

JMGO Sample Confirmation Letter

Supplier Name: SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO. LTD

Material Name: BT 2.4G Black FPC built-in Antenna (C51A)

Material No.: 23040311 /

Material Description: BT 2.4G Black FPC built-in Antenna (C61A)

Version: A0

Drawing Version: A0

Supplier Approved

This needs to be stamped, and each acknowledgment letter needs to be stamped with a riding seal.

Supplier Approved			Shenzhen Holatek Approved			
R&D/Engineering	Quality	Approved	Product Center	R&D	Supply-Chain Center	Quality Management Department
Yin FeiJie	Yang YunGang		Xiao Han			

Address: Building C, Hongyu Guangming Valley, No. 11, Shiwei Community, Matian Office, Guangming District, Shenzhen

Phone: +86-755-27810060/23192199

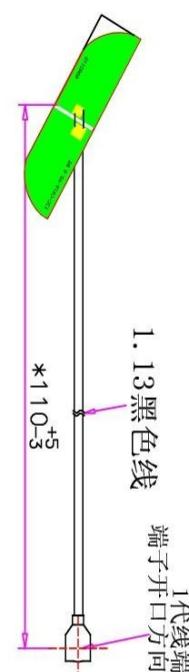
Fax: +86-0755-27810057



Directory

Page	Content
1	Cover
2	Directory
3	Product drawings
4	Specification
5	Process Flow Diagram
6	BOM list
7	Performance testing reports
8	SGS Environmental Protection Report for Raw Materials

Product drawings:

1	2	3	4	5	6																																																																									
A	B	C	D	E	F	G																																																																								
																																																																														
REV	DATE	DESCRIPTION	NAME																																																																											
A0	2024-06-03	新版发行	殷飞杰																																																																											
A1	2024-07-31	更新FFC板	殷飞杰			1																																																																								
 <p>1. 13黑色线 端子开口方向如图所示</p> <p>要求: 1. 成品须100%测试导通OK 2. 成品须100%全检OK. 3. 采用环保制程, 成品 4. 符合ROHS要求. 5. 未注公差, 请以一般公差为准. 6. *为重点标注尺寸.</p> <p>*1110⁺⁵₋₃</p> <p>*35, 15±0.5</p> <p>*8, 4±0.3</p> <p>手撕位</p> <p>外箱须贴物料标示卡 与ROHS标签各1PCS</p>																																																																														
 <p>引脚名称 (PIN1 NAME): 地 (GND) 引脚名称 (PIN2 NAME): 电源 (POWER) 引脚名称 (PIN3 NAME): 电源 (POWER) 引脚名称 (PIN4 NAME): 地 (GND)</p>																																																																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">零件名称 Product Name</td> <td style="width: 20%;">单位 (UNIT)</td> <td style="width: 20%;">比例 (SCALE)</td> <td style="width: 30%;">版本 (REV)</td> </tr> <tr> <td>BT 黑色FFC排型天线</td> <td>mm</td> <td>A4</td> <td>A1</td> </tr> <tr> <td colspan="2">长度 (LENGTH) LEN (LENGTH)</td> <td colspan="2">产品序号 (PRODUCT NO.)</td> </tr> <tr> <td>110MM</td> <td></td> <td>YJC-6N110-B69</td> <td>日期 (DATE)</td> </tr> <tr> <td colspan="2">宽度 (WIDTH) WID (WIDTH)</td> <td colspan="2">第1页, 共1页</td> </tr> <tr> <td>1.5MM</td> <td></td> <td>2024-06-03</td> <td></td> </tr> <tr> <td colspan="2">高度 (HEIGHT) HGT (HEIGHT)</td> <td colspan="2">备注 (REMARK)</td> </tr> <tr> <td>0.5MM</td> <td></td> <td colspan="2"></td> </tr> <tr> <td colspan="2">厚度 (THICKNESS) THK (THICKNESS)</td> <td colspan="2">客户 (CUSTOMER)</td> </tr> <tr> <td>0.1MM</td> <td></td> <td colspan="2">深圳市莫佳创电子科技有限公司</td> </tr> <tr> <td colspan="2">重量 (WEIGHT) WT (WEIGHT)</td> <td colspan="2">地址 (ADDRESS)</td> </tr> <tr> <td>0.05G</td> <td></td> <td colspan="2">SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO., LTD</td> </tr> <tr> <td colspan="2">尺寸 (DIMENSION) SIZE (SIZE)</td> <td colspan="2">联系人 (CONTACT)</td> </tr> <tr> <td>110MM 0.5MM 0.1MM</td> <td></td> <td colspan="2">A4</td> </tr> <tr> <td colspan="2">材料 (MATERIAL) MATERIAL</td> <td colspan="2">电话 (PHONE)</td> </tr> <tr> <td>PCB</td> <td></td> <td colspan="2">+86-13602500000</td> </tr> <tr> <td>铜箔</td> <td></td> <td colspan="2">邮箱 (EMAIL)</td> </tr> <tr> <td>铜箔</td> <td></td> <td colspan="2">A4@163.com</td> </tr> </table>						零件名称 Product Name	单位 (UNIT)	比例 (SCALE)	版本 (REV)	BT 黑色FFC排型天线	mm	A4	A1	长度 (LENGTH) LEN (LENGTH)		产品序号 (PRODUCT NO.)		110MM		YJC-6N110-B69	日期 (DATE)	宽度 (WIDTH) WID (WIDTH)		第1页, 共1页		1.5MM		2024-06-03		高度 (HEIGHT) HGT (HEIGHT)		备注 (REMARK)		0.5MM				厚度 (THICKNESS) THK (THICKNESS)		客户 (CUSTOMER)		0.1MM		深圳市莫佳创电子科技有限公司		重量 (WEIGHT) WT (WEIGHT)		地址 (ADDRESS)		0.05G		SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO., LTD		尺寸 (DIMENSION) SIZE (SIZE)		联系人 (CONTACT)		110MM 0.5MM 0.1MM		A4		材料 (MATERIAL) MATERIAL		电话 (PHONE)		PCB		+86-13602500000		铜箔		邮箱 (EMAIL)		铜箔		A4@163.com		
零件名称 Product Name	单位 (UNIT)	比例 (SCALE)	版本 (REV)																																																																											
BT 黑色FFC排型天线	mm	A4	A1																																																																											
长度 (LENGTH) LEN (LENGTH)		产品序号 (PRODUCT NO.)																																																																												
110MM		YJC-6N110-B69	日期 (DATE)																																																																											
宽度 (WIDTH) WID (WIDTH)		第1页, 共1页																																																																												
1.5MM		2024-06-03																																																																												
高度 (HEIGHT) HGT (HEIGHT)		备注 (REMARK)																																																																												
0.5MM																																																																														
厚度 (THICKNESS) THK (THICKNESS)		客户 (CUSTOMER)																																																																												
0.1MM		深圳市莫佳创电子科技有限公司																																																																												
重量 (WEIGHT) WT (WEIGHT)		地址 (ADDRESS)																																																																												
0.05G		SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO., LTD																																																																												
尺寸 (DIMENSION) SIZE (SIZE)		联系人 (CONTACT)																																																																												
110MM 0.5MM 0.1MM		A4																																																																												
材料 (MATERIAL) MATERIAL		电话 (PHONE)																																																																												
PCB		+86-13602500000																																																																												
铜箔		邮箱 (EMAIL)																																																																												
铜箔		A4@163.com																																																																												

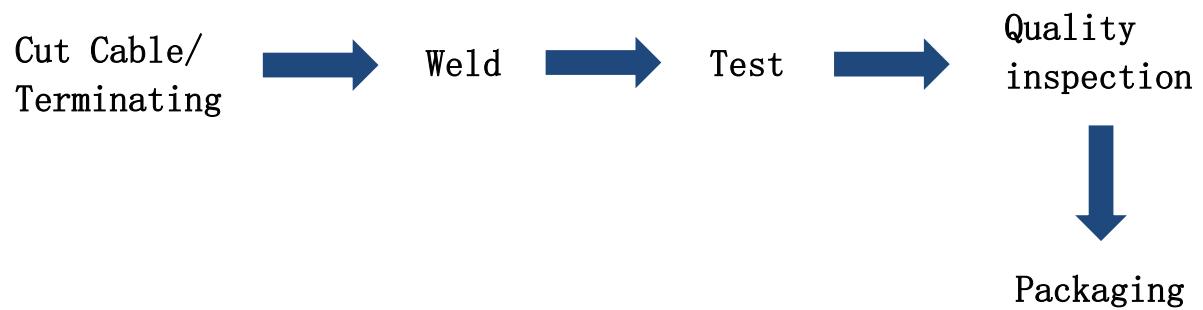
Specification:

Electrical Specifications	
Frequency Range	2400-2500MHz
VSWR	<1.92
Input Impedance	50 Ω
Direction	All
Gain	1.40 dBi
Mechanical Specifications	
Cable Color	Black
Input connector	XD
Cable length	110mm (Total Length)
Working Temperature	-20°C ~ +70°C
Working Humidity	20% ~ 80%

Environmental performance test:

Project	Test condition	Standard
Storage Conditions	In the absence of specified test temperature, humidity, air pressure is as follows: 1. Temperature is -20 °C ~ +70 °C 2. Relative humidity of 45% to 85% 3. Air pressure is 86 kpa to 106 kpa	Electrical and mechanical properties is normal
High and low temperature test	Between 70 °C and -20 °C for 5 loops, then 1-2 h under normal conditions, check the appearance quality.	Size should meet the requirements and should satisfy the content with the electrical and mechanical properties
Constant damp and hot resistance test	95 + / - 3% relative humidity, temperature test: 40 °C. Lasts 2 h after, try to take out the determination of electrical properties, within 5 min after try 1-2 h under article normal thing, check the appearance quality	Size should meet the requirements and should satisfy the content with the electrical and mechanical properties
vibration test	Vibration frequency range: 10-55 Hz, vibration frequency range of displacement amplitude: 0.35 MM, acceleration amplitude: 50.0 M/S, sweep cycles: 30 times	Electrical and mechanical properties is normal
Fall down test	1 m high altitude in accordance with the perpendicular axis free drop 3 times	Electrical and mechanical properties is normal

Process Flow Diagram



BOM list

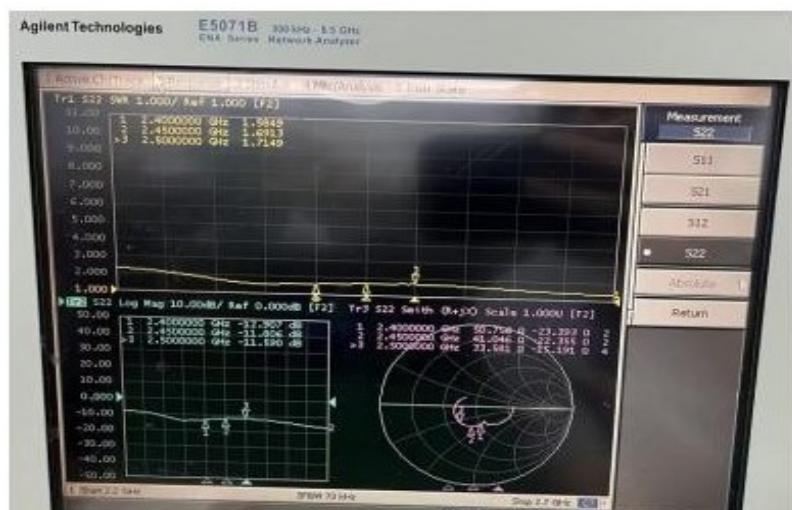
FPC、Cable、Terminal、PE packaging bag、Carton

Performance testing reports:

Antenna physical image:



Antenna performance test chart:



Frequency (MHZ)	2400	2450	2500
VSWR (dB)	1.58	1.69	1.71

BT and WiFi 1 isolation test diagram



BT and WiFi 2 isolation test diagram

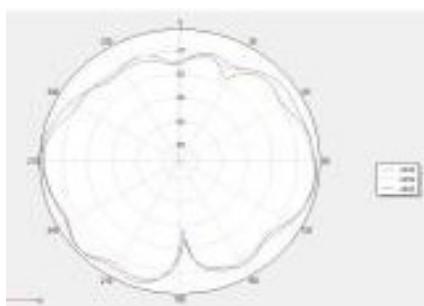


Frequency (MHz)	2400	2450	2500	5150	5725	5850
WIFI1 and BT isolation (dB)	-40	-31	-30	-36	-29	-29
WIFI2 and BT isolation (dB)	-33	-31	-30	-29	-31	-37

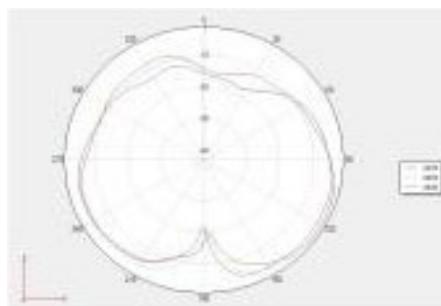
2D、3D test data (BT):

Frequency	Efficiency (%)	Gain. (dBi)
2400MHz	35.50	1.23
2410MHz	36.46	1.40
2420MHz	37.12	1.37
2430MHz	36.66	1.33
2440MHz	36.25	1.32
2450MHz	37.18	1.40
2460MHz	37.37	1.32
2470MHz	36.93	1.38
2480MHz	35.95	1.36
2490MHz	35.85	1.34
2500MHz	34.92	1.20

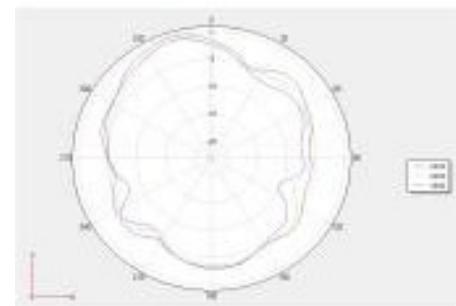
Phi 0 2D :



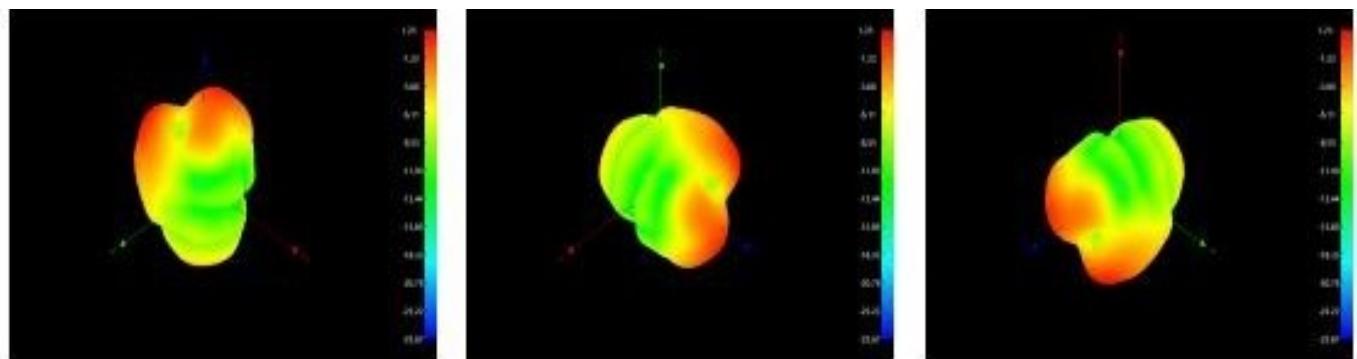
Phi 90 2D



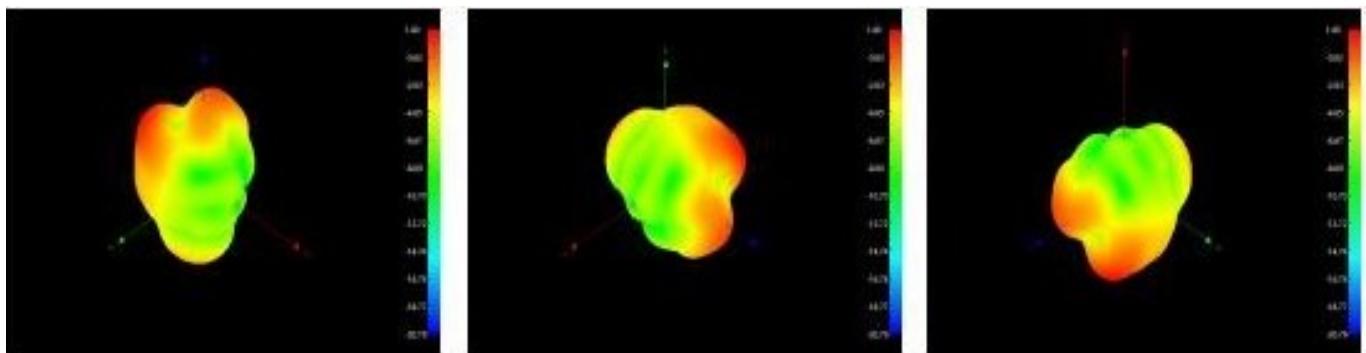
Theta 90 2D



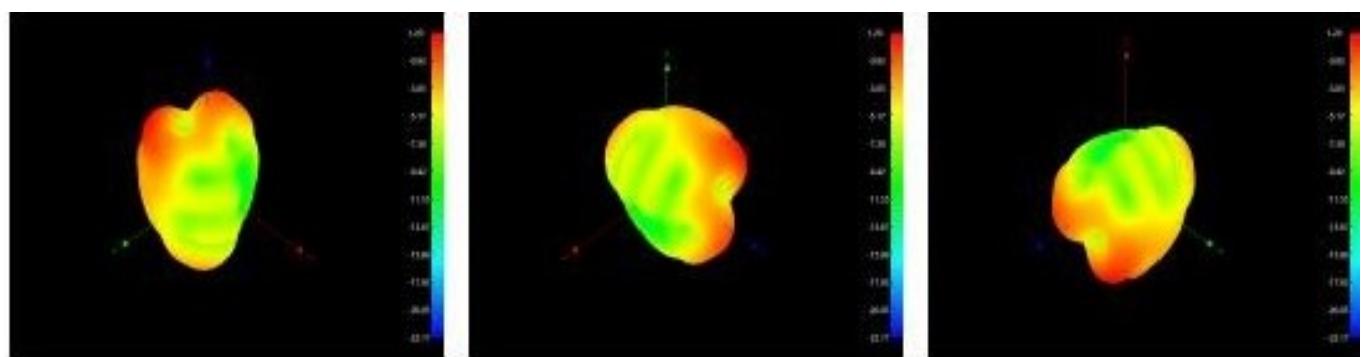
3D 2400:



3D 2450:



3D 2500:



OTA active test data:

Item	Measurement	Band	Channel	Frequency	Total
1	TRP	BLUETOOTH	0	2402	-2.96
2	TRP	BLUETOOTH	39	2441	-2.42
3	TRP	BLUETOOTH	78	2480	-1.51
4	TIS(EIRP)	BLUETOOTH	0	2402	-85.86
5	TIS(EIRP)	BLUETOOTH	39	2441	-86.91
6	TIS(EIRP)	BLUETOOTH	78	2480	-87.58
7	TRP	BLUETOOTH	0	2402	-3.2
8	TRP	BLUETOOTH	39	2441	-2.59
9	TRP	BLUETOOTH	78	2480	-1.44
10	TIS(EIRP)	BLUETOOTH	0	2402	-85.61
11	TIS(EIRP)	BLUETOOTH	39	2441	-96.19
12	TIS(EIRP)	BLUETOOTH	78	2480	-86.3
13	TRP	BLUETOOTH	0	2402	-3.1
14	TRP	BLUETOOTH	39	2441	-2.52
15	TRP	BLUETOOTH	78	2480	-1.66
16	TIS(EIRP)	BLUETOOTH	0	2402	-79.27
17	TIS(EIRP)	BLUETOOTH	39	2441	-80.85
18	TIS(EIRP)	BLUETOOTH	78	2480	-81.9

Material RoHS conformity declaration form

This is to certify that the delivery to your company's components, raw materials, auxiliary materials used and the additives in the production engine **ord** with RoHS environmental requirements of the restrictions on the use of hazardous substances directive (RoHS directive 2011/65 / EC)

About components used raw materials, packaging materials, auxiliary materials and additives used in the production process such as composition of the report is as follows:

Component /Part Name	Material Composition	ICP report #	Test Org.	Test Date	Content of harmful substances (ppm)						PASS?
					Cd	Pb	Hg	Cr ⁶⁺	PBB	PBDE	
FPC	Ink	ETR23701480	SGS	23/07/13	ND	ND	ND	ND	ND	ND	PASS
	3M9471LE	SHaec23021627701	SGS	23/12/27	ND	ND	ND	ND	ND	ND	PASS
	Cooper foil	A2240082746101006E	CTI	24/03/01	ND	ND	ND	ND	ND	ND	PASS
Wire	Series Coaxial Cables	CANEC24002746206	SGS	24/02/23	ND	ND	ND	ND	ND	ND	PASS
Terminal	Copper	CANEC24000977302	SGS	24/01/22	ND	6	ND	ND	ND	ND	PASS
	Au plating	A2230400553101001E	CTI	23/08/12	ND	ND	ND	ND	ND	ND	PASS
	Rubber core	ETR23705931	SGS	23/08/04	ND	ND	ND	ND	ND	ND	PASS
Environmentally friendly Tin	Environmentally friendly Tin wire	SZXEC23001647204	SGS	23/07/28	ND	63	ND	ND	ND	ND	PASS