

深圳市云希科技有限公司

ShenZhen Yunxi Technology Co.,Ltd.

Antenna test Report

Customer: 锐铭鑫

Project Name:A-M115

RF Engineer:Wu Gong

Testing Date:2023-8-16

Operating band: GPS/2.4G&5.8GWIFI/BT/LTE-
B2/4/5/12/13/25/26/66/71/41



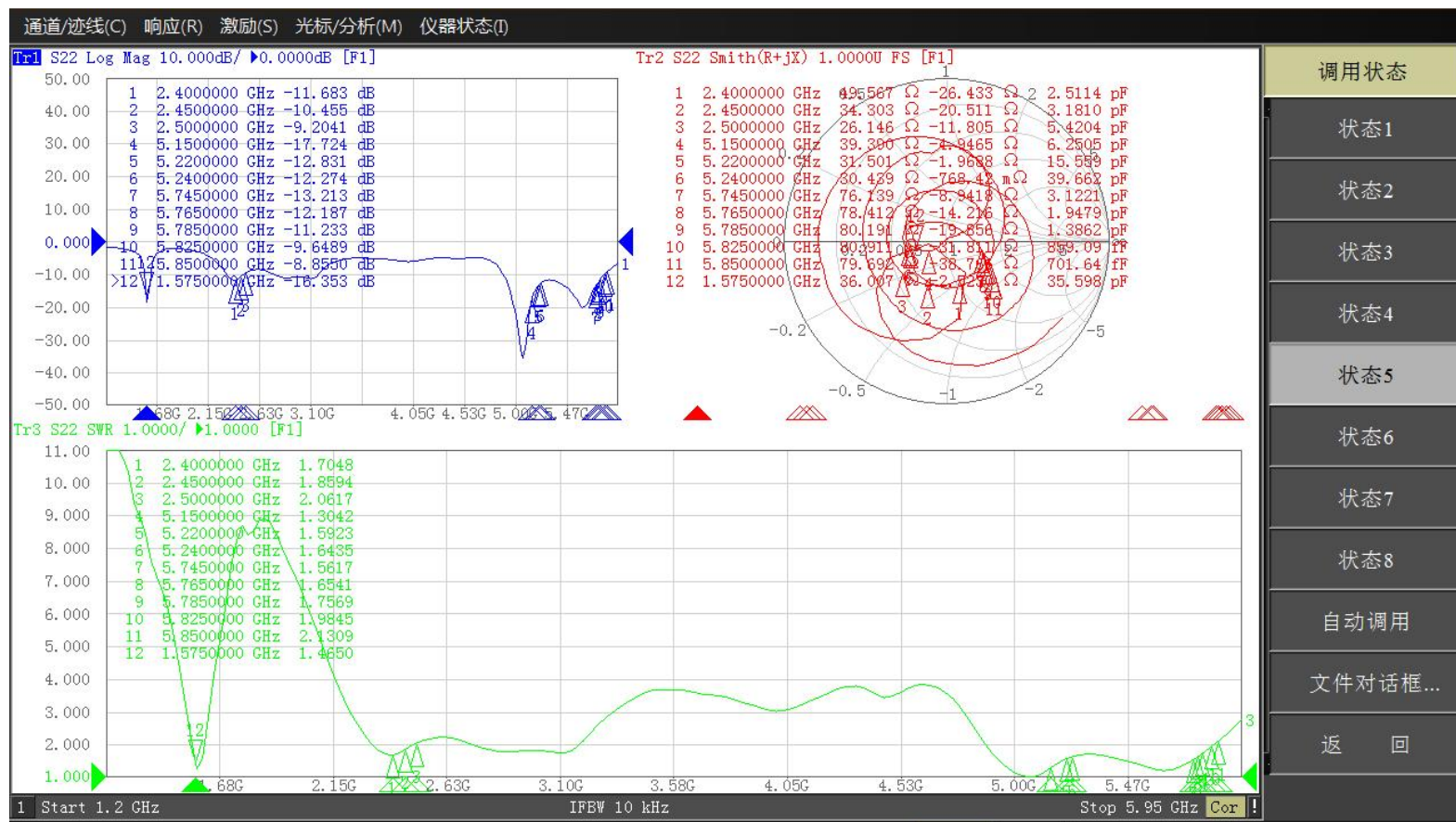
1.Project brief

NO.	ITEMS	DETAILS
1	工作频段 Operating band	WIFI/BT
2	频率范围 Frequency range	(2400~2500MHz)(5150~5850MHz)(650~960MHz)(1710~2690MHz)
3	天线类型 Antenna Type	PIFA
4	天线材质及实现形式 Antenna material and implementation form	The antenna is attached to the side shell using FPC
5	天线料号 Antenna part number	
6	输入阻抗 Input Impedance	50（Ω）
7	增益 Gain	
	RF	吴工
	ME	邹工

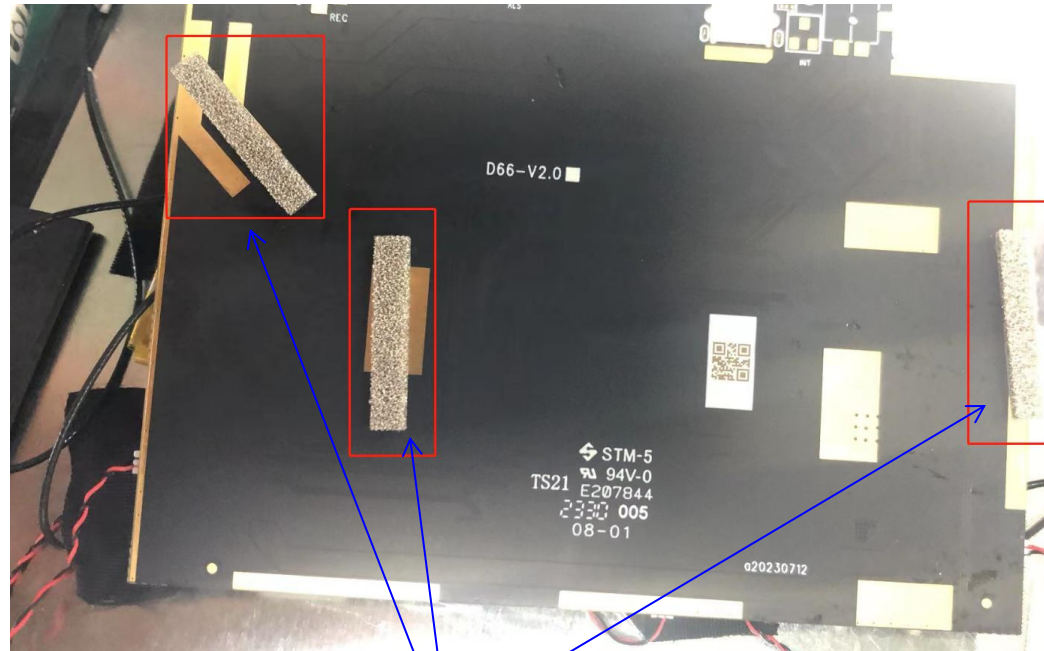
测试系统及测试设备



Antenna Standing Wave Diagram

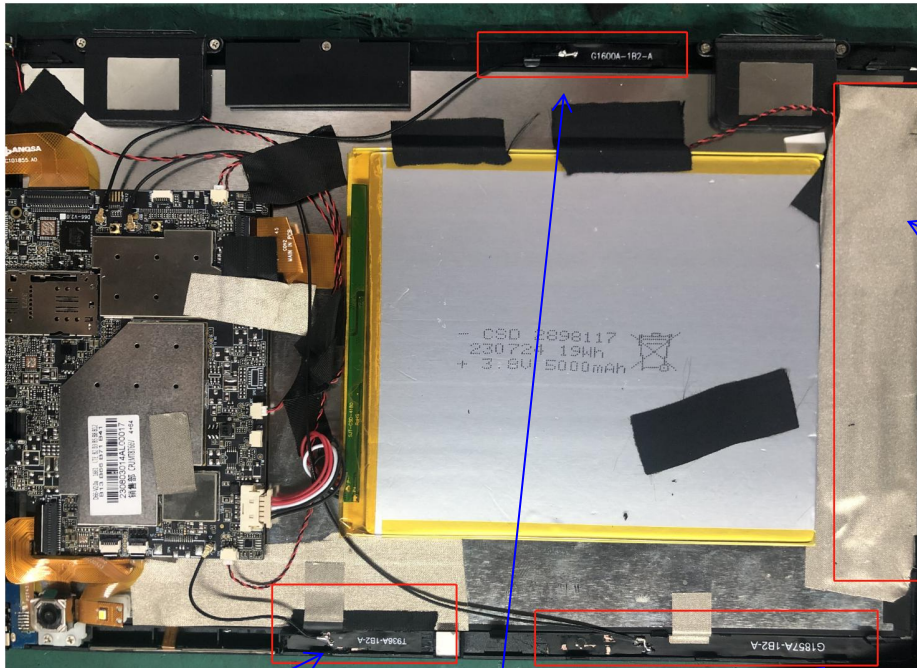


Antenna assembly environment processing diagram



As shown in the figure: The motherboard shielding cover here should be fully grounded with conductive cotton and the screen

Antenna assembly environment processing diagram



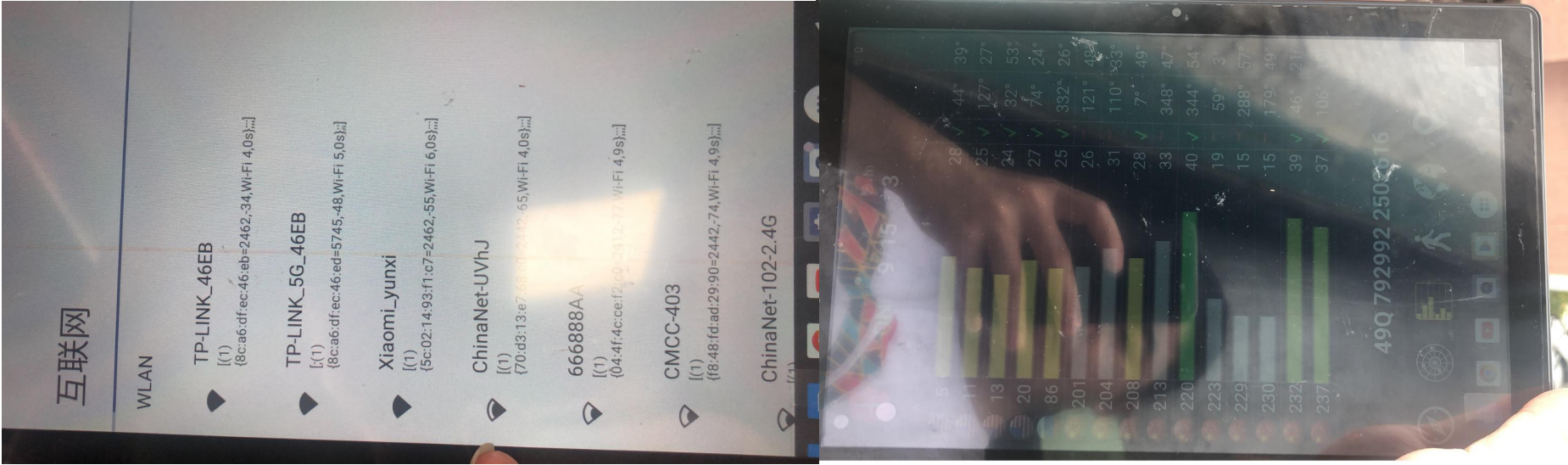
As shown in the figure: The screen cables here should be covered with conductive cloth for shielding treatment

As shown in the figure: WiFi/BT/GPS antenna assembly position

As shown in the figure: 4G diversity antenna assembly position

As shown in the figure: 4G antenna assembly position

Actual measurement of the antenna



3D.TRP & TIS in free-space

	GSM											
Standard	GSM850			GSM900			DCS1800			PCS1900		
CH	CH128	CH190	CH251	CH1	CH62	CH124	CH512	CH698	CH885	CH512	CH661	CH810
TRP (dBm)	25.89	25.62	24.26	24.41	23.28	23.66	24.8	25.35	26.4	25.08	25.4	26.36
TIS (dBm)			-100.98			-100.07			-102.37			-103.03

	WCDMA1900		
CH	CH9262		CH9538
TRP (dBm)	19.25		20.05
CH	CH9662		CH9938
TIS (dBm)			-106.3

	WCDMA850		
CH	CH4123		CH4233
TRP (dBm)	19.35		17.19
CH	CH4358		CH4458
TIS (dBm)			-103.68

3D.TRP & TIS in free-space

FDD												
	FDD Band 2			FDD Band 4			FDD Band 5			FDD Band 12		
CH	CH18650	CH18900	CH19150	CH20000	CH20175	CH20350	CH20450	CH20525	CH20600	CH23060	CH23095	CH23130
TRP (dBm)	17.33	19.2	19.94	17.02	17.31	16.26	17.25	16.72	15.67	16.14	16.24	16.88
CH	CH650	CH900	CH1150	CH2000	CH2175	CH2350	CH2450	CH2525	CH2600	CH5060	CH5095	CH5130
TIS (dBm)			-92.97			-93.58			-89.43			-89.97

FDD										
	FDD Band 13	FDD Band 25			FDD Band 26			FDD Band 66		
CH	CH23230	CH26090	CH26365	CH26640	CH26740	CH26865	CH26990	CH131972	CH132072	CH132172
TRP (dBm)	20.33	20.26	20.15	21.03	21.38	20.55	20.92	18.84	18.72	18.11
CH	CH5230			CH8640			C8990	CH66436	CH66761	CH67086
TIS (dBm)	-92.18			-92.35			-89.87			-94.46

3D.TRP & TIS in free-space

FDD						
	FDD Band 71			FDD Band 41		
CH	CH133172	CH133297	CH133422		CH40620	
TRP (dBm)	17.95	17.09	17.68		19.05	
CH			CH68886		CH40620	
TIS (dBm)			-90.86		-89.22	

A-M115

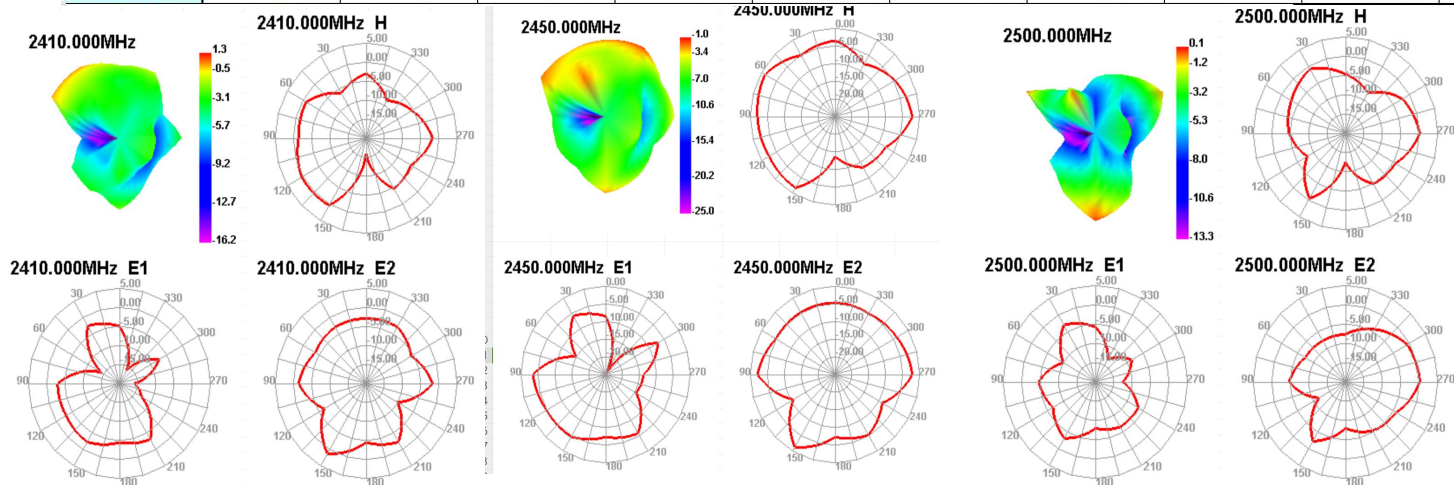
	Application Information				Application Information				Application Information				Application Information			
	O4Version		5.230.336		O4Version		5.230.336		O4Version		5.230.336		O4Version		5.230.336	
	TotalTime		13m 39s 78ms		TotalTime		17m 32s 178ms		TotalTime		12m 24s 885ms		TotalTime		17m 20s 906ms	
	AdditionalInfor		802.11b : 11MBps		AdditionalInfor		802.11g : 54MBps		AdditionalInfor		802.11n : MCS7		AdditionalInfor		802.11a : 54MBps	
Test Result	Wifi 2G TRP			Test Result	Wifi 2G TRP			Test Result	Wifi 2G TRP			Test Result	Wifi 5G TRP			
	1	7	13		1	7	13		1	7	13		36	64	149	165
Frequency (MHz)	2412	2442	2472	Frequency (MHz)	2412	2442	2472	Frequency (MHz)	2412	2442	2472	Frequency (MHz)	5180	5320	5745	5825
TRP (dBm)	12.76	12.59	12.73	TRP (dBm)	10.25	11.2	10.15	TRP (dBm)	11	12.27	11.43	TRP (dBm)	9.39	10.14	9.52	9.38
NHPRP (dBm)	11.58	11.44	11.6	NHPRP (dBm)	9.06	10.08	8.89	NHPRP (dBm)	9.82	11.07	10.29	NHPRP (dBm)	6.2	6.91	5.87	5.56
MAX (dBm)	16.76	16.55	16.3	MAX (dBm)	14.55	15.41	14.2	MAX (dBm)	15.42	16.67	15.36	MAX (dBm)	11.17	12.17	12.53	11.72
EIRP peak	16.76	16.55	16.3	EIRP peak	14.55	15.41	14.2	EIRP peak	15.42	16.67	15.36	EIRP peak	11.17	12.17	12.53	11.72
Min (dBm)	2.86	1.52	1.48	Min (dBm)	0.57	-1.15	-2.48	Min (dBm)	2.11	2.67	1.49	Min (dBm)	-7.3	-3.71	-3.73	-7.81
Attenuation Horiz	20.68	20.8	21.12	Attenuation Horiz	20.75	22.01	21.12	Attenuation Horiz	20.68	22.01	21.12	Attenuation Horiz	30.11	29.33	30.42	30.9
Attenuation Vertic	21.16	21.06	21.2	Attenuation Vertic	21.23	22.38	21.2	Attenuation Vertic	21.16	22.38	21.2	Attenuation Vertic	29.54	28.25	30.38	31.08
Test Result	ifi 2G TIS			Test Result	ifi 2G TIS			Test Result	ifi 2G TIS			Test Result	ifi 5G TIS			
	13				13				13				149			
Frequency (MHz)	2472			Frequency (MHz)	2472			Frequency (MHz)	2472			Frequency (MHz)	5745			
TIS (dBm)	-83.2			TIS (dBm)	-70			TIS (dBm)	-67.28			TIS (dBm)	-69.94			
NHPIS (dBm)	-82.08			NHPIS (dBm)	-68.94			NHPIS (dBm)	-65.14			NHPIS (dBm)	-68.28			
RSSIAve	12.57			RSSIAve	9.8			RSSIAve	11.28			RSSIAve	7.67			
MaxPosRSSI	15.83			MaxPosRSSI	12.95			MaxPosRSSI	14.86			MaxPosRSSI	11.11			
MaxPosSens	-86.46			MaxPosSens	-73.15			MaxPosSens	-69.86			MaxPosSens	-73.38			
MAX (dBm)	16.15			MAX (dBm)	14.05			MAX (dBm)	15.21			MAX (dBm)	12.73			
EIS peak	16.15			EIS peak	14.05			EIS peak	15.21			EIS peak	12.73			
Min (dBm)	1.32			Min (dBm)	-2.63			Min (dBm)	1.33			Min (dBm)	-3.51			
Attenuation Horiz	20.96			Attenuation Horiz	20.96			Attenuation Horiz	20.96			Attenuation Horiz	30.68			
Attenuation Vertic	21.05			Attenuation Vertic	21.05			Attenuation Vertic	21.05			Attenuation Vertic	30.42			

Passive Test For GPS

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
1560	39.84	-3.64	0.58	-2.07	12.365	18.242	0.58	-10.92	42.59	42.12
1565	42.07	-2.25	1.92	-2.13	11.965	17.864	1.92	-11.04	42.68	42.22
1570	40.28	-3.63	1.09	-1.46	13.742	20.696	1.09	-10.16	42.77	42.32
1575	40.7	-3.57	0.83	-2.38	11.052	16.705	0.83	-11.23	42.81	42.4
1580	41.57	-2.93	1.36	-1.69	12.986	19.865	1.36	-10.47	42.86	42.49

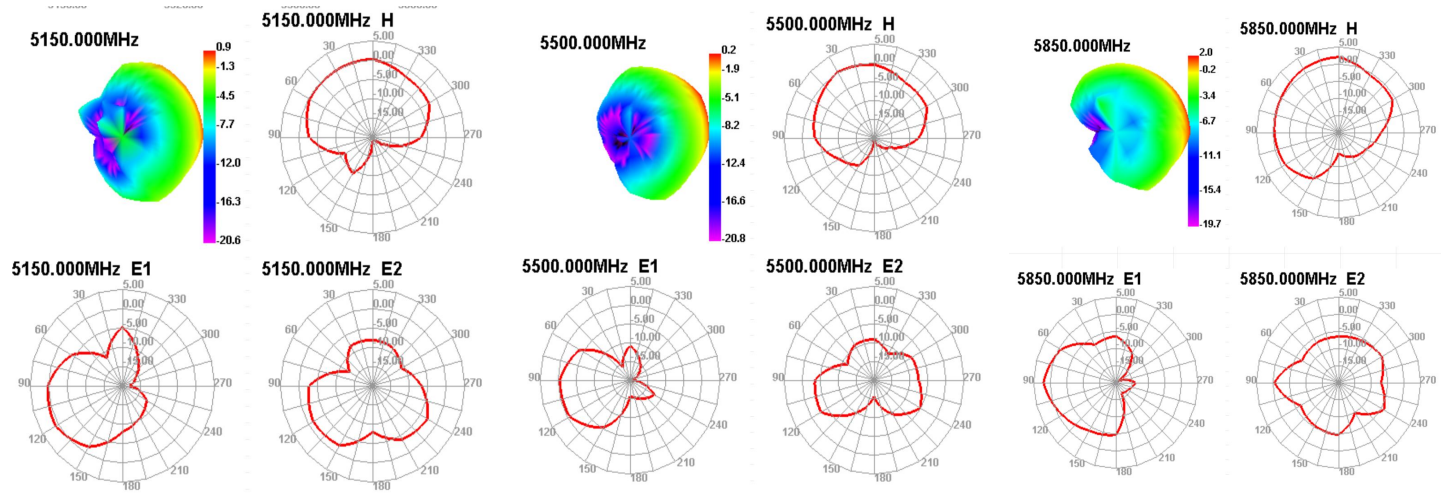
Passive Test For WIFI2.4

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	44.93	-4.57	0.4	-1.75	16.373	18.56	0.4	-16.76	48.17	48.27
2410	42.92	-3.67	1.3	-0.85	20.052	22.866	1.3	-16.18	48.82	48.98
2420	47.66	-3.22	1.68	-0.47	22.561	25.098	1.68	-17.84	49.21	49.73
2430	44.87	-4.58	0.15	-2	16.467	18.406	0.15	-21.27	47.85	48.18
2440	41.15	-5.07	-0.68	-2.83	14.636	16.514	-0.68	-23.83	47.45	47.61
2450	39.96	-5.23	-1.02	-3.17	14.345	15.614	-1.02	-25.04	47.52	47.61
2460	45.04	-3.46	0.88	-1.27	22.004	23.033	0.88	-21.68	49.2	49.47
2470	39.12	-4.42	-0.17	-2.32	17.837	18.287	-0.17	-19.84	48.51	48.69
2480	37.46	-5.61	-1.14	-3.29	13.624	13.838	-1.14	-18.08	47.62	47.62
2490	39.77	-5.72	-1.47	-3.62	13.413	13.358	-1.47	-15.92	47.76	47.65
2500	40.96	-4.44	0.13	-2.02	17.758	18.2	0.13	-13.34	48.93	48.83



Antenna efficiency and gain

Passive Test For WIFI5.8										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHis (%)	DHis (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5150	42.41	-4.89	0.86	-1.29	10.736	21.673	0.86	-20.56	58.72	58.81
5220	39.4	-5.32	0.47	-1.68	9.955	19.444	0.47	-29.27	58.8	58.71
5290	38.09	-5.51	0.57	-1.58	9.654	18.437	0.57	-28.74	58.78	59.21
5360	46.31	-4.4	1.54	-0.61	13.18	23.133	1.54	-20.48	59.21	59.5
5430	43.79	-6.24	0.12	-2.03	9.243	14.552	0.12	-19.97	57.23	57.98
5500	42.54	-6.47	0.17	-1.98	9.468	13.076	0.17	-20.77	58.2	59.03
5570	49.45	-5.31	1.2	-0.95	13.132	16.317	1.2	-19.29	60.39	61.24
5640	40.13	-6.96	-0.46	-2.61	9.242	10.89	-0.46	-23.24	60.05	60.8
5710	36.61	-5.75	0.44	-1.71	12.152	14.454	0.44	-26.96	60.39	61.3
5780	43.53	-4.75	1.89	-0.26	15.282	18.251	1.89	-23.29	60.92	61.62
5850	46.24	-4.41	2	-0.15	17.349	18.893	2	-19.75	62.18	63.1



Note: If there are any unclear or questionable locations regarding this project, please contact me promptly

