

开发案号 Project: DK20230220

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承 认 书

Antenna SPEC

客户名称 Customer name: 鼎科 Dingke

调试项目 Customer project: A755

客户料号 Customer P/N: A755PEX2416L

博安通料号 B&T P/N: 74300105

规格描述 Spec.: 内置天线-2.4 / 5G-黑色 1.13 银锡线-1 代端子-总长 486.5mm-
双铜管- $\phi 5.2 \times 24\text{mm}$ Spec.: Built-in antenna - 2.4/5G - Black 1.13 silver tin wire - 1st generation terminal -
total length 486.5mm - double copper tube - $\phi 5.2 \times 24\text{mm}$

出厂签章 Sealed by corporation:

编 写 compilation	审 核 verify	批 准 approval
黄飞辉 Huangfeihui	刘立华 Liulihua	周泉 Zhouquan

客户承认签章 Sealed by customer:

检 查 check	审 核 verify	批 准 approval

博安通联系方式 Contact information of B&T

业务联系人: 龙明国 Contact person for sales: Longmingguo	手机: 18576042661	邮箱: longmg@tech-now.com
技术联系人: 刘立华 Contact person for technical: Liulihua	手机: 13590104459	邮箱: liulh@tech-now
品质联系人: 谭杰鑫 Contact person for Quality: Tanjiexin	手机: 18181766292	邮箱: tanjx@tech-now.com

表单编号: B&T-OR-EN-002 版本: B3

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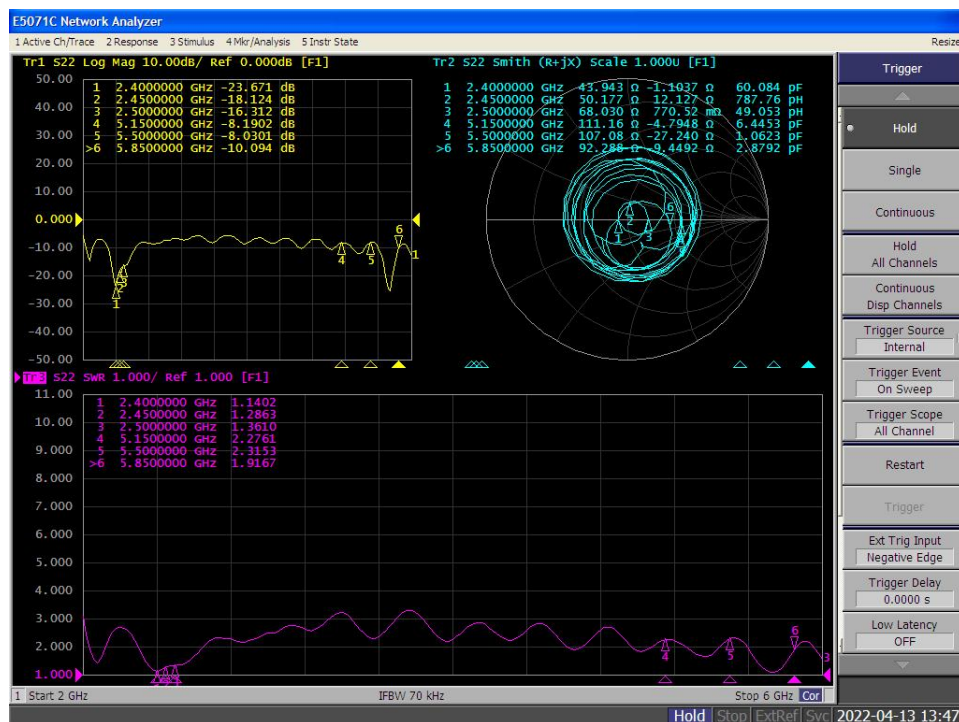
No.	Part Name	Note	Designer		Tang Hailin	 				Name	Built-in antenna-2.4/5G-Black 1.13mm wire-1st connector -L=186.5mm-Double copper tube-φ5.2X24mm
①	1st connector										
②	coaxial cable		Verify								
③ ④	Copper tube		Approval	Li Kaiyong		Weight	Quantity	Scale	Unit	Project No.	DK20230220
②	Heat shrink tubing							1:1	mm	P/N	74300105
			1>X	±0.05							
			1~9.99	±0.10							
			10~19.99	±0.15							
			20~39.99	±0.20							
			40~	±0.30							

4、性能参数 Properties & parameter

电气参数 Electrical parameter	
频率范围 Freq Range	2400~2500/5150~5850MHz
输入阻抗 Characteristic Impedance	50 Ω
驻波比 VSWR	对照工程封样 Project Sample Sealing Inspection
增益 Gain	5.57dBi
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
机械参数 Mechanical parameter	
线长 Length	486.5 $\pm$ 7mm
端子维持力 Maintain the force	$\geq$ 1 kgf
同轴电缆 Coaxial cable	黑色 1.13 银锡线 Black 1.13 Silver Solder Wire
盐雾测试 Salt spray test	24H
环境参数 Environment parameter	
工作温度 Operating Temp	-30 $^{\circ}$ C~65 $^{\circ}$ C

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

天线 S11 参数图 Antenna S11 parameter diagram



驻波比数据 Standing wave ratio data

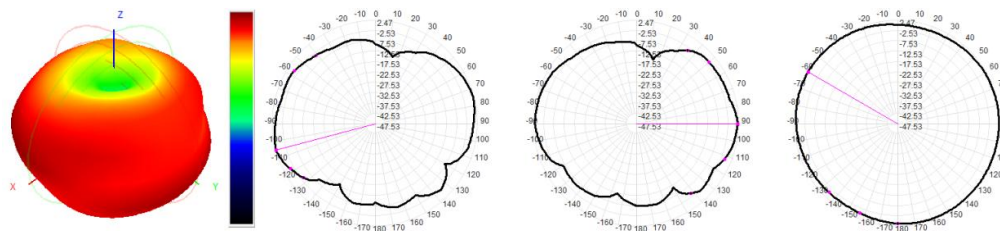
Freq/MHz	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
VSWR	1.14	1.28	1.36	2.27	2.31	1.91

天线暗室测试数据 Antenna darkroom test data

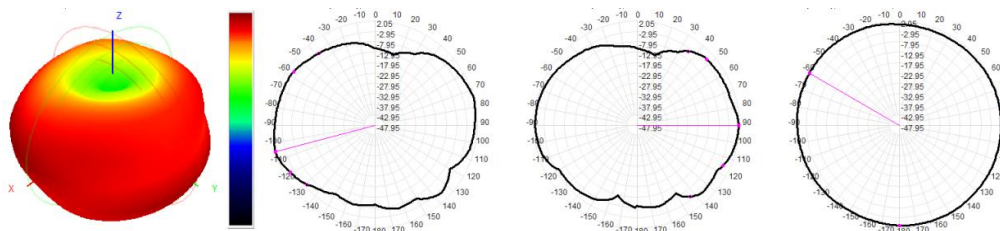
Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400.0	2.47	71.95
2410.0	2.31	71.77
2420.0	2.12	70.60
2430.0	1.98	69.06
2440.0	1.64	64.08
2450.0	2.05	70.83
2460.0	2.08	71.84
2470.0	2.19	73.08
2480.0	2.20	74.47
2490.0	1.91	72.49
2500.0	1.81	73.83
5150.0	2.24	50.42
5200.0	1.62	52.82
5250.0	2.52	55.16
5300.0	3.51	61.11
5350.0	3.14	55.05
5400.0	2.85	51.26
5450.0	2.99	53.74
5500.0	3.06	61.60
5550.0	3.07	54.91
5600.0	2.68	50.91
5650.0	4.05	60.89
5700.0	5.57	63.32
5750.0	4.61	66.89
5800.0	3.58	53.01
5850.0	3.04	53.61

➤ 天线方向图 Antenna direction diagram

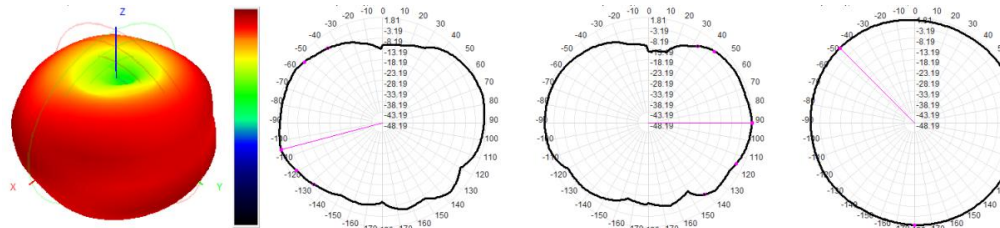
2400M 3D-E1-E2-H



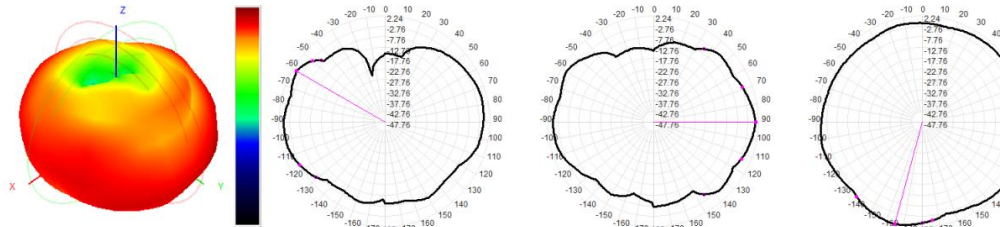
2450M 3D-E1-E2-H



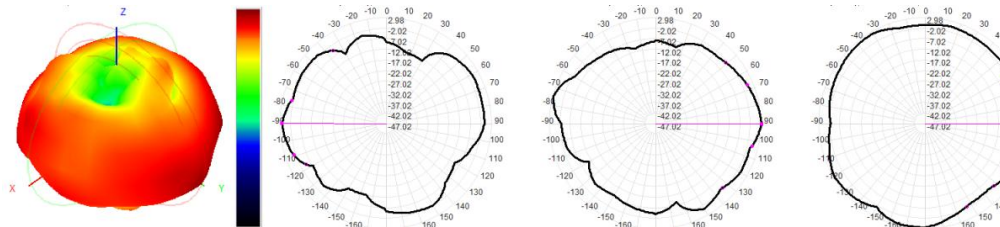
2500M 3D-E1-E2-H



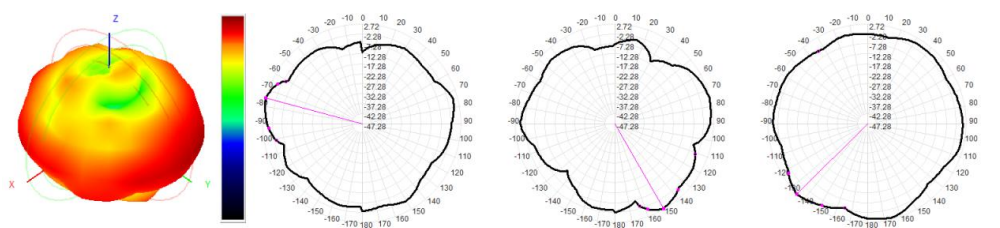
5150M 3D-E1-E2-H



5500M 3D-E1-E2-H



5850M 3D-E1-E2-H



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

规格 Specification	材质 Texture of material	RoHS 检验结果 (PPM) ROHS Test Results (PPM)	ICP 检测编号 ICP test number						检测时间 Test time	规格 Specification
			Cd	Pb	Hg	Cr+6	PBB	PBDE		
1	线 wire	FEP	ND	ND	ND	ND	ND	ND	NGBPC24007471211-2	2025/7/9
		镀银铜线 SILVER-COATED COPPER WIRE	ND	ND	ND	ND	ND	ND	CANEC25000298401	2025/1/10
		镀锡铜线 Tinned wire	ND	ND	ND	ND	ND	ND	A2250416468101001	2025/6/20
2	端子 Terminal	PBT	ND	ND	ND	ND	ND	ND	A2250134628103008E	2025/3/12
		磷青铜 Phosphor Bronze	ND	4	ND	ND	ND	ND	CANEC24029407215	2025/1/8
3	铜管 Brass tube	黄铜管 Brass tube	ND	8	ND	ND	ND	ND	NGBEC25006216601	2025/9/25
		镀锡 Tin coating	ND	ND	ND	ND	ND	ND	SZXPC25000266501	2025/2/17
4	热缩套管 Heat shrinkable sleeve	热缩套管 Heat shrinkable sleeve	ND	ND	ND	ND	ND	ND	CANEC25012572003	2025/6/5

产品包装规范

PACKING CRITERION

产品料号 P/N: 74300105

产品规格: 内置天线-2.4 / 5G-黑色 1.13 银锡线-1 代端子-总长 486.5mm-双铜管- $\varnothing 5.2 \times 24\text{mm}$

Spec: Built-in antenna - 2.4/5G - Black 1.13 silver tin wire - 1st generation terminal - total length 486.5mm - double copper tube - $\varnothing 5.2 \times 24\text{mm}$

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.)

内标签 长 10cm 宽 6cm 左右

需方	*****		
供方	四川博安通通信技术有限公司		
物料编码	*****		
生产单号	*****		
品名规格	*****	检验员	**
数量/单位	*****	日期	****.***
追溯码	*****	流水号	**

外标签 长 10cm 宽 6cm 左右

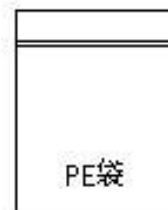
需方	*****		
供方	四川博安通通信技术有限公司		
物料编码	*****		
生产单号	*****		
品名规格	*****	检验员	**
数量/单位	*****	日期	****.***
追溯码	*****	流水号	**

二、装箱要求 Packing requirement

作业说明 Operating description:

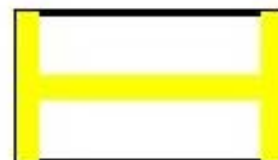
1. 内包装 inner packing:

产品 50 PCS/小袋 small bag,
200 PCS/大袋 large bag



2. 外包装 outer packing:

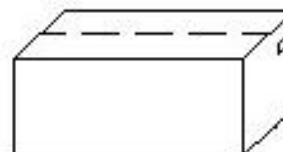
根据实际包装定数量 Quantity according to actual packing/
箱 carton



纸箱

注意事项 Notice:

1. 是否要增设隔板、珍珠棉 Whether to add partitions, pearl
2. 标签的贴附, 如 ROHS 等 Labeling, such as ROHS;



8、可靠性测试要求 Reliability test requirements

序号 Serial Number	可靠性试验名称 Reliability Test Name	试验条件 Experimental 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 for 24 hours; Low temperature -40 ℃ for 24 hours; continuous for 48 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 experiment: The metal surface coating should be free of peeling, cracks, wrinkles, separation, etc. Non metallic parts should not discolor, crack, deform, or peel off; The electrical performance test meets the 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 2 hours, -40 ℃ for 2 hours, 6 cycles, for a total of 24 hours;	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 experiment: The metal surface coating should be free of peeling, cracks, wrinkles, separation, etc. Non metallic parts should not discolor, crack, deform, or peel off; The electrical performance test meets the standard requirements;

3	盐雾试验 Salt spray test	配制浓度 $(5 \pm 1)\%$ NaCl 溶液，确保盐溶液的 pH 值为中性 $(6.5 \sim 7.2)$；压力桶温度 $47 \pm 1^\circ\text{C}$，喷雾压力保持在 $1.00 \pm 0.1\text{kgf/cm}^2$，喷雾量 $1.0 \sim 2.0\text{ml}/80\text{cm}^2/\text{h}$； 试验时间 24H； Prepare a $(5 \pm 1)\%$ NaCl solution to ensure that the pH value of the salt solution is neutral $(6.5-7.2)$; The pressure barrel temperature is $47 \pm 1^\circ\text{C}$, the spray pressure is kept at $1.00 \pm 0.1\text{kgf/cm}^2$, and the spray volume is $1.0 \sim 2.0\text{ml}/80\text{cm}^2/\text{h}$; The experiment lasted for 24 hours;	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 $< 1.0\%$ The exposed area of the product surface must not have oxidation or rust; Oxidation/rusting area after salt spray test in other areas $< 1.0\%$
4	端子维持力试验 Terminal holding force test	常温常湿；试验维持力要求： $\geq 1\text{kgf}$； Normal temperature and humidity; Test maintenance force requirement: $\geq 1.0\text{kgf}$;	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； The terminals and cables are not loose or detached; The electrical performance test after testing meets the standard requirements;
5	端子插拔力试验 Terminal insertion and extraction force test	常温常湿；端子与座子正常连接，插入力 $0.8 \sim 3\text{kgf}$/拔出力 $\geq 0.8\text{kgf}$； Normal temperature and humidity; The terminal and seat are connected normally, with an insertion force of $0.8 \sim 3\text{kgf}$/extraction force of $\geq 0.8\text{kgf}$;	端子插入力/拔出力符合要求，且端子无脱落、损伤等不良； The insertion/extraction force of the terminal meets the requirements, and the terminal has no defects such as detachment or damage;