



Shenzhen Meihejia Technology Co., Ltd.

Antenna test report

Address: F3-005, Hongfenghua Internet Creative Park, No.1, Huangtian Damen Road, Hangcheng Street, Baoan District, Shenzhen



customer name	Xinbang	project name	G15
Commissioning frequency band	GSM:B2+B3+B5+B8 WCDMA:B1+B5+B8 4G:B1+B3+B5+B7+B8+B20+B38+B39+B40+B41	structure mode	coaxial cable +FPC
Radio frequency engineer	Jin gong	construction engineer	Liang gong
Antenna type	PIFA	date	2022-9-21

Address: F3-005, Hongfenghua Internet Creative Park, No.1, Huangtian Damen Road, Hangcheng Street, Baoan District, Shenzhen



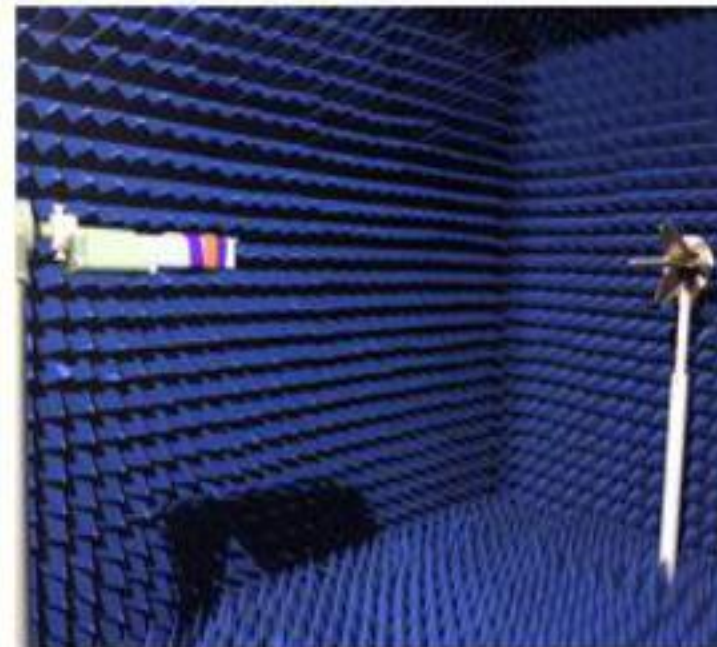
Test environment

	test project	equipment
1 (parameter)	1. (Return Loss) 2. (VSWR)	Agilent E5071B HP 8753D
2. (Active)	1. (TRP) 2. (TIS)	1. ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. Agilent 8960 E5515B × 2 StarPoint SP6011
3. (Passive)	1. (Gain) 2. (Efficiency)	1. ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. Agilent E5071B HP 8753D

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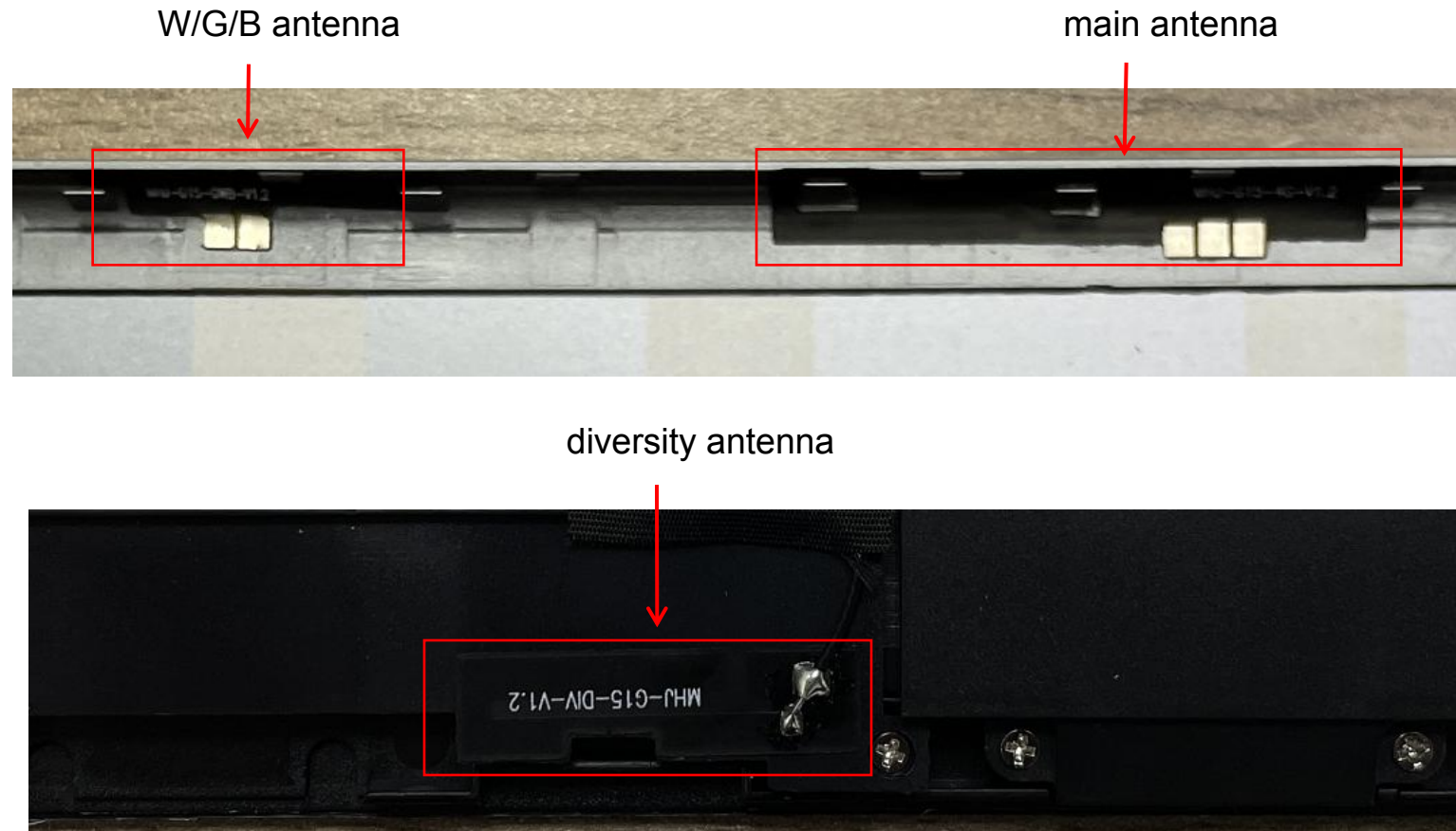
Test Equipment



Address: F3-005, Hongfenghua Internet Creative Park, No.1, Huangtian Damen Road, Hangcheng Street, Baoan District, Shenzhen



Antenna position



Address: Building 43, Zhongwu Industrial Zone, Xixiang Street, Bao's District, Shenzhen



GSM

Frequency Band	EGSM 900			DCS 1800		
channel	1	62	124	512	698	885
TRP	28.3	28.2	28.1	24.8	25.1	25.6
TIS			-101.4			-102.3
Frequency Band	GSM 850			PCS 1900		
channel	128	190	251	512	661	810
TRP	26.8	27.8	29.1	27.6	27.9	28.7
TIS			-104.9			-104.5

WCDMA

Frequency Band	WCDMA 2100			WCDMA 900			WCDMA 850		
channel	L	M	H	L	M	H	L	M	H
TRP	16.0	26.6	17.2	18.1	17.8	17.0	17.8	18.2	18.5
TIS			-108.2			-106.0			-106.8



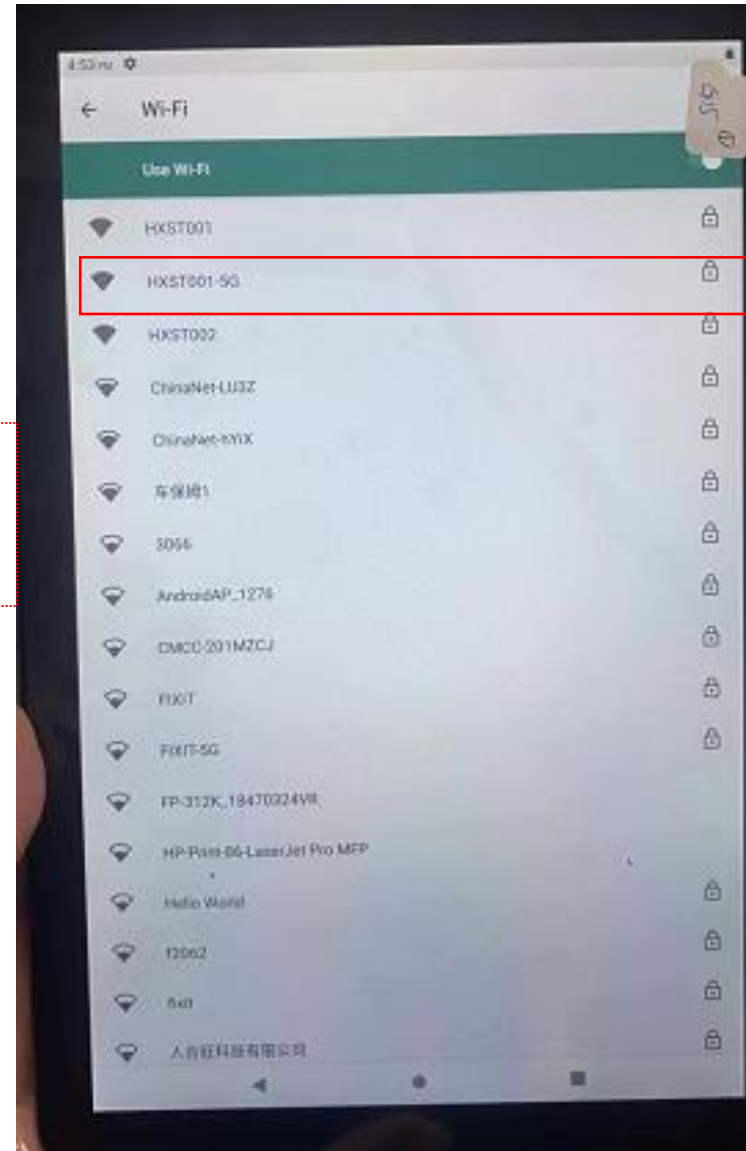
LTE

Frequency Band	B1			B3		
channel	L	M	H	L	M	H
TRP	17.0	17.2	17.9	15.1	15.2	15.7
TIS			-95.0			-92.6
Frequency Band	B5			B7		
channel	L	M	H	L	M	H
TRP	17.6	18.1	18.7	15.3	15.1	15.1
TIS			-92.3			-88.9
Frequency Band	B8			B20		
channel	L	M	H	L	M	H
TRP	18.8	18.3	17.2	18.9	18.6	18.1
TIS			-91.2			-89.3
Frequency Band	B38			B39		
channel	L	M	H	L	M	H
TRP	15.6	15.8	16.3	17.3	17.3	17.4
TIS			-89.7			-90.9
Frequency Band	B40			B41		
channel	L	M	H	L	M	H
TRP	15.0	15.2	15.5	16.4	16.6	16.8
TIS			-87.4			-88.6

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Wifi Antenna test

Test environment:
the office distance
from the router:
about 15 meters



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GPS star search test

The measured effect of GPS cold start is below:
CN value of 40 The actual location value is 4 bits
CN value of 35 The actual positioning is 6 bits
The actual positioning is 17bits





Efficient (main antenna)

Passive Test For quan												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
700	18.37	-7.36	-4.04	-6.19	10.547	7.818	-4.04	-13.76	3.32	90	39.38	39.15
720	17.47	-7.58	-3.85	-6	10.342	7.133	-3.85	-14.32	3.73	90	39.31	38.94
740	17.35	-7.61	-3.14	-5.29	10.052	7.294	-3.14	-14.45	4.47	0	38.96	38.83
760	18.23	-7.39	-2.7	-4.85	10.296	7.932	-2.7	-14.36	4.69	0	38.89	38.97
780	16.81	-7.75	-2.72	-4.87	9.277	7.529	-2.72	-14.99	5.02	30	38.33	38.44
800	23.24	-6.34	-1.86	-4.01	12.624	10.613	-1.86	-12.94	4.48	30	39.39	40.26
820	24.84	-6.05	-1.92	-4.07	12.83	12.01	-1.92	-12.89	4.12	30	39.64	40.5
840	25.38	-5.96	-2.23	-4.38	12.646	12.73	-2.23	-13.9	3.72	30	39.77	40.56
860	26.05	-5.84	-1.97	-4.12	12.619	13.434	-1.97	-13.92	3.87	90	39.95	40.62
880	27.03	-5.68	-1.85	-4	12.615	14.412	-1.85	-12.87	3.83	30	40.11	40.72
900	27.7	-5.58	-1.69	-3.84	12.76	14.936	-1.69	-12.44	3.89	30	40.22	40.84
920	27.81	-5.56	-1.63	-3.78	12.936	14.879	-1.63	-12.58	3.93	30	40.36	40.94
940	28.94	-5.39	-1.54	-3.69	13.777	15.159	-1.54	-13.11	3.85	30	40.51	40.98
960	30.97	-5.09	-1.2	-3.35	14.761	16.207	-1.2	-14.46	3.89	30	40.74	41.07
980	33.83	-4.71	-0.42	-2.57	16.31	17.517	-0.42	-14.9	4.28	30	40.96	41.25
1000	35.01	-4.56	-0.09	-2.24	17.789	17.223	-0.09	-15.56	4.47	30	41.03	41.35



Efficient (main antenna)

1700	60.39	-2.19	3.13	0.98	35.016	25.379	3.13	-13.58	5.32	30	45.76	46.45
1720	61.19	-2.13	2.83	0.68	35.545	25.641	2.83	-13.05	4.97	30	45.91	46.62
1740	61.61	-2.1	2.81	0.66	35.981	25.634	2.81	-12.09	4.91	30	45.99	46.75
1760	61.37	-2.12	2.83	0.68	36.266	25.101	2.83	-11.21	4.95	30	46	46.8
1780	60.79	-2.16	2.96	0.81	36.566	24.225	2.96	-11.25	5.12	30	46.01	46.85
1800	60.02	-2.22	3.16	1.01	36.707	23.313	3.16	-10.89	5.38	30	46.06	46.91
1820	59.36	-2.26	3.44	1.29	36.889	22.474	3.44	-10.78	5.7	30	46.22	47.06
1840	58.33	-2.34	3.69	1.54	36.95	21.384	3.69	-11.13	6.03	30	46.37	47.19
1860	56.83	-2.45	3.83	1.68	36.792	20.039	3.83	-11.66	6.29	30	46.49	47.26
1880	55.05	-2.59	3.89	1.74	36.219	18.833	3.89	-12.16	6.49	30	46.6	47.34
1900	52.85	-2.77	3.91	1.76	35.048	17.804	3.91	-12.92	6.68	30	46.69	47.4
1920	51.49	-2.88	4.01	1.86	34.542	16.952	4.01	-14.19	6.89	0	46.87	47.58
1940	51.04	-2.92	4.21	2.06	34.847	16.197	4.21	-15.78	7.13	0	47.14	47.86
1960	51.22	-2.91	4.45	2.3	35.686	15.53	4.45	-17.13	7.35	0	47.43	48.2
1980	51.76	-2.86	4.63	2.48	36.729	15.027	4.63	-18.14	7.49	0	47.67	48.53
2000	51.85	-2.85	4.69	2.54	37.361	14.493	4.69	-19.23	7.54	0	47.82	48.8
2020	51.6	-2.87	4.67	2.52	37.529	14.073	4.67	-20.47	7.54	0	47.91	49.01
2040	52	-2.84	4.71	2.56	37.943	14.059	4.71	-22.01	7.55	0	48.01	49.22
2060	52.8	-2.77	4.91	2.76	38.614	14.191	4.91	-23.88	7.68	0	48.11	49.44
2080	54.39	-2.64	5.2	3.05	39.903	14.486	5.2	-24.64	7.85	0	48.16	49.64
2100	57.36	-2.41	5.59	3.44	42.013	15.348	5.59	-24.57	8.01	0	48.18	49.87
2120	60.16	-2.21	5.88	3.73	43.778	16.385	5.88	-23.16	8.09	0	48.15	50.08
2140	63.51	-1.97	6.17	4.02	45.754	17.753	6.17	-22.38	8.14	0	48.1	50.32
2160	67.81	-1.69	6.54	4.39	48.438	19.377	6.54	-22.35	8.22	0	48.1	50.66
2180	66.56	-1.77	6.59	4.44	47.246	19.311	6.59	-23.18	8.36	0	47.66	50.61
2200	73.89	-1.31	7.2	5.05	52.31	21.581	7.2	-23	8.51	0	47.82	51.13
2220	79.8	-0.98	7.65	5.5	56.429	23.371	7.65	-22.4	8.63	0	47.98	51.57

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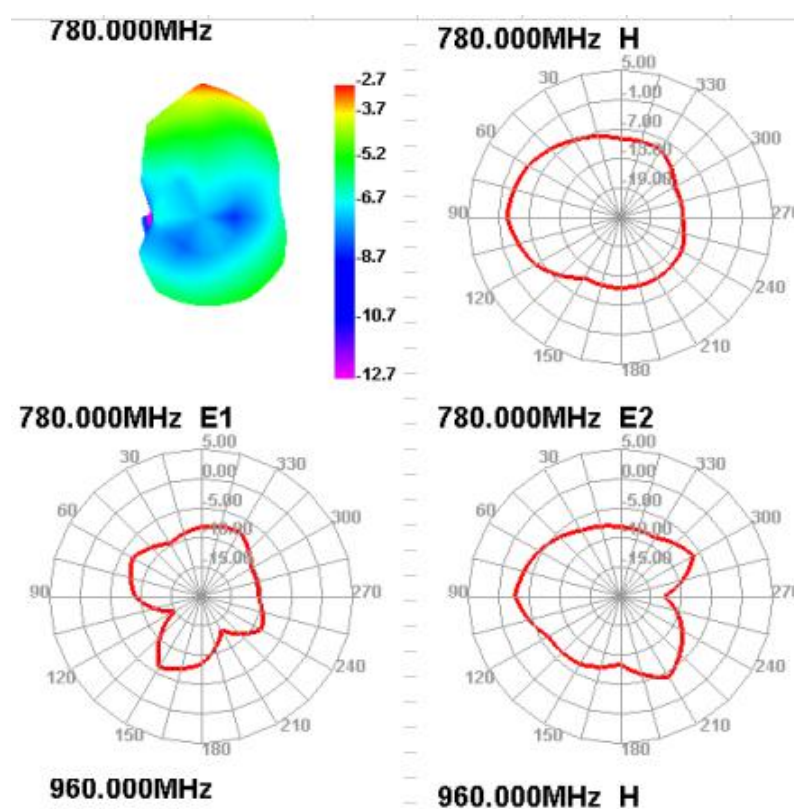
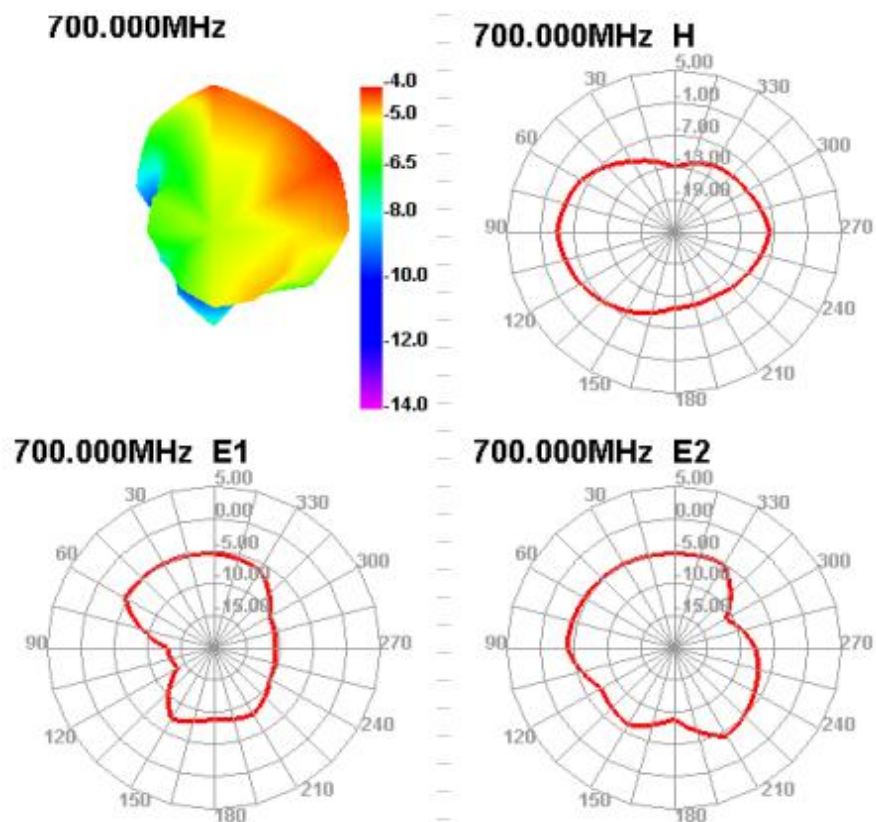


Efficient (main antenna)

2240	82.71	-0.82	7.81	5.66	58.508	24.203	7.81	-21.88	8.63	0	48.08	51.82
2260	82.14	-0.85	7.67	5.52	58.152	23.985	7.67	-21.19	8.52	0	48.2	51.97
2280	80.32	-0.95	7.37	5.22	56.877	23.441	7.37	-20.2	8.32	0	48.37	52.07
2300	76.51	-1.16	6.89	4.74	54.119	22.389	6.89	-19.15	8.05	0	48.57	52.08
2320	72.69	-1.39	6.35	4.2	51.329	21.361	6.35	-18.28	7.74	0	48.79	52.04
2340	67.97	-1.68	5.74	3.59	47.876	20.092	5.74	-17.74	7.42	0	49.02	51.92
2360	63.63	-1.96	5.1	2.95	44.726	18.905	5.1	-17.16	7.06	0	49.26	51.78
2380	61.36	-2.12	4.54	2.39	43.13	18.227	4.54	-16.39	6.66	0	49.54	51.74
2400	59.24	-2.27	3.99	1.84	41.811	17.426	3.99	-15.68	6.26	0	49.77	51.74
2420	64.2	-1.92	3.99	1.84	45.741	18.46	3.99	-14.63	5.92	0	50.43	52.2
2440	61.92	-2.08	3.56	1.41	44.65	17.27	3.56	-14.42	5.64	0	50.53	52.15
2460	59.97	-2.22	3.19	1.04	43.805	16.162	3.19	-14.64	5.41	0	50.6	52.08
2480	58.76	-2.31	2.9	0.75	43.408	15.349	2.9	-14.7	5.21	0	50.62	51.99
2500	57.33	-2.42	2.89	0.74	42.684	14.646	2.89	-14.65	5.31	0	50.64	51.93
2520	56.81	-2.46	2.94	0.79	42.566	14.239	2.94	-14.64	5.4	0	50.7	51.95
2540	56.97	-2.44	3	0.85	43.006	13.962	3	-14.45	5.45	0	50.89	52.05
2560	57.12	-2.43	3.05	0.9	43.476	13.647	3.05	-14.36	5.48	0	51.11	52.17
2580	57.8	-2.38	3.11	0.96	44.319	13.48	3.11	-14.59	5.49	0	51.35	52.31
2600	57.87	-2.38	3.1	0.95	44.63	13.242	3.1	-15.35	5.47	0	51.6	52.48
2620	57.45	-2.41	3.11	0.96	44.532	12.921	3.11	-16.81	5.52	0	51.78	52.58
2640	56.64	-2.47	3.23	1.08	44.044	12.598	3.23	-19.32	5.7	0	51.99	52.72
2660	55.64	-2.55	3.28	1.13	43.276	12.36	3.28	-20.62	5.82	0	52.25	52.95
2680	55.04	-2.59	3.26	1.11	42.748	12.296	3.26	-20.85	5.85	0	52.53	53.2
2700	54.72	-2.62	3.17	1.02	42.502	12.221	3.17	-20.64	5.79	0	52.74	53.44
2720	53.84	-2.69	3.01	0.86	41.801	12.035	3.01	-20.53	5.7	0	52.89	53.61
2740	52.92	-2.76	2.92	0.77	40.996	11.92	2.92	-20.43	5.68	30	53.03	53.76
2760	53.32	-2.73	3.14	0.99	41.193	12.125	3.14	-20.29	5.88	30	53.22	53.96

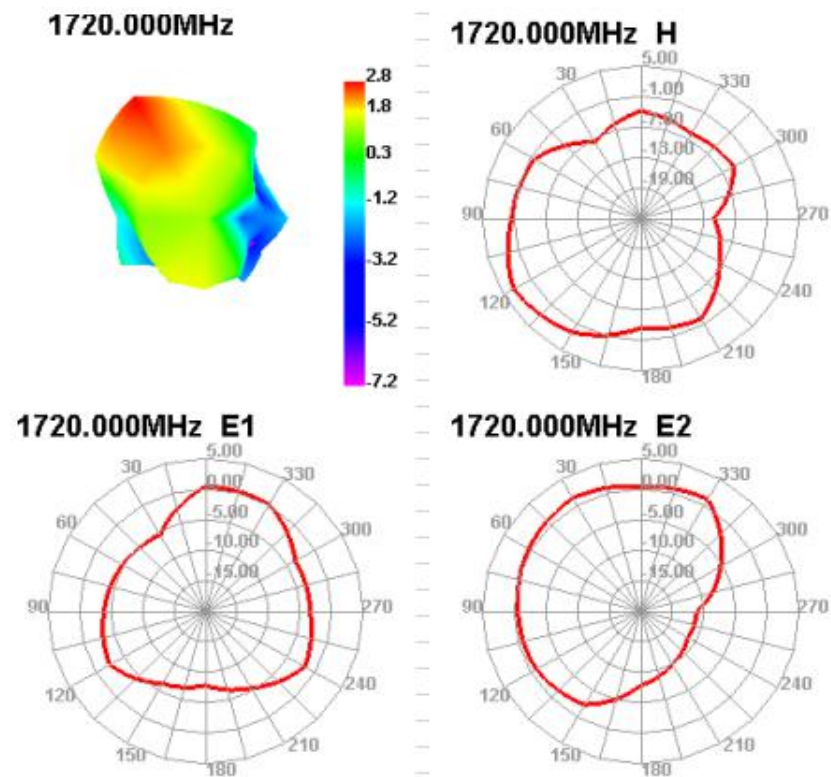
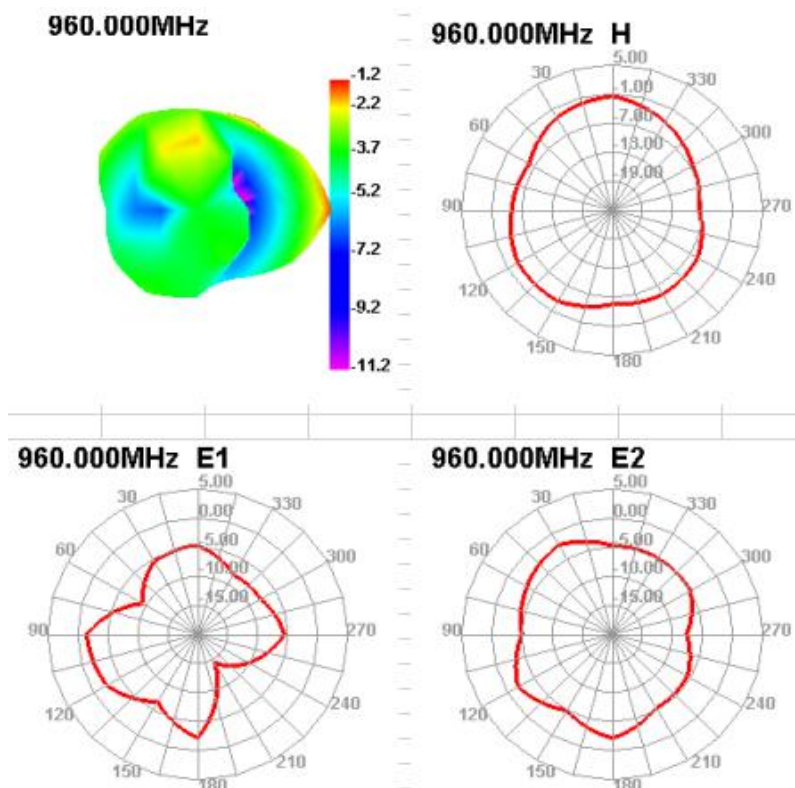
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Efficient (main antenna)



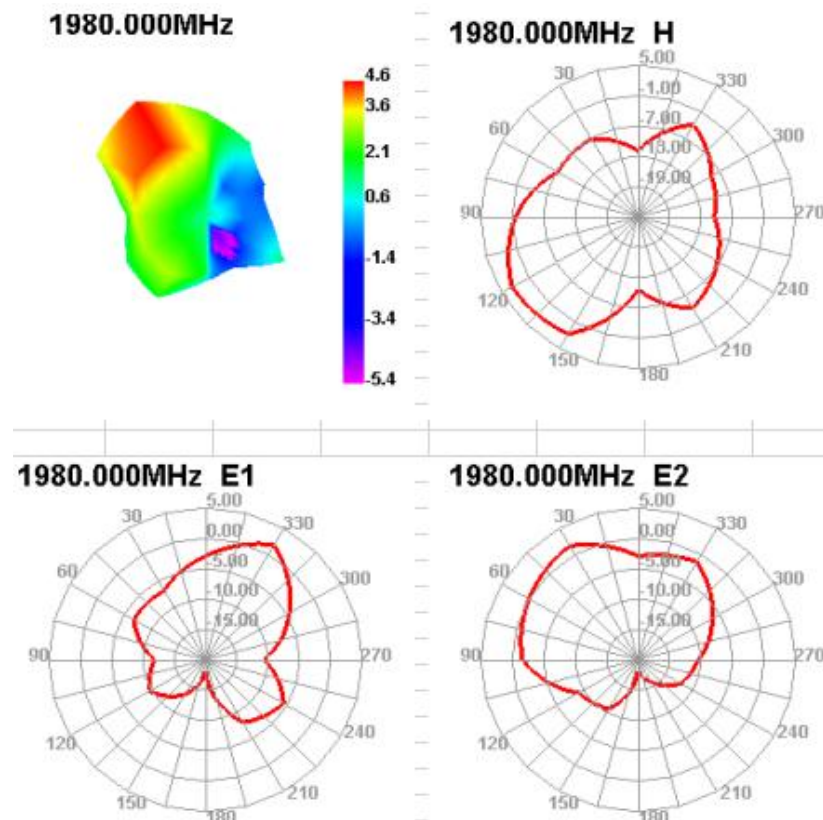
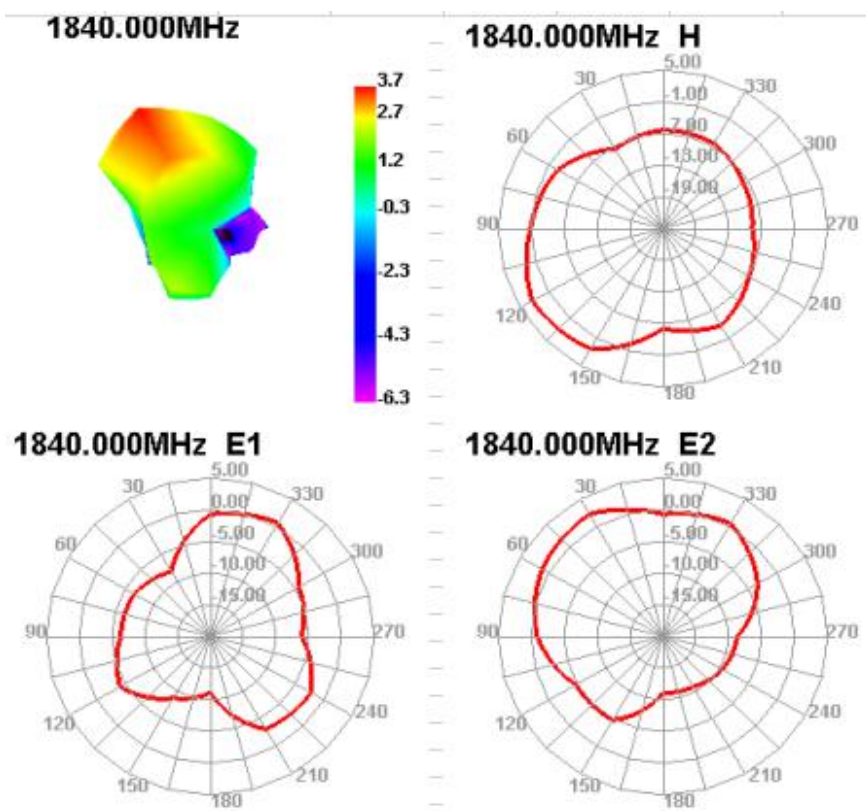
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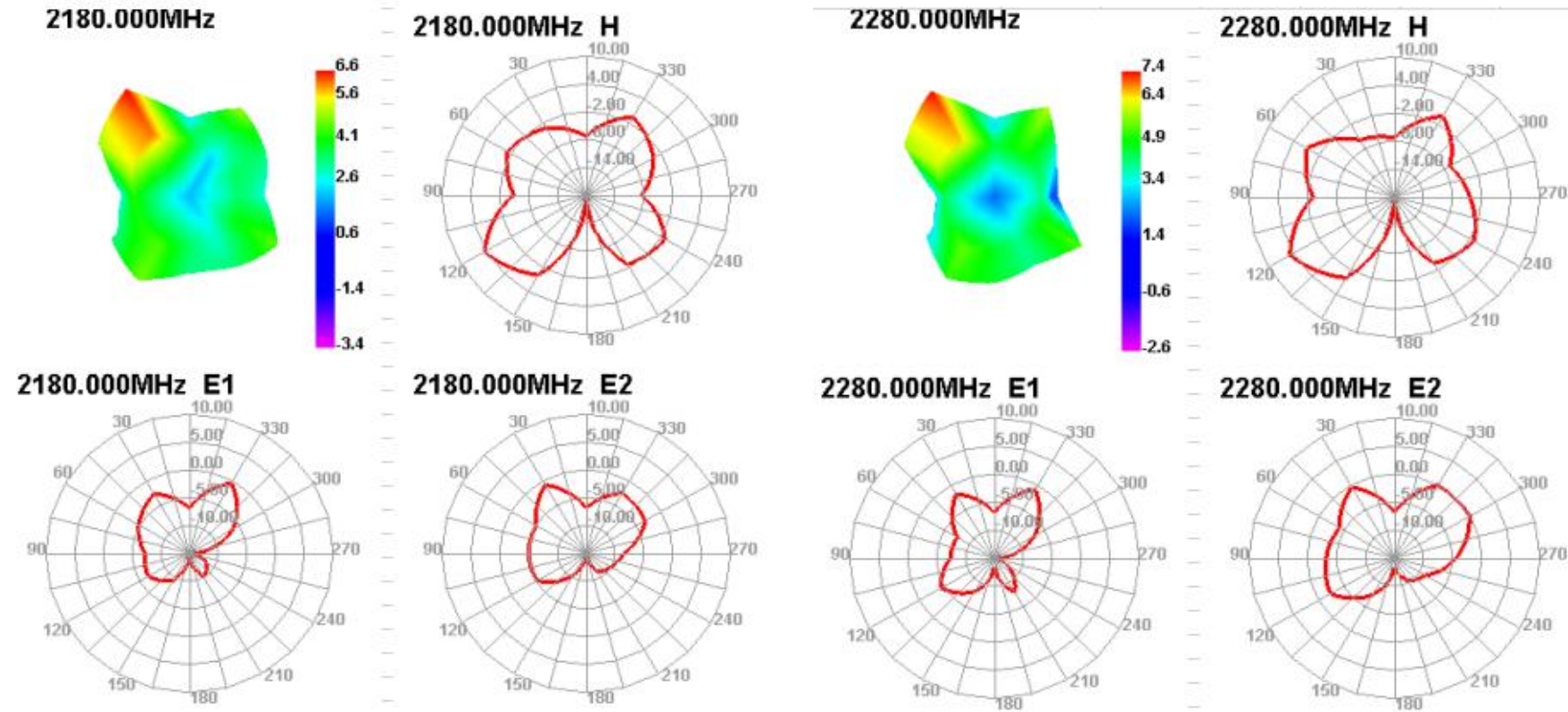
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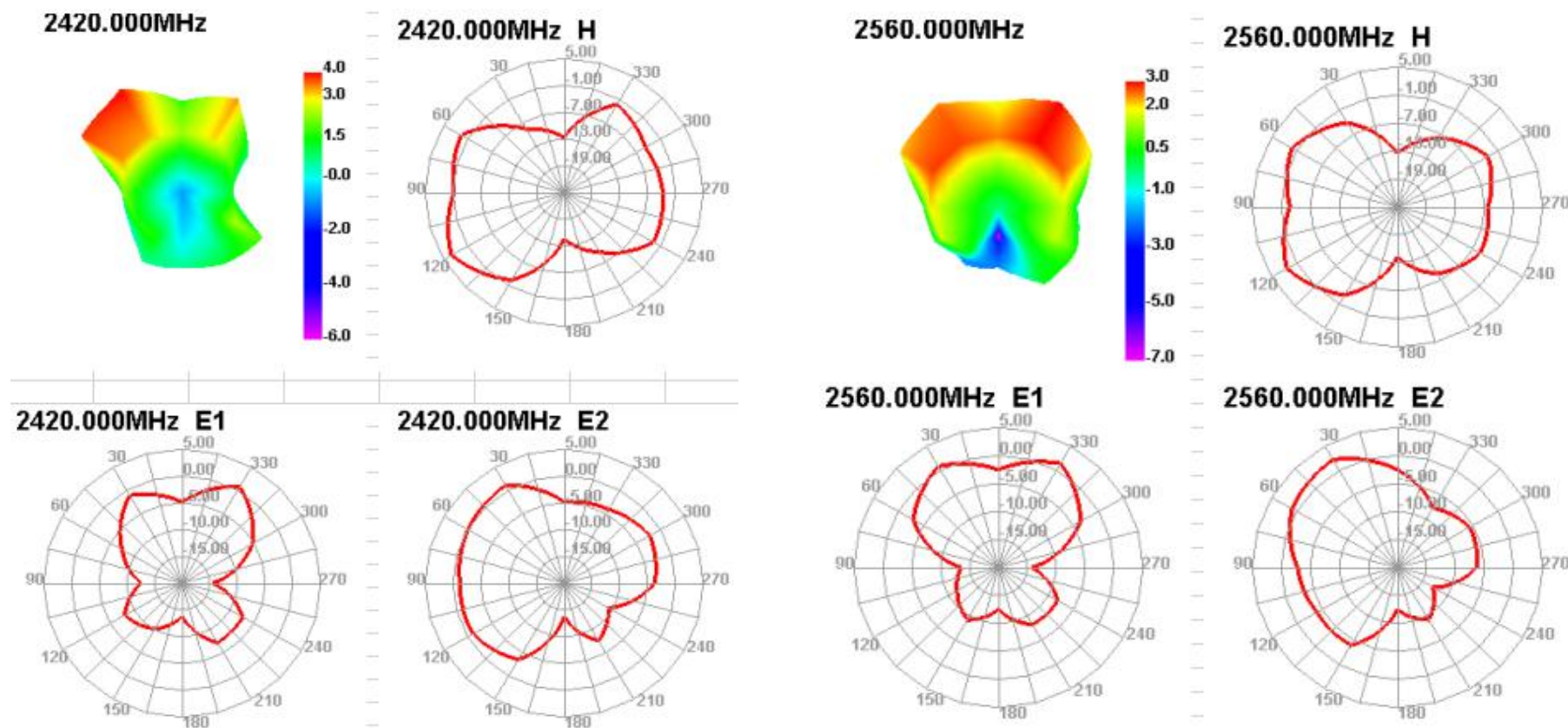
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Efficient (main antenna)



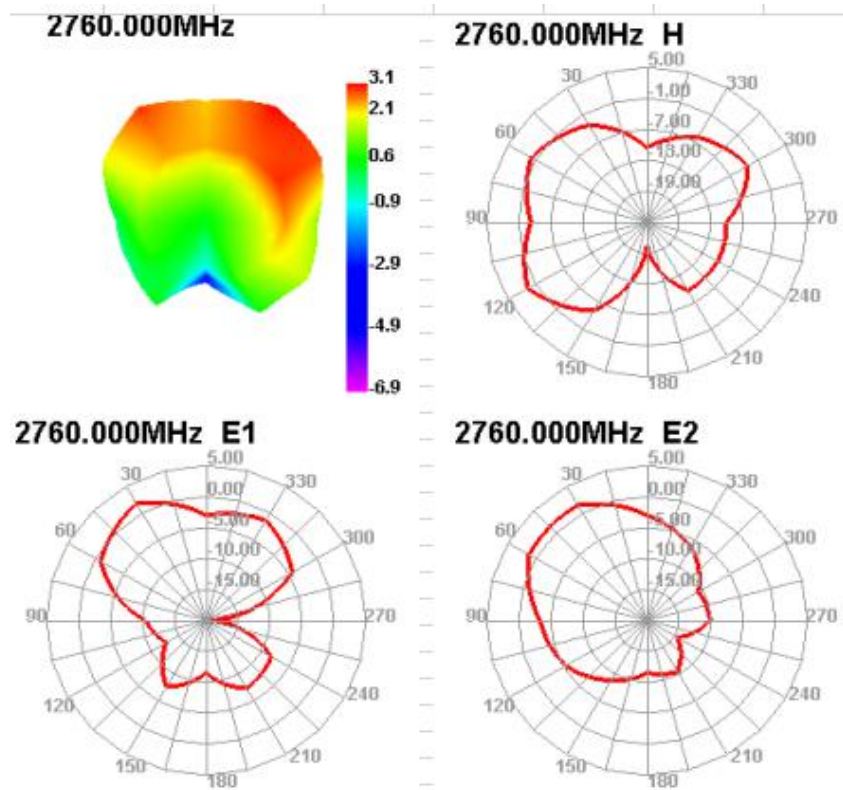
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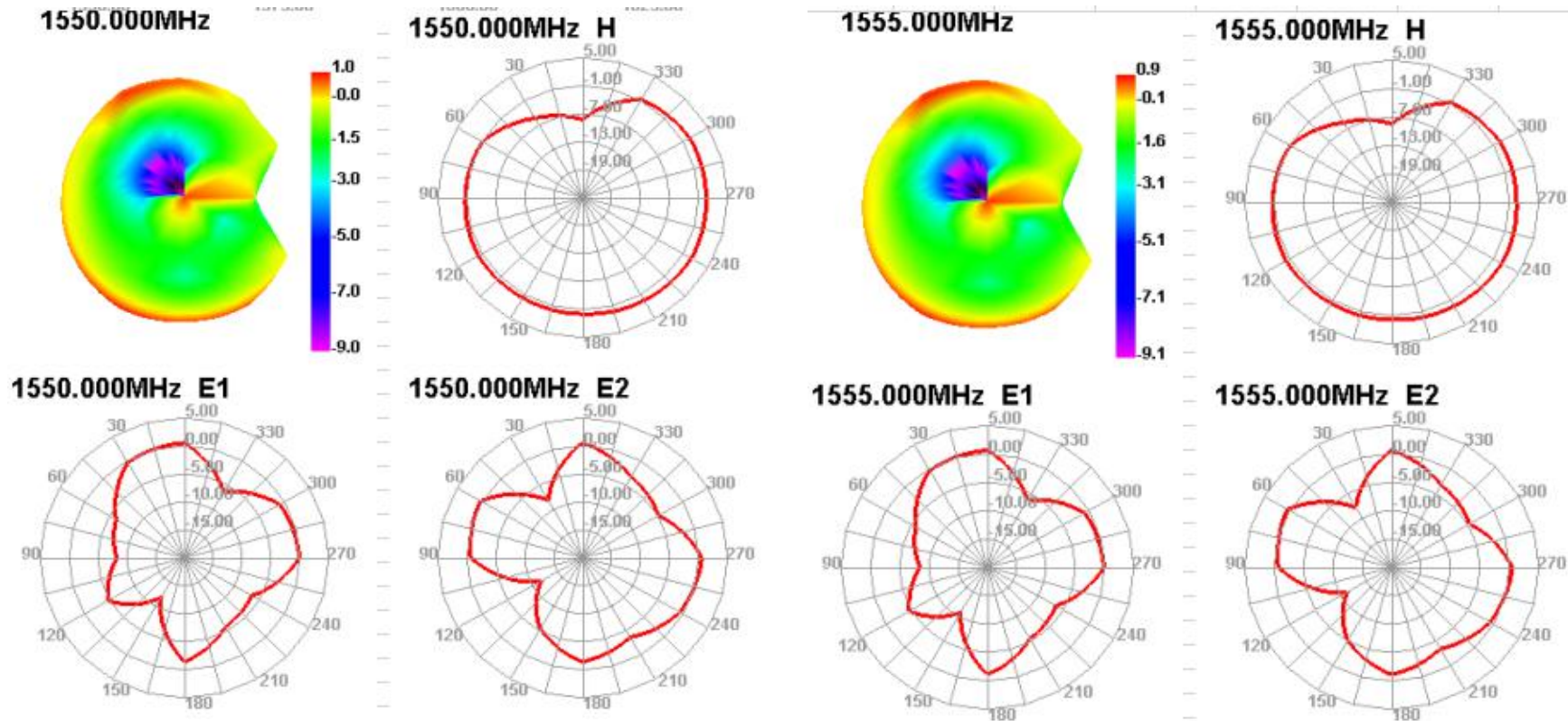
Efficient (GPS)

Passive Test For GPS												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
1550	58.33	-2.34	0.97	-1.18	32.429	25.898	0.97	-15.82	3.31	30	44.31	45.04
1555	58.72	-2.31	0.95	-1.2	32.662	26.063	0.95	-15.97	3.26	30	44.35	45.09
1560	60.34	-2.19	0.93	-1.22	33.499	26.839	0.93	-15.56	3.13	30	44.4	45.13
1565	62.76	-2.02	1.13	-1.02	34.774	27.988	1.13	-15.48	3.15	30	44.45	45.17
1570	64.4	-1.91	1.32	-0.83	35.651	28.745	1.32	-14.99	3.24	30	44.5	45.22
1575	65.37	-1.85	1.44	-0.71	36.273	29.097	1.44	-14.64	3.28	0	44.56	45.28
1580	66.46	-1.77	1.54	-0.61	37.012	29.447	1.54	-13.95	3.31	0	44.62	45.34
1585	67.92	-1.68	1.64	-0.51	37.992	29.928	1.64	-12.73	3.32	0	44.69	45.4
1590	68.71	-1.63	1.65	-0.5	38.421	30.293	1.65	-11.4	3.28	0	44.78	45.48
1595	68.46	-1.65	1.55	-0.6	38.113	30.352	1.55	-9.99	3.2	0	44.85	45.56
1600	67.66	-1.7	1.45	-0.7	37.503	30.156	1.45	-8.85	3.14	0	44.94	45.63
1605	66.79	-1.75	1.39	-0.76	36.974	29.817	1.39	-7.78	3.14	0	45	45.69
1610	66.58	-1.77	1.38	-0.77	36.909	29.666	1.38	-7.12	3.14	0	45.07	45.75
1615	66.12	-1.8	1.36	-0.79	36.9	29.221	1.36	-6.68	3.16	60	45.13	45.79
1620	64.5	-1.9	1.33	-0.82	36.213	28.287	1.33	-7.61	3.24	60	45.17	45.84
1625	62.9	-2.01	1.34	-0.81	35.391	27.506	1.34	-8.74	3.35	60	45.21	45.87
1630	62.84	-2.02	1.47	-0.68	35.371	27.464	1.47	-10.06	3.49	30	45.24	45.89
1635	63.22	-1.99	1.63	-0.52	35.71	27.505	1.63	-10.97	3.62	30	45.26	45.92
1640	62.92	-2.01	1.69	-0.46	35.683	27.236	1.69	-11.22	3.7	30	45.3	45.95
1645	62.43	-2.05	1.68	-0.47	35.386	27.048	1.68	-10.91	3.72	30	45.34	45.99
1650	26.57	-5.76	-1.62	-3.77	13.694	12.878	-1.62	-12.48	4.13	90	45.37	46.02

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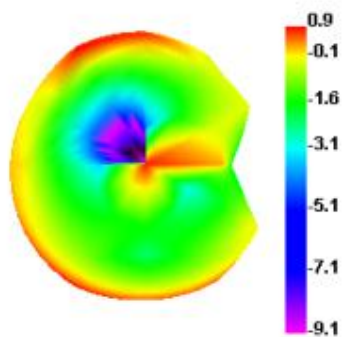
Efficient (GPS)



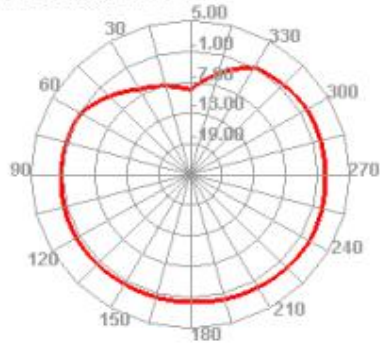
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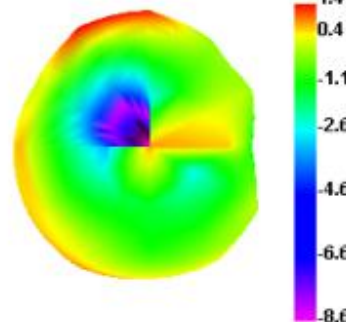
1560.000MHz



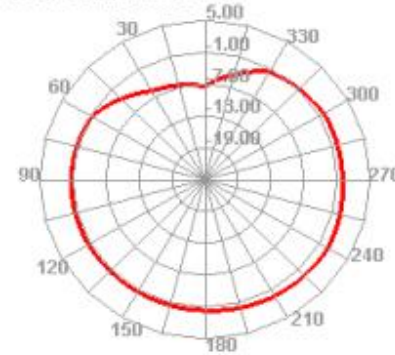
1560.000MHz H



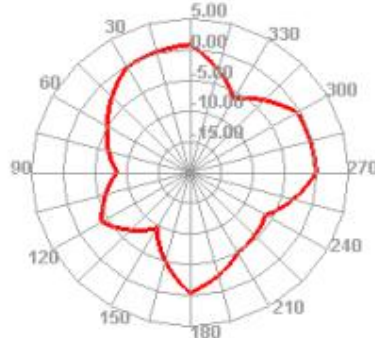
1575.000MHz



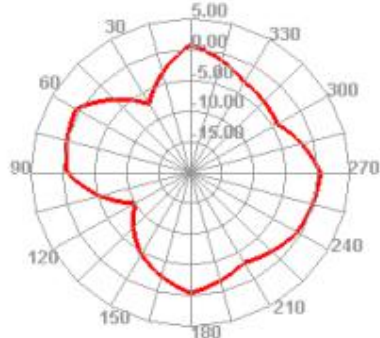
1575.000MHz H



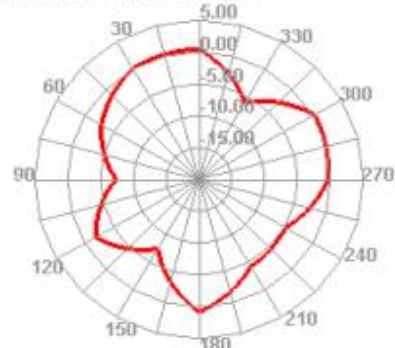
1560.000MHz E1



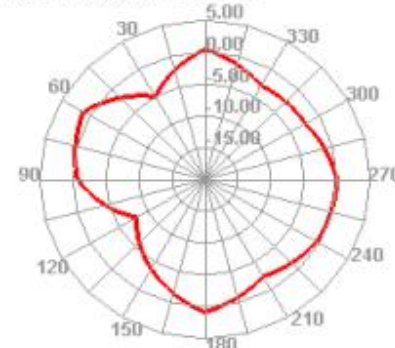
1560.000MHz E2



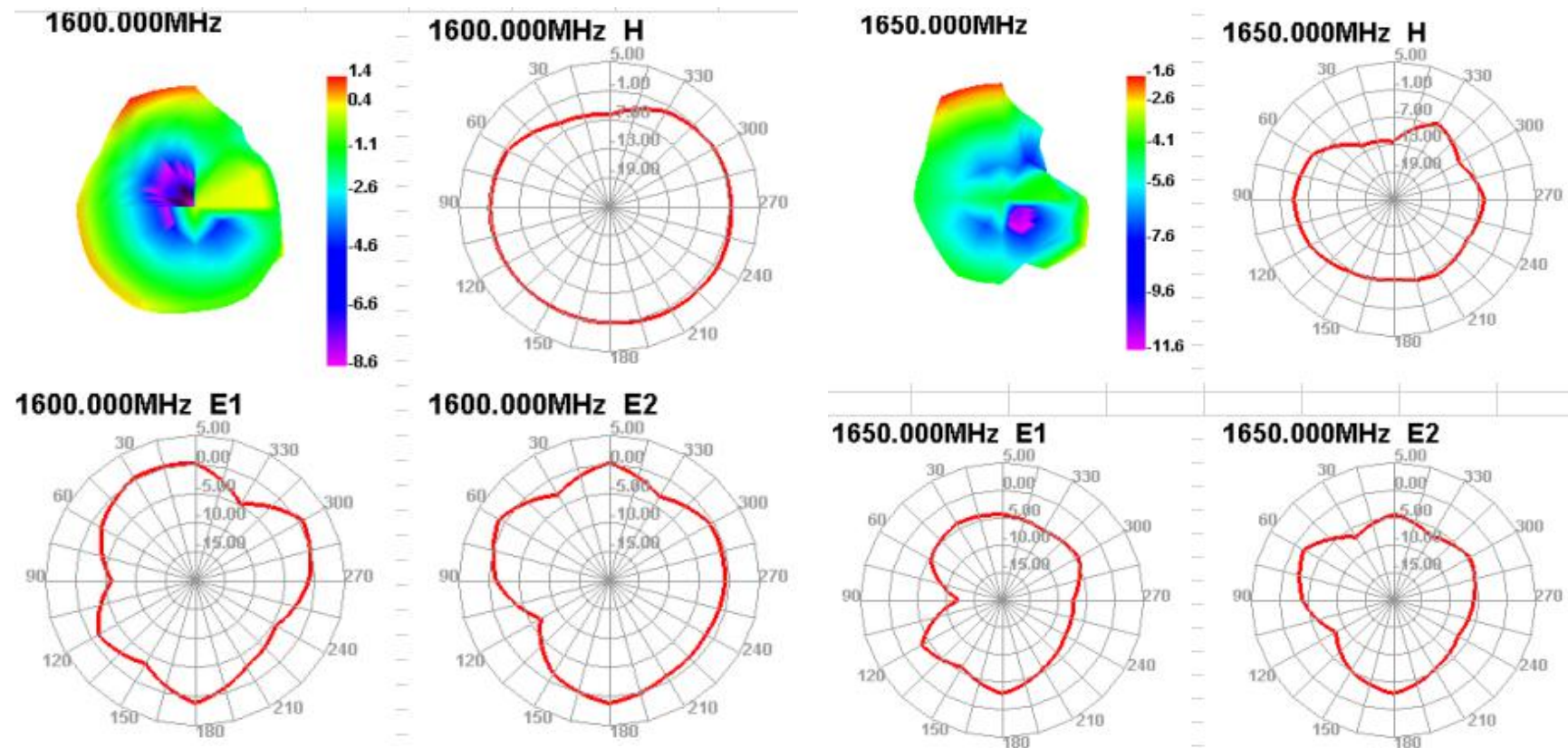
1575.000MHz E1



1575.000MHz E2



Efficient (GPS)



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Efficient (BT/ WiFi)

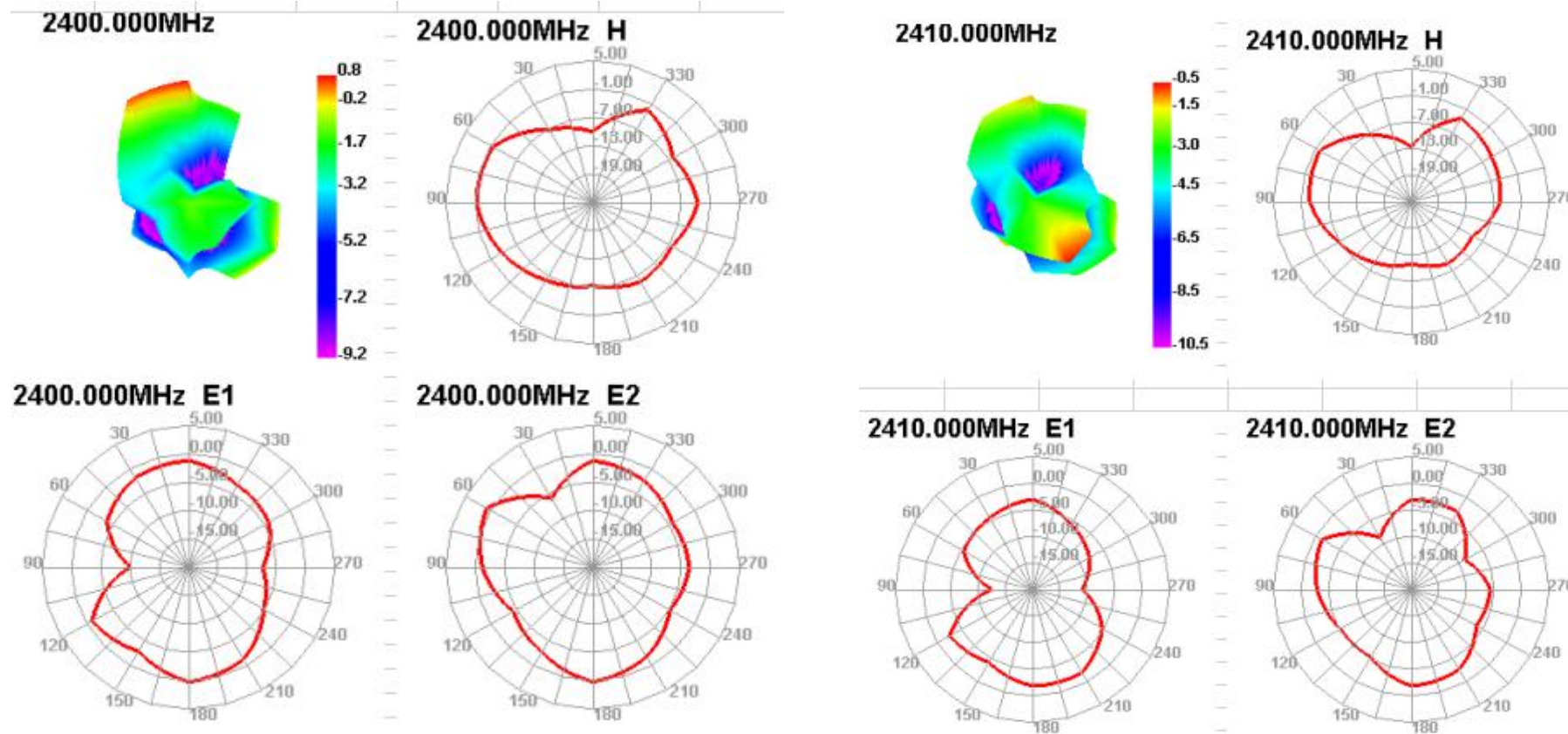
Passive Test For WIFI										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	63.97	-1.94	3.06	0.91	33.505	30.467	3.06	-20.56	52.41	52.17
2410	63.83	-1.95	3.17	1.02	32.938	30.888	3.17	-22.51	51.04	50.88
2420	59.5	-2.25	2.93	0.78	30.307	29.193	2.93	-25.57	51.14	50.83
2430	62.44	-2.05	3.16	1.01	31.497	30.942	3.16	-26.79	52.16	51.84
2440	55.82	-2.53	2.58	0.43	27.579	28.244	2.58	-24.71	51.81	51.65
2450	56.16	-2.51	2.47	0.32	27.45	28.709	2.47	-20.28	51.51	51.13
2460	56.06	-2.51	2.26	0.11	27.116	28.948	2.26	-18.29	52.1	51.71
2470	58.52	-2.33	2.42	0.27	28.078	30.439	2.42	-17.6	52.55	52.4
2480	55.17	-2.58	2.23	0.08	26.356	28.818	2.23	-17.93	52.44	52.15
2490	54.67	-2.62	2.11	-0.04	25.88	28.794	2.11	-19.19	51.82	51.43
2500	50.3	-2.98	1.87	-0.28	23.598	26.7	1.87	-19.94	51.59	51.38
Passive Test For 5.8										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5000	46.67	-3.31	1.85	-0.3	20.83	25.842	1.85	-14.19	60.98	61.12
5100	49.34	-3.07	2.72	0.57	21.539	27.8	2.72	-20.56	62.27	61.85
5200	46.53	-3.32	2.61	0.46	19.821	26.71	2.61	-15.82	61.29	61.02
5300	47.43	-3.24	2.39	0.24	20.042	27.387	2.39	-17.77	62.07	61.55
5400	54.3	-2.65	2.97	0.82	22.628	31.669	2.97	-18.02	62.13	60.92
5500	54.3	-2.65	3.27	1.12	22.779	31.523	3.27	-15.15	63.01	61.73
5600	46.08	-3.37	2.94	0.79	19.41	26.668	2.94	-17.6	63.72	61.99
5700	52.48	-2.8	3.28	1.13	20.976	31.508	3.28	-16.71	64.01	63.03
5800	50.29	-2.98	2.74	0.59	19.693	30.6	2.74	-17.24	63.93	62.81
5900	43.42	-3.62	1.79	-0.36	17.19	26.228	1.79	-14.67	64.36	63.01
6000	0.93	-20.32	-14.54	-16.69	0.392	0.537	-14.54	-33.8	49.87	48.27

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Efficient (BT/WIFI)

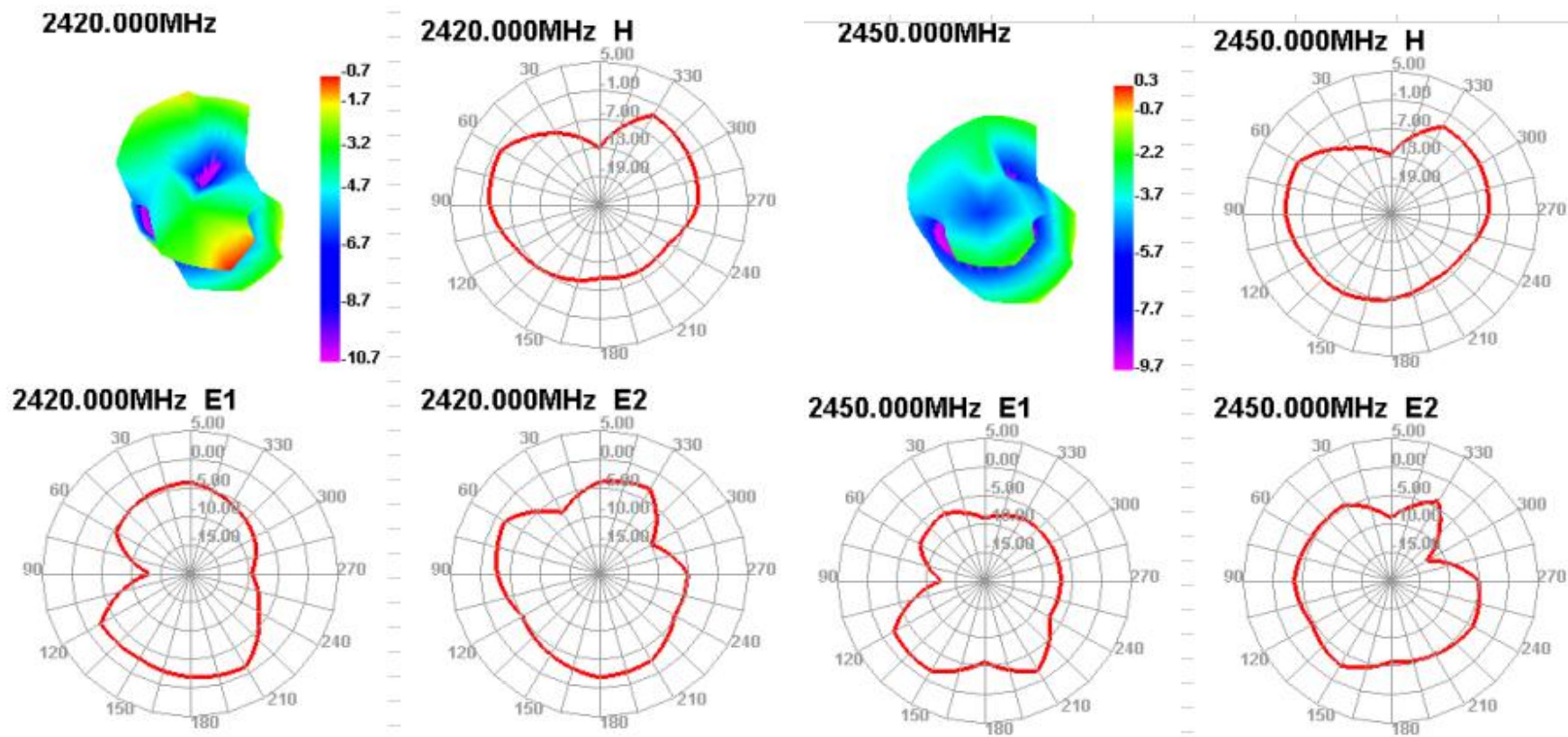
2.4G



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Efficient (BT/WIFI)

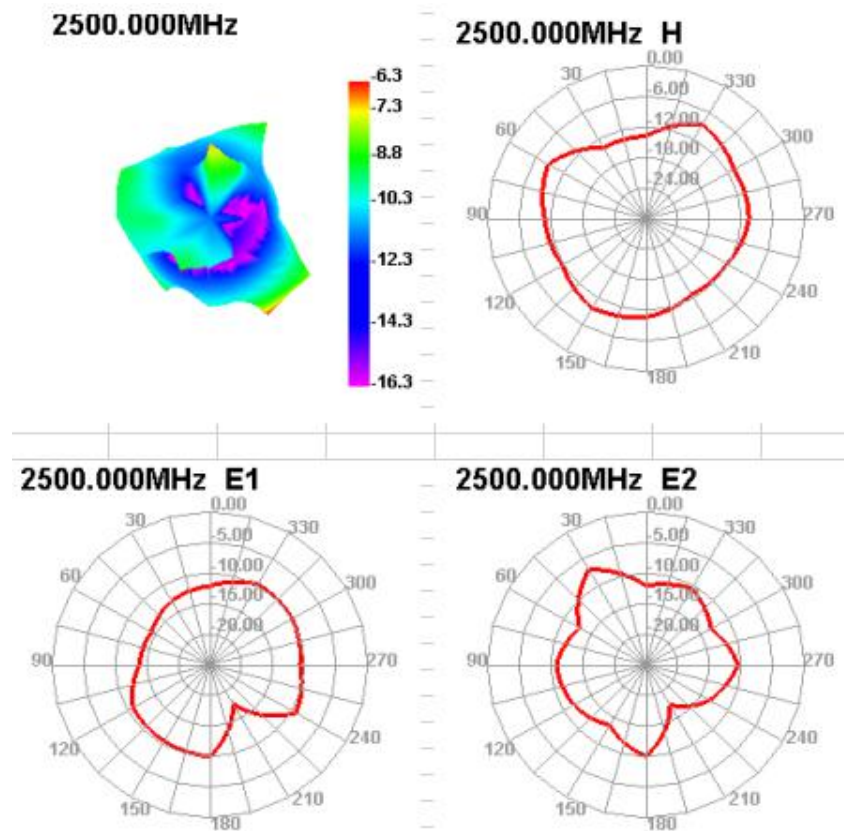
2.4G



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Efficient (BT/WIFI)

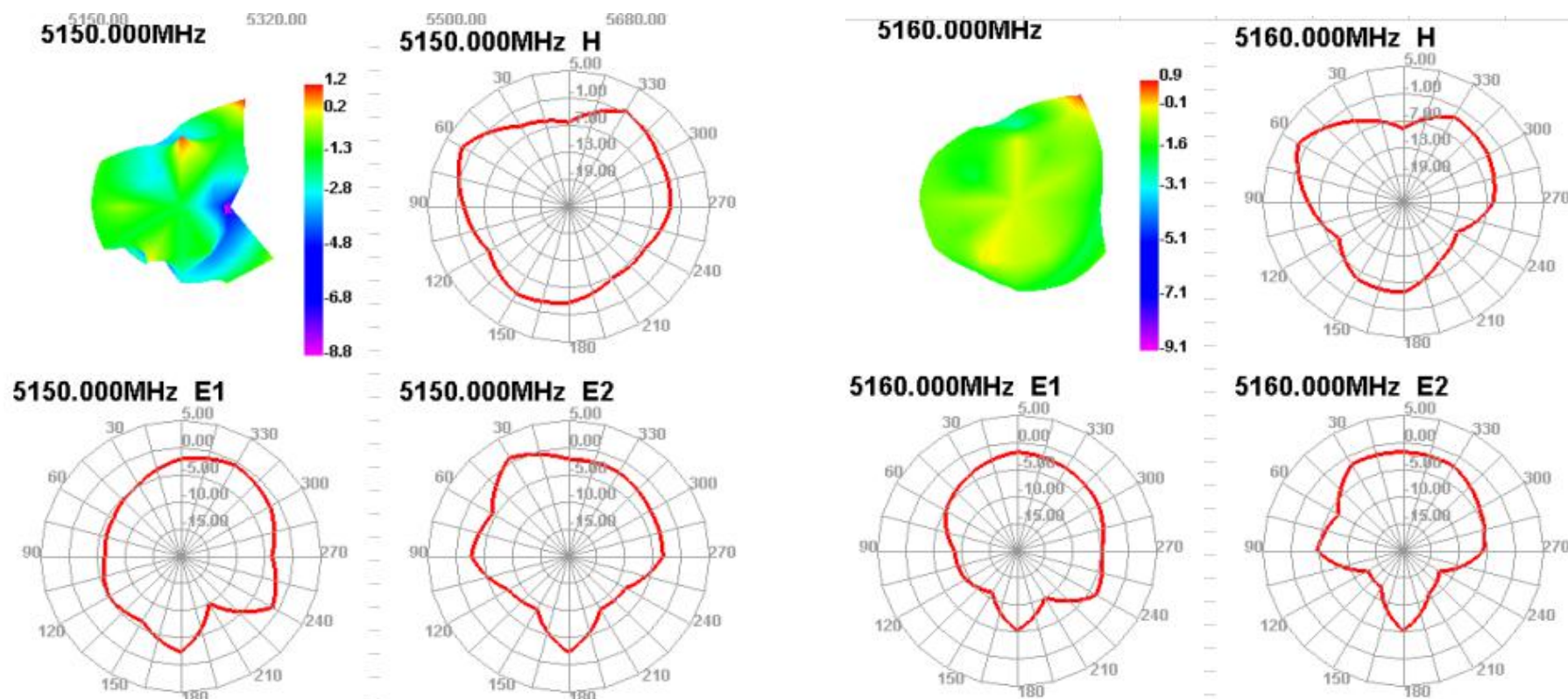
2.4G



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Efficient (WIFI)

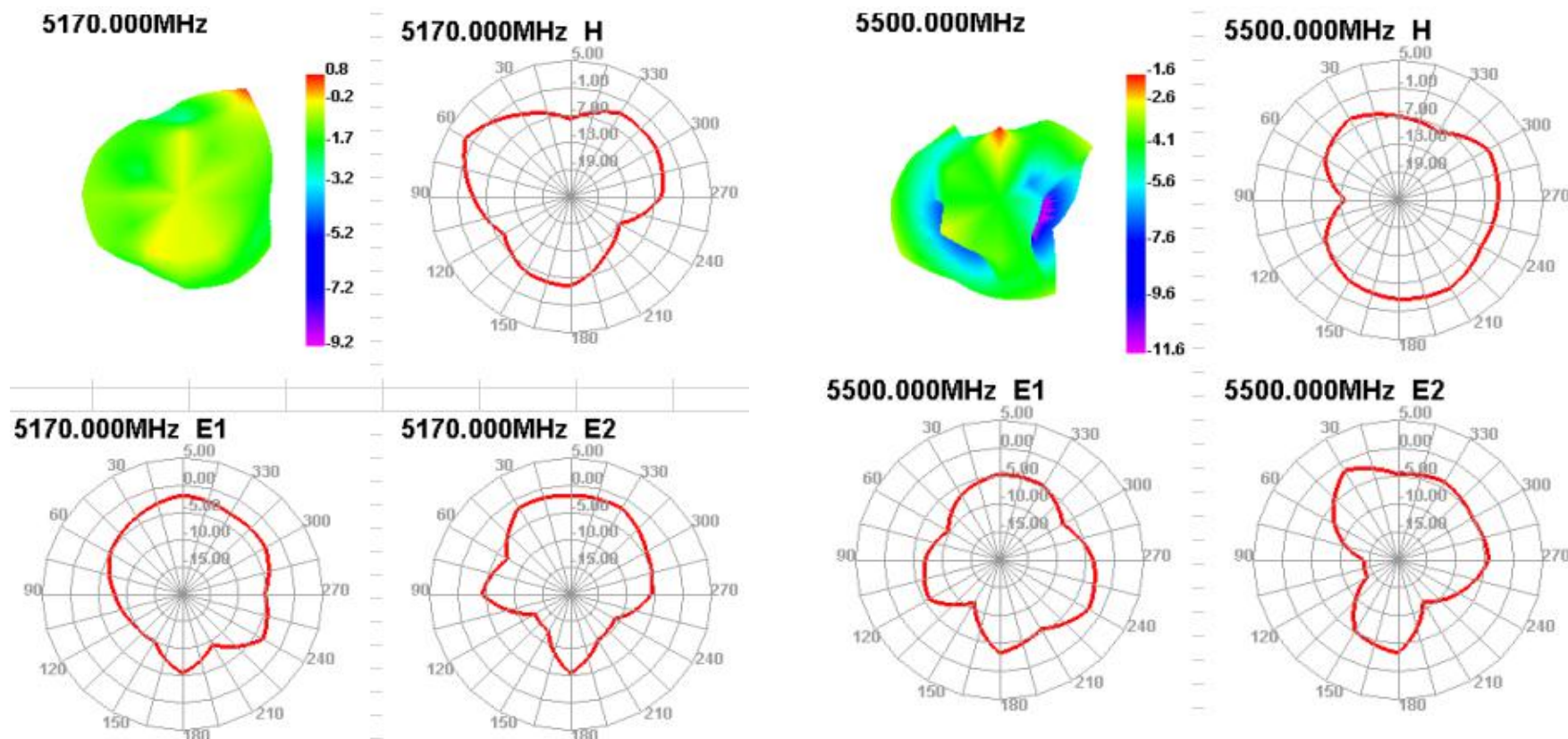
5G



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Efficient (WIFI)

5G

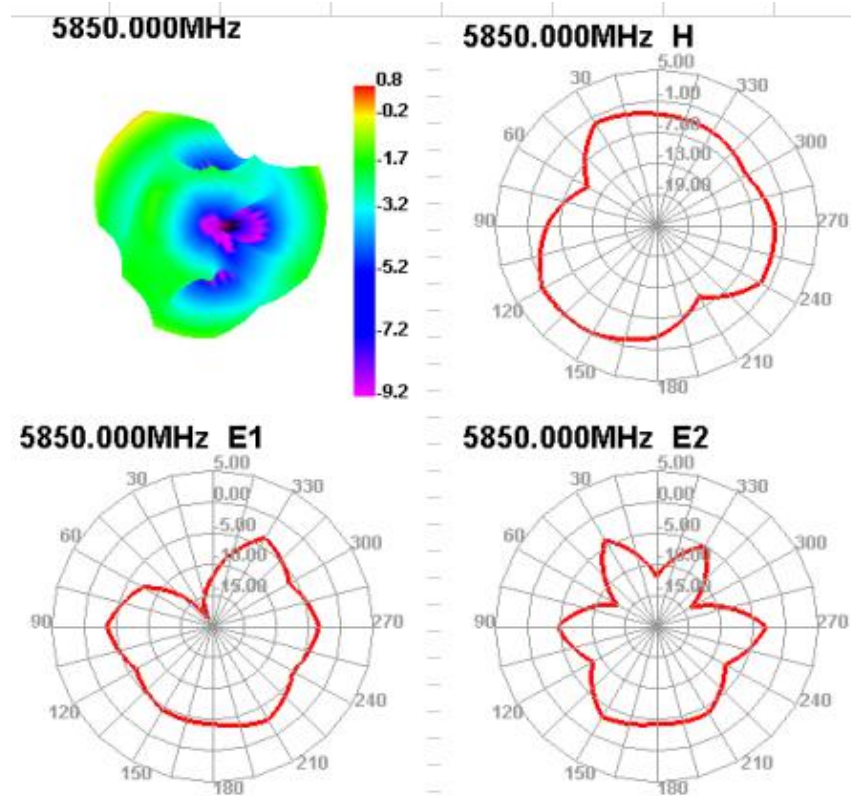


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Efficient (WIFI)

5G

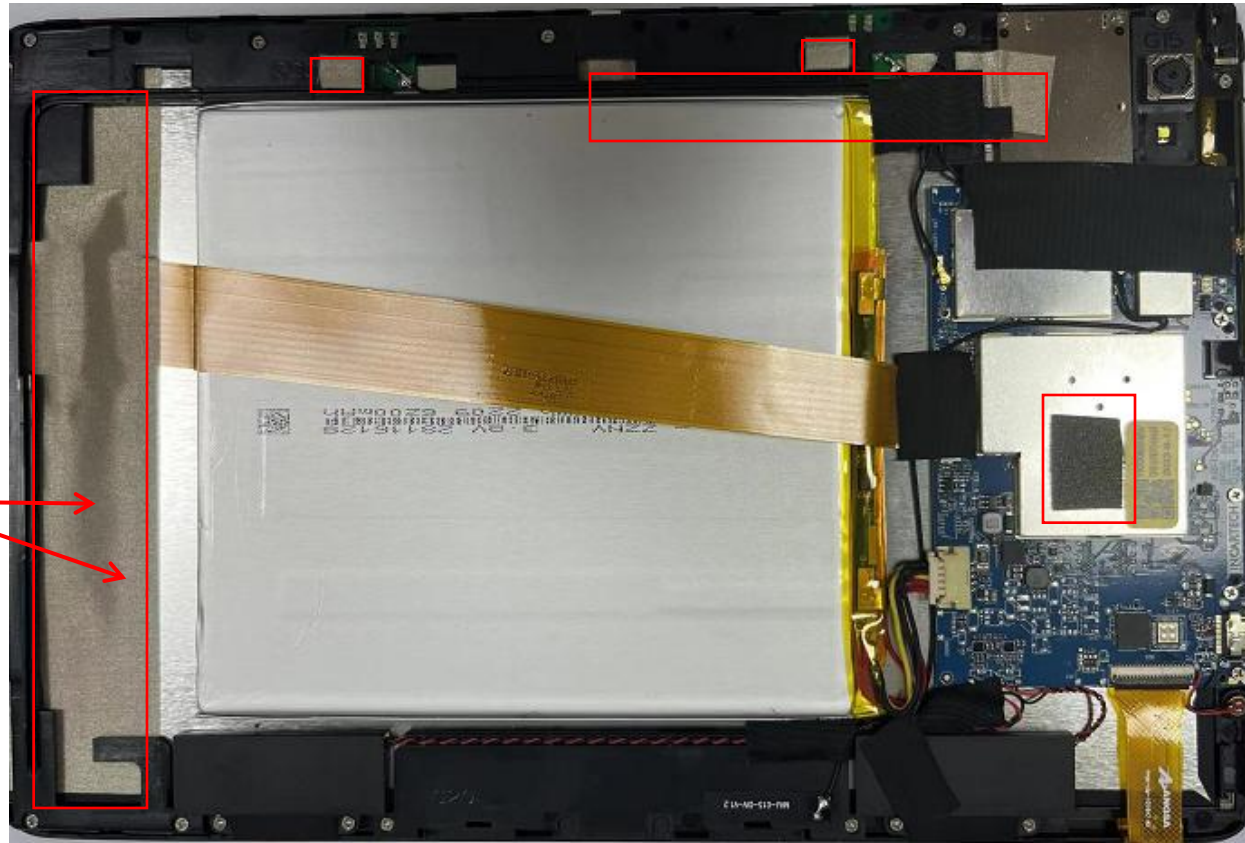


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环境处理 Environmental treatment

1.The small board is grounded with conductive cloth and attached with conductive foam to connect the laser engraving position of the back shell

2.Shielding with conductive cloth



3.Camera cable shielding adapter steel sheet

4.Ground the rear shell laser engraving position with conductive foam on the motherboard



Provide better service for our customers

contacts; linkman: Xiong Qian 17688765727

address: Building 43, Zhongwu Industrial Zone, Xixiang
Street, Bao's District, Shenzhen
