

Introduction to applied laboratory testing equipment

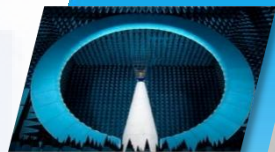
The company introduced the highest configuration of comprehensive tester CMW500

Test 2G, 3G, 4G, WIFI, BT, NB-IOT





Antenna testing equipment



/GTS 3Dlaboratory:

It belongs to the near field testing lab

/ ETS 3Dlaboratory:

It belongs to the far-field test

/ Network Analyzer 5071C/A338/8753E (Test passive)

/ Comprehensive tester CWM500 (active test) 8852 (conduction test)

/ 1 generation 2 generation head ear test model



TECHNICAL SERVICE



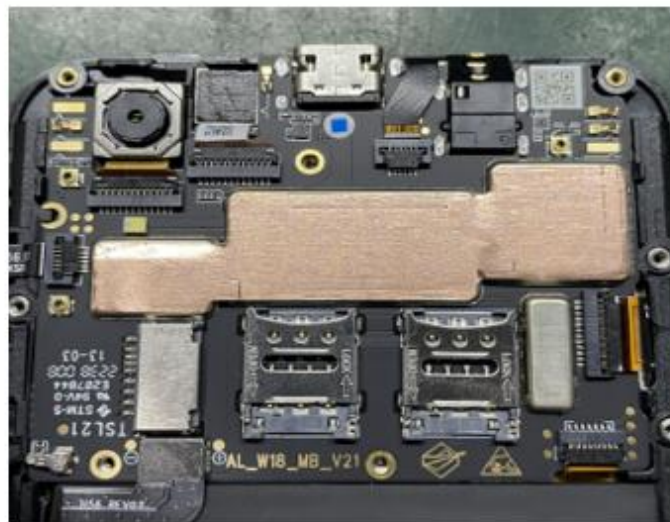
GTS 3Dlaboratory



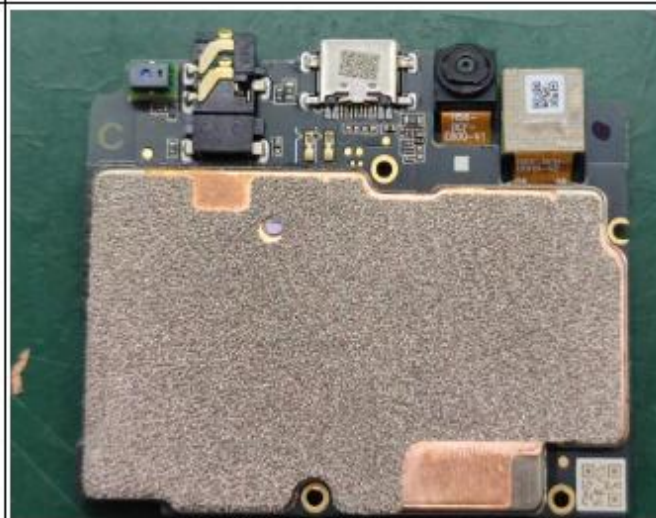
A stylized blue number '02' is centered on the left. An orange triangle is drawn around the '2', with its vertices at the top, bottom-left, and bottom-right of the '2'. The background features a light blue wavy pattern of dots and faint, blurry text elements like '27332-166'.

cellphone condition

Environmental treatment

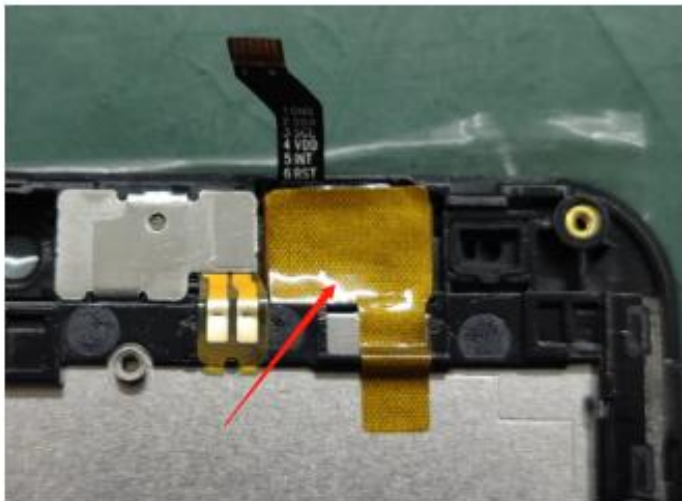


屏蔽罩上贴铜箔

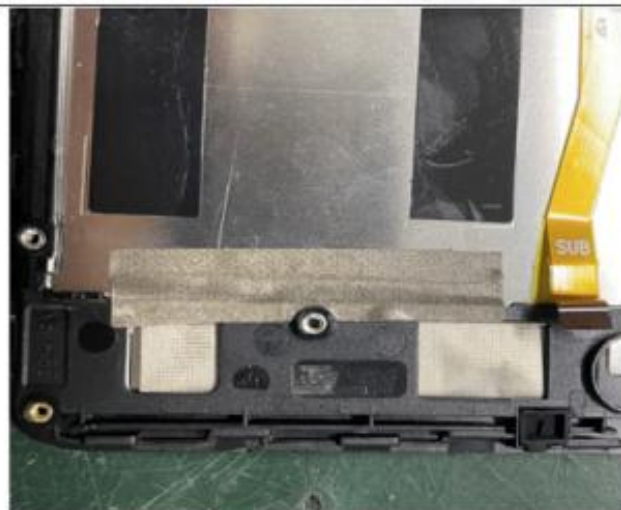


背面屏蔽罩贴铜箔后贴导电泡棉

Environmental treatment

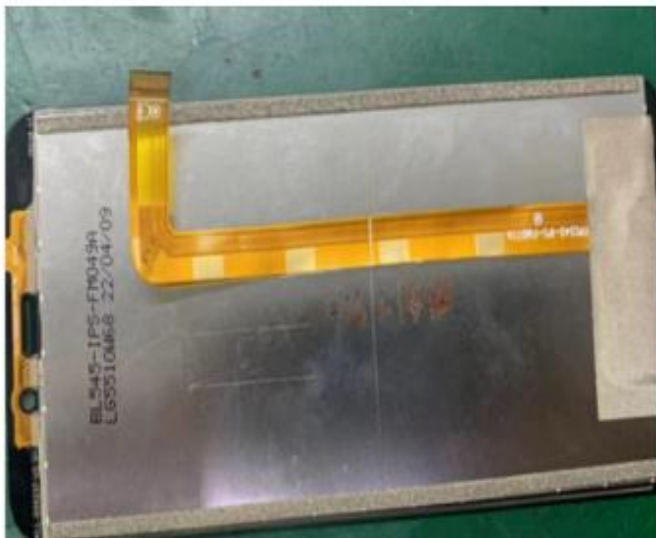


此处贴导电布屏蔽



此处贴导电布使小板和五金中框接触

Environmental treatment



屏中框两侧贴导电海绵、屏FPC贴导电布



后盖底部钢片贴双面导电布

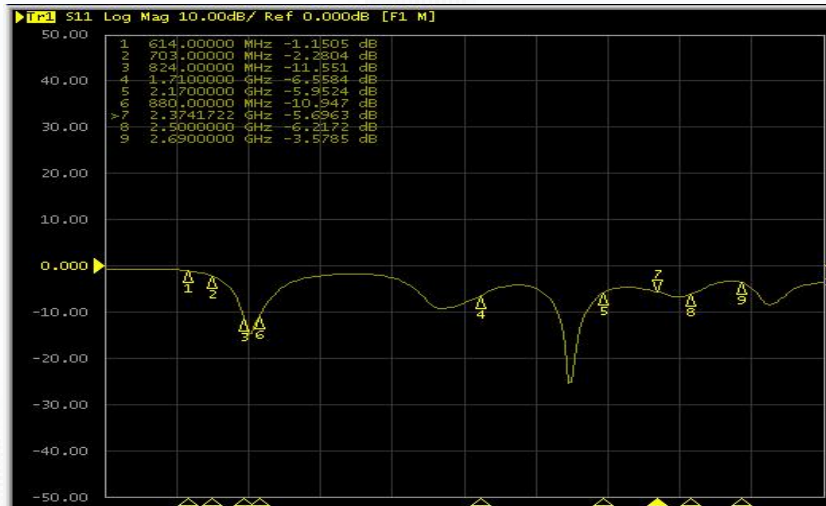
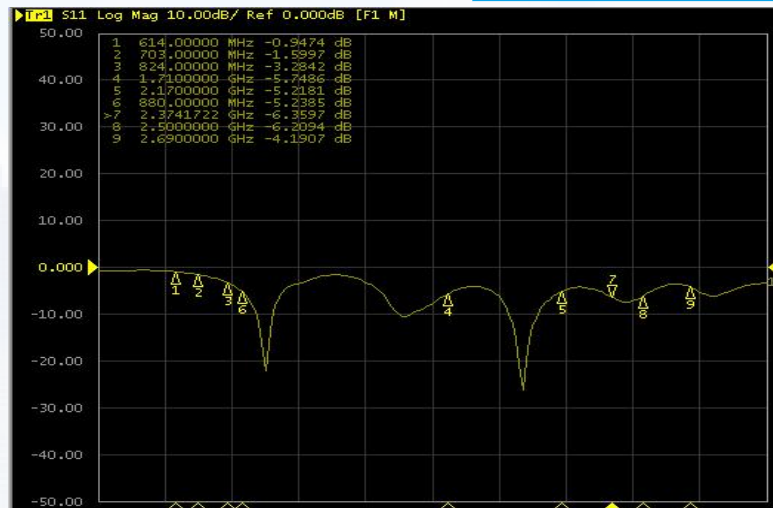


Antenna matching circuit

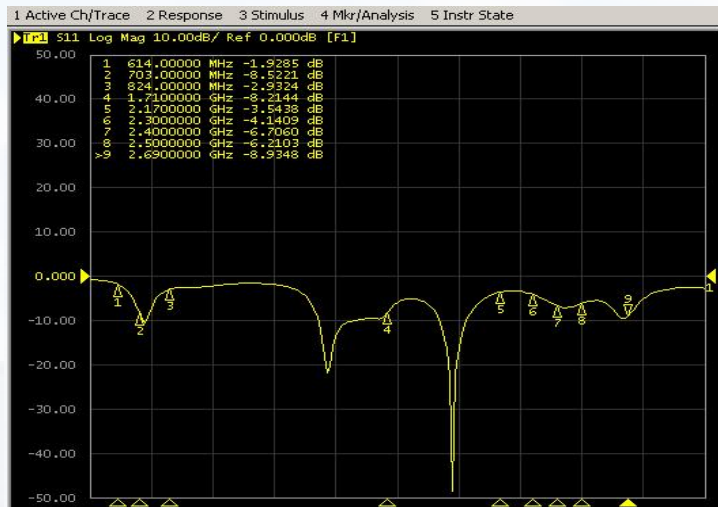


Antenna numerical

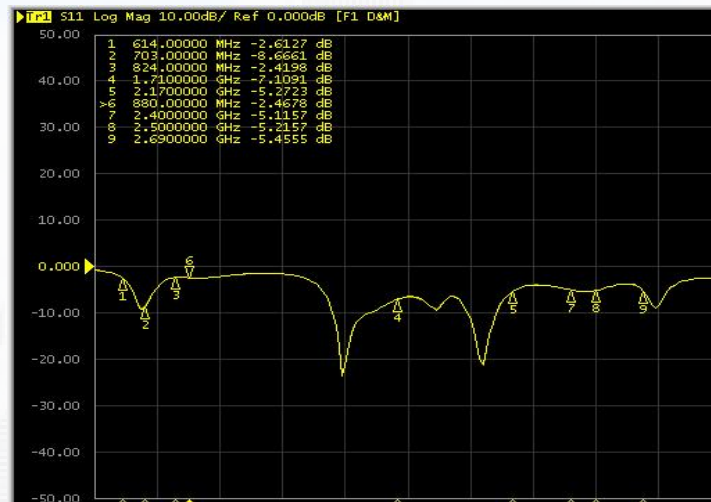
Main Antenna S11



Main Antenna S11

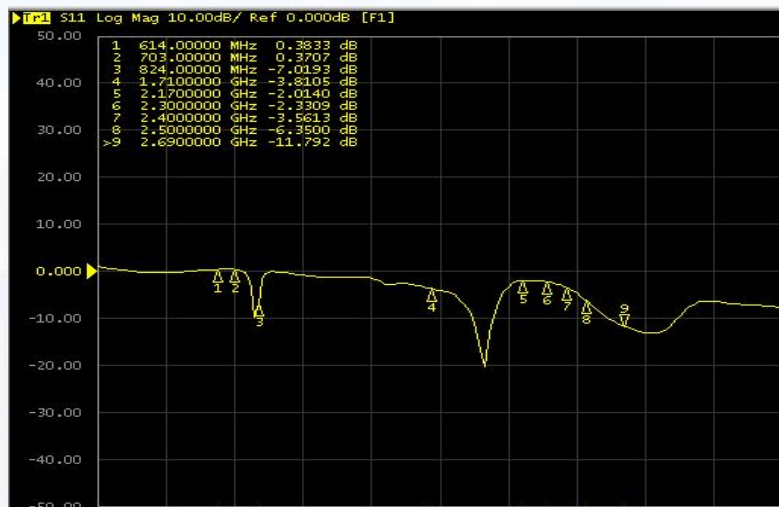


RF3

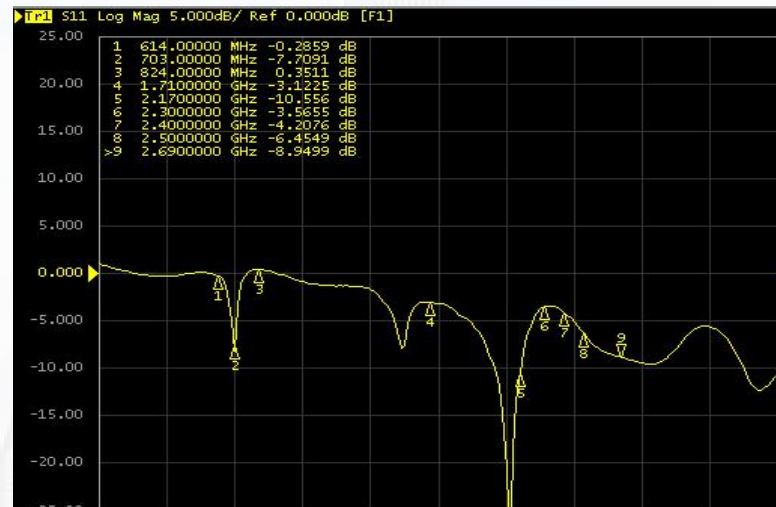


RF4

Diversity Antenna S11

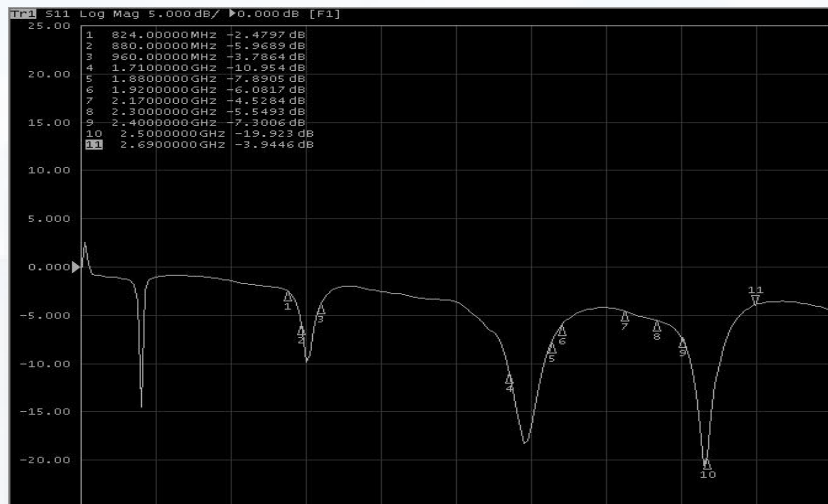


RF1



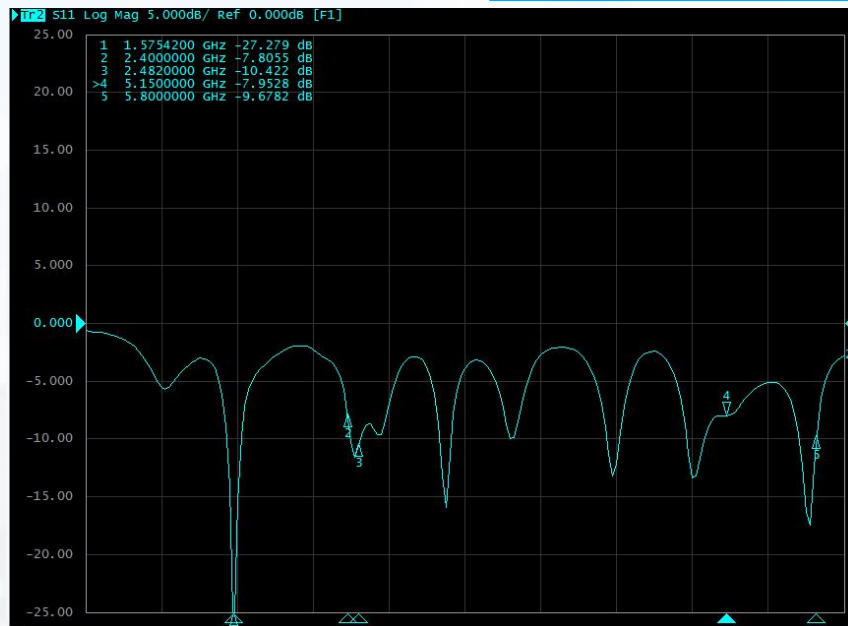
RF2

Diversity Antenna S11



RF3

GPS/BT/WIFI S11





Main antenna Efficiency

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
650	35.52	-4.50	-1.51	830	32.12	-4.93	-1.18	1700	47.13	-3.27	0.73
660	33.89	-4.70	-1.84	840	30.77	-5.12	-1.36	1710	49.76	-3.03	0.86
670	32.89	-4.83	-1.86	850	31.52	-5.01	-1.25	1720	50.53	-2.96	0.91
680	31.34	-5.04	-1.89	860	29.74	-5.27	-1.38	1730	53.67	-2.70	1.11
690	31.32	-5.04	-1.87	870	28.57	-5.44	-1.41	1740	56.33	-2.49	1.28
700	30.03	-5.22	-1.83	880	27.92	-5.54	-1.45	1750	58.58	-2.32	1.48
710	31.32	-5.04	-1.79	890	28.52	-5.45	-1.42	1760	56.74	-2.46	1.42
720	33.9	-4.70	-1.63	900	27.23	-5.65	-1.46	1770	58.07	-2.36	1.53
730	31.1	-5.07	-1.83	910	25.33	-5.96	-1.51	1780	64.78	-1.89	1.76
740	33.75	-4.72	-1.61	920	26.5	-5.77	-1.48	1790	60.26	-2.20	1.68
750	34.14	-4.67	-1.58	930	27.2	-5.65	-1.45	1800	63.48	-1.97	1.77
760	33.81	-4.71	-1.59	940	27.09	-5.67	-1.45	1810	65.9	-1.81	1.86
770	35.19	-4.54	-1.45	950	27.2	-5.65	-1.44	1820	53.5	-2.72	1.58
780	35.92	-4.45	-1.39	960	27.35	-5.63	-1.41	1830	58.18	-2.35	1.63
790	36.62	-4.36	-1.34	970	28.03	-5.52	-1.38	1840	50.48	-2.97	1.44
800	35.77	-4.46	-1.41	980	26.56	-5.76	-1.43	1850	49.3	-3.07	1.41
810	33.89	-4.70	-1.52	990	26.43	-5.78	-1.44	1860	50.92	-2.93	1.39
820	31.41	-5.03	-1.69	1000	26.63	-5.75	-1.45	1870	46.58	-3.32	1.27
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1880	44.99	-3.47	1.16	2060	32.18	-4.92	0.23	2640	45.4	-3.43	0.79
1890	45.45	-3.42	1.19	2070	30.83	-5.11	0.07	2650	43.74	-3.59	0.64
1900	47.83	-3.20	1.25	2080	31.69	-4.99	0.11	2660	45.77	-3.39	0.77
1910	47.91	-3.20	1.27	2090	29.31	-5.33	-0.05	2670	46.37	-3.34	0.82
1920	51.37	-2.89	1.33	2100	39.59	-4.02	0.59	2680	44.11	-3.55	0.72
1930	51.86	-2.85	1.36	2510	40.19	-3.96	0.64	2690	46.52	-3.32	0.79
1940	52.86	-2.77	1.42	2520	42.03	-3.76	0.82				
1950	52.97	-2.76	1.47	2530	44.04	-3.56	0.88				
1960	46.3	-3.34	1.35	2540	42.72	-3.69	0.76				
1970	46.91	-3.29	1.38	2550	43.25	-3.64	0.84				
1980	43.84	-3.58	1.21	2560	41.6	-3.81	0.73				
1990	39.9	-3.99	1.18	2570	41.37	-3.83	0.68				
2000	39.85	-4.00	1.16	2580	42.81	-3.68	0.66				
2010	39.14	-4.07	1.14	2590	42.61	-3.70	0.61				
2020	38.93	-4.10	1.13	2600	43.43	-3.62	0.62				
2030	37.23	-4.29	1.11	2610	43.99	-3.57	0.62				
2040	34.61	-4.61	0.95	2620	45.04	-3.46	0.79				
2050	31.26	-5.05	0.21	2630	45.92	-3.38	0.81				



Diversity antenna Efficiency

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
650	14.36	-8.43	-3.08	830	21.85	-6.61	-1.91				
660	14.06	-8.52	-3.11	840	23.22	-6.34	-1.87				
670	14.42	-8.41	-2.91	850	23.64	-6.26	-1.85				
680	14.79	-8.30	-2.89	860	23.53	-6.28	-1.84				
690	15.37	-8.13	-2.83	870	24.81	-6.05	-1.76				
700	15.52	-8.09	-2.80	880	26.55	-5.76	-1.68				
710	16.58	-7.80	-2.77	890	25.95	-5.86	-1.70				
720	19.26	-7.15	-2.51	900	26.02	-5.85	-1.69				
730	21.6	-6.66	-2.45	910	27.31	-5.64	-1.62				
740	23.83	-6.23	-2.38	920	27.97	-5.53	-1.60				
750	26.45	-5.78	-2.01	930	26.35	-5.79	-1.57				
760	27.06	-5.68	-1.92	940	28.25	-5.49	-1.42				
770	28.98	-5.38	-1.87	950	28.93	-5.39	-1.37				
780	30.59	-5.14	-1.80	960	27.55	-5.60	-1.39				
790	32.41	-4.89	-1.75	970	28.82	-5.40	-1.36				
800	31.35	-5.04	-1.78	980	28.71	-5.42	-1.35				
810	33.38	-4.77	-1.70	990	30.9	-5.10	-1.28				
820	34.86	-4.58	-1.69	1000	29.71	-5.27	-1.29				
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1880	37.86	-4.22	0.15	2060	36.22	-4.41	0.79	2640	34.56	-4.61	0.62
1890	40.28	-3.95	0.21	2070	33.41	-4.76	0.51	2650	37.74	-4.23	0.86
1900	42.12	-3.76	0.25	2080	23.86	-6.22	0.21	2660	34.31	-4.65	0.72
1910	43.83	-3.58	0.35	2090	22.6	-6.46	0.18	2670	37.4	-4.27	0.98
1920	45.6	-3.41	0.42	2100	21.83	-6.61	0.17	2680	40.17	-3.96	1.35
1930	44.95	-3.47	0.41	2510	23.08	-6.37	0.25	2690	41.12	-3.86	1.43
1940	43.14	-3.65	0.39	2520	23.38	-6.31	0.28				
1950	46.02	-3.37	0.58	2530	23.05	-6.37	0.26				
1960	49.59	-3.05	1.22	2540	21.82	-6.61	0.21				
1970	51.68	-2.87	1.38	2550	21.28	-6.72	0.20				
1980	51.76	-2.86	1.40	2560	21.29	-6.72	0.21				
1990	53.3	-2.73	1.51	2570	22.38	-6.50	0.26				
2000	52.13	-2.83	1.49	2580	24.45	-6.12	0.31				
2010	51.09	-2.92	1.44	2590	25.34	-5.96	0.35				
2020	46.72	-3.30	1.08	2600	26.41	-5.78	0.39				
2030	44.45	-3.52	0.98	2610	30.97	-5.09	0.48				
2040	46.21	-3.35	1.11	2620	32.9	-4.83	0.56				
2050	38.98	-4.09	0.83	2630	32.79	-4.84	0.55				



GPS/BT/WIFI Efficiency

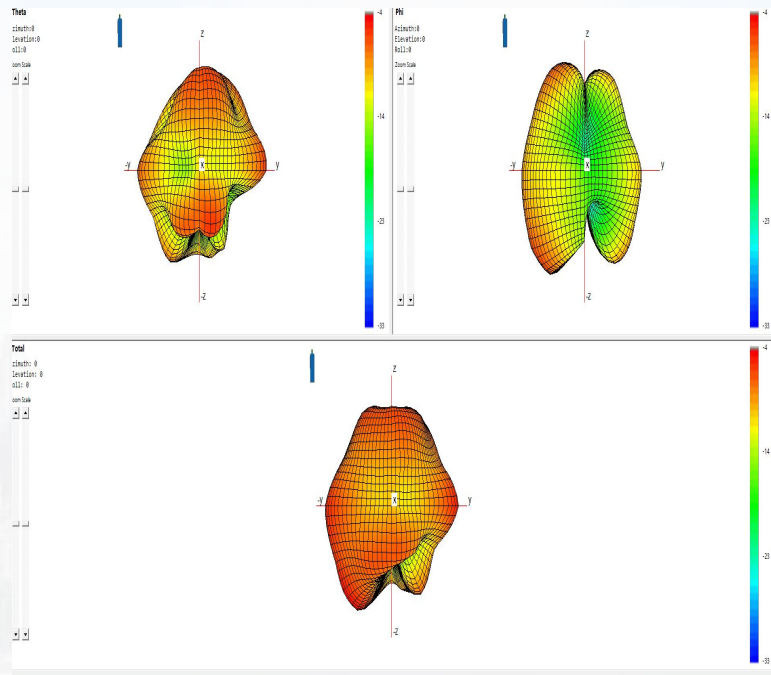
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1500	49.27	-3.07	1.89	2400	35.36	-4.51	0
1510	45.46	-3.42	1.66	2410	36.28	-4.4	0.61
1520	48.86	-3.11	2.18	2420	37.18	-4.3	0.89
1530	44.31	-3.53	1.89	2430	40.06	-3.97	0.1
1540	47.09	-3.27	2.21	2440	40.18	-3.96	0.46
1550	46.39	-3.34	2.29	2450	38.15	-4.19	0.82
1560	47.82	-3.2	2.5	2460	38.58	-4.14	1.18
1570	50.65	-2.95	2.78	2470	38.12	-4.19	0.77
1580	50.07	-3	2.74	2480	38.21	-4.18	0.7
1590	48.81	-3.12	2.59	2490	39.86	-4	0.61
1600	49.52	-3.05	2.7	2500	39.33	-4.05	0.89
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5000	30.96	-5.09	-0.38	5440	34.68	-4.6	0
5020	33.87	-4.7	0.89	5460	39.04	-4.08	0.61
5040	26.78	-5.72	-0.57	5480	38.75	-4.12	0.89
5060	26.62	-5.75	-0.69	5500	34.27	-4.65	0.1
5080	31.02	-5.08	0.47	5520	36.05	-4.43	0.46
5100	27.44	-5.62	-0.48	5540	33.23	-4.78	0.82
5120	29.19	-5.35	-0.66	5560	35.69	-4.47	1.18
5140	26.64	-5.74	-0.95	5580	31.63	-5	0.77
5160	35.12	-4.54	1.01	5600	31.9	-4.96	0.7
5180	35.59	-4.49	1.18	5620	28.6	-5.44	0.41
5200	36.06	-4.43	1.02	5640	27.49	-5.61	0.26
5220	35.83	-4.46	1.05	5660	30.72	-5.13	0.7
5240	35.78	-4.46	1.05	5680	36.46	-4.38	-2.43
5260	35.5	-4.5	1.02	5700	33.93	-4.69	-2.21
5280	42.74	-3.69	1.09	5720	33.15	-4.8	-2.17
5300	38.82	-4.11	1.03	5740	32.18	-4.92	-2.04
5320	34.47	-4.63	0.6	5760	31.98	-4.95	1.09
5340	33.92	-4.7	0.24	5780	31.39	-5.03	1.08
5360	37.36	-4.28	0.63	5800	29.63	-5.28	1.08
5380	37.94	-4.21	0.66	5820	28.72	-5.42	1.17
5400	38.88	-4.1	0.69	5840	28	-5.53	0.9
5420	38.44	-4.15	0.64	5860	26.83	-5.71	0.52



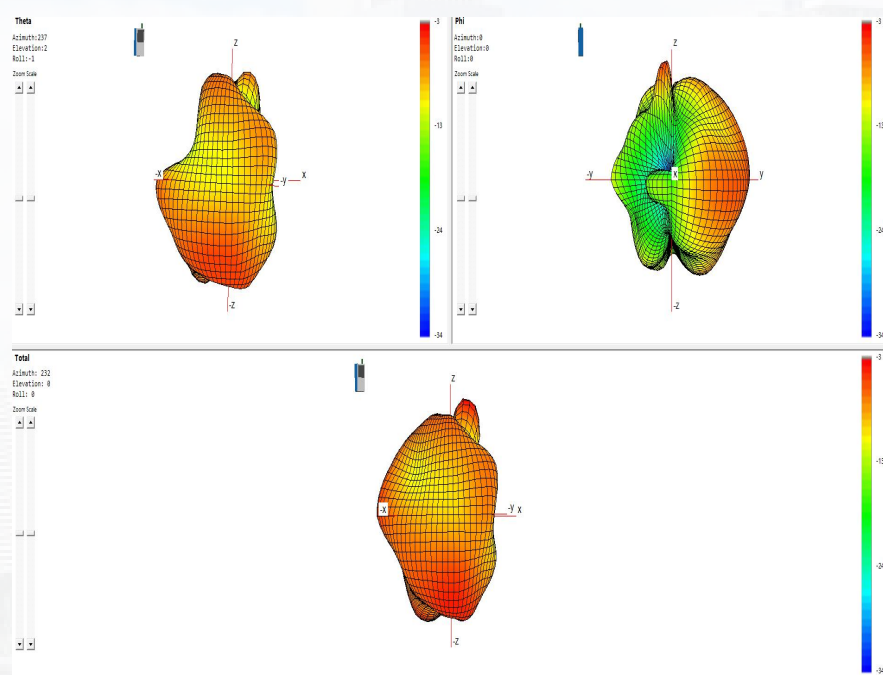
BT/WIFI Antenna Pattern



BT/2.4G WIFI



5G WIFI





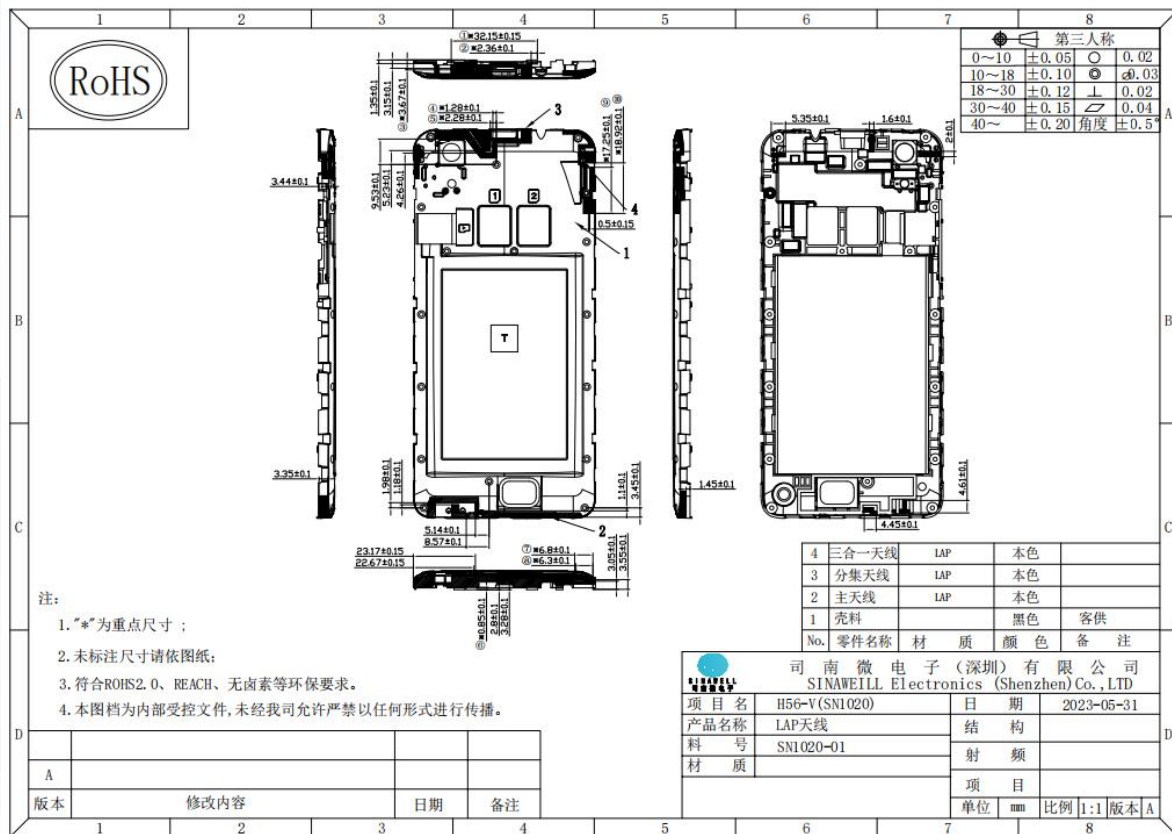
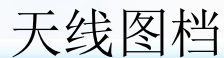
Antenna active data



Band	Channel	TRP(dBm)	TIS Combined	Band	Channel	TRP(dBm)	TIS Combined
GSM 850	128	26.22		B5 (10M)	20450	17.58	
	190	26.33			20525	17.95	
	251	26.43	-101.11		20600	18.73	-92.23
GSM 1800	512	26.08		B7 (10M)	20800	18.45	
	699	25.54			21100	19.77	
	885	25.38	-103.87		21400	18.65	-93.12
GSM1900	512	24.34	-102.04	B12 (5M)	23060	19.58	
	661	24.75	-102.22		23095	19.95	
	810	25.19	-102.23		23130	19.9	-94.23
W2	9662	18.31		B13 (5M)	23230	19.42	
	9800	18.24			23205	19.02	
	9938	18.19	-106.56		23255	19.33	-93.76
W4	1537	17.77		B17 (5M)	23780	20.04	
	1638	17.84			23790	20.13	
	1738	18.18	-107.23		23800	19.92	-96.27
W5	4132	17.23		B41 (20M)	39750	20.25	
	4183	17.34			40620	20.84	
	4233	17.18	-104.61		41490	19.59	-90.28
B2 (10M)	18650	19.56		B66 (10M)	132022	19.75	
	18900	19.94			132322	19.81	
	19150	20.31	-96.68		132622	19.86	-97.14
B4 (10M)	20000	19.56		B71 (10M)	133172	19.32	
	20175	19.55			133297	20.05	
	20350	19.66	-96.14		133422	19.08	-93.01



Antenna structural drawings





Dimensional report



	客户	阿龙通讯	项目名称	H56-V 天线		测量日期	2023-05-31	
	供应商	司南微	测量工具	二次元		测量单位	mm	
NO	尺寸	公差	实测 1	实测 2	实测 3	实测 4	实测 5	判定
1	32.15	± 0.15	32.16	32.18	32.18	32.18	32.17	OK
2	2.36	± 0.10	2.34	2.33	2.36	2.35	2.37	OK
3	3.67	± 0.10	3.64	3.64	3.65	3.66	3.67	OK
4	1.28	± 0.10	1.30	1.32	1.30	1.32	1.34	ok
5	2.28	± 0.10	2.32	2.31	2.31	2.33	2.32	OK
6	0.85	± 0.10	0.86	0.84	0.84	0.86	0.87	OK
7	6.8	± 0.10	6.84	6.83	6.86	6.85	6.83	OK
8	6.3	± 0.10	6.26	6.31	6.30	6.32	6.29	OK
9	17.25	± 0.10	17.29	17.27	17.30	17.28	17.29	OK
10	18.92	± 0.10	18.88	18.90	18.93	18.94	18.90	OK