

JMGO Sample Confirmation Letter

Supplier Name: SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO. LTD

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

Material No.: _____ /

Material Description: _____ /

Version: A0

Drawing Version: A0

Supplier Approved

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

Shenzhen Holatek Approved

R&D/Engineering	Quality	Approved	Product Center	R&D	Supply-Chain Center	Quality Management Department
Wu JiaXiong	Yang YunGang	Xiao Han				

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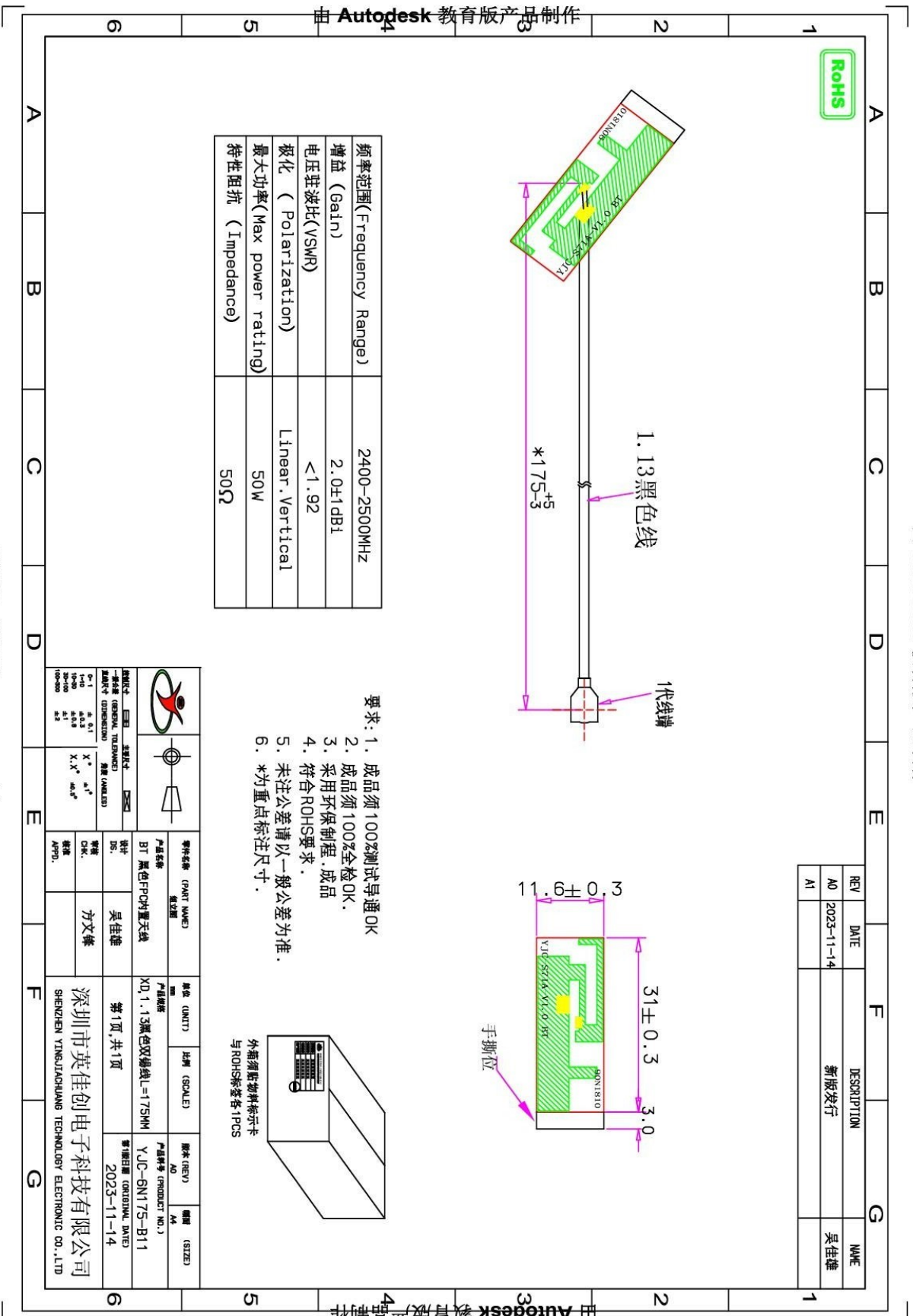
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Product drawings:



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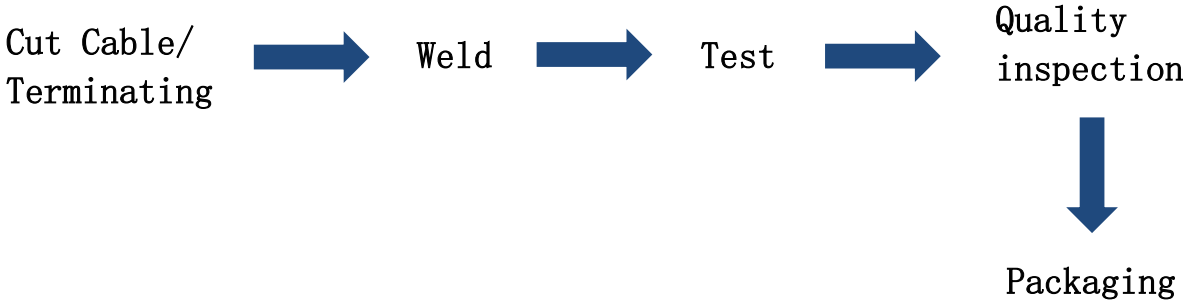
Specification:

Electrical Specifications	
Frequency Range	2400-2500MHz
VSWR	<1.92
Input Impedance	50 Ω
Direction	All
Gain	1.80 dBi
Mechanical Specifications	
Cable Color	Black
Input connector	XD
Cable length	175mm
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 45% 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)	1.36	1.29	1.12

BT and WiFi 1 isolation test diagram



BT and WiFi 2 isolation test diagram

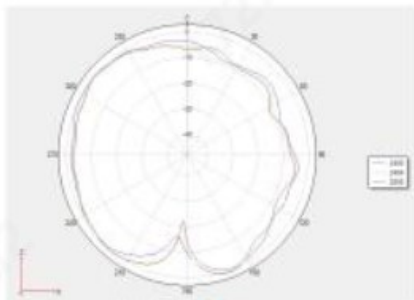


Frequency (MHz)	2400	2450	2500
WIFI1 and BT isolation (dB)	-24	-26	-25
WIFI2 and BT isolation (dB)	-24	-26	-25

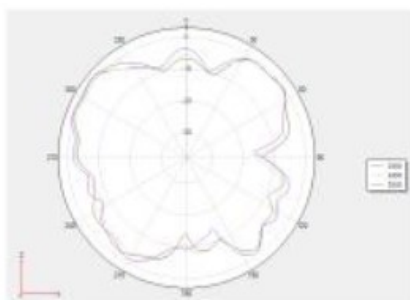
2D、3D test data (BT):

Frequency	Efficiency (%)	Gain. (dBi)
2400MHz	50.00	1.53
2410MHz	49.66	1.66
2420MHz	48.87	1.58
2430MHz	51.29	1.80
2440MHz	50.93	1.52
2450MHz	50.70	1.80
2460MHz	51.05	1.51
2470MHz	49.77	1.46
2480MHz	49.77	1.55
2490MHz	48.64	1.49
2500MHz	49.66	1.60

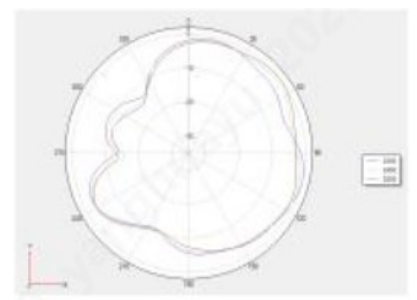
Phi 0 2D 图:



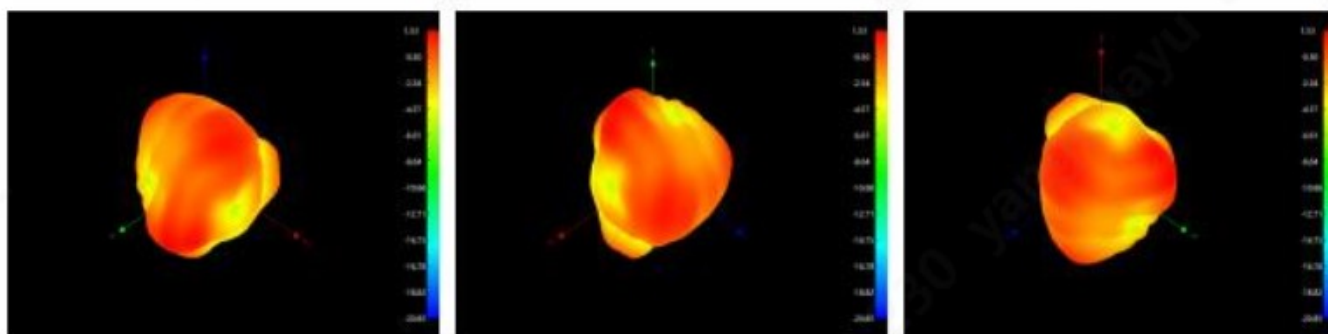
Phi 90 2D 图



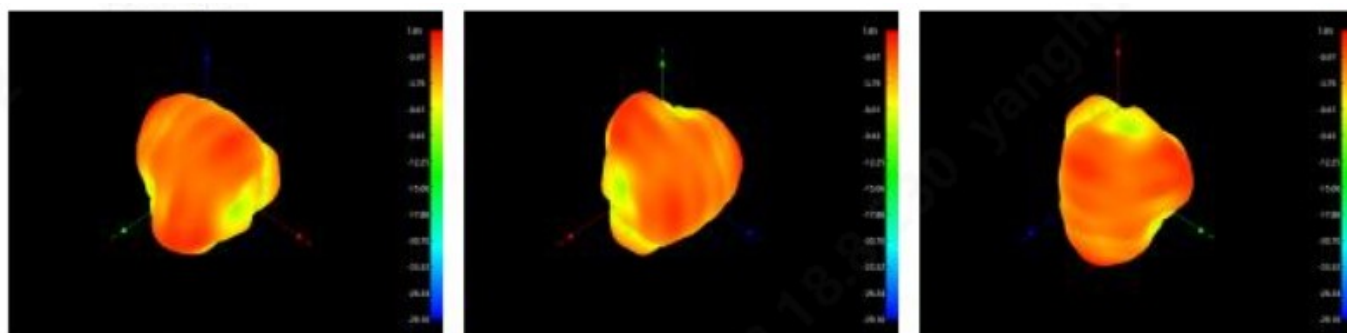
Theta 90 2D 图



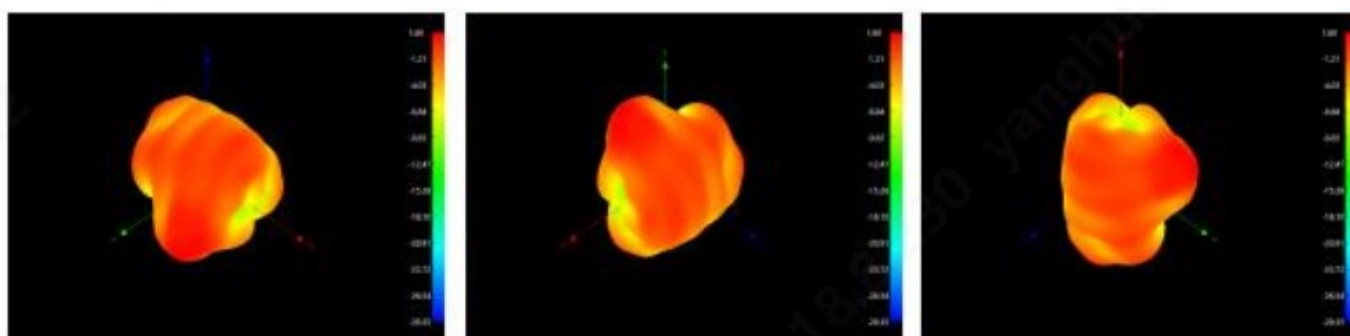
3D 2400:



3D 2450:



3D 2500:



OTA active test data:

Item	Measurement	Band	Channel	Frequency	Total
1	TRP	BLUETOOTH	1	2403	4.96
2	TRP	WIFI_B (11M)	39	2441	5.34
3	TRP	WIFI_B (11M)	78	2480	5.35
4	TIS(EIRP)	WIFI_B (11M)	1	2403	-87.47
5	TIS(EIRP)	WIFI_B (11M)	39	2441	-87.34
6	TIS(EIRP)	WIFI_B (11M)	78	2480	-86.84
7	TRP	WIFI_G (54M)	1	2403	2.27
8	TRP	WIFI_G (54M)	39	2441	2.64
9	TRP	WIFI_G (54M)	78	2480	2.72
10	TIS(EIRP)	WIFI_G (54M)	1	2403	-87.24
11	TIS(EIRP)	WIFI_G (54M)	39	2441	-87.00
12	TIS(EIRP)	WIFI_G (54M)	78	2480	-86.48
13	TRP	WIFI_N_ISM (65M)	1	2403	2.28
14	TRP	WIFI_N_ISM (65M)	39	2441	2.61
15	TRP	WIFI_N_ISM (65M)	78	2480	2.72
16	TIS(EIRP)	WIFI_N_ISM (65M)	1	2403	-82.17
17	TIS(EIRP)	WIFI_N_ISM (65M)	39	2441	-81.10
18	TIS(EIRP)	WIFI_N_ISM (65M)	78	2480	-80.85

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	PASS
FPC	FPC	FTS2302160201-01C1	SGS	23/02/20	ND	ND	ND	ND	ND	ND	PASS
Wire	Series Coaxial Cables	CANEC2301851703	SGS	23/02/23	ND	ND	ND	ND	ND	ND	PASS
Terminal	Copper	CANEC2301145810	SGS	23/02/08	ND	5	ND	ND	ND	ND	PASS
	Au plating	A2230400553101001E	CTI	23/08/12	ND	ND	ND	ND	ND	ND	PASS
	Rubber core	A2230035037101002E	SGS	23/02/06	ND	ND	ND	ND	ND	ND	PASS
Environm entally friendly Tin wire	Environmen tally friendly Tin wire	SHAEC23006357502	SGS	23/05/23	ND	43	ND	ND	ND	ND	PASS