

FPC Antenna Specification

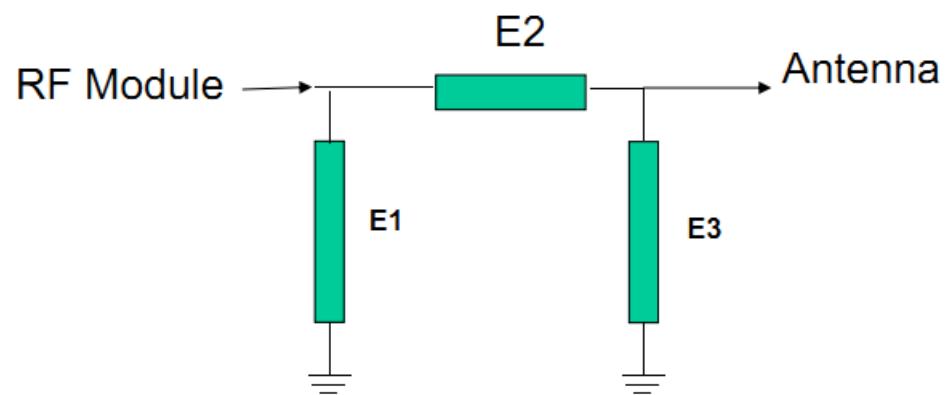
4G /CAT1 /LTE/2G Flexible FPC Antenna

Manufacturer: Shenzhen He electric fast technology Co., LTD
Address: 11th Floor, East Block, Building 6, Hongchuang
Science and Technology Center, District A, Xikeng Community,
Fucheng Street, Longhua District, Shenzhen

1. Antenna matching

4G匹配 (无改动)

Element	E1	E2	E3
Value	/	/	/



2. Test equipment and principle

1. 测试设备:

网络分析仪 Network Analyzers :

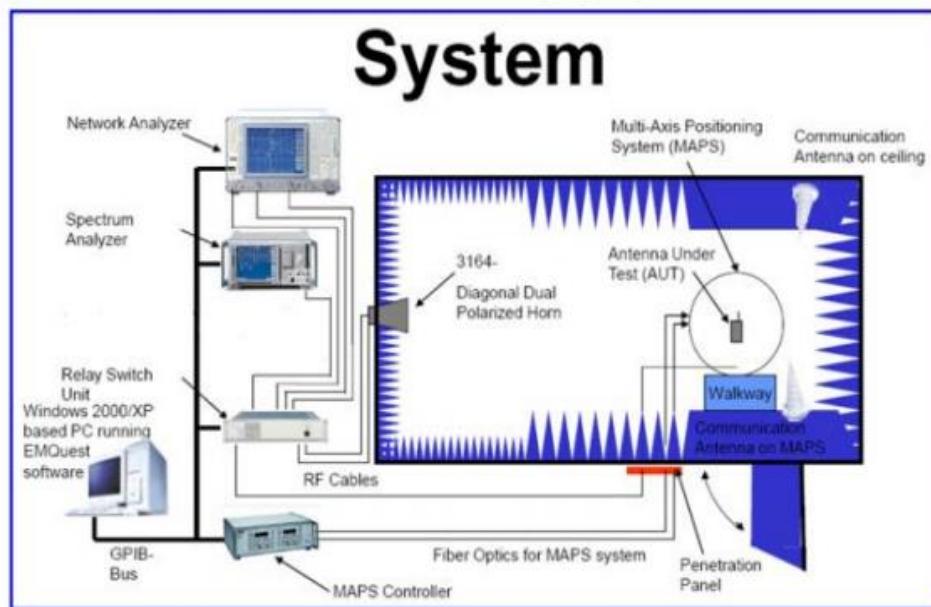
Agilent 8753D 5071B

综合测试仪 Communications Test Set:

Agilent E5515C CMW500

3D 暗室测试系统 3D Chamber Test System:

2. 测试原理:



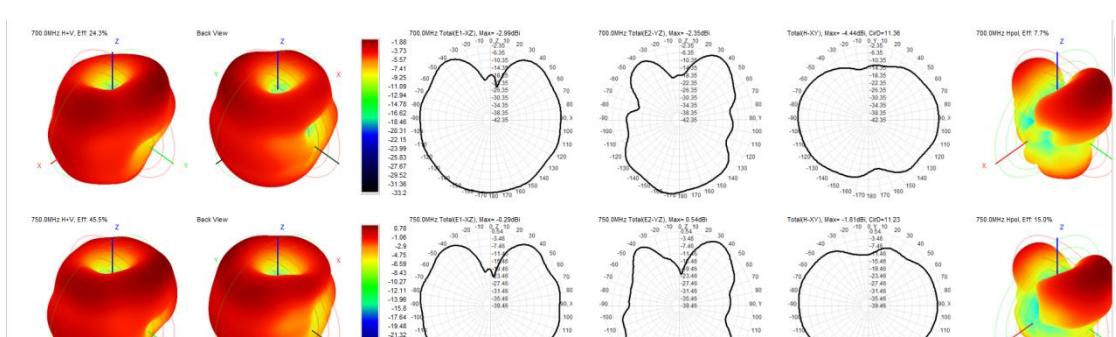
3. Antenna performance indicators:

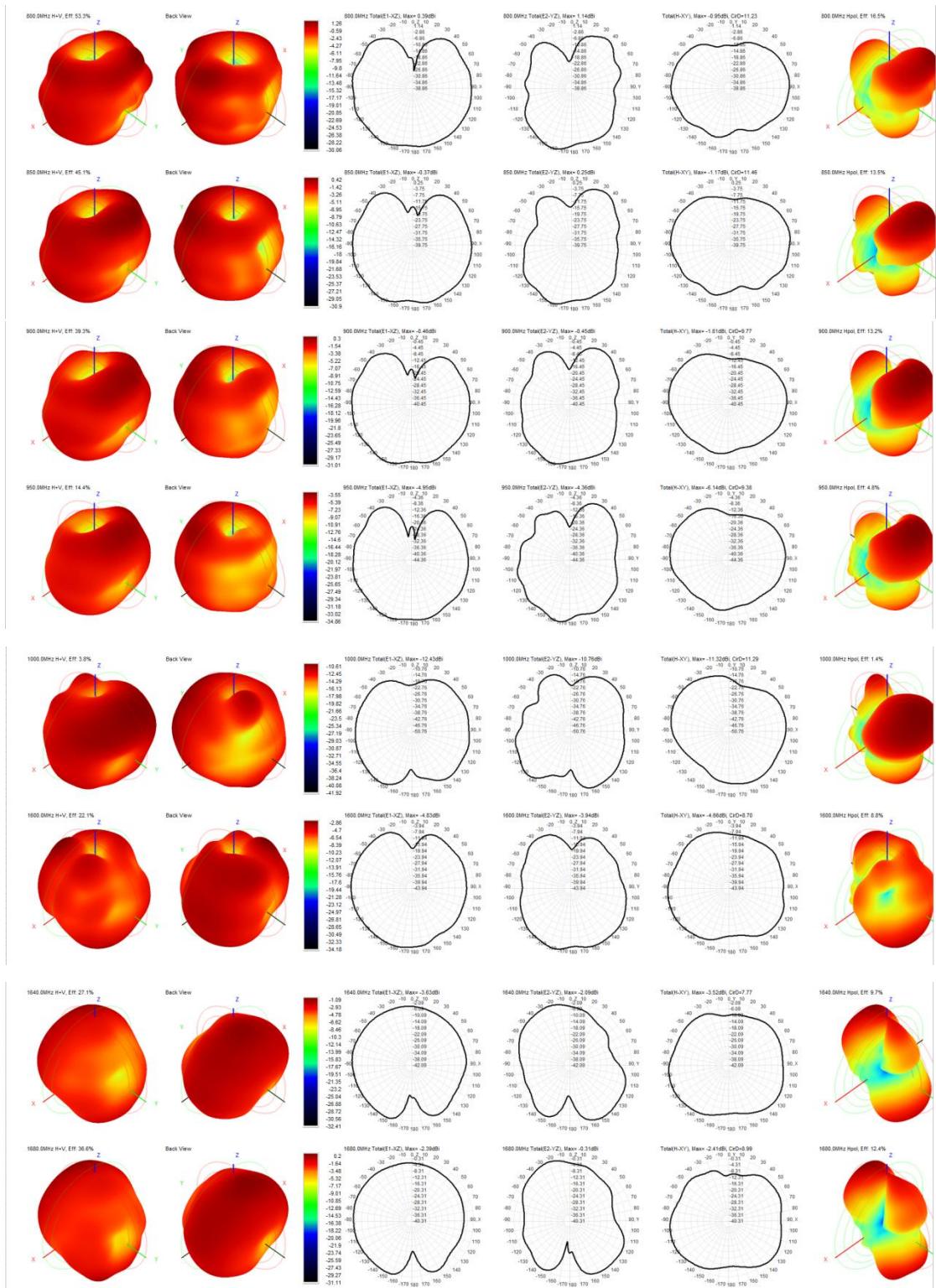
Test Result	LTE1 TRP		Test Result	LTE1 TIS		Test Result	LTE5 TRP		Test Result	LTE5 TIS		
Frequency (MHz)	18050	18550	Frequency (MHz)	550	Result	20450	20600	Result	2600	Result	889	
TRP (dBm)	1925	1975	TIS(dBm)	-92.17	TRP(dBm)	21.78	22	TIS(dBm)	-90.33	MAX(dBm)	-93.56	
MAX(dBm)	23.81	21.78	TIS(dBm)	-96.31	MAX(dBm)	23.78	24.4	MAX(dBm)	-93.56	MAX(dBm)	-93.56	
Test Result	LTE2 TRP		Test Result	LTE2 TIS		Test Result	LTE7 TRP		Test Result	LTE7 TIS		
Frequency (MHz)	18650	19150	Frequency (MHz)	1150	Result	20800	21400	Result	3350	Result	2680	
TRP (dBm)	1855	1905	TIS(dBm)	-92.87	TRP(dBm)	23.81	21.7	TIS(dBm)	-91.29	MAX(dBm)	-95.69	
MAX(dBm)	20.2	20.37	TIS(dBm)	-94.93	MAX(dBm)	28.73	26.41	MAX(dBm)	-95.69	MAX(dBm)	-95.69	
Test Result	LTE3 TRP		Test Result	LTE3 TIS		Test Result	LTE8 TRP		Test Result	LTE8 TIS		
Frequency (MHz)	19250	19900	Frequency (MHz)	1850	Result	21500	21750	Result	3750	Result	955	
TRP (dBm)	1715	1780	TIS(dBm)	-92.75	TRP(dBm)	20.49	18.16	TIS(dBm)	-89.43	MAX(dBm)	-92.59	
MAX(dBm)	19.75	19.84	TIS(dBm)	-96.25	MAX(dBm)	23.51	20.76	MAX(dBm)	-92.59	MAX(dBm)	-92.59	
Test Result	LTE4 TRP		Test Result	LTE4 TIS		Test Result	LTE28 TRP		Test Result	LTE28 TIS		
Frequency (MHz)	20000	20350	Frequency (MHz)	2350	Result	27260	27610	Result	9610	Result	798	
TRP (dBm)	17.41	19.65	TIS(dBm)	-91.99	TRP(dBm)	15.92	17.36	TIS(dBm)	-89.86	MAX(dBm)	-93.2	
MAX(dBm)	21.31	22.76	TIS(dBm)	-95.27	MAX(dBm)	18.64	20.82	MAX(dBm)	-93.2	MAX(dBm)	-93.2	
Test Result	LTE66 TRP		Test Result	LTE66 TIS		Test Result	GSM850 TRP		Test Result	GSM850 TIS		
Frequency (MHz)	132022	132822	Frequency (MHz)	67286	Result	128	190	251	251	Result	893.8	
TRP (dBm)	1715	1795	TIS(dBm)	-90.79	TRP(dBm)	27.38	28.08	28.32	-103.28	MAX(dBm)	-103.28	
MAX(dBm)	20.32	20.06	TIS(dBm)	-93.76	TRP(dBm)	29.31	30.42	30.7	-107.52	MAX(dBm)	-107.52	
Test Result	EGSM TRP		Test Result	EGSM TIS		Test Result	PCS TRP		Test Result	PCS TIS		
Frequency (MHz)	1	62	Result	124	124	Frequency (MHz)	128	190	251	251	Result	1989.8
TRP (dBm)	890.2	902.4	TIS(dBm)	-103.67	TRP(dBm)	25.42	25.8	26.36	-103.02	MAX(dBm)	-103.02	
MAX(dBm)	31.34	30.19	TIS(dBm)	-107.23	TRP(dBm)	29.72	30.16	30.48	-108.7	MAX(dBm)	-108.7	
Test Result	DCS TRP		Test Result	DCS TIS		Test Result	2500		Test Result	2550		
Frequency (MHz)	1710.2	1747.4	Result	1784.8	1879.8	Frequency (MHz)	2000	2400	2450	2500	2550	2600
TRP (dBm)	26.36	26.71	TIS(dBm)	-103.41	TRP(dBm)	26.00	26.40	26.82	27.22	27.75	28.22	28.78
MAX(dBm)	30.73	31.15	TIS(dBm)	-108.34	TRP(dBm)	26.70	27.10	27.50	28.00	28.50	29.00	29.50

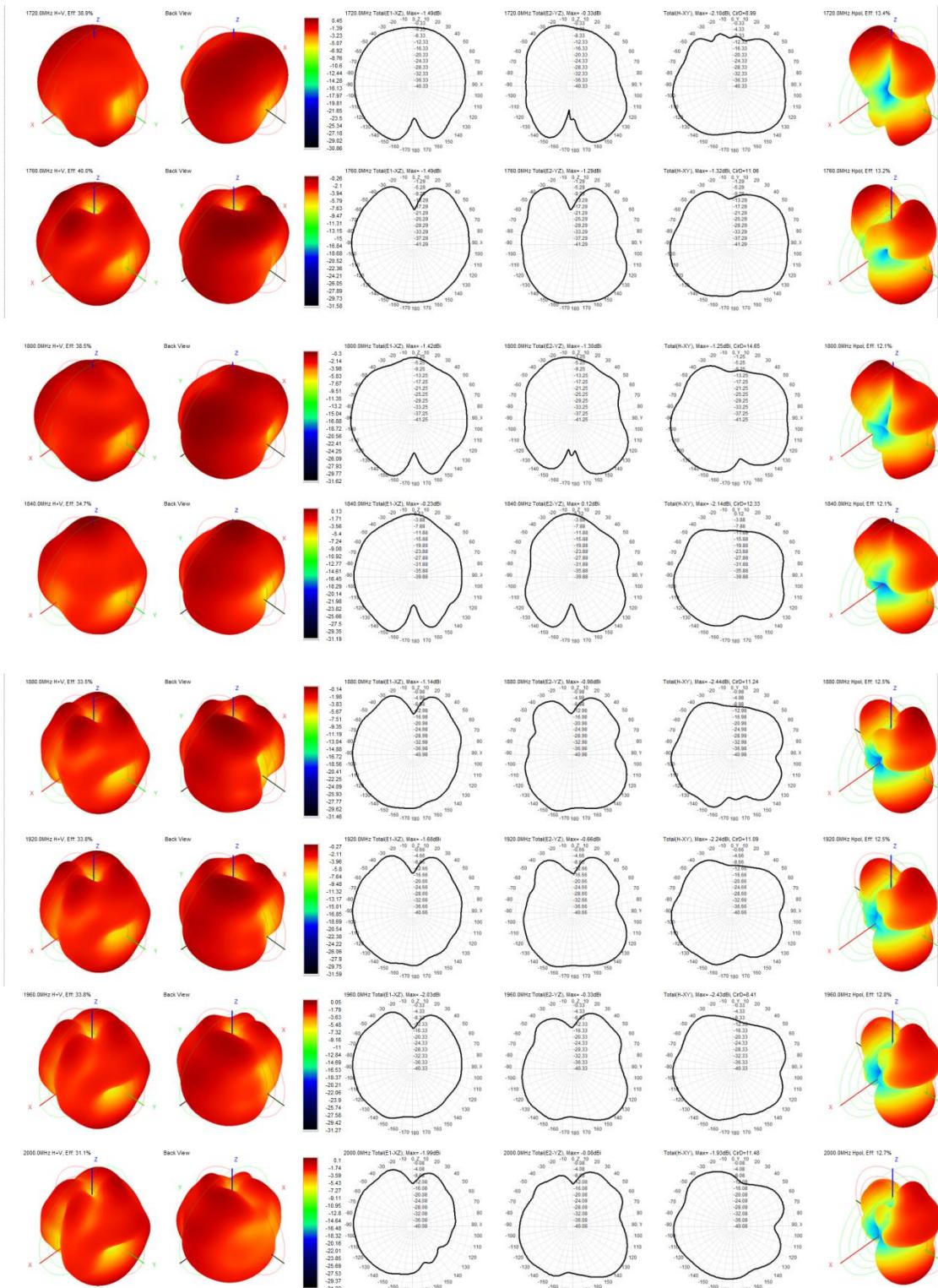
4. Antenna efficiency

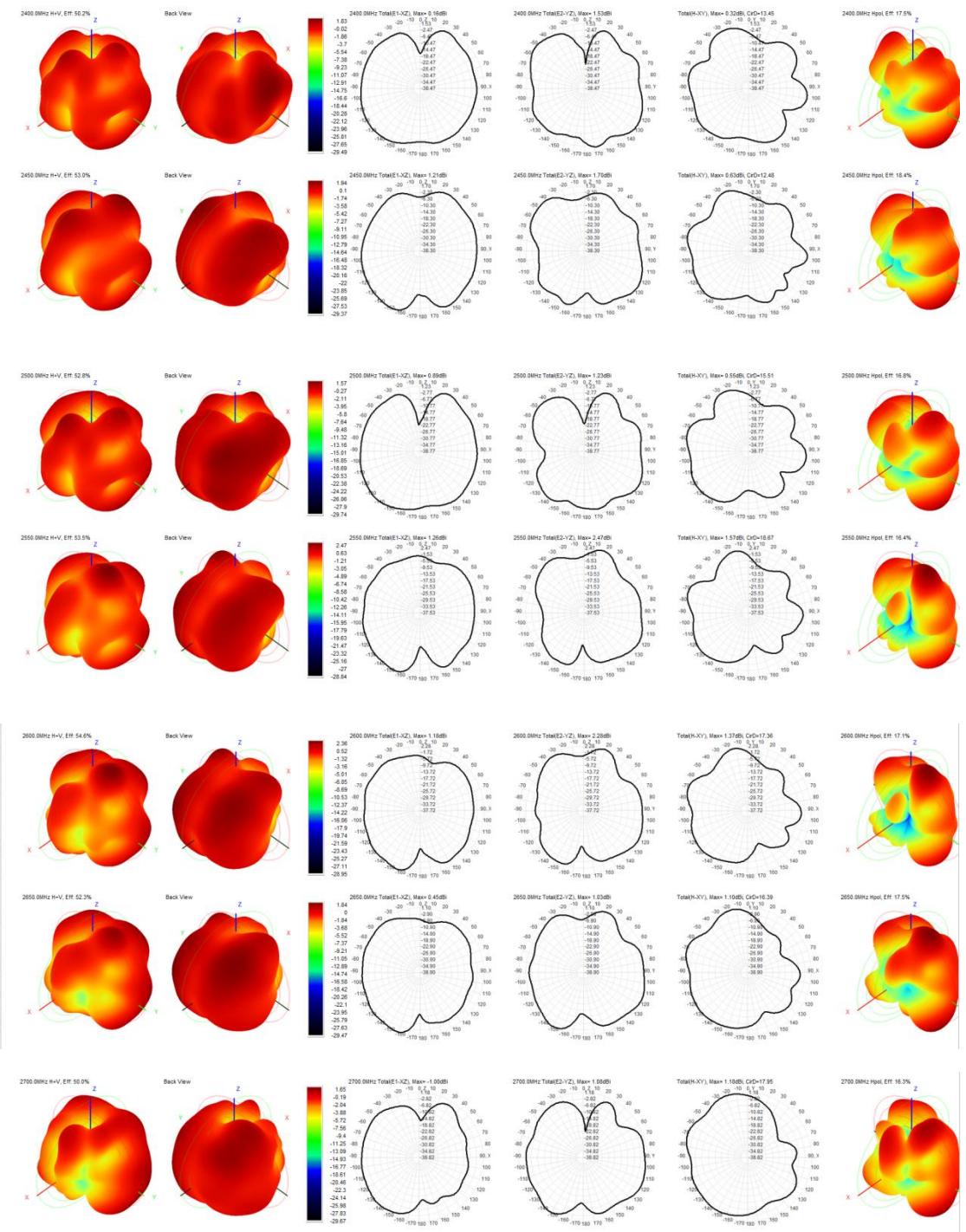
Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Frequency (MHz)	700	750	800	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850		
Efficiency (dB)	-1.15	-3.12	-2.73	-0.99	-4.06	-8.40	-14.65	-6.56	-5.42	-4.36	-14.10	-3.12	-4.14	-4.02	-4.75	-4.70	-4.14	-2.75	-2.78	-2.72	-2.63	-2.41	-3.01			
Gain (dBi)	-1.68	0.75	-0.42	-0.46	-0.55	-0.61	-0.69	-0.64	-0.55	-0.52	-0.19	-0.13	-0.17	-0.05	-0.63	-0.63	-0.63	-0.64	-0.64	-0.64	-0.64	-0.64	-0.65			
Efficiency (%)	24.28	45.53	53.32	45.13	39.28	14.44	3.84	22.07	27.12	36.64	38.88	40.02	38.52	34.70	33.50	33.85	33.83	31.10	50.21	53.04	52.77	53.46	54.60	52.34	50.01	
Directivity (dB)	4.26	4.20	3.99	3.88	4.16	4.86	3.55	3.70	4.58	4.56	4.55	3.72	3.84	4.73	4.61	4.43	4.76	5.17	4.82	4.70	4.35	5.19	4.99	4.66	4.66	
Peak Gain Position (Theta)	34.00	37.00	38.00	35.00	35.80	164.00	147.00	27.00	145.00	145.00	146.00	28.00	141.00	6.00	24.00	131.00	132.00	133.00	126.00	125.00	123.00	18.00	65.00	67.00	101.00	
Peak Gain Position (Phi)	110.00	123.00	119.00	104.00	208.00	224.00	215.00	316.00	61.00	61.00	69.00	306.00	63.00	211.00	76.00	76.00	81.00	80.00	88.00	156.00	155.00	109.00				
Efficiency PhiPol (%)	7.73	14.99	16.47	13.52	13.53	4.82	1.36	8.81	9.75	12.36	13.38	13.21	12.12	12.11	12.55	12.81	12.69	17.46	18.42	16.80	16.42	17.13	17.48	16.29		
Efficiency PhiPol (%)	16.55	30.53	36.86	31.61	26.13	9.62	2.47	13.26	17.37	24.28	25.50	26.82	26.40	22.59	20.95	21.32	21.02	18.41	32.75	34.62	35.98	37.04	37.47	34.86	33.72	
Upper Hem. Efficiency (%)	11.49	22.08	24.61	21.33	18.05	6.56	1.85	9.71	14.02	19.03	20.35	19.45	17.50	16.02	15.76	15.97	14.82	25.34	27.24	26.66	27.86	28.17	26.20	23.38		
Lower Hem. Efficiency (%)	12.79	23.44	28.73	23.80	21.23	7.88	1.94	12.36	17.61	18.53	20.56	19.07	17.20	17.48	18.68	17.86	16.28	24.86	25.80	26.11	25.60	26.43	26.14	26.63		
T90(H)圆度	11.30	11.23	11.23	11.46	9.77	9.38	9.19	11.29	8.70	7.77	8.99	8.99	11.06	14.65	12.33	11.24	11.09	8.41	11.48	13.45	12.48	15.51	18.67	17.36	16.39	17.95
Gain 15deg (dB)																										
E1(XZ)直轴比	305.00	308.00	303.00	146.00	265.00	215.00	138.00	184.00	224.00	228.00	211.00	163.00	154.00	119.00	120.00	121.00	118.00	46.00	70.00	76.00	66.00	53.00	54.00	139.00		
E1(XZ)直轴比	0.01	0.01	0.15	0.10	0.00	0.00	0.21	0.73	1.61	1.55	2.24	2.30	1.81	2.29	3.31	3.37	3.30	4.53	1.25	0.00	0.71	0.00	0.00	0.00	0.36	
E2(YZ)波瓣宽度	28.00	26.00	39.00	31.00	34.00	34.00	48.60	125.00	65.00	50.00	49.00	31.00	49.00	41.00	48.00	45.00	42.00	42.00	39.00	37.00	36.00	25.00	23.00	24.00	71.00	
E2(YZ)波瓣宽度	0.25	0.44	0.05	0.03	0.63	0.04	1.24	0.00	0.92	2.36	1.02	0.59	1.01	1.61	2.13	2.52	2.92	3.16	4.59	3.36	6.33	4.61	4.24	0.94		
最大增益处轴比(P)	28.23	15.81	40.93	32.32	14.37	13.52	8.22	11.48	24.82	19.41	20.30	28.58	8.92	9.76	19.80	18.79	29.75	13.00	12.32	11.60	24.30	18.63	16.20	6.44		
仰角10度差最大轴比(P)	58.18	74.08	59.77	65.24	63.70	53.91	55.60	48.97	53.12	67.18	58.79	64.38	78.29	34.40	54.07	51.75	58.51	56.53	38.33	36.71	54.44	73.19	65.99	57.61	52.50	
He(XY)波瓣宽度	87.00	93.00	78.00	79.00	79.00	84.00	76.00	141.00	127.00	69.00	68.00	71.00	71.00	72.00	60.00	62.00	63.00	45.00	37.00	29.00	31.00	27.00	29.00			
He(XY)前向比	5.21	6.89	5.52	5.27	6.33	5.67	3.90	2.95	3.11	3.71	3.68	3.46	3.37	3.40	2.94	3.46	3.57	4.43	2.88	4.40	3.71	4.49	3.95	3.31	2.58	
左旋圆极化效率(%)	12.92	23.43	30.30	21.36	19.90	6.97	2.03	8.39	12.13	15.59	15.13	17.61	17.81	8.60	12.80	12.98	13.15	10.41	18.81	11.23	18.69	19.15	18.27	17.36	11.94	
右旋圆极化效率(%)	11.35	22.10	23.03	23.77	19.38	7.47	1.81	13.68	14.98	21.06	23.75	22.42	20.71	26.09	20.70	20.86	20.68	20.69	31.40	41.81	34.08	34.31	36.33	34.98	38.07	

5 .2D/3D Pattern

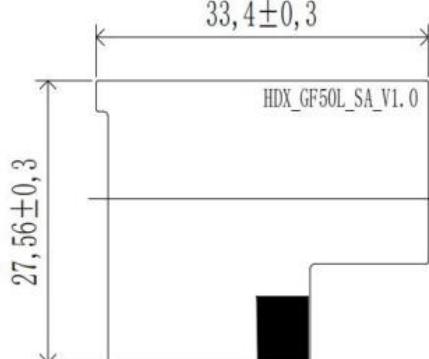








6. Antenna structure

1	2	3	4	5	6
				标记	签 名
				修改内容	
				日期	
A					A
B					B
C					C
D					D
1	2	3	4	5	6

备注：

- 标注“*”为重点尺寸，未标公差尺寸按照±0.15检测
- 未标注尺寸请依图纸；尺寸单位为：毫米（mm）。
- 符合ROHS

深圳市禾电迅科技有限公司

I	FPC	FPC	黑色	J
No.	Size	Material	Color	Treatment
Remark				
2024-11-19				
设计				
MD				
RF				
批准				
单 位	mm	比 例	1:1	版 本
A.1				