

JMGO Sample Confirmation Letter

Supplier Name: SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO. LTD

Material Name: BT 2.4G Black FPC built-in Antenna (KD21AN)

Material No.: 23040404&YJC-6N464-B06

Material Description: BT 2.4G Black FPC built-in Antenna (KD21AN)

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
Yin FeiJie	Yang YunGang	Xiao Han				

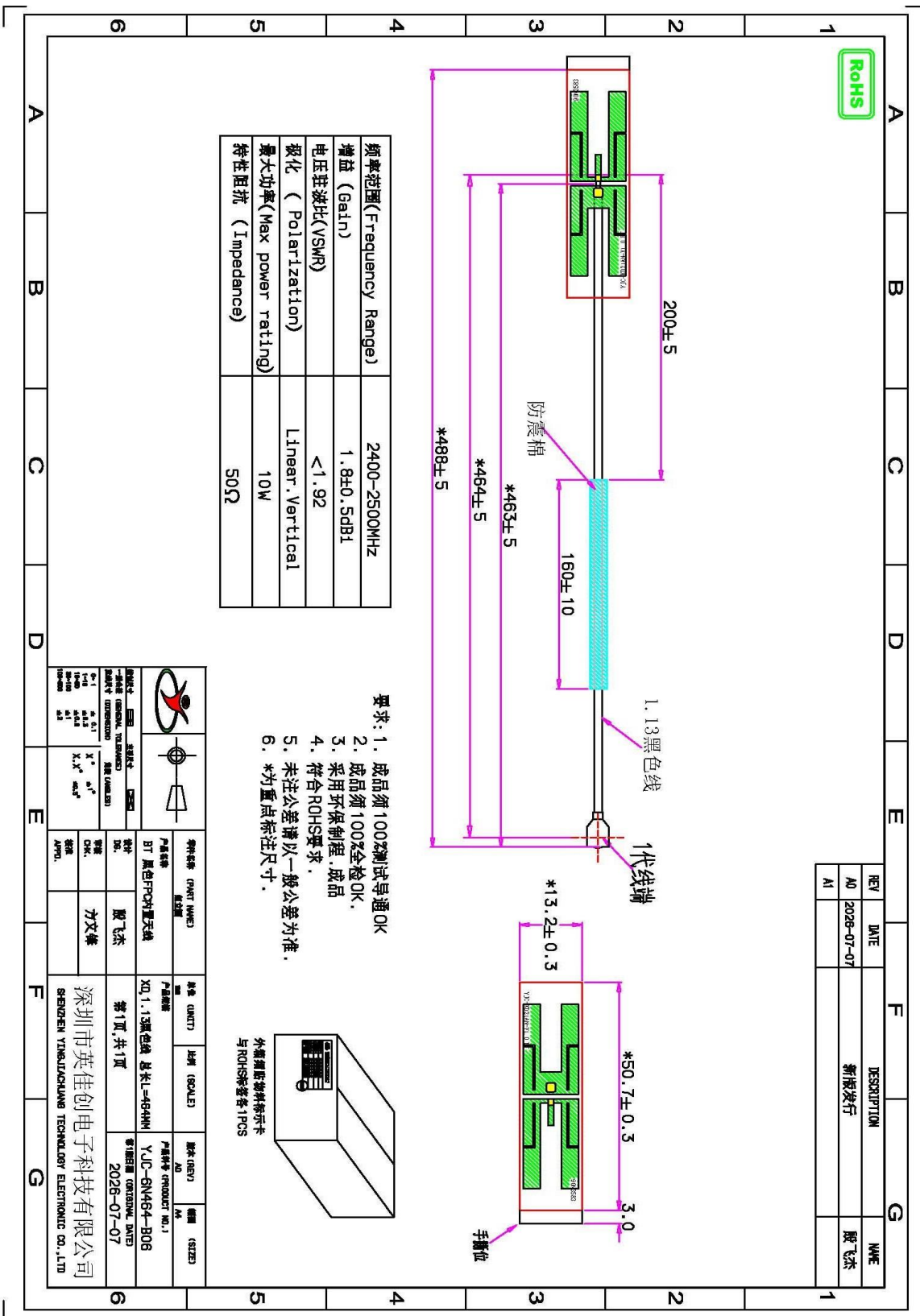
Address: Building C, Hongyu Guangming Valley, No. 11, Shiwei Community, Matian Office, Guangming District, Shenzhen

Phone: +86-755-27810060/23192199

Fax: +86-0755-27810057

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Product drawings:



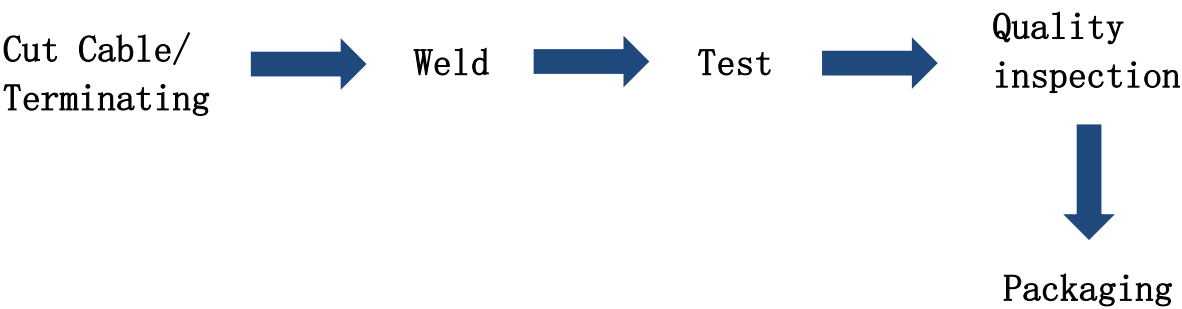
Specification:

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	464mm (Total Length)
Working Temperature	-20℃~+70℃
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 ℃ ~ + 70 ℃ 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 ℃ and -20 ℃ 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 ℃. 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

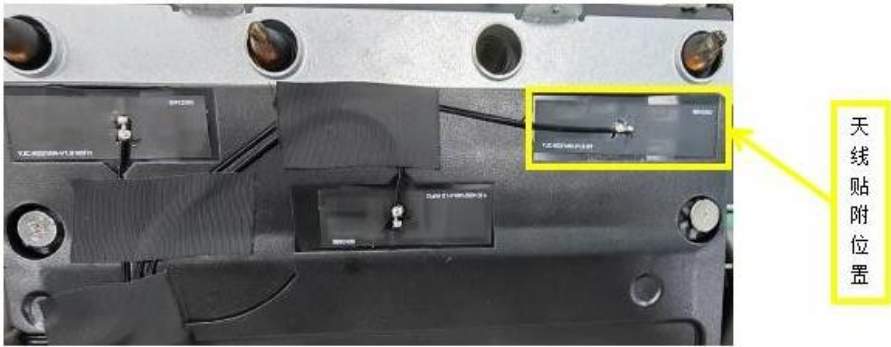


BOM list

FPC、Cable、Terminal、PE packaging bag、Carton

Performance testing reports:

Antenna physical image:



Antenna performance test chart:

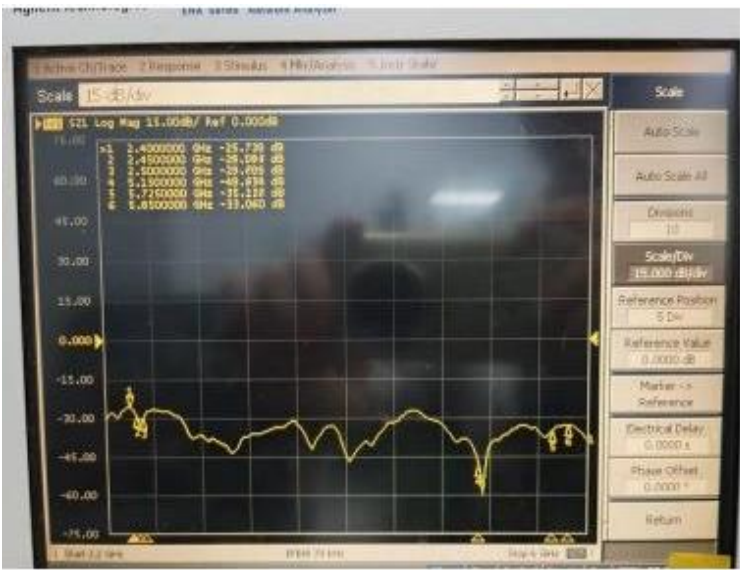


Frequency (MHZ)	2400	2450	2500
VSWR (dB)	1.68	1.69	1.60

BT and WiFi 1 isolation test diagram



BT and WiFi 2 isolation test diagram

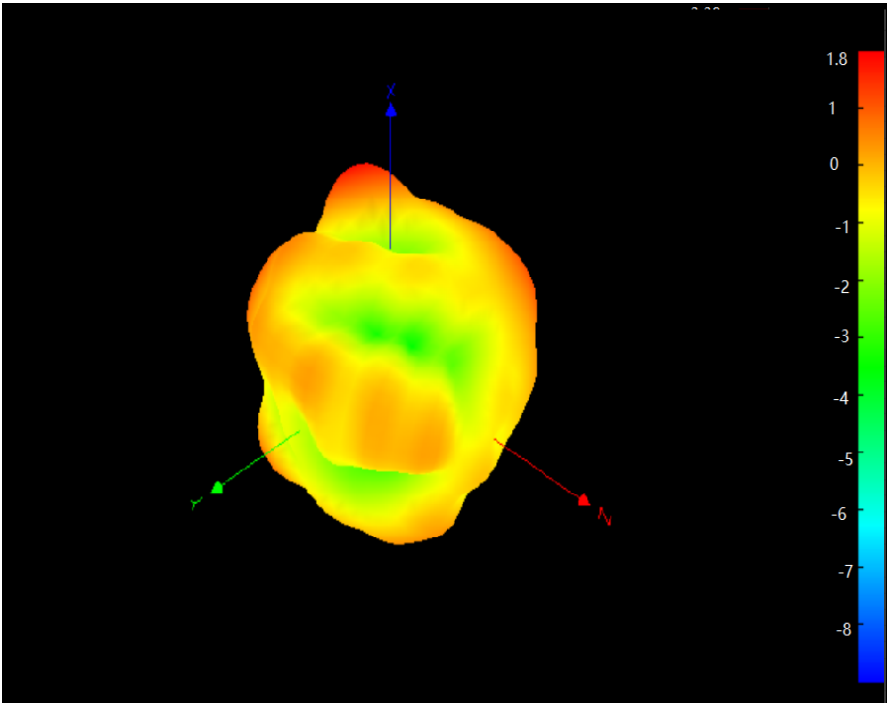


Frequency (MHz)	2400	2450	2500	5150	5725	5850
WIFI1 and BT isolation (dB)	-27	-28	-30	-53	-40	-42
WIFI2 and BT isolation (dB)	-25	-29	-29	-48	-35	-33

2D、3D test data (BT):

Frequency	Efficiency (%)	Gain. (dBi)
2400MHz	52.77	1.67
2410MHz	51.62	1.50
2420MHz	52.65	1.60
2430MHz	54.58	1.71
2440MHz	54.89	1.74
2450MHz	57.42	1.80
2460MHz	56.87	1.75
2470MHz	56.51	1.72
2480MHz	55.13	1.79
2490MHz	54.79	1.72
2500MHz	53.33	1.69

2450MHz



OTA active test data:

Item	Measurement	Band	Channel	Frequency	Total
1	TRP	BLUETOOTH	0	2402	3.12
2	TRP	BLUETOOTH	39	2441	3.13
3	TRP	BLUETOOTH	78	2480	2.91
4	TIS(EIRP)	BLUETOOTH	0	2402	-85.45
5	TIS(EIRP)	BLUETOOTH	39	2441	-86.91
6	TIS(EIRP)	BLUETOOTH	78	2480	-84.64
7	TRP	BLUETOOTH	0	2402	1.47
8	TRP	BLUETOOTH	39	2441	1.69
9	TRP	BLUETOOTH	78	2480	1.18
10	TIS(EIRP)	BLUETOOTH	0	2402	-85.48
11	TIS(EIRP)	BLUETOOTH	39	2441	-86.26
12	TIS(EIRP)	BLUETOOTH	78	2480	-84.21
13	TRP	BLUETOOTH	0	2402	1.46
14	TRP	BLUETOOTH	39	2441	1.55
15	TRP	BLUETOOTH	78	2480	1.12
16	TIS(EIRP)	BLUETOOTH	0	2402	-79.05
17	TIS(EIRP)	BLUETOOTH	39	2441	-81.48
18	TIS(EIRP)	BLUETOOTH	78	2480	-78.42

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 Compositio n	ICP report #	Test Org.	Test Date	Content of harmful substances (ppm)						PASS?
					Cd	Pb	Hg	Cr ⁶⁺	PBB	PBDE	PASS
FPC	Ink	ETR25901252M01	SGS	25/09/11	ND	4.78	ND	ND	ND	ND	PASS
	Copper	SHAEC25032493501-1	SGS	26/01/06	ND	ND	ND	ND	ND	ND	PASS
	FPC	A22600588471010004E	CTI	26/04/02	ND	ND	ND	ND	ND	ND	PASS
Wire	Series Coaxial Cables	CANEC25018034403	SGS	25/07/30	ND	ND	ND	ND	ND	ND	PASS
Terminal	Copper	CANEC25027363009	SGS	25/11/13	ND	6	ND	ND	ND	ND	PASS
	Au plating	A2260449180101001E	CTI	26/06/09	ND	ND	ND	ND	ND	ND	PASS
	Rubber core	48279652A4001	CTI	25/07/25	ND	ND	ND	ND	ND	ND	PASS
Sn	Sn	SZXPC26000658916	SGS	26/02/26	ND	22	ND	ND	ND	ND	PASS