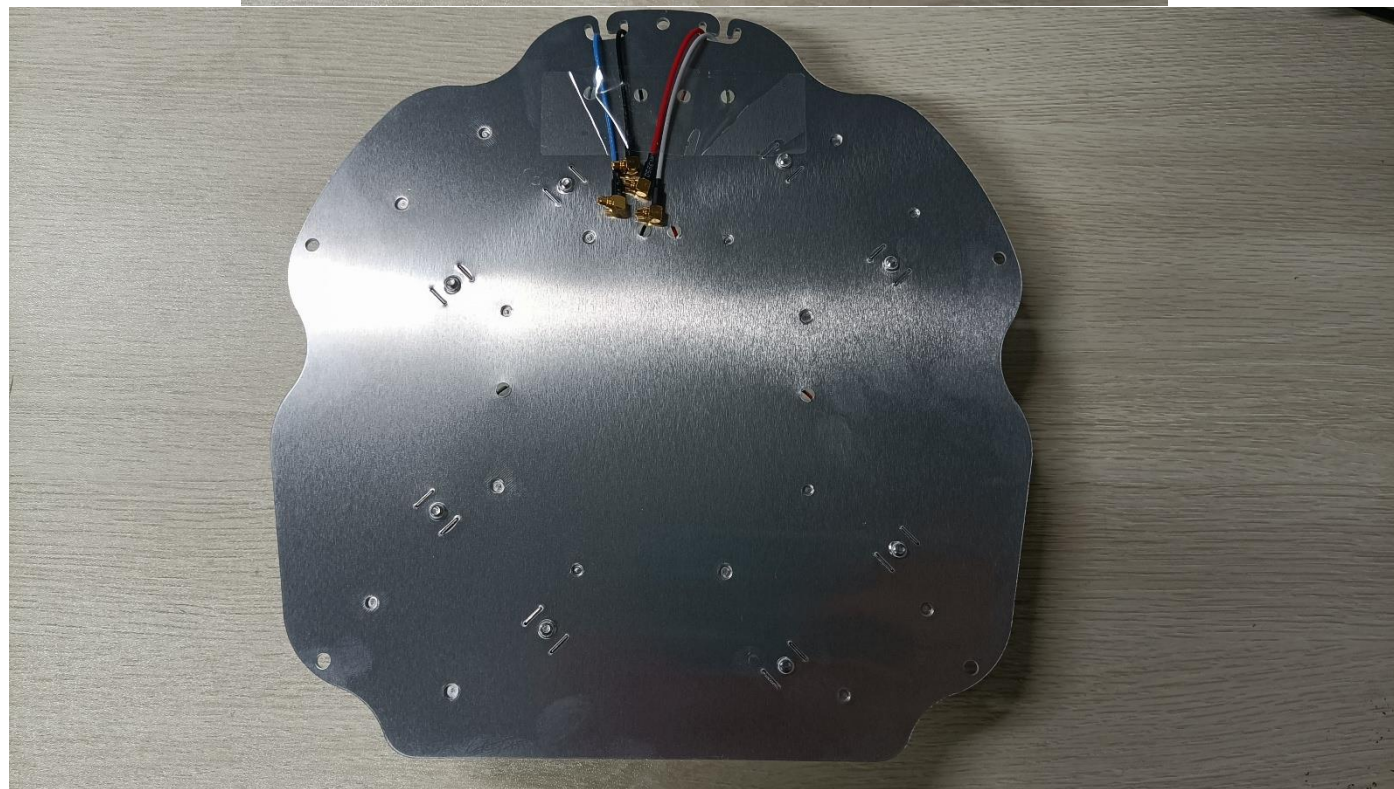
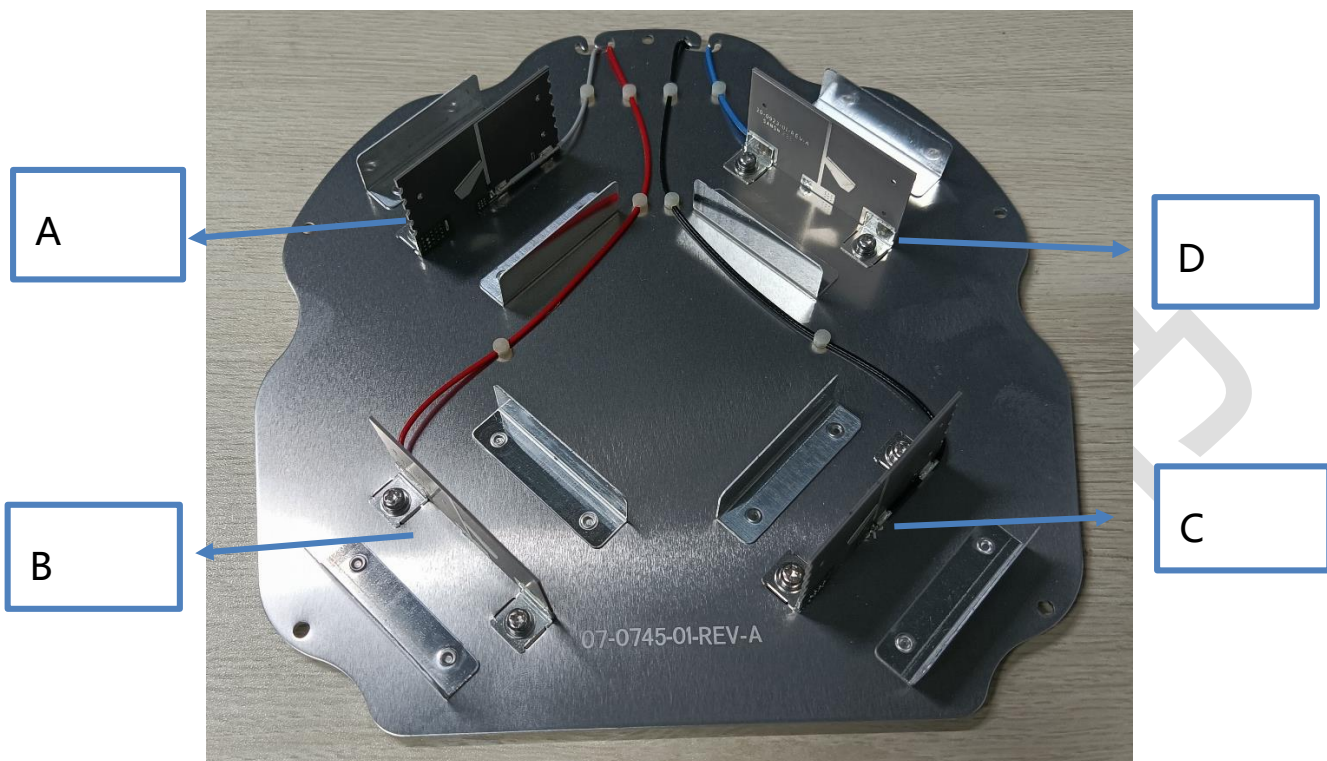


1. Antenna Specification/天线标准

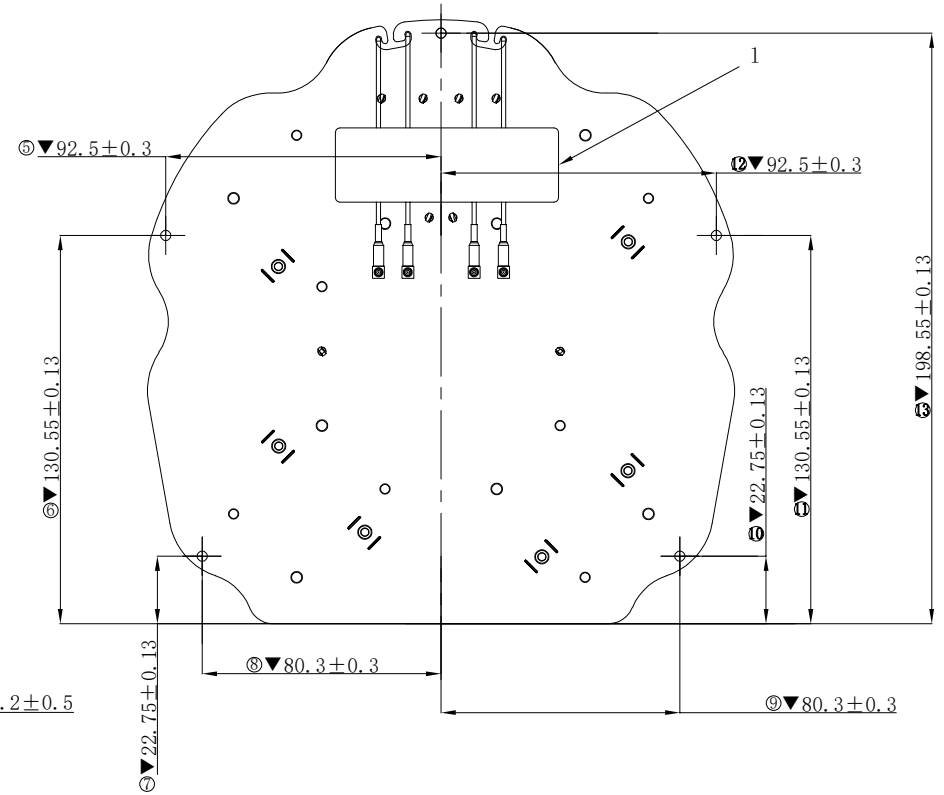
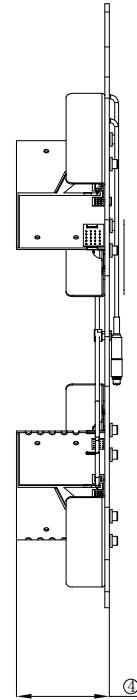
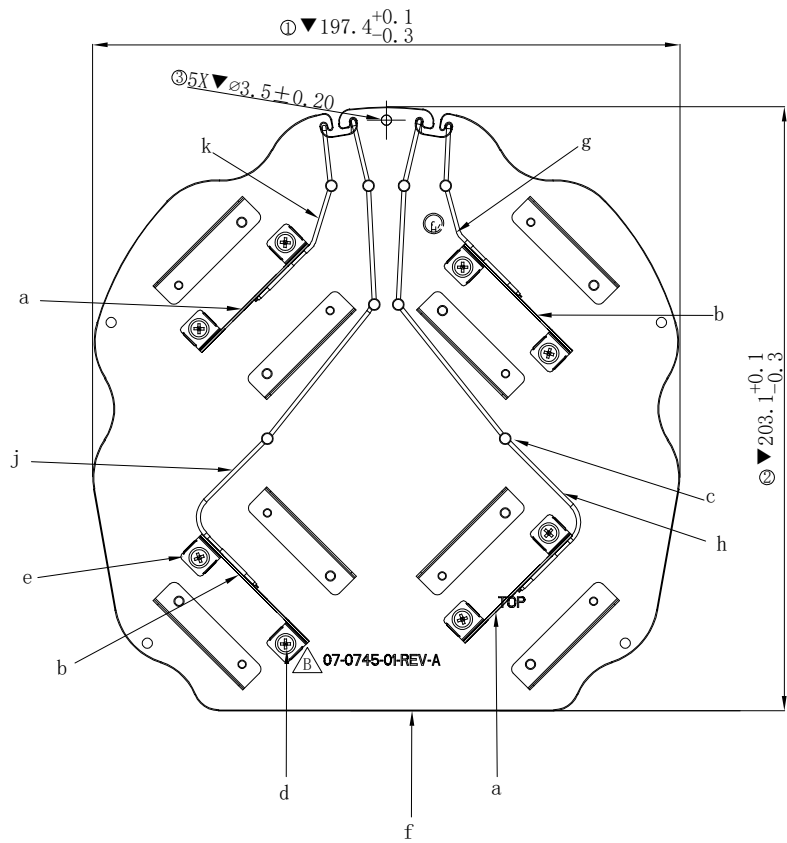
Antenna Specification/天线技术参数					
Electrical Specification/电气特性					
Item/目录	Specification/规格				Comment/备注
Antenna Number/天线序号	A	B	C	D	
Frequency Range/频段范围	2400MHz -2500MHz/ 5100MHz -6000MHz				
Impedance/阻抗	50 (Ω)				
VSWR/驻波比	2.0				
Directional/辐射方向	Directive antenna /定向天线				
Polarization/极化形式	Linearly Polarization/线极化				
Peak Gain/峰值增益	6.87dBi 7.32dBi	7.47dBi 7.78dBi	7.50dBi 7.90dBi	7.17dBi 7.95dBi	
Test condition/测试条件	passive test (无源测试)				
Total Efficiency/无源效率	$\geq 65\%$ $\geq 55\%$	$\geq 60\%$ $\geq 25\%$	$\geq 60\%$ $\geq 30\%$	$\geq 65\%$ $\geq 55\%$	
Mechanical Specification/机械指标					
Antenna type/天线类型	PCB 天线				
Connector Type/连接器类型	MMCX-J				
RF Cable Type/射频线型号	1.37 LOW LOSS				
Connector Torque Test/连接器扭力	N/A				
Connector Pull Test/连接器拉力	$\geq 3.0\text{Kgf}$				
Salt Spray/盐雾测试	48 (H)				
Environmental Specification /环境指标					
Operating temp/工作温度	$-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$				
Storage temp/存储温度	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$				

2. Antenna Picture/天线图片



3. DWG/工程图纸

REV.	ECN NUMBER	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
A	ECN192543	正式发行	08/21'20	张苟彪	丁第斌	张英杰
B	ECN201119	变更丝印	09/08'20	张苟彪	丁第斌	张英杰



NOTES:

1. 表面不得有明显刮花油污、灰尘等，要求边缘冲切整齐，无毛刺。
2. CABLE不能有刮伤。
3. 标有“⊗”为FAI首件全检尺寸。
4. 标有“▼”为QC重点检测尺寸。
5. 有害物质须符合ECT《QE-Q-19-001环境有害物质管理基准》管控标准。
6. 测试标准：VSWR ≤ 2.2 for 2.4-2.5GHz & 5.1-6.0GHz。
测试仪器：网分测试仪。

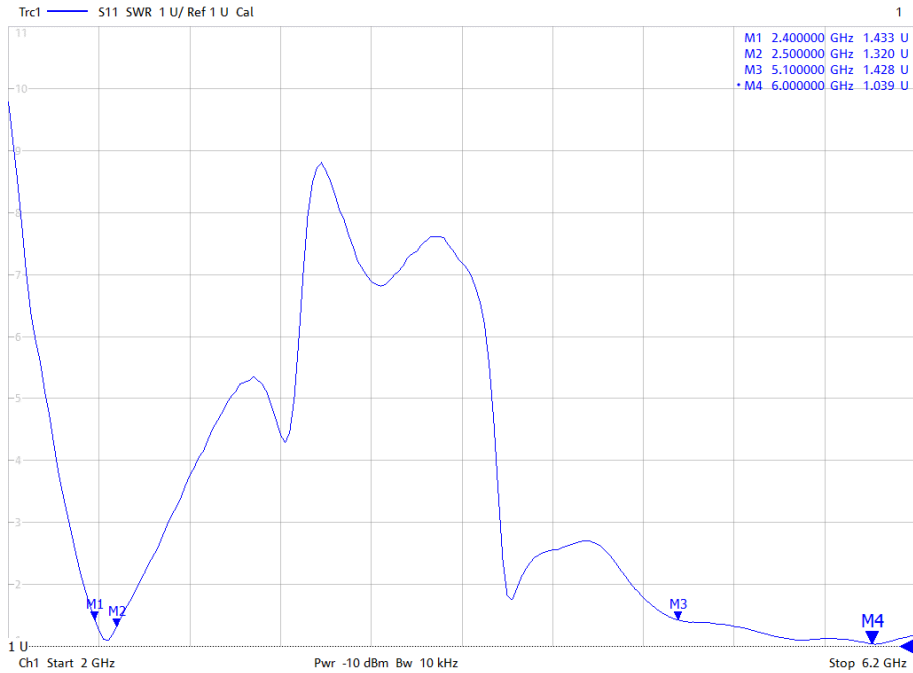
NO	ITEM	Q'TY	MATERIAL / FINISH
1	胶带	1	可移透明PET
k	线缆组件	1	1.37灰色线_TO MMCX弯头_黑色热缩管_L130MM
j	线缆组件	1	1.37红色线_TO MMCX弯头_黑色热缩管_L242MM
h	线缆组件	1	1.37黑色线_TO MMCX弯头_黑色热缩管_L237MM
g	线缆组件	1	1.37蓝色线_TO MMCX弯头_黑色热缩管_L122MM
f	组合件	1	底板 AL5052-H32 配八个挡板
e	折弯件	8	折弯件 SUS304 10.8*10*TO.4 镀亮锡
d	组合螺钉	8	组合螺钉 SUS304 M3*6 自带垫圈弹介
c	线夹	8	线夹 PA66 5.7*4*1.5
b	PCB	2	F4BM255 双面PCB板 51*29.65*TO.8MM 绿色 无卤-
a	PCB	2	F4BM255 双面PCB板 51*29.65*TO.8MM 绿色 无卤-1

	GENERAL TOLERANCE		SCALE: 1:1	DRAWN: 张苟彪	DATE: 09/08'20	DWG. NO: 600-U419-01	TITLE: CUSTOMER DRAWING	REV. B
	XX. ± 1	XX. ° ± 1°	UNIT: mm	CHECK:	DATE:			PARTS NO. (INTENDED USE): 81800U419
	X. ± 0.5	X. ° ± 1°				SIZE: A4	APPROVE:	
	.X ± 0.3	.X ° ± 1°						

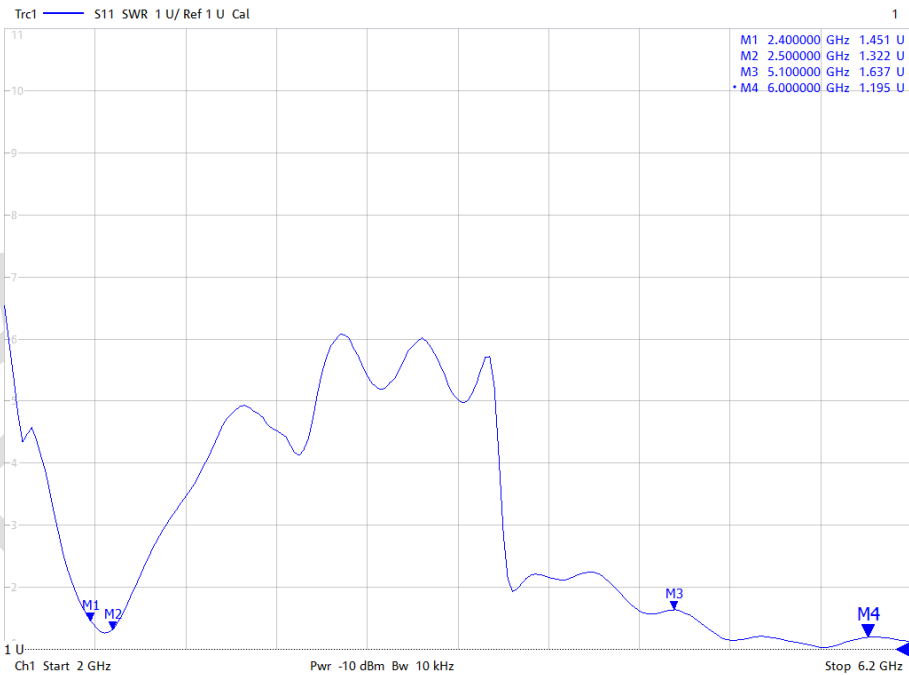
4. Antenna test result/测试结果

4.1 Return loss/Smith chart/VSWR/回波损耗/史密斯图/驻波比

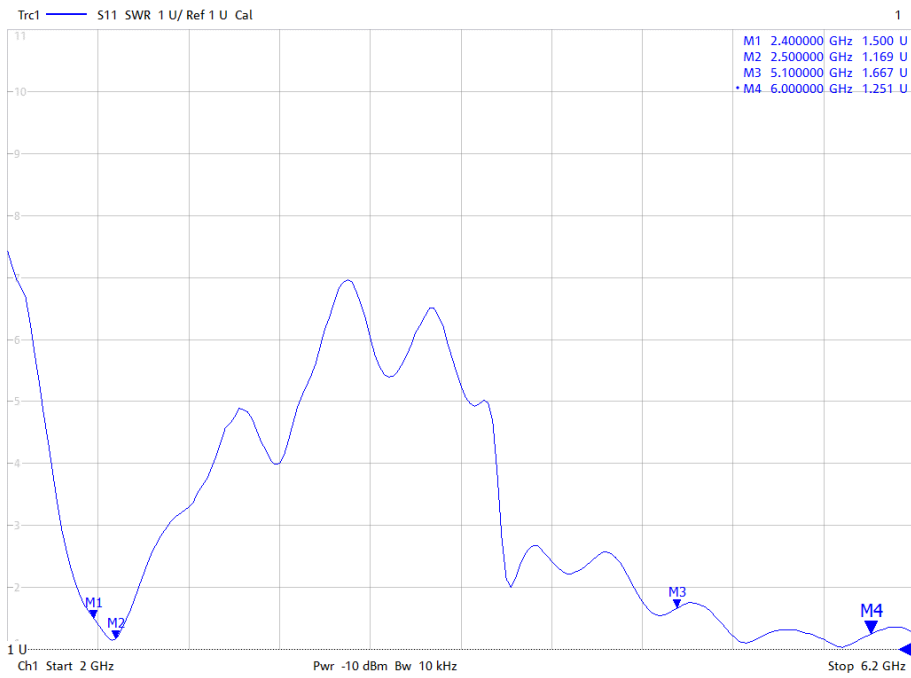
A



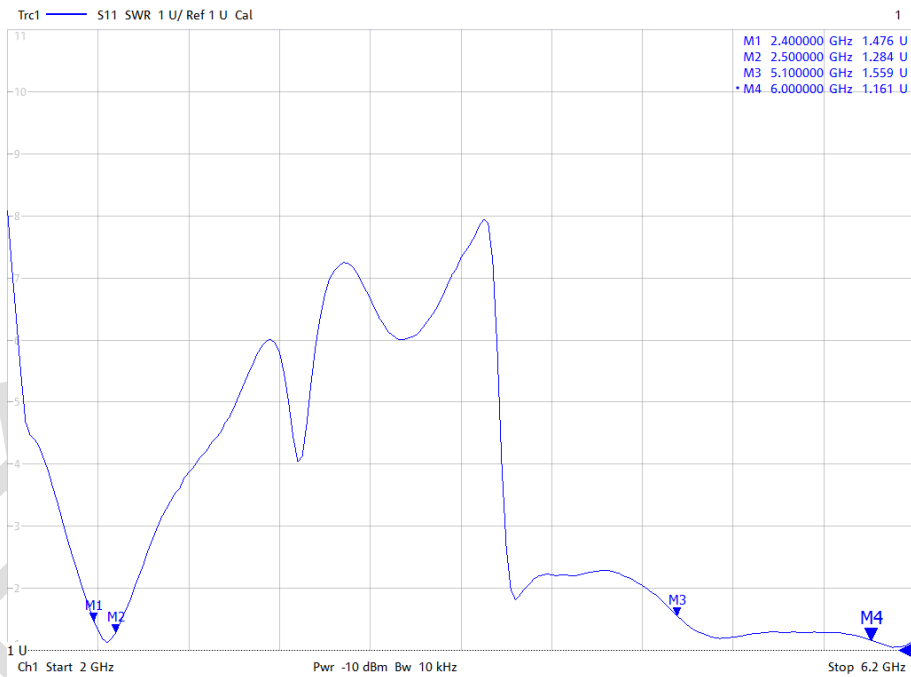
B



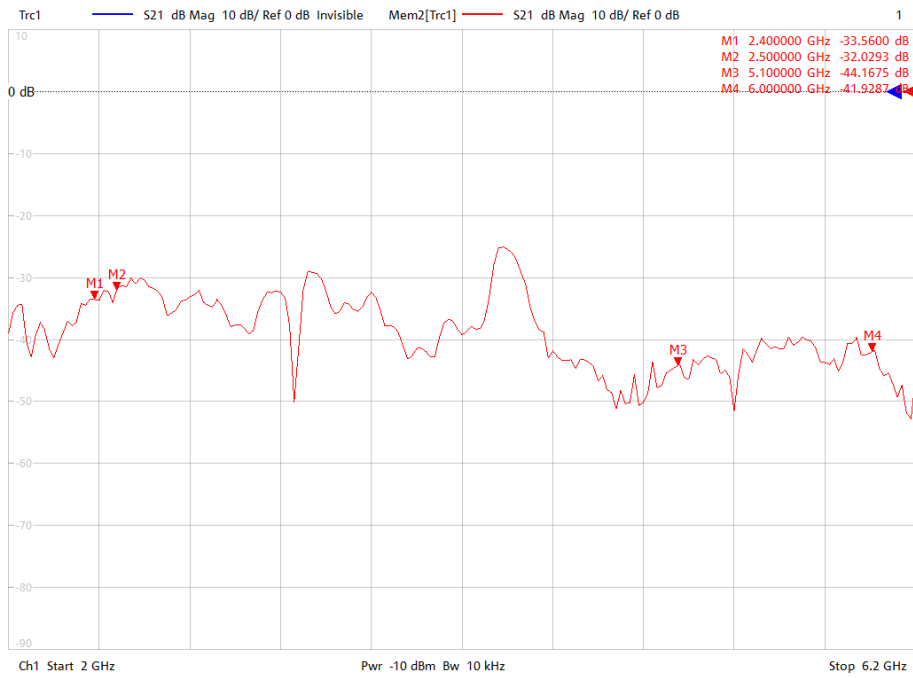
C



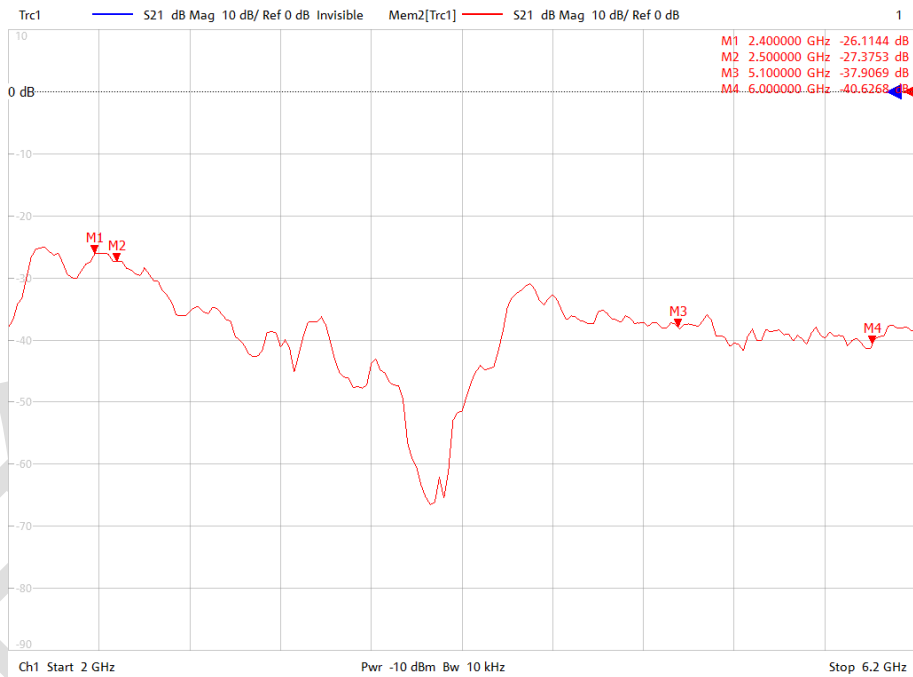
D



S21(AB)

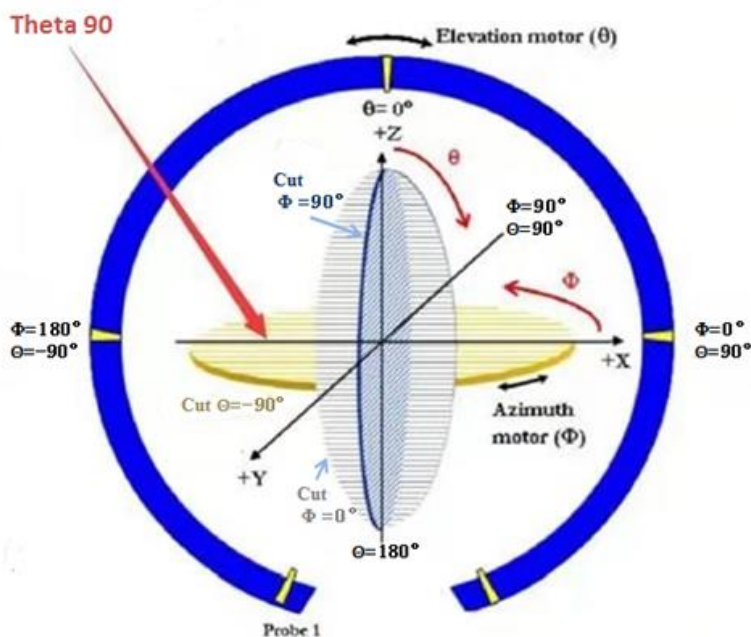


S21(BC)

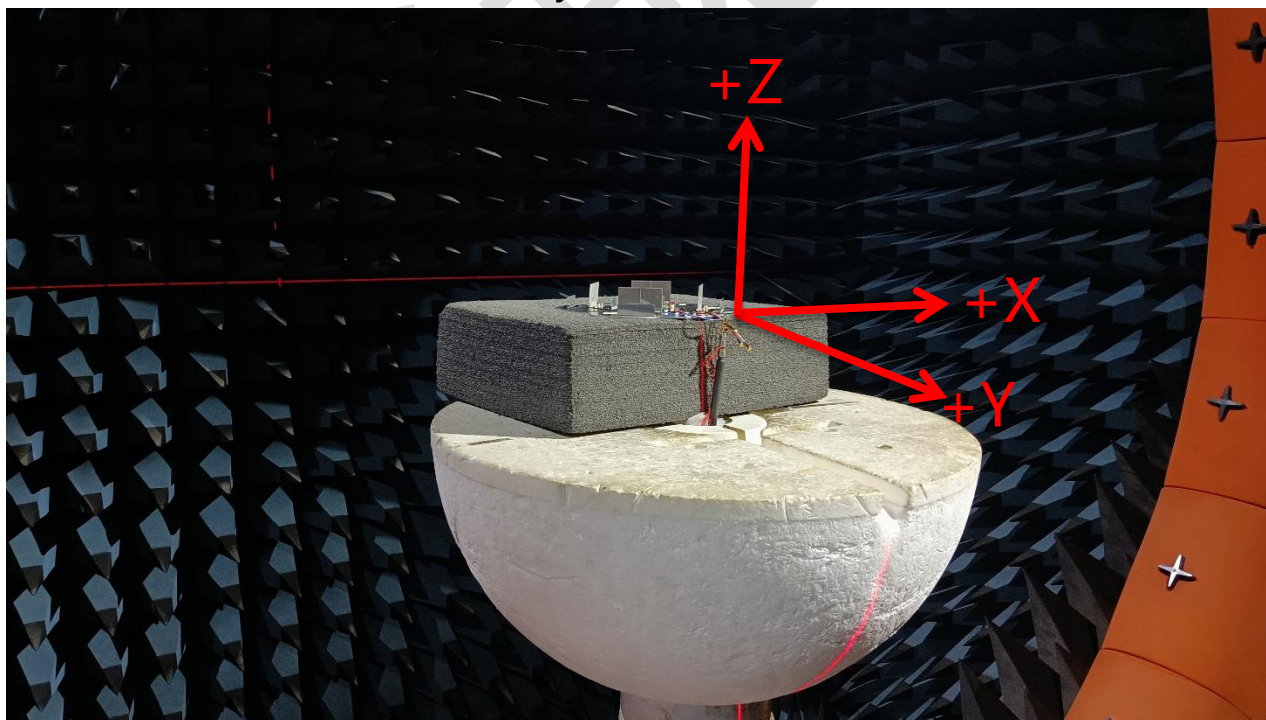


4.2 The gain and total efficiency test/增益和效率测试

4.2.1 The definition of coordinate system/坐标系定义-Satimo SG24



The coordinate system of Chamber/暗室坐标系



The production test position/天线测试放置位置

4.2.2 The test result of total efficiency and total gain/天线效率及增益测试结果 2400MHz-2500MHz

Frequency	A		B		C		D	
	Efficiency	Gain(dBi)	Efficiency	Gain(dBi)	Efficiency	Gain(dBi)	Efficiency	Gain(dBi)
2400MHz	66%	6.49	67%	6.67	67%	7.22	70%	6.39
2410MHz	66%	6.29	63%	6.45	63%	6.95	68%	6.41
2420MHz	68%	6.21	64%	6.50	63%	6.90	70%	6.53
2430MHz	67%	6.45	64%	6.65	64%	7.03	69%	6.72
2440MHz	66%	6.55	63%	6.72	63%	7.05	68%	6.83
2450MHz	68%	6.63	64%	6.86	65%	7.12	69%	6.95
2460MHz	70%	6.87	66%	7.00	66%	7.16	71%	7.17
2470MHz	69%	6.83	68%	7.33	67%	7.38	73%	7.17
2480MHz	69%	6.62	69%	7.47	69%	7.50	73%	7.02
2490MHz	68%	6.75	67%	7.15	69%	7.24	72%	7.06
2500MHz	69%	6.86	65%	6.92	67%	7.02	71%	6.99
AVG	68%	6.60	65%	6.88	66%	7.14	70%	6.84

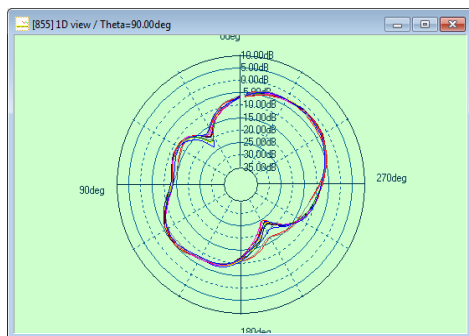
5100MHz-6000MHz

Frequency	A		B		C		D	
	Efficiency	Gain(dBi)	Efficiency	Gain(dBi)	Efficiency	Gain(dBi)	Efficiency	Gain(dBi)
5100MHz	61%	5.06	34%	6.33	32%	6.07	65%	5.82
5150MHz	64%	5.36	32%	5.89	32%	5.97	61%	5.55
5200MHz	60%	4.91	34%	6.12	34%	6.14	65%	5.69
5250MHz	62%	5.19	34%	5.76	31%	5.81	65%	5.85
5300MHz	64%	5.57	34%	5.77	34%	6.16	66%	5.88
5350MHz	59%	5.24	33%	5.70	32%	5.99	63%	5.77
5400MHz	67%	6.22	35%	5.87	35%	6.32	67%	6.29
5450MHz	59%	5.61	34%	5.67	34%	6.34	64%	6.17
5500MHz	61%	6.29	31%	5.39	31%	6.11	60%	6.03
5550MHz	59%	5.85	33%	5.48	32%	6.24	63%	6.08
5600MHz	56%	5.74	29%	5.07	30%	6.08	59%	5.61
5650MHz	64%	6.49	34%	6.03	34%	6.36	65%	6.14
5700MHz	60%	6.31	31%	5.63	32%	6.06	61%	5.89
5750MHz	59%	6.45	32%	5.94	32%	6.16	58%	6.06
5800MHz	58%	6.48	32%	6.02	32%	6.23	61%	6.10
5850MHz	60%	6.79	33%	6.20	33%	6.34	61%	6.06
5900MHz	59%	6.57	31%	6.15	32%	6.28	58%	6.01
5950MHz	88%	7.32	47%	7.78	48%	7.90	89%	7.95
6000MHz	70%	6.55	39%	6.94	41%	7.25	73%	7.10
AVG	63%	6.00	34%	5.99	34%	6.31	64%	6.11

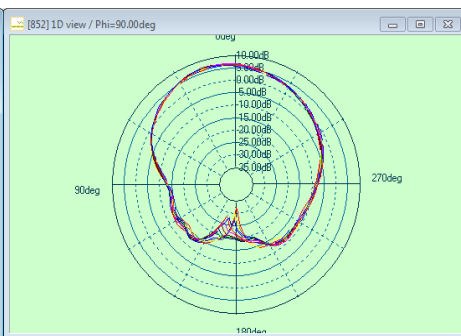
4.2.3 The antenna radiation pattern(2D)/天线辐射方向图 (2D)

A

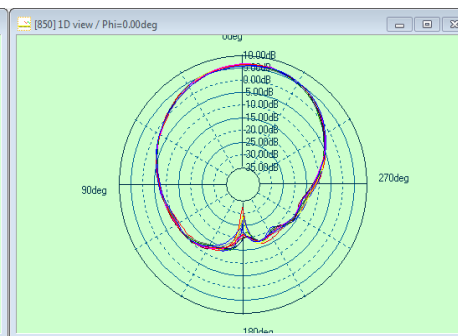
2400MHz -2500MHz



XOY

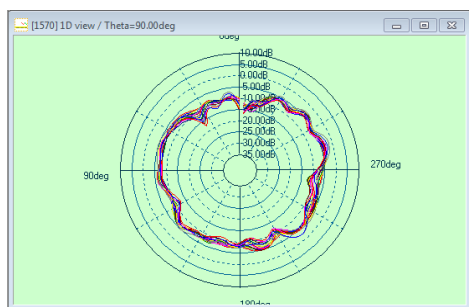


YOZ

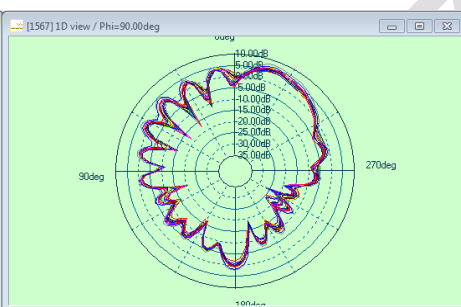


XOZ

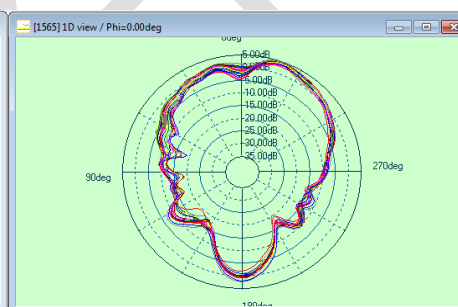
5100MHz -6000MHz



XOY



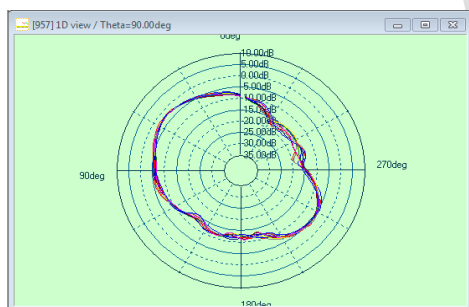
YOZ



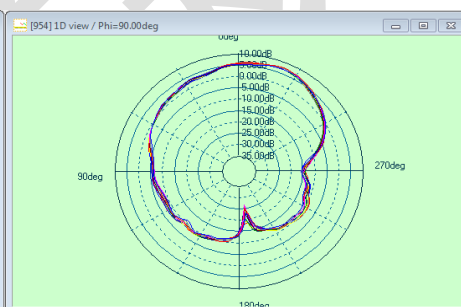
XOZ

B

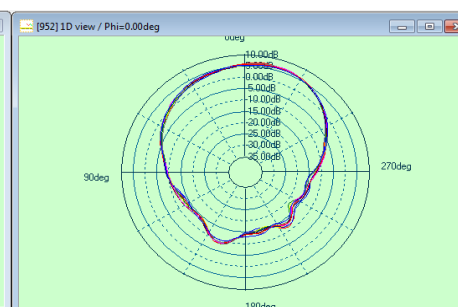
2400MHz -2500MHz



XOY

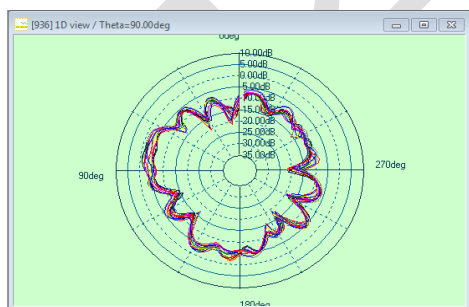


YOZ

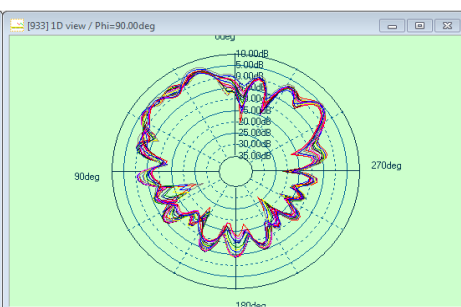


XOZ

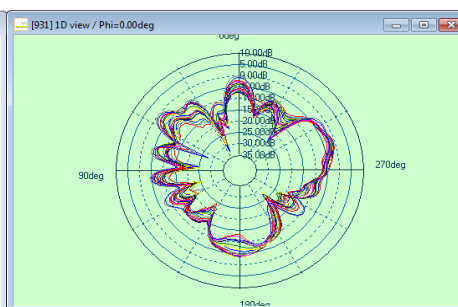
5100MHz -6000MHz



XOY



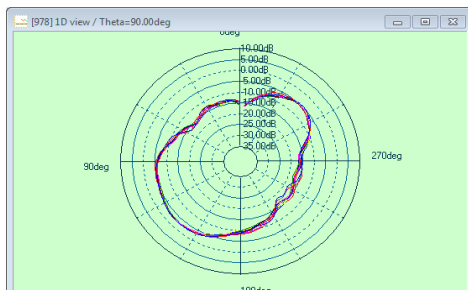
YOZ



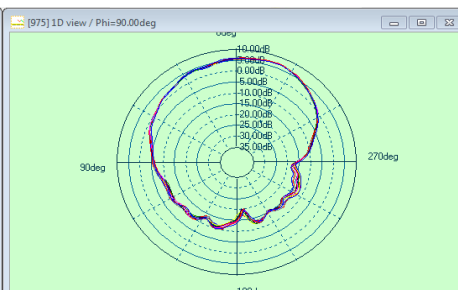
XOZ

C

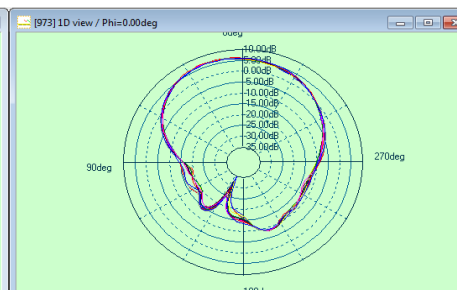
2400MHz -2500MHz



XOY

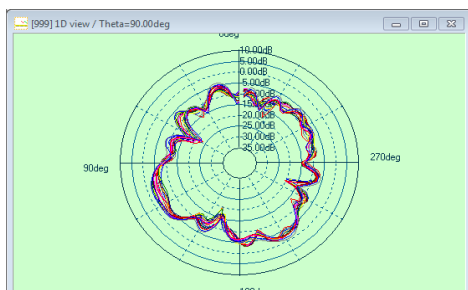


YOZ

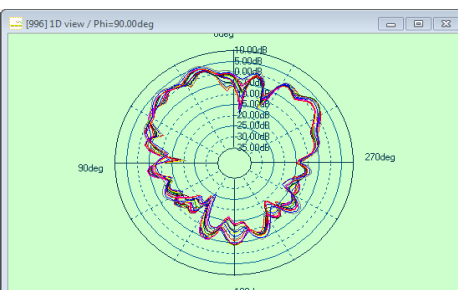


XOZ

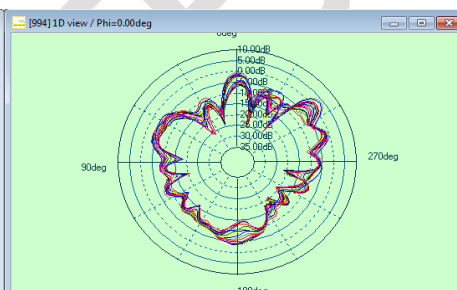
5100MHz -6000MHz



XOY



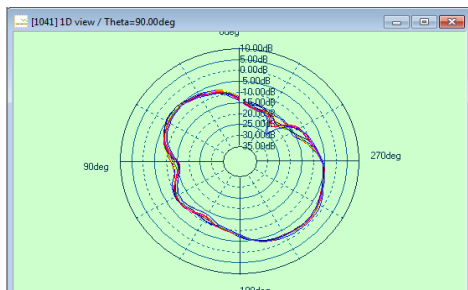
YOZ



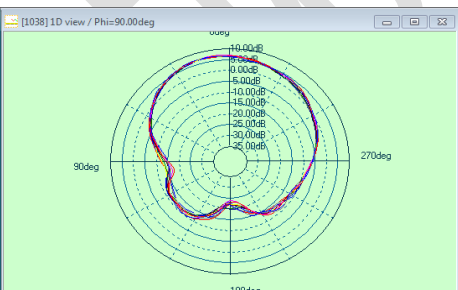
XOZ

D

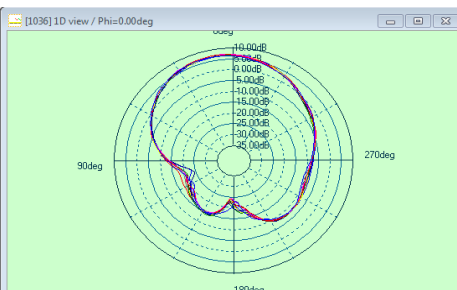
2400MHz -2500MHz



XOY

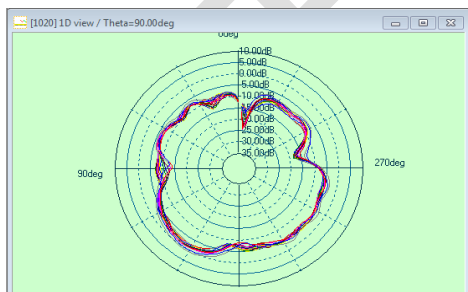


YOZ

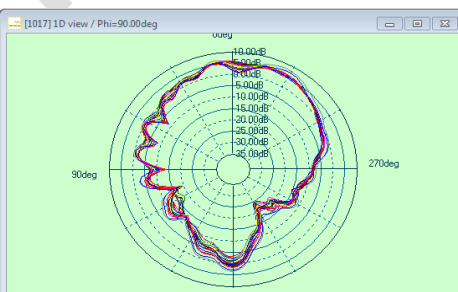


XOZ

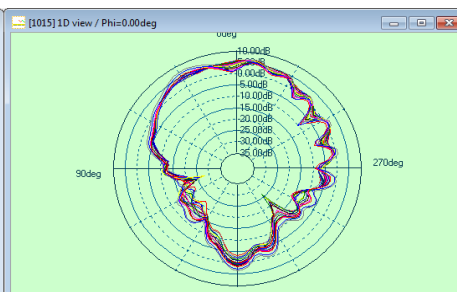
5100MHz -6000MHz



XOY



YOZ

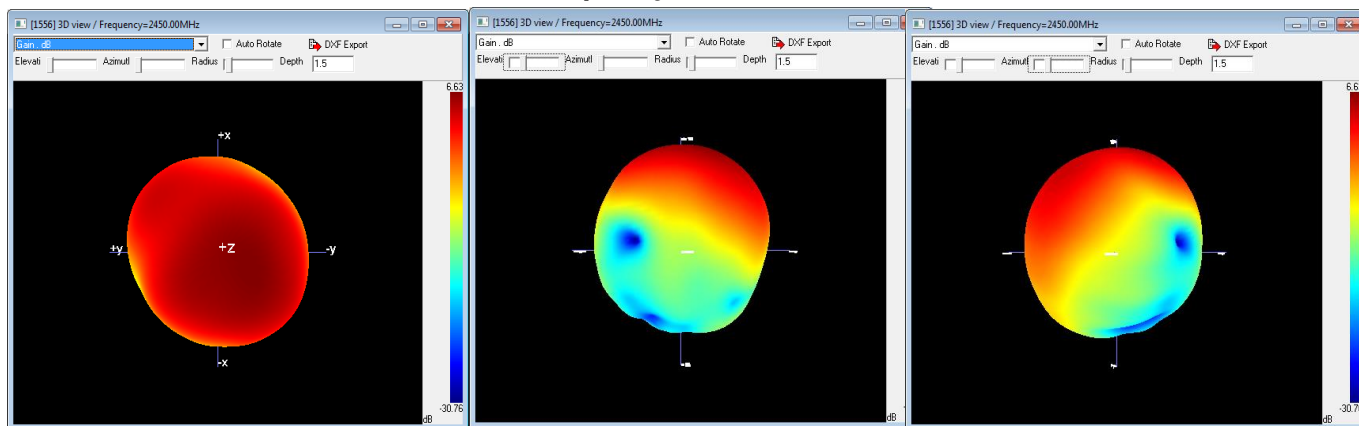


XOZ

4.2.4 The antenna radiation pattern(3D)/天线辐射方向图 (3D)

A

Frequency/频点 2450MHz

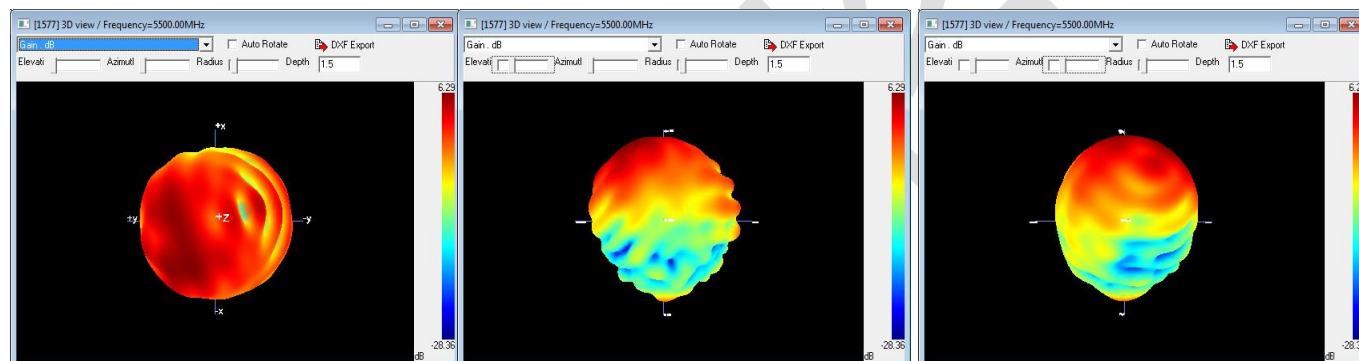


XOY

YOZ

XOZ

Frequency/频点 5550MHz



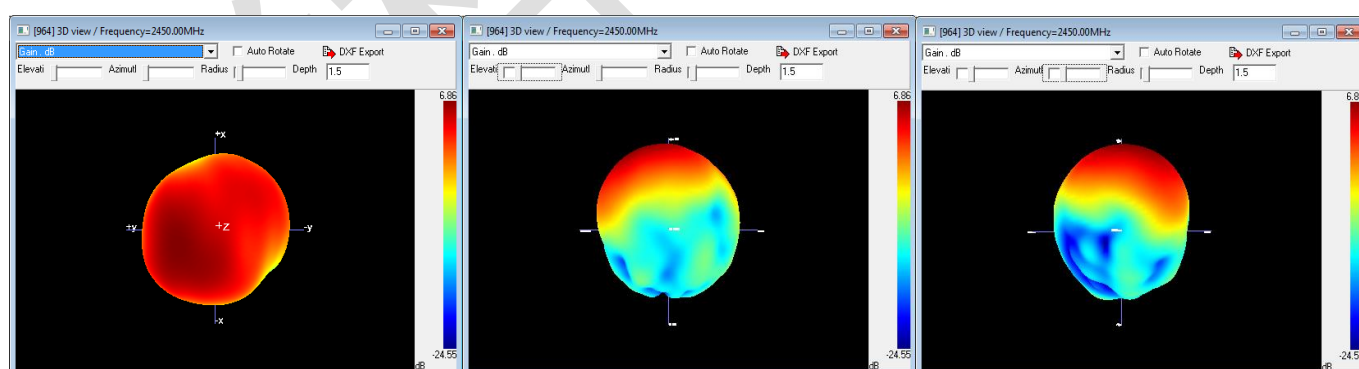
XOY

YOZ

XOZ

B

Frequency/频点 2450MHz

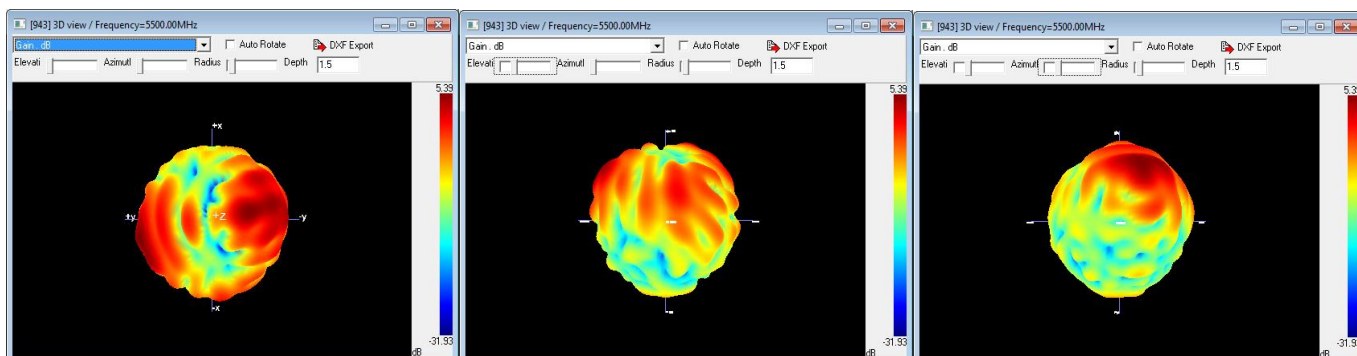


XOY

YOZ

XOZ

Frequency/频点 5500MHz



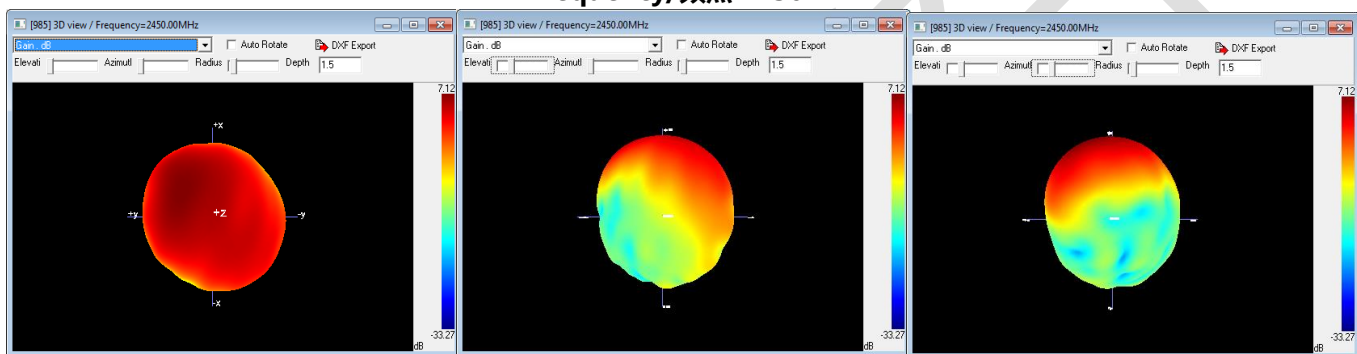
XOY

YOZ

XOZ

C

Frequency/频点 2450MHz

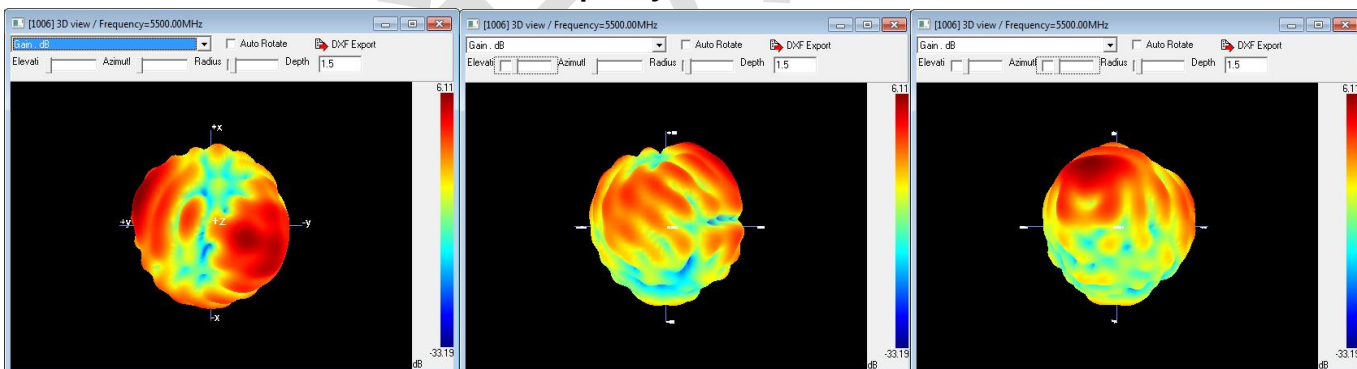


XOY

YOZ

XOZ

Frequency/频点 5500MHz



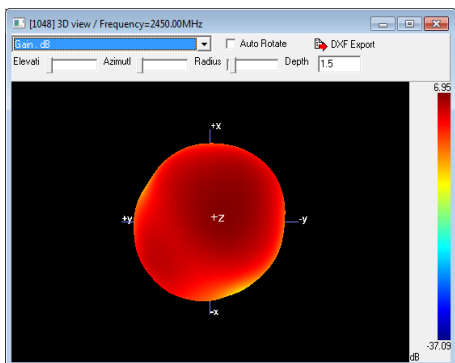
XOY

YOZ

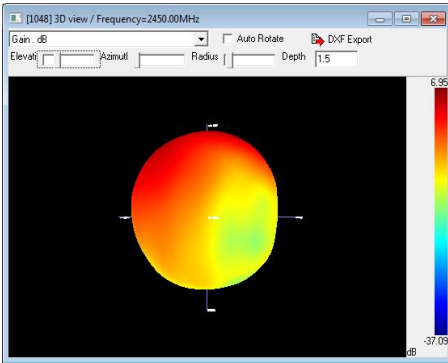
XOZ

D

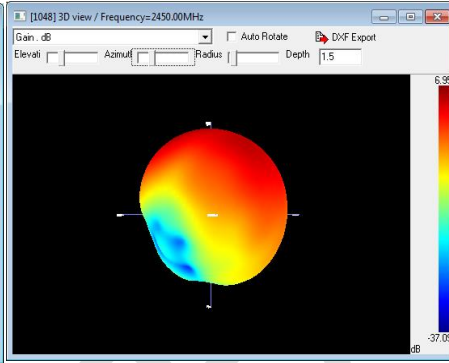
Frequency/频点 2450MHz



XOY

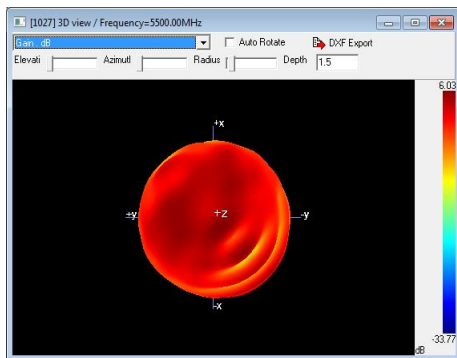


YOZ

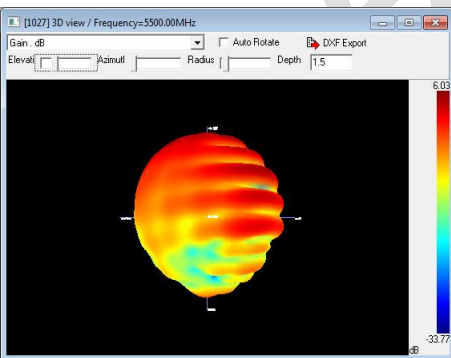


XOZ

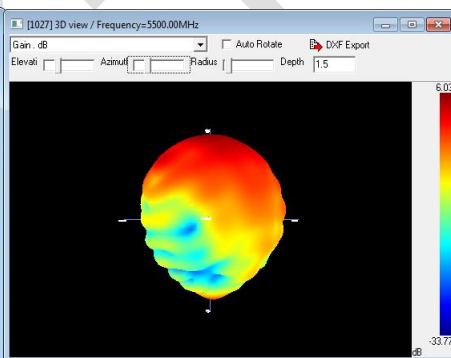
Frequency/频点 5500MHz



XOY



YOZ



XOZ