

深圳市联合极光科技有限公司
样品承认书
SPECIFICATION FOR APPROVAL

●物料名称

Material name: WIFI0 天线/ WIFI1 天线/BT 天线

●供应商

Supplier: 深圳星河电波科技有限公司 Shenzhen yGalax Technologies Limited

●物料描述

Material description : FPC 天线 FPC Antenna

●物料料号

Material item number: 115.1.01.3713.000068/115.1.01.3713.000069/115.1.01.3713.000070

●物料丝印

Material silkscreen printing: YX-N1-WIFI0-V3.0 / YX-N1-WIFI1-V2.0/YX-N1-BT-V3.0

供方确认 Supplier confirmation:		客户确认 Customer confirmation:	
测试 Test:	研发 RF:	测试 Test:	研发 RF:
		采购 purchase:	
品质 quality:	审核check:	品质 quality	审核check:

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REVISION	ECO#	REVISION NOTE	AUTHOR	DATE
A0		New release		10/01.25'

一对半0.12MM厚度(不带离型纸)
一对半0.12MM+离型纸0.11MM=0.23MM厚度(带离型纸)
ONE AND A HALF 0.12MM THICKNESS (NO DEAPPER)
A pair of half 0.12MM + de-typed paper 0.11MM = 0.23MM thickness (with de-typed paper)

丝印字符白色亮光油墨, 字高1.5mm

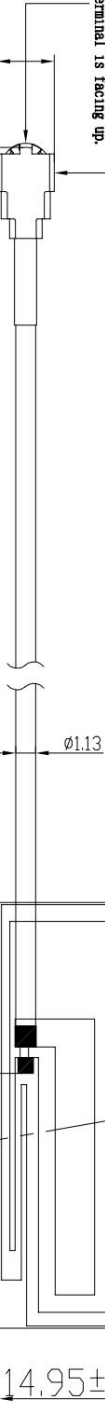
一代端子
One generation terminal

油墨面端子朝下
The ink surface terminal is facing up.

长度 length 250MM±1MM(黑色Black)

离型纸断开线

YX-N1-WIFI0-V3.0



端子宽 3.01MM

端子高 2.04

离型纸面端子朝上
The terminal of the moulded paper surface is facing down.

40.5±0.2

245MM±1MM

Describe:

1. Content "XXXX" indicates production date (year and week, e.g. 2101)

Note:

1. MATERIAL :18/12.5 electrolytic copper, PI base MATERIAL. The green line shows the outline of the copper layer, and the purple line shows the shape.

2. Tolerance requirements are not noted .A. copper foil to copper foil +/-0.05 B. Copper foil to shape +/-0.15(special requirements)

A. Tolerance from hole to shape +/-0.15(+/-0.10 if special requirements)

3. Nickel plating: NI: 2-7um AU: not less than 0.025um (salt spray must be over 48H), ink:

4. This FPC adhesive is 3M 9471LSE, the adhesive should be super strong!

5. Size requirements:

5.1. ST size: The minimum measurement quantity is any 35 product sizes selected from 500 for CPK analysis;

5.2. * size is the key control size;

6. Any material modification must be approved in writing by the yGalax Engineering Department and passed all tests by the yGalax Quality Department;

7. Products must meet ROHS/REACH standards;

TEM	BT天线FPC(黑色)	XXX	XXX	电解铜, PI基材	1	
PART NAME	CLIENTELE UNMBE	P/N		MATERIAL	Q'TY	REMARK
GENERAL TOLERANCE TABLE	UNIT	PART NUMBER	YX0631-N1			
LINER	ANGULAR					
DIVISION	TOLERANCE	DIVISION	TOLERANCE			
0-10	±0.05	0-5°	±0.5°			
10-50	±0.10	5-20°	±1°			
50-80	±0.15	20-90°	±1.5°			
>80	±0.2					

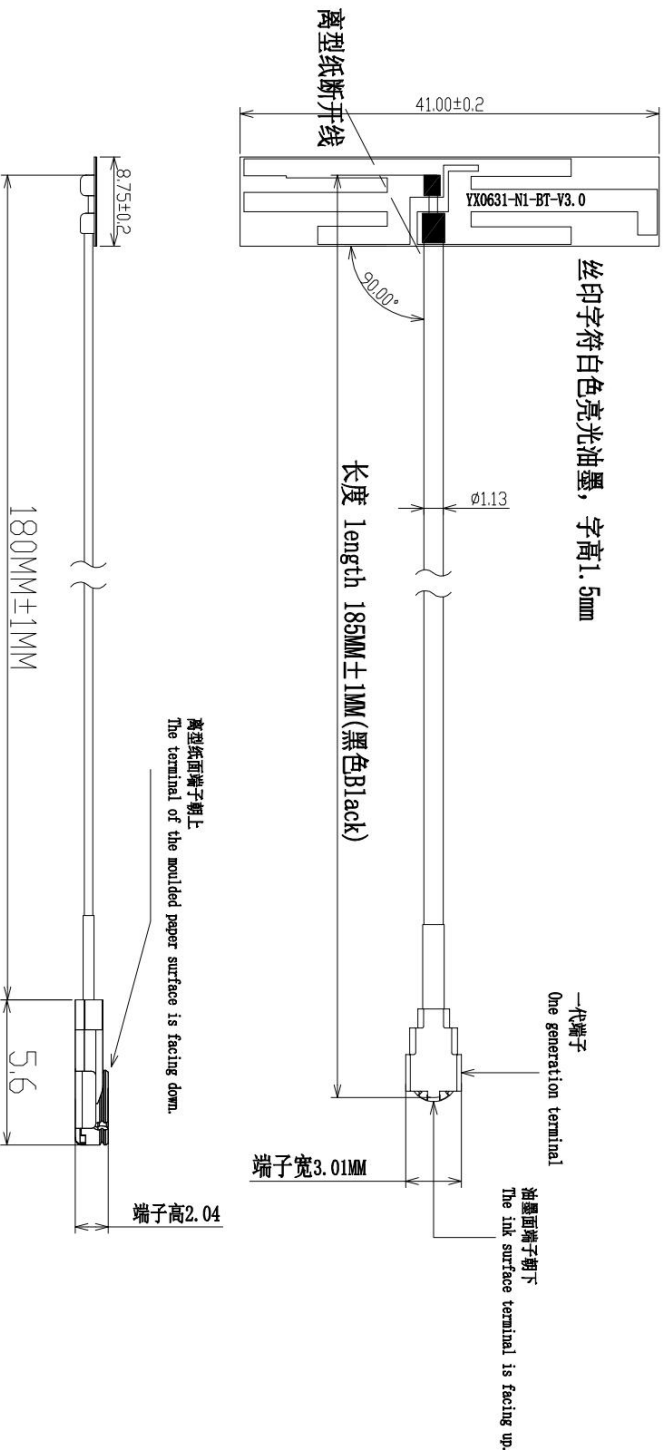
深圳星河电波科技有限公司
ShenZhen yGalax.com

TITLE: YX0631 (WIFI0天线FPC)

SCALE	FULL	PAGE	1 of 1	REV	A0
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REVISION	ECO#	REVISION NOTE	AUTHOR	DATE
A0		New release		10/01.25

一对半0.12MM厚度(不带离型纸)
一对半0.12MM+离型纸0.11MM=0.23MM厚度(带离型纸)
ONE AND A HALF 0.12MM THICKNESS (NO DEPAPE)
ONE AND A HALF 0.12MM + de-typed paper 0.11MM = 0.23MM thickness (with de-typed paper)



Describe:

1. Content "XXXX" indicates production date (year and week, e.g. 2101)

Note:

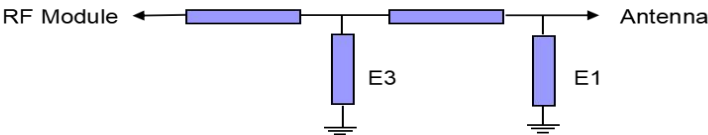
- MATERIAL :18/12.5 electrolytic copper, PI base MATERIAL. The green line shows the outline of the copper layer, and the purple line shows the shape.
- Tolerance requirements are not noted :A. copper foil to copper foil +/-0.05 B. Copper foil to shape +/-0.15(special requirements)
- Tolerance from hole to shape +/-0.15(+/-0.10 if special requirements)
- Nickel plating: NI: 2-7um NI: not less than 0.025um (salt spray must be over 48h), ink:
- This PFC adhesive is 3M 9471LSF, the adhesive should be super strong!
- Size requirements:
1. ST size: The minimum measurement quantity is any 35 product sizes selected from 500 for CPK analysis;
2. * size is the key control size;
3. Any material modification must be approved in writing by the Ygalax Engineering Department and passed all tests by the Ygalax Quality Department;
4. Products must meet ROHS/HF/REACH standards;

TEM	PART NAME	CLIENTELE UNMBE	P/N	MATERIAL	O-TY	REMARK
BT天线PFC(黑色)	XXX	XXX		电解铜, PI基材	1	
GENERAL TOLERANCE TABLE						
LINEAR		ANGULAR		HOLE		
DIVISION	TOLERANCE	DIVISION	TOLERANCE	UNIT	PART NUMBER	CLIENTELE NUMBER
0-10	±0.05	0-5°	±0.5°	mm		
10-50	±0.10	5-20°	±1°	mm		
50-80	±0.15	20-90°	±1.5°	mm		
>80	±0.2			mm		
This document is property of precision technology. It is can not be copied, updated and taken out company unless be allowed				SIZE	RF CHIO	
				A4	DR	
				NUMBER	XXXXXX	
				SCALE	FULL	
				PAGE	1 of 1	
				REV	A0	

深圳星河电波科技有限公司
ShenZhen yGalax.com

TITLE:
YX0631 (BT天线PFC)

天线匹配修改示意 (Antenna matching modification schematic)

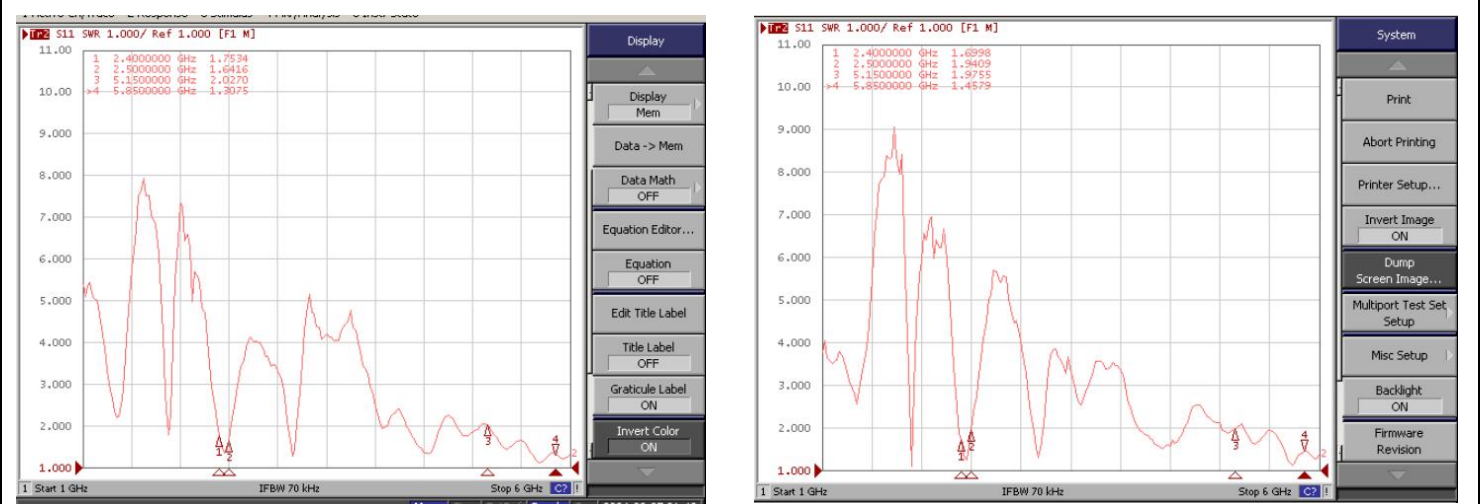


主天线	Element	Value
	E1	N/C
	E2	OR
	E3	N/C
	E4	OR

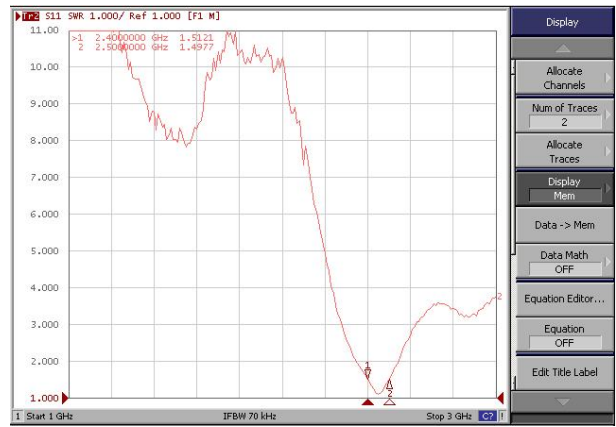
WiFi-OTA测试数据 (WL0+WL1) WiFi-OTA test data (WL0+WL1)

FS	Channel	TRP (dBm)	TIS (dBm)	FS	Channel	TRP (dBm)	TIS (dBm)	
2.4G-WiFi (11b)	1	16.85	-72.71	5G-WiFi (54A)	36	15.85	-74.93	
	6	16.74	-70.83		149	15.74	-74.57	
	11	16.77	-74.35		165	15.91	-75.23	

WiFi0-WiFi1-S11参数 WiFi0-WiFi1-S11 parameters



BT-S11参数 BT-S11 Parameters



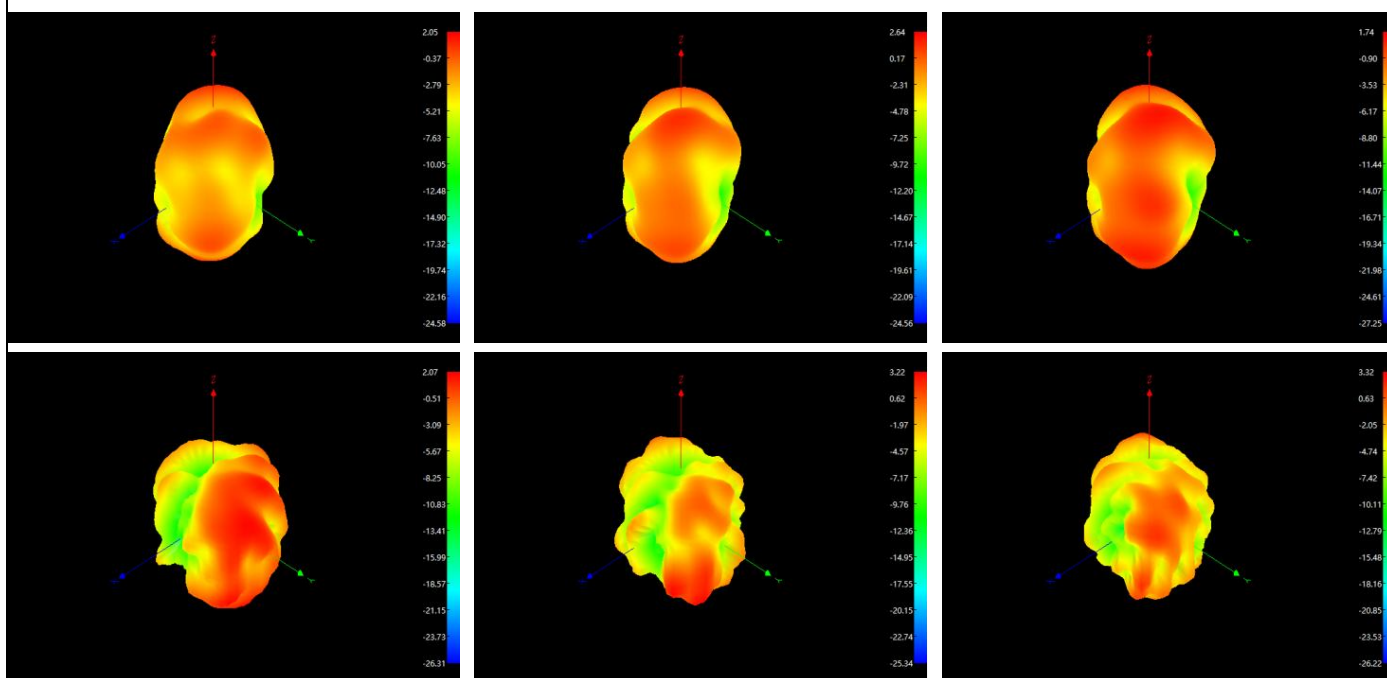
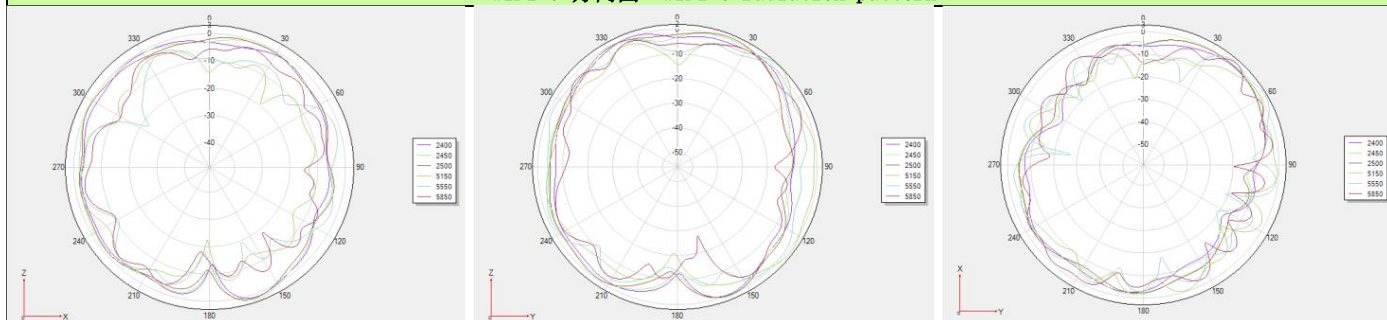
WiFi-0 效率 WiFi-0 efficiency

Frequency/Mhz	Efficiency / %	MaxGain/dBi		Frequency/Mhz	Efficiency / %	MaxGain/dBi		Frequency/Mhz	Efficiency / %	MaxGain/dBi	
2400	50.34	2.05		5150	40.99	2.07		5510	39.46	3.02	
2410	50.75	2.47		5170	39.07	2.02		5530	40.54	3.13	
2420	50.58	2.39		5190	41.36	2.37		5550	41.74	3.22	
2430	51.33	2.58		5210	39.07	2.21		5570	39.55	2.87	
2440	52.08	2.61		5230	39.15	2.24		5590	40.99	2.96	
2450	53.62	2.64		5250	41.63	2.59		5610	41.5	3.07	
2460	52.95	2.37		5270	40.55	2.45		5630	42.17	3.37	
2470	52.98	2.1		5290	41.9	2.63		5650	41.59	3.49	
2480	51.08	2.2		5310	43.11	2.74		5670	43.05	3.79	
2490	51.29	2.05		5330	41.63	2.62		5690	41.45	3.51	
2500	50.28	1.74		5350	41.88	2.98		5710	42.55	3.7	
				5370	42.17	3.16		5730	42.64	3.7	
				5390	41.5	3.14		5750	40.73	3.46	
				5410	40.46	3.09		5770	42.09	3.6	
				5430	42.07	3.32		5790	42.46	3.62	
				5450	41.37	3.01		5810	39.33	3.28	
				5470	41.64	3.07		5830	41.54	3.44	
				5490	41.83	3.36		5850	40.55	3.32	

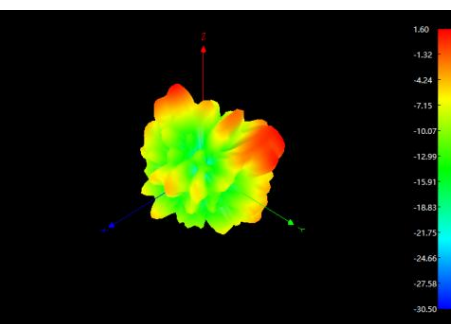
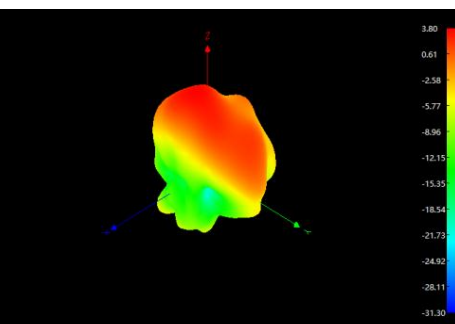
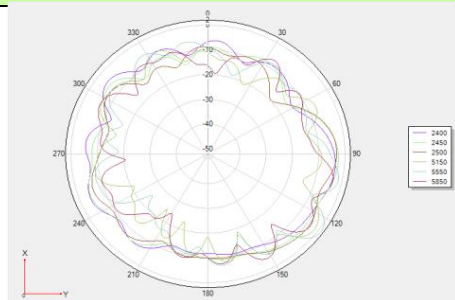
WiFi-1 效率 WiFi-1 efficiency										
Frequency/M hz	Efficiency / %	MaxGain/dBi		Frequency/M hz	Efficiency / %	MaxGain/dBi		Frequency/M hz	Efficiency / %	MaxGain/d Bi
2400	51.21	3.6		5150	42.27	2.44		5510	41	2.94
2410	51.98	3.87		5170	41.91	2.16		5530	41.96	3.11
2420	50.67	3.89		5190	42.25	2.09		5550	41.26	3.36
2430	52.77	4.2		5210	41.67	1.74		5570	40.49	2.91
2440	52.34	4.18		5230	42.33	1.88		5590	41.44	2.95
2450	52.42	4.33		5250	42.88	2		5610	41.87	2.81
2460	50.77	4.08		5270	42.62	1.74		5630	42.18	2.72
2470	52.45	4.24		5290	43.06	1.78		5650	42.02	2.66
2480	50.16	4.14		5310	43.68	1.99		5670	42.62	2.83
2490	51.08	4.2		5330	42.71	1.75		5690	41.14	2.41
2500	49.59	3.8		5350	40.68	2.21		5710	41.41	2.38
				5370	40.46	2.36		5730	41.6	2.37
				5390	40.9	2.69		5750	40.74	2.04
				5410	40.49	2.75		5770	41.33	2.08
				5430	41.09	3.04		5790	41.33	1.94
				5450	39.82	2.71		5810	39.93	1.49
				5470	40.9	3.05		5830	40.31	1.62
				5490	41.39	3.17		5850	39.96	1.6

BT-效率 BT-Efficiency		
Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	52.95	2.29
2410	52.45	2.18
2420	53.85	2.16
2430	53.21	2.21
2440	52.33	2.26
2450	52.33	2.24
2460	50.6	2.21
2470	49.29	1.91
2480	51.09	2.2
2490	51.09	1.99
2500	50	1.72

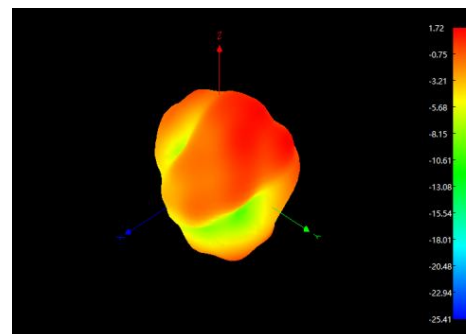
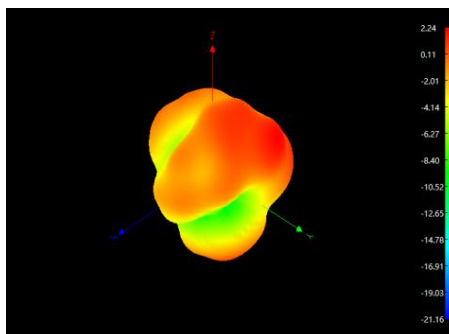
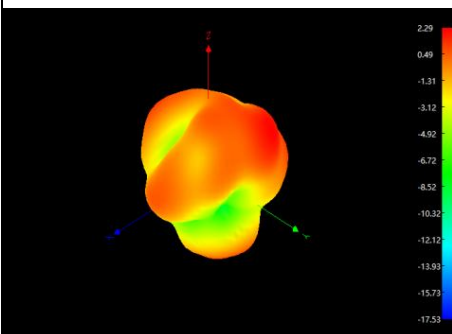
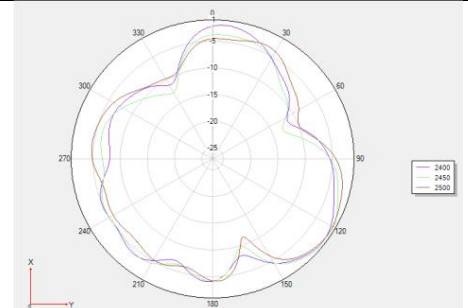
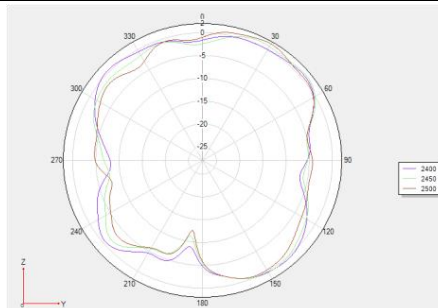
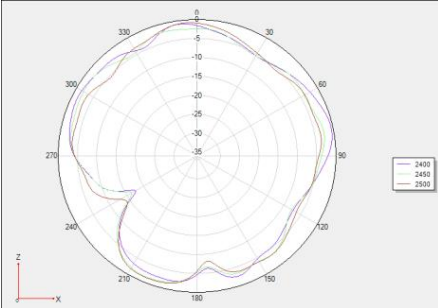
WiFi-0 方向图 WiFi-0 radiation pattern



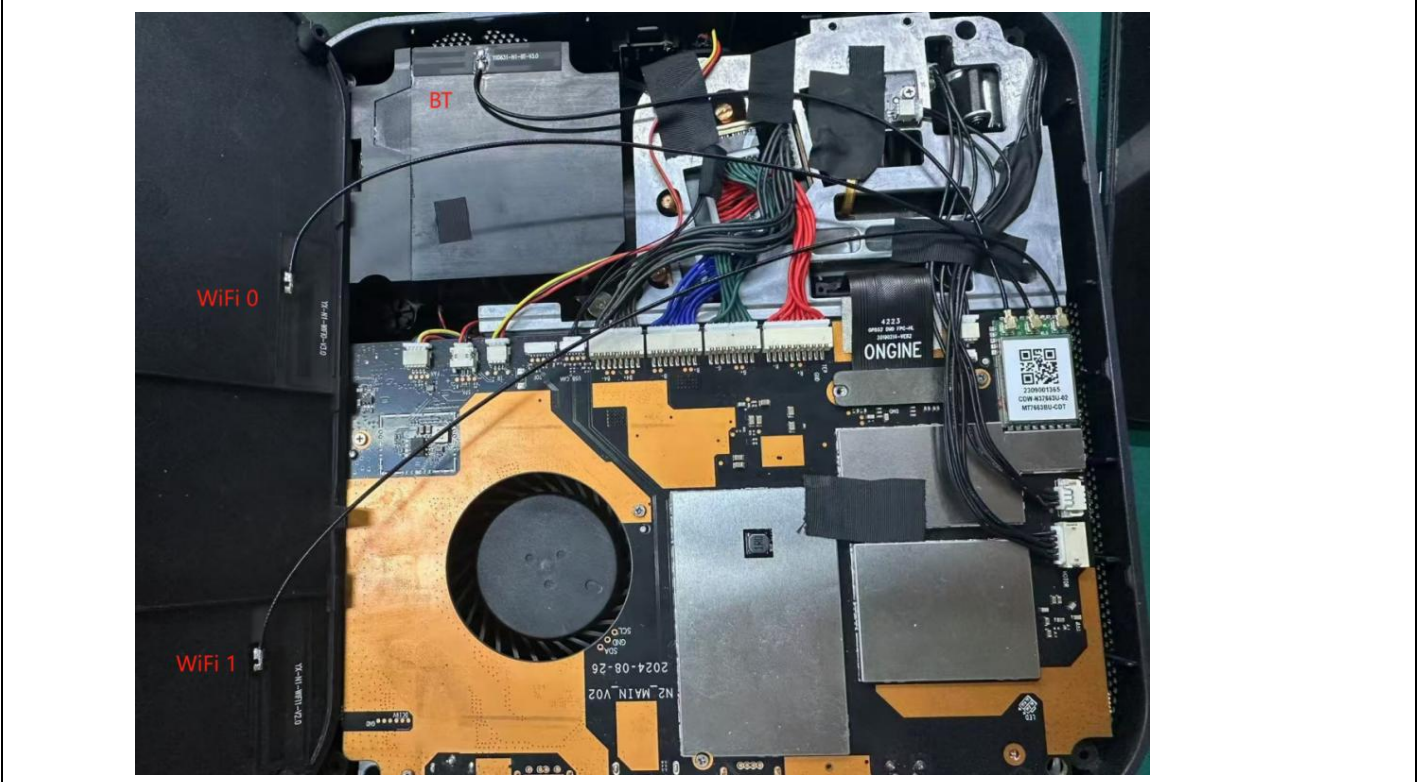
WiFi-1 方向图 WiFi-1 Radiation Pattern



BT 方向图 BT radiation pattern



天线贴装区域	Antenna mounting area
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RoHS限用物质成份调查表

RoHS Restricted Substance Composition sheet

所供产品信息												
客户名称 customer name		物料名称/型号 Metarial NO#		项目名称 Project name		制造商 manufacturer				绿色物料标识 green mark		
深圳市联合极光科技有 限公司 LianheJiguang		N1 天线		N1		深圳星河电波科技有限公司 Shenzhen yGalax Technologies Limited				/		
产品构成信息												
Product composition information												
item	part name	part NO#	VOLUME UP	Third party test report		Limit substance content PPM						remark
				DATE	number	(Pb)	(Cd)	(Hg)	(Cr ⁶⁺)	(PBB)	(PBDE)	
1	3M adhesive	/	honjingxinban	2021/1/13	SHAEC2100467601	O	O	O	O	O	O	
2	COPPER CLAD LAMINATE	/	caigelundi	2021/3/3	SHAEC2103249001	O	O	O	O	O	O	
3	ink	/	kaiyao	2021/8/17	ERT2102095	O	O	O	O	O	O	
4	electroplatin	/	jiahongtai	2021-5-13	A2210168276101001E	O	O	O	O	O	O	
	g											
2、PPM限量值：镉<100PPM；铅/汞/六价铬/PBB/PBDE<1000PPM。 3、其中针对包装材料中铅、六价铬、汞和镉的总量不超过100ppm。 4、此表请供应商完整填写后盖章； 此处供应商指直接交易方。（提供盖章的纸件或扫描PDF文件）												

填写人：张海峰

填写人公司/部门：品质

盐雾测试报告

Salt spray test report

日期: 20250315
date: 20250315

产品名称 product name	N1 天线	客户名称 customer name	深圳市联合极光科技有限公司 Lianhe jiguang
供应商 supplier	深圳星河电子科技有限公司 Shenzhen yGalax Technologies Limited	国家测试标准 National est standard	GB/T 2423.2-2008
样品情况 Sample situation	数量: 5件 QTY: 5PCS 材料: 单面半胶态电解铜 MATERIAL : One - sided half - half colloidal electrolytic copper 镀层厚度: ≥3U" Plating thickness: ≥3U"		
测试时间 TEST DATE	从20240525 9: 00至20240527 9: 00 共计48小时 FROM 20240525 9:00 TO 20240527 9: 00 TOTAL 48 H		
测试类型 TEST TYPE	☒ NSS	☐ ASS	☐ CASS
试验条件 test condition	生理盐水溶液: 5% saline solution: 5% PH:7.0 箱内温度: 35℃ the temperature inside the box: 35℃ 相对湿度: 85% relative humidity: 85% Spray way: ☒ continue ☐ gap 压缩空气压力: 1kg/cm ² compressed air pressure: 1kg/cm ² 盐雾沉降速率: 1-2ml/80cm ² /h Salt spray sedimentation rate: 1-2ml/80cm ² /h Fog fluid collection: 1.4ml/80cm ² /h 测试周期: 一个循环 test cycle: A loop 喷雾时间: 48小时 Spray time: 48 h		
试验结果 test result	试验后外观: 外观完好, 无明显变化。 Appearance after test: The appearance is intact without significant change. 涂层: 无剥落, 无腐蚀 Coating: no peeling, no corrosion 表面喷涂, 丝网印刷: 无脱落, 无气泡 Surface spraying, screen printing: no shedding, no bubbles		
NOTE: 1. 盐雾试验操作标准符合中华人民共和国国家标准GB/T2423.17-2008 1. salt spray test operating standards in accordance with the People's Republic of China national standard GB/T2423.17-2008 2. 试验结果按中华人民共和国国家标准GB/T6461-02标准确定 3. The test results shall be determined according to the national standard GB/T6461-02 of the People's Republic of China			
test date:		check:	

高/低温测试记录

High and low temperature test records

产品名称 product name	N1 天线	客户名称 customer name	深圳市联合极光科技有限公司 Lianhe jiguang	
测试数量 test QTY	6 pcs	时间 TEST DATE	2025/3/18	
循环次数 cycle-index	1	测试时间 test time	48H	
测试条件 test condition 高温: + 65℃ 湿度: 90 % RH high temperature: + 65℃ humidity: 90 % RH 低温度: - / °C low temprature: - / °C 试验: 高温: 48 H 低温: / H test: high-temp: 48 H low-temp: / H				
试验项目 test project	Uncycledtest		cycledtest	
item	After the high	After low temperature	After the high	After low temperature
1	OK	/		
2	OK	/		
3	OK	/		
4	OK	/		
5	OK	/		
6	OK	/		
试验后缺陷Post test defect:				
原因分析reason analysis:				
改进措施improvement measure:				
实验结果test result: PASS ☒ ☐				

Packing包装			
料号 Material code:	115. 1. 01. 3713. 000068	产品名称Product name:	FPC天线FPC Antenna
产品规格Spec:	PPC 焊接 Cable	包装材料Package:	密封袋、纸箱Bag/Carton
包装数量Qty/bag:	100PCS/bag	包装方式Package method:	100 PCS/bag , 10 small bag/big bag, 5 bags/carton
装箱数量QTY/Carton:			
图1: 单件包装		图2: 装箱包装方式	
		100 PCS/bag , 10 small bag/big bag, 5 bags/carton	
图3: 包装箱视图 (正面、侧面、顶部)		图4: 外箱	
			
备注: FPC产品以单体制作, 每箱20000PCS包装。FPC products produced with monomer, 5000 PCS per box packaging			
拟制Edited by:		审核Approved by:	