

天 线 规 格 书

Antenna specification for approval

客户名称: 普联

机型: TW-1

天线类型: 4G 主天线/4G 副天线

天线频段: LTE: 1/3/5+WCDMA:2100

材质要求: FPC

颜色: 黑色

4G主天线: G1576A-1L22B-085-A

4G副天线: G1085B-1D22B-080-A

制作日期: 2020-04-29

Version: A

承 认 签 章 Admit that signature			
云 希 承 认 Confirmation Signature		客 户 承 认 Customer Approved	
承办人 Responsible		承办人 Responsible	
品质 QC		主管 Chief	
核准 Approve		核准 Approve	
日 期 Date		日 期 Date	

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一：概述

- This approval sheet supports for MID project. FPC antennas include in this project. This report is for the performance of 4G antenna.
- Antenna shape size: Meet the requirement of MID
- Antenna band: 824MHz~960MHz,1710MHz~2700MHz
- Antenna material: Antenna material meet the requirement of MID
- Adhesive performance: Adhesive performance meet the requirement of MID
- Antenna performance meet the spec below:

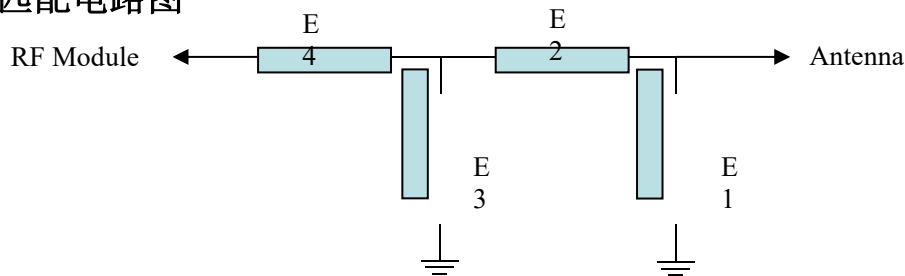
Description	824MHz~960MHz,1710MHz~2700MHz		Units
VSWR	≤ 5.0	≤ 5	dB
Average Antenna Gain	≥ -4.5	≥ -4.0	
Antenna Efficiency	≥ 30	≥ 40	
Feed Impedance	50 ohms		
Operating Temperature	-40 to +85 deg C		
Polarization / Azimuth	Linear / Omni-directional		

● Mechanical Information

Mechanical Dimension	
Cable Length	085/080mm/Black
Description	4G antenna
Material	FPC
Coaxial Cable	50Ohm/0.D.0.81mm
Environmental	
Operation Temperature	-40 to +85 deg C
Storage Temperature	-40 to +85 deg C

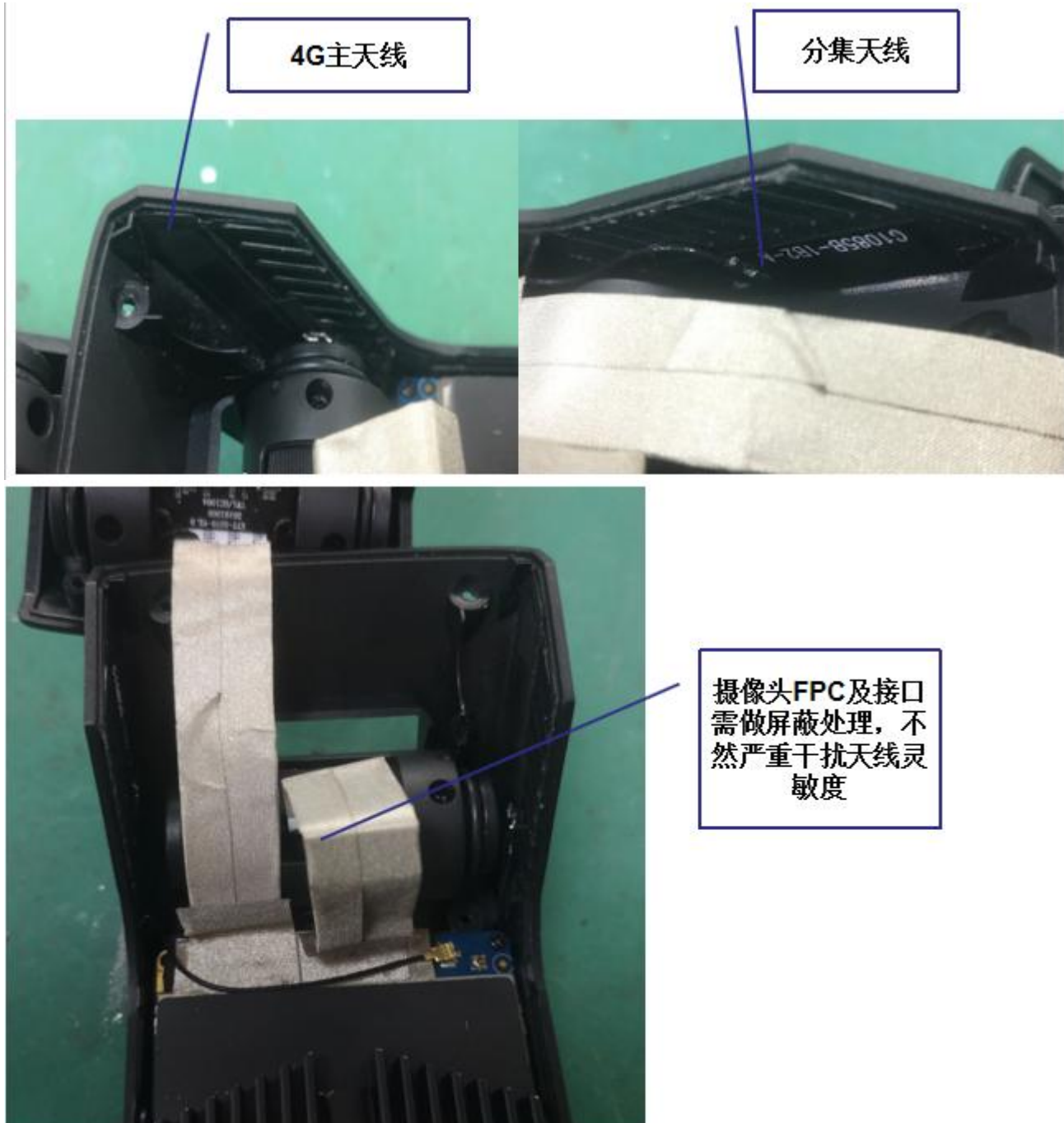
二：匹配电路图、机器图片、天线图片

2.1匹配电路图



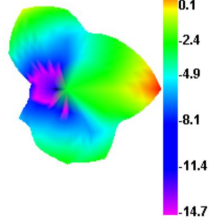
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2.2机器图片、天线图片

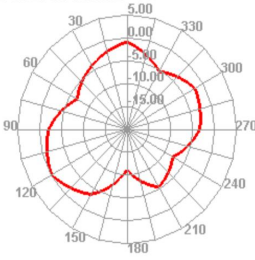


Passive Test For WIFI2.4										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	35.78	-4.46	1.73	-0.42	19.833	15.951	1.73	-14.72	48.17	48.27
2410	34.55	-3.51	2.57	0.42	25.076	19.479	2.57	-13.37	48.82	48.98
2420	37.59	-3.23	2.62	0.47	26.804	20.784	2.62	-13.23	49.21	49.73
2430	35.21	-4.53	1.36	-0.79	20.321	14.886	1.36	-15.12	47.85	48.18
2440	32.58	-4.87	0.94	-1.21	18.968	13.616	0.94	-15.49	47.45	47.61
2450	33.82	-4.71	0.93	-1.22	19.744	14.073	0.93	-16.14	47.52	47.61
2460	38.24	-3.17	2.28	0.13	28.15	20.093	2.28	-14.39	49.2	49.47
2470	39.11	-4.08	1.32	-0.83	22.903	16.204	1.32	-14.96	48.51	48.69
2480	33.99	-4.69	0.78	-1.37	19.903	14.082	0.78	-15.95	47.62	47.62
2490	34.28	-4.65	0.84	-1.31	20.06	14.217	0.84	-15.83	47.76	47.65
2500	40.14	-3.65	1.82	-0.33	25.1	18.039	1.82	-14.37	48.93	48.83

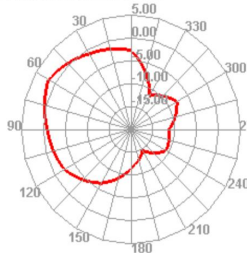
2400.000MHz



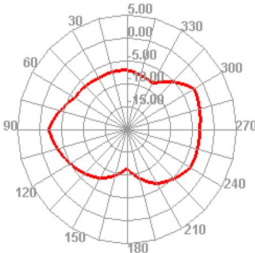
2400.000MHz H



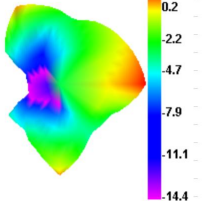
2400.000MHz E1



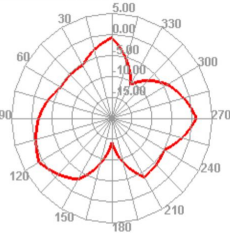
2400.000MHz E2



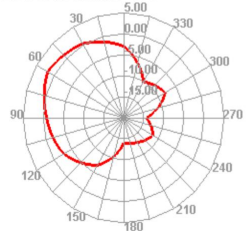
2500.000MHz



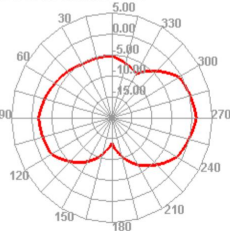
2500.000MHz H



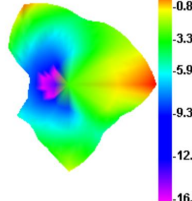
2500.000MHz E1



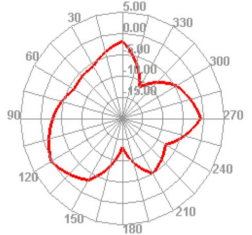
2500.000MHz E2



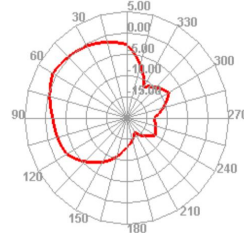
2450.000MHz



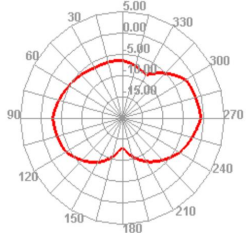
2450.000MHz H



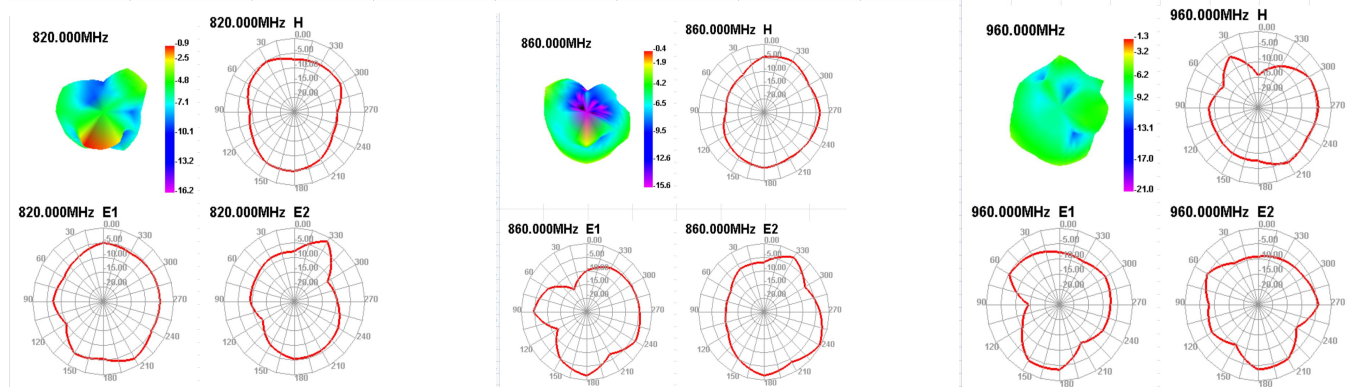
2450.000MHz E1



2450.000MHz E2



Passive Test For 低频										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
820	23.75	-6.24	-0.93	-3.08	11.686	12.061	-0.93	-16.23	38.99	38.99
830	27.44	-5.62	-1.33	-3.48	11.869	15.576	-1.33	-13.42	38.88	38.82
840	23.25	-6.34	-1.5	-3.65	9.731	13.521	-1.5	-13.02	37.97	37.92
850	27.15	-5.66	-0.66	-2.81	10.758	16.394	-0.66	-14.73	38.3	38.39
860	29.3	-5.33	-0.41	-2.56	11.655	17.648	-0.41	-15.62	38.21	38.25
870	34.45	-4.63	0.45	-1.7	13.676	20.776	0.45	-20.74	38.2	38.32
880	34.9	-4.57	0.68	-1.47	13.319	21.577	0.68	-18.79	38.32	38.42
890	31.34	-5.04	-0.16	-2.31	13.098	18.24	-0.16	-19.88	38.67	38.62
900	27.3	-5.64	-0.52	-2.67	12.547	14.749	-0.52	-17.74	38.74	38.81
910	24.92	-6.03	-1.58	-3.73	12.695	12.227	-1.58	-16.5	38.76	38.94
920	29.27	-5.34	-0.85	-3	15.509	13.756	-0.85	-14.08	39.96	40.1
930	26.29	-5.8	-1.6	-3.75	14.306	11.986	-1.6	-12.69	40.17	40.61
940	19.33	-7.14	-2.94	-5.09	10.595	8.734	-2.94	-16.27	39.53	39.83
950	14.53	-8.38	-2.65	-4.8	7.763	6.771	-2.65	-19.84	38.9	39.35
960	18.59	-7.31	-1.28	-3.43	9.302	9.287	-1.28	-20.98	40.24	40.77





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Passive Test For 高频										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
1700	39.76	-4.01	-1.08	-3.23	18.773	20.983	-1.08	-13.22	44.86	44.86
1710	39.12	-4.08	-1.25	-3.4	17.816	21.301	-1.25	-15.96	45.28	45.38
1720	38.91	-4.1	-1.22	-3.37	17.357	21.548	-1.22	-16.91	45.54	45.68
1730	46.13	-3.36	-0.15	-2.3	19.967	26.16	-0.15	-17.35	46.24	46.11
1740	41.07	-3.86	-0.09	-2.24	17.369	23.701	-0.09	-18.15	45.65	45.7
1750	43.49	-3.62	0.14	-2.01	17.921	25.57	0.14	-18.95	45.84	45.89
1760	37.01	-4.32	-0.26	-2.41	14.941	22.066	-0.26	-18.88	45.45	45.55
1770	35.27	-4.53	-0.71	-2.86	14.11	21.157	-0.71	-18.11	45.62	45.34
1780	41.27	-3.84	0.08	-2.07	16.492	24.782	0.08	-18.46	46.45	46
1790	31.68	-4.99	-1.25	-3.4	12.449	19.229	-1.25	-21.42	45.25	45
1800	32.92	-4.82	-0.9	-3.05	12.913	20.011	-0.9	-21.37	45.16	45.02
1810	32.44	-4.89	-0.82	-2.97	12.58	19.857	-0.82	-21.61	45.22	45.1
1820	41.17	-3.85	0.22	-1.93	15.925	25.241	0.22	-19.57	46.55	46.39
1830	34.09	-4.67	-0.51	-2.66	13.193	20.892	-0.51	-20.52	45.84	45.3
1840	26.13	-5.83	-1.61	-3.76	9.984	16.148	-1.61	-21.36	45.04	44.69
1850	33.82	-4.71	-0.39	-2.54	12.734	21.09	-0.39	-20.99	45.73	45.7
1860	42.24	-3.74	0.31	-1.84	15.706	26.531	0.31	-20.81	46.6	46.64
1870	37.86	-4.22	-0.14	-2.29	13.902	23.953	-0.14	-21.88	46.13	45.97
1880	33.6	-4.74	-0.79	-2.94	12.179	21.421	-0.79	-21.73	45.61	45.49
1890	32.69	-4.86	-0.8	-2.95	11.673	21.015	-0.8	-21.47	46.2	45.95
1900	39.61	-4.02	0	-2.15	13.836	25.775	0	-20.46	47.03	47.1
1910	40.16	-3.96	0.29	-1.86	13.863	26.296	0.29	-20.82	47.32	47.37
1920	29.84	-5.25	-1.08	-3.23	10.134	19.706	-1.08	-22.17	46.13	46.35
1930	36.15	-4.42	-0.15	-2.3	12.266	23.888	-0.15	-20.78	46.75	46.64
1940	40.81	-3.89	0.44	-1.71	13.96	26.848	0.44	-18.15	47.4	47.35
1950	47.3	-3.25	0.8	-1.35	16.891	30.412	0.8	-17.18	47.8	47.91
1960	36.79	-4.34	-0.42	-2.57	13.486	23.304	-0.42	-18.45	46.9	47.18
1970	31.28	-5.05	-0.98	-3.13	11.714	19.57	-0.98	-19.21	46.63	46.6
1980	34.97	-4.56	-0.56	-2.71	13.097	21.878	-0.56	-19.89	46.6	46.84
1990	45.04	-3.46	0.61	-1.54	16.98	28.061	0.61	-19.45	47.77	47.98
2000	45.34	-3.43	0.55	-1.6	17.039	28.305	0.55	-18.03	47.58	47.72
2010	35.82	-4.46	-0.35	-2.5	13.573	22.245	-0.35	-16.83	46.84	47
2020	31.59	-5.01	-0.95	-3.1	11.995	19.591	-0.95	-16.29	46.57	46.64
2030	47.71	-3.21	0.84	-1.31	18.434	29.272	0.84	-13.29	48.31	48.37
2040	32.52	-4.88	-0.93	-3.08	12.622	19.893	-0.93	-14.91	46.95	47.05
2050	28.84	-5.4	-1.34	-3.49	11.309	17.526	-1.34	-16.74	46.07	46.29
2060	25.3	-5.97	-1.88	-4.03	9.898	15.4	-1.88	-17.37	45.61	45.47
2070	36.21	-4.41	-0.13	-2.28	14.291	21.915	-0.13	-14.95	47.31	47.35
2080	29.91	-5.24	-0.78	-2.93	11.686	18.226	-0.78	-14.22	46.15	46.42
2090	27.34	-5.63	-1.02	-3.17	10.737	16.601	-1.02	-16.24	45.96	46.34
2100	21.92	-6.59	-2.03	-4.18	8.488	13.428	-2.03	-18.71	45.1	45.03
2110	31.71	-4.99	-0.42	-2.57	12.344	19.364	-0.42	-18.55	46.41	46.64

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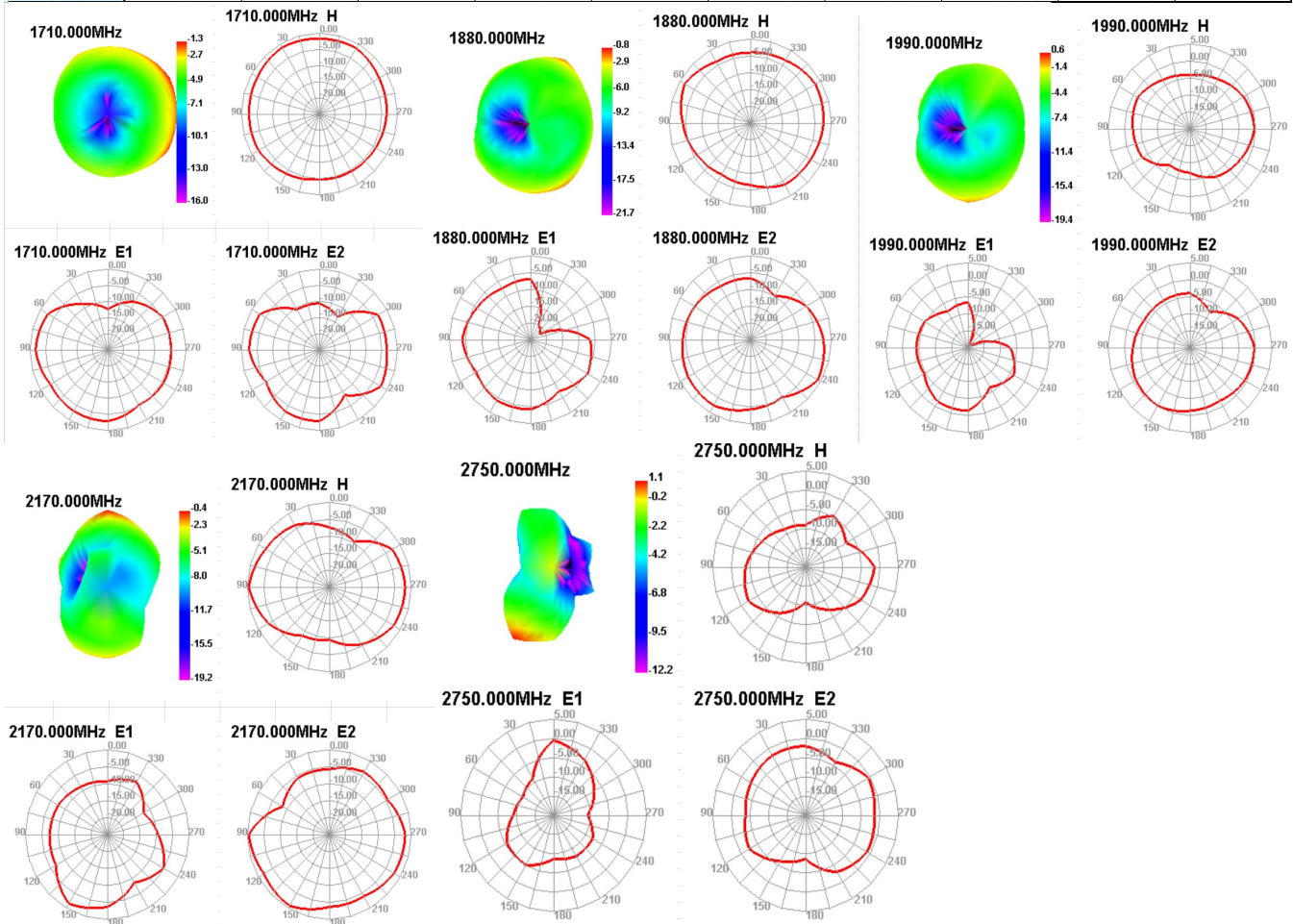
2120	30.24	-5.19	-0.79	-2.94	11.658	18.581	-0.79	-19.32	46.35	46.35
2130	35.97	-4.44	-0.33	-2.48	13.944	22.026	-0.33	-18.18	46.93	46.79
2140	26.82	-5.72	-1.8	-3.95	10.331	16.489	-1.8	-19.4	45.64	45.55
2150	32.43	-4.89	-0.81	-2.96	12.535	19.898	-0.81	-18.89	46.17	46.42
2160	29.89	-5.24	-1.09	-3.24	11.383	18.507	-1.09	-19.45	45.93	45.83
2170	34.18	-4.66	-0.44	-2.59	12.883	21.298	-0.44	-19.23	46.84	46.41
2180	32.24	-4.92	-0.51	-2.66	11.995	20.244	-0.51	-19.27	46.19	45.98
2190	45.18	-3.45	1.1	-1.05	16.752	28.423	1.1	-16.96	47.52	47.45
2200	36.13	-4.42	0.2	-1.95	13.208	22.923	0.2	-16.66	46.49	46.45
2210	44.23	-3.54	1.1	-1.05	16.11	28.12	1.1	-14.76	47.41	47.2
2220	33.76	-4.72	-0.01	-2.16	12.172	21.586	-0.01	-14.77	46.45	46.31
2230	40.65	-3.91	0.86	-1.29	14.666	25.986	0.86	-13.37	47.55	47.19
2240	41.5	-3.82	1.01	-1.14	14.974	26.523	1.01	-13.43	47.8	47.51
2250	28.6	-5.44	-0.57	-2.72	10.399	18.205	-0.57	-15.52	46.08	45.88
2260	33.2	-4.79	0.03	-2.12	12.18	21.025	0.03	-15.71	46.53	46.26
2270	28.35	-5.48	-0.7	-2.85	10.56	17.785	-0.7	-17.49	46.17	46.05
2280	41.28	-3.84	0.96	-1.19	15.67	25.613	0.96	-17.05	47.78	47.6
2290	34.64	-4.6	0.19	-1.96	13.351	21.286	0.19	-18.14	47.32	47.02
2300	38.65	-4.13	0.68	-1.47	15.181	23.471	0.68	-17.11	47.98	47.77
2310	27.98	-5.53	-0.54	-2.69	11.161	16.814	-0.54	-17.45	45.94	46.32
2320	37.47	-4.26	0.73	-1.42	15.03	22.443	0.73	-15.13	47.75	47.83
2330	40.43	-3.93	1.1	-1.05	16.203	24.227	1.1	-13.62	48.44	48.12
2340	45.74	-3.4	1.68	-0.47	18.188	27.556	1.68	-12.56	48.96	48.89
2350	33.05	-4.81	0.28	-1.87	12.952	20.098	0.28	-13.92	47.67	47.78
2360	31.34	-5.04	-0.09	-2.24	12.144	19.193	-0.09	-14.99	48.23	48.07
2370	36.19	-4.41	0.06	-2.09	14.933	21.26	0.06	-13.39	48.98	48.84
2380	43.32	-3.63	0.73	-1.42	18.474	24.847	0.73	-12.05	49.39	49.7
2390	26.98	-5.69	-1.49	-3.64	11.716	15.262	-1.49	-13.98	47.72	47.91
2400	28.59	-5.44	-1.27	-3.42	12.793	15.799	-1.27	-13.75	48.17	48.27
2410	36.62	-4.36	-0.25	-2.4	16.672	19.951	-0.25	-12.92	48.82	48.98
2420	39.89	-3.99	0.19	-1.96	18.525	21.369	0.19	-12.59	49.21	49.73
2430	29.51	-5.3	-1.14	-3.29	13.724	15.785	-1.14	-14	47.85	48.18
2440	26.41	-5.78	-1.61	-3.76	12.353	14.057	-1.61	-14.6	47.45	47.61
2450	26.01	-5.85	-1.69	-3.84	12.105	13.903	-1.69	-14.98	47.52	47.61
2460	42.34	-3.73	0.61	-1.54	19.767	22.573	0.61	-13.01	49.2	49.47
2470	34.14	-4.67	-0.36	-2.51	15.804	18.34	-0.36	-14.29	48.51	48.69
2480	29.21	-5.35	-1.02	-3.17	13.528	15.679	-1.02	-15.26	47.62	47.62
2490	28.29	-5.48	-1.23	-3.38	13.006	15.283	-1.23	-15.94	47.76	47.65
2500	36.87	-4.33	-0.08	-2.23	17.093	19.776	-0.08	-15.56	48.93	48.83
2510	38.98	-4.09	0.16	-1.99	18.054	20.929	0.16	-15.73	48.88	48.94
2520	27.99	-5.53	-1.34	-3.49	13.145	14.842	-1.34	-17.57	47.79	47.57
2530	27.26	-5.64	-1.5	-3.65	12.835	14.429	-1.5	-17.88	47.47	47.4
2540	37.27	-4.29	-0.06	-2.21	17.704	19.566	-0.06	-16.9	48.83	48.73
2550	43.1	-3.65	0.54	-1.61	20.403	22.701	0.54	-15.68	49.67	49.6
2560	33.79	-4.71	-0.6	-2.75	16.068	17.721	-0.6	-16.4	48.79	48.21

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[HTTP://WWW.yunxikeji.COM](http://www.yunxikeji.com)

2570	34.43	-4.63	-0.47	-2.62	16.351	18.081	-0.47	-15.37	48.86	48.65
2580	39.13	-4.07	0.28	-1.87	18.781	20.353	0.28	-14.39	49.08	49.15
2590	52.21	-2.82	1.59	-0.56	25.199	27.006	1.59	-12.5	50.44	50.9
2600	41.57	-3.81	0.63	-1.52	20.349	21.226	0.63	-13	49.84	49.56
2610	36.82	-4.34	0.1	-2.05	18.207	18.615	0.1	-13.14	49.52	48.99
2620	40.33	-3.94	0.69	-1.46	20.273	20.055	0.69	-13.41	49.5	49.55
2630	53.68	-2.7	1.84	-0.31	27.148	26.532	1.84	-12.06	50.89	51.11
2640	40.29	-3.95	0.57	-1.58	20.455	19.835	0.57	-13.24	50.15	49.97
2650	33.34	-4.77	0.09	-2.06	16.737	16.605	0.09	-13.69	49.96	49.83
2660	41.91	-3.78	0.89	-1.26	21.002	20.905	0.89	-12.71	50.28	50.49
2670	60.05	-2.21	2.93	0.78	29.511	30.541	2.93	-10.34	52.46	52.19
2680	50.39	-2.98	2.1	-0.05	24.592	25.799	2.1	-10.87	51.61	51.43
2690	39.37	-4.05	0.64	-1.51	19.168	20.198	0.64	-11.8	50.57	51.05
2700	29.76	-5.26	-0.17	-2.32	14.517	15.242	-0.17	-12.18	49.96	50.05
2710	39.05	-4.08	1.53	-0.62	19.116	19.934	1.53	-10.33	52	51.23
2720	41.92	-3.78	1.19	-0.96	21.062	20.858	1.19	-9.97	51.72	51.78
2730	38.19	-4.18	0.81	-1.34	19.527	18.663	0.81	-10.5	50.79	51.62
2740	28.13	-5.51	-0.19	-2.34	14.446	13.687	-0.19	-11.82	50.18	49.84
2750	35.84	-4.46	1.11	-1.04	18.5	17.343	1.11	-12.15	51.23	51.18



三：3D数据

band	W2100		
信 道	10562	10700	10838
T R P	15.53	15.59	15.47
M A X	22.04	22.67	21.42
T I S			-105.19
M I S			-109.39

band	B1			B3			B5		
信 道	18100	18300	18500	19300	19575	19850	20245	20252	20600
T R P	16.92	16.68	16.55	18.75	17.14	17.57	12.49	12.88	12.62
M A X	22.33	22.3	22.18	23.12	22.14	23.43	14.12	14.42	14.64
T I S			-91.86			-87.35			-82.64
M I S			-95.2			-91.42			-85.34

