



规格书

客户名称： _____

客户料号： Dual-frequency black soft built-in antenna

科信料号： _____

规格描述： 双频黑色软内置/1.13线L=200MM(1代端子)

制作日期： 2023年05月05日

出厂确认：

部 门	审 核	批 准
射频部	刘景雄	李斌
结构部	谢东展	李斌
品质部	王飞	李斌

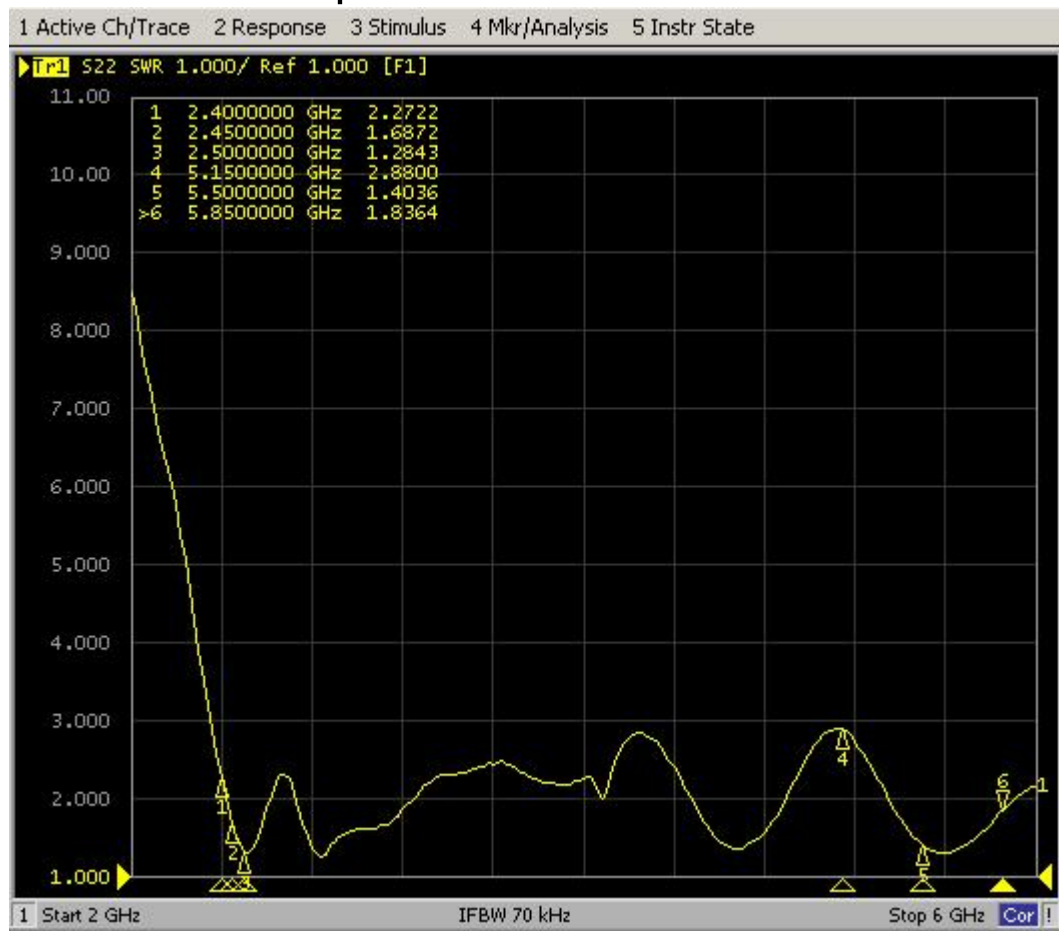
客户确认：

检 查	审 核	批 准

1. 产品图片 photo:



2. 电气性能测试报告Electrical Performance Test Report: VSWR:

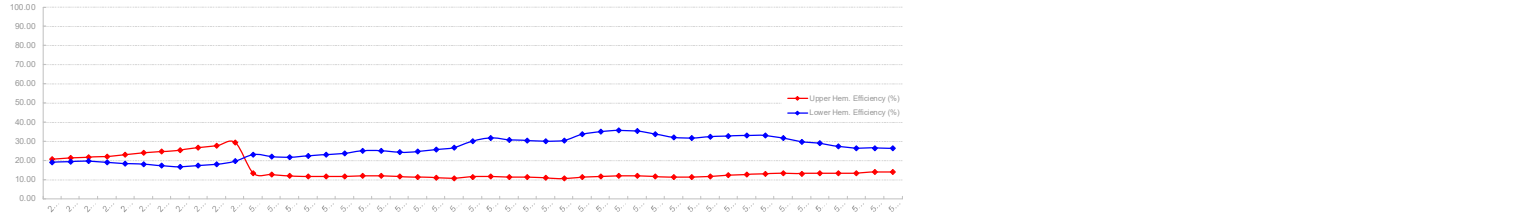
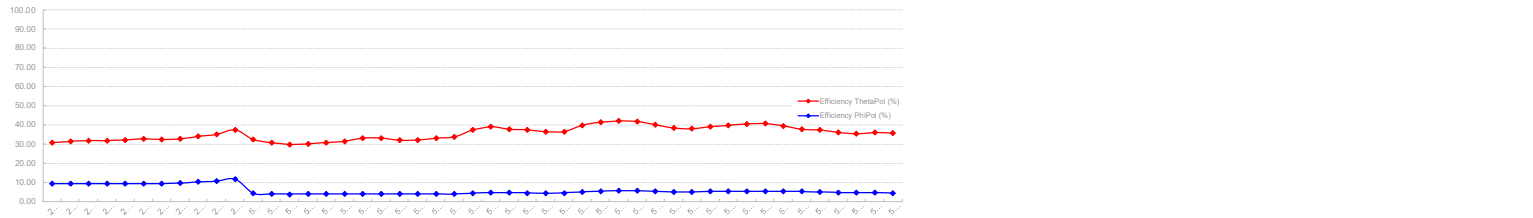
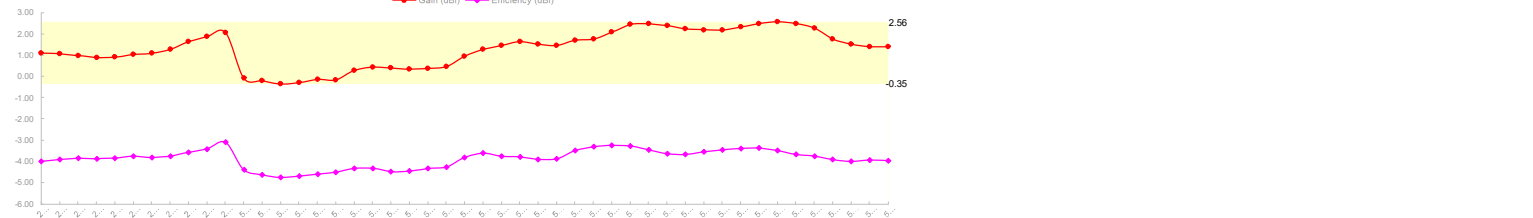
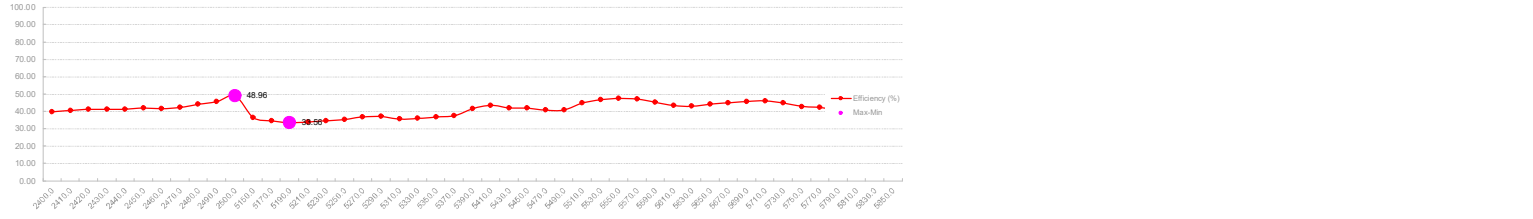


3. 产品性能参数

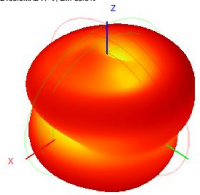
Product performance parameters:

电性能指标Electrical Specifications	
频率范围Frequency Range (MHz)	2400-2500/5150-5850
输入阻抗Input Impedence (Ω)	50
电压驻波比V.S.W.R	≤ 2.0 (未匹配设备, 仅供参考)
增益Gain (dBi)	3.0 ± 0.5 (未匹配设备, 仅供参考)
极化形式Polarization Type	垂直Vertical
最大功率Maximum power(W)	10W
垂直面波瓣角度Vertical lobe Angle (E)	$45 \sim 60^\circ$
水平面波瓣角度Water plane lobe Angle (H)	360°
机械指标Mechanical Specifications	
天线材质Material	FPC
连接器型号Connect Type	IPEX(1代)
天线尺寸Size	50*14*0.3MM
工作温度Operating Temp	$-20 \sim +65^\circ\text{C}$
储存温度Storage Temp	$-30 \sim +75^\circ\text{C}$

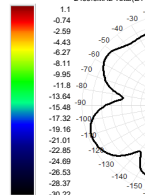
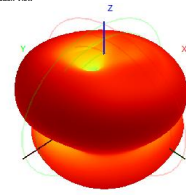
Frequency ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47				
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0	5150.0	5170.0	5190.0	5210.0	5230.0	5250.0	5270.0	5290.0	5310.0	5330.0	5350.0	5370.0	5390.0	5410.0	5430.0	5450.0	5470.0	5490.0	5510.0	5530.0	5550.0	5570.0	5590.0	5610.0	5630.0	5650.0	5670.0	5690.0	5710.0	5730.0	5750.0	5770.0	5790.0	5810.0	5830.0	5850.0				
Efficiency (dBi)	-3.99	-3.91	-3.85	-3.86	-3.83	-3.76	-3.40	-3.74	-3.55	-3.40	-3.10	-4.38	-4.61	-4.74	-4.68	-4.59	-4.50	-4.32	-4.31	-4.47	-4.44	-4.33	-4.25	-3.80	-3.61	-3.75	-3.78	-3.69	-3.87	-3.48	-3.30	-3.23	-3.26	-3.44	-3.63	-3.66	-3.55	-3.46	-3.39	-3.36	-3.45	-3.67	-3.74	-3.91	-3.95	-3.93	-3.95				
Gain (dBi)	1.10	1.06	0.99	0.90	0.90	1.03	1.09	1.26	1.64	1.87	2.07	-0.08	-0.21	-0.35	-0.29	-0.13	-0.16	0.29	0.44	0.39	0.35	0.38	0.46	0.94	1.27	1.45	1.64	1.52	1.47	1.71	1.77	2.08	2.44	2.47	2.39	2.24	2.19	2.32	2.49	2.56	2.45	2.28	1.76	1.50	1.40	1.39					
Efficiency (%)	39.88	40.66	41.24	41.15	41.41	42.10	41.73	42.29	44.11	45.68	48.96	36.48	34.58	33.56	34.07	34.77	35.49	37.02	37.07	35.73	35.94	36.86	37.61	41.66	43.59	42.18	41.86	40.79	40.98	44.82	46.76	47.50	47.23	45.32	43.34	43.04	44.20	45.12	45.84	46.10	44.82	42.93	42.24	40.68	39.89	40.45	40.27				
Directivity (dB)	5.09	4.97	4.83	4.75	4.73	4.78	4.88	5.00	5.19	5.27	5.17	4.30	4.40	4.39	4.38	4.46	4.34	4.60	4.75	4.86	4.79	4.71	4.70	4.75	4.87	5.20	5.42	5.41	5.34	5.19	5.07	5.31	5.69	5.91	6.02	5.90	5.74	5.65	5.70	5.85	6.04	6.16	6.02	5.67	5.50	5.33	5.34				
Peak Gain Position (Theta)	57.00	57.00	57.00	57.00	58.00	58.00	59.00	59.00	59.00	59.00	60.00	96.00	96.00	96.00	139.00	103.00	104.00	105.00	139.00	139.00	139.00	139.00	133.00	105.00	105.00	140.00	139.00	139.00	139.00	138.00	134.00	134.00	146.00	145.00	141.00	141.00	141.00	142.00	146.00	145.00	145.00	144.00	144.00	145.00	145.00	144.00	140.00	139.00	140.00		
Peak Gain Position (Phi)	214.00	214.00	214.00	214.00	215.00	216.00	216.00	186.00	184.00	186.00	187.00	211.00	217.00	217.00	120.00	116.00	114.00	136.00	138.00	140.00	141.00	181.00	117.00	119.00	140.00	145.00	147.00	147.00	186.00	188.00	103.00	105.00	143.00	144.00	144.00	144.00	103.00	102.00	102.00	106.00	107.00	103.00	101.00	100.00	152.00	135.00	150.00				
Efficiency ThetaPol (%)	30.67	31.34	31.85	31.83	32.12	32.66	32.31	32.64	33.91	35.00	37.36	32.32	30.72	29.77	30.15	30.83	31.53	32.95	33.05	31.90	32.14	33.04	33.77	37.30	38.94	37.66	37.40	36.43	36.52	39.84	41.35	41.91	41.71	40.10	38.31	37.97	38.94	39.77	40.45	40.66	39.44	37.80	37.23	35.93	36.32	35.91	35.85				
Efficiency PhiPol (%)	9.21	9.33	9.39	9.31	9.29	9.44	9.43	9.65	10.20	10.68	11.60	4.16	3.86	3.79	3.91	3.94	3.96	4.07	4.02	3.82	3.80	3.81	3.85	4.35	4.65	4.52	4.46	4.36	4.46	4.99	5.41	5.60	5.53	5.22	5.02	5.07	5.25	5.35	5.39	5.44	5.38	5.13	5.01	4.75	4.57	4.54	4.42				
Upper Hem. Efficiency (%)	20.81	21.21	21.70	22.16	22.94	24.05	24.56	25.48	26.78	27.71	29.39	13.37	12.59	11.85	11.60	11.67	11.68	11.93	11.93	11.51	11.26	11.08	10.80	11.48	11.75	11.37	11.35	10.84	10.50	11.18	11.64	11.95	12.01	11.59	11.21	11.27	11.72	12.28	12.71	13.12	13.23	13.15	13.34	13.33	13.43	13.94	14.02				
Lower Hem. Efficiency (%)	19.07	19.46	19.54	18.99	18.48	18.05	17.17	16.82	17.33	17.97	19.57	23.11	21.99	21.71	22.46	23.11	23.80	25.09	25.14	24.21	24.69	25.78	26.82	30.18	31.84	30.81	30.51	29.95	30.48	33.64	35.12	35.56	35.22	33.73	32.13	31.77	32.42	32.84	33.14	32.98	31.58	29.79	28.89	27.35	26.47	26.51	26.25				
T90(H)角度	15.64	14.91	14.40	14.24	14.93	16.23	17.38	17.52	16.41	13.87	11.52	5.17	4.47	4.10	4.43	4.83	5.41	5.88	6.02	5.67	5.30	5.46	6.30	7.70	8.75	9.34	8.83	8.01	8.10	9.44	11.17	11.44	11.21	10.72	10.23	9.61	10.07	11.02	11.44	11.10	11.53	11.33	9.72	8.85	8.53	8.39	8.06				
Gain 15deg (dBi)	35.00	35.00	36.00	35.00	35.00	33.00	31.00	31.00	30.00	30.00	30.00	22.00	25.00	24.00	24.00	25.00	25.00	25.00	25.00	24.00	23.00	23.00	23.00	24.00	25.00	24.00	23.00	23.00	22.00	23.00	23.00	23.00	22.00	21.00	22.00	23.00	22.00	23.00	22.00	21.00	21.00	20.00	20.00	20.00	20.00	20.00					
E1(XZ)波瓣宽度	4.76	4.62	4.45	4.30	4.22	4.35	4.68	5.12	5.54	5.84	5.97	3.05	3.13	3.56	3.85	3.65	3.27	3.00	2.94	3.11	3.37	3.63	3.59	3.31	3.03	2.82	2.83	2.95	3.13	3.14	2.99	2.88	2.72	2.61	2.56	2.54	3.21	3.53	3.60	3.50	3.37	3.41	3.76	4.16	4.61						
E1(XZ)前层比	26.00	26.00	28.00	28.00	28.00	28.00	27.00	27.00	28.00	31.00	37.00	21.00	22.00	22.00	24.00	24.00	24.00	26.00	26.00	19.00	19.00	25.00	24.00	24.00	24.00	23.00	22.00	22.00	23.00	22.00	21.00	21.00	20.00	20.00	19.00	19.00	20.00	19.00	19.00	20.00	19.00	19.00	20.00	20.00							
E2(YZ)波瓣宽度	2.45	2.31	2.15	2.02	1.99	2.19	2.47	2.77	2.96	3.02	2.94	1.74	1.75	1.47	1.34	1.40	1.24	1.16	1.10	0.99	0.87	0.71	0.79	0.62	0.57	0.61	0.56	0.41	0.32	0.28	0.30	0.39	0.49	0.50	0.45	0.42	0.46	0.54	0.68	0.80	0.79	0.71	0.75	0.87	1.06	1.19	1.30				
E2(YZ)前层比	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50				
最大增益处轴比(P)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			
仰角10度增益(大)轴比(P)	114.00	117.00	115.00	113.00	110.00	108.00	106.00	104.00	102.00	100.00	103.00	309.00	317.00	326.00	323.00	321.00	313.00	306.00	298.00	291.00	196.00	301.00	300.00	288.00	108.00	94.00	162.00	144.00	134.00	154.00	77.00	76.00	77.00	136.00	130.00	122.00	123.00	126.00	77.00	138.00	132.00	125.00	118.00	113.00	113.00	139.00	145.00				
He(XY)波瓣宽度	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.63	0.50	0.62	0.36	0.20	0.14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
He(XY)前层比	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
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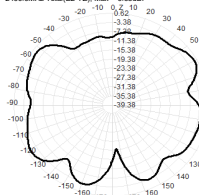
2400.0MHz H+V, EF: 39.9%



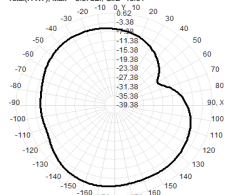
Back View



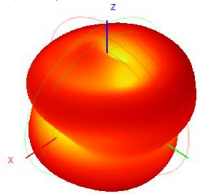
2400.0MHz Total(E2-YZ), Max: -0.63dB



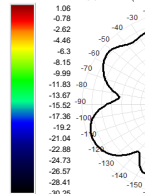
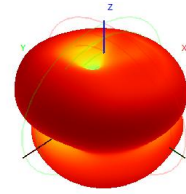
Total(H-XY), Max: -3.67dB, C/D=15.64



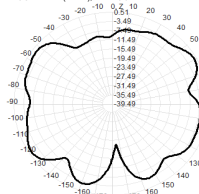
2410.0MHz H+V, EF: 40.7%



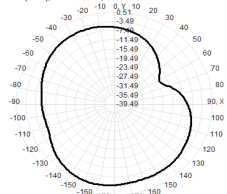
Back View



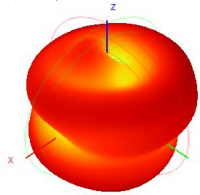
2410.0MHz Total(E2-YZ), Max: -0.67dB



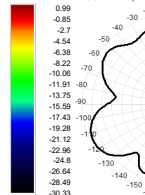
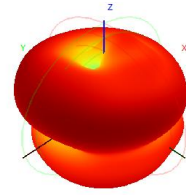
Total(H-XY), Max: -3.83dB, C/D=14.91



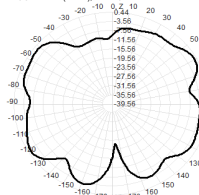
2420.0MHz H+V, EF: 41.2%



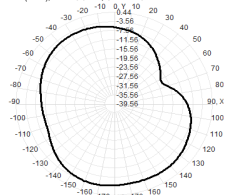
Back View



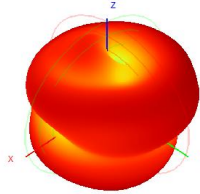
2420.0MHz Total(E2-YZ), Max: -0.71dB



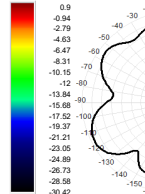
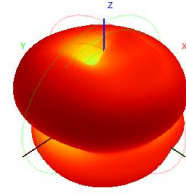
Total(H-XY), Max: -3.81dB, C/D=14.40



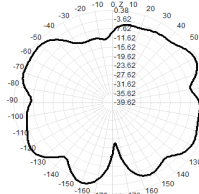
2430.0MHz H+V, EF: 41.1%



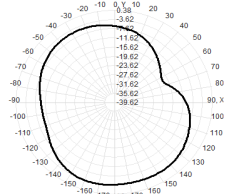
Back View



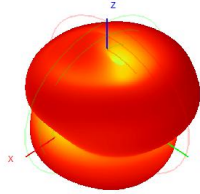
2430.0MHz Total(E2-YZ), Max: -0.82dB



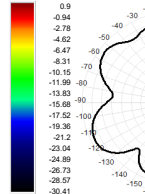
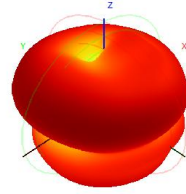
Total(H-XY), Max: -3.74dB, C/D=14.34



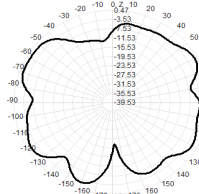
2440.0MHz H+V, EF: 41.4%



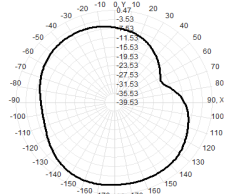
Back View



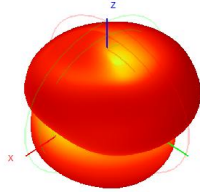
2440.0MHz Total(E2-YZ), Max: -0.80dB



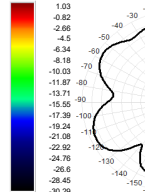
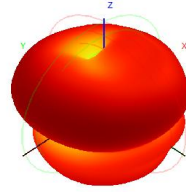
Total(H-XY), Max: -3.57dB, C/D=14.93



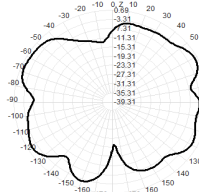
2450.0MHz H+V, EF: 42.1%



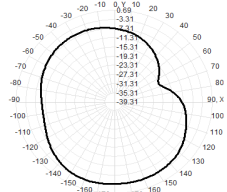
Back View



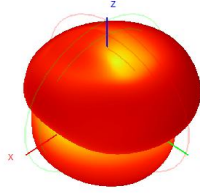
2450.0MHz Total(E2-YZ), Max: -0.61dB



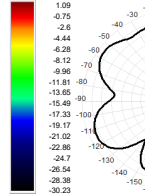
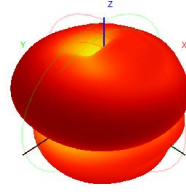
Total(H-XY), Max: -3.40dB, C/D=16.23



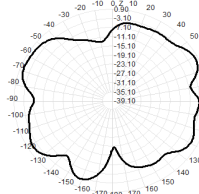
2460.0MHz H+V, EF: 41.7%



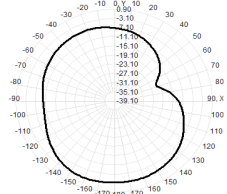
Back View



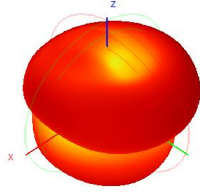
2460.0MHz Total(E2-YZ), Max: -0.46dB



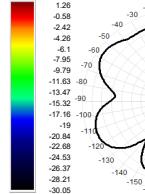
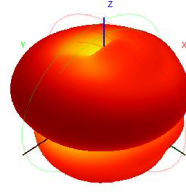
Total(H-XY), Max: -3.44dB, C/D=17.38



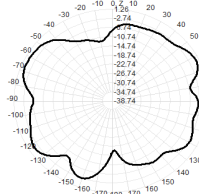
2470.0MHz H+V, EF: 42.3%



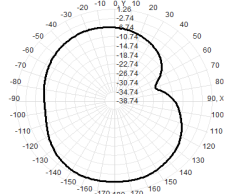
Back View



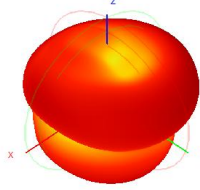
2470.0MHz Total(E2-YZ), Max: -0.29dB



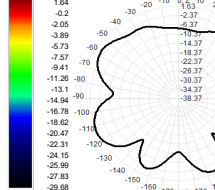
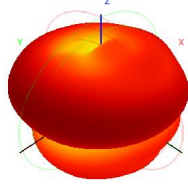
Total(H-XY), Max: -3.53dB, C/D=17.52



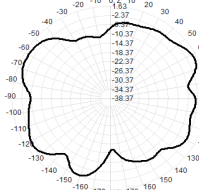
2480.0MHz H+V, EF: 44.1%



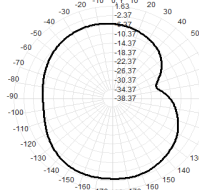
Back View



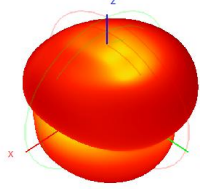
2480.0MHz Total(E2-YZ), Max= 0.14dB



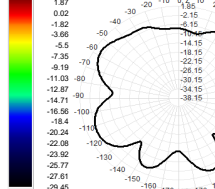
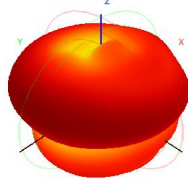
Total(H+XY), Max= -3.43dB, CrD=16.41



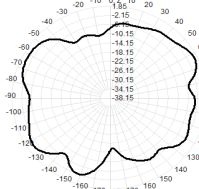
2490.0MHz H+V, EF: 45.7%



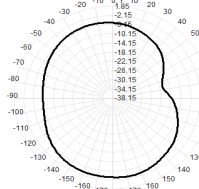
Back View



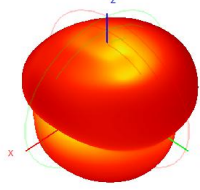
2490.0MHz Total(E2-YZ), Max= 0.36dB



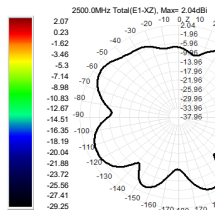
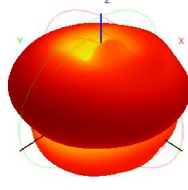
Total(H+XY), Max= -3.44dB, CrD=13.87



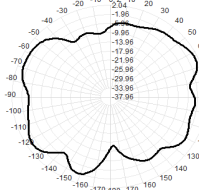
2500.0MHz H+V, EF: 49.0%



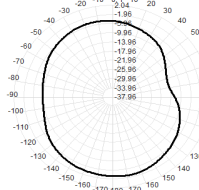
Back View



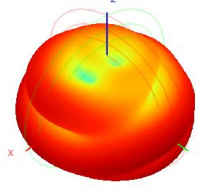
2500.0MHz Total(E2-YZ), Max= 0.68dB



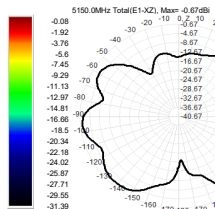
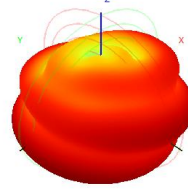
Total(H+XY), Max= -3.29dB, CrD=11.52



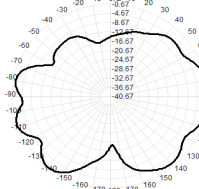
5150.0MHz H+V, EF: 36.5%



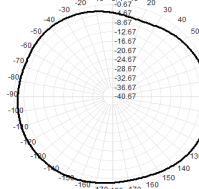
Back View



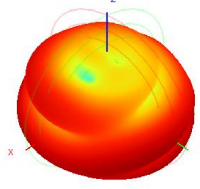
5150.0MHz Total(E2-YZ), Max= -0.90dB



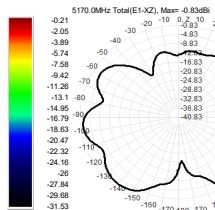
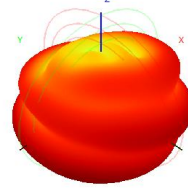
Total(H+XY), Max= -0.81dB, CrD=5.17



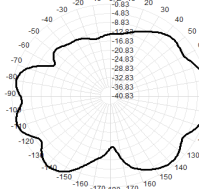
5170.0MHz H+V, EF: 34.6%



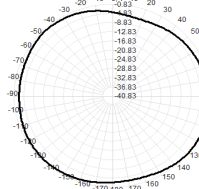
Back View



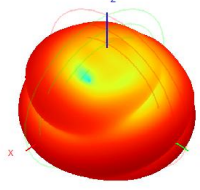
5170.0MHz Total(E2-YZ), Max= -1.09dB



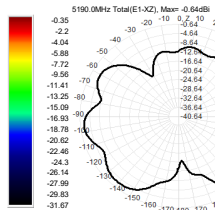
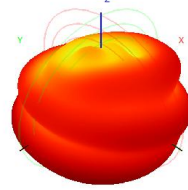
Total(H+XY), Max= -1.20dB, CrD=4.47



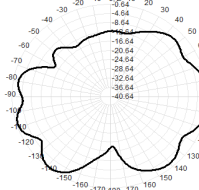
5190.0MHz H+V, EF: 33.6%



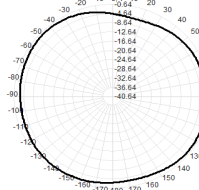
Back View



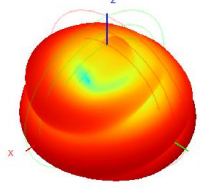
5190.0MHz Total(E2-YZ), Max= -1.23dB



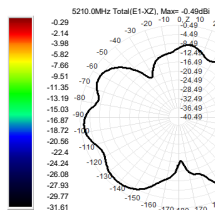
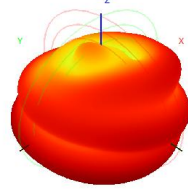
Total(H+XY), Max= -1.77dB, CrD=4.10



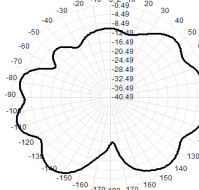
5210.0MHz H+V, EF: 34.1%



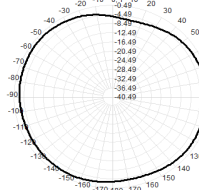
Back View



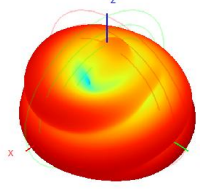
5210.0MHz Total(E2-YZ), Max= -1.03dB



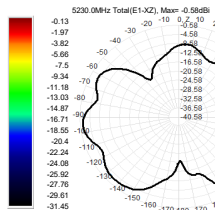
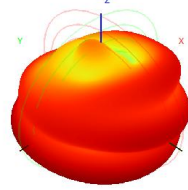
Total(H+XY), Max= -1.99dB, CrD=4.43



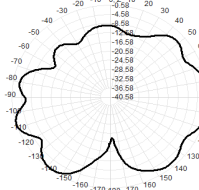
5230.0MHz H+V, EF: 34.8%



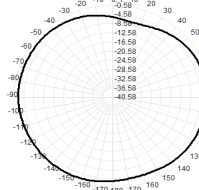
Back View



5230.0MHz Total(E2-YZ), Max= -0.74dB



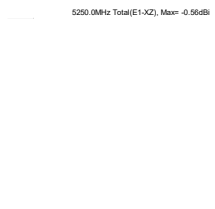
Total(H+XY), Max= -2.34dB, CrD=4.83



5250.0MHz H+V, EF: 35.5%



Back View

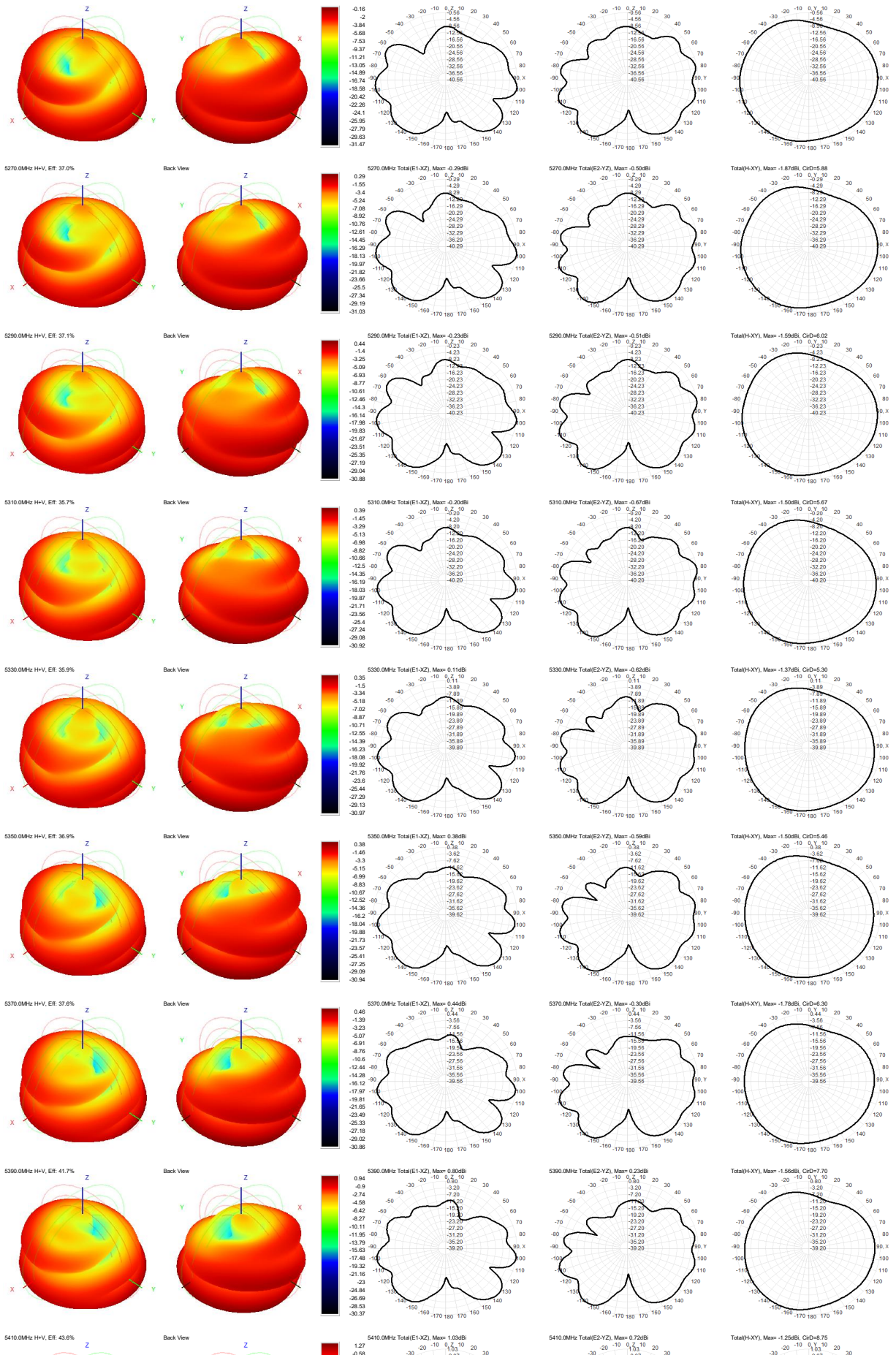


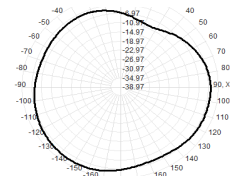
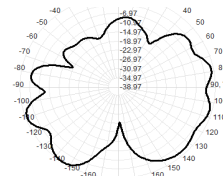
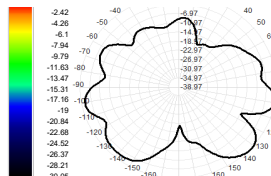
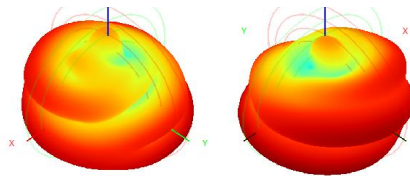
5250.0MHz Total(E2-YZ), Max= -0.67dB



Total(H+XY), Max= -2.22dB, CrD=5.41

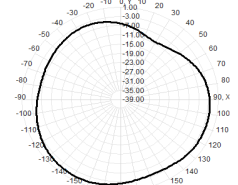
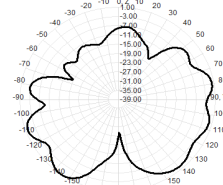
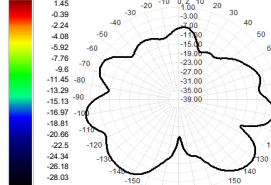
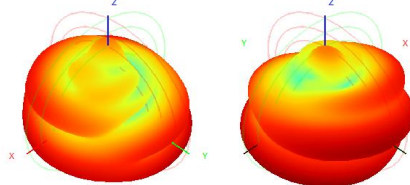






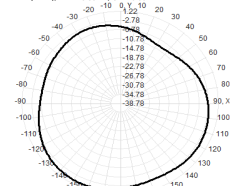
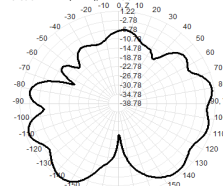
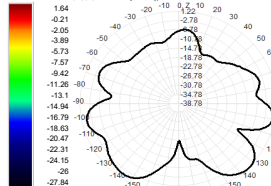
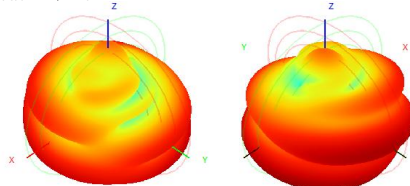
5430.0MHz H+V, EE: 42.2%

Back View



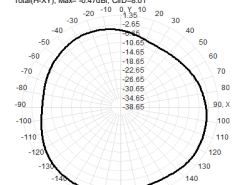
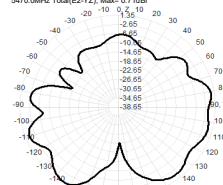
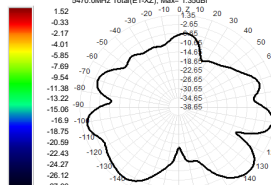
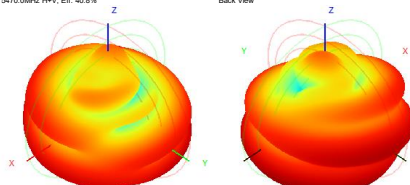
5450.0MHz H+V, EE: 41.9%

Back View



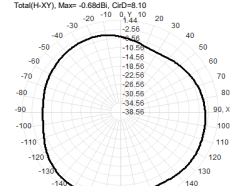
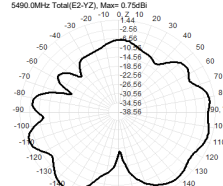
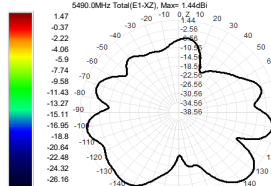
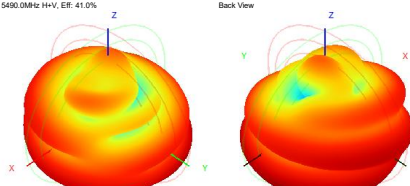
5470.0MHz H+V, EE: 40.8%

Back View



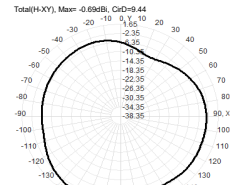
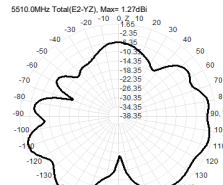
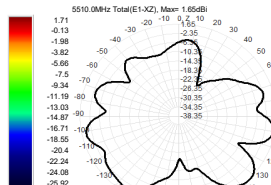
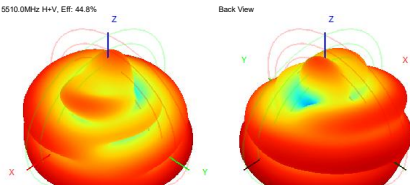
5490.0MHz H+V, EE: 41.0%

Back View



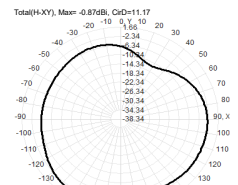
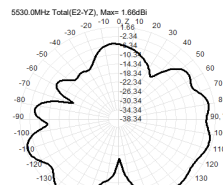
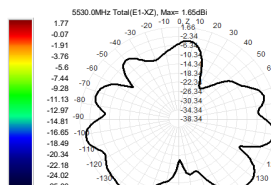
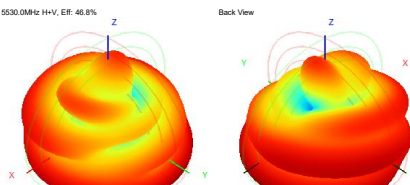
5510.0MHz H+V, EE: 44.8%

Back View



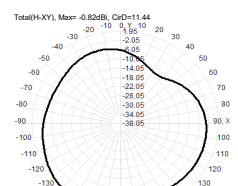
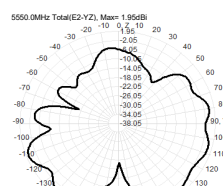
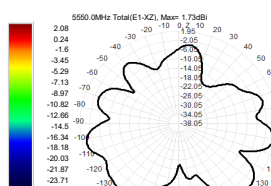
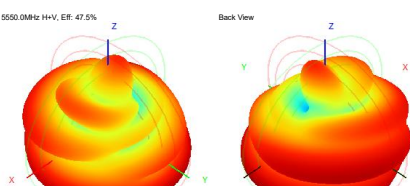
5530.0MHz H+V, EE: 46.8%

Back View



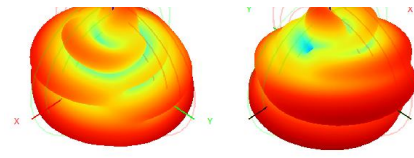
5550.0MHz H+V, EE: 47.5%

Back View

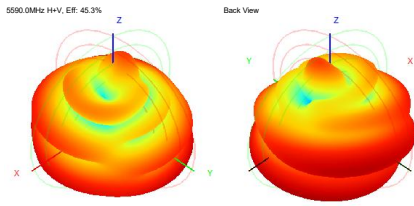


5570.0MHz H+V, EE: 47.2%

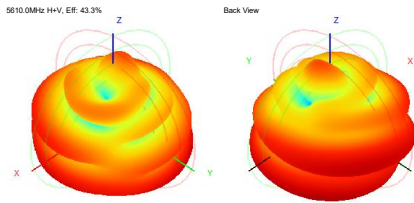
Back View



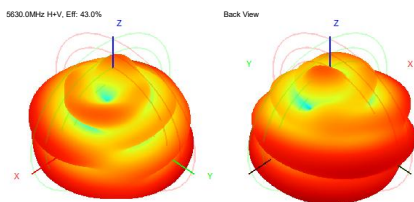
5590.0MHz H+V, EF: 45.3%



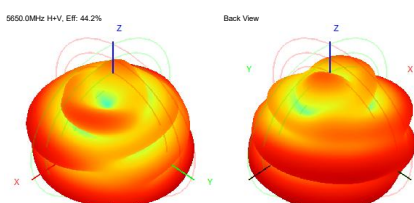
5610.0MHz H+V, EF: 43.3%



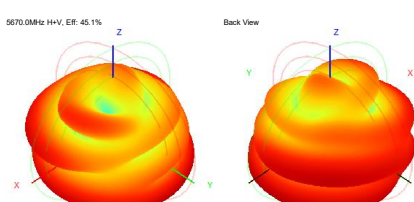
5630.0MHz H+V, EF: 43.0%



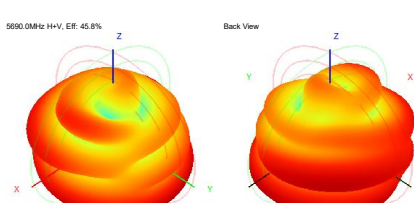
5650.0MHz H+V, EF: 44.2%



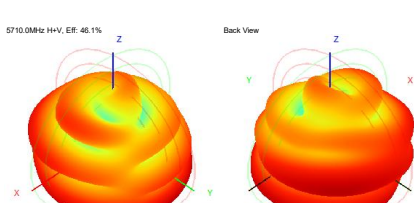
5670.0MHz H+V, EF: 45.1%



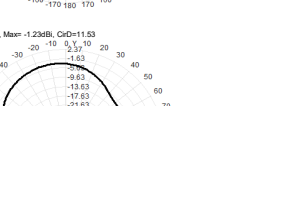
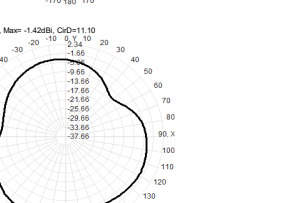
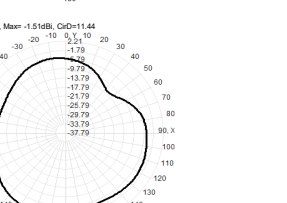
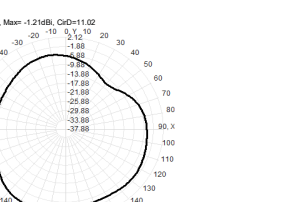
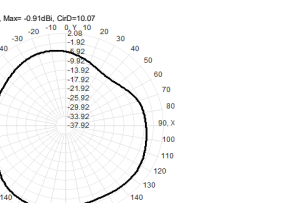
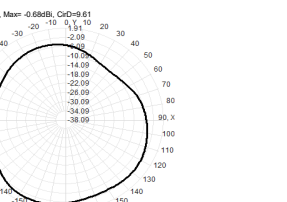
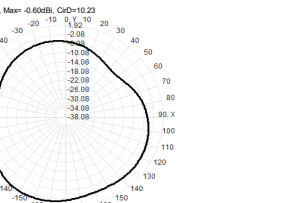
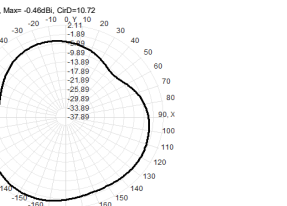
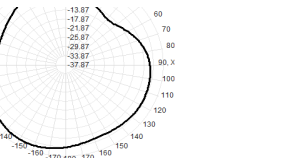
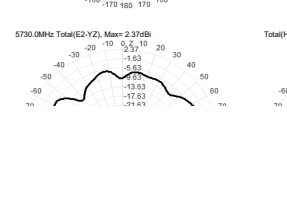
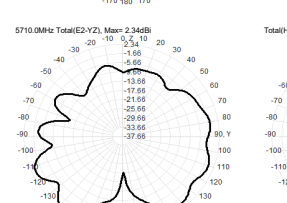
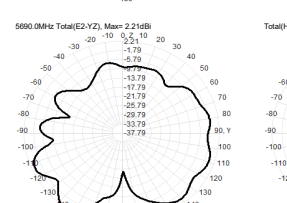
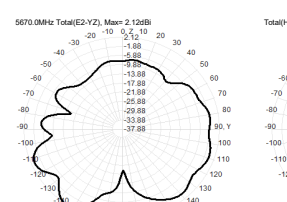
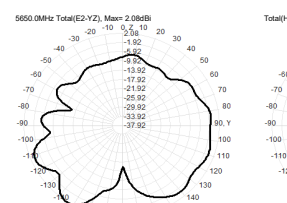
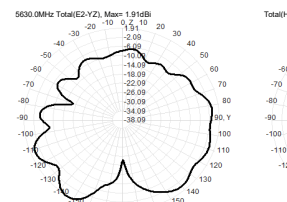
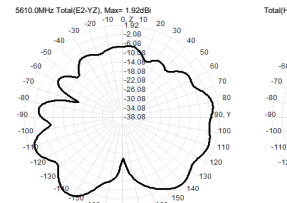
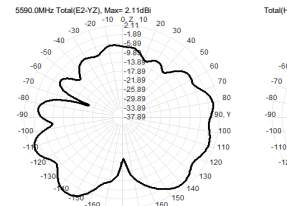
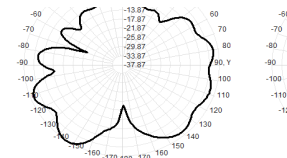
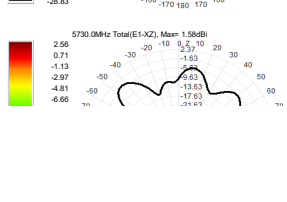
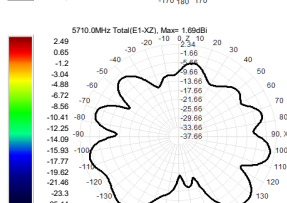
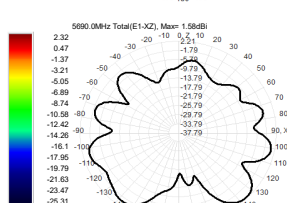
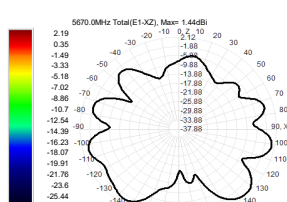
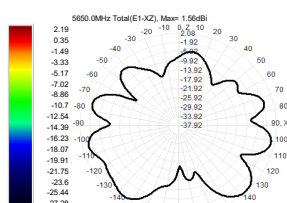
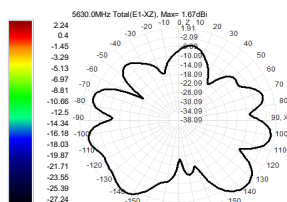
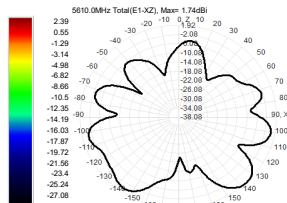
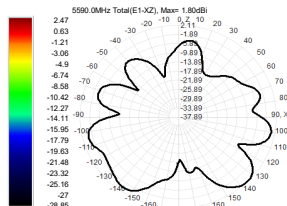
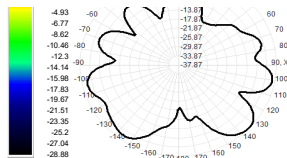
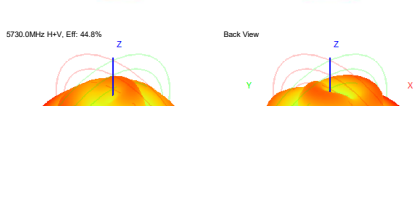
5690.0MHz H+V, EF: 45.8%

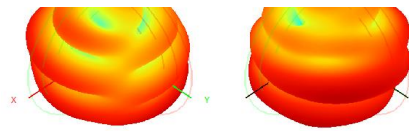


5710.0MHz H+V, EF: 46.1%



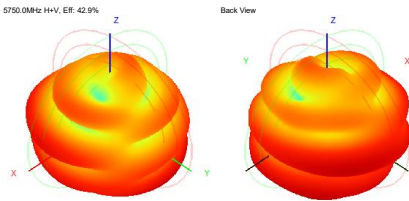
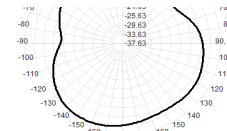
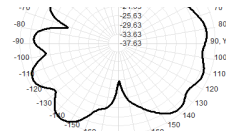
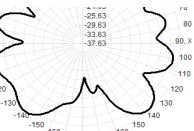
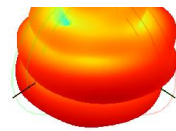
5730.0MHz H+V, EF: 44.8%





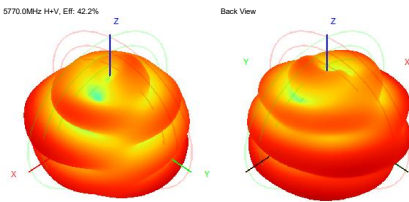
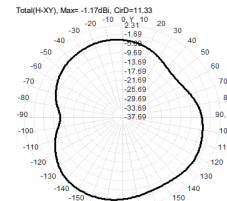
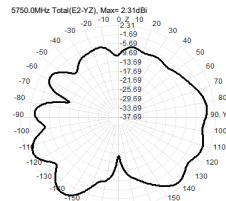
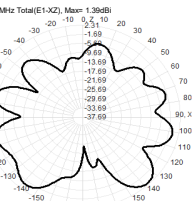
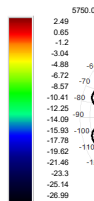
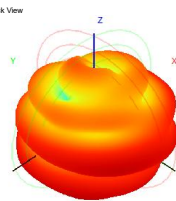
5750.0MHz H+V, EF: 42.9%

Back View



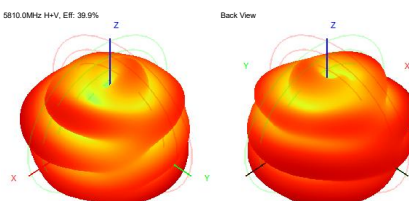
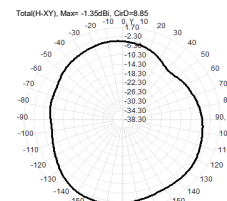
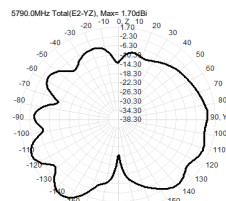
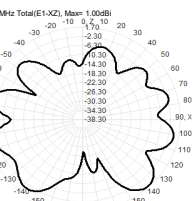
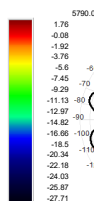
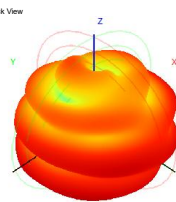
5770.0MHz H+V, EF: 42.2%

Back View



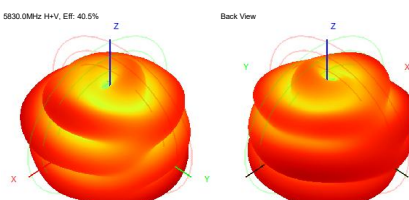
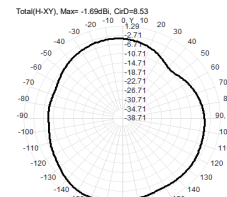
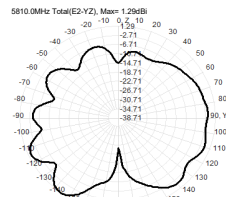
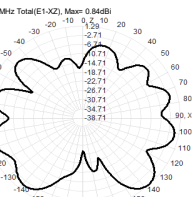
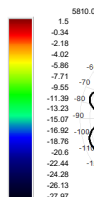
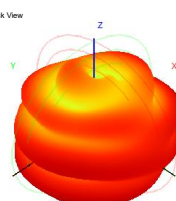
5790.0MHz H+V, EF: 40.7%

Back View



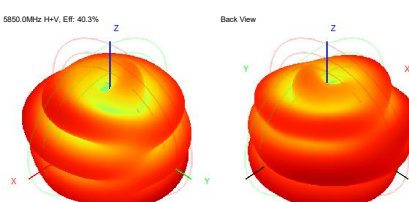
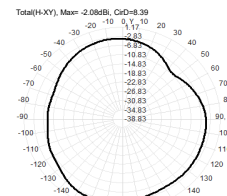
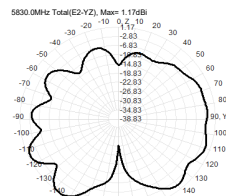
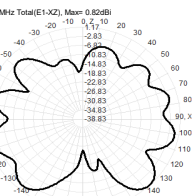
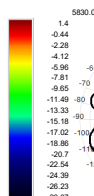
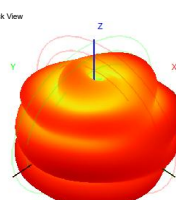
5810.0MHz H+V, EF: 39.9%

Back View



5830.0MHz H+V, EF: 40.5%

Back View



5850.0MHz H+V, EF: 40.3%

Back View

