

Testing Report

Customer Name: SHENZHEN SHI XIN ZHONG XIN TECHNOLOGY CO., LTD

Product Name: BT Antenna

Sample Model: F-9833

Reference Standard: GB/T9410-2008; ANSI/IEEE Std 149-1979

Issue Date: 2024.07. 12

Engineer:	李日读	Date: 2024.07. 12
Auditor:	马坤	Date: 2024.07. 12
Approver:	陈南	Date: 2024.07. 12

1. General Information

1.1 General Information of testing institutions

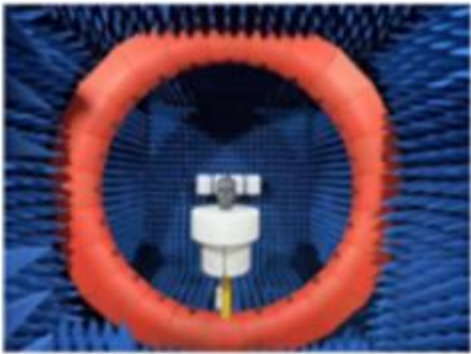
Name	Shenzhen Hetuo Technology Co., Ltd.
Address	Room 1202 B, Building C6, Hengfeng Industrial City, Xixiang, Baoan District, Shenzhen
Tel	18665849001
E-mail	18665849001@163.com
Equipment	Agilent 5071C

1.2 Testing principle

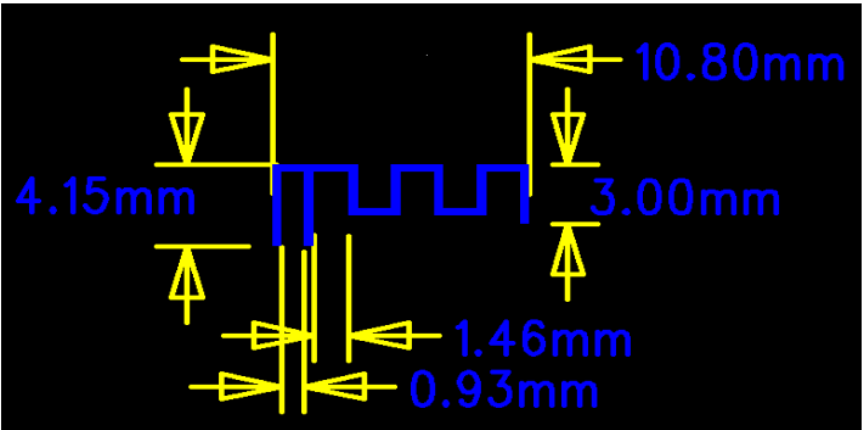
2. Test System

Multi-probe OTA Measurement System

Gain & Efficiency	Gain & Efficiency	SATIMO Agilent 5071C
-------------------	-------------------	-------------------------



Antenna Photo & Length(mm)



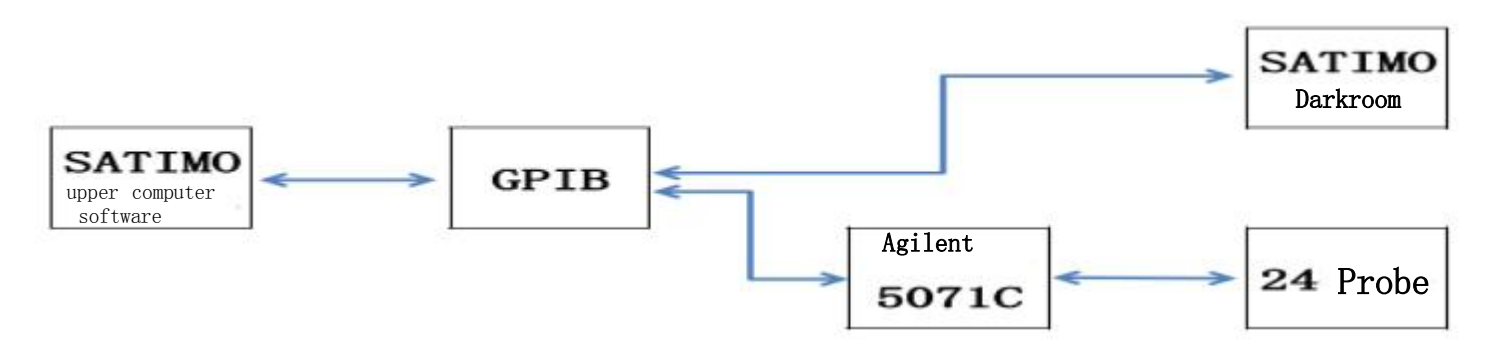
1.3 Test equipment

Equipment	Model No.	Serial No.	Manufacturer	Calibration date	Next calibration date
24 probe microwave chamber	4*3*3	NA	SATIMO	2024.05.29	2024.08.31
Network Analyzer	5071C	NA	Agilent	2024.05.29	2024.08.31

1.4 Test environment

Temperature	24 C ± 1.5 C
Humidity	45%RH
Pressure	101kPa

1.5 Brief summary of Procedure



1. SATIMO turn on the Upper Computer Software, Name: VeryView99.exe, Version No.: V1.10;
2. VeryView99 via GPIB (General Purpose Interface Bus) to control the shielding room (darkroom)'s SATIMO;
3. Meanwhiel, GPIB control the Agilent 5071C to read the Antenna data by 24 Probe;
4. Agilent 5071C will analyse the data and generate the result;
5. Agilent 5071C will feedback to VeryView99 software to generate the test report.

2. Sample Information

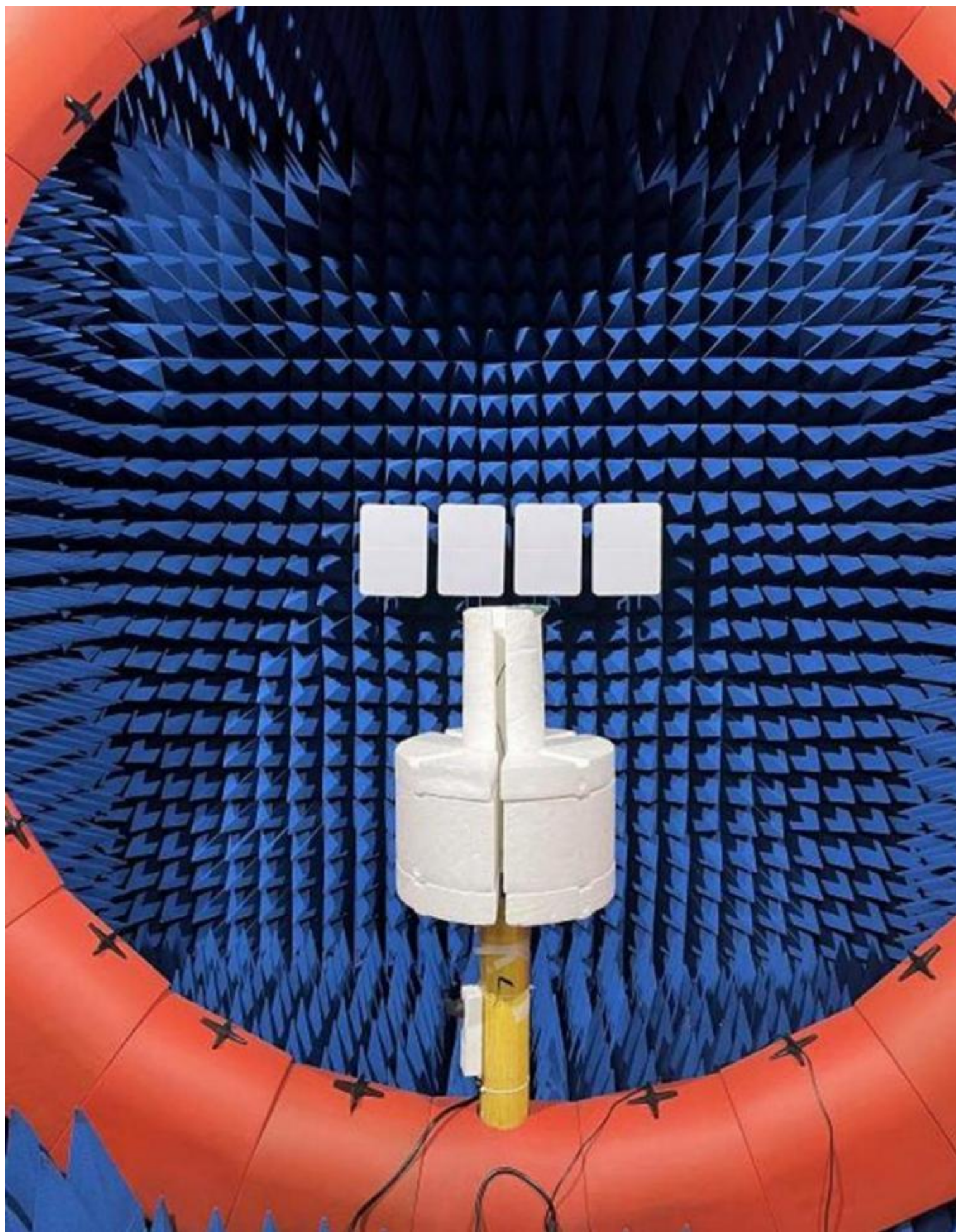
2.1 Client information

Name	SHENZHEN SHIXINZHONGXIN TECHNOLOGY CO.,LTD
Address	A1 , Shajing Donghuan Industrial Zone , Bao 'an District , Shenzhen
Contacts	Ma Chao
Tel	18218809918
E-mail	machao@c- chip. com. cn

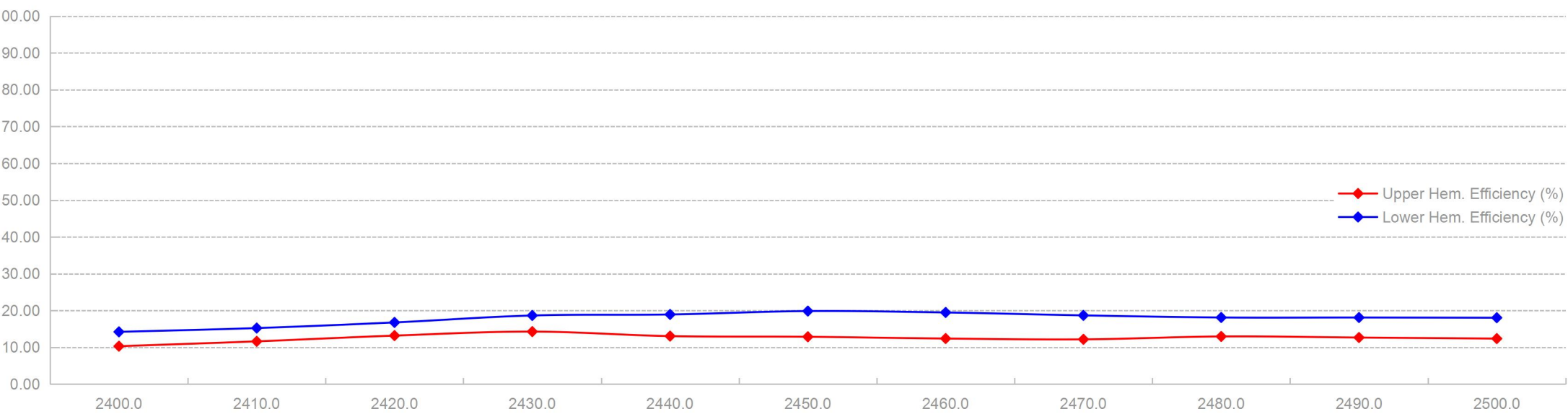
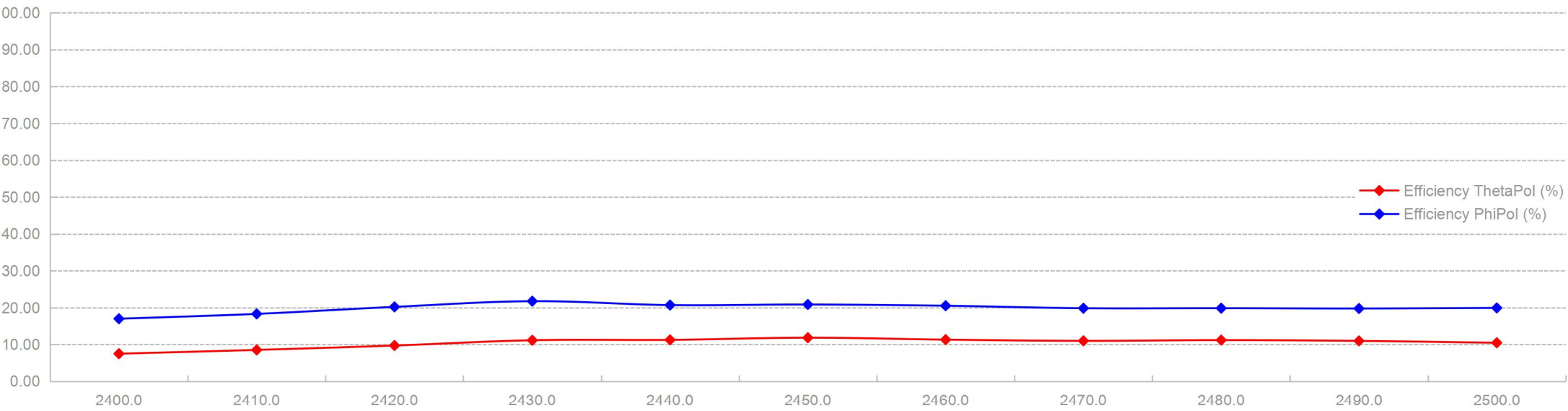
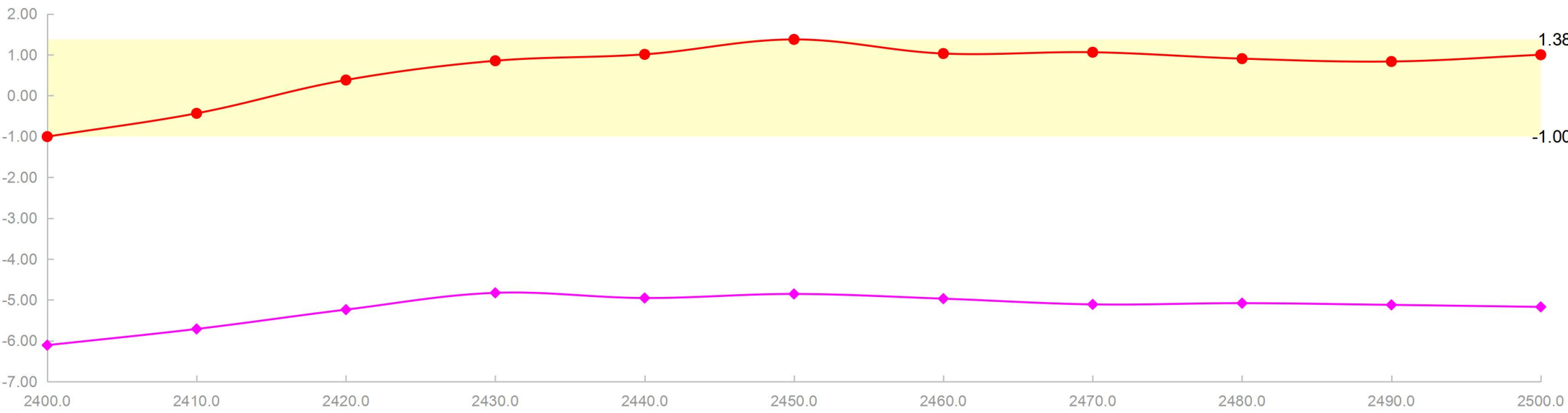
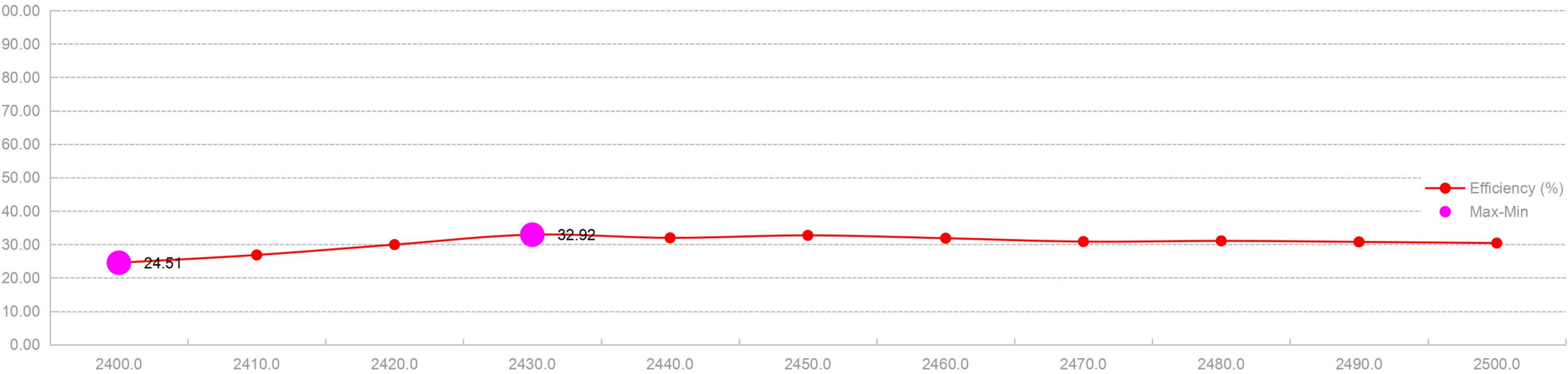
2.2 Description of EUT(S)

Product Name	BT Antenna
Sample Model	F-9833
Antenna Size	4.15*10.8mm
Antenna Type	PCB antenna
Serial No.	/
Test Item	Antenna Gain, Radiation pattern
Frequency Range	2400-2500MHz
Received Date	2024.07.12
Test Date	2024.07. 12
Remark	The length of the RF cable is 50mm

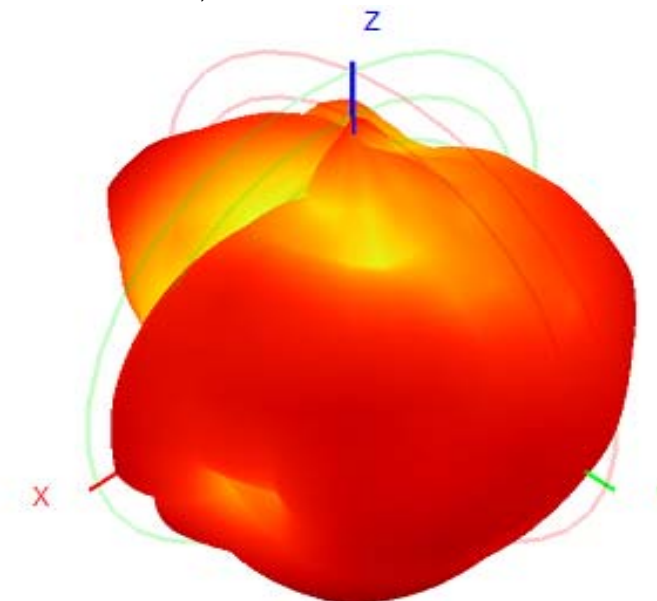
The test photos



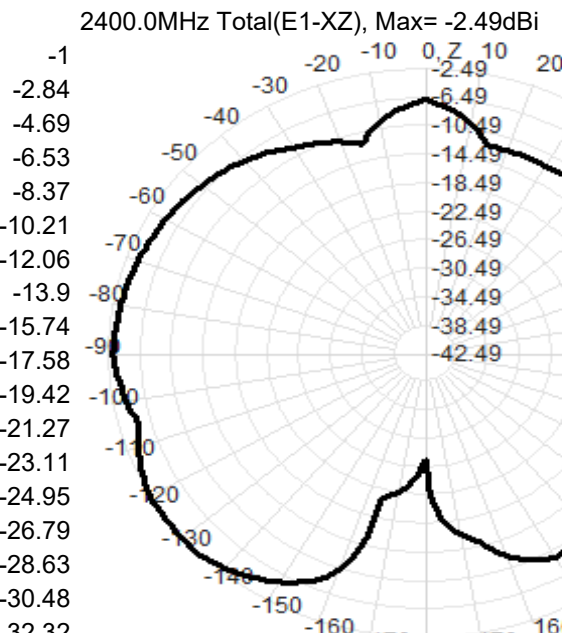
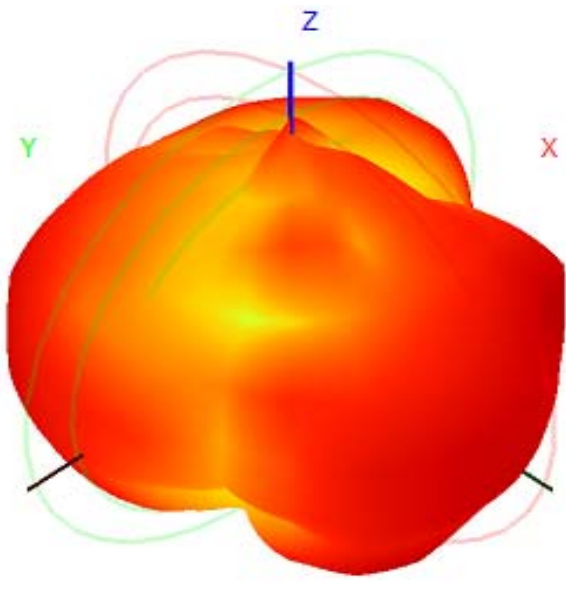
 深圳市合拓科技有限公司											
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-6.11	-5.71	-5.24	-4.83	-4.95	-4.85	-4.97	-5.11	-5.08	-5.12	-5.17
Gain (dBi)	-1.00	-0.43	0.38	0.85	1.01	1.38	1.03	1.06	0.91	0.84	1.00
Efficiency (%)	24.51	26.85	29.95	32.92	31.97	32.71	31.85	30.84	31.06	30.76	30.41
Directivity (dB)	5.10	5.28	5.62	5.68	5.96	6.23	6.00	6.17	5.98	5.96	6.17
Peak Gain Position (Theta)	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	120.00	135.00	135.00
Peak Gain Position (Phi)	120.00	120.00	120.00	135.00	120.00	120.00	120.00	120.00	45.00	120.00	45.00
Efficiency ThetaPol (%)	7.51	8.54	9.73	11.16	11.27	11.85	11.33	11.00	11.20	10.99	10.48
Efficiency PhiPol (%)	17.00	18.31	20.22	21.76	20.71	20.86	20.53	19.85	19.86	19.77	19.94
Upper Hem. Efficiency (%)	10.31	11.62	13.18	14.27	13.04	12.86	12.39	12.17	12.95	12.66	12.37
Lower Hem. Efficiency (%)	14.20	15.23	16.76	18.65	18.93	19.85	19.47	18.68	18.11	18.10	18.04
T90(H)圆度	12.68	14.19	11.67	10.96	12.93	13.98	14.83	14.81	18.02	17.90	15.94
Gain 15deg (dBi)											
E1(XZ)波瓣宽度	96.23	109.41	106.99	41.69	39.44	37.05	33.69	37.93	32.59	33.64	33.77
E1(XZ)前后比	3.14	2.62	3.38	3.68	4.16	4.35	4.86	4.93	5.66	5.88	6.34
E2(YZ)波瓣宽度	88.25	86.85	44.82	70.62	64.66	68.79	69.17	98.69	27.14	92.85	86.79
E2(YZ)前后比	1.69	2.21	2.64	2.74	3.27	2.68	2.31	1.64	1.10	1.44	1.98
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
顶点(Theta=0)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
仰角10度最差(大)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
Hc(XY)波瓣宽度	135.41	123.80	116.32	120.15	118.55	113.64	121.21	122.80	119.23	123.42	118.56
Hc(XY)前后比	0.73	1.12	1.98	0.92	2.39	2.83	2.27	2.73	3.92	3.23	2.70
Empty											



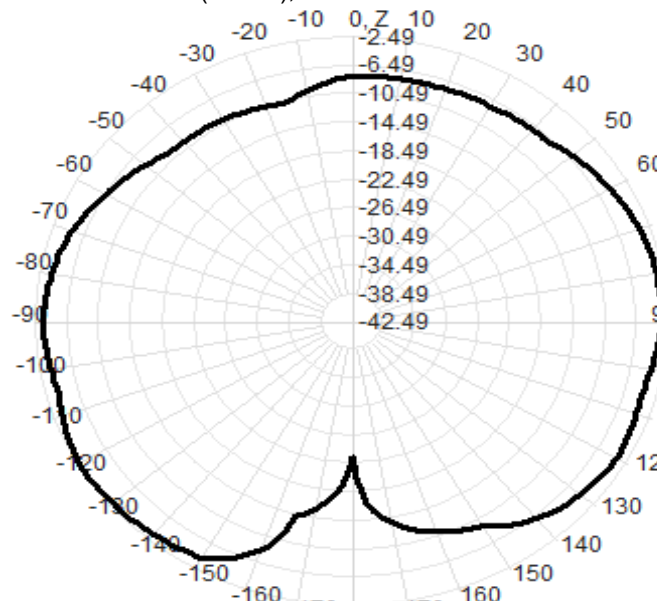
2400.0MHz Total, Eff: 24.5%



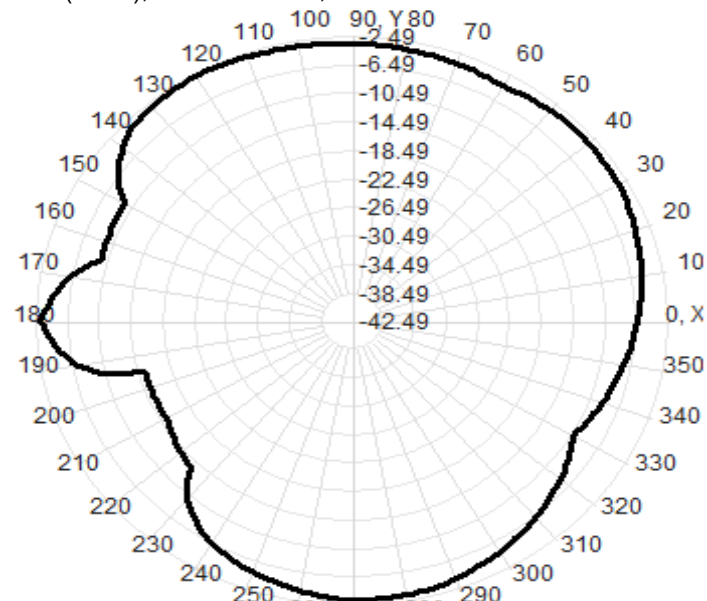
Back View



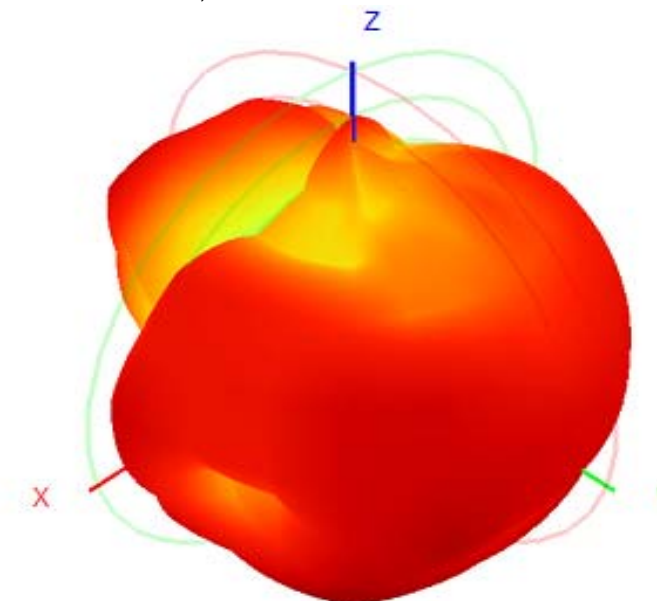
2400.0MHz Total(E2-YZ), Max=-2.68dBi



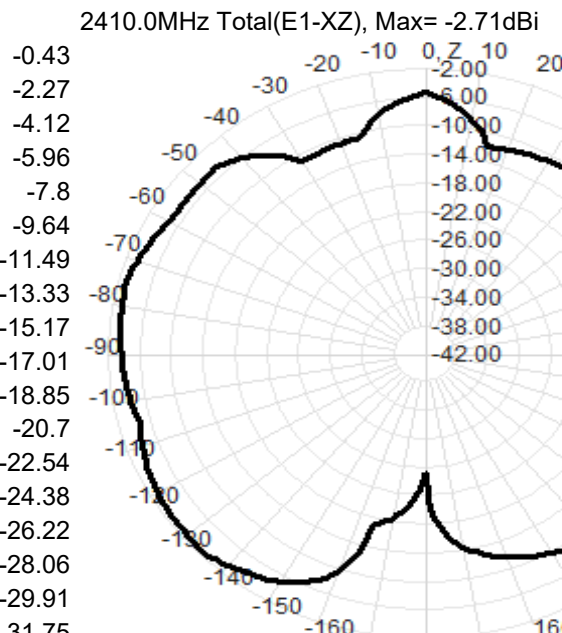
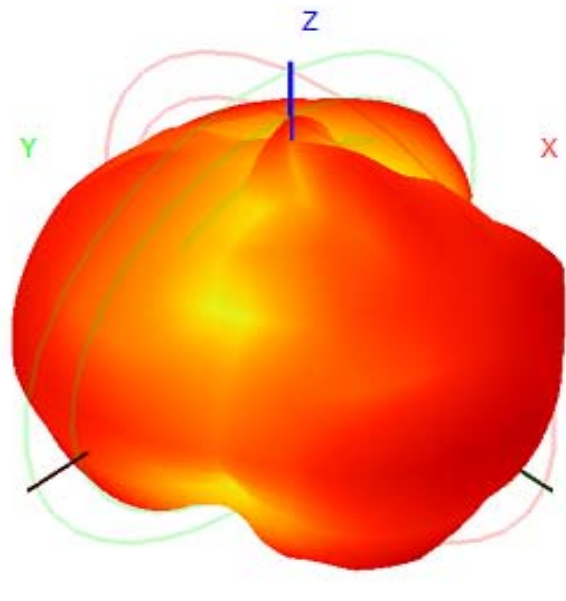
Total(H-XY), Max=-2.75dBi, CirD=12.68



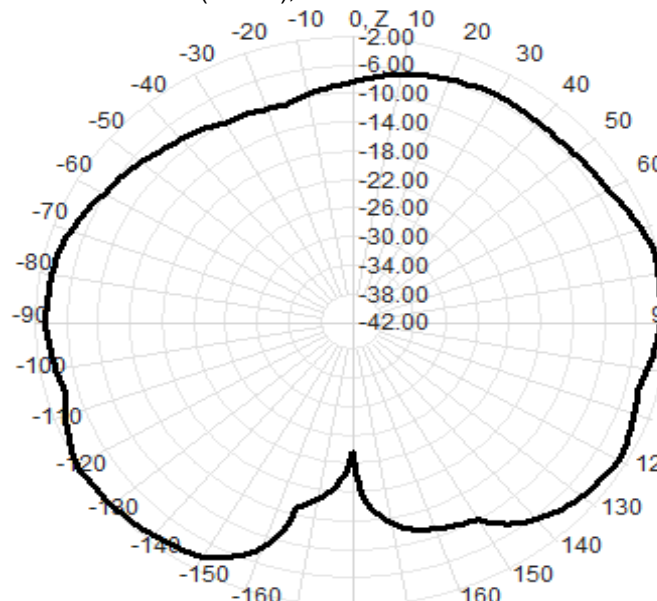
2410.0MHz Total, Eff: 26.9%



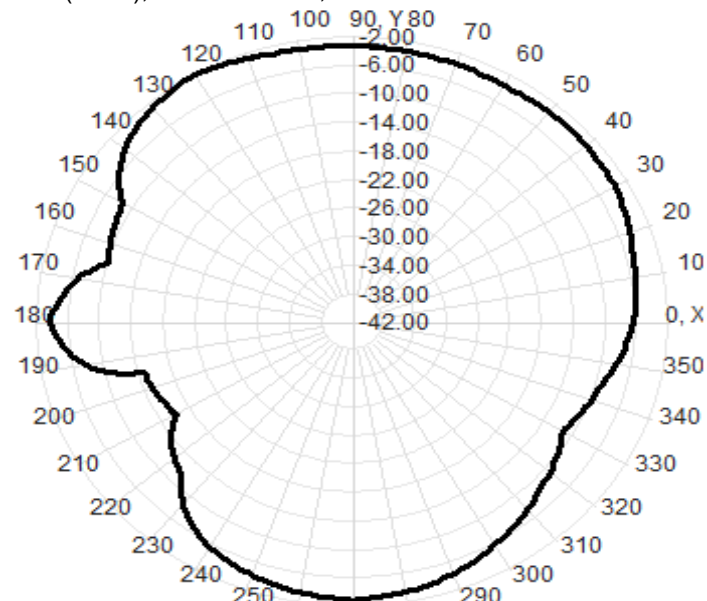
Back View



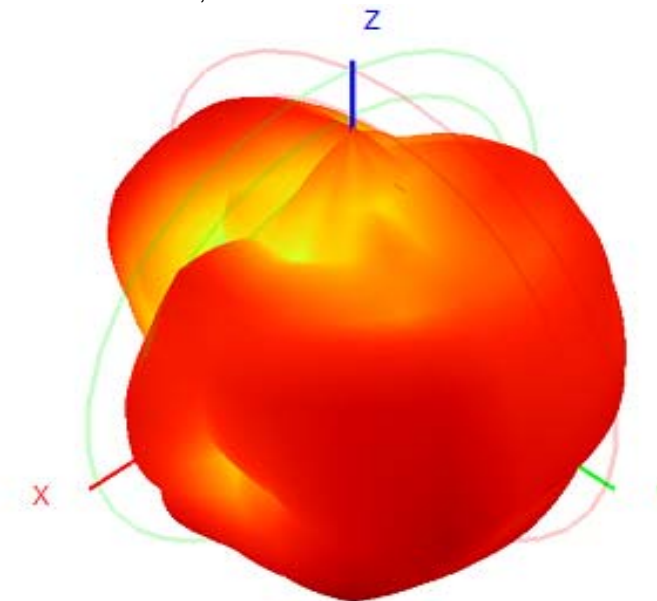
2410.0MHz Total(E2-YZ), Max=-2.00dBi



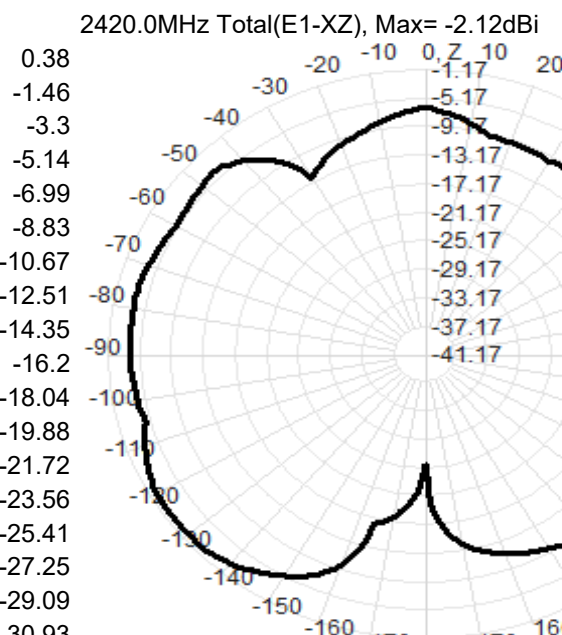
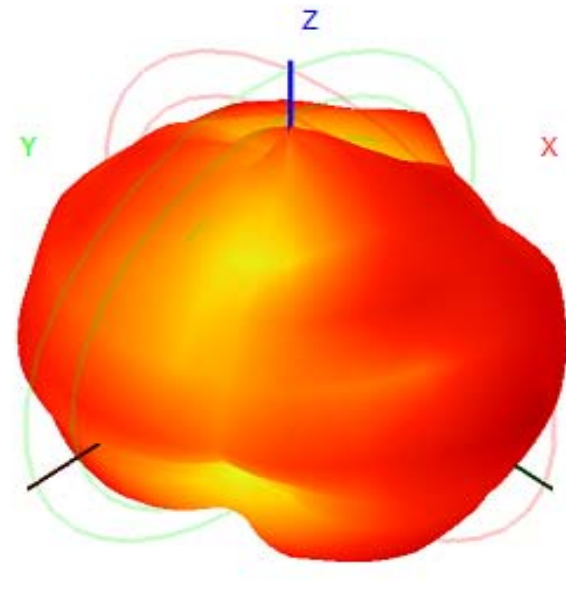
Total(H-XY), Max=-2.07dBi, CirD=14.19



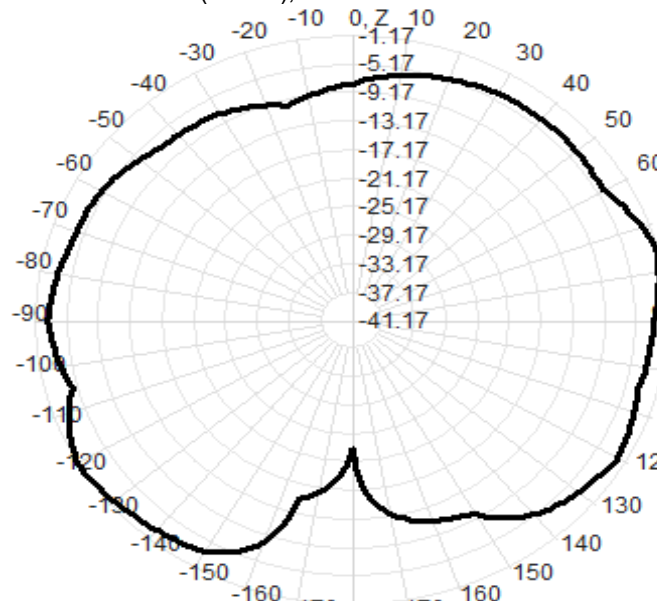
2420.0MHz Total, Eff: 29.9%



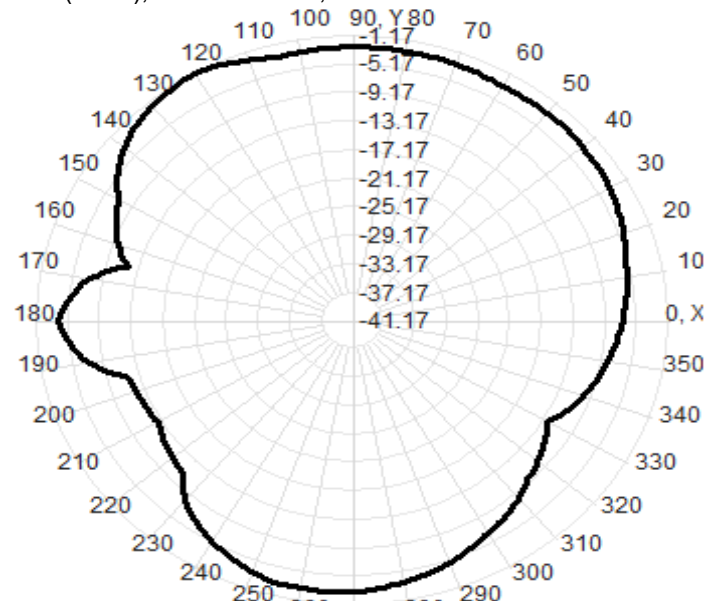
Back View



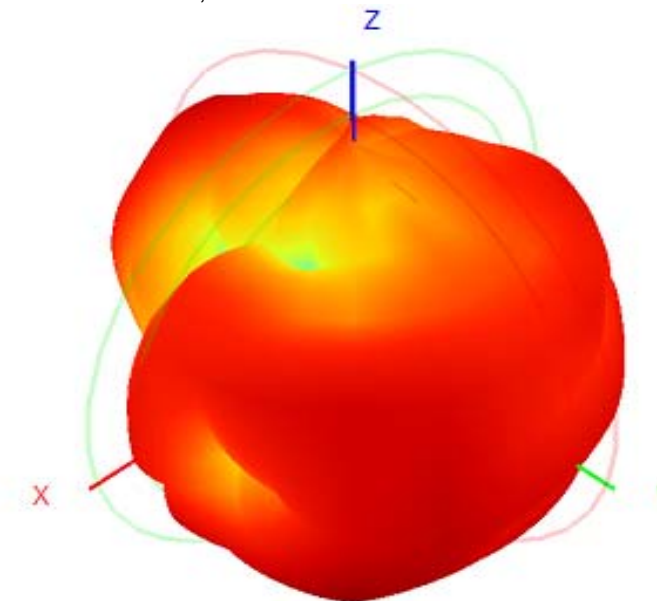
2420.0MHz Total(E2-YZ), Max=-1.21dBi



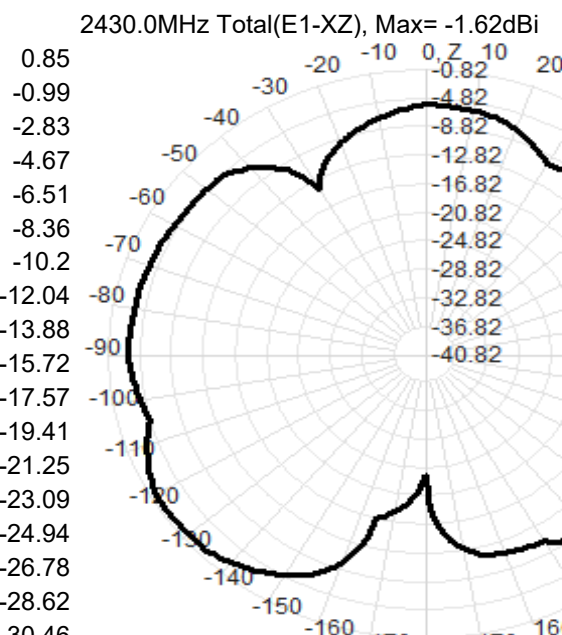
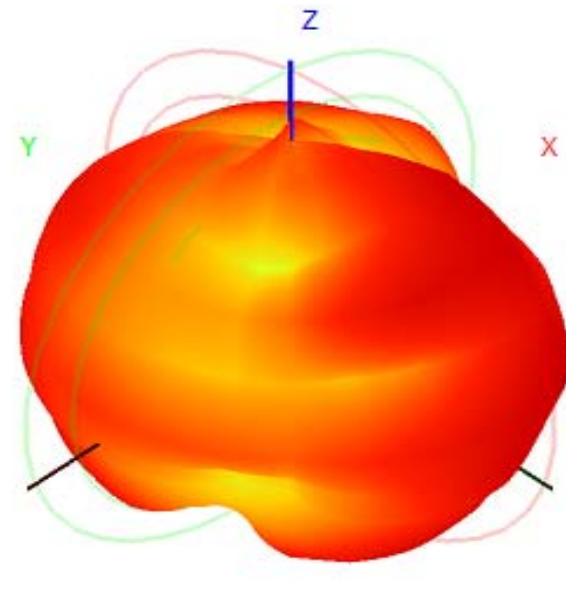
Total(H-XY), Max=-1.17dBi, CirD=11.67



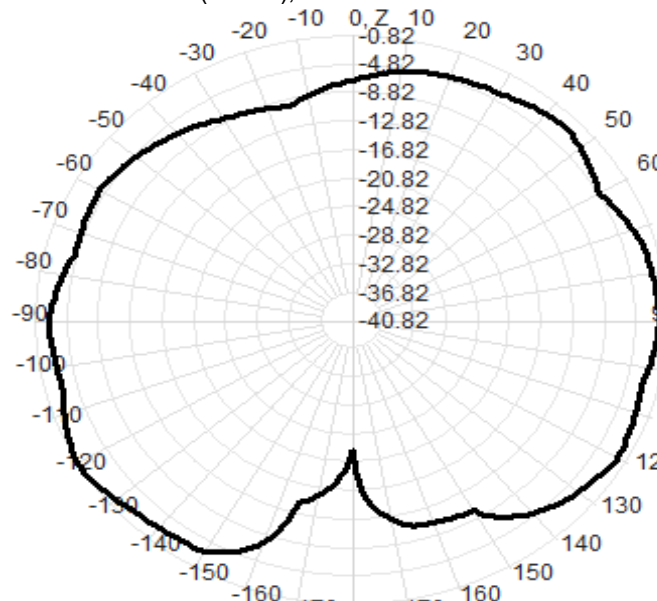
2430.0MHz Total, Eff: 32.9%



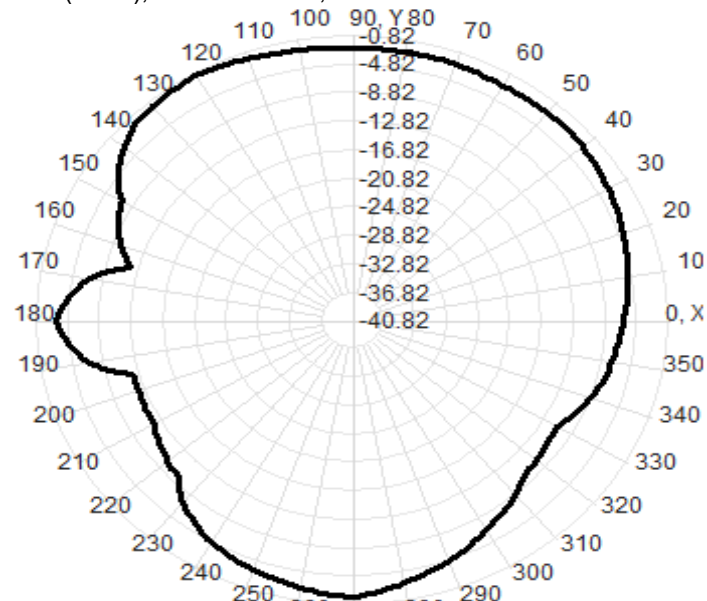
Back View



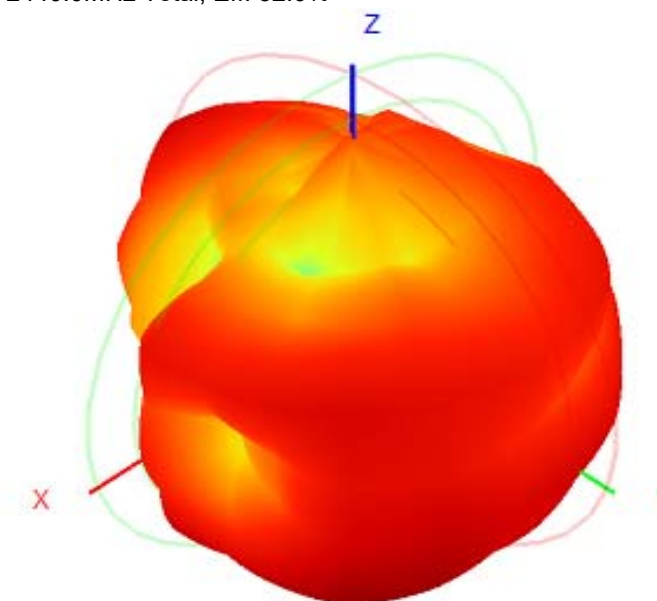
2430.0MHz Total(E2-YZ), Max=-0.82dBi



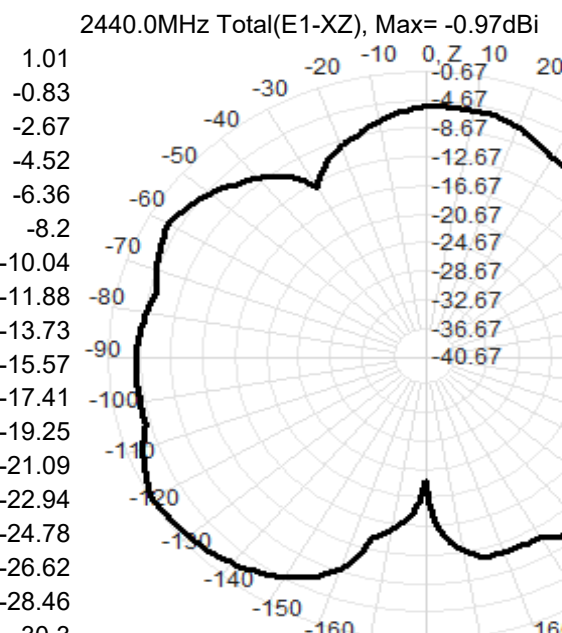
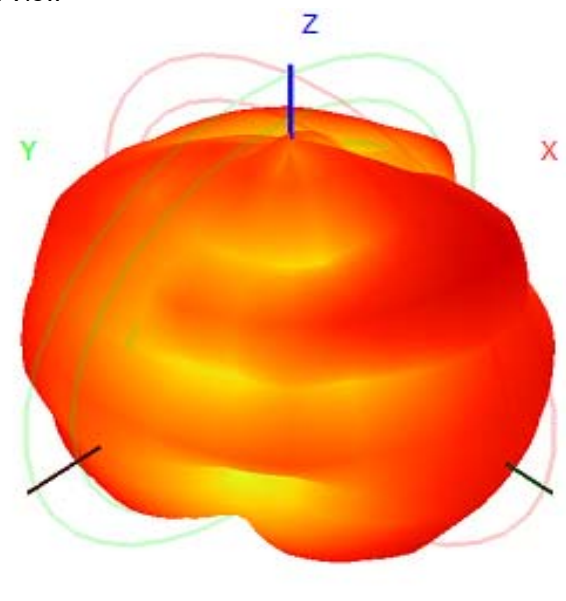
Total(H-XY), Max=-1.20dBi, CirD=10.96



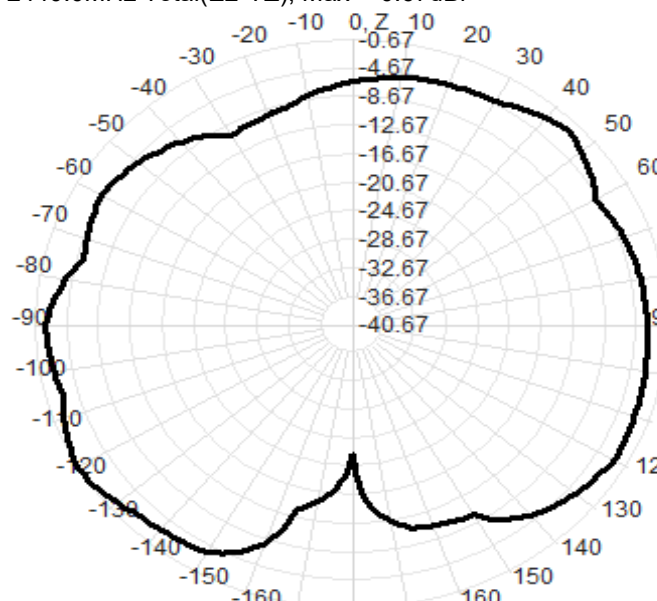
2440.0MHz Total, Eff: 32.0%



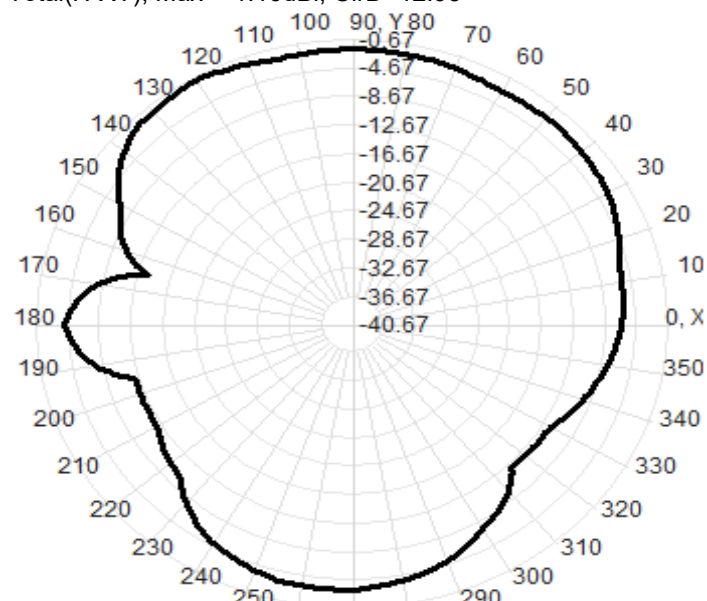
Back View



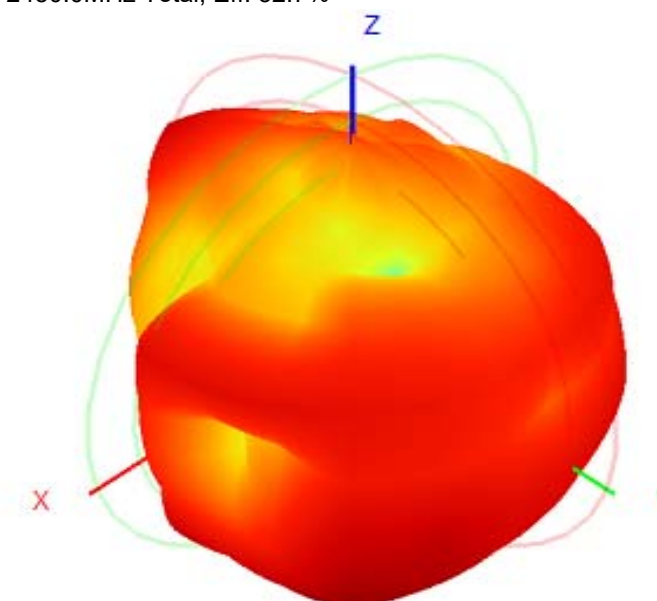
2440.0MHz Total(E2-YZ), Max=-0.67dBi



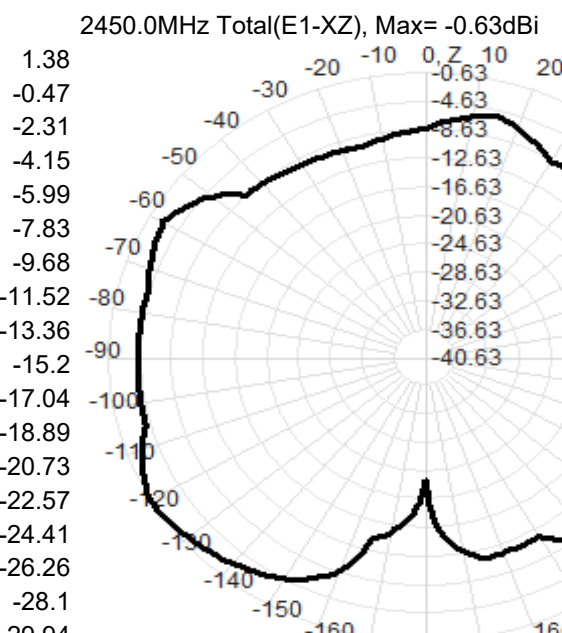
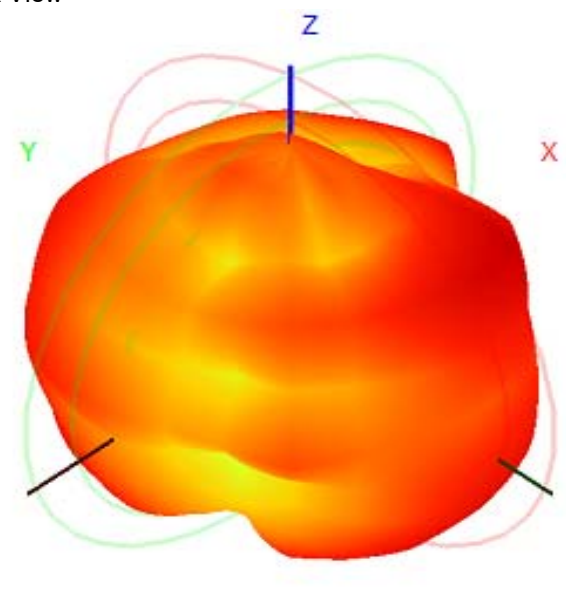
Total(H-XY), Max=-1.16dBi, CirD=12.93



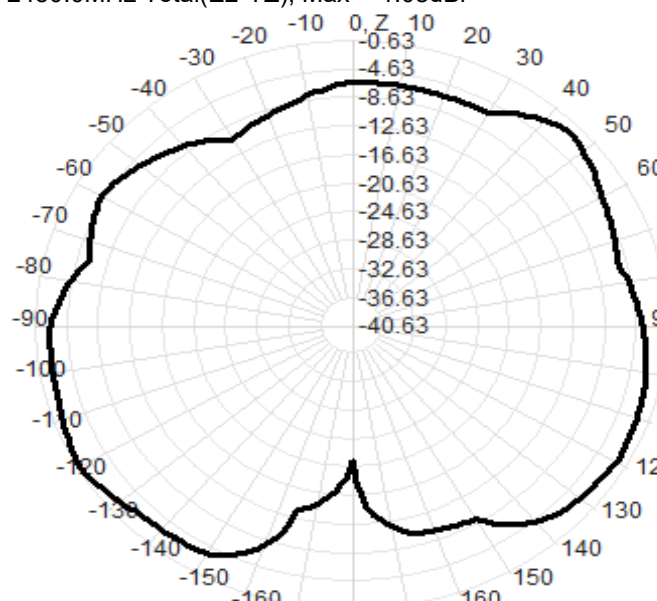
2450.0MHz Total, Eff: 32.7%



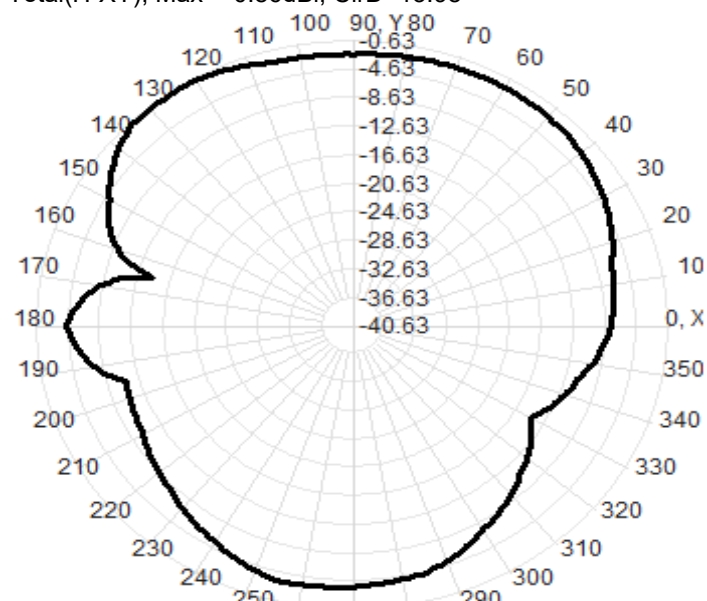
Back View



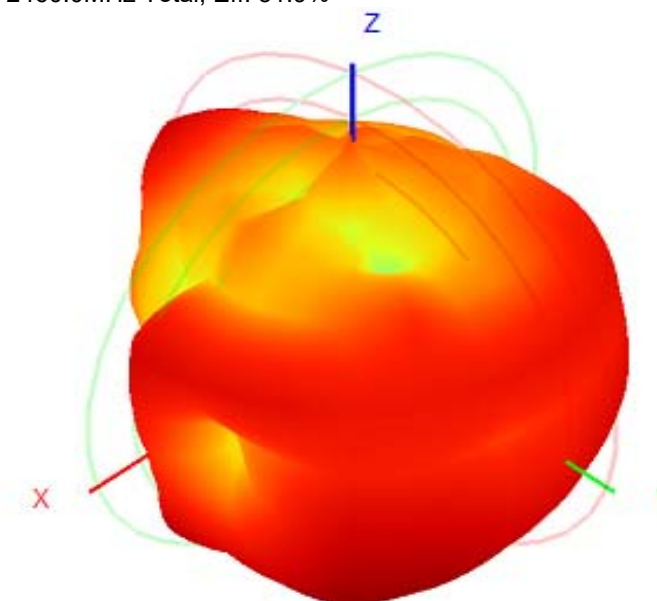
2450.0MHz Total(E2-YZ), Max=-1.08dBi



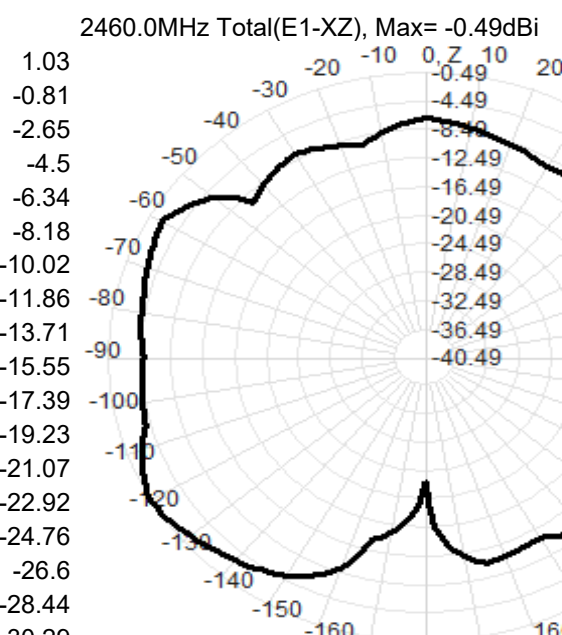
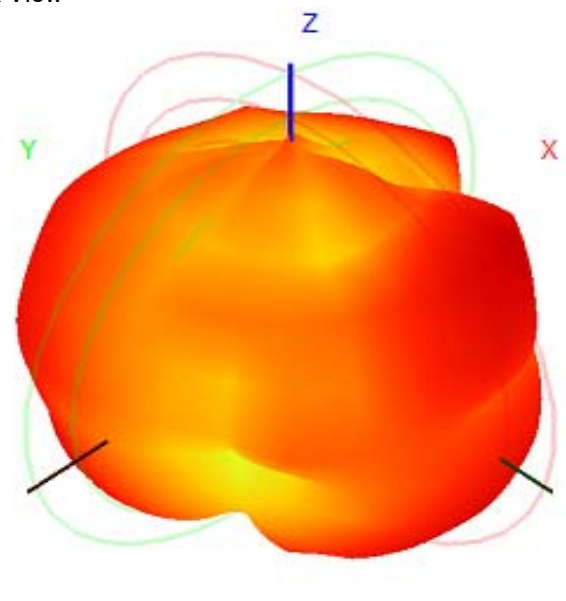
Total(H-XY), Max=-0.86dBi, CirD=13.98



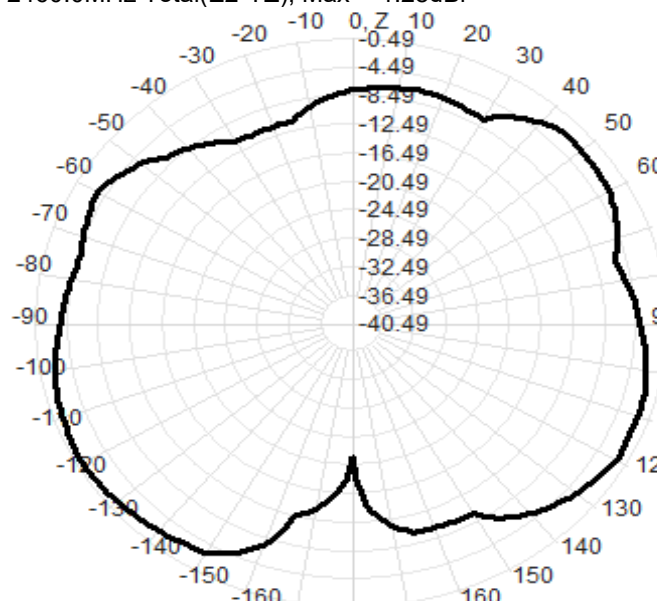
2460.0MHz Total, Eff: 31.9%



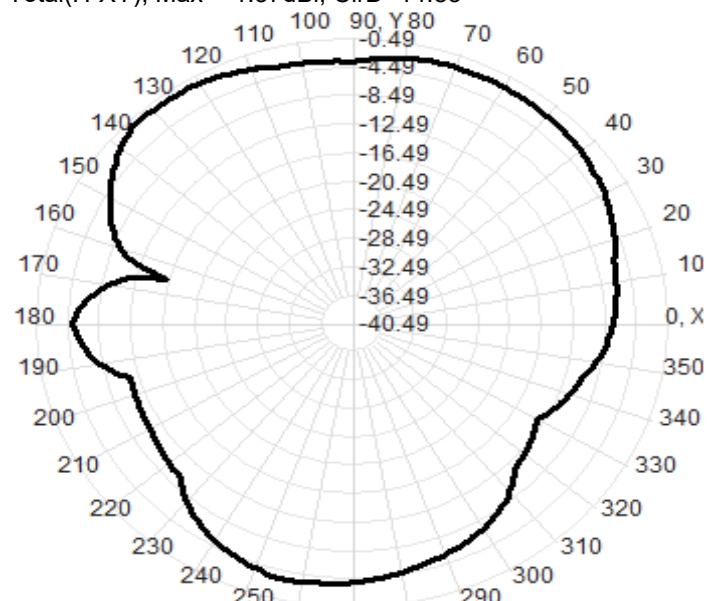
Back View



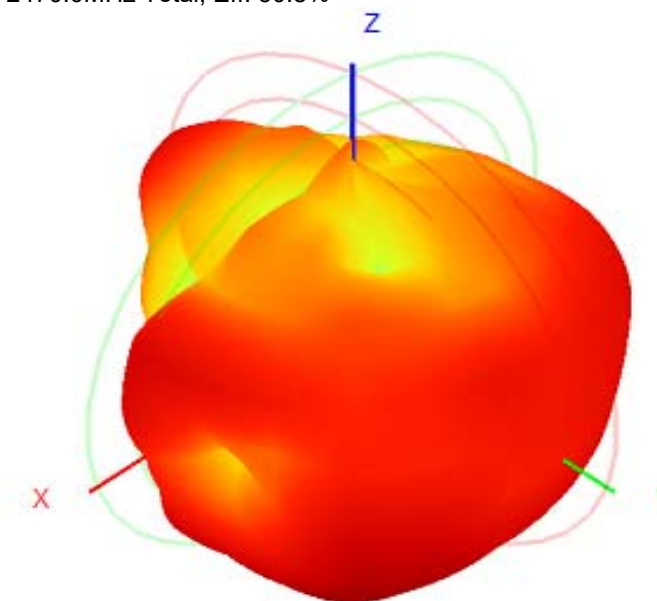
2460.0MHz Total(E2-YZ), Max=-1.28dBi



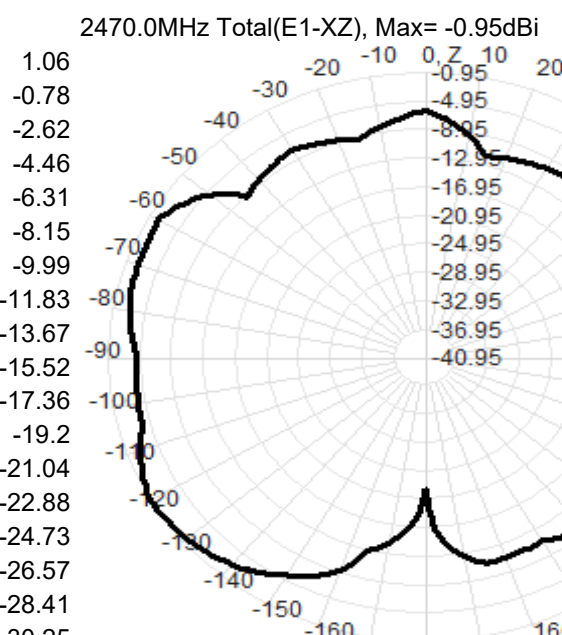
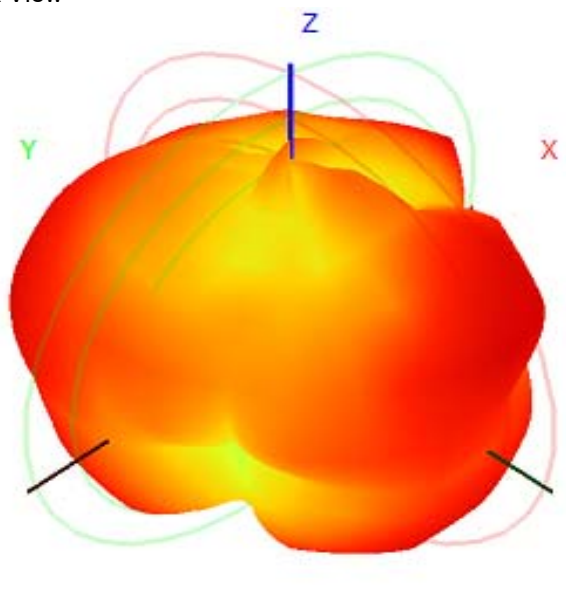
Total(H-XY), Max=-1.37dBi, CirD=14.83



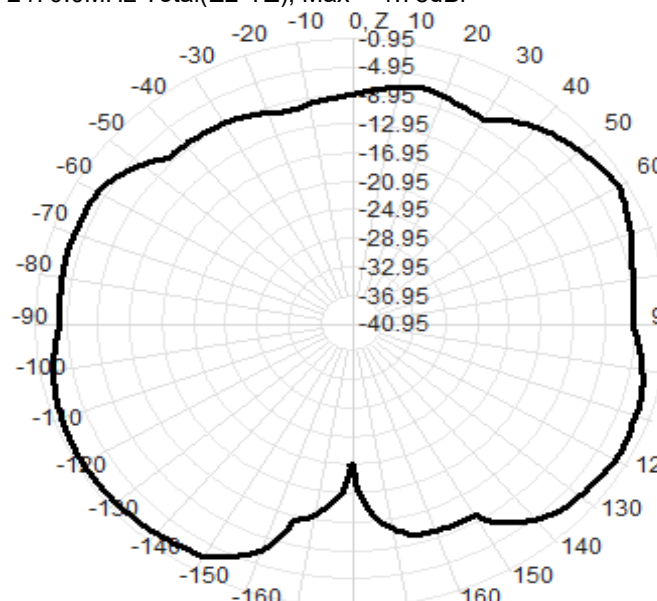
2470.0MHz Total, Eff: 30.8%



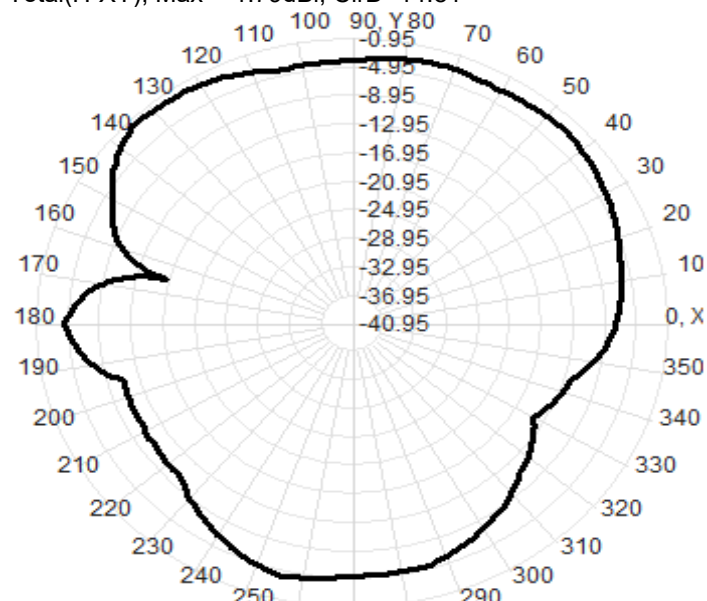
Back View



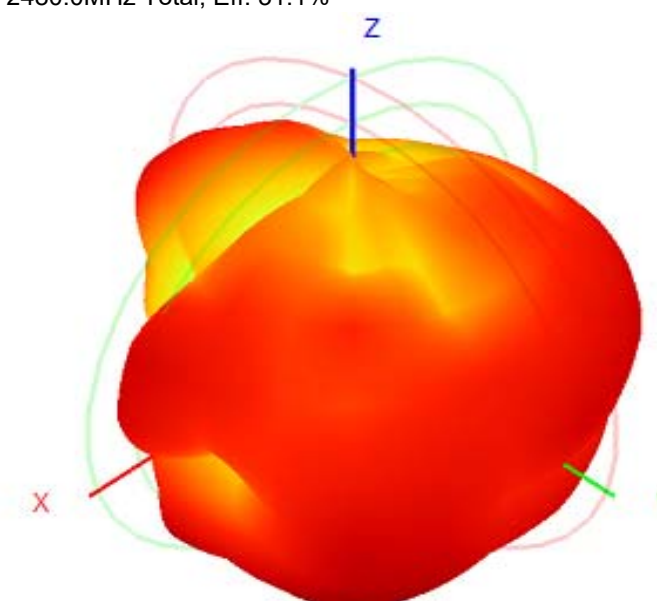
2470.0MHz Total(E2-YZ), Max=-1.78dBi



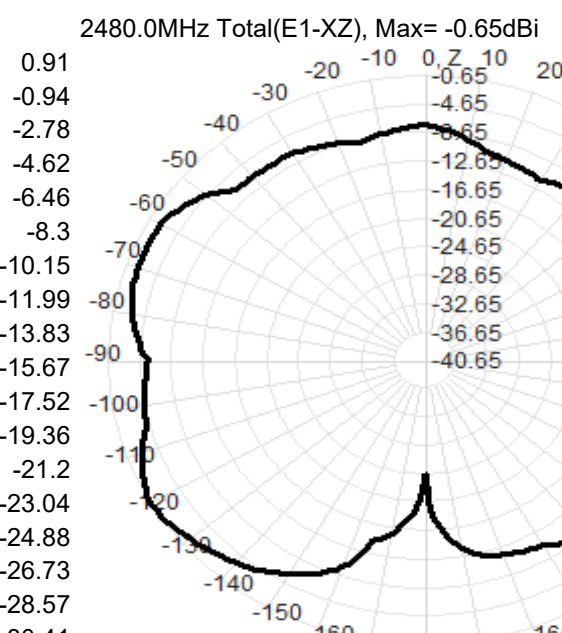
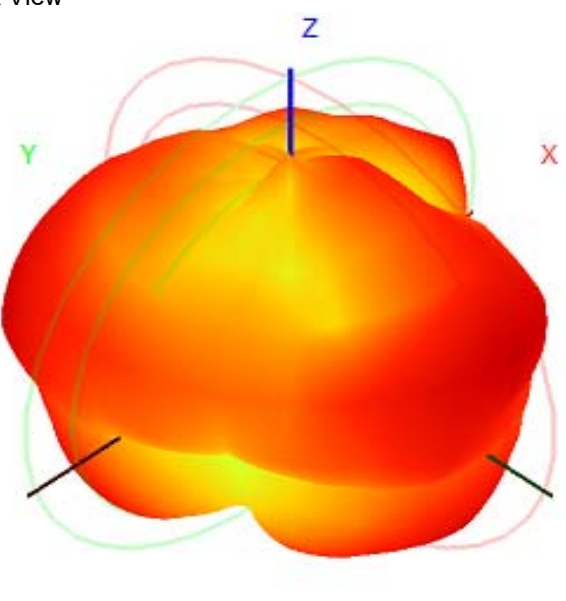
Total(H-XY), Max=-1.79dBi, CirD=14.81



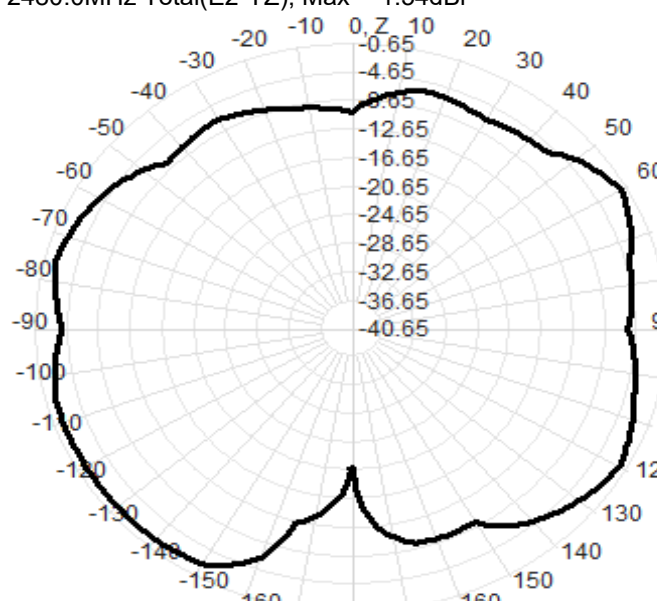
2480.0MHz Total, Eff: 31.1%



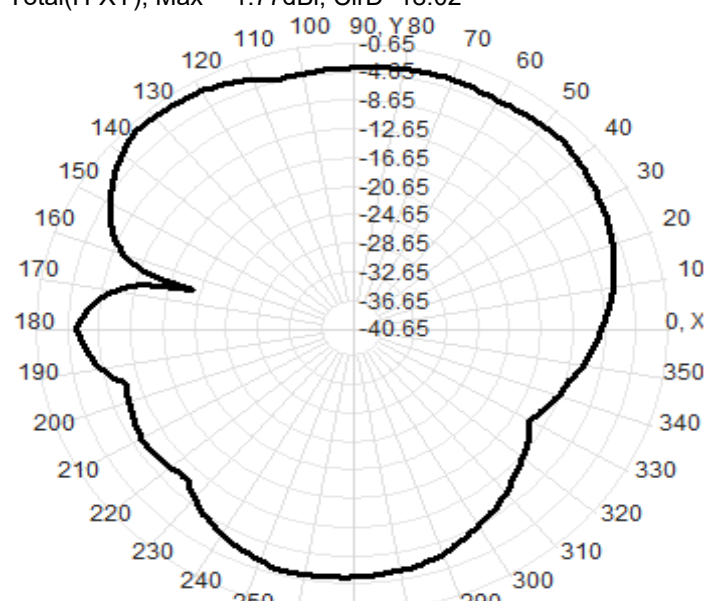
Back View



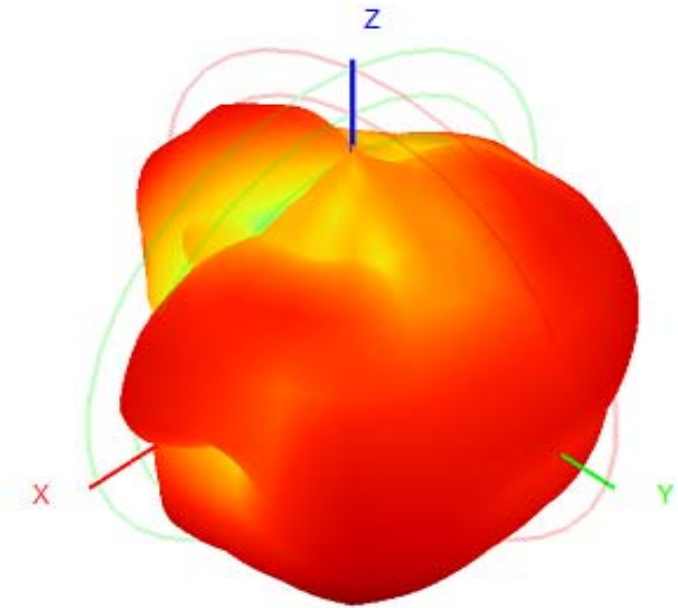
2480.0MHz Total(E2-YZ), Max=-1.54dBi



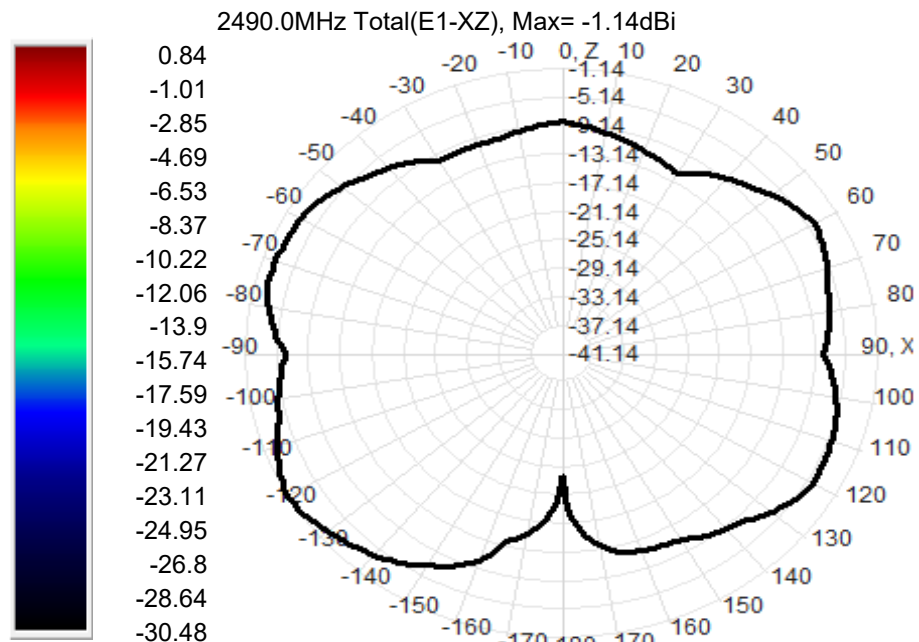
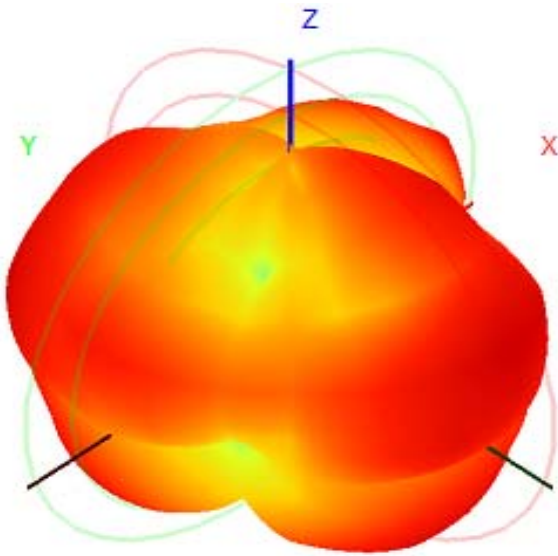
Total(H-XY), Max=-1.77dBi, CirD=18.02



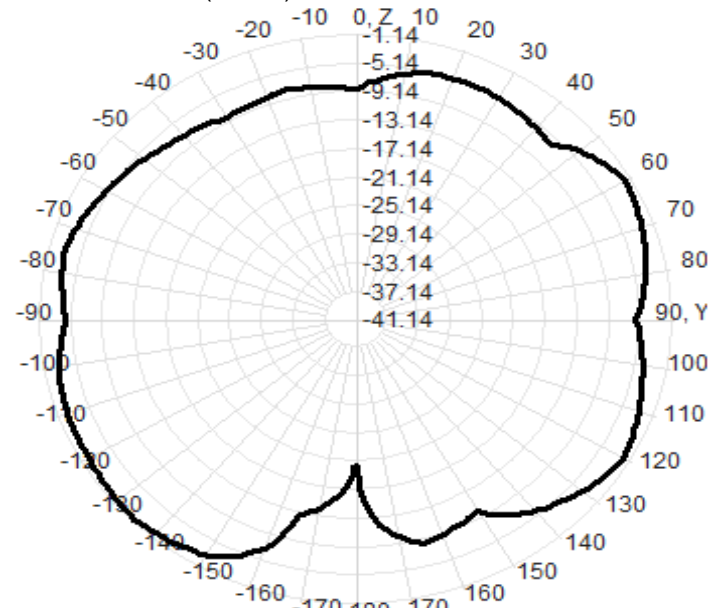
2490.0MHz Total, Eff: 30.8%



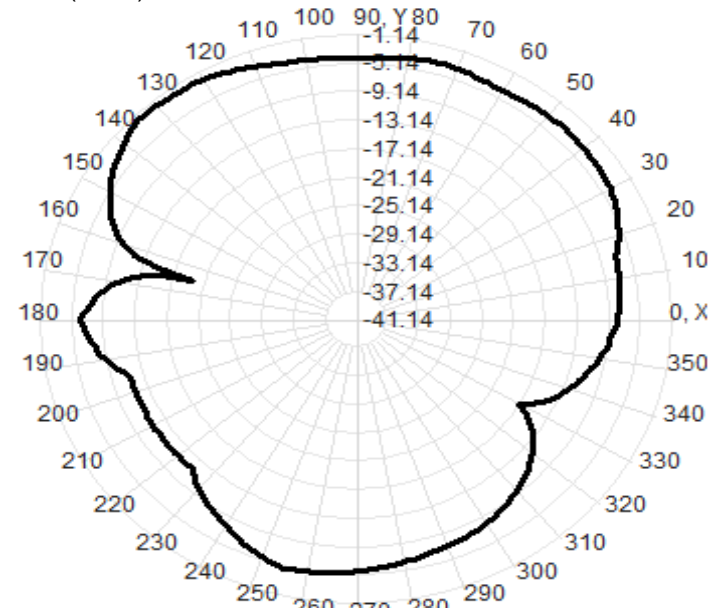
Back View



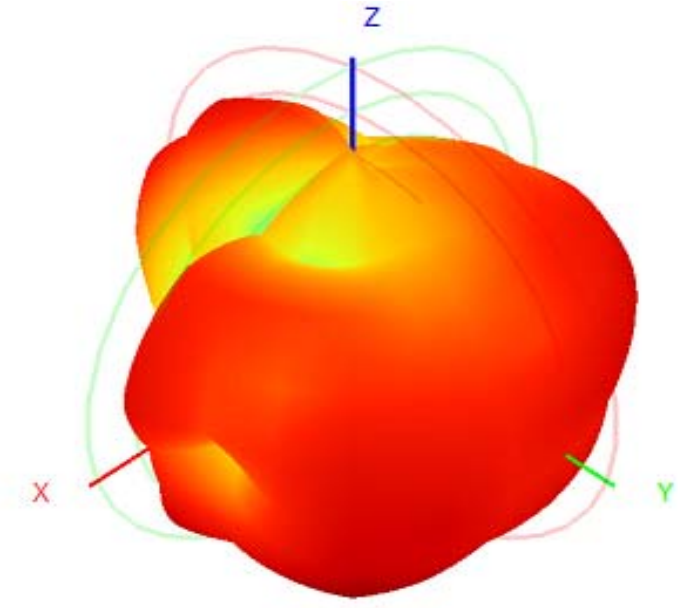
2490.0MHz Total(E2-YZ), Max=-1.65dBi



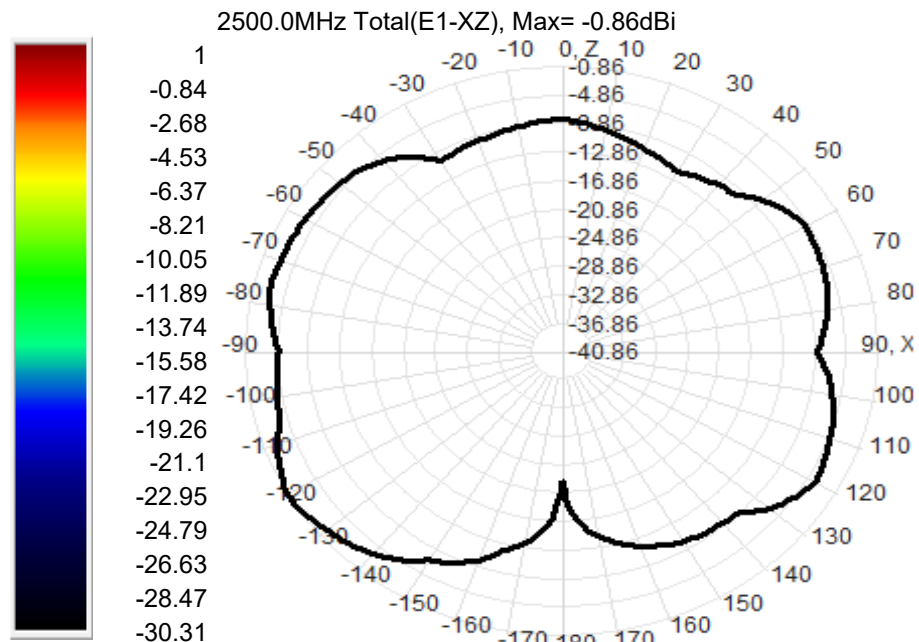
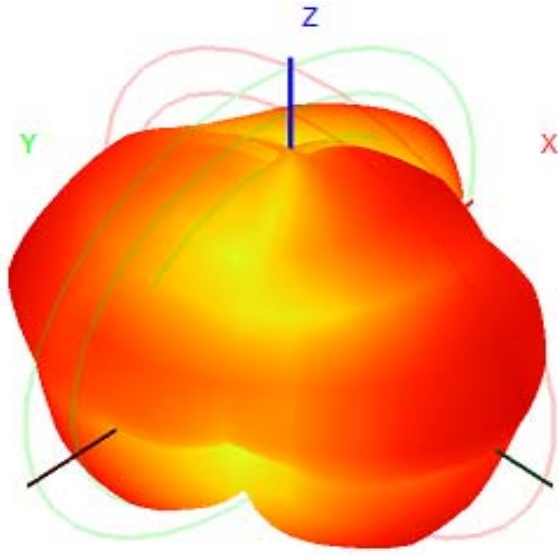
Total(H-XY), Max=-1.93dBi, CirD=17.90



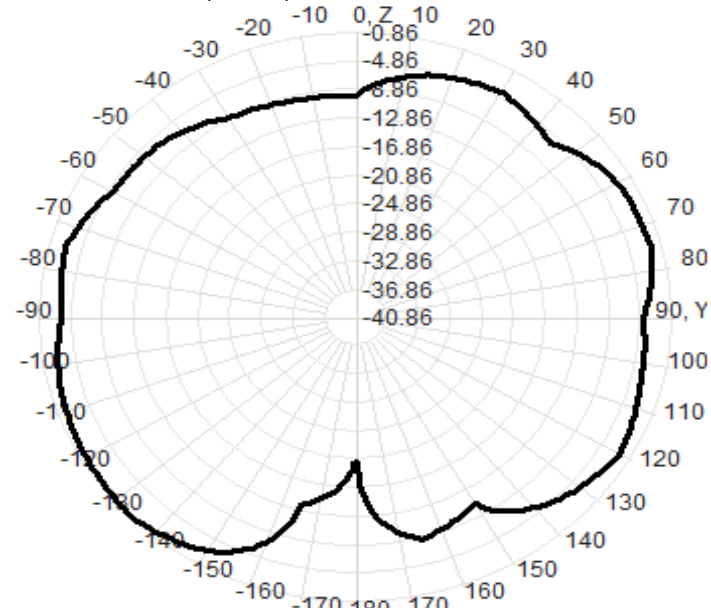
2500.0MHz Total, Eff: 30.4%



Back View



2500.0MHz Total(E2-YZ), Max=-1.23dBi



Total(H-XY), Max=-2.03dBi, CirD=15.94

