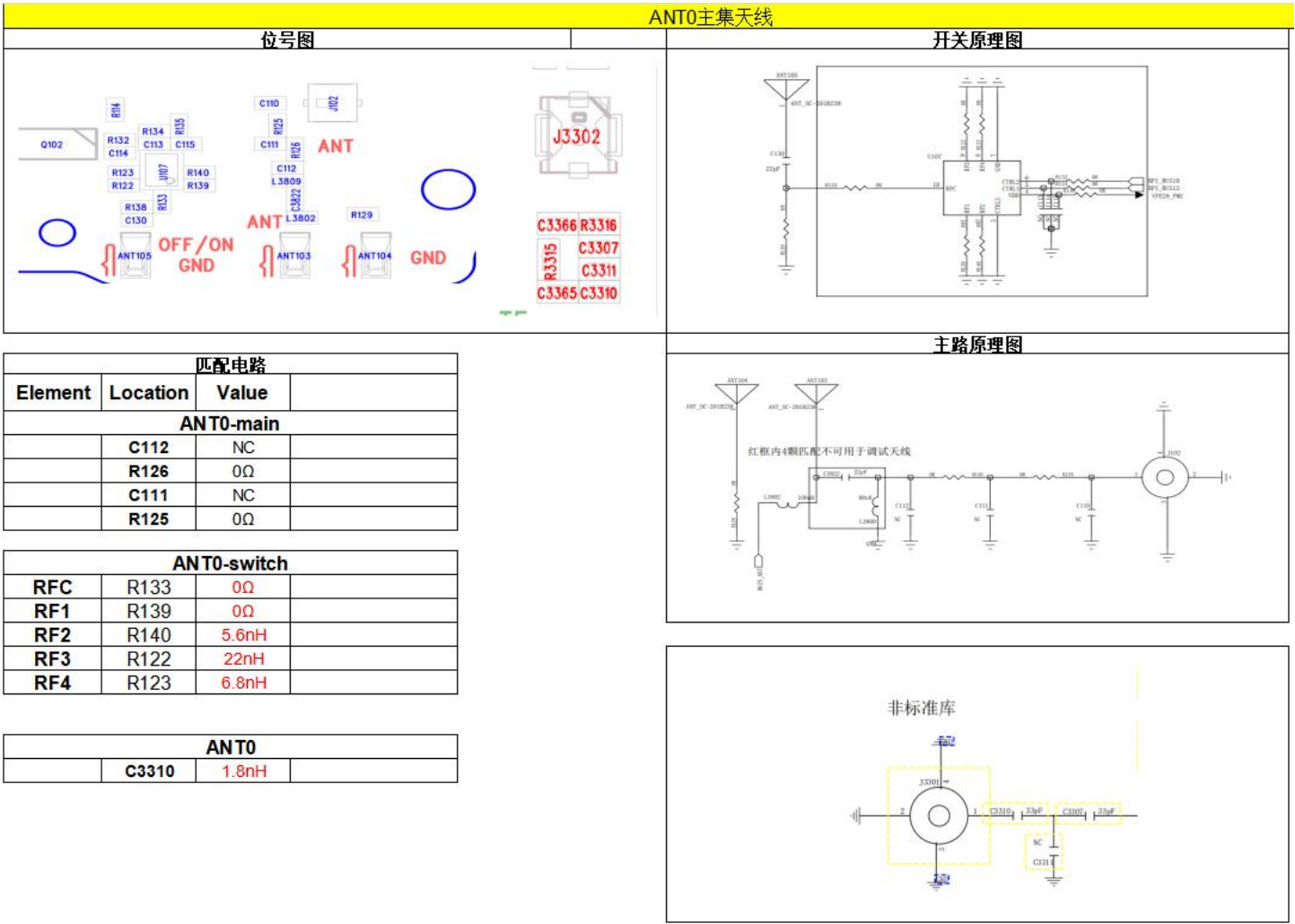


二、Electrical performance

1.Specifications

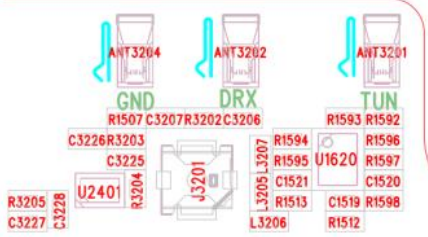
The operating frequency band of EA530 antenna is 699~960MHZ and 1710~2700MHZ, in which resonance occurs.

2.Matching circuit of antenna

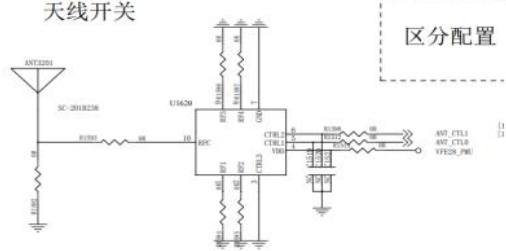


ANT1分集天线（小电池）

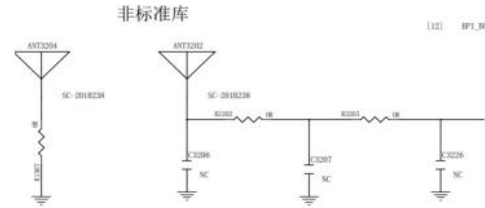
位号图



开关原理图



主路原理图



匹配电路

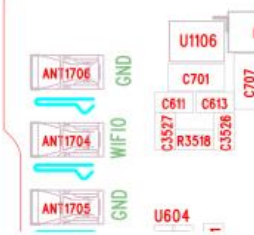
Element	Location	Value
ANT1-main		
	C3206	18nH
	R3202	0Ω
	C3207	NC
	R3203	0Ω
	C3226	NC

ANT1-switch

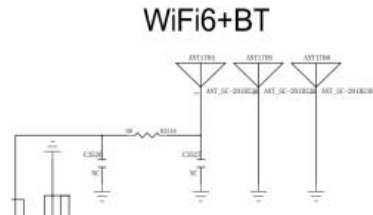
Element	Location	Value
RFC	R1593	0Ω
RF1	R1594	0Ω
RF2	R1595	5.6nH
RF3	R1596	18nH
RF4	R1597	6.8nH

WIFI 0天线

位号图



主路原理图

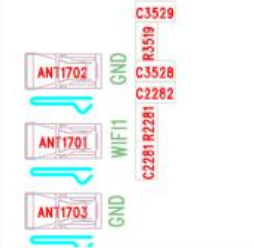


匹配电路

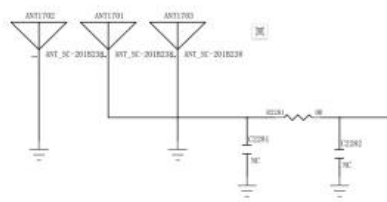
Element	Location	Value
WIFI 0-main		
	C3527	NC
	R3518	0Ω
	C3526	NC

WIFI 1天线

位号图



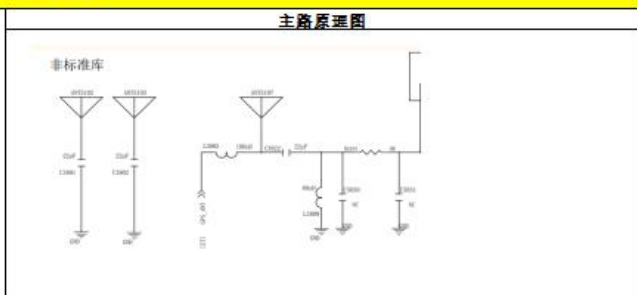
主路原理图



匹配电路

Element	Location	Value
WIFI 0-main		
	C2281	NC
	R2281	0Ω
	C2282	NC
	C3528	NC
	R3519	0Ω
	C3529	NC

GPS天线



匹配电路		
Element	Location	Value
WIFI 0-main		
	C5030	15nH
	R5101	2.7pF
	C5031	NC

Structure of antenna: FPC

三、Test of parameters

1.Test settings

The connection of VSWR test device is:

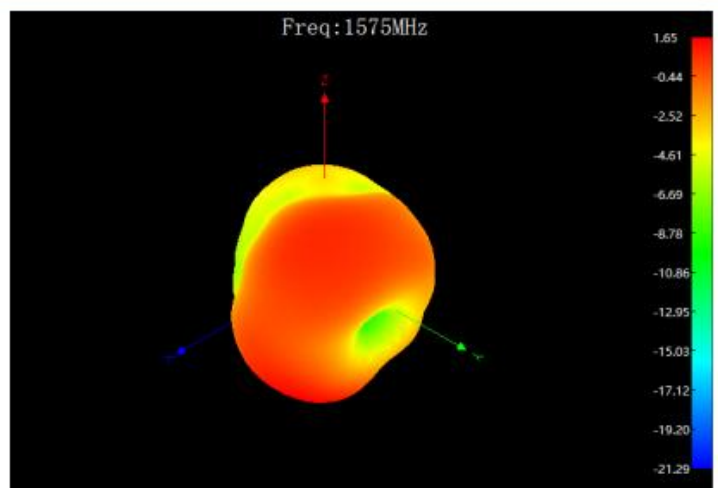
E5071B network analyzer → 50 Ohmic coaxial Cable → 110mm Long copper tube → Test fixture

Treatment of test fixture: Use a hard cable to lead out the SMA-J connector from the 50 ohm test point of the antenna on the mobile phone PCB, connect it to the copper tube with a choke, and then connect other devices in turn.

GPS/WIFI/BTPassive parameters of antenna:

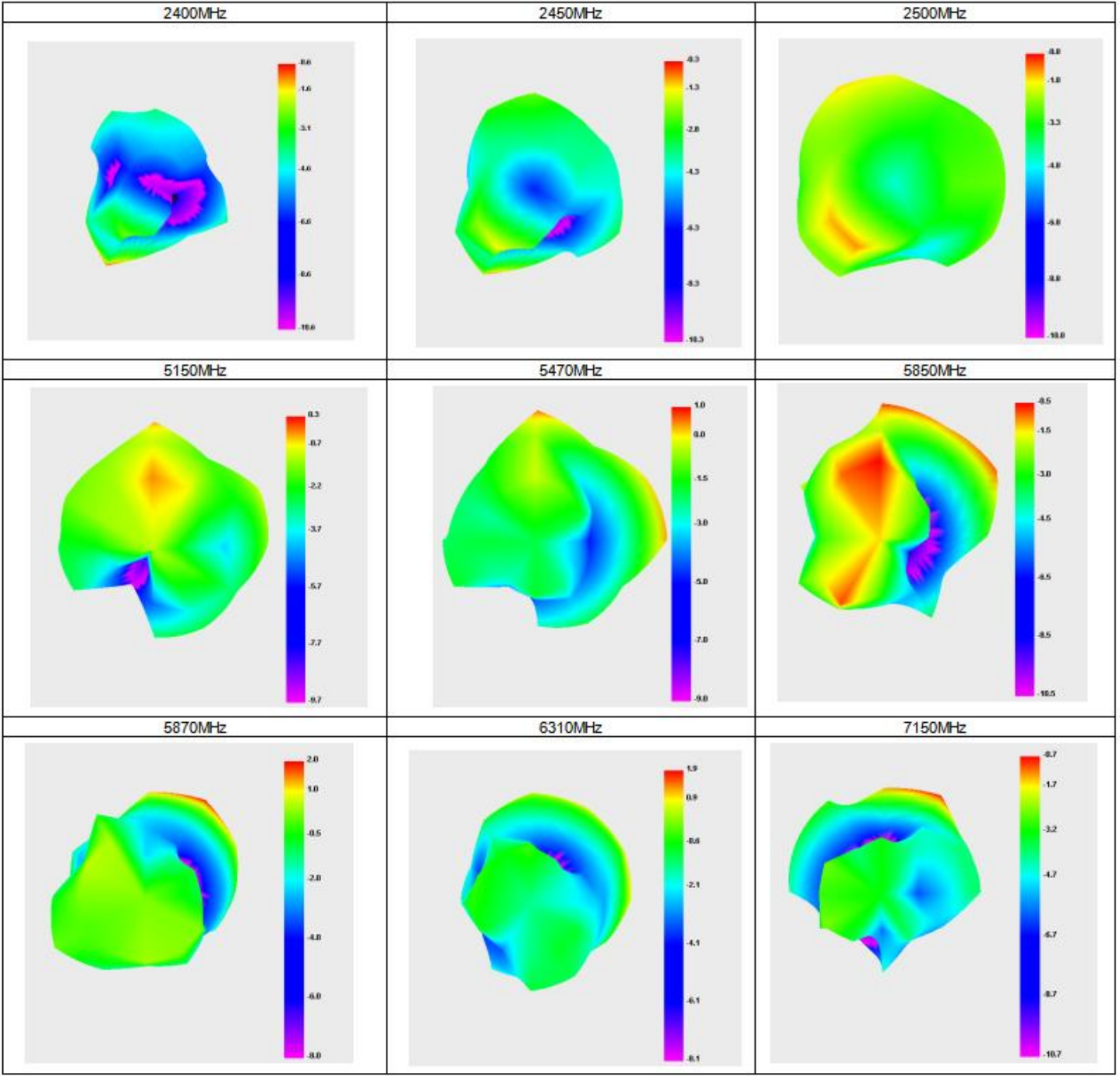
工作频段(Working frequency band): 1560~1580MHZ, 2400~2500MHZ, 5180~8525MHZ

GPS L1			
Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)
1550	-3.62	43.45	1.65
1555	-3.49	44.77	1.77
1560	-3.48	44.87	1.79
1565	-3.56	44.06	1.84
1570	-3.54	44.26	1.87
1575	-3.88	40.93	1.65
1580	-3.59	43.75	1.87
1585	-4.19	38.11	1.36
1590	-3.56	44.06	2.03
1595	-4.39	36.39	1.28
1600	-3.63	43.35	2.11



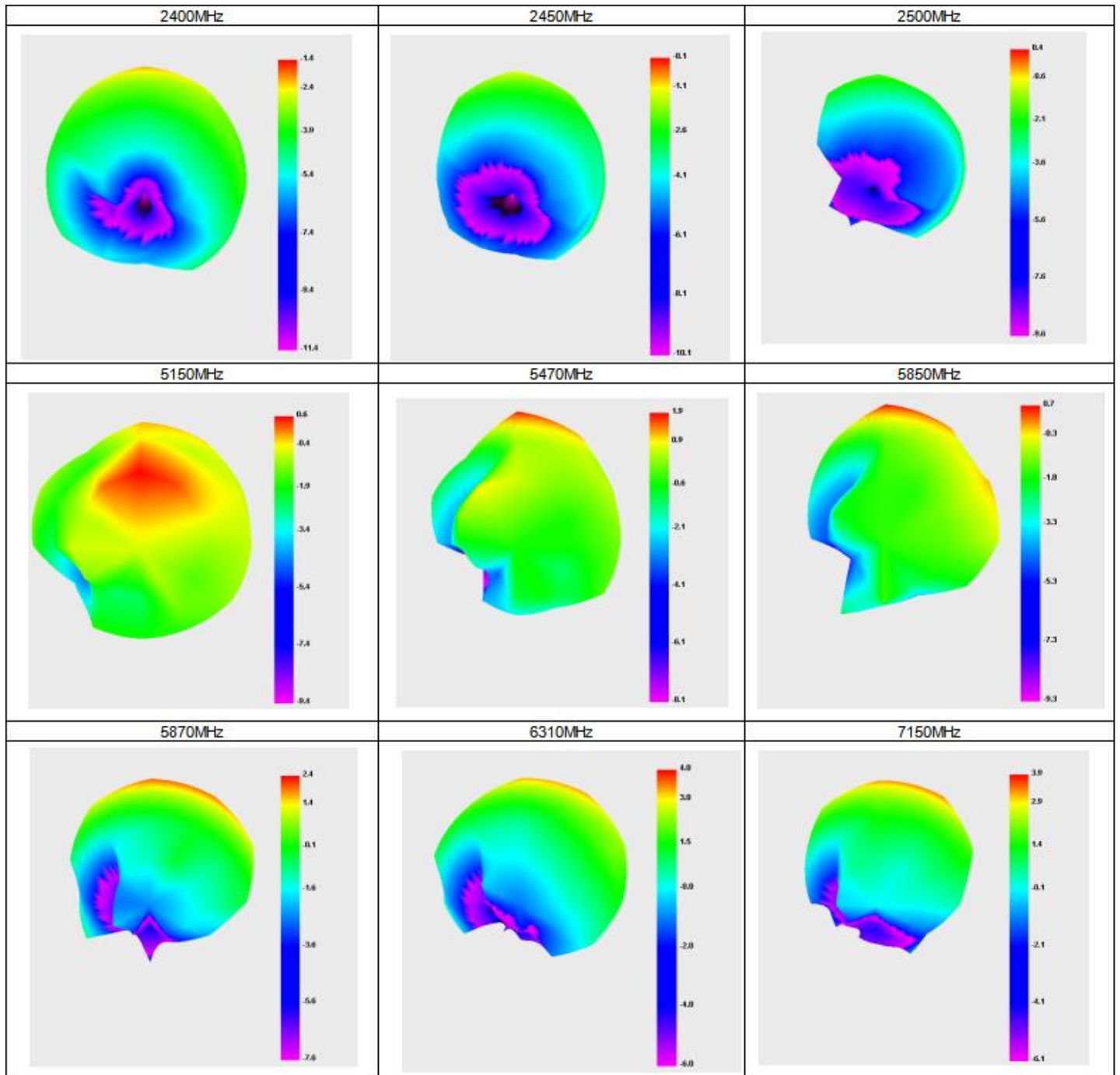
WiFi0

Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)	Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)	Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)
2400	-4.69	33.99	-0.63	5750	-4.03	39.58	-0.39	6590	-5.04	31.32	1.12
2410	-4.66	34.19	-0.53	5770	-4.08	39.07	-0.11	6610	-5.12	30.76	0.71
2420	-4.74	33.58	-0.61	5790	-4.02	39.65	0.01	6630	-5.11	30.82	0.8
2430	-4.69	34	-0.65	5810	-4.06	39.23	-0.51	6650	-4.89	32.43	1.14
2440	-4.49	35.56	-0.36	5830	-4.06	39.3	-0.61	6670	-4.98	31.78	0.8
2450	-4.41	36.19	-0.32	5850	-3.94	40.33	-0.48	6690	-5.12	30.77	0.69
2460	-4.44	35.98	-0.54	5870	-3.74	42.31	2.03	6710	-5.39	28.9	1.98
2470	-4.65	34.31	-0.78	5890	-3.85	41.18	2.24	6730	-5.41	28.8	2.14
2480	-4.52	35.3	-0.72	5910	-4.11	38.85	1.89	6750	-5.68	27.06	1.24
2490	-4.3	37.16	-0.54	5930	-4.18	38.17	1.72	6770	-5.38	28.96	1.84
2500	-4.46	35.84	-0.76	5950	-4.14	38.58	2.05	6790	-5.6	27.54	1.38
5150	-3.92	40.57	0.32	5970	-3.99	39.9	2.33	6810	-5.48	28.31	1.56
5170	-4.07	39.19	0.17	5990	-4.03	39.55	2.36	6830	-5.55	27.86	1.39
5190	-3.79	41.82	0.52	6010	-4.3	37.13	2.26	6850	-5.6	27.55	1.39
5210	-3.58	43.82	0.71	6030	-4.43	36.06	1.64	6870	-5.83	26.12	0.82
5230	-3.66	43.08	0.74	6050	-4.3	37.19	2.1	6890	-5.74	26.65	1.08
5250	-3.56	44.08	0.97	6070	-4.3	37.15	2.14	6910	-5.93	25.55	0.67
5270	-3.6	43.7	0.91	6090	-4.17	38.26	2.24	6930	-5.76	26.52	0.73
5290	-4.01	39.76	0.53	6110	-4.35	36.69	1.98	6950	-5.9	25.72	0.39
5310	-3.24	47.47	1.63	6130	-4.3	37.12	2.11	6970	-5.86	25.94	0.44
5330	-3.29	46.9	1.64	6150	-4.53	35.25	1.81	6990	-5.92	25.61	0.7
5350	-3.24	47.4	1.42	6170	-4.51	35.36	1.59	7010	-6.16	24.2	0.38
5370	-3.31	46.69	1.53	6190	-4.47	35.69	2.08	7030	-6.46	22.57	-0.04
5390	-3.38	45.94	1.51	6210	-4.56	34.96	2.03	7050	-6.23	23.84	-0.14
5410	-3.42	45.55	1.38	6230	-4.73	33.62	1.75	7070	-6.71	21.34	-0.75
5430	-3.49	44.81	1.29	6250	-4.85	32.7	1.55	7090	-6.22	23.88	0.08
5450	-3.43	45.35	1.11	6270	-4.67	34.11	1.77	7110	-6.77	21.04	-0.17
5470	-3.45	45.14	1.03	6290	-4.56	34.96	2.06	7130	-6.82	20.8	-0.2
5490	-3.48	44.84	1.08	6310	-4.76	33.39	1.88	7150	-7.15	19.28	-0.69
5510	-3.6	43.7	1.03	6330	-4.68	34	1.67				
5530	-3.64	43.22	0.62	6350	-4.85	32.7	1.63				
5550	-3.6	43.68	0.49	6370	-4.79	33.21	1.65				
5570	-3.65	43.14	0.61	6390	-4.86	32.65	1.66				
5590	-3.75	42.14	0.65	6410	-4.83	32.92	1.6				
5610	-3.82	41.45	0.41	6430	-4.97	31.88	1.46				
5630	-3.92	40.53	0.46	6450	-4.96	31.9	1.32				
5650	-3.9	40.69	0.27	6470	-5	31.64	1.4				
5670	-3.93	40.45	0.1	6490	-5.02	31.51	1.35				
5690	-4.02	39.63	-0.11	6510	-4.97	31.84	1.04				
5710	-4	39.81	-0.07	6530	-5.02	31.51	1.16				
5730	-4.04	39.49	0.28	6550	-4.9	32.34	1.31				
				6570	-5.02	31.47	1.11				



WiFi1

Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)	Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)	Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)
2400	-6.07	24.74	-1.36	5750	-4.23	37.75	1.71	6590	-3.42	45.46	4.1
2410	-5.93	25.55	-1.16	5770	-4.41	36.21	1.56	6610	-3.37	46.05	4.3
2420	-5.88	25.85	-0.75	5790	-4.54	35.17	1.47	6630	-3.37	46.06	4.23
2430	-5.69	27	-0.21	5810	-4.62	34.51	1.49	6650	-3.28	47.04	4.38
2440	-5.78	26.44	-0.08	5830	-4.74	33.56	0.87	6670	-3.49	44.81	4.16
2450	-5.67	27.11	0.17	5850	-4.82	32.94	0.71	6690	-3.44	45.26	4.19
2460	-5.76	26.57	0.32	5870	-3.84	41.35	2.4	6710	-3.46	45.08	4.24
2470	-5.83	26.09	0.43	5890	-3.83	41.43	2.53	6730	-3.19	48.02	4.68
2480	-5.71	26.85	0.62	5910	-3.72	42.43	2.76	6750	-3.14	48.55	4.79
2490	-5.67	27.09	0.81	5930	-3.76	42.03	2.78	6770	-3.4	45.67	4.54
2500	-6.09	24.62	0.4	5950	-3.63	43.31	3	6790	-3.56	44.02	4.31
5150	-4.93	32.14	0.64	5970	-3.41	45.61	3.27	6810	-3.25	47.27	4.54
5170	-4.8	33.13	0.52	5990	-3.38	45.92	3.39	6830	-3.32	46.51	4.75
5190	-4.73	33.62	0.73	6010	-3.39	45.78	3.13	6850	-3.28	47.04	4.77
5210	-4.77	33.36	0.49	6030	-3.43	45.36	3.47	6870	-3.36	46.13	4.56
5230	-4.7	33.89	0.36	6050	-3.4	45.7	3.44	6890	-3.53	44.39	4.41
5250	-4.69	33.95	0.41	6070	-3.29	46.89	3.71	6910	-3.6	43.64	4.28
5270	-4.77	33.33	0.31	6090	-3.11	48.84	3.74	6930	-3.45	45.14	4.48
5290	-4.54	35.14	0.36	6110	-3.03	49.75	3.96	6950	-3.42	45.55	4.68
5310	-4.35	36.69	0.69	6130	-3.08	49.23	3.92	6970	-3.56	44.06	4.35
5330	-4.53	35.22	0.7	6150	-3.29	46.87	3.85	6990	-3.71	42.59	4.14
5350	-4.26	37.5	0.95	6170	-3.27	47.13	3.89	7010	-3.52	44.48	4.26
5370	-4.17	38.29	0.96	6190	-3.12	48.73	4.2	7030	-3.7	42.65	4.1
5390	-4.13	38.6	1.06	6210	-3.09	49.13	4.02	7050	-3.57	43.92	4.14
5410	-4.06	39.24	1.28	6230	-3.04	49.62	4.17	7070	-3.6	43.7	3.87
5430	-4.06	39.25	1.31	6250	-3.1	48.93	4.03	7090	-3.58	43.81	4.02
5450	-4.33	36.93	1.13	6270	-3.21	47.73	3.96	7110	-3.59	43.75	3.86
5470	-3.59	43.76	1.92	6290	-3.24	47.45	3.83	7130	-3.6	43.69	3.85
5490	-3.61	43.59	1.95	6310	-3.29	46.86	3.97	7150	-3.66	43.05	3.86
5510	-3.65	43.13	2.03	6330	-3.29	46.86	3.98				
5530	-3.61	43.59	1.88	6350	-3.24	47.45	4.01				
5550	-3.62	43.44	2.08	6370	-3.23	47.54	4.05				
5570	-3.79	41.82	2.03	6390	-3.25	47.3	3.85				
5590	-3.85	41.21	2.04	6410	-3.29	46.93	4.13				
5610	-3.86	41.12	1.83	6430	-3.44	45.29	3.61				
5630	-3.86	41.15	1.98	6450	-3.32	46.55	3.94				
5650	-3.83	41.43	1.87	6470	-3.33	46.44	3.97				
5670	-3.94	40.4	1.86	6490	-3.3	46.72	3.85				
5690	-4.07	39.18	1.72	6510	-3.43	45.37	3.96				
5710	-4.1	38.9	1.65	6530	-3.35	46.19	4.09				
5730	-4.14	38.54	1.83	6550	-3.47	44.94	4.03				
				6570	-3.31	46.67	4.14				

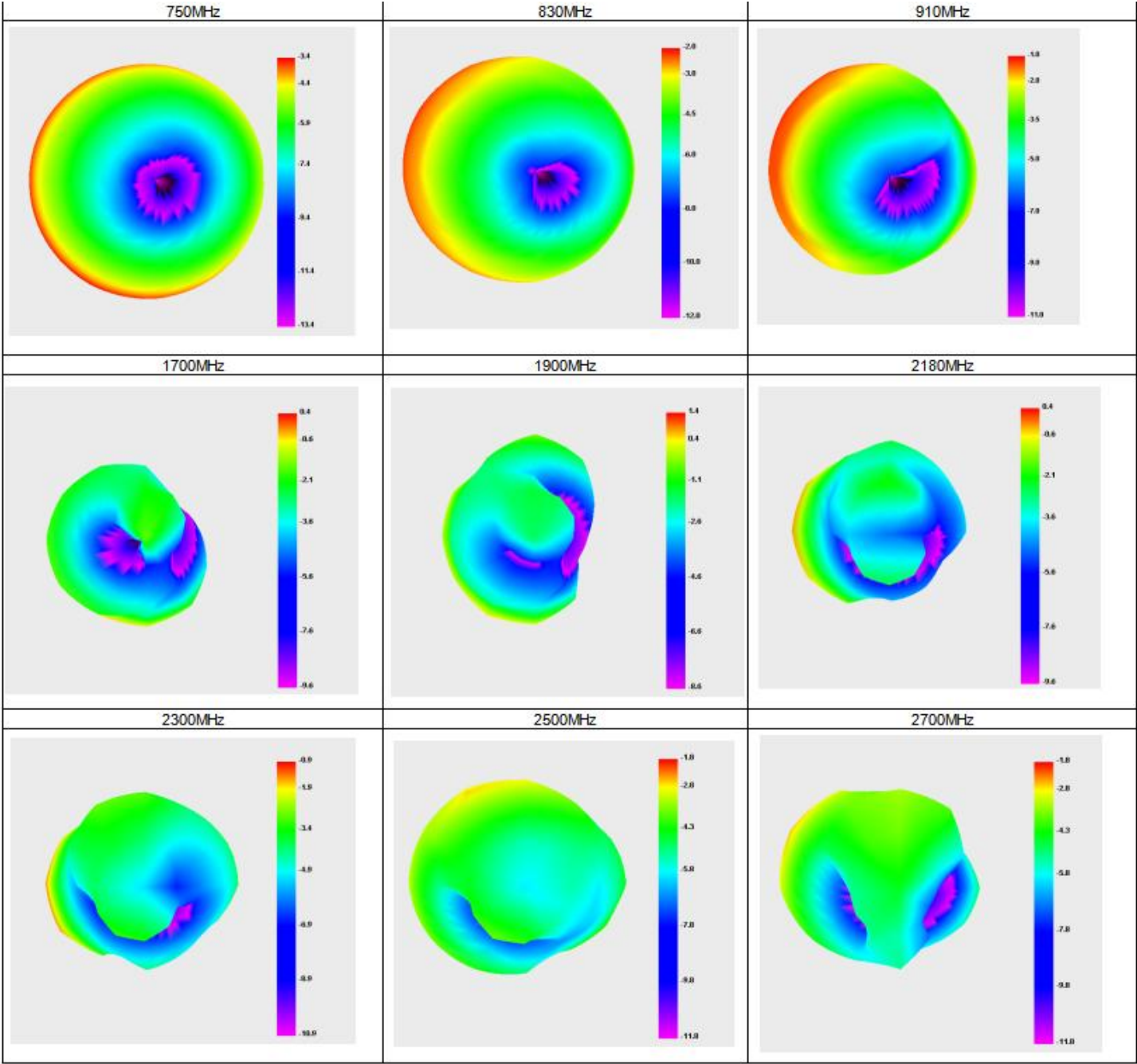


Passive parameters of main antenna:

工作频段(Working frequency band): 699~960MHZ, 1710~2700MHZ

主天线

Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)	Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)	Freq (MHz)	Ave Gain (dB)	Effi (%)	Peak Gain (dBi)
700	-9.02	12.52	-5.06	1700	-4.53	35.25	0.45	2200	-5.18	30.33	0.28
710	-7.67	17.12	-4.13	1720	-4.52	35.32	0.5	2220	-5.2	30.21	0.11
720	-6.72	21.3	-3.66	1740	-4.22	37.82	0.69	2240	-5.28	29.63	-0.09
730	-5.93	25.5	-2.88	1760	-4.22	37.84	0.64	2260	-5.38	28.98	-0.29
740	-6.28	23.57	-3.36	1780	-4.13	38.6	0.71	2280	-5.57	27.74	-0.42
750	-6.3	23.42	-3.39	1800	-3.82	41.53	1.13	2300	-5.91	25.67	-0.93
760	-7.07	19.63	-4.42	1820	-3.73	42.36	1.33	2320	-5.93	25.5	-1.02
770	-7.6	17.37	-5.16	1840	-3.64	43.29	1.55	2340	-5.89	25.78	-1.08
780	-6.68	13.55	-5.86	1860	-4.07	39.21	1.35	2360	-5.65	27.24	-0.88
790	-5.99	25.15	-3.35	1880	-4.12	38.74	1.41	2380	-5.63	27.33	-0.84
800	-6	25.1	-3.5	1900	-4.08	39.11	1.44	2400	-5.8	26.28	-1.03
810	-4.97	31.85	-2.48	1920	-4.35	36.72	1.1	2420	-5.99	25.2	-1.15
820	-4.85	32.7	-2.29	1940	-4.56	35.02	1.08	2440	-5.97	25.28	-1.25
830	-4.68	34.01	-1.96	1960	-4.81	33.02	0.86	2460	-6.06	24.8	-1.25
840	-4.63	32.88	-2.26	1980	-4.88	32.53	0.89	2480	-5.94	25.44	-1.24
850	-4.63	34.45	-1.97	2000	-4.92	32.21	0.87	2500	-6.65	21.63	-1.76
860	-5.01	31.54	-2.15	2020	-5.09	30.94	0.75	2520	-6.65	21.63	-1.83
870	-5.61	27.47	-2.56	2040	-5.06	31.18	0.81	2540	-6.52	22.27	-1.69
880	-6.31	23.4	-3.56	2060	-5.12	30.73	0.75	2560	-6.32	23.32	-1.67
890	-5.58	27.67	-2.77	2080	-5.13	30.71	0.7	2580	-6.48	22.47	-1.88
900	-4.65	34.32	-1.92	2100	-5.03	31.39	0.8	2600	-6.66	21.56	-2.06
910	-3.79	41.81	-1.01	2120	-4.96	31.89	0.79	2620	-7.08	19.58	-2.45
920	-3.76	42.03	-0.71	2140	-4.98	31.76	0.66	2640	-6.67	21.53	-2.13
930	-3.93	40.45	-0.87	2160	-4.99	31.73	0.67	2660	-6.47	22.54	-2.09
940	-4.83	32.86	-1.76	2180	-5.12	30.77	0.45	2680	-6.12	24.42	-1.77
950	-5.96	25.34	-2.86					2700	-6.13	24.36	-1.82
960	-6.98	20.02	-3.76								

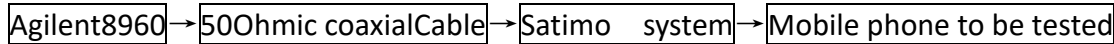


2.test result

business as usual.

四、Active test setup

The active test devices are sequentially connected as follows:



1.Test site

microwave anechoic chamber: the test frequency range is 400MHz - 6GHz, the quiet zone range is 40cm circumference, and the reflectivity is less than - 90 dB.

2.test result

The maximum radiation power and maximum receiving sensitivity reflect the maximum power radiation value and the optimal receiving performance of the antenna in the entire radiation space. TRP and TIS reflect the average radiation power and average receiving sensitivity of the antenna, that is, the overall receiving performance of the antenna.

The following is the active test result of EA530 mobile phone main antenna:

GSM		客户标准		1#	
	CH			TRP	TIS (灭)
GSM850	128	26	-102.5	27.53	
	190			27.79	
	251			26.65	-103.2
EGSM900	1	26	-102.5	26.7	
	62			26.84	
	124			26.82	-103.9
DCS1800	512	25	-105	25.72	
	698			26.92	
	885			26.79	-106.18
PCS1900	512	25	-105	27.19	
	661			27.6	
	810			27.23	-106.03

WCDMA		客户标准		1#	
B1	10562	19	-106	23.01	
	10700			20	
	10838			19.84	-106.82
B2	9626	19	-106	20.2	
	9400			21	
	9538			21.8	-107.07
B4	1312	19	-106	20.24	
	1412			20.77	
	1512			20.34	-107.81
B5	4132	18	-104	17.79	
	4183			18.71	
	4233			19.34	-104.47
B8	2937	17	-104	18.22	
	3013			19.78	
	3088			18.64	-105.98

LTE		客户标准		1#	
	CH	TRP	TIS	TRP	TIS (天)
B1	18050	19	-93.5	22.93	
	18300			21.52	
	18550			20.1	-94.12
B2	18650	20	-93.5	21.26	
	18900			21.47	
	19150			22.3	-95.45
B3	19250	19	-93.5	22.1	
	19575			21.45	
	19900			21.38	-96.24
B4	20000	20	-93.5	22.06	
	20175			21.56	
	20300			21.35	-94.78
B5	20450	18	90.5 (ATT)	18.47	
	20525			19.64	
	20600		93.5(VZW)	20.5	-94.1
B7	20800	18.5	-93.5	19.3	
	21100			19.27	
	21400			19.65	-94.77
B8	21500	17	-91	19.82	
	21625			20.8	
	21750			19.35	-92.42
B12 (5M)	23035	18	-92.5	18.43	
	23095			18.29	
	23155			18.24	-94.92
B17	23780	18	-90.5	18.77	
	23790			18.81	
	23800			18.49	-92.29
B19	24050	17	-91	18.22	
	24075			18.73	
	24100			19.05	-93.41
B20	24200	17	-91	19.14	
	24300			18.65	
	24400			19.74	-93.56
B28	27260	17	-91	18.51	
	27435			18.77	
	27610			18.38	-92.82
B38 (10M)	37850	18.5	93.5 (10M)	19.71	
	38000			19.81	
	38150			19.57	-92.21
B39 (10M)	38350	19	93 (10M)	21.7	
	38450			22.8	
	38550			22.19	-93.13
B40 (10M)	38750	18.5	93.5 (10M)	19.67	
	39150			18.64	
	39550			20.31	-92.71
B41 (10M)	40340	18.5	93.5 (10M)	20.08	
	40620			20.17	
	41140			19.08	-94.04
B66	132022	20	-94.5	21.92	
	132322			21.29	
	132622			21.08	-94.77

2-1.Three in one test results



制式	测试带宽	测试速率	速率等级	EVB-功率 (单路)	EVB-灵敏度 (单路)	正基带测-功率 (合路)	正基带测-灵敏度 (合路)	CH	1#	
									TRP	TIS
11b	20M	TX:1Mbps RX:11Mbps		19.5	-89.0	20.5	-91.0	1	15.99	-81.98
								7	16.34	-81.57
								11	15.88	-83.19
11g	20M	TX:6Mbps RX:54Mbps		18.5	-76.0			1	16.2	-69.75
								7	16.22	-71.28
								11	15.81	-72.99
11n	20M	TX:6.5Mbps RX:65Mbps	MCS0	18.5	-76.0	21.3	-76.5	1	16.8	-72.41
								7	16.74	-72.75
								11	16.9	-73.88
11ax	20M	TX:8Mbps RX:81Mbps	MCS0	18.5	-75.0	19.3	71 (MCS9)	1	17.03	-73.84
								7	16.87	-73.85
								11	16.8	-73.84
11a	20M	TX:6Mbps RX:54Mbps		15.5	-77.0	18.5	-74.0	36	15.5	-69.57
								149	14.68	-68.68
								165	14.47	-70.92
11an	20M	TX:6.5Mbps RX:65Mbps	MCS0	15.5	-72.0	18.5	-74.0	36	14.38	-68.35
								149	14.72	-70.14
								165	15.28	-68.61
11ac	20M	TX:6.5Mbps RX:65Mbps	MCS0	15.5	-70.0	19.0	-70.0	36	15.7	-70.23
								149	14.94	-71.24
								165	14.67	-71.11
11ax	20M	TX:8Mbps RX:81Mbps	MCS1	15.5	-73.0	18.5	59(MCS11)	36	15.64	-70.92
								149	14.06	-70.04
								165	13.83	-68.77
6e	20M	TX:MCS0 RX:MCS7	8M	15.5	-68.0	18.5	56(MCS11)	1	7.53	-51.23
								116	6.58	-51.88
			135M					177	连不上	连不上

2-2.蓝牙测试（Bluetooth Test）：

10 meters online listening to music, making calls smoothly without interruption

Join Hands To Create The Future

Specification 规格书

1.1 General Standard 常规标准

General Specification	
Model name类型	EA530
Antenna type天线类型	NFC天线

1.2 Packing, Shipping, Handling, Antenna Manufacturer 包装, 运输, 处理, 天线厂商

1.2.1 Exterior Option 外观项目

1. The names of the customers and manufacturers should be indicated.

要求客户以及制造者的名字都要注明.

1.2.2 Packing 包装

1. The products should be carefully packed, in order to avoid collision and vibration in transit.

产品应该小心包装,以免在运输过程中发生碰撞以及震动.

2. The Packing material should be a paper box, and this type of carton cannot damage the products in the box.

包装箱的材料应该是纸箱子,且这种类型的纸箱不能对箱子里面的产品产生损坏.

1.2.3 Manufacturer 生产厂商

1. Shenzhen Haidemen Electronics Co., Ltd..

深圳市海德门电子有限公司.

2. Sunlord Industrial Park, Dafu Industrial Zone, Guanlan Town, Longhua New

District, Shenzhen City, Guangdong Province 广东省深圳市龙华新区观澜镇大富工业区

顺络工业园

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

