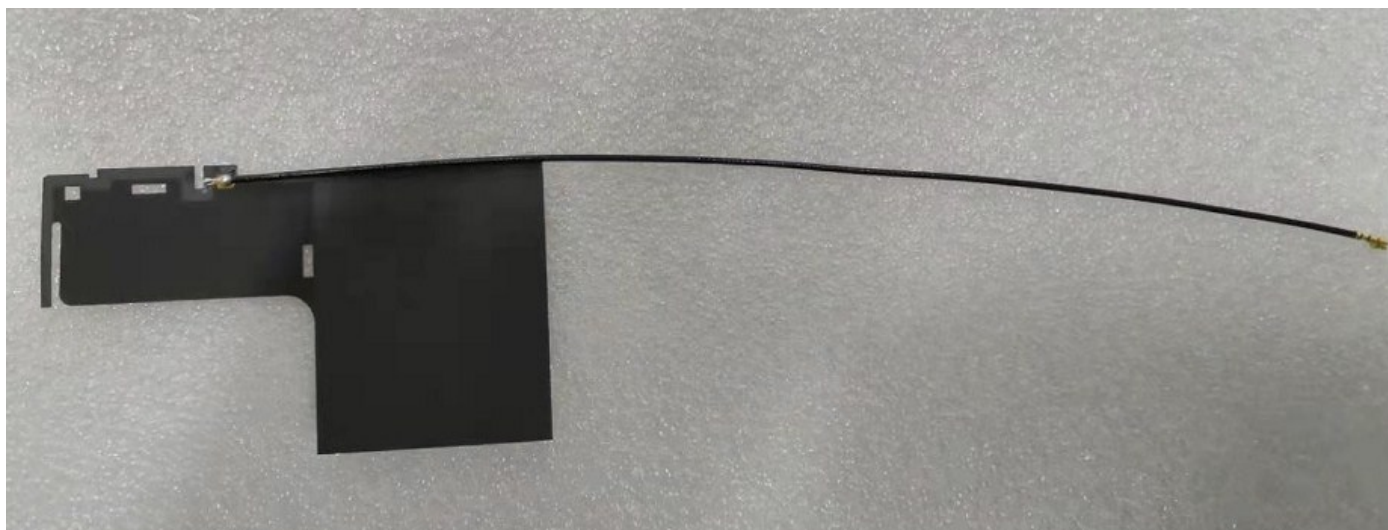


1. Antenna Specification/天线标准

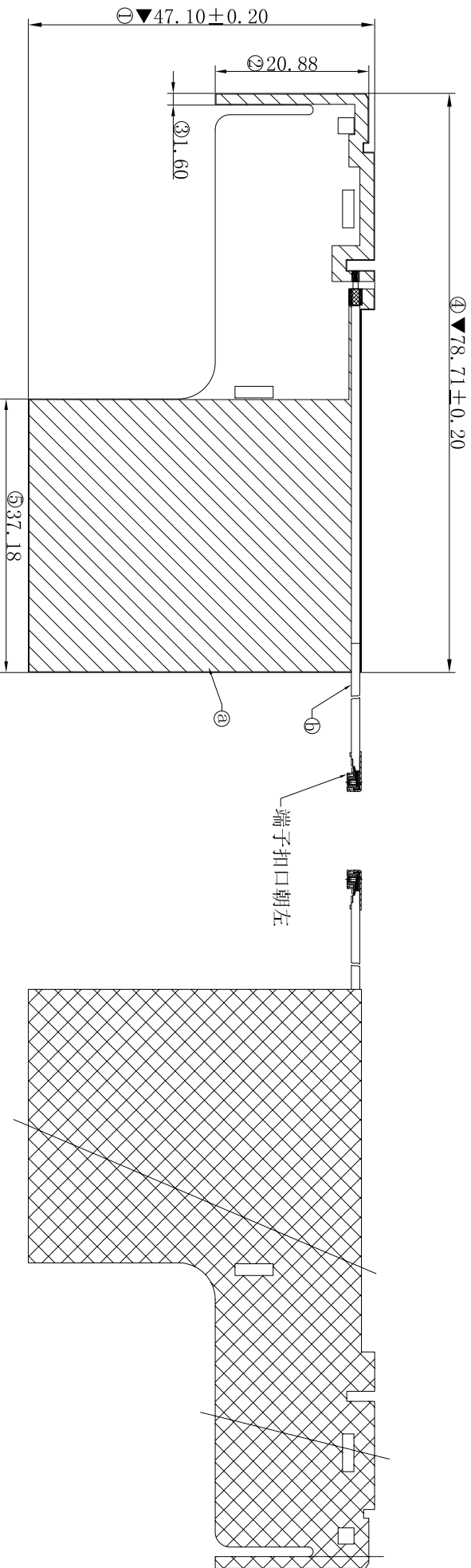
Antenna Specification/天线技术参数		
Electrical Specification/电气特性		
Item/目录	Specification/规格	Comment/备注
Freq. Range/频段范围	470MHz-510MHz	
Impedance/阻抗	50 (Ω)	
VSWR/驻波比	470MHz-510MHz \leq 2.5 ;	
Directional/辐射方向	Omni directional	
Polarization/极化形式	Vertical	
Peak Gain/峰值增益	470MHz-510MHz 峰值增益为-1.23(dBi);	
Test condition/测试条件	passive test	
Total Efficiency/无源效率	470MHz-510MHz 平均效率为 25.75%;	
Mechanical Specification/机械指标		
Antenna type/天线类型	内置天线	
Connector Type/连接器类型	USS RF I 代 (089 镀金)	
RF Cable Type/射频线型号	OD1.13 Black	
Connector Torque Test/连接器扭力	N/A	
Connector Pull Test/连接器拉力	\geq 1.0Kgf	
Salt Spray/盐雾测试	48 H	
Environmental Specification /环境指标		
Operating temp/工作温度	-40°C ~ +70°C	
Storage temp/存储温度	-40°C ~ +70°C	

2. Antenna Picture/天线图片

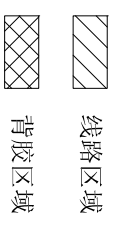


海祥规范

REV.	ECN NUMBER	DESCRIPTION	DATE	DRAWN	CHECKED	APPROVED
X1	ECN*	初版发行	02/07'21	梁兑泉	丁第斌	张英杰



- 说明:
1. 测试要求: 全检VSWR测试, 矩阵测试。
测试频率: 470-510 ≤2.5
 2. 允许最大毛边0.05MAX。
 3. 焊接不能虚焊、假焊, 焊点须饱满, 屏蔽层不能有烫伤。
 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。

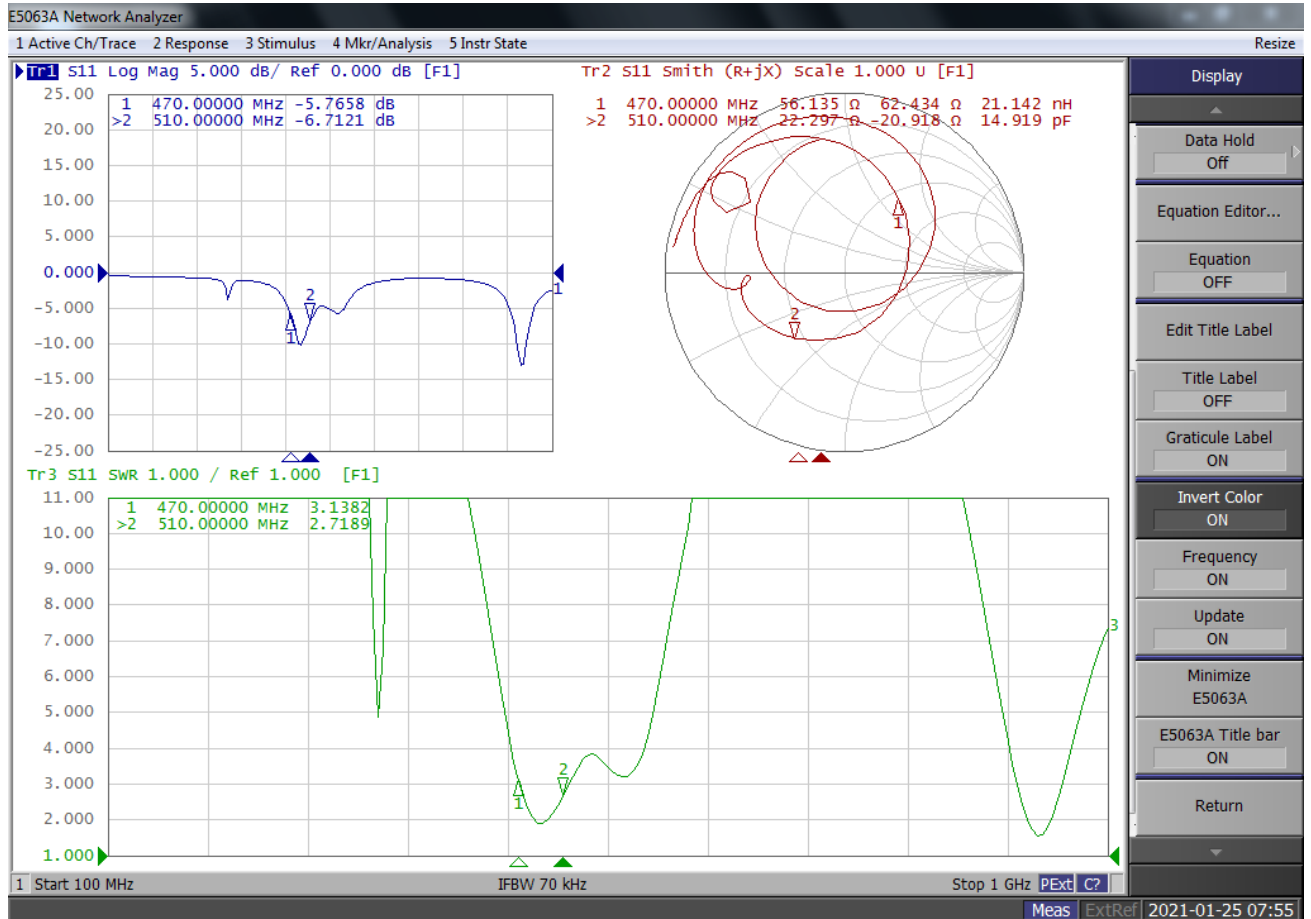


ITEM	PART NAME	Q'TY	MATERIAL / FINISH
c	Tin		
b	CABLE(Φ1.13)	1	环保锡丝, OD0.80mm
a	FPC	1	USS RF CABLE, G1, SG, 113BK, 192, 089
			LORA_78.71*47.10_IL_HF_BK_FPC

	GENERAL TOLERANCE	SCALE: 1:1	DRAWN: 梁兑泉	DATE: 02/07'21	DWG. NO: 600-U767-01	TITLE: ANT_IN_470-510_78.71*47.10_LORA-470	REV. X1
	.XXX ± 0.05	UNIT: mm	CHECK:	DATE:	PARTS NO. (INTENDED USE): 81800U767		SHEET: 1/1
	.XX ± 0.10	SIZE: A4	APPROVE:	DATE:			
	.X ± 0.2						

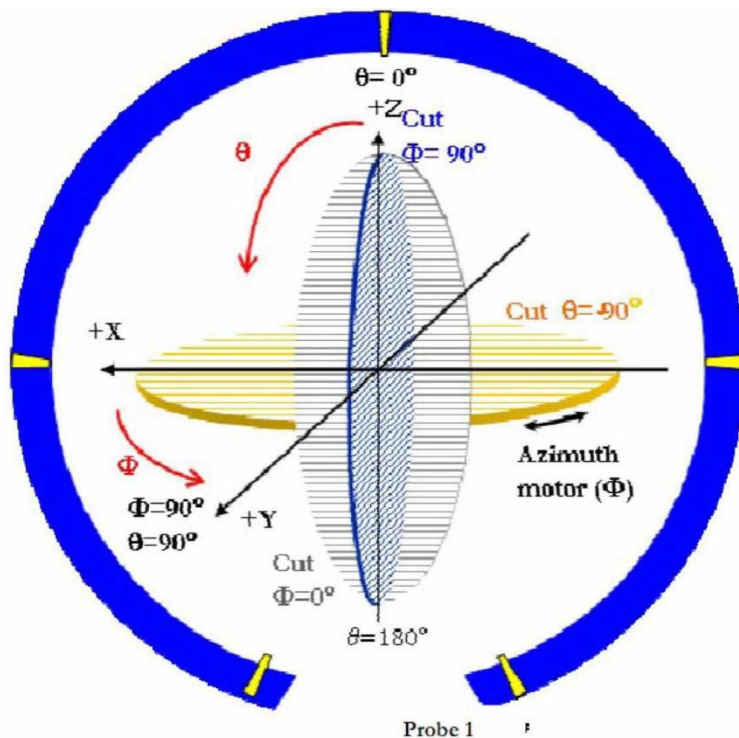
4. Antenna test result/测试结果

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

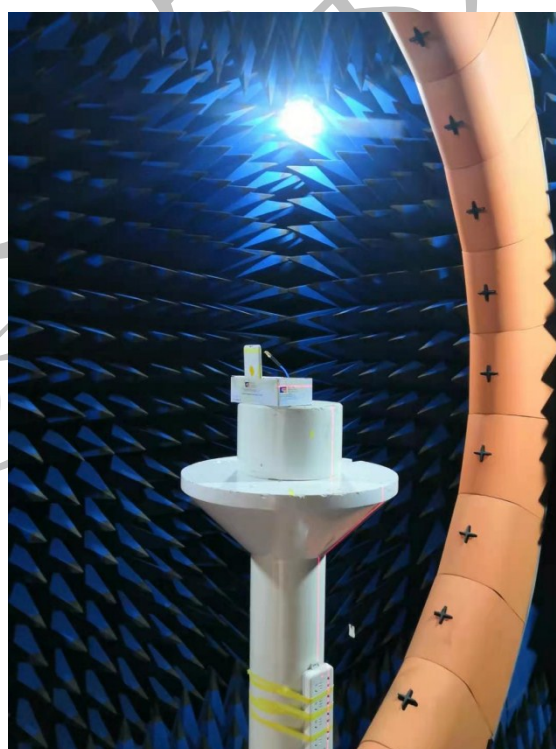


4.2 The gain and total efficiency test/增益和效率测试

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



The coordinate system of Chamber/暗室坐

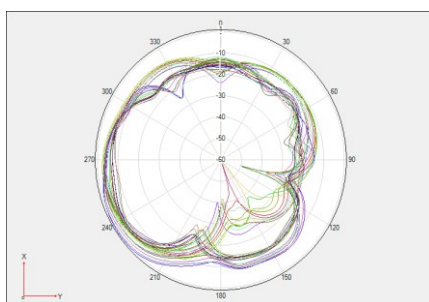
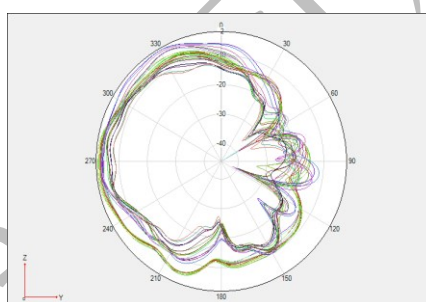
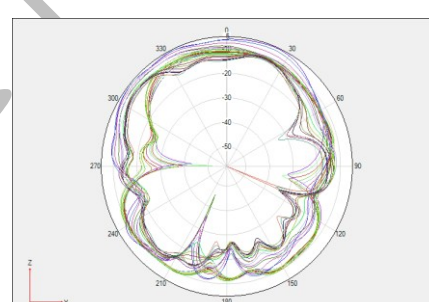
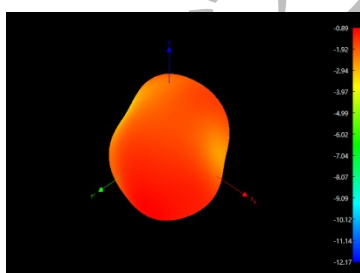
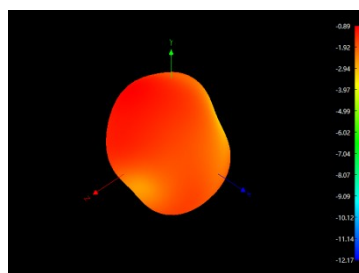
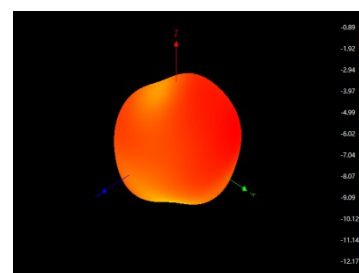


The production test position/天线测试放置位置

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

470-510MHz

Frequency / MHz	Efficiency / %	Gain/ dB
470	25.59	-1.96
475	24.44	-2.89
480	27.18	-1.9
485	26.22	-1.61
490	26.09	-2.21
495	26.6	-1.35
500	25.9	-1.23
505	24.03	-2.07
510	25.75	-1.9

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

XOY

YOZ

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

XOY

YOZ

XOZ