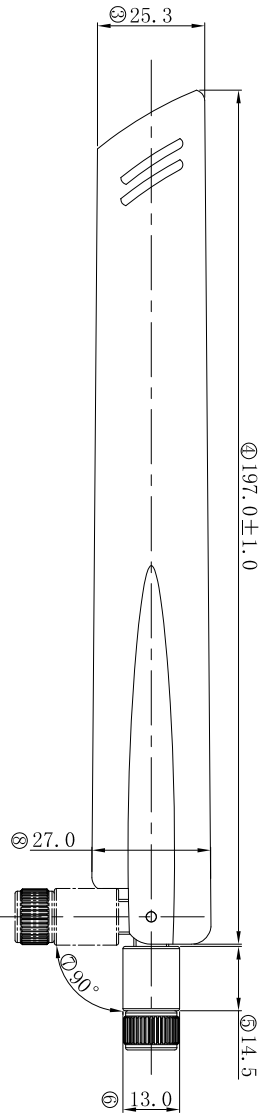
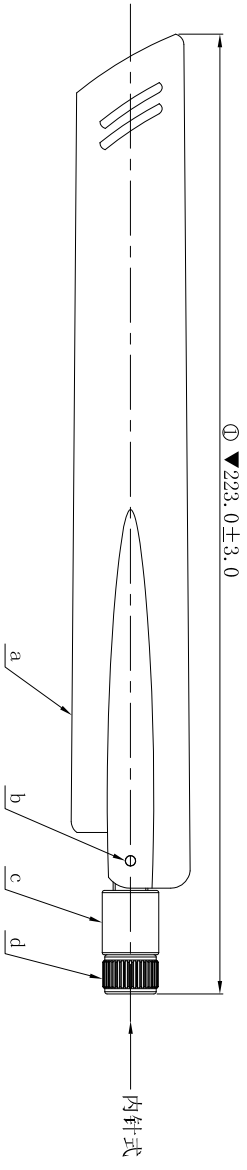


**1. Antenna specification/天线标准**

Antenna specification/天线技术参数			
Electrical specification/电气特性			
Item/目录	Specification/规格		Comment/备注
Freq. range/频段范围	617MHz-960MHz	1710MHz-5000MHz	
Impedance/阻抗	50 ( $\Omega$ )		
VSWR/驻波比	$\leq 3.0$		
Directional/辐射方向	Omni directional		
Polarization/极化形式	Vertical		
Peak gain/峰值增益	1.3 (dBi)	4 (dBi)	
Test condition/测试条件	passive test ( 无源测试 )		
Total efficiency/无源效率	$> 30\%$	$> 60\%$	
Mechanical Specification/机械指标			
Antenna type/天线类型	胶杆天线		
Connector type/连接器类型	SMA-J(公头公针)		
RF cable type/射频线型号	RG178		
Connector torque test/连接器扭力	$\geq 3.0\text{KGF}$		
Connector pull test/连接器拉力	N/A		
Salt spray/盐雾测试	72 (H)		
Environmentalspecification /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	$-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$		

**2. Antenna picture/天线图片**

REV.	ECN NUMBER	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
X1	ECN203626	初版发行	12/21'20	梁克泉	丁第斌	张英杰



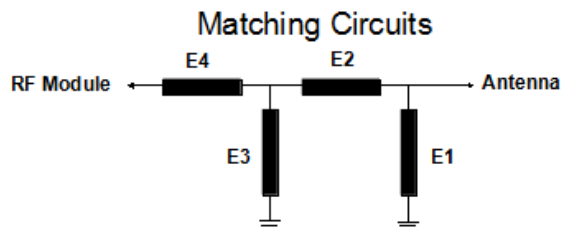
- NOTES:
1. 各部件装配完后不得有油污、划痕、变形等外观不良。
  2. 各部件装配完成后无明显色差。
  3. 本体与连接轴的装配后保持力：3KG MIN；  
连接器扭力为：0.2~0.6 Kg-cm。
  4. 标有“▼”为QC重点检测尺寸
  5. 频率：703-960/1710-5000MHz，  
VSWR：≤3.0max；
- 测试仪器：网络分析仪\_矩阵  
6. 有害物质须符合ECT《QE-Q-19-001-环境有害物质管理基准》管控标准。

ITEM	PART NAME	QTY	MATERIAL / FINISH
d	销钉	2	销钉 .002.4*5.5mm, POM, 黑色
c	杆套	1	壳套, 197mm, ABS, 黑色
b	连接器	1	SMA-J(公头公针), 黑色, 塑料
a	下固	1	下固, 0013*14.5mm, PC+PBT, 白色

	GENERAL TOLERANCE	XX. ± 2.00	XX. ° ± 3°	SCALE:	1:1	DRAWN:	梁克泉	DATE:	12/21'20	DWG. NO.:	600-U722-01	TITLE:	ANT_EX 5G_223_0*12.5_	REV.	X1
		X. ± 1.00	X. ° ± 2°	UNIT:	mm	CHECK:		DATE:		PARTS NO. (INTENDED USE):	81800U722		BK-PR_SMA-J	SHEET:	1/1
	.X ± 0.50	.X ° ± 1°	SIZE:	A4	APPROVE:		DATE:								

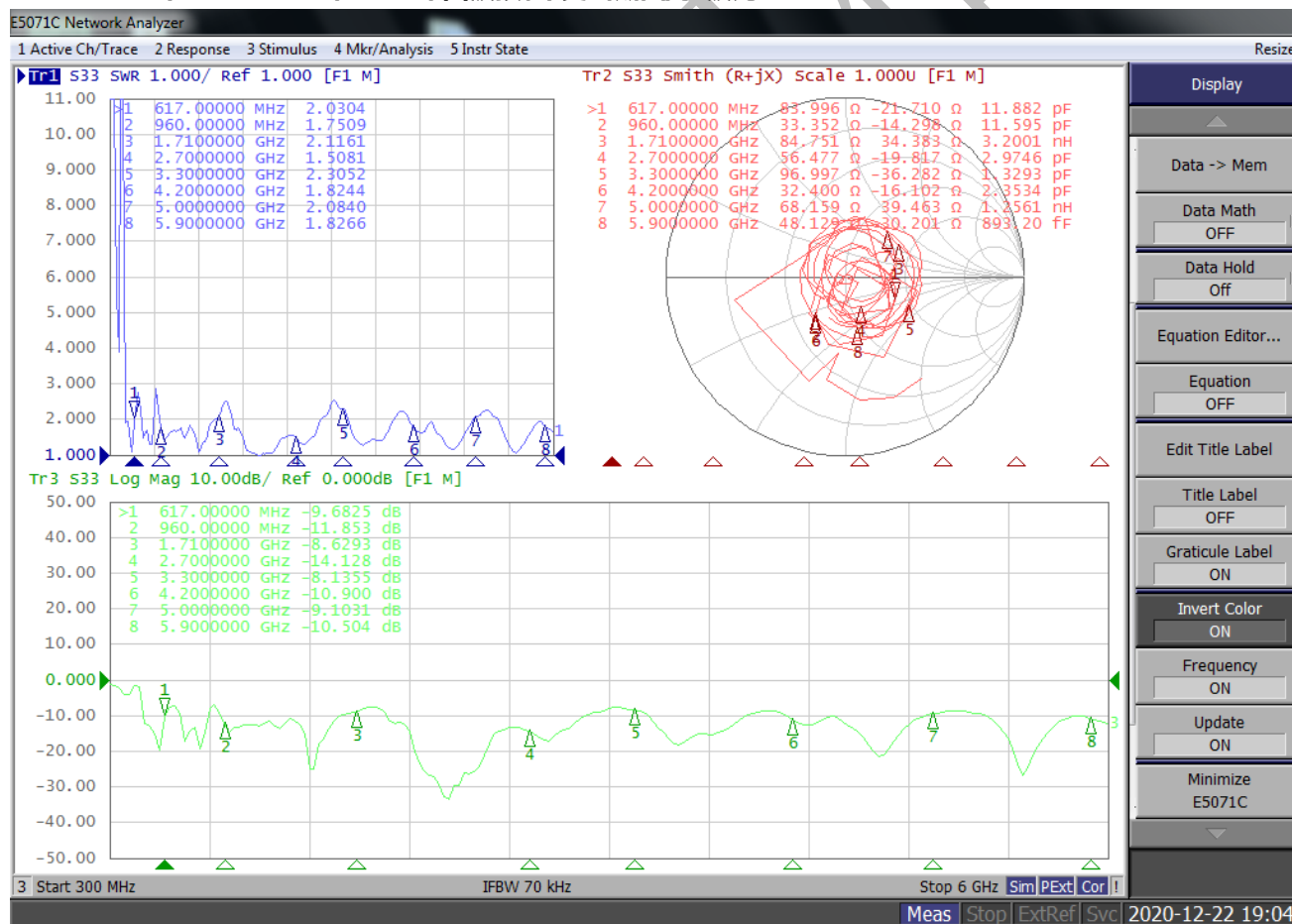
## 4. Antenna test result/测试结果

### 4.1 The matching circuits/匹配电路



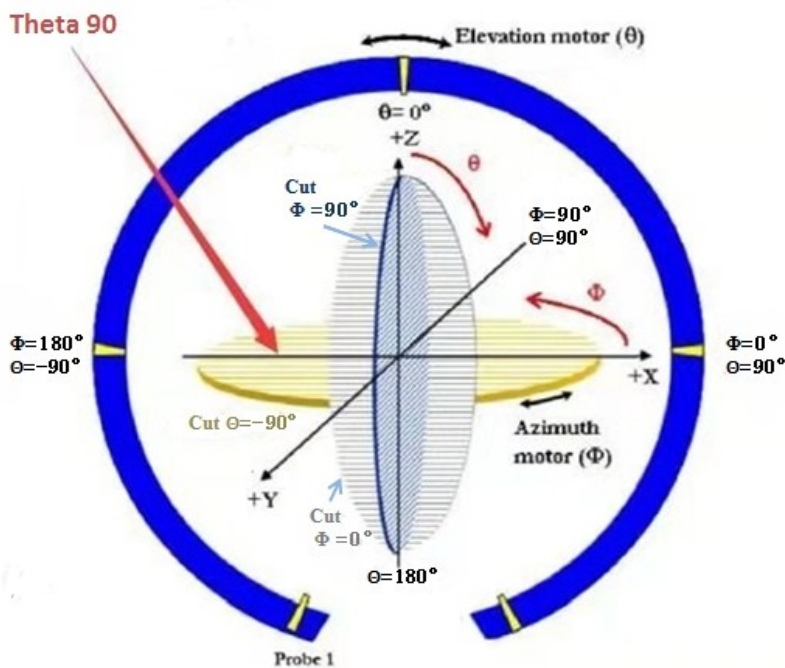
Element	Value
E1(0201)	NC
E2(0201)	0 Ω
E3(0201)	NC
E4(0201)	0 Ω

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

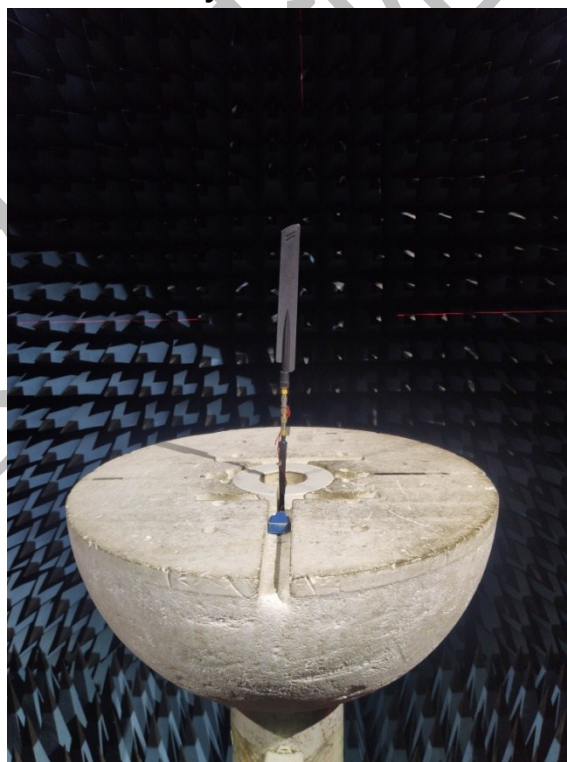


**4.3The gain and total efficiency test/增益和效率测试**

**4.3.1 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**

**4.3.2 The test result of total efficiency and total gain/天线效率及增益测试结果**
**610MHz-5000MHz**

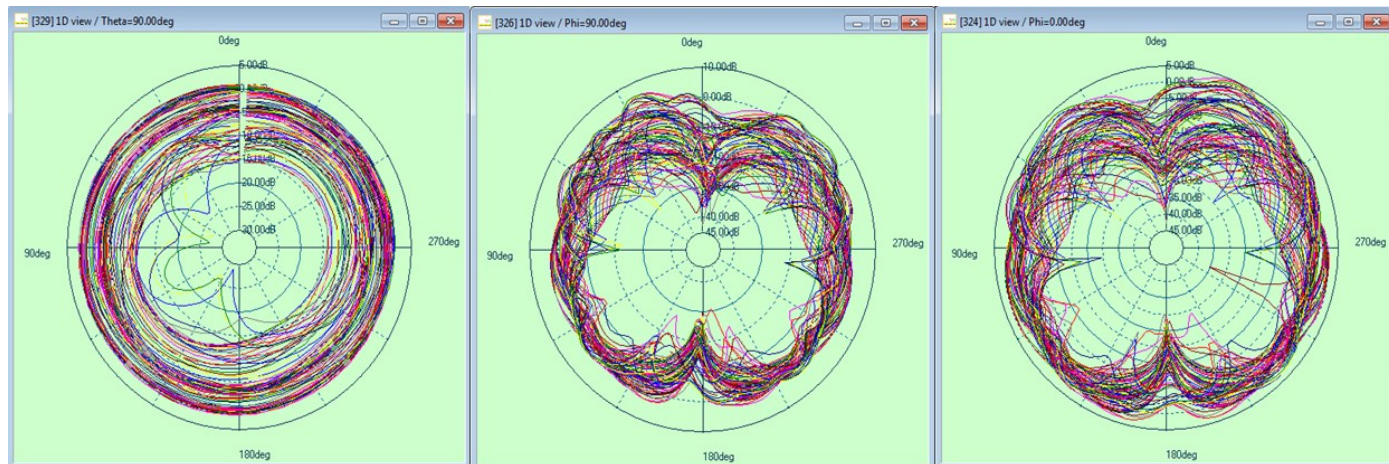
Frequency	Efficiency(%)	Gain (dBi)
610MHz	25%	-3.40
620MHz	26%	-3.11
630MHz	27%	-2.87
640MHz	27%	-2.67
650MHz	29%	-2.51
660MHz	28%	-2.57
670MHz	29%	-2.29
680MHz	30%	-2.00
690MHz	31%	-1.75
700MHz	35%	-1.23
710MHz	36%	-1.00
720MHz	40%	-0.48
730MHz	42%	-0.17
740MHz	41%	-0.13
750MHz	43%	0.23
760MHz	40%	0.13
770MHz	39%	0.18
780MHz	35%	0.13
790MHz	32%	-0.15
800MHz	30%	-0.47
810MHz	28%	-0.62
820MHz	26%	-0.87
830MHz	25%	-0.90
840MHz	24%	-1.14
850MHz	25%	-0.88
860MHz	25%	-0.78
870MHz	27%	-0.61
880MHz	29%	-0.47
890MHz	29%	-0.50
900MHz	32%	-0.13
910MHz	32%	-0.18
920MHz	34%	-0.07
930MHz	38%	0.22
940MHz	40%	0.44

950MHz	56%	1.34
960MHz	55%	1.21
1710MHz	67%	1.86
1730MHz	67%	1.96
1750MHz	66%	2.22
1770MHz	64%	1.88
1790MHz	63%	1.88
1810MHz	64%	1.93
1830MHz	67%	2.35
1850MHz	67%	2.08
1870MHz	65%	2.10
1890MHz	66%	2.33
1910MHz	66%	2.26
1930MHz	66%	2.49
1950MHz	66%	2.50
1970MHz	66%	2.48
1990MHz	64%	2.56
2010MHz	55%	1.78
2030MHz	57%	1.75
2050MHz	59%	2.06
2070MHz	61%	2.36
2090MHz	60%	2.51
2110MHz	59%	2.32
2130MHz	59%	2.31
2150MHz	61%	2.33
2170MHz	63%	2.48
2300MHz	73%	3.05
2320MHz	75%	3.17
2340MHz	72%	3.20
2360MHz	71%	3.04
2380MHz	73%	3.03
2400MHz	73%	2.95
2490MHz	63%	0.58
2510MHz	62%	0.47
2530MHz	65%	0.46
2550MHz	66%	0.78
2570MHz	67%	0.77
2590MHz	65%	0.60

2610MHz	66%	0.96
2630MHz	66%	1.19
2650MHz	66%	1.03
2670MHz	64%	1.08
2690MHz	63%	1.10
3300MHz	60%	1.35
3400MHz	62%	1.86
3500MHz	59%	1.72
3600MHz	58%	1.61
3700MHz	55%	2.14
3800MHz	44%	1.36
3900MHz	44%	1.13
4000MHz	52%	2.34
4100MHz	59%	3.63
4200MHz	64%	4.18
4300MHz	69%	3.31
4400MHz	66%	2.24
4500MHz	72%	2.78
4600MHz	78%	3.35
4700MHz	76%	3.29
4800MHz	72%	3.28
4900MHz	64%	3.13
5000MHz	65%	3.72

### 4.3.3 The antenna radiation pattern(1D View)/天线辐射方向图 ( 1D View )

**600MHz-5000MHz**



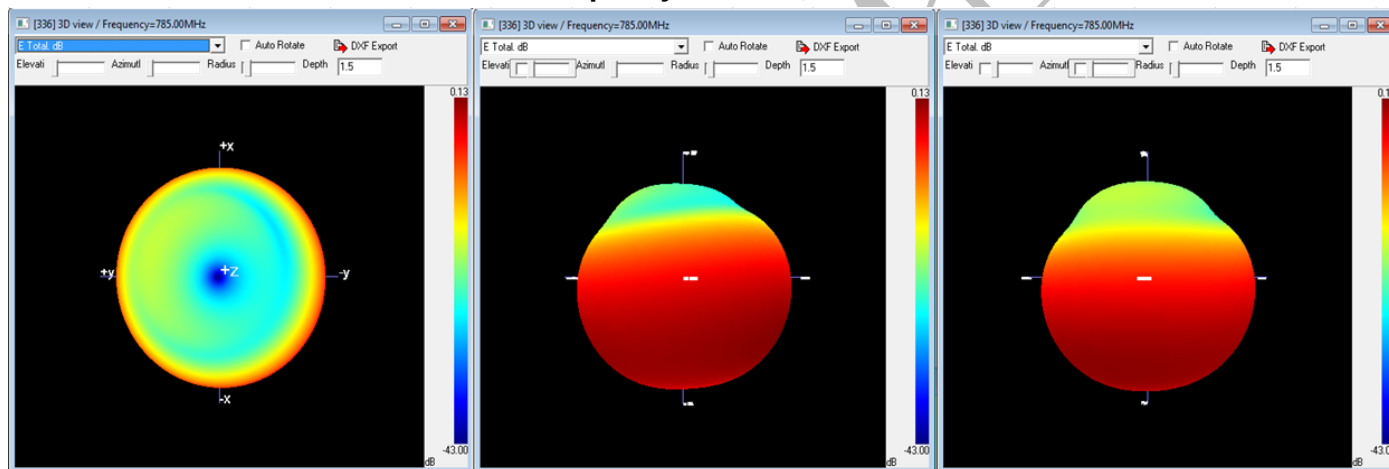
**XOY**

**YOZ**

**XOZ**

### 4.3.4 The antenna radiation pattern(3D View)/天线辐射方向图 ( 3D View )

**Frequency/频点 785MHz**

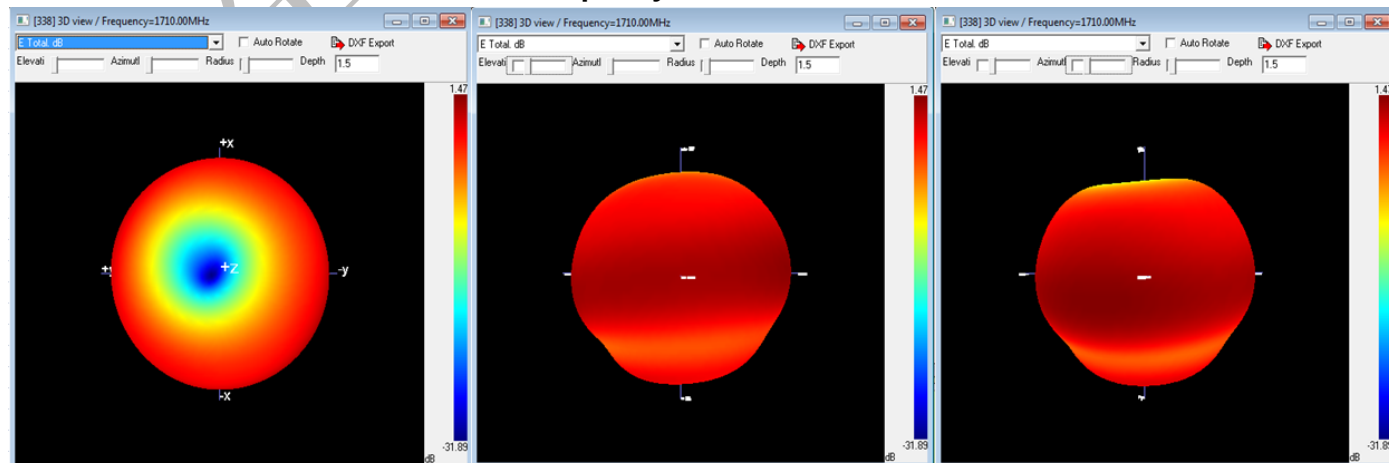


**XOY**

**YOZ**

**XOZ**

**Frequency/频点 1710MHz**

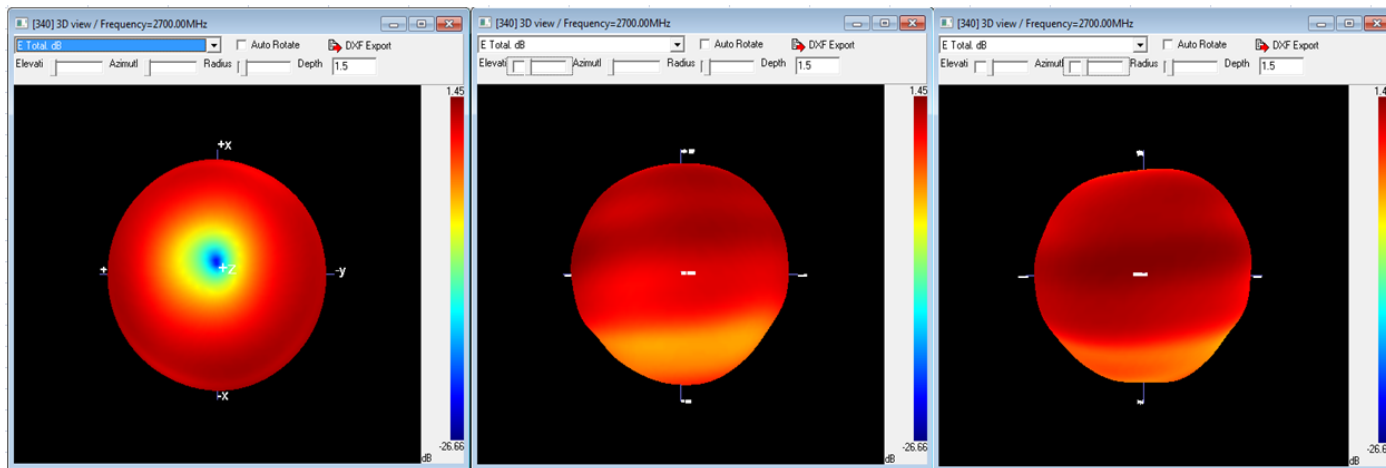


**XOY**

**YOZ**

**XOZ**

## Frequency/频点 2700MHz

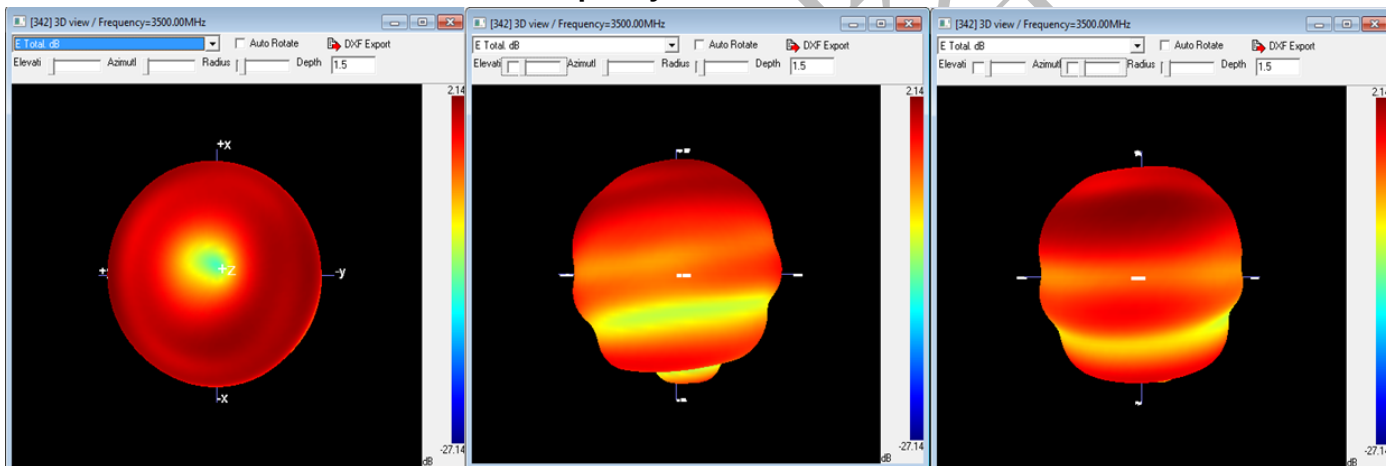


XOY

YOZ

XOZ

## Frequency/频点 3500MHz

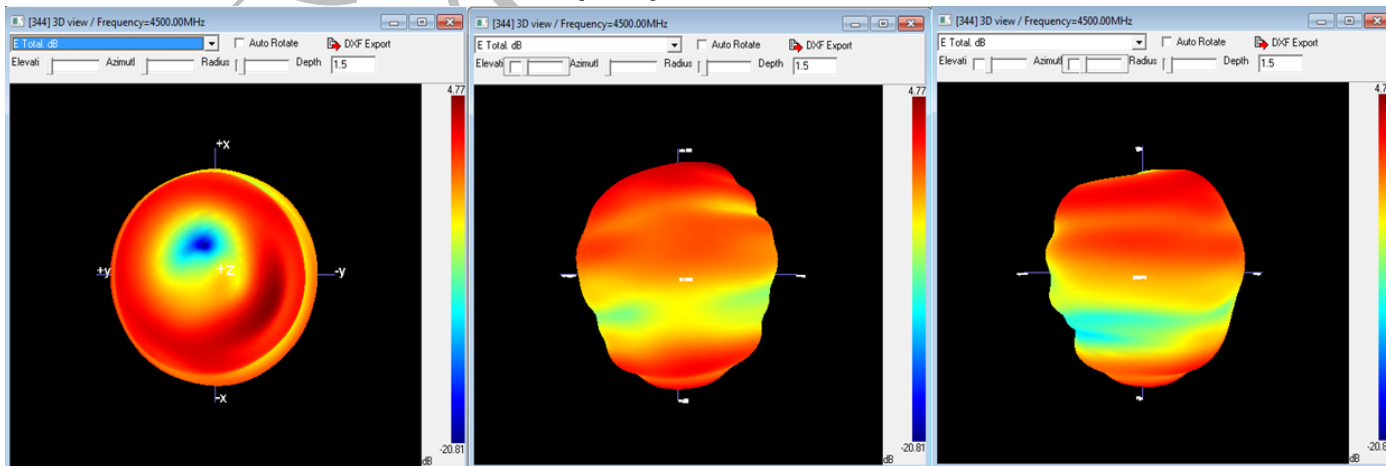


XOY

YOZ

XOZ

## Frequency/频点 4500MHz



XOY

YOZ

XOZ