

Testing Report

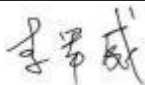

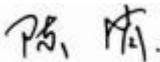
Customer Name: SHENZHENSHIXINZHONGXIN TECHNOLOGY.CO.,LTD

Product Name: BT Antenna

Sample Model: F-6988

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

Issue Date: 2019.07. 10

Engineer:		Date: 2019.07. 10
Auditor:		Date: 2019.07. 10
Approver:		Date: 2019.07. 10

1. General Information

1.1 General Information of testing institutions

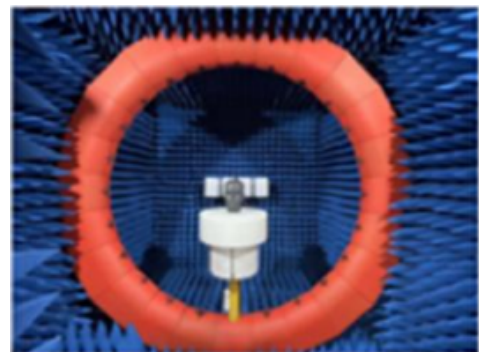
Name	Shenzhen Hetuo Technology Co., Ltd.
Address	Room 1202B, Building C6, Hengfeng Industrial City, Xixiang, Baoan District, Shenzhen
Tel	18665849001
E-mail	18665849001@163.com
Equipment	Agilent 5071C

1.2 Testing principle

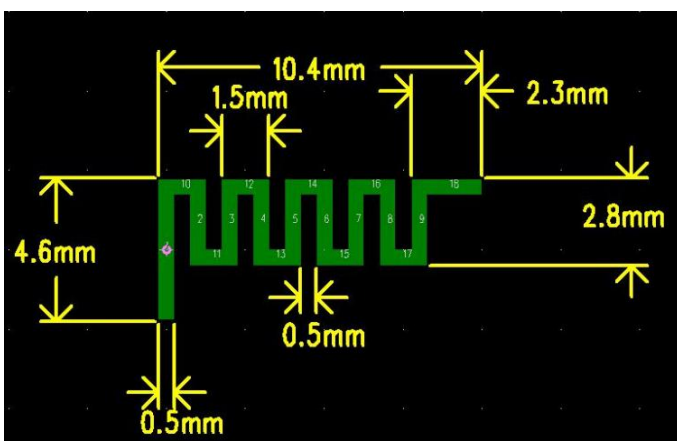
2. Test System

Multi-probe OTA Measurement System

Gain & Efficiency	Gain & Efficiency	SATIMO Agilent 5071C
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Antenna Photo & Length(mm)



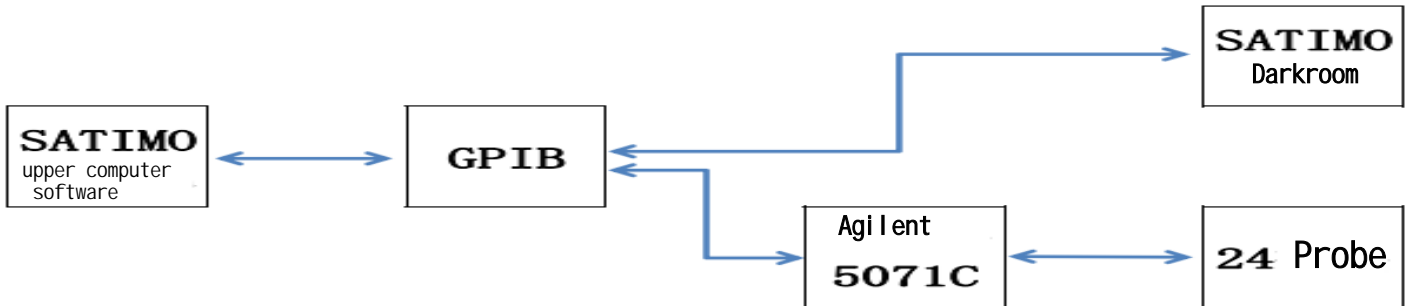
1.3 Test equipment

Equipment	Model No.	Serial No.	Manufacturer	Calibration date	Next calibration date
24 probe microwave chamber	4*3*3	NA	SATIMO	2019.05.29	2019.08.31
Network Analyzer	5071C	NA	Agilent	2019.05.29	2019.08.31

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. Meanwhile, 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

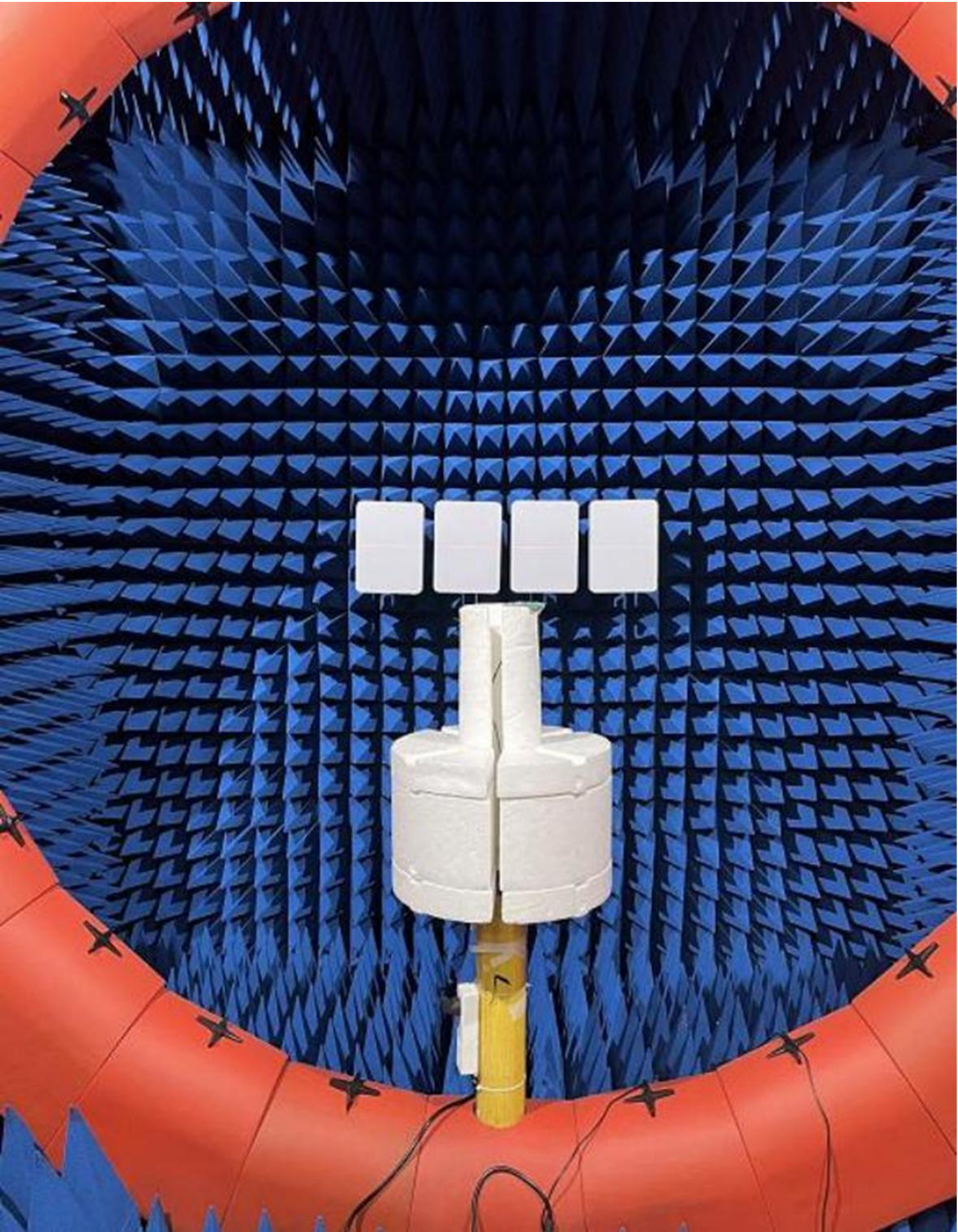
2.1 Client information

Name	SHENZHENSHIXINZHONGXIN 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-6988
Antenna Size	4.6*10.4mm
Antenna Type	PCB antenna
Serial No.	/
Test Item	Antenna Gain, Radiation pattern
Frequency Range	2400-2500MHz
Received Date	2019.07.08
Test Date	2019.07. 10
Remark	The length of the RF cable is 50mm

The test photos



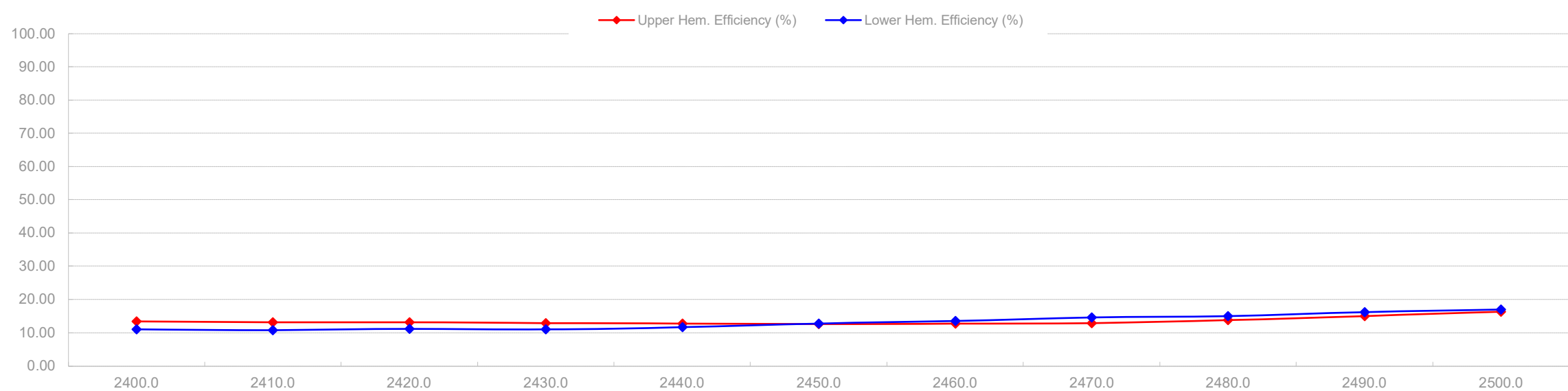
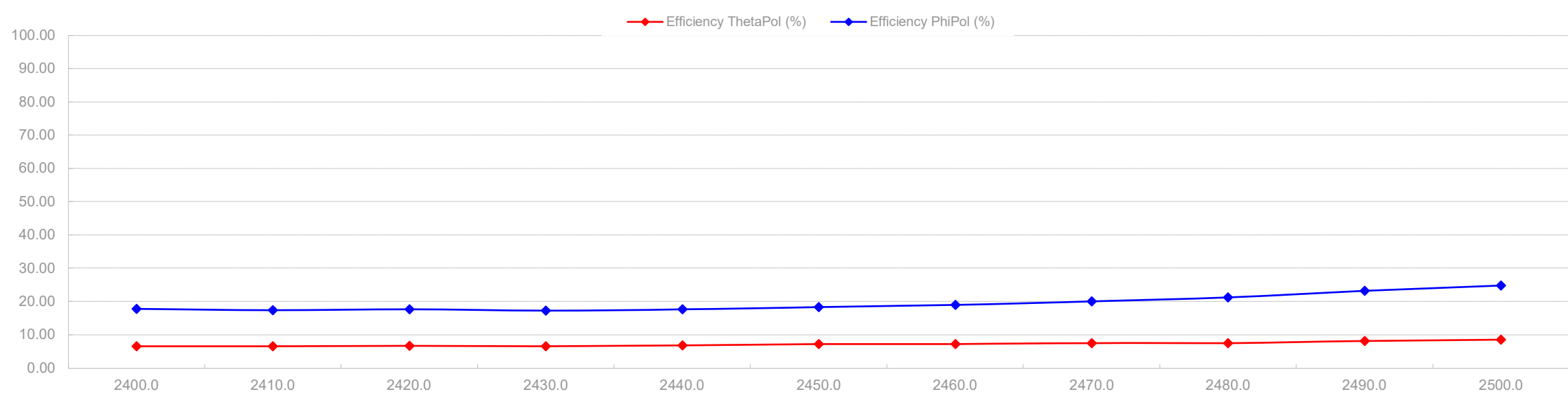
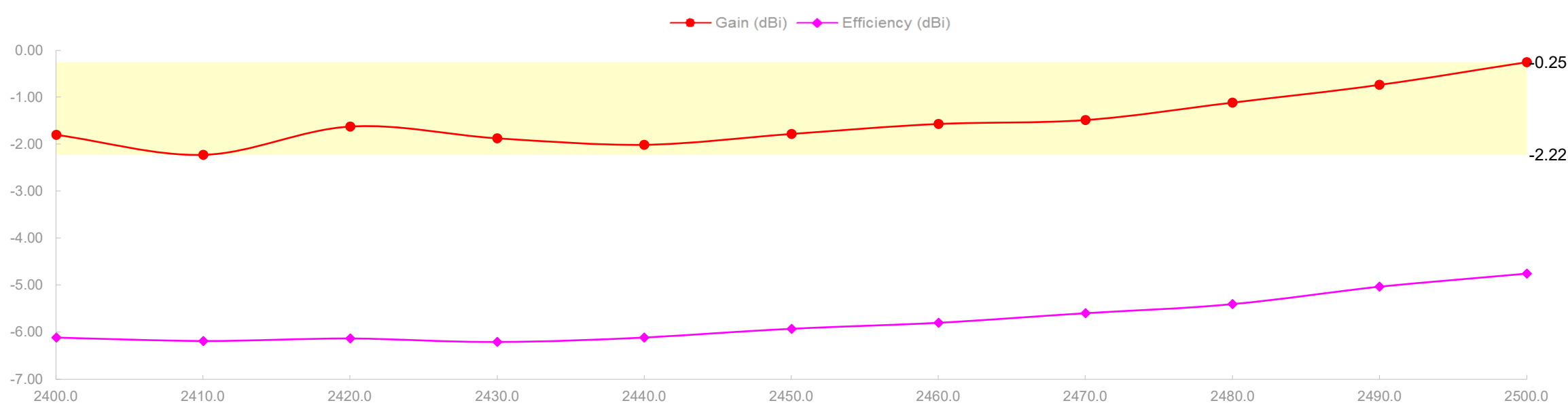
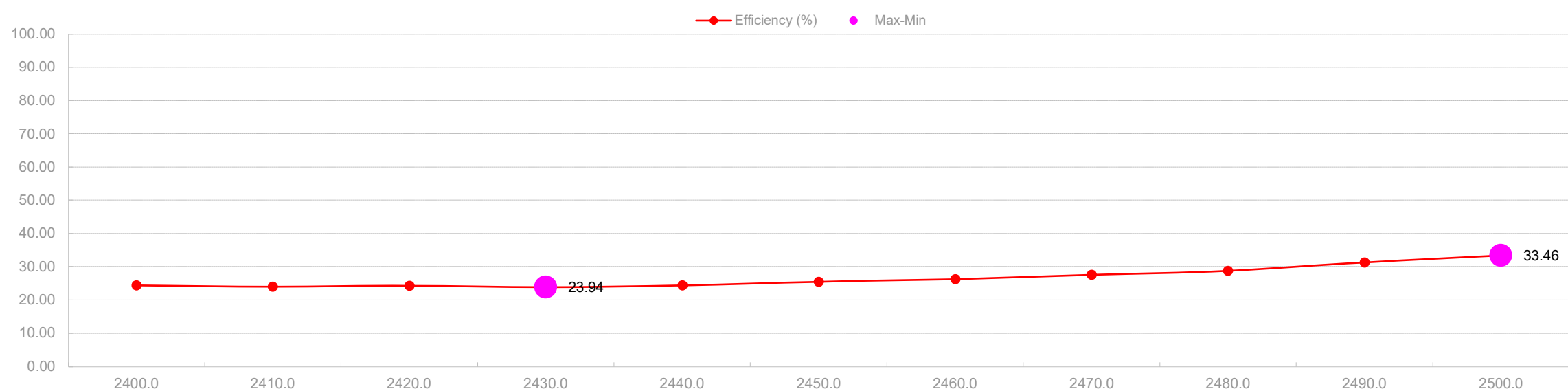


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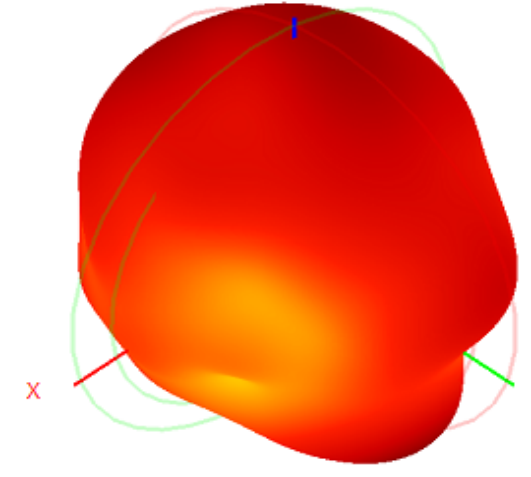
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-6.12	-6.19	-6.13	-6.21	-6.11	-5.93	-5.80	-5.59	-5.40	-5.03	-4.75
Gain (dBi)	-1.80	-2.22	-1.62	-1.87	-2.01	-1.77	-1.56	-1.48	-1.11	-0.73	-0.25
Efficiency (%)	24.45	24.07	24.35	23.94	24.49	25.55	26.30	27.58	28.81	31.38	33.46
Directivity (dB)	4.32	3.96	4.52	4.34	4.10	4.15	4.24	4.11	4.29	4.30	4.50
Peak Gain Position (Theta)	126.00	124.00	124.00	124.00	123.00	119.00	123.00	122.00	126.00	124.00	31.00
Peak Gain Position (Phi)	80.00	82.00	80.00	83.00	79.00	76.00	249.00	243.00	78.00	240.00	252.00
Efficiency ThetaPol (%)	6.59	6.62	6.65	6.60	6.86	7.18	7.29	7.55	7.55	8.15	8.58
Efficiency PhiPol (%)	17.86	17.45	17.71	17.33	17.63	18.36	19.01	20.02	21.26	23.23	24.88
Upper Hem. Efficiency (%)	13.42	13.21	13.18	12.93	12.82	12.70	12.75	12.96	13.79	15.10	16.41
Lower Hem. Efficiency (%)	11.03	10.86	11.18	11.01	11.67	12.85	13.55	14.62	15.02	16.28	17.05

T90(H)圆度	10.94	11.30	11.56	12.29	11.61	13.99	13.46	15.24	14.72	12.13	10.10
Gain 15deg (dBi)											
E1(XZ)波瓣宽度	61.00	91.00	85.00	93.00	87.00	84.00	85.00	81.00	80.00	84.00	83.00
E1(XZ)前后比	3.91	3.29	3.90	3.39	3.00	2.29	1.77	1.98	2.16	2.64	2.49
E2(YZ)波瓣宽度	37.00	35.00	34.00	35.00	219.00	208.00	160.00	160.00	199.00	57.00	84.00
E2(YZ)前后比	3.61	3.36	3.64	3.20	2.33	2.41	2.32	2.20	2.29	2.32	3.05
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
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	94.00	92.00	96.00	100.00	109.00	112.00	118.00	135.00	119.00	116.00	126.00
Hc(XY)前后比	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

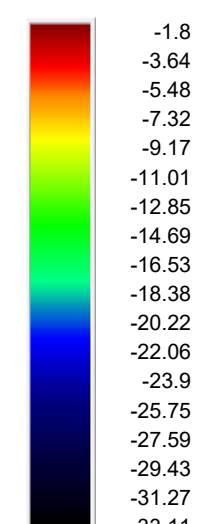
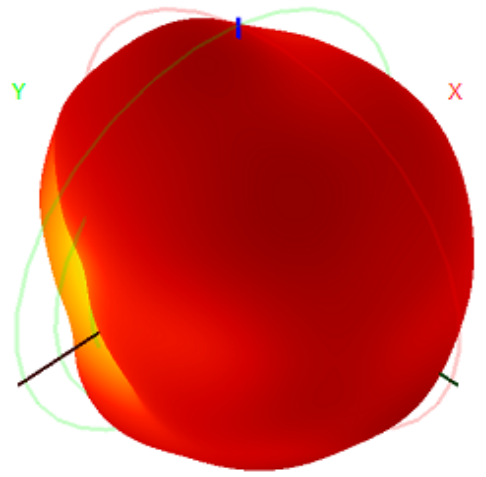
Empty											
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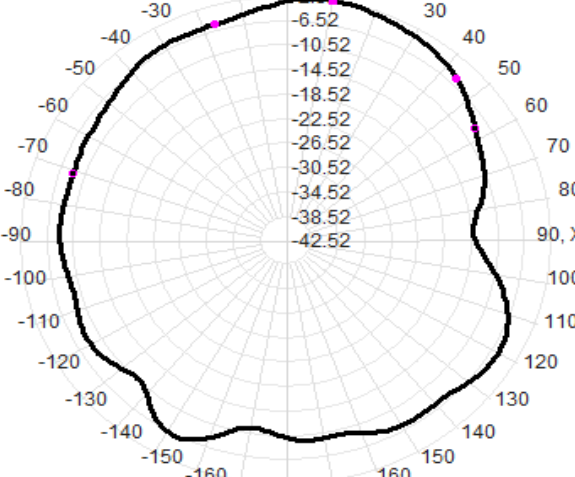
2400.0MHz H+V, Eff: 24.5%



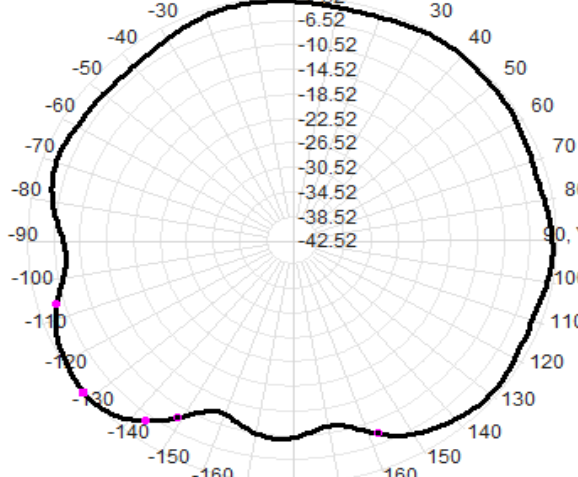
Back View



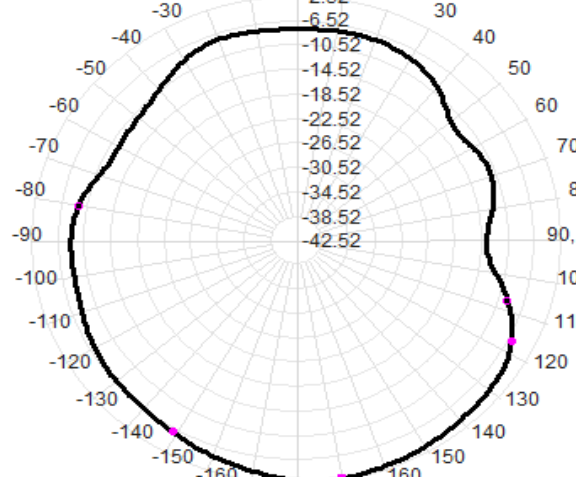
2400.0MHz Total(E1-XZ), Max=-2.65dBi



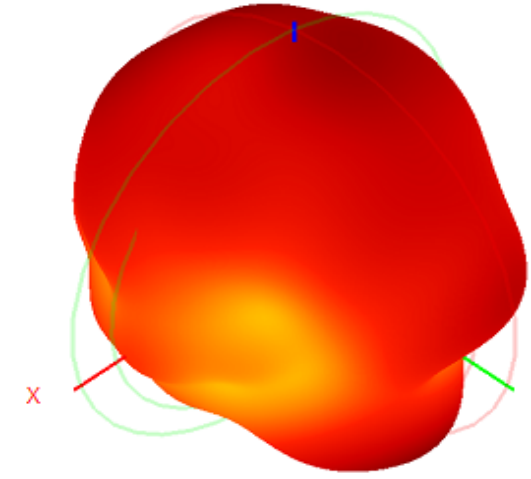
2400.0MHz Total(E2-YZ), Max=-2.52dBi



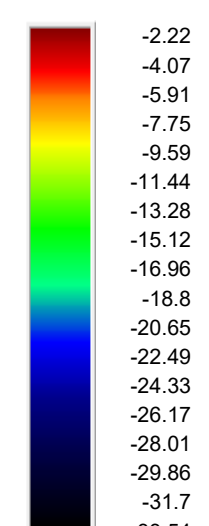
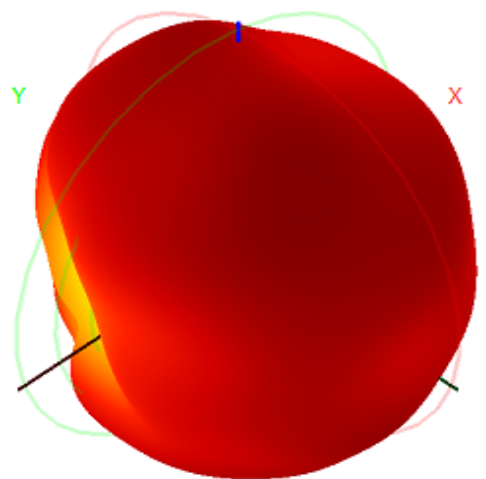
Total(H-XY), Max=-3.15dBi, CirD=10.94



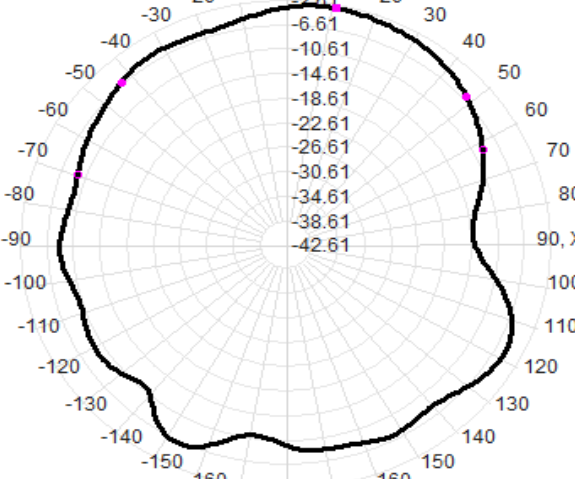
2410.0MHz H+V, Eff: 24.1%



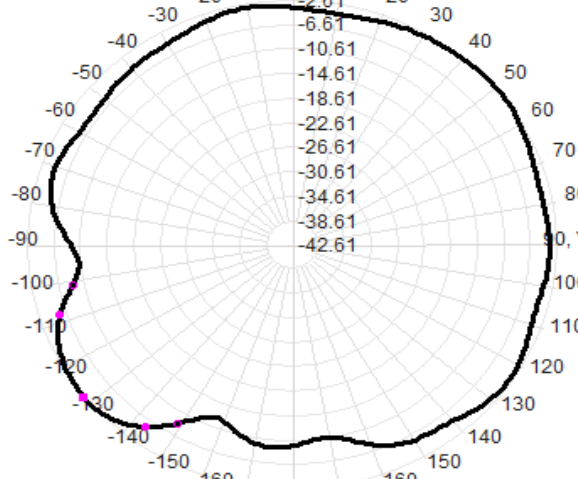
Back View



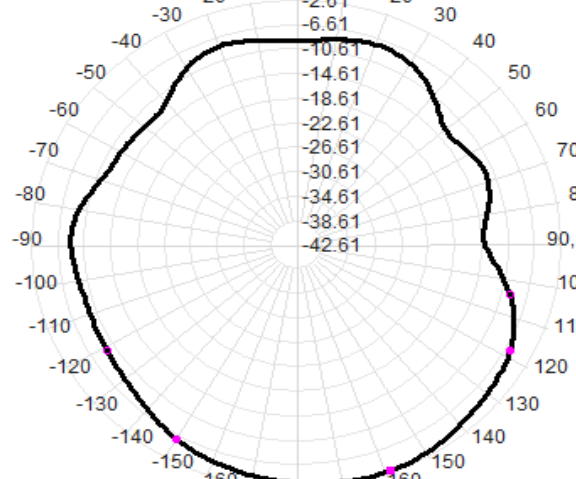
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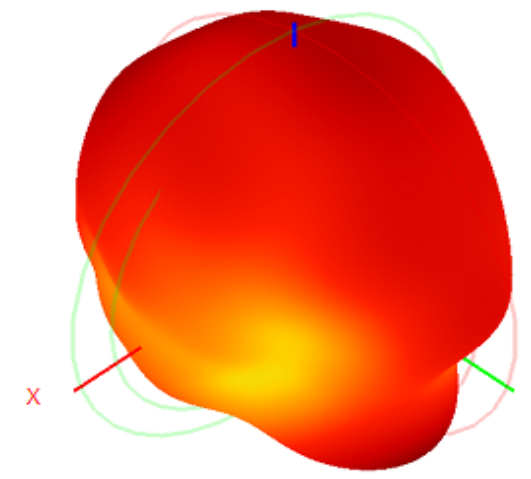
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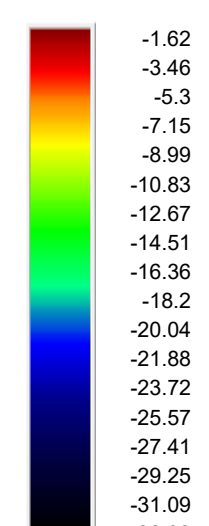
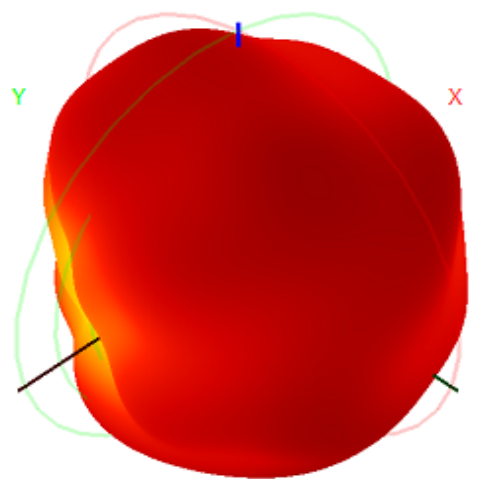
Total(H-XY), Max=-3.23dBi, CirD=11.30



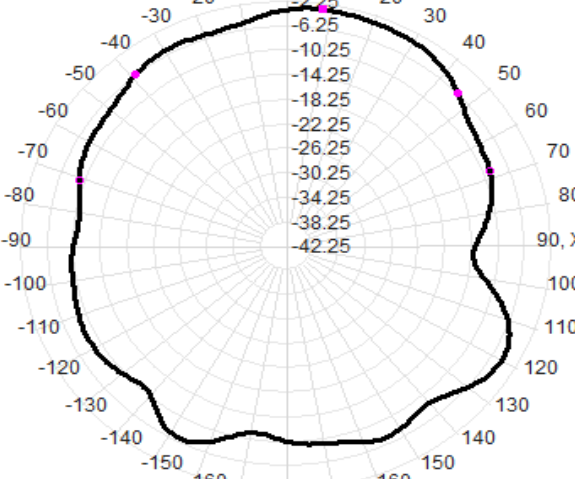
2420.0MHz H+V, Eff: 24.4%



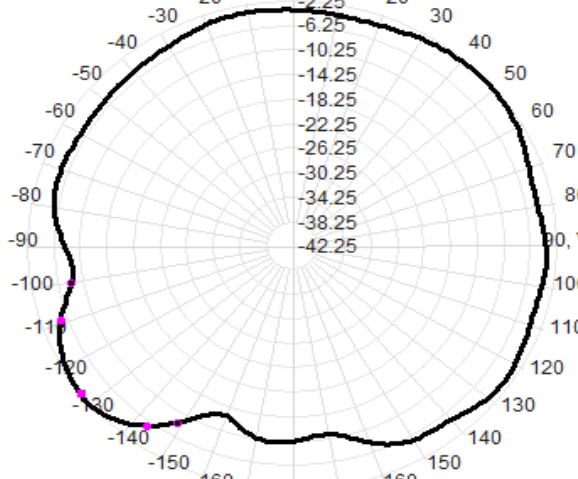
Back View



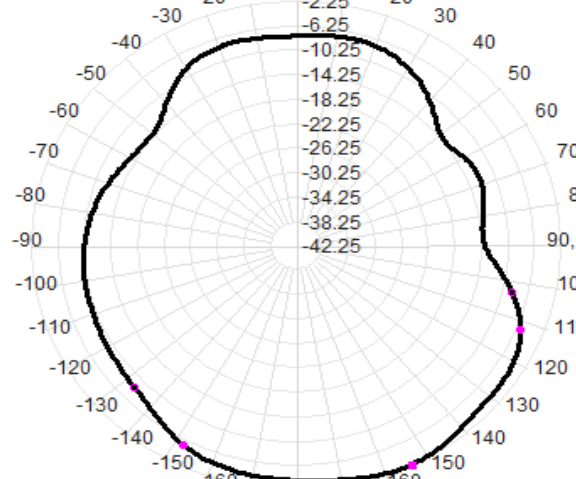
2420.0MHz Total(E1-XZ), Max=-3.23dBi



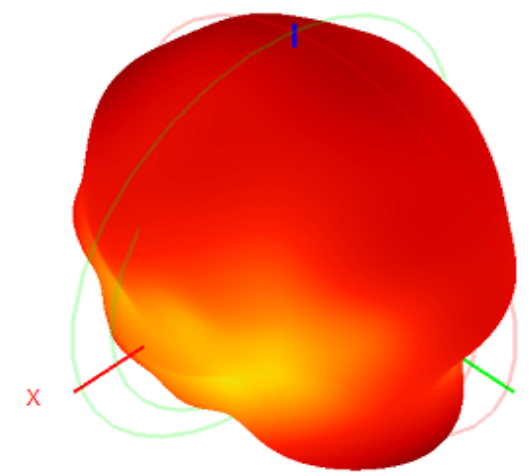
2420.0MHz Total(E2-YZ), Max=-2.25dBi



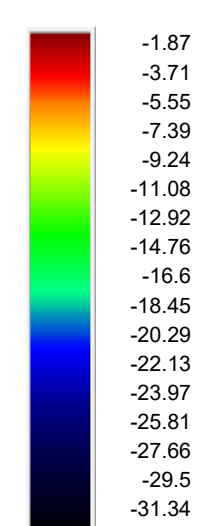
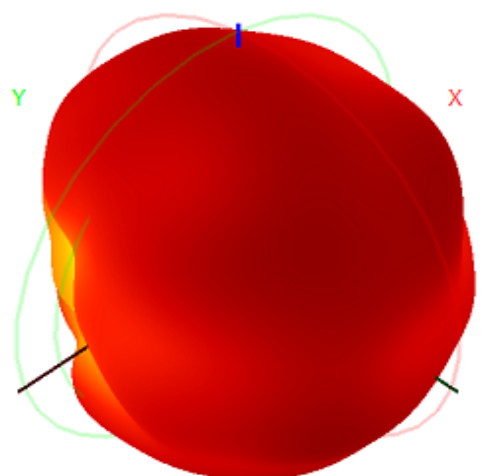
Total(H-XY), Max=-2.70dBi, CirD=11.56



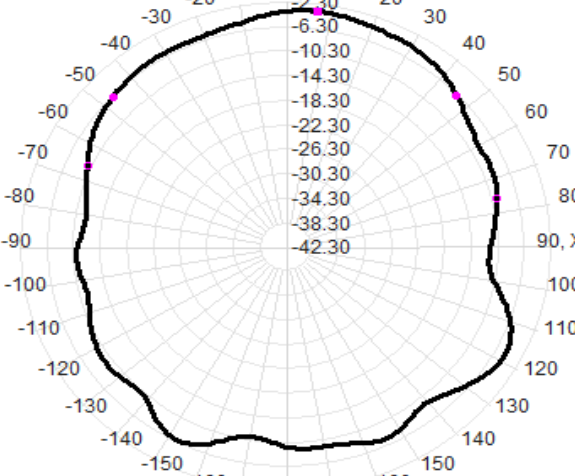
2430.0MHz H+V, Eff: 23.9%



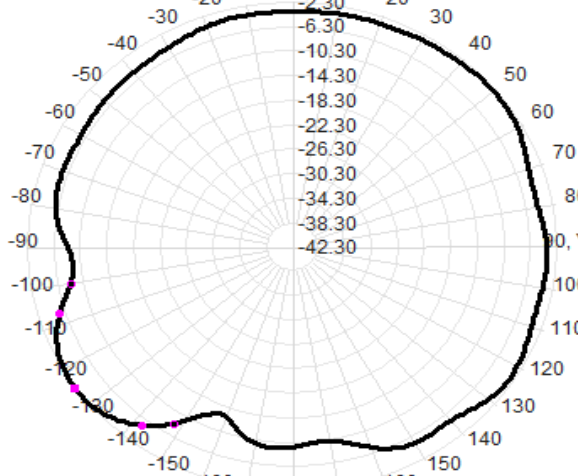
Back View



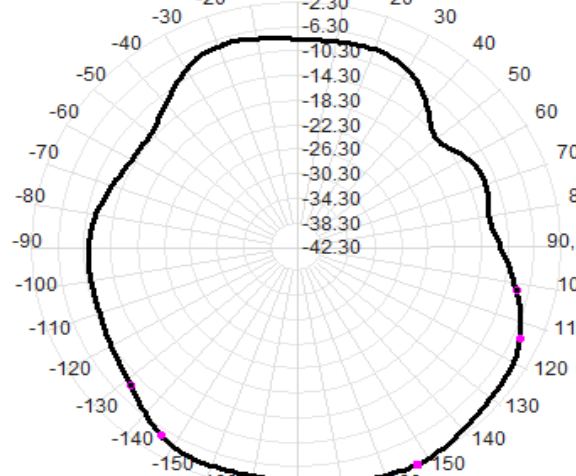
2430.0MHz Total(E1-XZ), Max=-3.56dBi



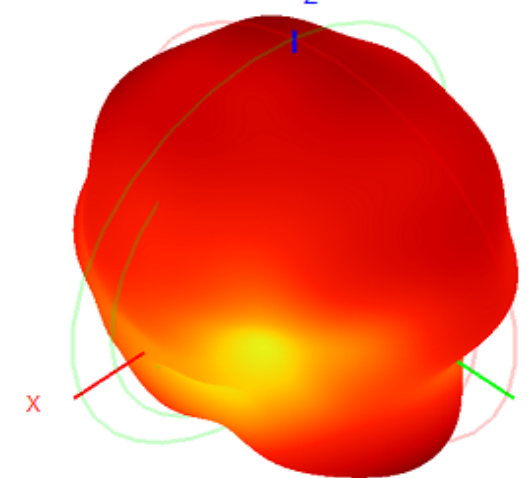
2430.0MHz Total(E2-YZ), Max=-2.30dBi



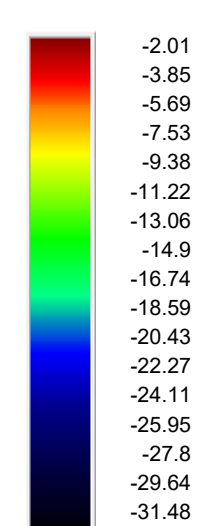
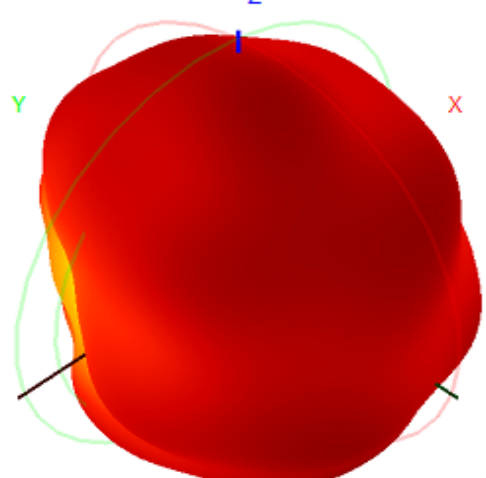
Total(H-XY), Max=-2.53dBi, CirD=12.29



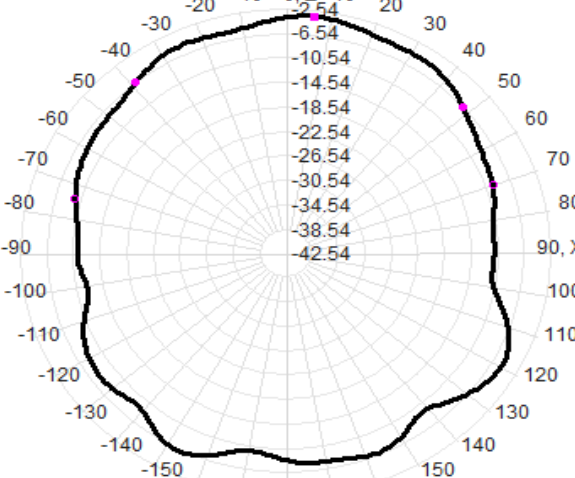
2440.0MHz H+V, Eff: 24.5%



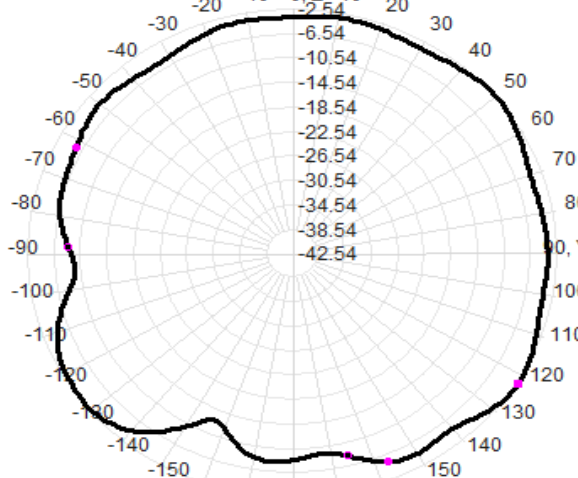
Back View



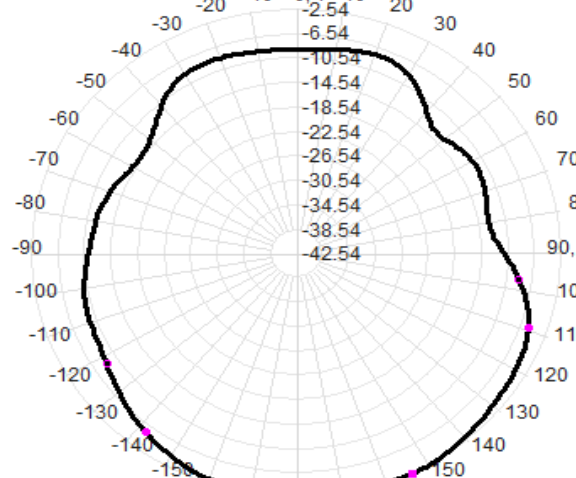
2440.0MHz Total(E1-XZ), Max=-3.56dBi



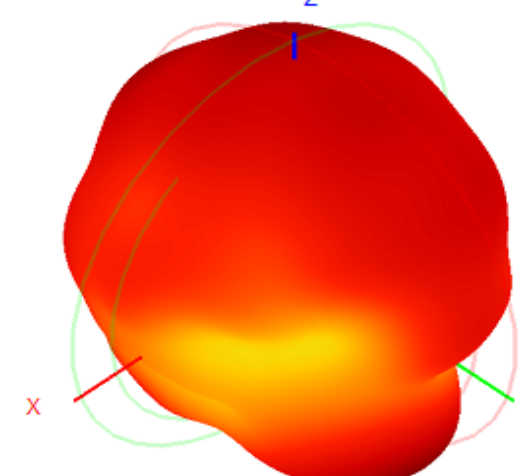
2440.0MHz Total(E2-YZ), Max=-2.54dBi



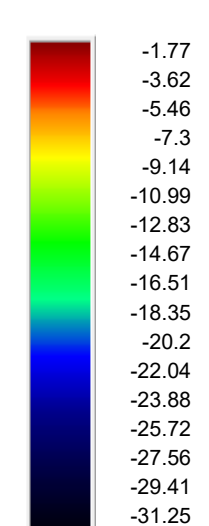
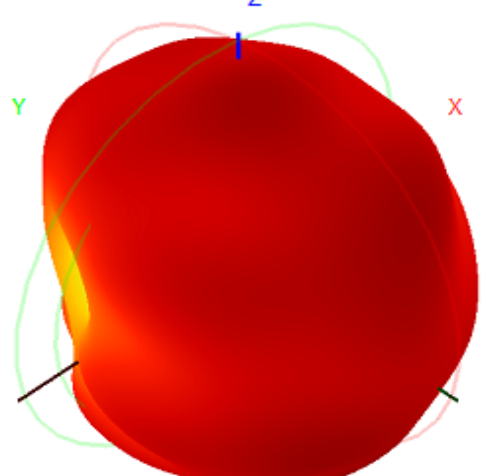
Total(H-XY), Max=-2.65dBi, CirD=11.61



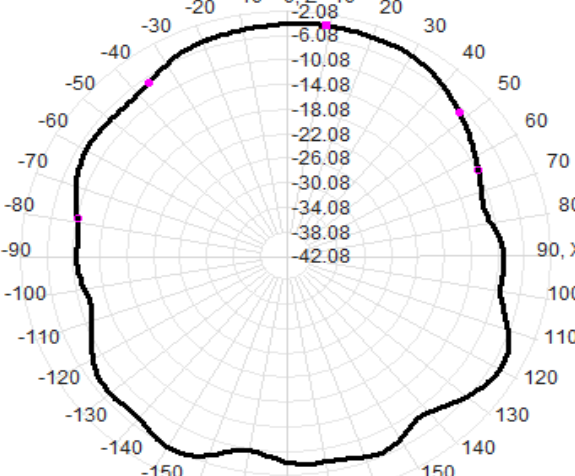
2450.0MHz H+V, Eff: 25.5%



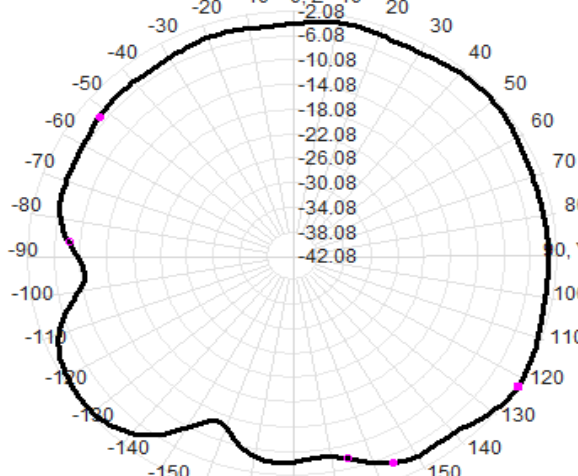
Back View



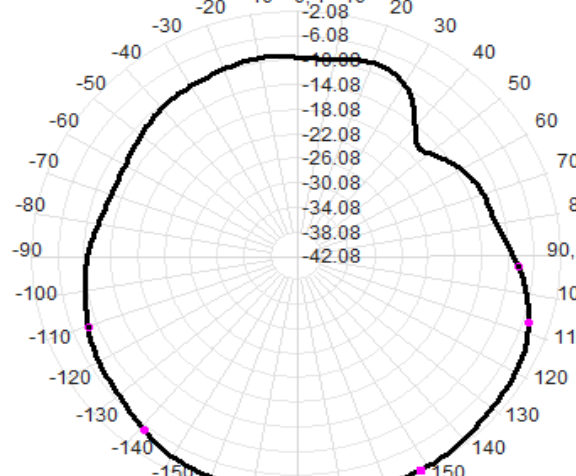
2450.0MHz Total(E1-XZ), Max=-3.97dBi



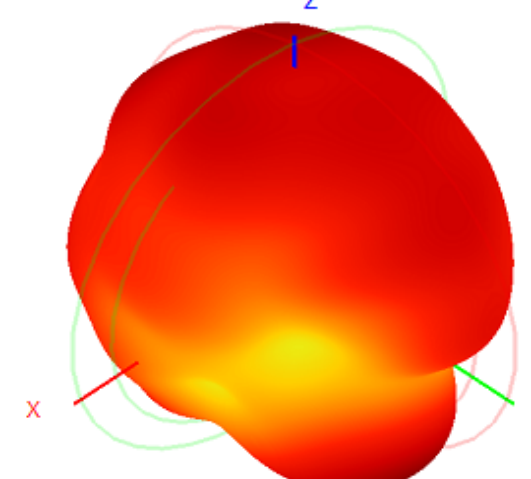
2450.0MHz Total(E2-YZ), Max=-2.08dBi



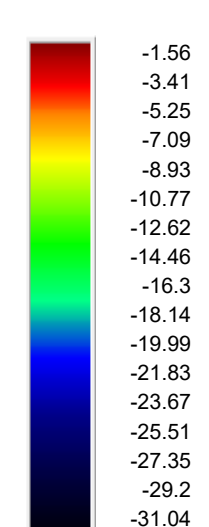
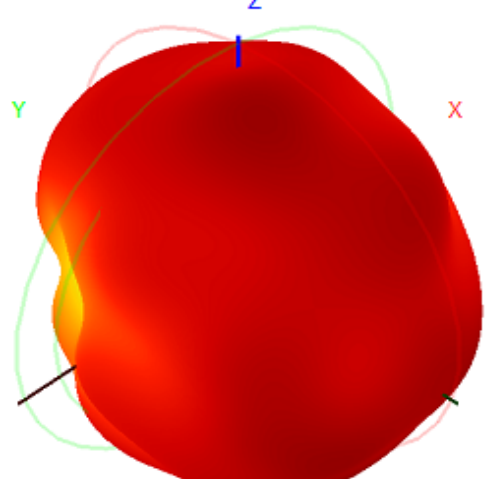
Total(H-XY), Max=-2.55dBi, CirD=13.99



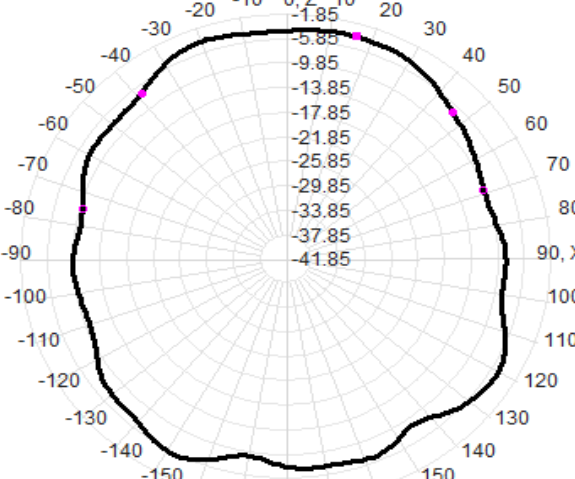
2460.0MHz H+V, Eff: 26.3%



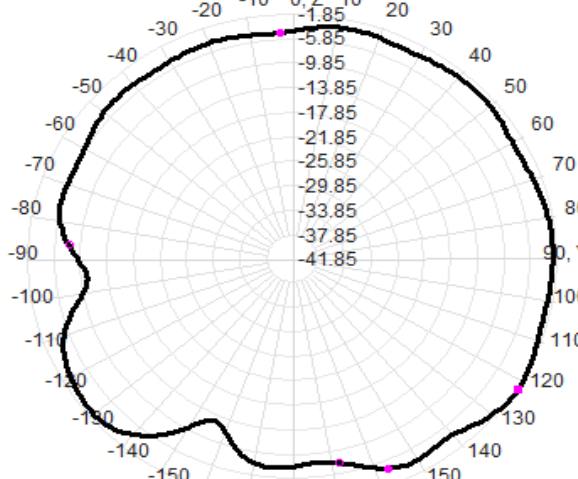
Back View



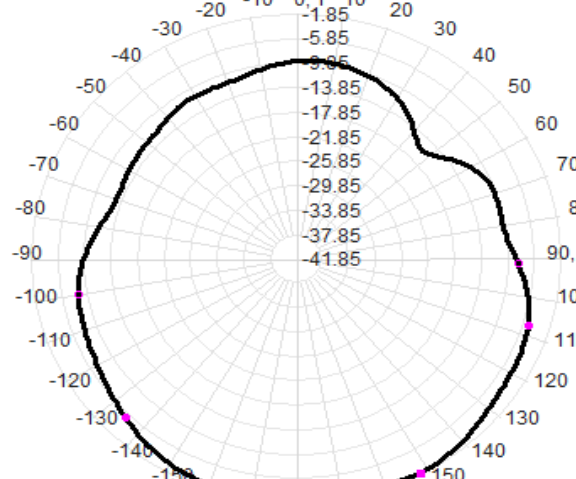
2460.0MHz Total(E1-XZ), Max=-4.06dBi



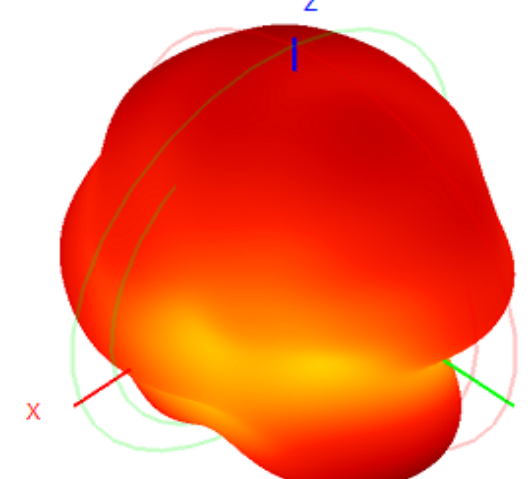
2460.0MHz Total(E2-YZ), Max=-1.85dBi



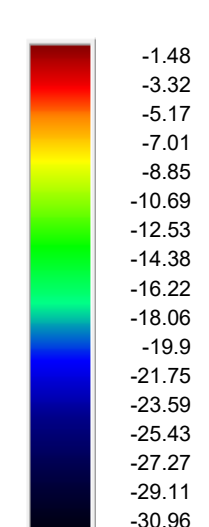
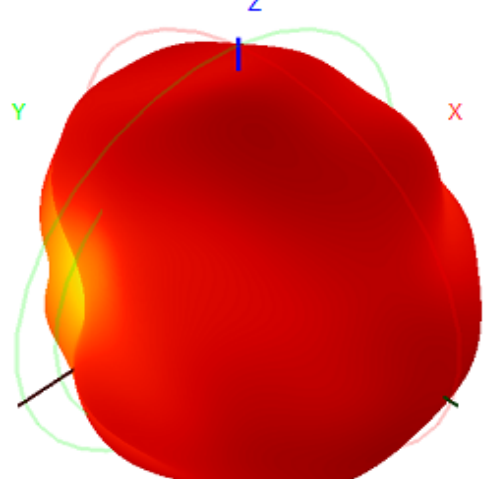
Total(H-XY), Max=-2.41dBi, CirD=14.46



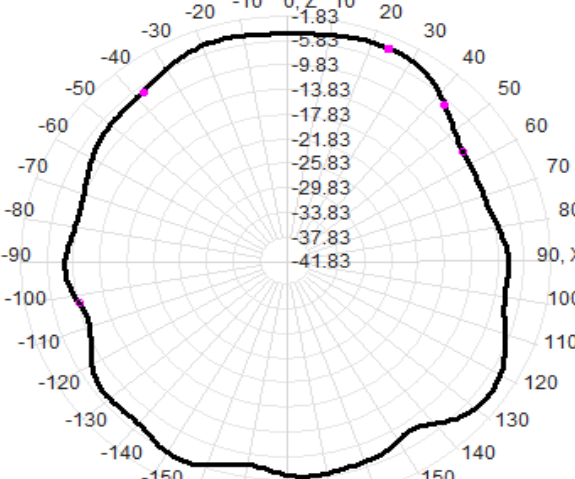
2470.0MHz H+V, Eff: 27.6%



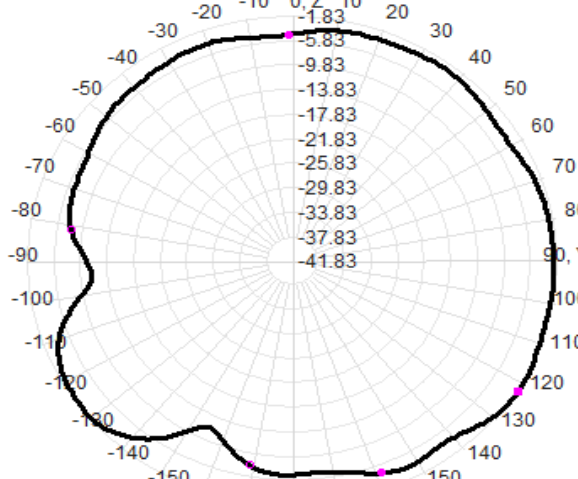
Back View



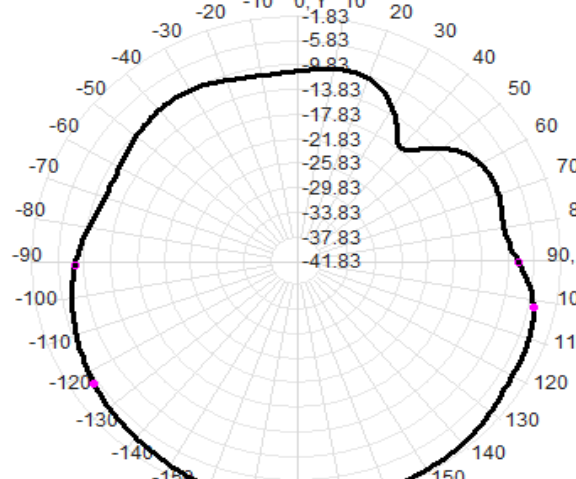
2470.0MHz Total(E1-XZ), Max=-3.82dBi



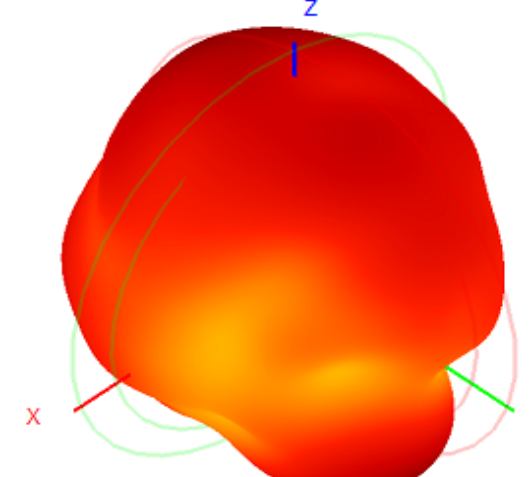
2470.0MHz Total(E2-YZ), Max=-1.83dBi



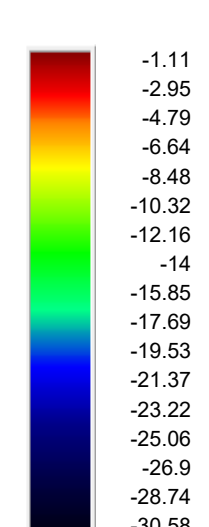
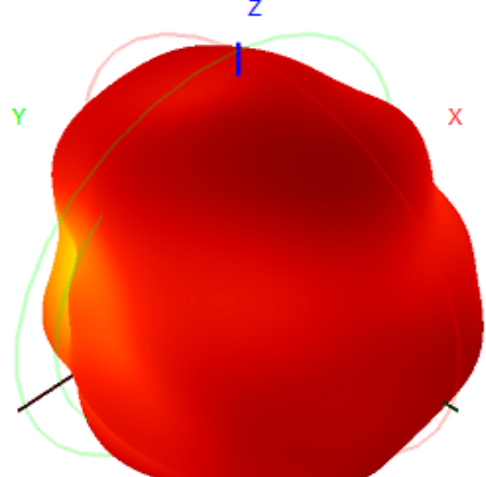
Total(H-XY), Max=-2.37dBi, CirD=15.24



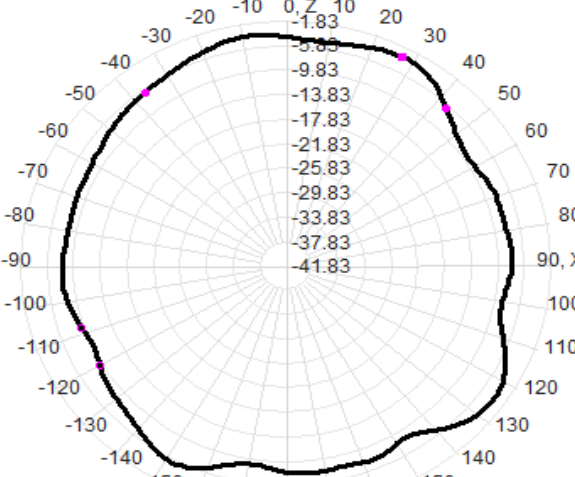
2480.0MHz H+V, Eff: 28.8%



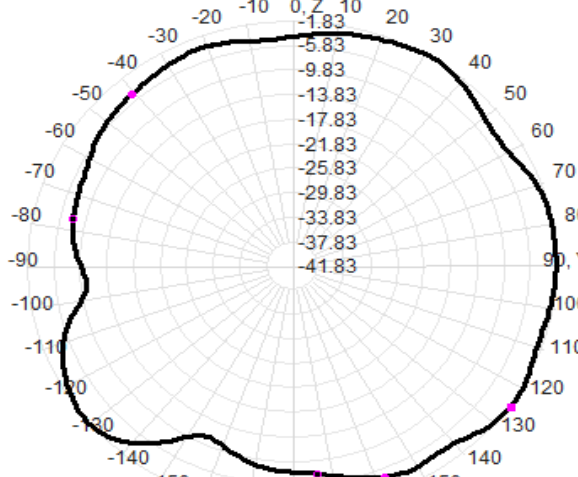
Back View



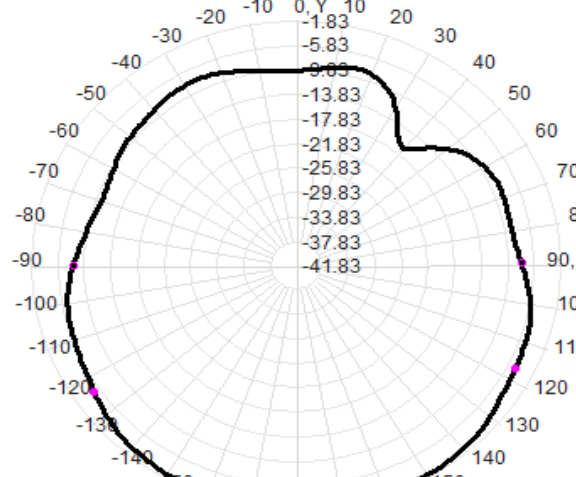
2480.0MHz Total(E1-XZ), Max=-3.45dBi



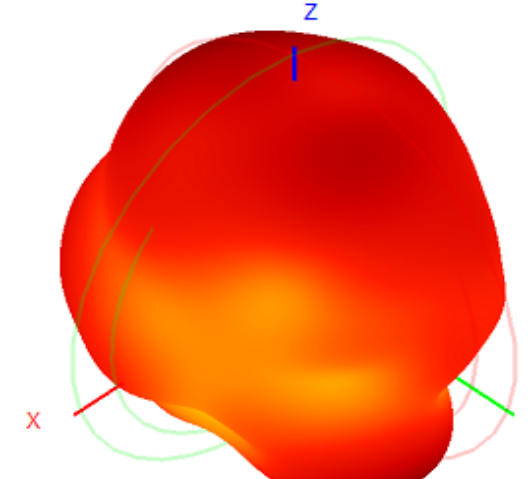
2480.0MHz Total(E2-YZ), Max=-1.83dBi



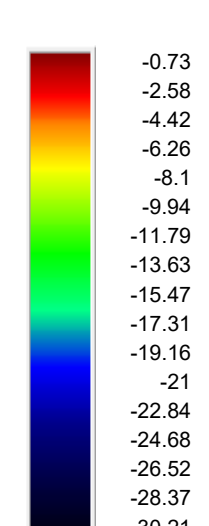
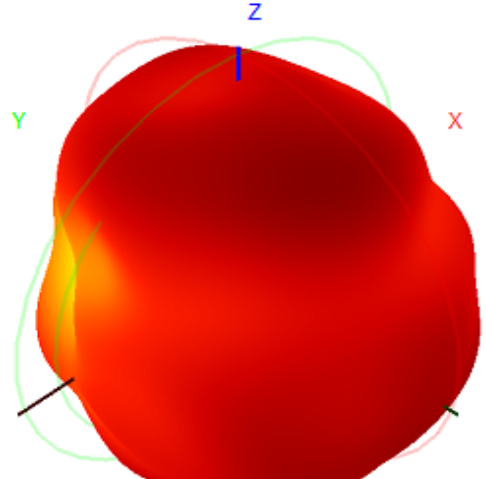
Total(H-XY), Max=-2.05dBi, CirD=14.72



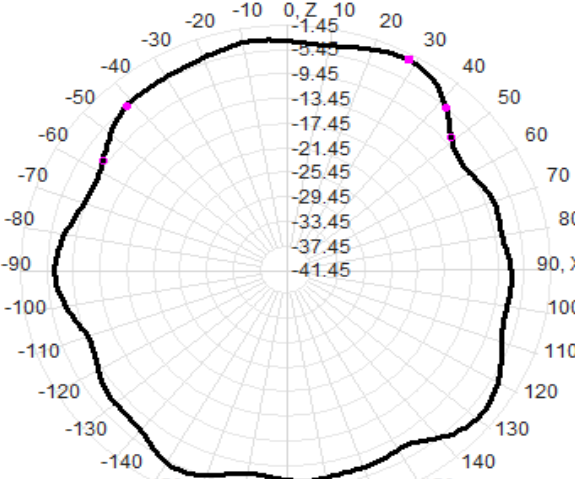
2490.0MHz H+V, Eff: 31.4%



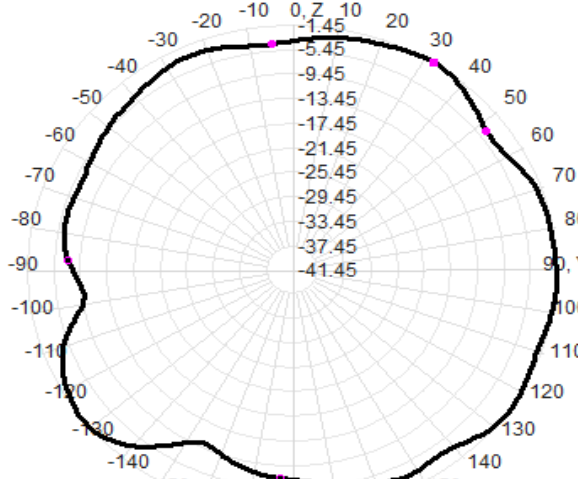
Back View



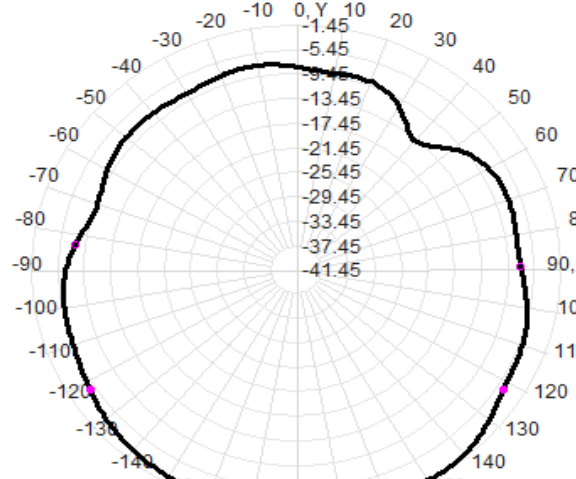
2490.0MHz Total(E1-XZ), Max=-3.55dBi



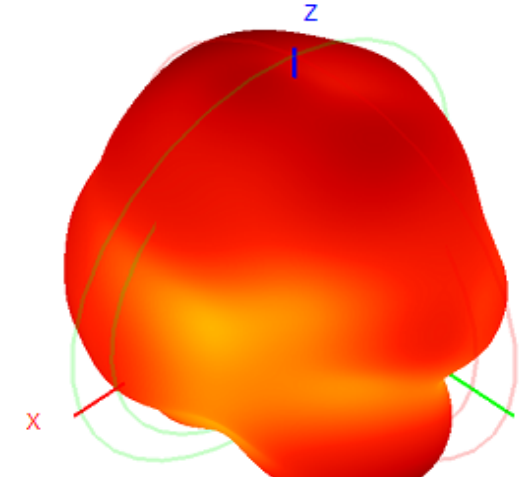
2490.0MHz Total(E2-YZ), Max=-1.45dBi



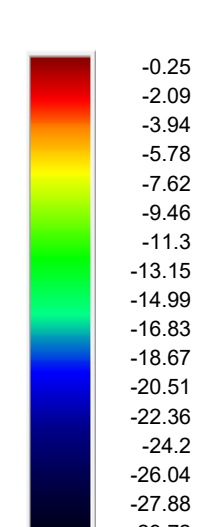
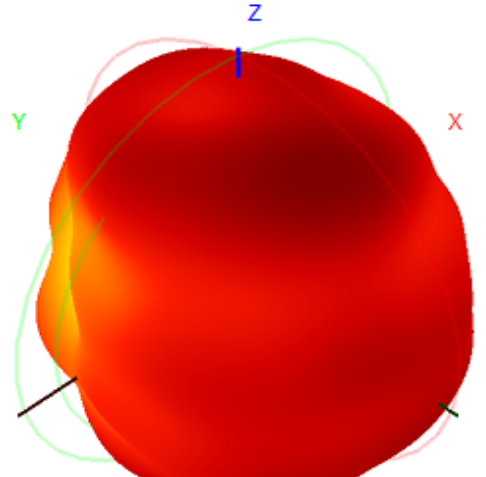
Total(H-XY), Max=-1.72dBi, CirD=12.13



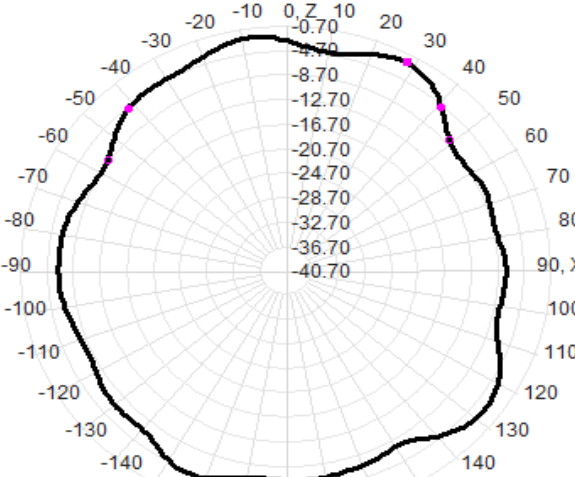
2500.0MHz H+V, Eff: 33.5%



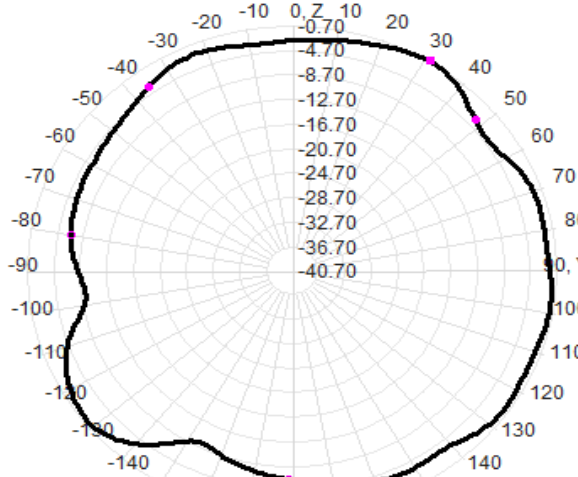
Back View



2500.0MHz Total(E1-XZ), Max=-2.18dBi



2500.0MHz Total(E2-YZ), Max=-0.70dBi



Total(H-XY), Max=-2.01dBi, CirD=10.10

