



深圳市诚连电子有限公司
Shen zhen chenglian electronic co., LTD

承认书

SPECIFICATION FOR APPROVAL

客户名称

CUSTOMER NAME: 华永康实业（深圳）有限公司

产品名称

PRODUCT NAME: 2.4G+5G内置FPC天线

客户料号

CUSTOMER HY300

诚连料号

Cheng Lian CL111V1 REV:A

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
CHECKED BY:	程良日	
APPROVED BY:	张国勤	
DATE:	2023-9-4	



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1. 规格表:

产品主要技术参数

主要技术指标		Main technical specifications	
频率范围 (MHZ)	2400-2500 / 5000-5850	Frequency Range (MHZ)	2400-2500 / 5000-5850
中心频率 特性阻抗(Ω)	50±10	center frequency Impedance(Ω)	50±10
增益(dBi)	5.40	Peak Gain(dBi)	5.40
输出电压 驻波比	<2.0	VSWR	<2.0
最大功率	10W	Admitted Power	10W
极化方式	垂直极化	Polarization	Linear,Vertical
方向性	全向性	Radiation	Omni-directional
连接方式	Cable	Connector Type	Cable
物理性能		Physical Properties	
天线本体材料	PCB+背胶	Antenna Base	PCB+背胶
天线走线材料	Copper	Antenna cover	Copper
工作温度	-20°C~+60°C	Operating Temp	-20°C~+60°C
保存温度	-20°C~+70°C	Storage Temp	-20°C~+70°C



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2. Test equipment and data

回波损耗及 VSWR 使用了下图的安捷伦 E5071B 网络分析仪进行测试。



E5071B 网络分析仪



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功率/灵敏度/效率

天线功率/灵敏度/效率使用了 SG24 微波暗室进行了测试



SG24 微波暗室

Standing Wave



WIFI passive efficiency test data



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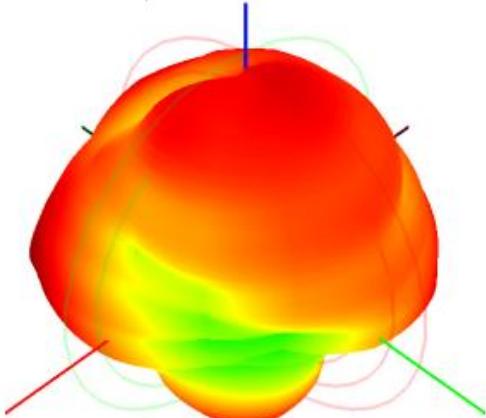
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Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-8.44	-9.02	-9.36	-10.16	-9.60	-10.35	-10.18	-11.05	-11.62	-11.78	-11.53
Gain (dBi)	-3.91	-4.42	-4.38	-5.01	-4.37	-4.80	-4.84	-6.03	-6.69	-6.94	-6.82
Efficiency (%)	14.32	12.52	11.59	9.65	10.96	9.23	9.60	7.85	6.89	6.64	7.03
Directivity (dB)	4.53	4.60	4.98	5.14	5.23	5.54	5.33	5.02	4.92	4.84	4.71
Peak Gain Position (Theta)	79.00	57.00	57.00	57.00	57.00	57.00	58.00	58.00	58.00	58.00	58.00
Peak Gain Position (Phi)	330.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00	240.00
Efficiency ThetaPol (%)	8.94	7.62	7.20	5.86	6.75	5.56	5.92	4.82	4.33	4.07	4.31
Efficiency PhiPol (%)	5.38	4.91	4.39	3.79	4.21	3.67	3.68	3.03	2.56	2.57	2.71
Upper Hem. Efficiency (%)	7.81	6.87	6.46	5.32	6.01	5.08	5.41	4.50	4.00	3.87	4.17
Lower Hem. Efficiency (%)	6.51	5.65	5.13	4.32	4.96	4.15	4.19	3.35	2.89	2.77	

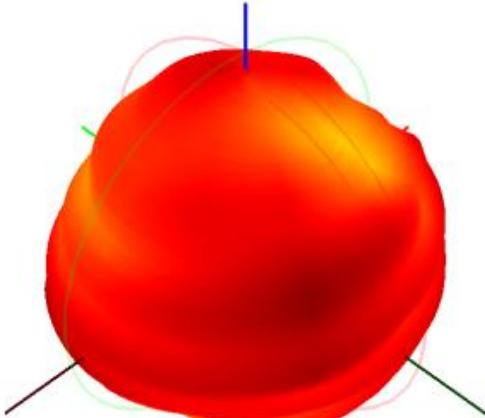
Frequency ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Efficiency (dBi)	-3.88	-3.55	-3.08	-2.34	-3.35	-2.40	-2.87	-2.78	-3.13	-3.39	-3.52	-3.39	-3.85	-4.11	-4.31
Gain (dBi)	2.97	3.32	4.45	5.40	3.38	4.17	3.46	2.79	2.28	2.21	2.48	2.51	1.68	0.98	0.08
Efficiency (%)	40.96	44.14	49.15	58.33	46.25	57.60	51.70	52.75	48.67	45.86	44.50	45.84	41.18	38.77	37.10
Directivity (dB)	6.85	6.87	7.54	7.74	6.73	6.57	6.32	5.57	5.41	5.60	5.99	5.90	5.53	5.09	4.39
Peak Gain Position (Theta)	102.00	104.00	104.00	103.00	133.00	32.00	31.00	96.00	23.00	26.00	24.00	29.00	82.00	84.00	82.00
Peak Gain Position (Phi)	330.00	330.00	330.00	330.00	330.00	240.00	240.00	210.00	210.00	240.00	240.00	300.00	300.00	300.00	300.00
Efficiency ThetaPol (%)	26.61	30.17	32.89	44.38	33.03	43.79	38.38	39.83	37.51	36.05	34.36	35.12	30.53	29.54	27.07
Efficiency PhiPol (%)	14.36	13.97	16.26	13.95	13.22	13.81	13.32	12.92	11.16	9.81	10.13	10.72	10.66	9.23	10.03
Upper Hem. Efficiency (%)	21.52	23.28	26.38	31.09	25.07	30.43	27.26	27.37	25.08	24.06	23.76	25.11	22.92	21.95	21.64
Lower Hem. Efficiency (%)	19.45	20.86	22.77	27.24	21.17	27.17	24.44	25.38	23.59	21.80	20.74	20.73	18.26	16.82	15.46



2400.0MHz H+V, Eff: 14.3%

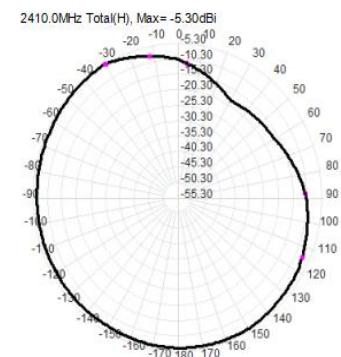
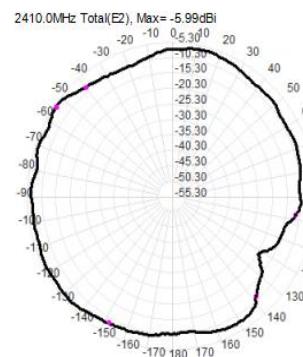
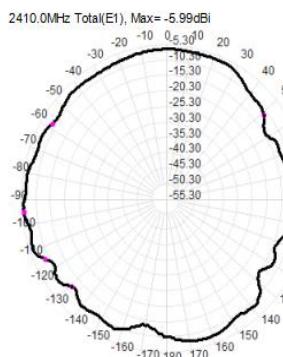
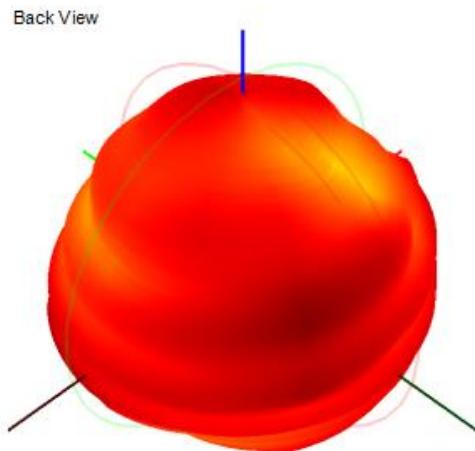
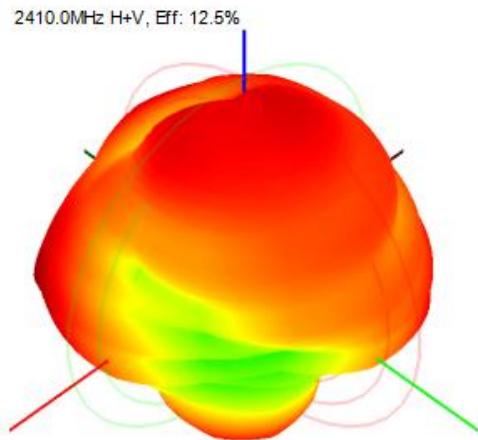
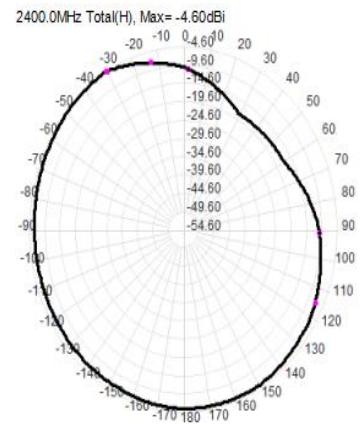
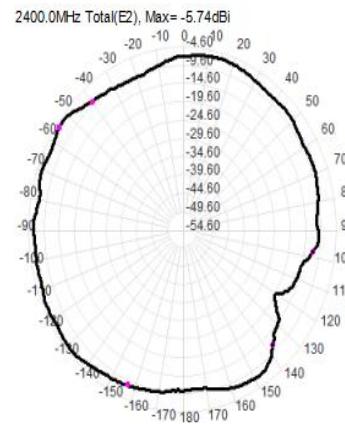
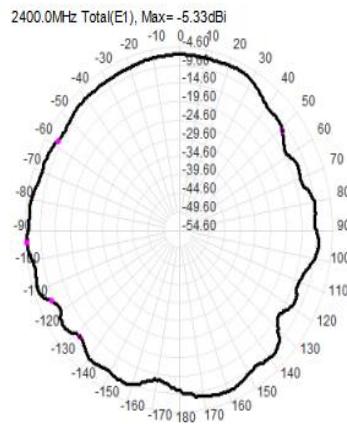


Back View



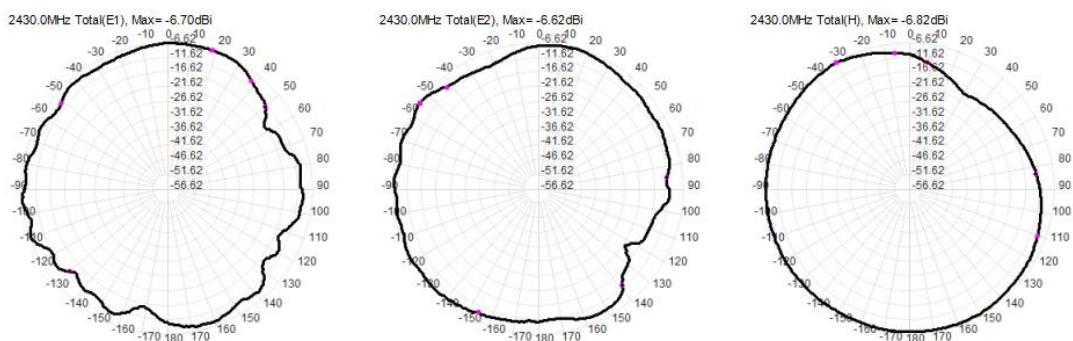
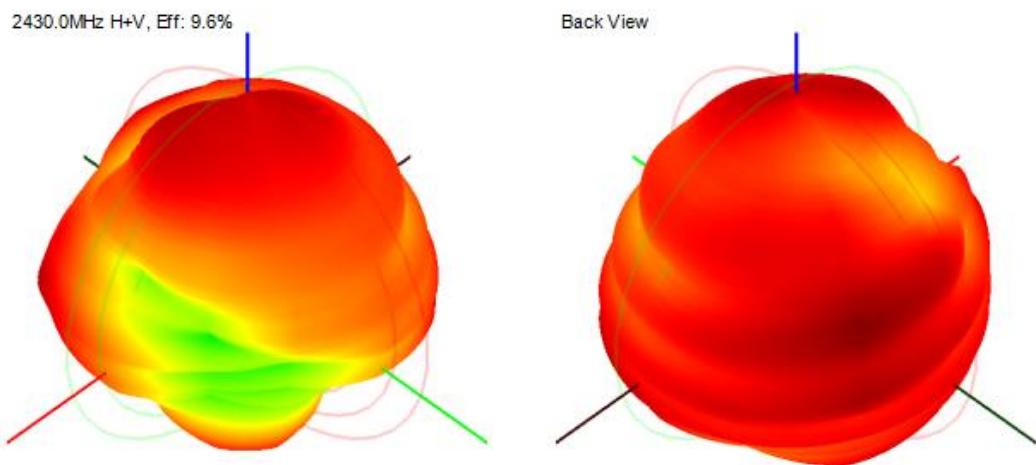
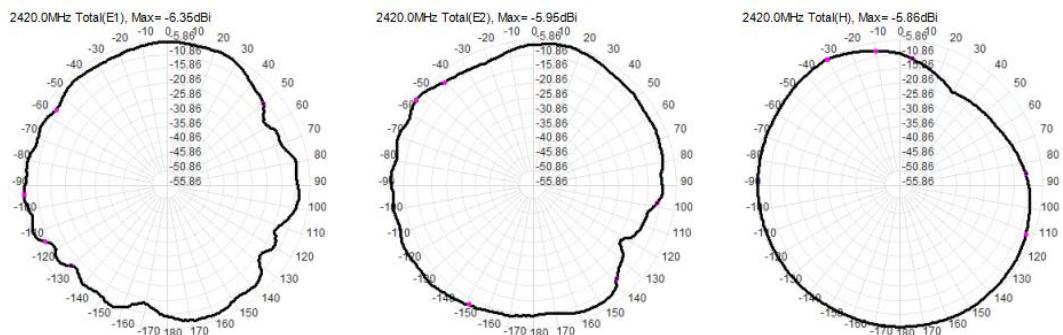
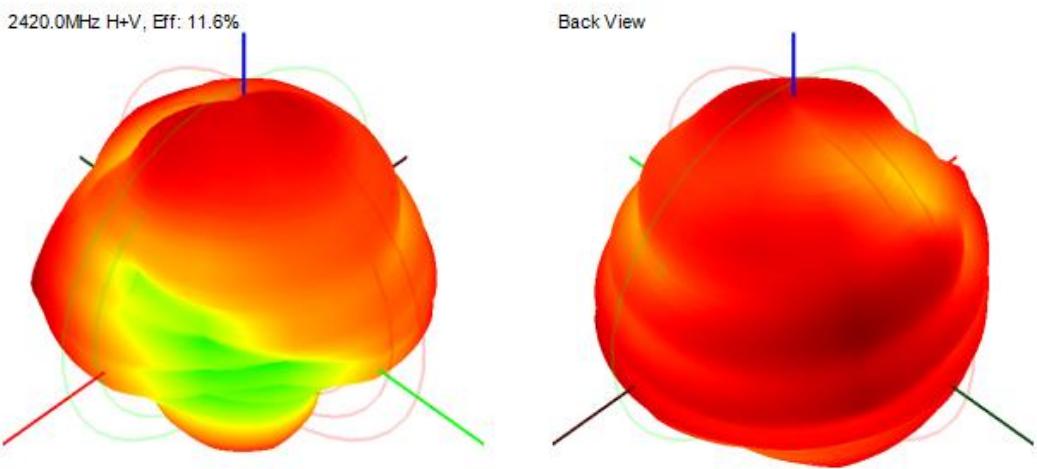


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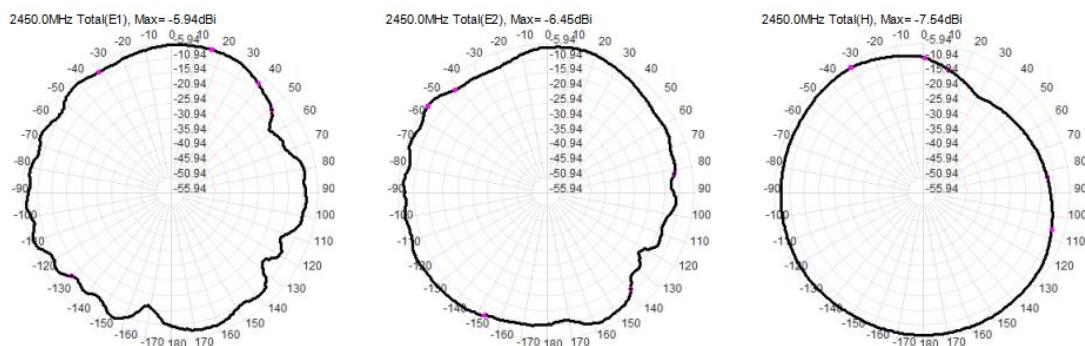
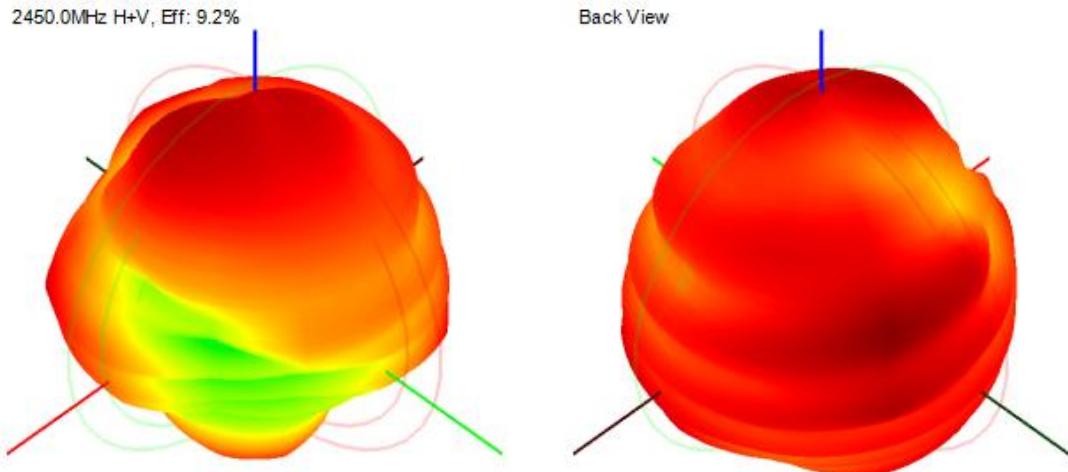
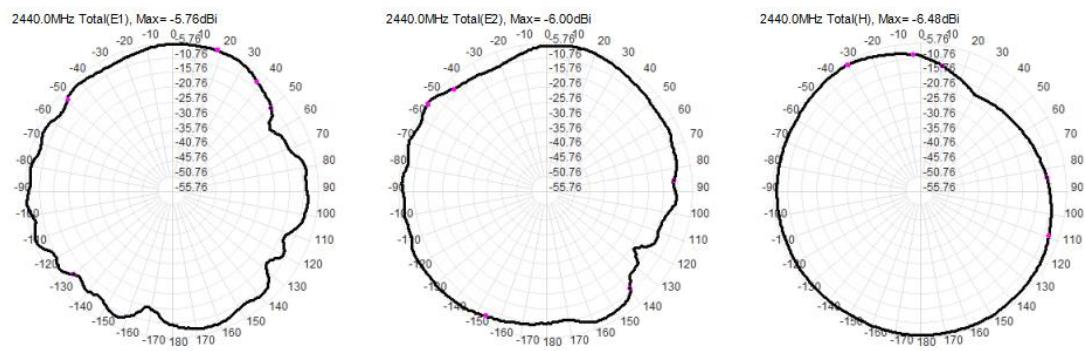
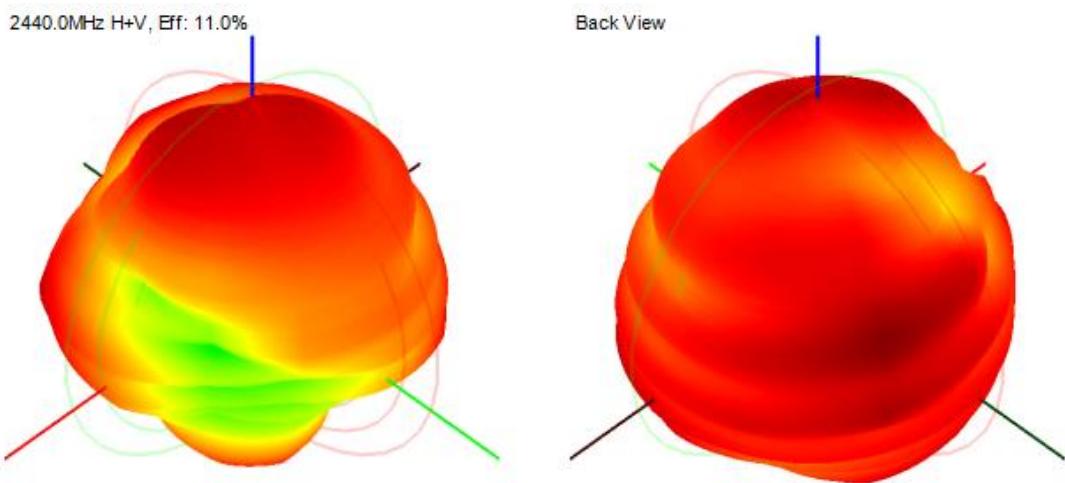


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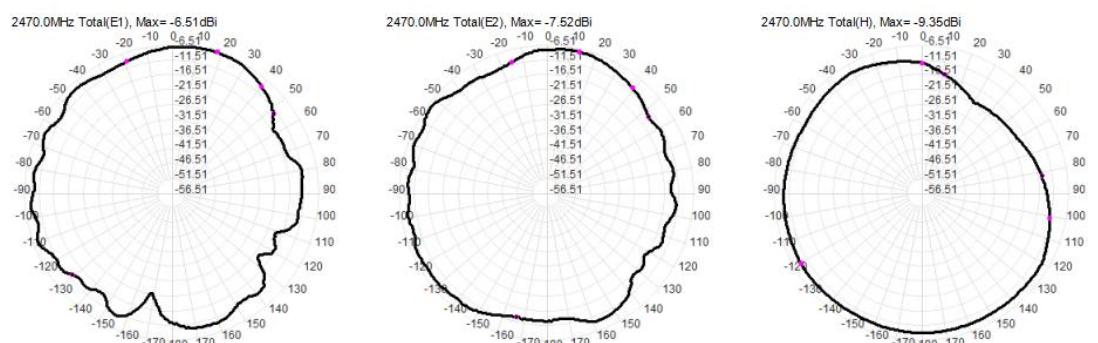
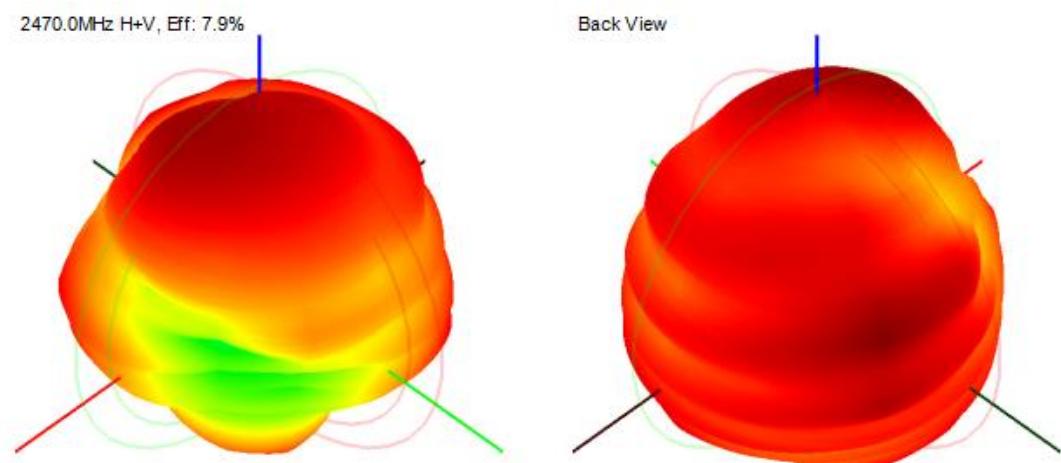
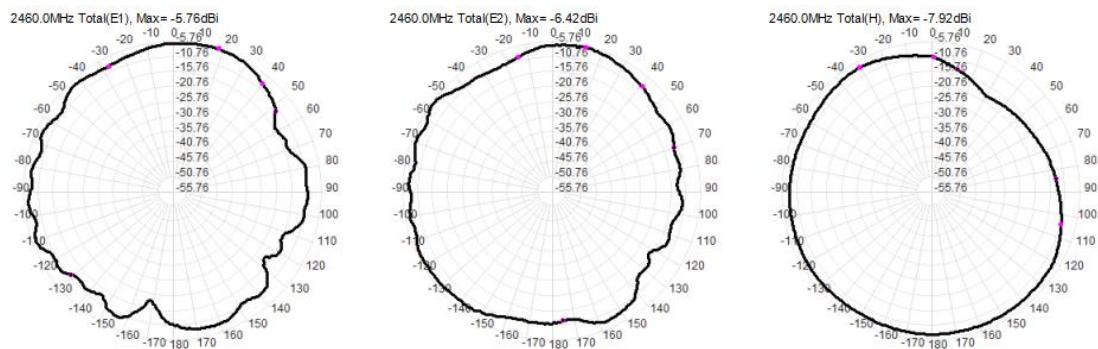
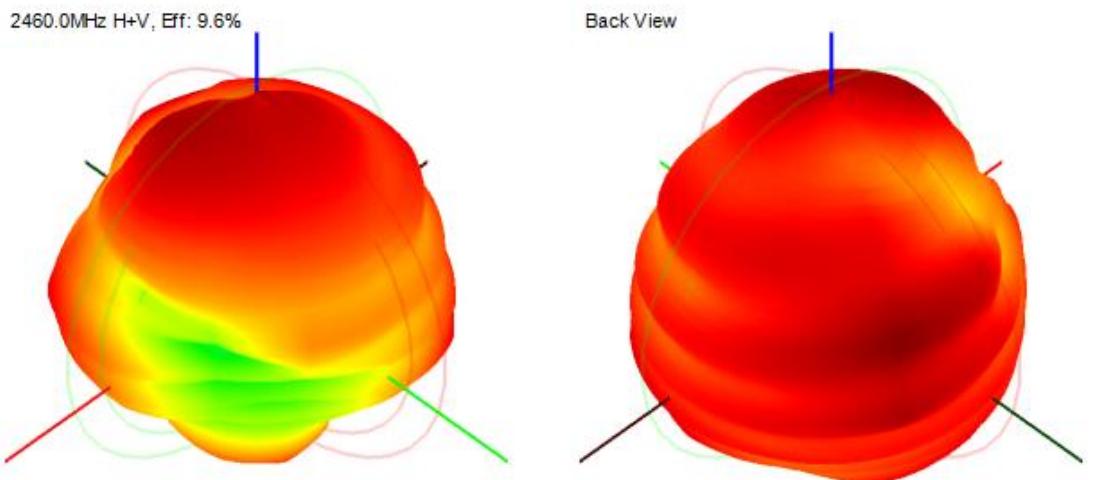


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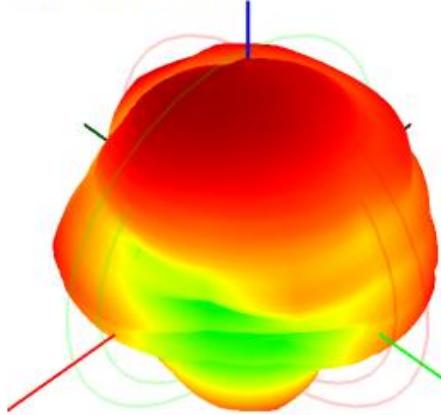
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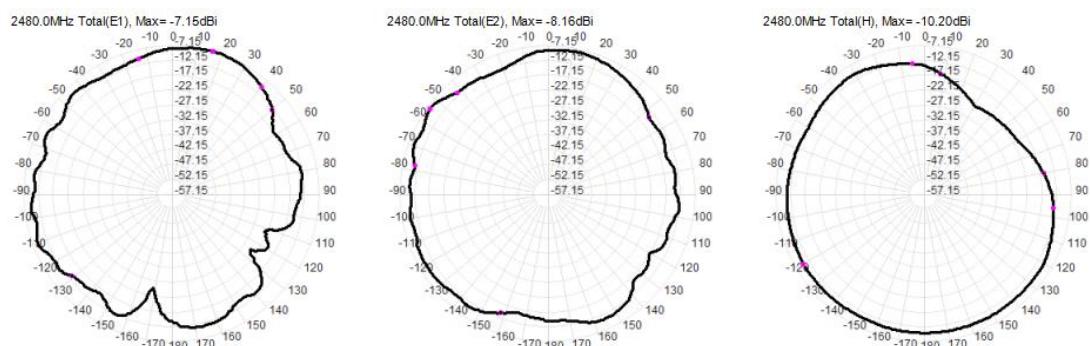
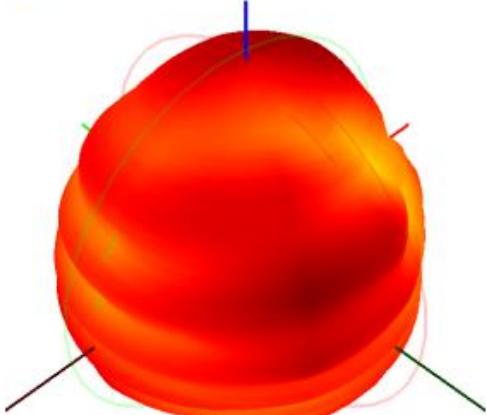


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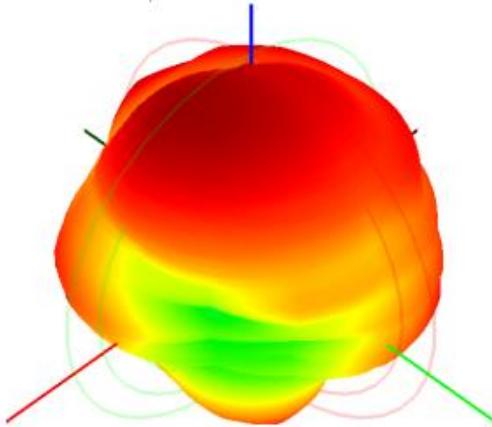
2480.0MHz H+V, Eff: 6.9%



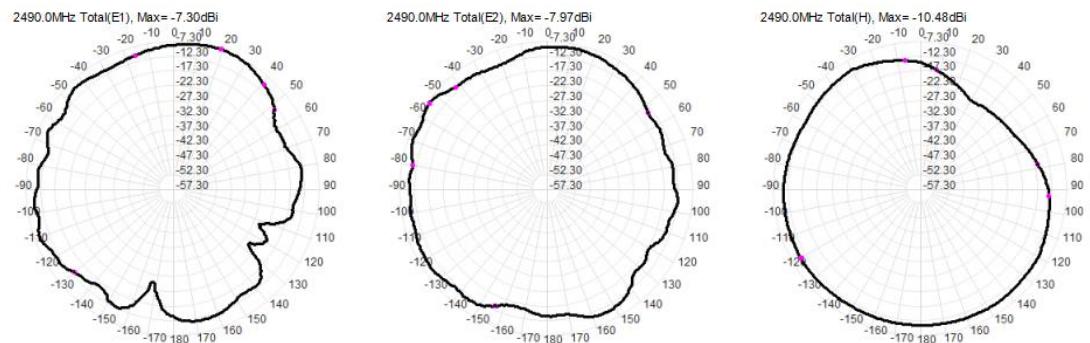
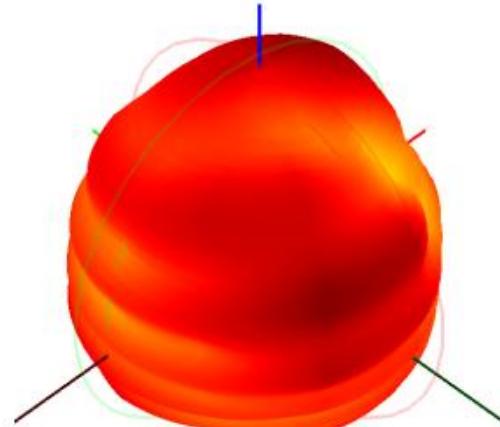
Back View



2490.0MHz H+V, Eff: 6.6%

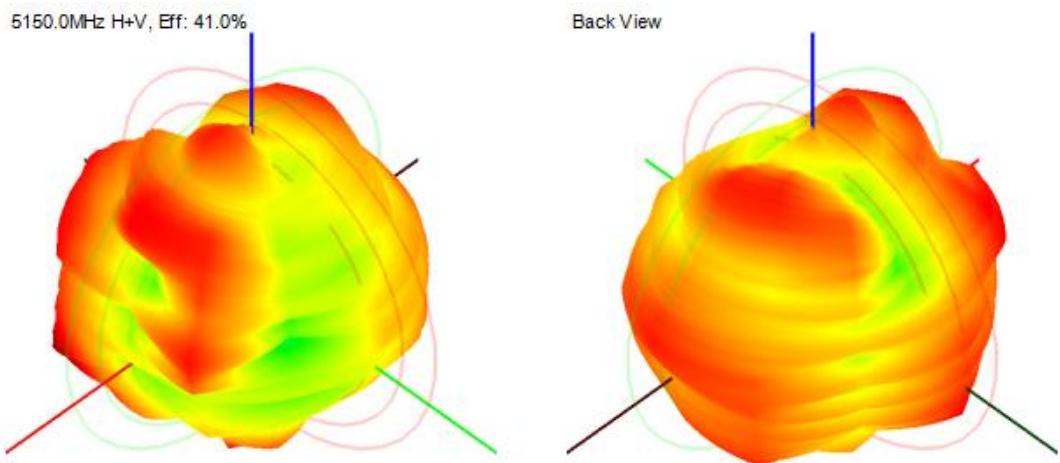
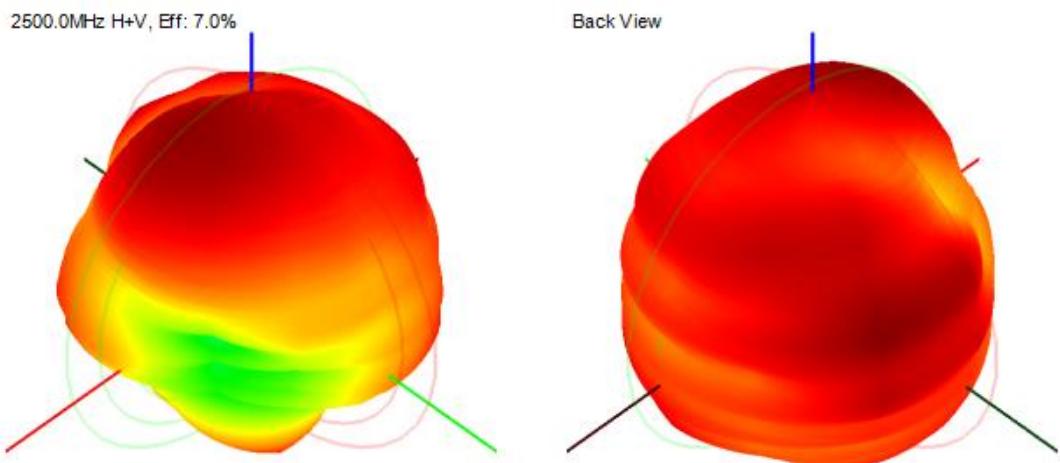


Back View



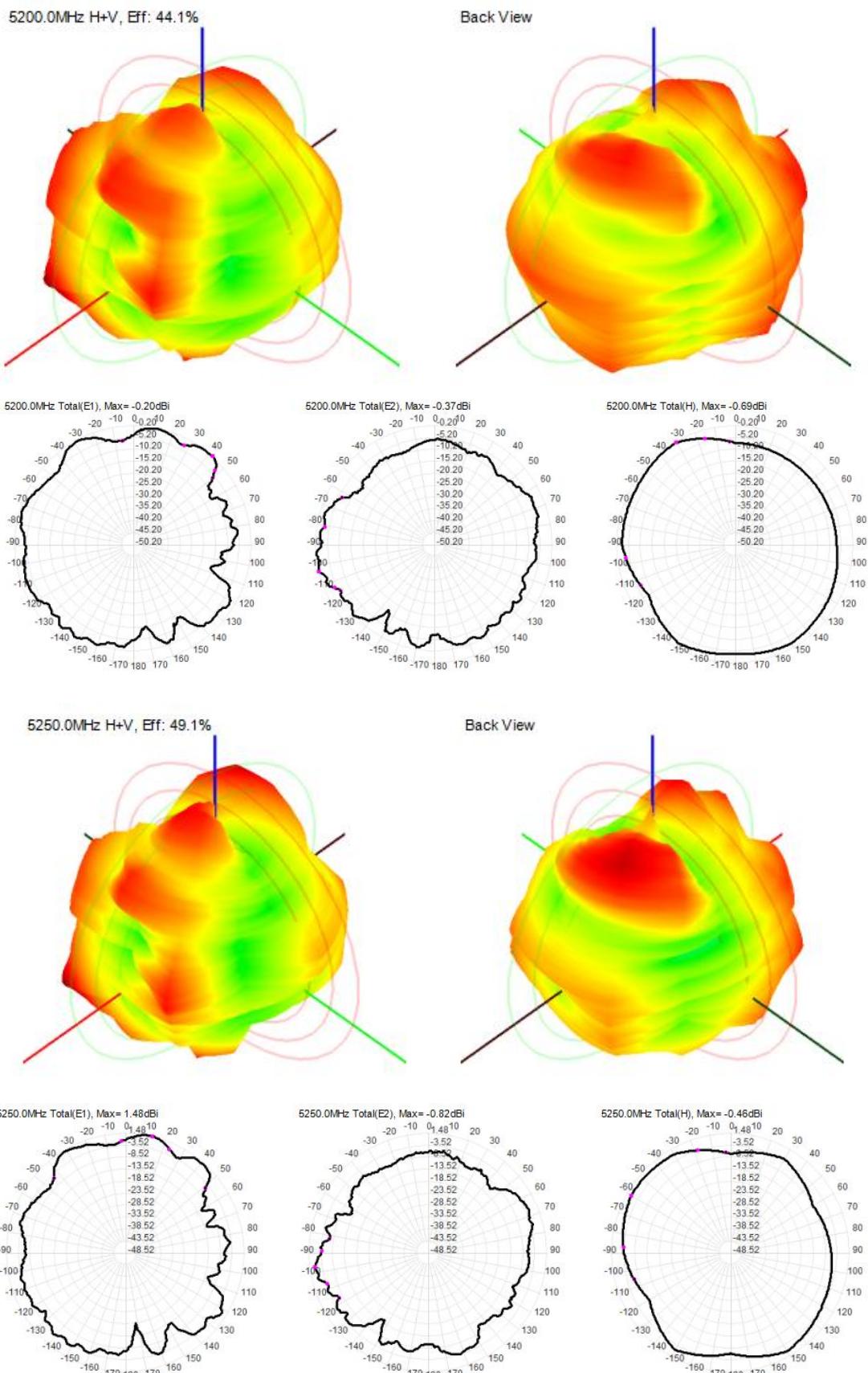


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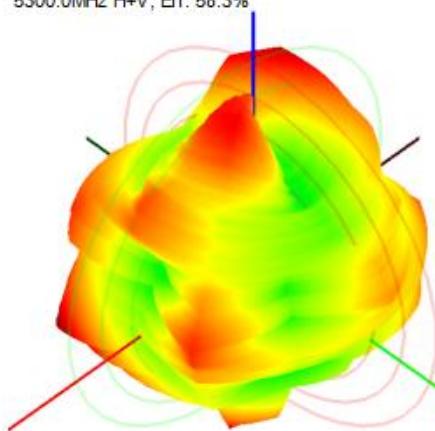
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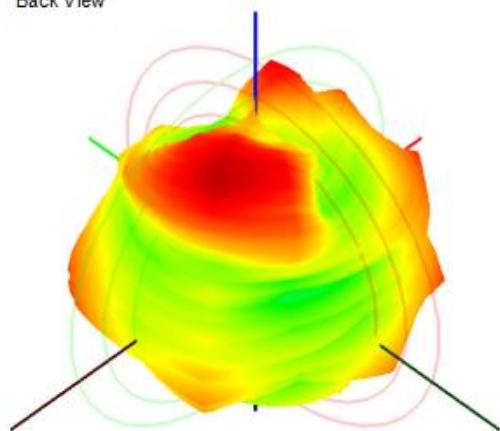


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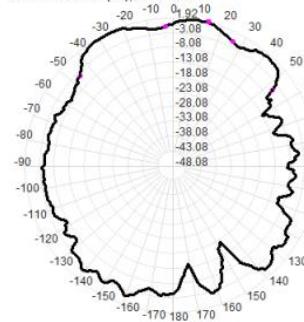
5300.0MHz H+V, Eff: 58.3%



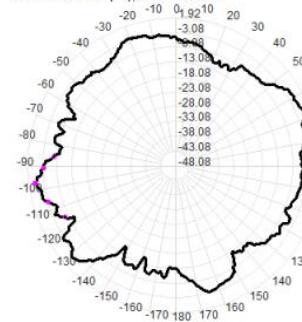
Back View



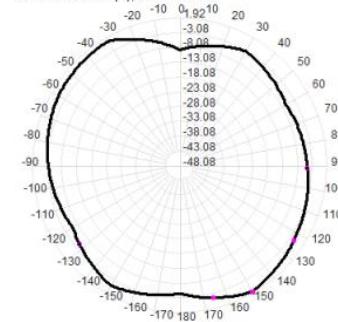
5300.0MHz Total(E1), Max= 1.92dBi



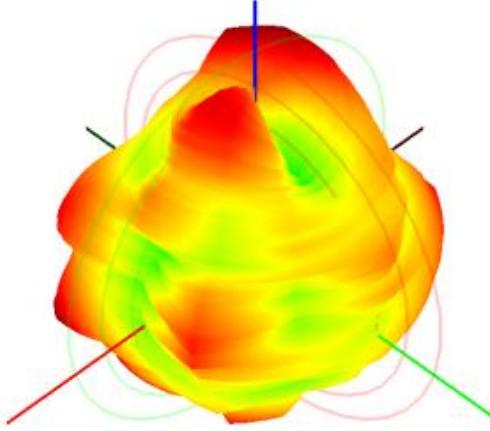
5300.0MHz Total(E2), Max= -0.24dBi



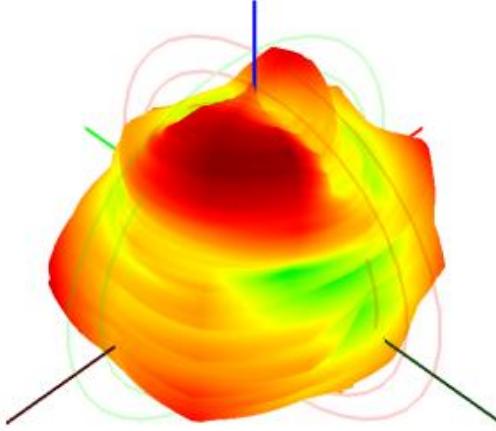
5300.0MHz Total(H), Max= 1.04dBi



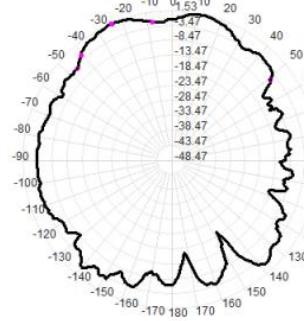
5350.0MHz H+V, Eff: 46.2%



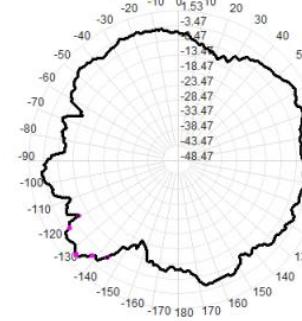
Back View



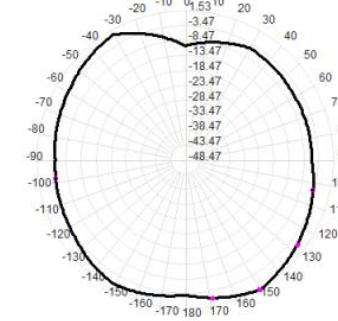
5350.0MHz Total(E1), Max= 1.39dBi



5350.0MHz Total(E2), Max= -2.09dBi

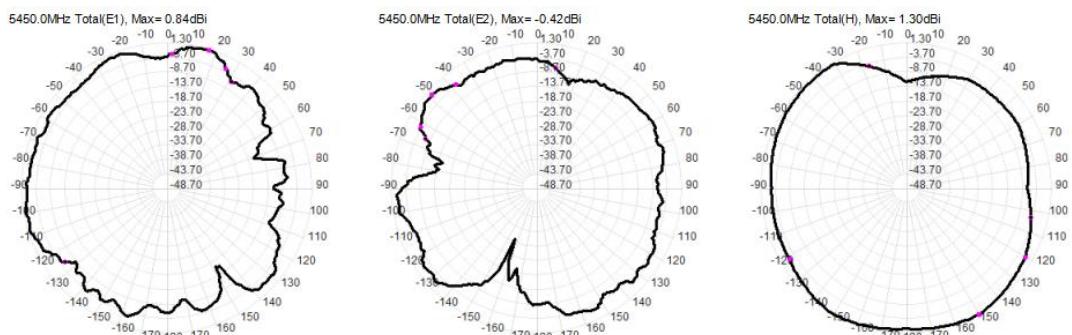
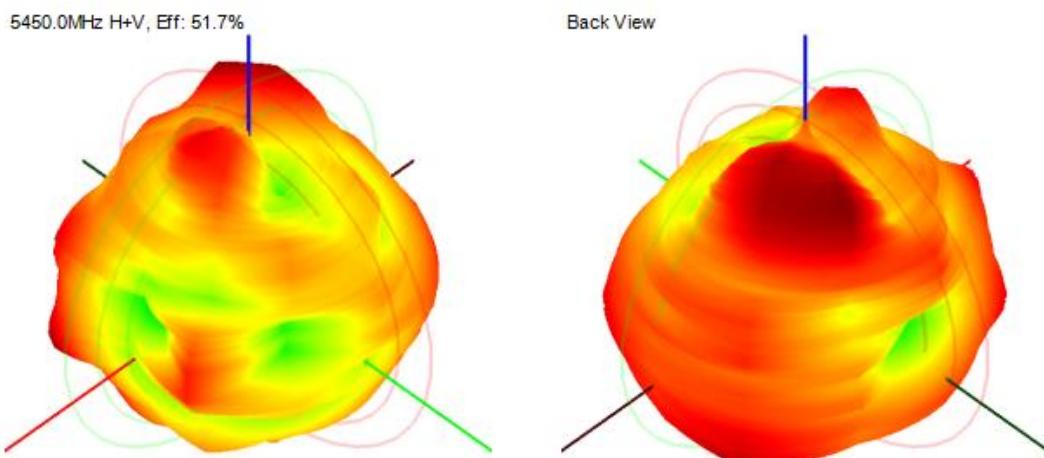
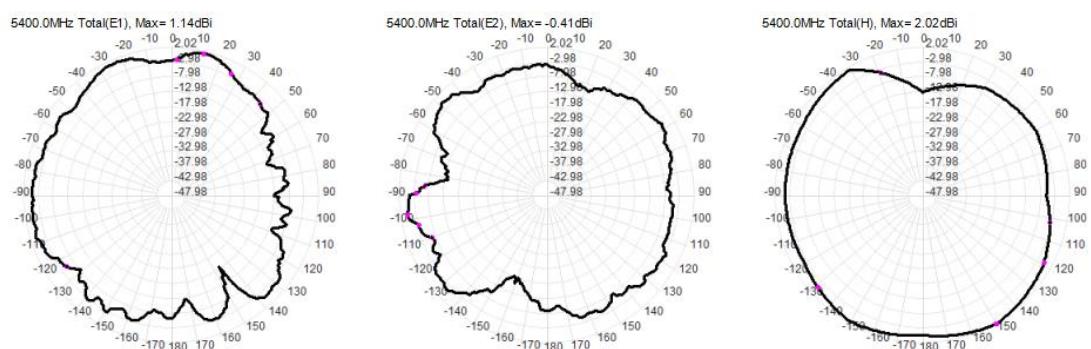
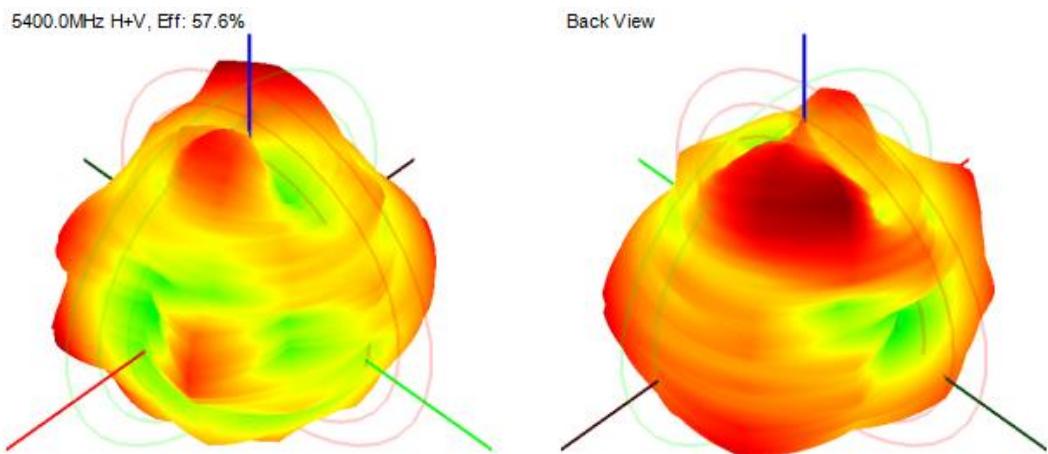


5350.0MHz Total(H), Max= 1.53dBi



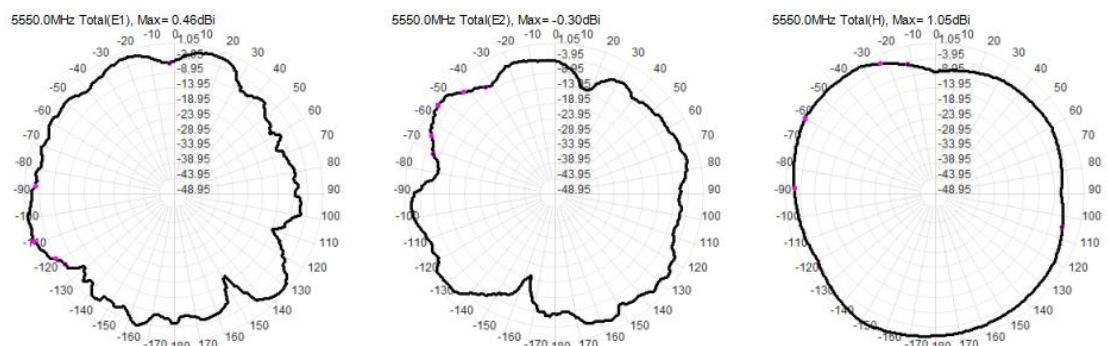
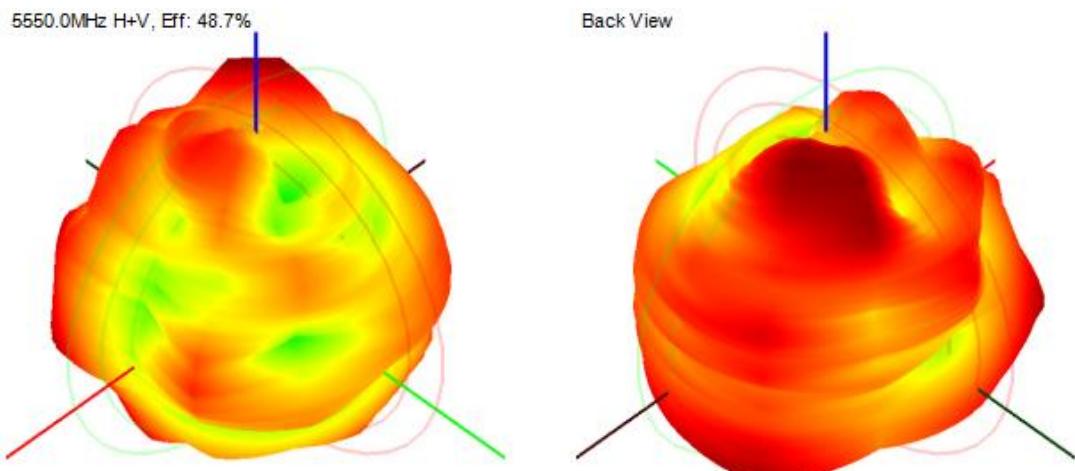
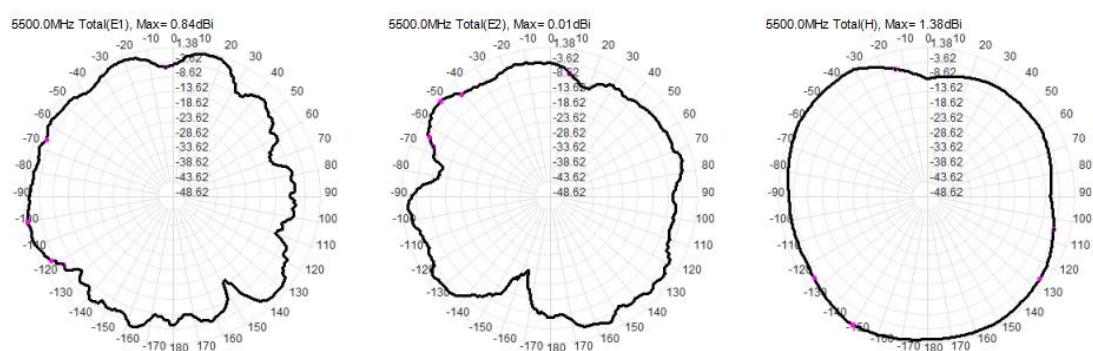
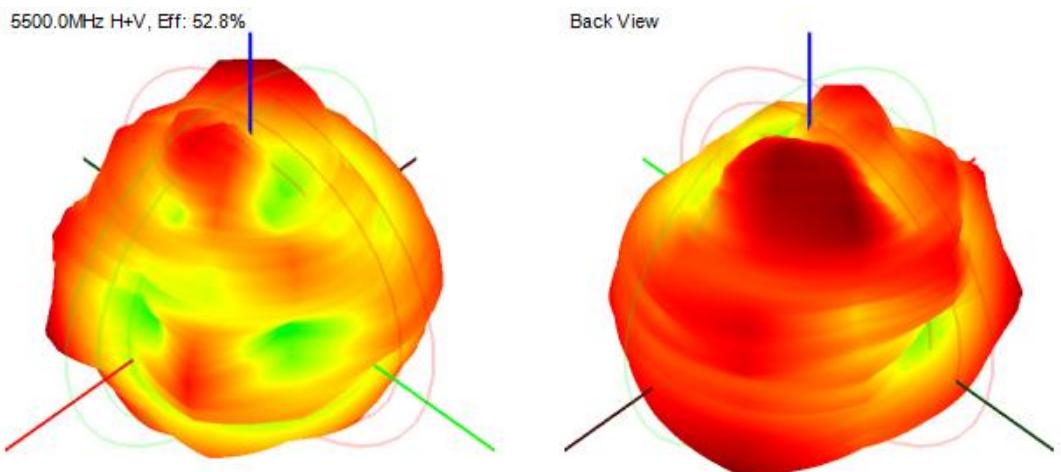


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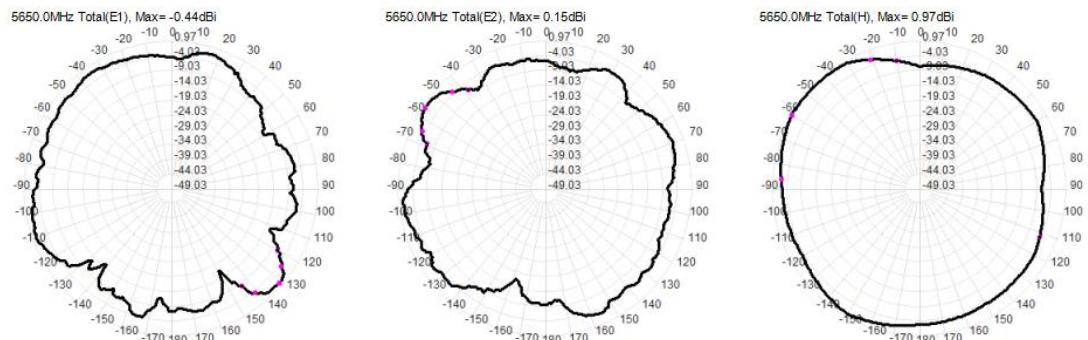
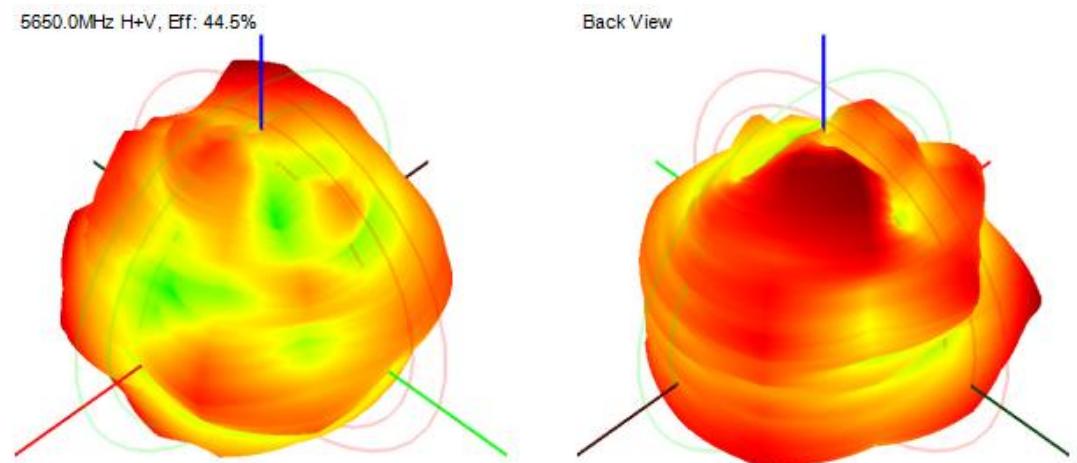
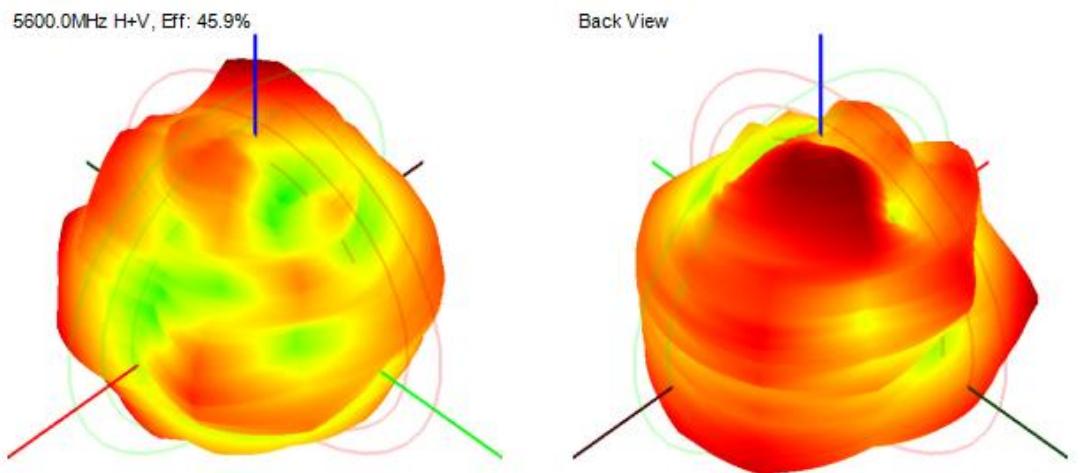


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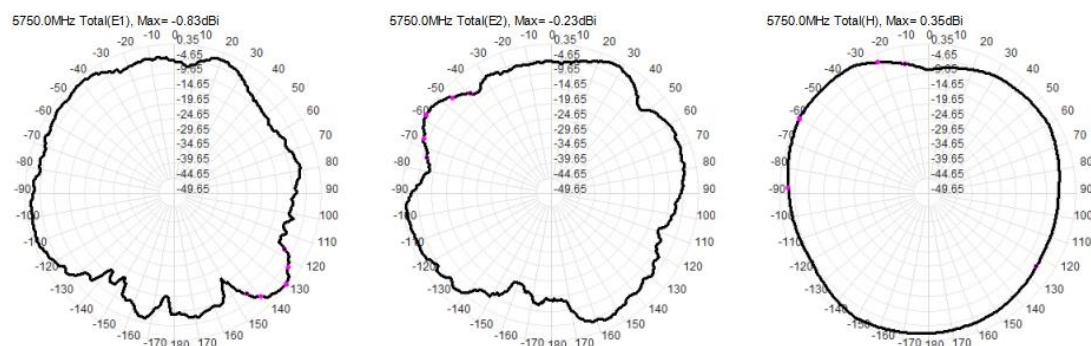
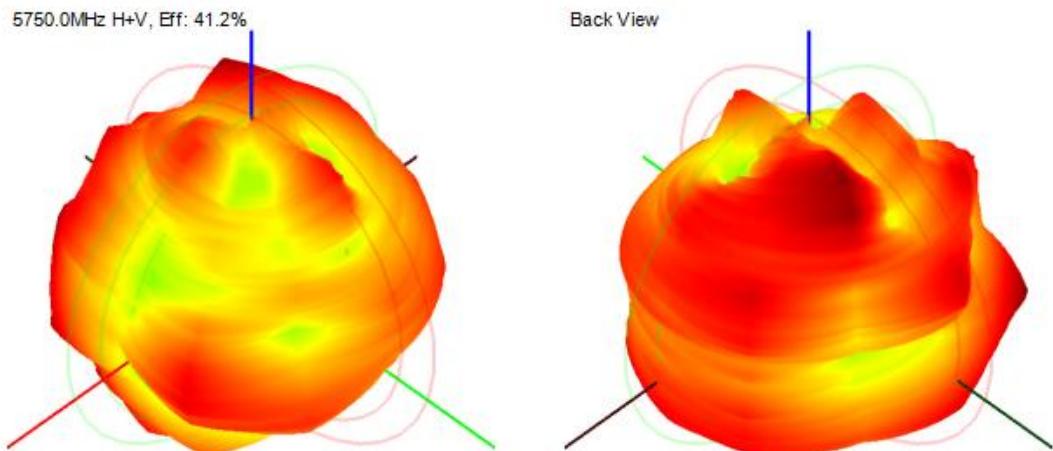
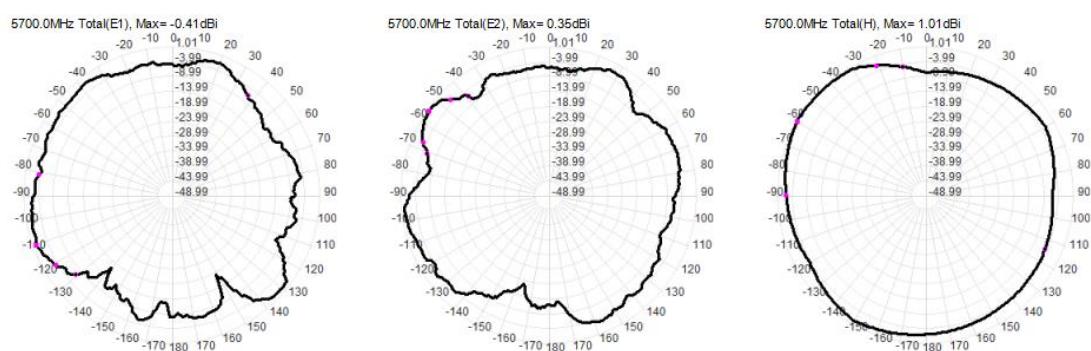
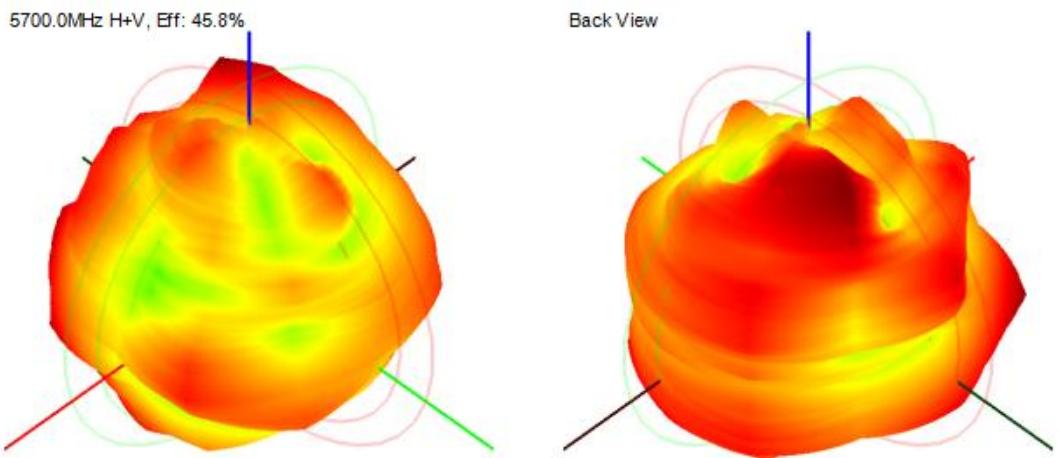


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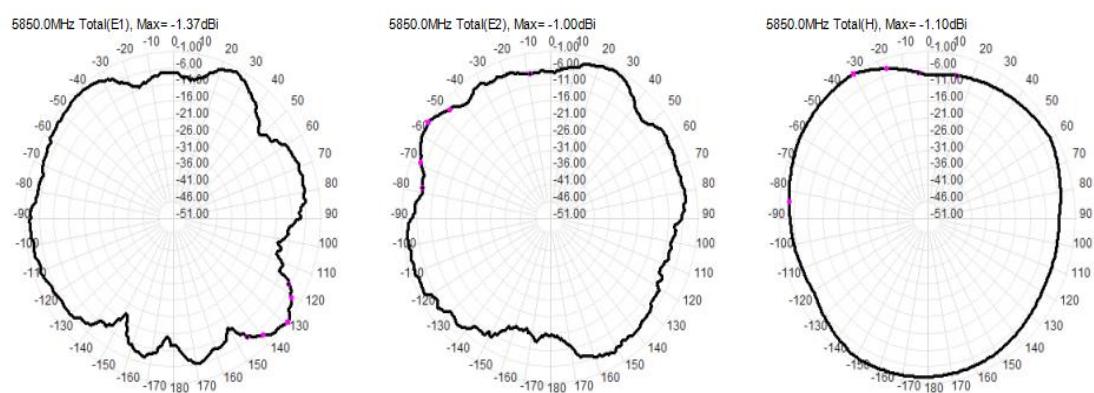
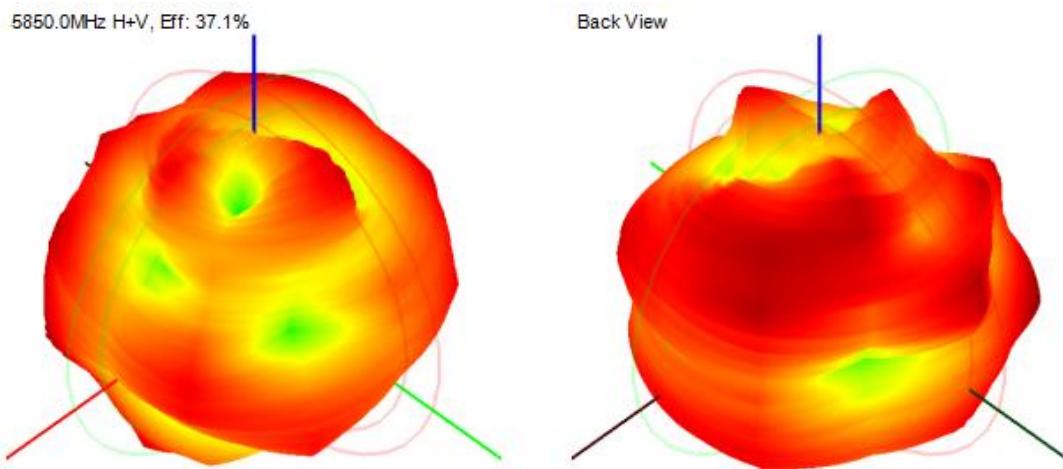
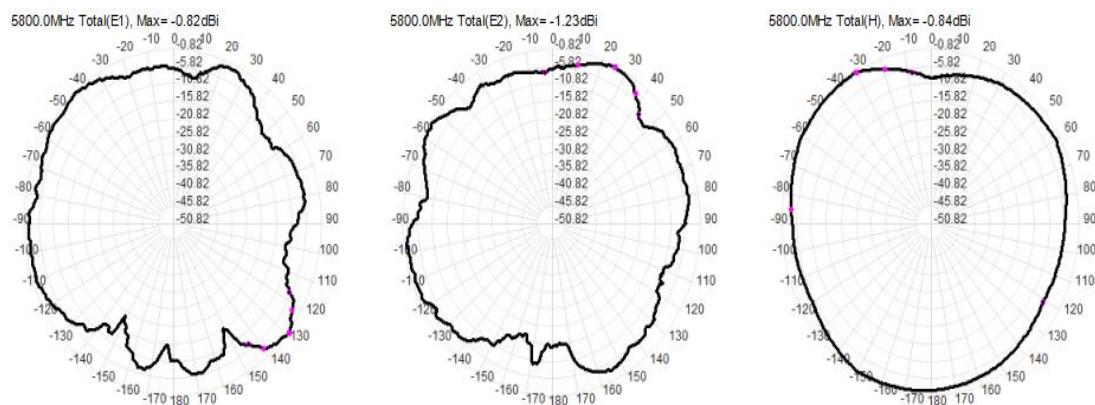
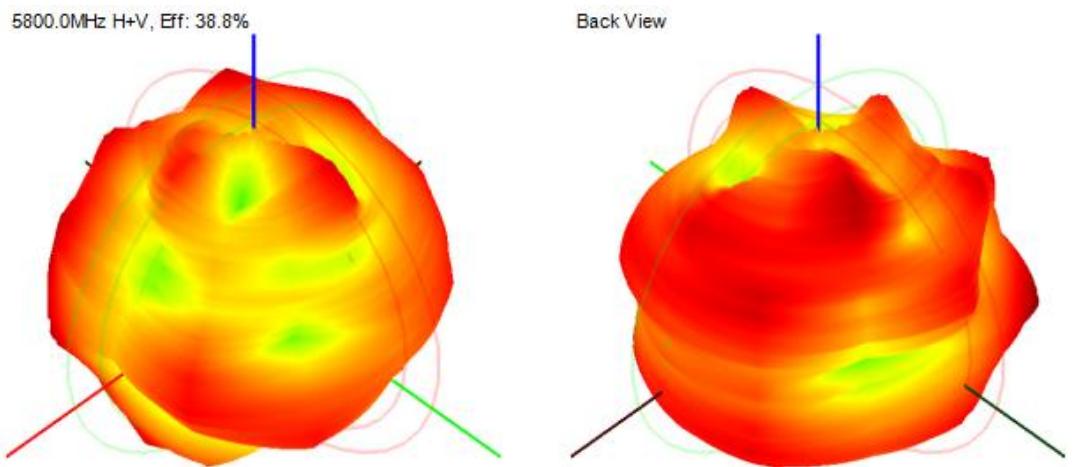


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3.实物图：

