

**1. Antenna specification/天线标准**

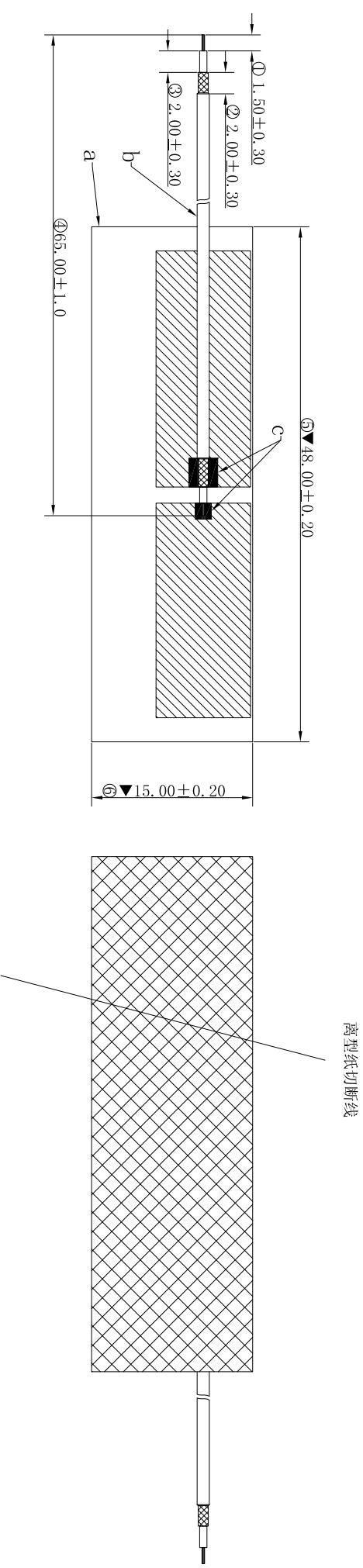
Antenna specification/天线技术参数		
Electrical specification/电气特性		
Item/目录	Specification/规格	Comment/备注
Freq. range/频段范围	2400MHz-2500MHz	
Impedance/阻抗	50 ( $\Omega$ )	
VSWR/驻波比	$\leq 2.0$	
Directional/辐射方向	Omni directional	
Polarization/极化形式	Vertical	
Peak gain/峰值增益	3.52 (dBi)	
Test condition/测试条件	passive test (无源测试)	
Total efficiency/无源效率	> 50%	
Mechanical Specification/机械指标		
Antenna type/天线类型	FPC+CABLE 内置天线	
Connector type/连接器类型	N/A	
RF cable type/射频线型号	OD1.13(S+T)黑色	
Connector torque test/连接器扭力	N/A	
Connector pull test/连接器拉力	N/A	
Salt spray/盐雾测试	48 H	
Environmental specification /环境指标		
Operating temp/工作温度	-40°C ~ +80°C	
Storage temp/存储温度	-40°C ~ +80°C	

**2. Antenna picture/天线图片**



海祥规范

REV.	ECN NUMBER	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
X1	ECN211308	初版发行	05/06/21	梁兑泉	丁第斌	牛宝星



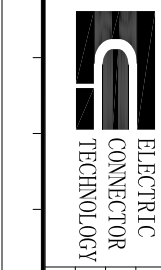
正面(A面)

反面(B面)

- NOTES:
1. 焊接不能虚焊、假焊，焊点须饱满，屏蔽层不能有烫伤。
  2. 允许最大毛边0.05MAX。
  3. 测试要求：VSWR全检测试，矩阵测试。  
测试范围：2400-2500MHz≤2.0。
  4. 标有“▼”为QC重点检测尺寸。
  5. 有害物质须符合EC1《QE-Q-19-001环境有害物质管理基准》管控标准。

ITEM	PART NAME	QTY	MATERIAL / FINISH
c	锡丝		普润 SAC305 $\phi$ 0.8mm
b	CABLE ( $\phi$ 1.13)	1	USS RF CABLE, G1, SG, 113BK, 65, 089
a	FPC	1	DA_1L_JHF-BK-FPC_48*15

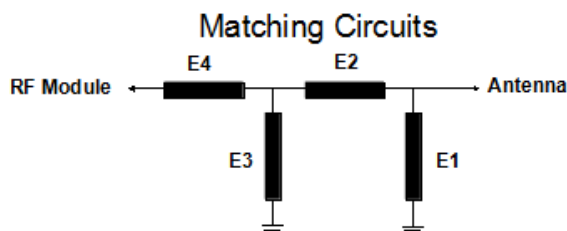
GENERAL TOLERANCE		SCALE: 1:1	DRAWN: 梁兑泉	DATE: 05/06'21	DWG. NO: 600-U841-01	TITLE: ANT_IN_2400-2500_48*15_DA-ANT	REV. X1
天线图形 $\pm$ 0.05mm	孔与外形 $\pm$ 0.10mm	UNIT: mm	CHECK:	DATE:	PARTS NO. (INTENDED USE): 81800U841	SHEET: 1/1	
模切外形 $\pm$ 0.10mm	孔与孔位置 $\pm$ 0.05mm	SIZE: A4	APPROVE:	DATE:			
孔径公差 $\pm$ 0.05mm	天线图形到外形 $\pm$ 0.15mm						
	金手指油墨位置 $\pm$ 0.30mm						



1 2 3 A B C D E F

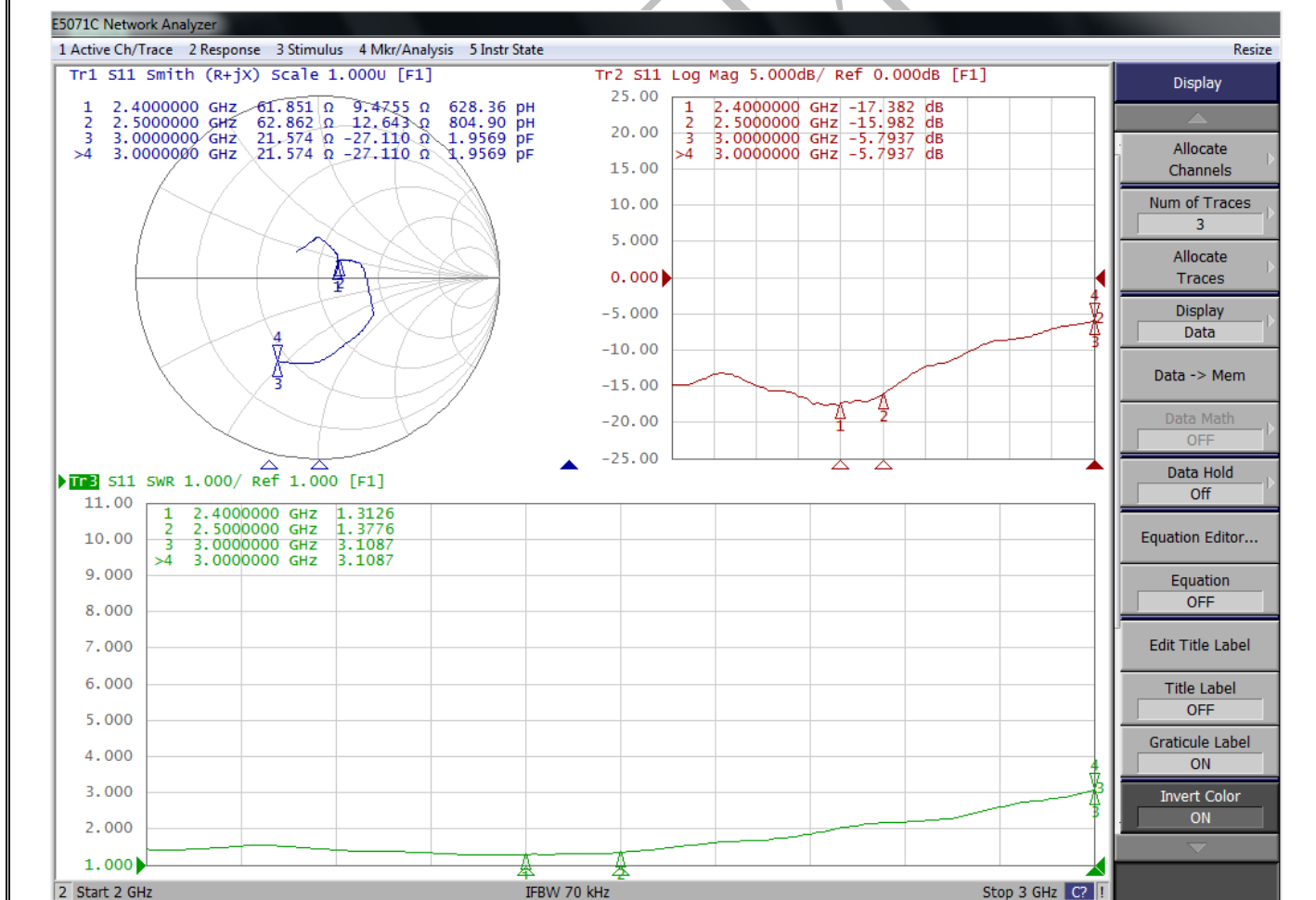
## 4. Antenna test result/测试结果

### 4.1 The matching circuits/匹配电路



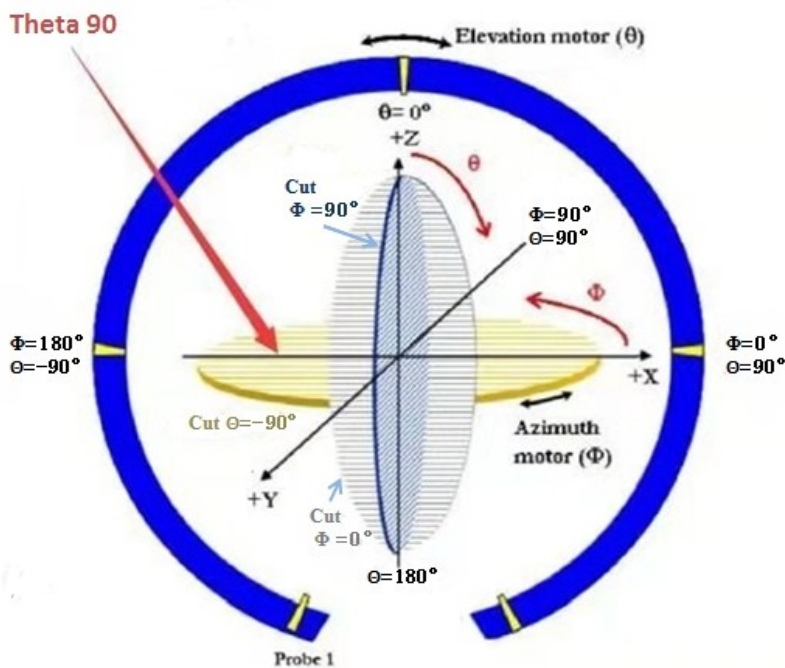
Element	Value
E1(0201)	NC
E2(0201)	0 $\Omega$
E3(0201)	NC
E4(0201)	0 $\Omega$

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

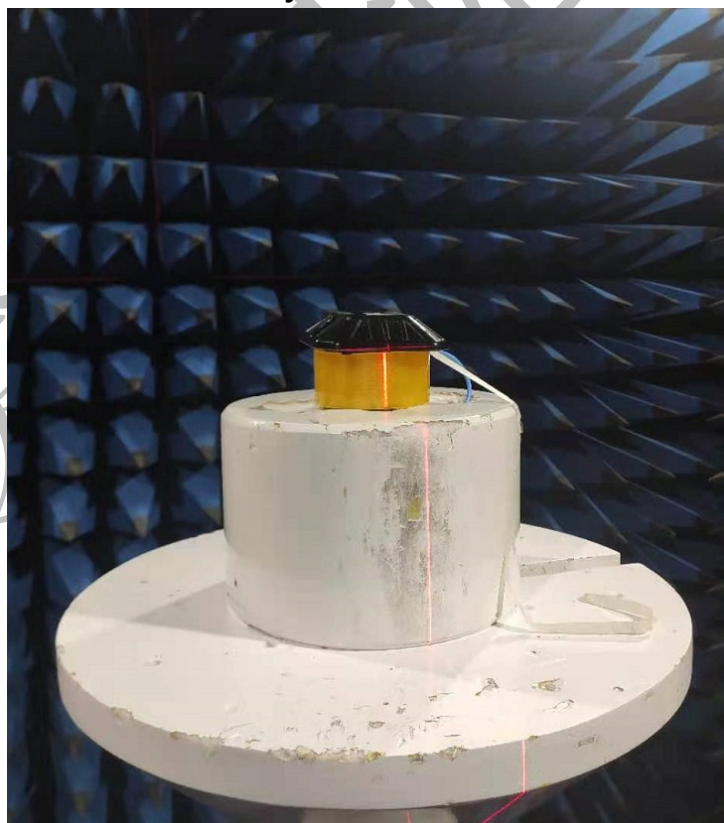


**4.3 The gain and total efficiency test/增益和效率测试**

**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**

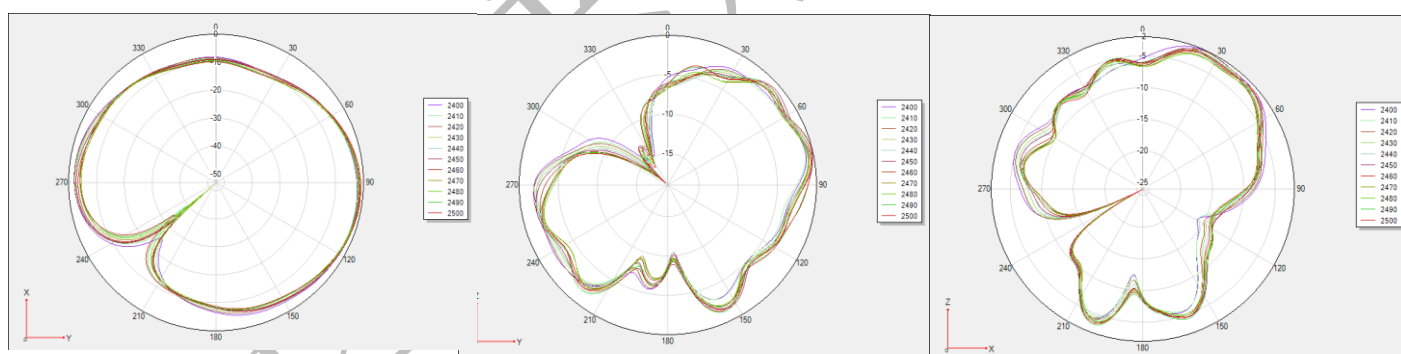
### 4.3.2 The test result of total efficiency and total gain/天线效率及增益测试结果

2400MHz-2500MHz

Frequency / MHz	Efficiency / %	Gain (dBi)
2400	58.21	2.78
2410	58.21	2.49
2420	56.10	3.15
2430	52.97	2.89
2440	60.26	3.08
2450	59.84	3.38
2460	57.81	3.26
2470	55.59	2.92
2480	55.85	2.92
2490	55.21	3.52
2500	55.72	3.23
AVG	56.89	3.06

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

2400MHz-2500MHz



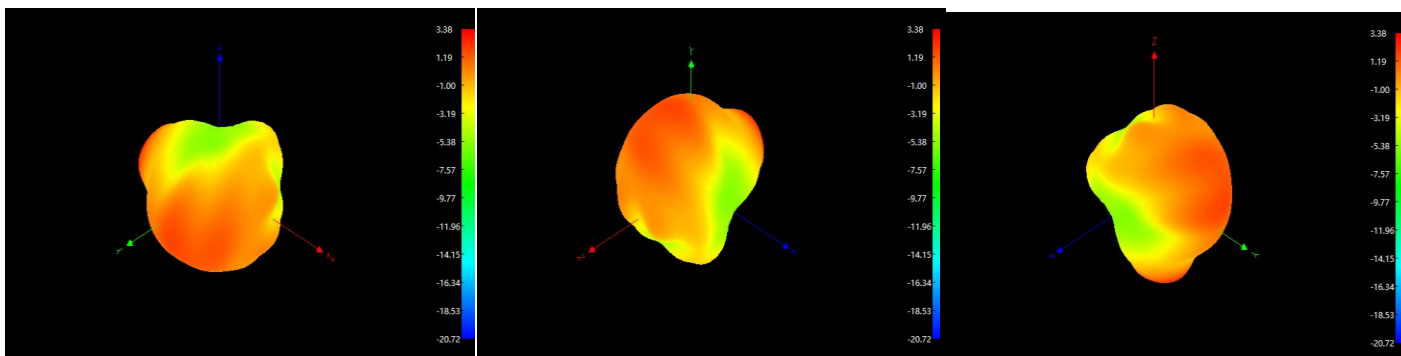
XOY

YOZ

XOZ

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

Frequency/频点 2450MHz



XOY

YOZ

XOZ