

# JMGO Sample Confirmation Letter

Supplier Name: SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO. LTD

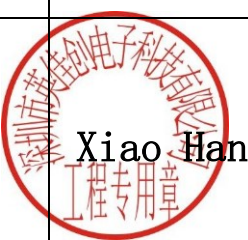
Material Name: WiFi2 2.4G/5.8G Black FPC built-in Antenna

Material No.: \_\_\_\_\_ / \_\_\_\_\_

Material Description: \_\_\_\_\_ / \_\_\_\_\_

Version: A0

Drawing Version: A0

Supplier Approved			Shenzhen Holatek Approved			
<p style="color: red;">This needs to be stamped, and each acknowledgment letter needs to be stamped with a riding seal.</p>						
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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# JMGO

## 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



## Antenna technology parameters:

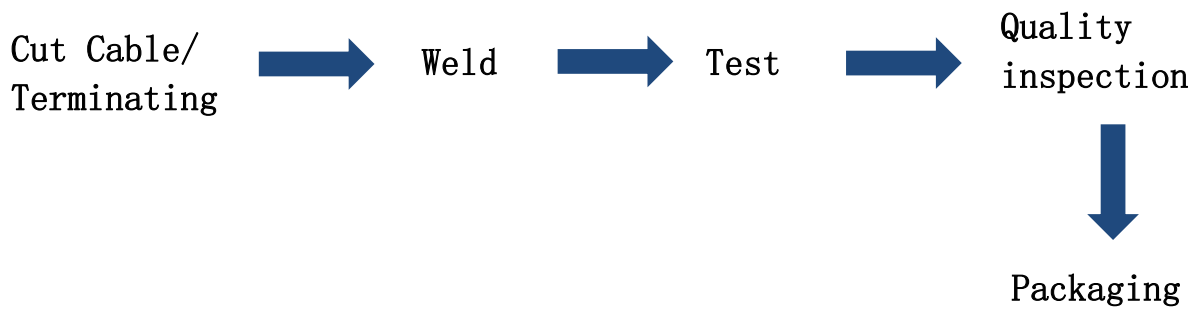
Electrical Specifications	
Frequency Range	2400-2500/5150-5850MHz
VSWR	<1.92
Input Impedance	50 Ω
Direction	All
Gain(2.4G)	1.90±1dBi
Gain(5.8G)	3.40±1dBi
Mechanical Specifications	
Cable Color	Black
Input connector	XD
Cable length	275mm
Working Temperature	-20°C~+70°C
Working Humidity	20%~80%

## 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

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Process Flow Diagram

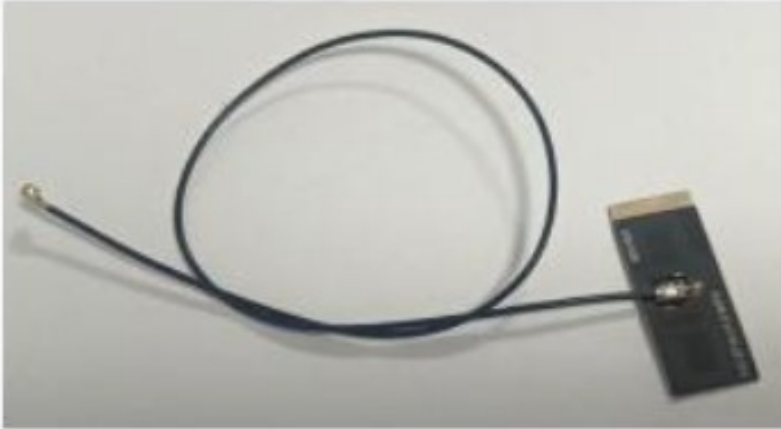


BOM list

FPC、Cable、Terminal、PE packaging bag、Carton

Performance testing reports:

Antenna physical image:



Antenna performance test chart:



Frequency (MHZ)	2400	2450	2500	5150	5725	5850
VSWR (dB)	1.27	1.33	1.60	1.09	1.33	1.42

## WIFI 2 and BT isolation test diagram



## WIFI 2 and WIFI 1 isolation test diagram



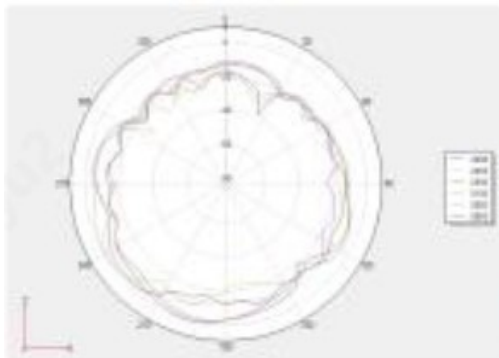
Frequency (MHz)	2400	2450	2500	5150	5725	5850
WIFI1 and WIFI2 isolation (dB)	-39	-42	-42	-36	-36	-38
WIFI2 and BT isolation (dB)	-24	-26	-25			



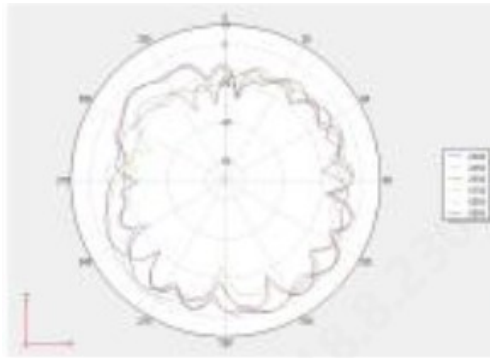
2D、3D test data (WIFI 2):

Frequency	Efficiency (%)	Gain. (dBi)
2400MHz	50.35	1.90
2410MHz	53.09	1.88
2420MHz	50.00	1.71
2430MHz	52.36	1.63
2440MHz	48.75	1.55
2450MHz	51.29	1.62
2460MHz	52.42	1.53
2470MHz	53.32	1.89
2480MHz	50.92	1.77
2490MHz	50.26	1.81
2500MHz	51.45	1.65
5150MHz	39.63	3.40
5250MHz	39.36	3.31
5750MHz	39.54	3.40
5850MHz	40.74	3.38

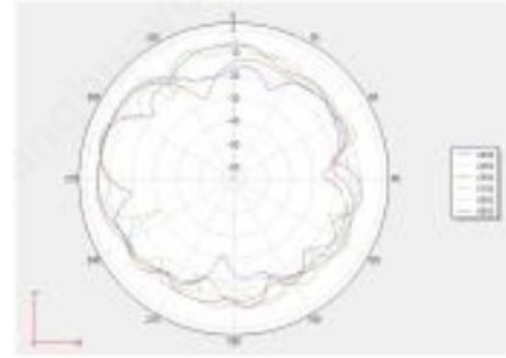
Phi 0 2D 图:



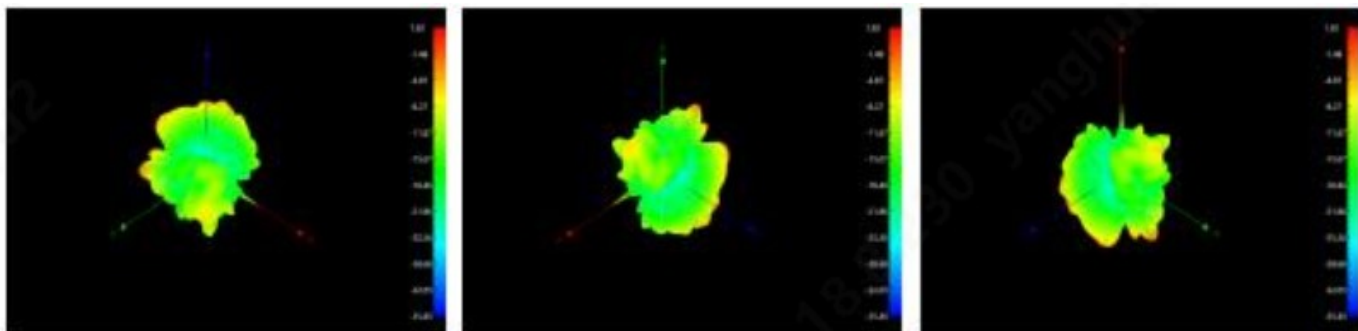
Phi 90 2D 图



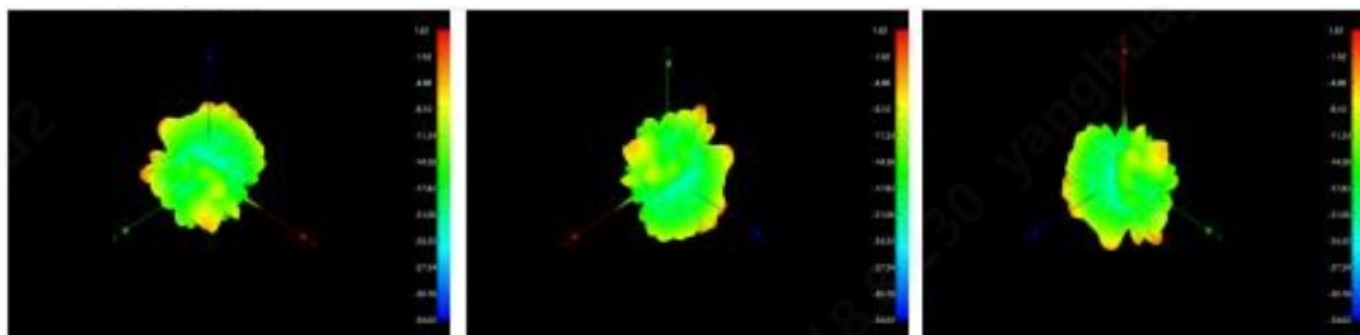
Theta 90 2D 图



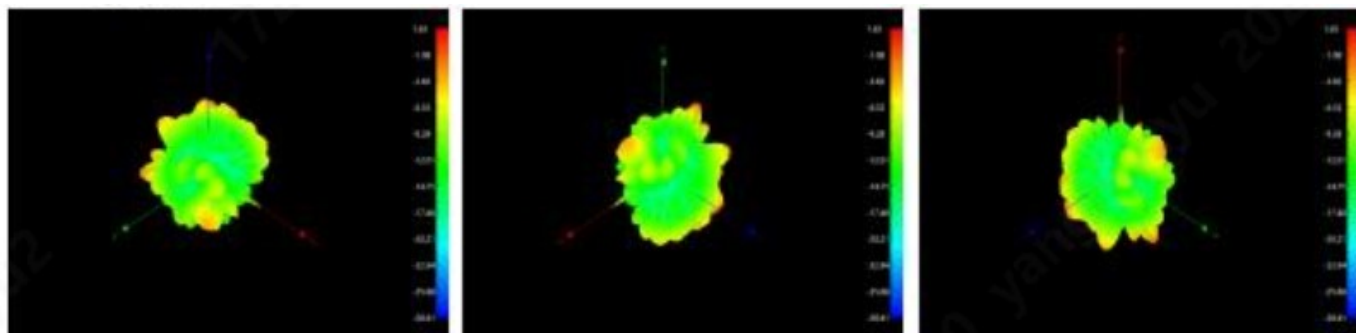
3D 2400:



3D 2450:

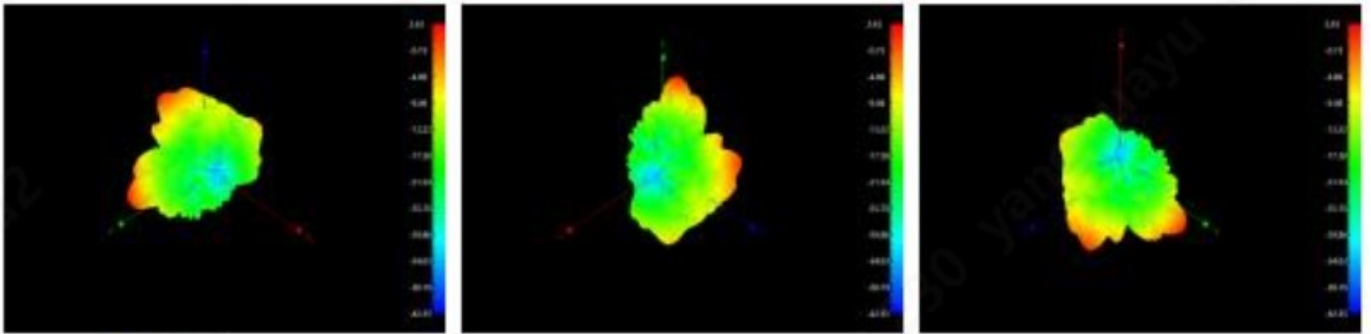


3D 2500:

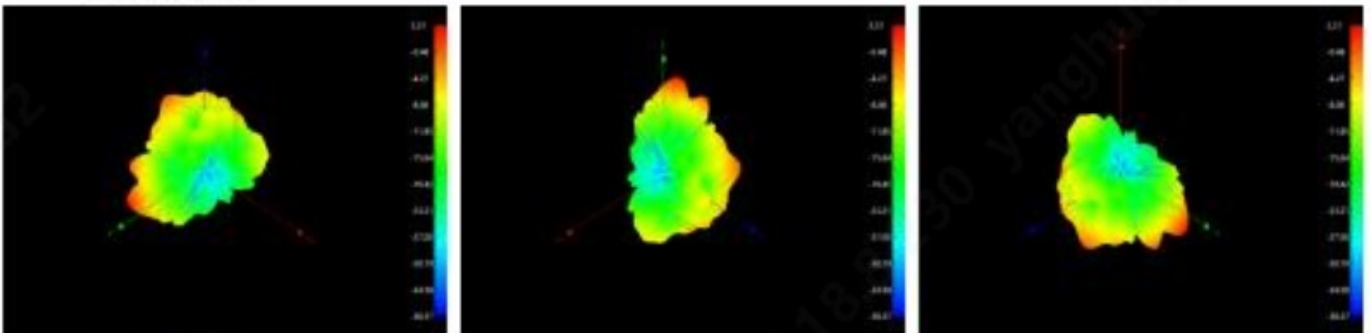


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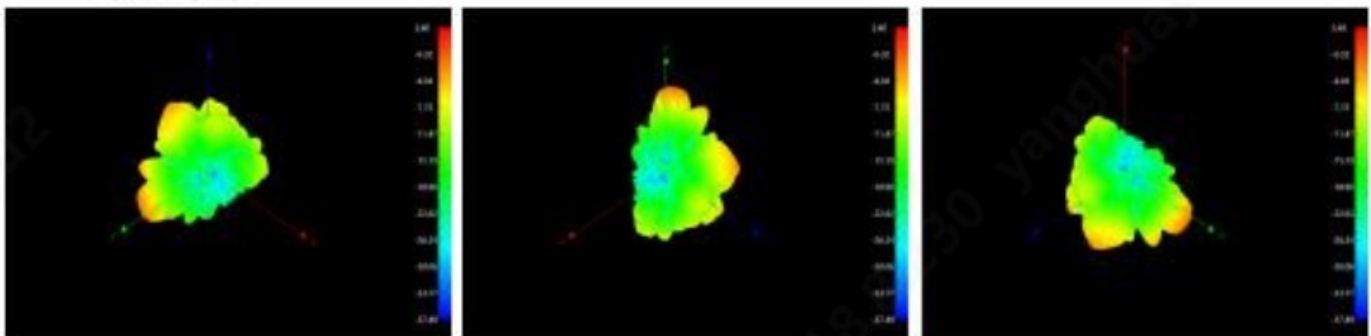
3D 5150:



3D 5500:



3D 5850:



OTA active test data:

Item	Measurement	Band	Channel	Frequency	Total
1	TRP	WIFI_B (11M)	1	2412	12.89
2	TRP	WIFI_B (11M)	6	2437	12.96
3	TRP	WIFI_B (11M)	11	2462	13.97
4	TIS(EIRP)	WIFI_B (11M)	1	2412	-81.92
5	TIS(EIRP)	WIFI_B (11M)	6	2437	-83.72
6	TIS(EIRP)	WIFI_B (11M)	11	2462	-82.28
7	TRP	WIFI_G (54M)	1	2412	14.77
8	TRP	WIFI_G (54M)	6	2437	14.03
9	TRP	WIFI_G (54M)	11	2462	14.25
10	TIS(EIRP)	WIFI_G (54M)	1	2412	-70.65
11	TIS(EIRP)	WIFI_G (54M)	6	2437	-69.92
12	TIS(EIRP)	WIFI_G (54M)	11	2462	-71.29
13	TRP	WIFI_N_ISM (65M)	1	2412	13.49
14	TRP	WIFI_N_ISM (65M)	6	2437	13.84
15	TRP	WIFI_N_ISM (65M)	11	2462	13.9
16	TIS(EIRP)	WIFI_N_ISM (65M)	1	2412	-68.49
17	TIS(EIRP)	WIFI_N_ISM (65M)	6	2437	-69.41
18	TIS(EIRP)	WIFI_N_ISM (65M)	11	2462	-69.03
19	TRP	WIFI_A (54M)	36	5180	16.45
20	TRP	WIFI_A (54M)	149	5745	15.95
21	TRP	WIFI_A (54M)	165	5825	15.85
22	TIS(EIRP)	WIFI_A (54M)	36	5180	-74.7
23	TIS(EIRP)	WIFI_A (54M)	149	5745	-73.57
24	TIS(EIRP)	WIFI_A (54M)	165	5825	-74.11

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 <sup>6+</sup>	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
Environmentally friendly Tin wire	Environmentally friendly Tin wire	SHAEC23006357502	SGS	23/05/23	ND	43	ND	ND	ND	ND	PASS