日　　期 Date.：2022.07.29

版　　本 Ver.：A0

承 认 书
Antenna SPEC

客户名称 Customer name：狄耐克

调试项目 Customer project：MCSF-MIP001 中控屏

客户料号 Customer P/N：

规格描述 Spec.: 内置天线-2.4G-灰色 1.13 锡锡线-1 代端子-L=48mm-PCB-41×5.51×0.6mm

Spec.： Built-in antenna -2.4G- gray 1.13 tin wire-1st generation terminal-L = 48mm-PCB-41× 5.51× 0.6mm

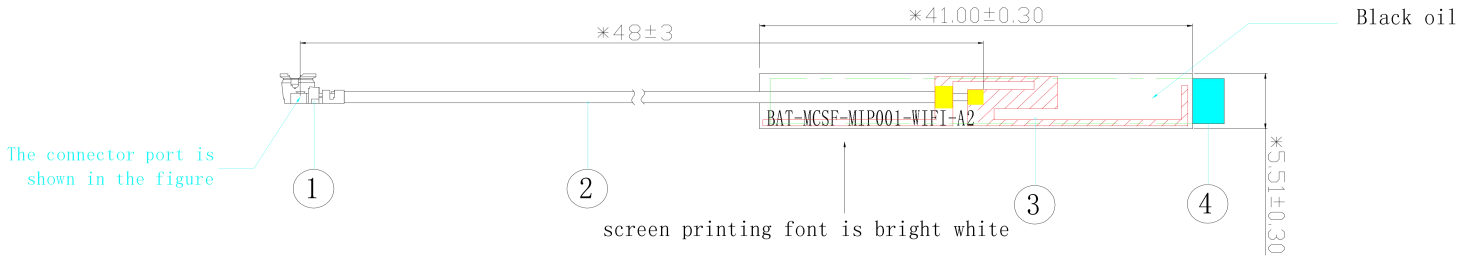
文件制定/修订/废止履历表 Document making / revising / abolishing resume

版本 Version	日期 Date	制定/修订内容 Develop/revise content	制定 Formulate	核准 approval
A0	2024.07.29	首次制定 First formulation		

目录
Contents

3、产品图面 Product drawing

Version	modification date	Revised content
A0	22-07-28	



Front view

Technical requirements

1. The antenna welding part is firm and the cable size is accurate (the holding force of the connector is ≥1Kgf).
2. The silk screen color is the original color of the substrate, and the font is clear and not easy to fall off.
3. "*" indicates the dimensions that are key to IQC inspection.
4. The packaging and quality standards refer to the Boantong Packaging Specifications and Quality Standards respectively.
5. The materials comply with ROHS.

Number	Part Name	remarks
①	1st connector	
②	Coaxial line	
③	PCB	
④	double faced adhesive tape	

Design	Zhang Shengsheng			name	built-in antenna-2.4G-grey 1.13 tin wire-first generation terminal-L=48mm-PCB-41×5.51×0.6mm
toexamine					
approval		weight	quantity / proportion	Project number	Y202206280789
1 >X	±0.05		1:1	Part number	74220099
1~9.99	±0.10		mm		
10~19.99	±0.15	Page11	1 in total		
20~39.99	±0.20				
40~	±0.30				

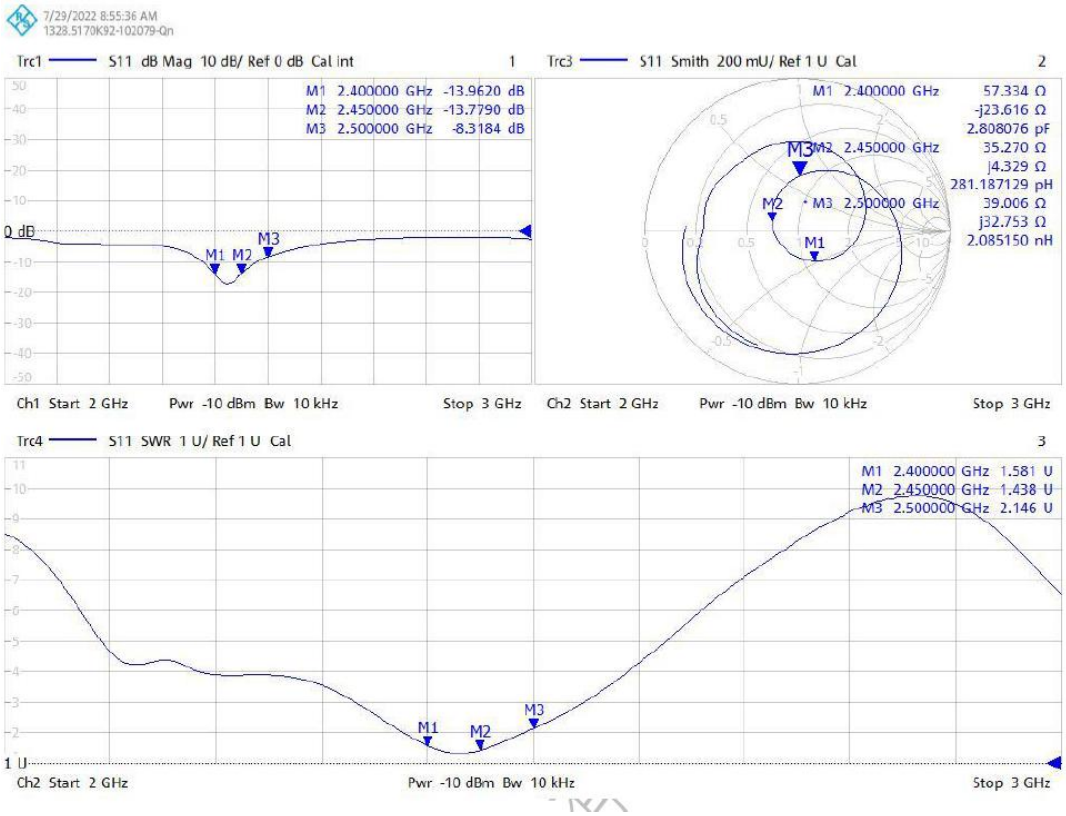
版本 version: B3

4、性能参数 Properties &parameter

电气参数 Electrical parameter	
频率范围 Freq Range	2400～2500MHz
输入阻抗 Characteristic Impedance	50Ω
驻波比 VSWR	<3U
功率容量 The Max input power	<10w
极化方式 Polarization mode	线极化 Linear polarization
辐射方向 Radiation direction	全向 omnidirectional
接头型号 Joint type	端子 IPEX connector
天线类型 Antenna type	FPC 天线 FPC antenna
机械参数Mechanical parameter	
总长 Length	48±3mm
端子维持力 Maintain the force	≥1kgf
同轴电缆 Coaxial cable	灰色 1.13 锡锡线 Gray 1.13 tin tin cable
盐雾测试 Salt spray test	24H
环境参数Environment parameter	
工作温度 Operating Temp	-30℃~65℃

5、电气性能测试报告 Electrical test report（整机测试 Whole machine testing）

S11 参数图 S11 Parameter



- 驻波比数据 Standing wave ratio data

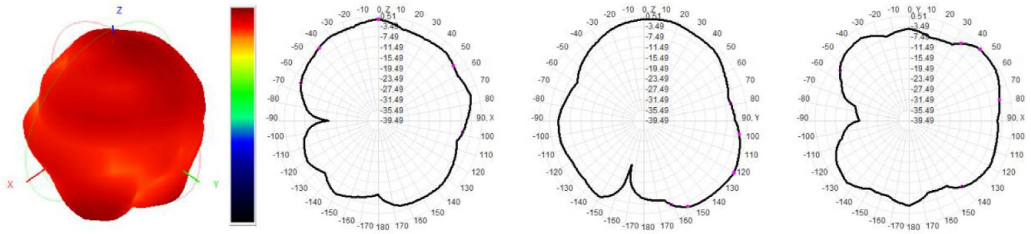
Freq/GHZ	2.4	2.45	2.5
VSWR	1.58	1.43	2.14

- 天线暗室测试数据 Antenna darkroom test data

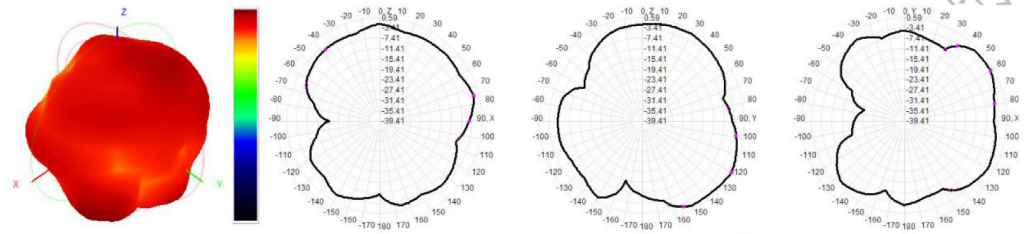
Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400.0	0.51	**32.45**
2410.0	0.67	**33.63**
2420.0	0.86	**34.63**
2430.0	0.92	**34.70**
2440.0	0.79	**33.26**
2450.0	0.77	**32.60**
2460.0	0.70	**31.77**
2470.0	0.64	**31.70**
2480.0	0.67	**31.58**
2490.0	0.39	**30.00**
2500.0	0.47	**29.98**

➢ 天线方向图 Antenna direction diagram

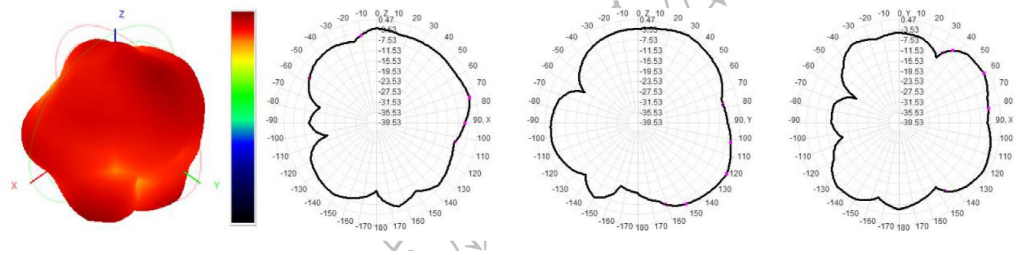
2400M 3D-E1-E2-H



2450M 3D-E1-E2-H



2500M 3D-E1-E2-H



6、材料成分及有害物质表 List of Material Composition and Hazardous Substances

项次 Item	规格 Specification	材质 Texture of material	RoHS 检验结果（PPM） ROHS Test Results（PPM）					
			Cd	Pb	Hg	Cr+6	PBB	PBDE
1	线 wire	FEP	ND	ND	ND	ND	ND	ND
		镀锡铜线 Tinned wire	ND	ND	ND	ND	ND	ND
2	端子 Terminal	PBT	ND	3.76	ND	ND	ND	ND
		磷青铜 Phosphor Bronze	ND	6	ND	ND	ND	ND
3	PCB	FR-4	ND	17	ND	ND	ND	ND
4	双面胶带 Double-sided tape	双面胶带 Double-sided tape	ND	ND	ND	ND	ND	ND

产品包装规范

PACKING CRITERION

产品料号 P/N：74220099

产品规格 Spec:内置天线-2.4G-灰色 1.13 锡锡线-1 代端子-L=48mm-PCB-41×5.51×0.6mm
Spec:Built-in antenna -2.4G- gray 1.13 tin wire-1st generation terminal-L = 48mm-PCB-41 × 5.51× 0.6mm

一、标签要求（根据客户名称参考对应的成品标签制作要求，无要求即按普通标签要求）

contents of label(according to the customer's name, refer to the corresponding finished product label production requirements. If there is no requirement, it will follow the ordinary label requirements.)

内外标签 长 10cm 宽 6cm 左右

The inner and outer labels are about 10cm long and 6cm wid

需方 buyer	**********		
供方 vender	**********		
物料编码 Purchase No	**********		
生产单号 Material No.	**********		
品名规格 Name specification	********	检验员 QC	**
数量/单位 Q’ty/Unit	*****	日期 Manufacture date	****.**.*
追溯码 Trace code	********	流水号 Serial number	**

二、装箱要求 Packing requirement

作业说明 Operating description：

1．内包装 inner packing：

产品 50 PCS/小袋/small bag

200 PCS/大袋 big bag

2．外包装 outer packing：

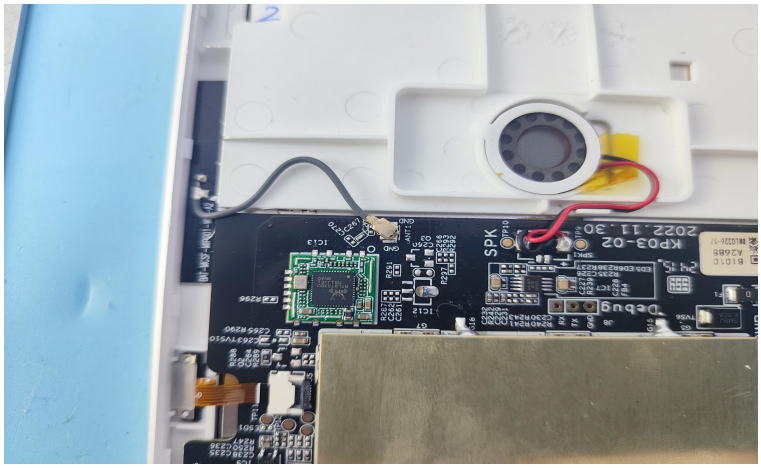
根据实际包装定数量 Quantity according to actual packing/箱 carton

注意事项 Notice：

1．是否要增设隔板、珍珠棉 Whether to add partitions, pearl cotton；

2．标签的贴附，如 ROHS 等 Labeling, such as ROHS；

8、天线整机安装示意图 Antenna installation position Diagram



9、可靠性测试要求 Reliability test requirements

序号 No.	可靠性试验名称 Reliability test name	试验条件 Test conditions	判定标准 Judgment criteria
1	恒温恒湿试验 Constant temperature and humidity test	高温:70℃，湿度:80%RH 24H; 低温 -40℃ 24H;共持续 48H; High temperature:70℃, Humidity:80%RH 24H; low temperature: -40℃ 24H; total duration: 48H;	试验前后外观要求：金属表面镀层应无剥落，裂痕起皱，分离等。非金属部分不应变色，发生开裂，变形，脱胶等不良；电气性能测试符合标准要求； Appearance requirements before and after the test: The metal surface coating should be free of peeling, cracks, wrinkles, separation, etc. The non-metallic parts should not change color, crack, deform, degumming or other defects. Electrical performance testing meets standard requirements;
2	高低温冷热冲击试验 High and low temperature thermal shock test	70℃持续 2H、 -40℃持续 2H，6 次循环，共 24 小时； 70℃ for 2H, -40℃ for 2H, 6 cycles, 24 hours in total;	试验前后外观要求：金属表面镀层应无剥落，裂痕起皱，分离等。非金属部分不应变色，发生开裂，变形，脱胶等不良；电气性能测试符合标准要求； Appearance requirements before and after the test: The metal surface coating should be free of peeling, cracks, wrinkles, separation, etc. The non-metallic parts should not change color, crack, deform, degumming or other defects. Electrical performance testing meets standard requirements.

3	盐雾试验 Salt spray test	配制浓度（5±1）%NACL 溶液，确保盐溶液的 pH 值为中性（6.5～7.2）；压力桶温度 47±1℃,喷雾压力保持在 1.00±0.1kgf/cm²，喷雾量 1.0～2.0ml;/80cm²/h；试验时间 24H;Prepare a concentration (5±1)% NACL solution to ensure that the pH value of the salt solution is neutral (6.5~7.2); The temperature of the pressure barrel is 47±1°C, the spray pressure is maintained at 1.00±0.1kgf/cm2, and the spray volume is 1.0~2.0ml;/80cm2/h; Test time: 24H;	产品表面外露区域不可有氧化、锈蚀现象；其它区域盐雾试验后的氧化/生锈面积＜1.0% There should be no oxidation or rust on the exposed areas of the product surface; Oxidation/rust area after salt spray test in other areas < 1.0%
4	端子维持力试验 Connector retention test	常温常湿；试验维持力要求：≥1.0 kgf; Normal temperature and humidity; Test maintenance requirements: ≥1.0 kgf;	端子与线缆无脱落、松动等；测试后电气性能测试符合标准要求； There are no loose or loose terminals or cables. After the test, the electrical performance test meets the standard requirements.
5	端子插拔力试验 Connector insertion and extraction force test	常温常湿；端子与座子正常连接，插入力/拔出力≥1.0 kgf； Normal temperature and humidity; The terminal and the seat are connected normally, and the insertion force/pull-out force is ≥1.0kgf;	端子与线缆无脱落、松动等；测试后电气性能测试符合标准要求； The terminal insertion force/extraction force meets the requirements, and the terminals have no defects such as falling off or damage.