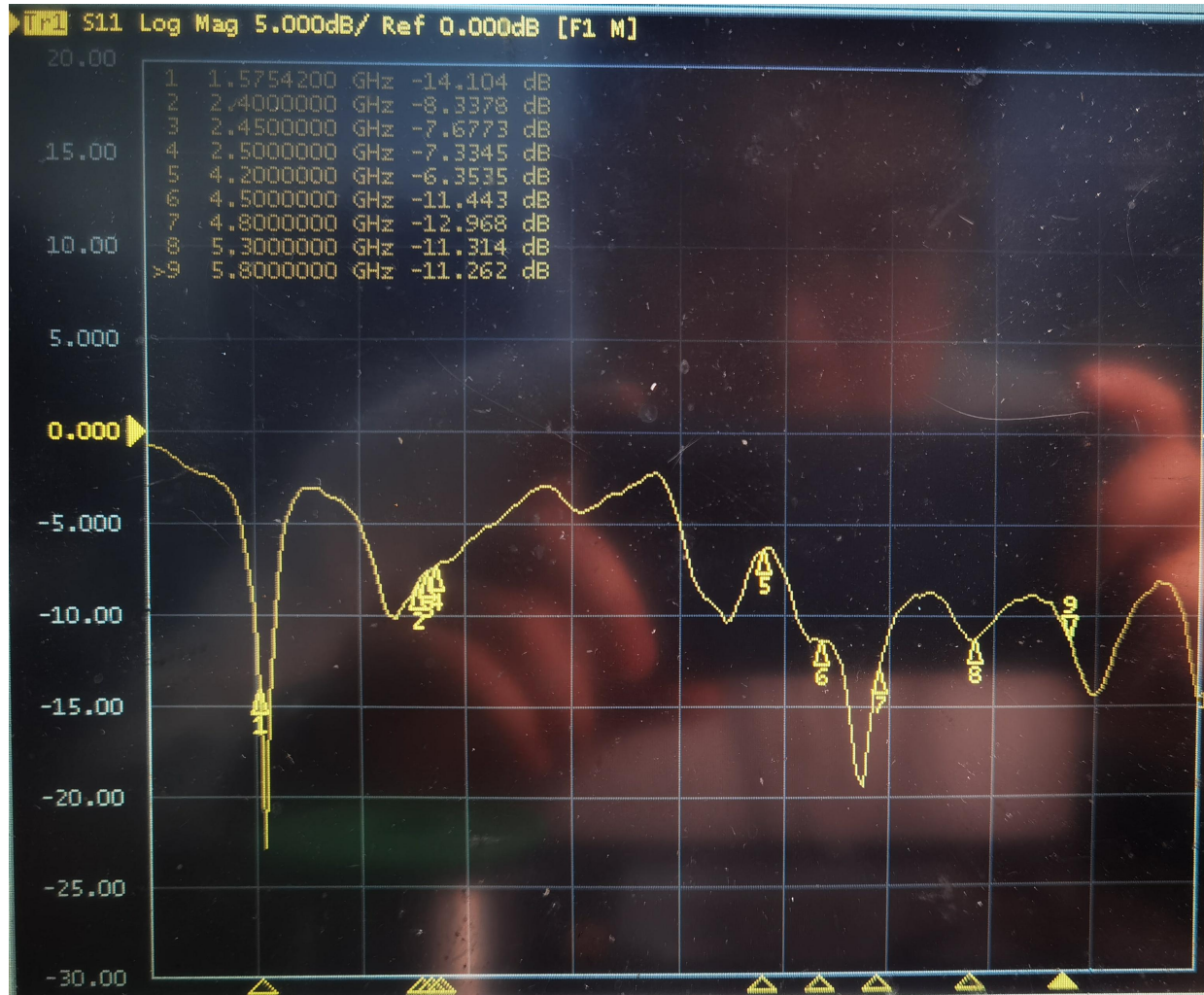


Antenna layout

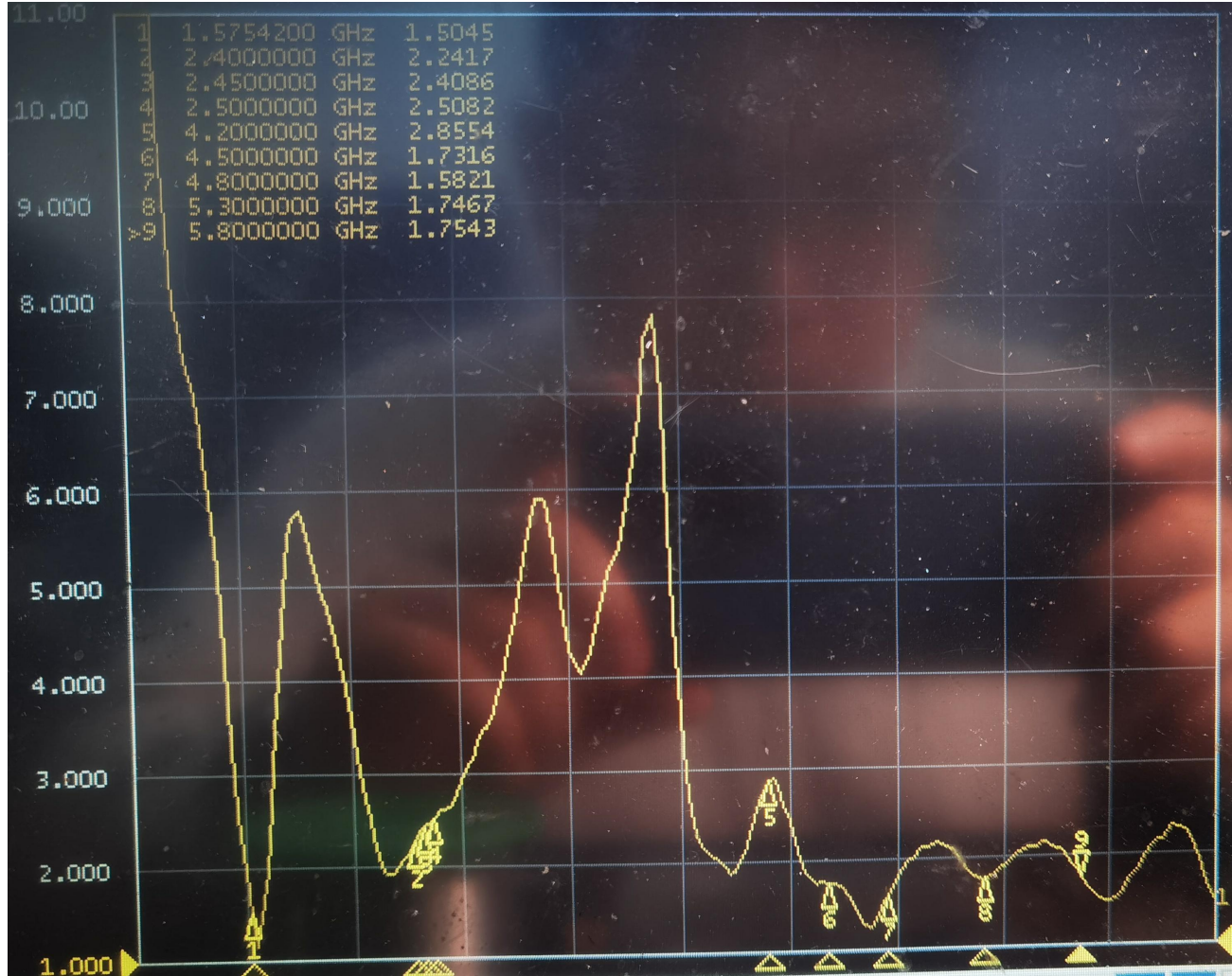


WIFI&GPS&BT antenna



SWARD

WIFI&GPS&BT antenna



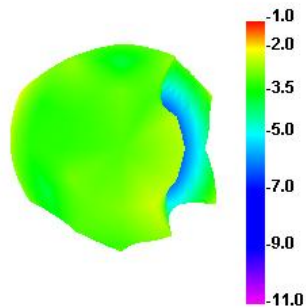
深圳市宝安区前进二路135号河西航城工业区B栋6楼

Building B, Hexi Hangcheng Industrial Zone, No. 135 Qianjin No. 2 Road, Baoan District, Shenzhen

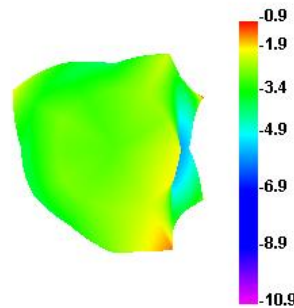
WIFI&BT Efficiency

Passive Test For 2.4G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	36.11	-4.42	-1.03	-3.18	19.047	17.062	-1.03	-13.94	3.39	180	46.77	47.04
2410	32.2	-4.92	-1.53	-3.68	17.037	15.166	-1.53	-13.76	3.39	180	46.94	47.16
2420	36.26	-4.41	-1	-3.15	19.283	16.976	-1	-13.35	3.41	180	47.02	47.39
2430	38.53	-4.14	-0.92	-3.07	20.645	17.883	-0.92	-12.88	3.22	180	47.31	47.67
2440	38.63	-4.13	-0.92	-3.07	20.778	17.85	-0.92	-12.78	3.21	180	47.68	47.91
2450	38.96	-4.09	-0.87	-3.02	21.103	17.857	-0.87	-12.9	3.22	150	47.98	48.27
2460	34.99	-4.56	-1.23	-3.38	19.054	15.932	-1.23	-14.19	3.33	150	47.79	48.02
2470	31.37	-5.03	-1.56	-3.71	17.177	14.192	-1.56	-15.79	3.48	150	47.6	47.7
2480	31.47	-5.02	-1.24	-3.39	17.212	14.26	-1.24	-16.98	3.78	90	47.93	48.05
2490	38.41	-4.16	0.01	-2.14	20.882	17.524	0.01	-17.15	4.17	120	48.1	47.95
2500	42.98	-3.67	0.86	-1.29	22.952	20.033	0.86	-16.51	4.52	150	48.13	48.09

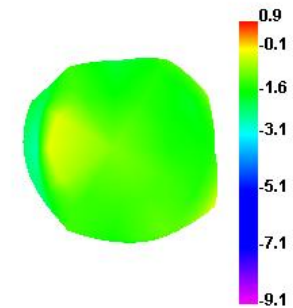
2400.000MHz



2450.000MHz



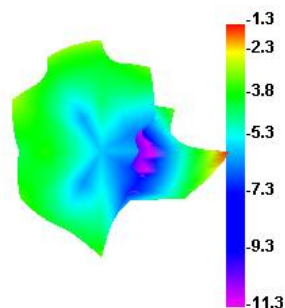
2500.000MHz



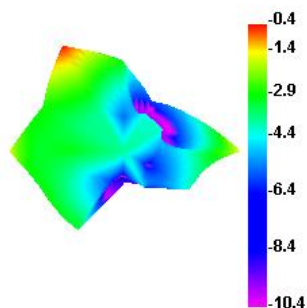
5GWIFI Efficiency

Passive Test For 5G-WIFI												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5000	27.47	-5.61	-1.31	-3.46	14.271	13.196	-1.31	-12.85	4.3	0	57.34	57.35
5100	34.03	-4.68	-1.1	-3.25	18.61	15.417	-1.1	-13.37	3.58	0	57.81	57.76
5200	31.62	-5	-0.58	-2.73	16.086	15.534	-0.58	-16.1	4.43	0	56.99	56.81
5300	30.44	-5.17	-0.32	-2.47	15.36	15.077	-0.32	-13.38	4.84	30	56.76	56.86
5400	29.73	-5.27	-1.25	-3.4	15.964	13.765	-1.25	-12.79	4.02	30	56.69	56.95
5500	29.43	-5.31	-0.41	-2.56	16.063	13.368	-0.41	-12.73	4.9	30	57.35	58.31
5600	32.23	-4.92	-0.3	-2.45	17.757	14.472	-0.3	-15.59	4.62	30	58.6	59.56
5700	31.96	-4.95	-0.88	-3.03	17.76	14.204	-0.88	-17.52	4.07	30	59.11	59.81
5800	32.55	-4.88	-0.21	-2.36	18.862	13.684	-0.21	-17.2	4.67	60	59.62	60.26
5900	35.98	-4.44	-0.17	-2.32	22.727	13.256	-0.17	-16.49	4.27	0	60.04	61.12
6000	33.04	-4.81	0.2	-1.95	21.5	11.544	0.2	-16.6	5.01	30	61.72	62.72

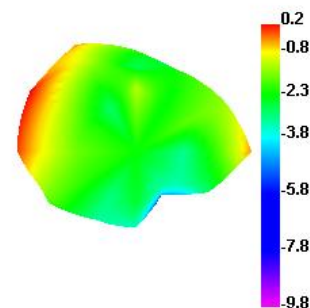
5000.000MHz



5500.000MHz



6000.000MHz



WiFi antenna active data (Bright screen 50%)

Test	802.11b : 11Mbps			Test	802.11b : 11Mbps		
Result	1	7	13	Result	1	7	13
Frequency (MHz)	2412	2442	2472	Frequency (MHz)	2412	2442	2472
TRP (dBm)	12. 2	14. 52	13. 73	TIS (dBm)	-82. 63	-83	-83. 27
NHPRP (dBm) 45	11. 13	13. 47	12. 72	NHPIS (dBm) 45	-81. 56	-81. 95	-82. 25
MAX (dBm)	17. 38	19. 78	18. 89	MaxPosSens	-87. 23	-87. 58	-87. 59
Test	802.11g : 54Mbps			Test	802.11g : 54Mbps		
Result	1	7	13	Result	1	7	13
Frequency (MHz)	2412	2442	2472	Frequency (MHz)	2412	2442	2472
TRP (dBm)	10. 98	11. 41	11. 58	TIS (dBm)	-68. 69	-68. 72	-68. 94
NHPRP (dBm) 45	9. 91	10. 37	10. 55	NHPIS (dBm) 45	-67. 62	-67. 68	-67. 92
MAX (dBm)	16. 24	16. 73	16. 57	MaxPosSens	-73. 41	-73. 38	-72. 99
Test	802.11n : MCS7			Test	802.11n : MCS7		
Result	1	7	13	Result	1	7	13
Frequency (MHz)	2412	2442	2472	Frequency (MHz)	2412	2442	2472
TRP (dBm)	11. 47	11. 2	11. 36	TIS (dBm)	-65. 5	-66. 74	-66. 54
NHPRP (dBm) 45	10. 41	10. 13	10. 31	NHPIS (dBm) 45	-64. 44	-65. 67	-65. 5
MAX (dBm)	16. 69	16. 66	16. 56	MaxPosSens	-70. 21	-71. 58	-70. 79

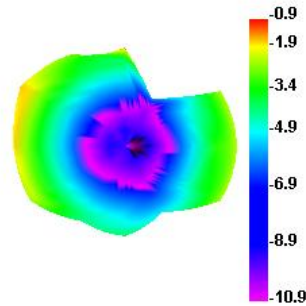
WIFI Antenna efficiency (Bright screen 50%)

Test	802.11n : MCS7			Test	802.11n : MCS7		
Result	36	149	165	Result	36	149	165
Frequency (MHz)	5180	5745	5825	Frequency (MHz)	5180	5745	5825
TRP (dBm)	9.08	11.01	12.26	TIS (dBm)	-68.2	-69.71	-69.3
NHPRP (dBm) 45	7.63	9.78	11.02	NHPIS (dBm) 45	-66.75	-68.48	-68.06
MAX (dBm)	14.48	16.1	17.84	MaxPosSens	-72.53	-74.49	-73.68
Test	802.11a : 54Mbps			Test	802.11a : 54Mbps		
Result	36	149	165	Result	36	149	165
Frequency (MHz)	5180	5745	5825	Frequency (MHz)	5180	5745	5825
TRP (dBm)	9.6	10.08	12.54	TIS (dBm)	-70.97	-69.34	-71.42
NHPRP (dBm) 45	8.15	9.07	11.35	NHPIS (dBm) 45	-69.52	-68.33	-70.23
MAX (dBm)	15.39	16.59	18.05	MaxPosSens	-75.73	-75.85	-75.48

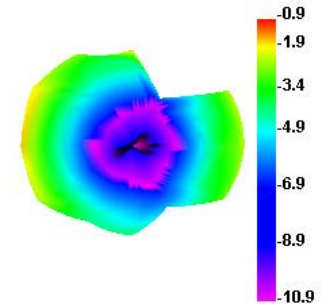
GPS Antenna efficiency

Passive Test For GPS-BD-GNSS				
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)
1560	34.52	-4.62	-0.9	-3.05
1561	34.68	-4.6	-0.88	-3.03
1562	34.72	-4.59	-0.86	-3.01
1563	34.6	-4.61	-0.86	-3.01
1564	34.46	-4.63	-0.86	-3.01
1565	34.33	-4.64	-0.88	-3.03
1566	34.15	-4.67	-0.89	-3.04
1567	34.04	-4.68	-0.91	-3.06
1568	34	-4.69	-0.91	-3.06
1569	34.07	-4.68	-0.91	-3.06
1570	34.2	-4.66	-0.89	-3.04
1571	34.16	-4.66	-0.91	-3.06
1572	34.13	-4.67	-0.91	-3.06
1573	34.05	-4.68	-0.93	-3.08
1574	33.88	-4.7	-0.96	-3.11
1575	33.7	-4.72	-0.97	-3.12
1576	33.42	-4.76	-1.02	-3.17
1577	33.13	-4.8	-1.05	-3.2
1578	32.85	-4.83	-1.12	-3.27
1579	32.6	-4.87	-1.14	-3.29
1580	32.38	-4.9	-1.19	-3.34

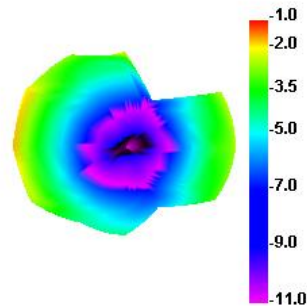
1560.000MHz



1570.000MHz



1575.000MHz



1580.000MHz

