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Antenna specification

customer name: Shenzhen Ruijie Innovation Technology Co., LTD

Customer material number: _____

Customer project: Bluetooth radio

The city material number: 01.06.0007

product description: FPC BT Antenna L=40MM 0.81

Date : 2024.7.2

Research and development confirmation	composition:	signature:
	radio frequency:	
approval		

Customer sign back

department	Project / Engineering Department:	signature:
	purchase department:	

catalogue

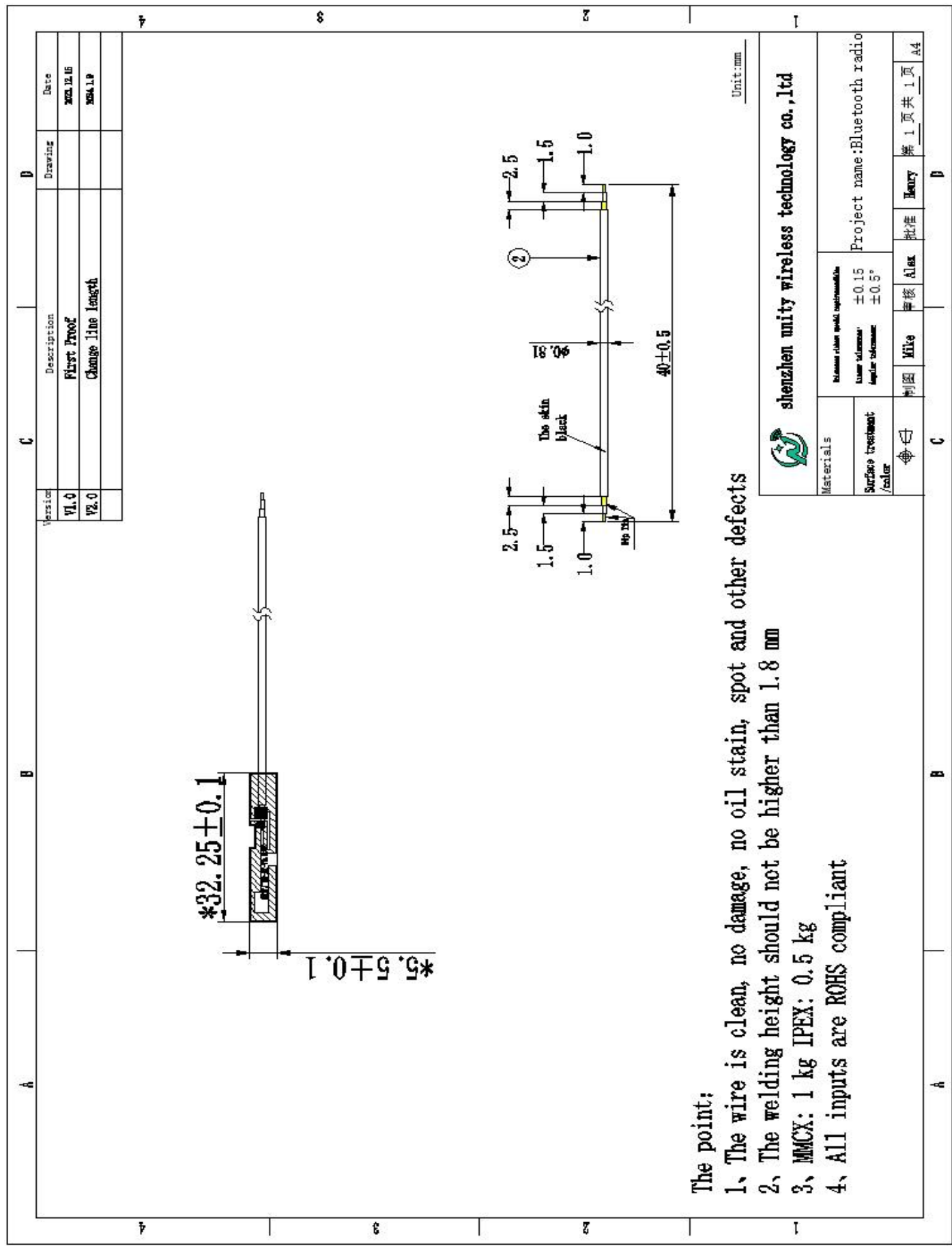
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Document development / revision / repeal of the CV:

edition:	date	Date developed / revised content	constitute	approval
V1.0	2023.12.15	Make for the first time	primary offering	
V2.0	2023.12.18	Change the shape and routing	RF	
V3.0	2024.1.3	Change the shape and routing	RF	

Engineeringdrawing:



Product Parameter

name of a part;	FPC antenna	Model	FPC antenna
frequency rang (MHz)	2400–2500	frequency rang (MHz)	2400–2500
Polarization Type	Linear polarization	Polarization Type	Linear polarization
Gain (dBi) (dBi)	1.43	Gain (dBi)	1.43
VSWR	The physical prototype shall prevail	VSWR	The physical prototype shall prevail
input impedance (Ω)	50	Input Impedance (Ω)	50
Cable length (mm)	40MM	Cable length (mm)	40MM
Cable Colour	Black / gray	Cable Colour	Black / gray
Connector Type	blackness	Connector Type	blackness
Operation temperature	-40~+85	Operation temperature (°C)	-40~+85
Store temperature (°C)	-40~+85	Store temperature (°C)	-40~+85

1. Antenna matching (original antenna match)

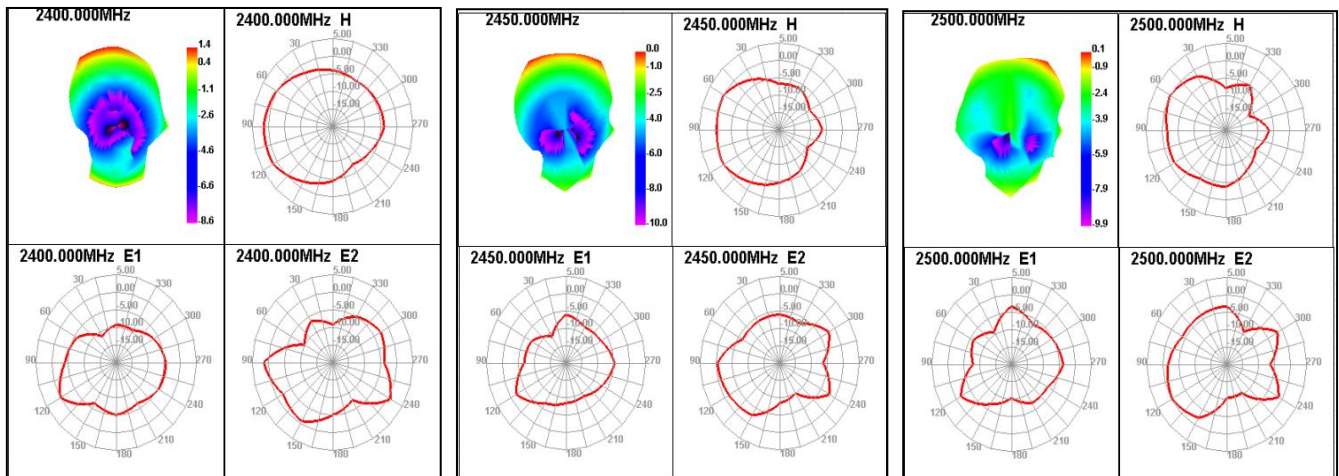
WIFI	E1	E2	E3
	N/A	0 欧	N/A

2. Antenna OTA passive test data

Freq (MHz)	Effi (%)	Gain (dBi)
2400	43.67	1.43
2410	39.79	0.93
2420	40.52	0.94
2430	38.5	0.68
2440	37.38	0.58
2450	33.24	0.01
2460	33.87	0.21
2470	30.45	-0.27
2480	33.37	0.15
2490	31.83	-0.19
2500	35.5	0.12

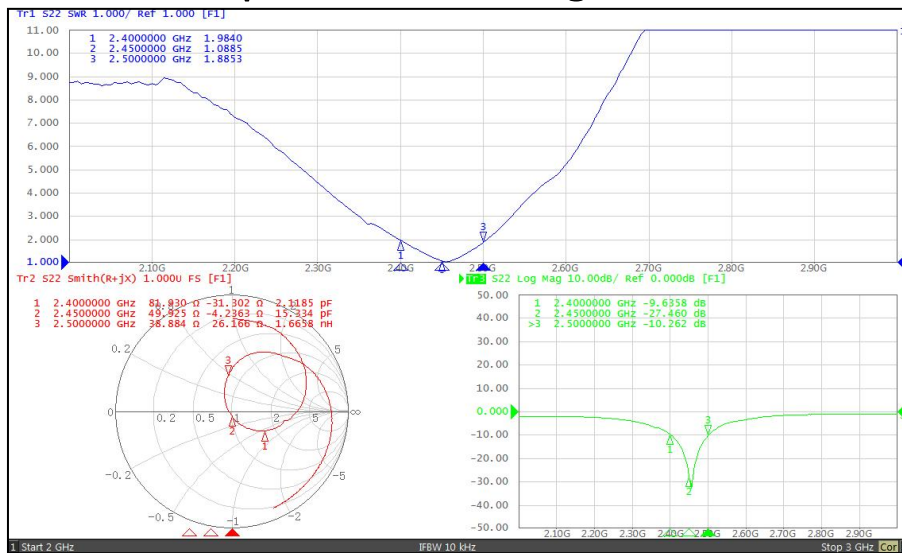
3.

4. Antenna orientation diagram

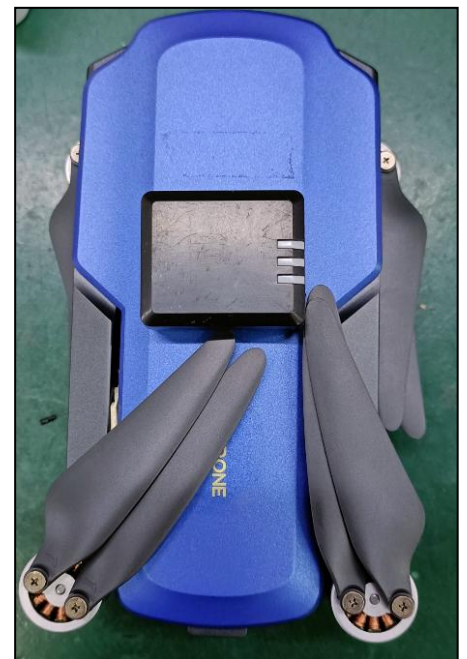


5.

4. Antenna passive standing wave (S11)



5. Complete picture



on-product information										
customer name		Item name / model number		project name		manufacturer				
Rijay innovation		01.06.0007		Bluetooth radio		Shenzhen Zhongcheng Wireless Technology Co., LTD				
Product composition information										
order number	Part name	Third-party inspection repor		Limited substance contentPPM						remarks
		date	number	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬	多溴联苯	多溴二苯醚	
1	3M9471 (gum)	2023/1/4	SHAEC2217569205	○	○	○	○	○	○	
2	Substrates (copper foil)	2023/2/15	SHAEC23001049106	○	○	○	○	○	○	
3	pad (OSP)	2023/5/25	A2230230896101001E	○	○	○	○	○	○	
4	Wlet (electric gold)	2023/2/15	SHAEC23001049106	○	○	○	○	○	○	
5	Ink (resistance welding)	2023/7/13	ETR23701480	○	○	○	○	○	○	
6	Ink (character)	2023/10/13	ETR23A00862M01	○	○	○	○	○	○	
7	wire stock	2023/2/14	CANEC23000117904	○	○	○	○	○	○	
Note: 1.Please indicate with ○, compliance of six restricted substance content; compliance with ○; non-compliance.										

testing facility:

Measurement instrument: microwave dark room, network analyzer, standard antenna. Description of microwave dark room: This is the microwave dark room set in Shenzhen by our company. This microwave dark room is a far field measuring system. The size of the dark room is 7.0 m x4.0 m x3.0 m, and the size of the static area (quiet zone) is 15 cm x15 cm x15 cm.

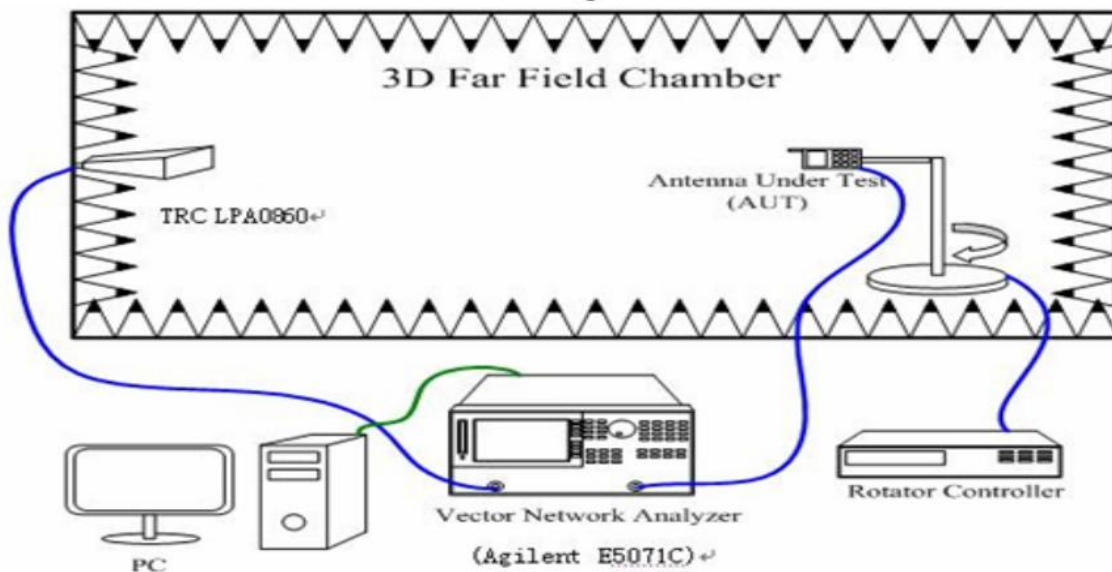


图. 1. 微波暗室内部仪器设置 r.

graph. 1 is the instrument setting of the microwave room and the connection diagram of the network analyzer. The distance between the transmitting antenna (the transmitting antenna used in the room is trc lpa0860 800mhz~6 ghz) and the antenna to be tested (aut) is 1.35 meters. The antenna to be measured is placed on the rotating platform, and the antenna can be measured by the Angle of rotation from the control table. Place the measured antenna on the rotating table and measure the 360 degree field strength data of each plane (zy plane and zx plane). Then the antenna to be tested is replaced by a standard dipole antenna (the standard dipole antenna model used in this dark room is trc ad series dipole antenna 800mhz ~ 2500 mhz) and the field strength data of 360 degrees is measured to convert the gain standard value. The gain value and direction map of the antenna to be measured can be obtained through the conversion of equation 1.

$$G_{AUT} = G_{stand} + P_{AUT} - P_{stand}$$

G_{AUT} : Gain of AUT

G_{stand} : Gain of Standard Gain Antenna

P_{AUT} : Measured Power of AUT

P_{stand} : Measured Power of Standard Gain Antenna

Environmental and Reliability Testing

project	Reference standards, and experimental conditions	Judgment basis	Sample quantity / bad quantity (PCS)	Test / test the equipment
collide	GB/T 2423.6-1995 Acceleration: 200m / s ² Collision pulse duration: 6ms Number of collisions per minute: 40~80 times Total collisions: 400 vertical direction, front and back Left and right horizontal direction each 300 times, a total of 1000 times.	It should meet the requirements of electrical characteristics, and the mechanical properties are normal, but the appearance of touch marks, whitening and bending in the allowable range.	5/0	Collision experiment machine
vibrate	GB/T2423.10-1995 Test the FcFrequency: 10~30; 30~50Hz; Resonance point amplitude: 0.35mm Amplitude: 0.75mm Duration: X, Y & Z, 0.5 hours per direction. Cycle: 1min; Test for 1 hour after completing the experiment.	And firmware without loose, parts without rupture or fatigue; No original fall off, no solder point fracture; The electrical performance index meets the requirements of the technical specifications;	5/0	Vibration test machine
retentivity	Verification conditions: both ends of the joint and wire are fixed on the drawing machine fixture, and the pulling force returns to zero Verification method: manually pull to the product IPEX connector and wire fall off	>10N	5/0	Pull force test machine

decline	GB/T2423.8-95 From 100cm height to the floor 10 times. GB/T2423.8-95	1. No significant abnormality in appearance 2. After the test, the electrical performance shall meet the requirements of the electrical characteristics, and the mechanical performance shall be normal, but the external collision marks, whitening and bending shall be in the allowable range.	5/0	Drop test machine
high-temperature storage	GB/T 2423.2-2001 trial B Ambient conditions: + 85 ± 3°C for 96H The experiment was completed 24 hours after room temperature.	The surface coating shall have no peeling, crack, wrinkle and separation; the non-metallic structures have no permanent deformation, cracking, bonding; the mobile components are not stuck or detached; the electrical performance indexes meet the requirements of technical specifications	10/0	Temperature and humidity cycle test box
Low temperature storage	The gb / t 2423.1-2001 test a ambient conditions: -40 ± 3°C for 96h was tested 24 hours after the experiment was at room temperature.	The surface coating shall have no peeling, crack, wrinkle and separation; the non-metallic structures have no permanent deformation, cracking, bonding; the mobile components are not stuck or detached; the electrical performance indexes meet the requirements of technical specifications	10/0	Temperature and humidity cycle test box

High and low temperature cycle	gb/t2423.22-2002 Test n: Place the antenna in t1=-40°C incubator for 30 minutes, then raise the temperature for 60 minutes to t2=80°C, then keep the temperature for 30 minutes, relative humidity at 50% rh, and the cycle is repeated 20 times.	The surface coating shall have no peeling, crack, wrinkle and separation; the non-metallic structures have no permanent deformation, cracking, bonding; the mobile components are not stuck or detached; the electrical performance indexes meet the requirements of technical specifications	10/0	Temperature and humidity cycle test box
humid heat test;	Test gb / t 2423.3-1993 ca: ambient conditions: 40 ± 2°C, relative humidity 80 ~90% for 96 hours. The experiment was completed 24 hours after room temperature.	2. After the test, the electrical performance meets the specification requirements, and the electrical performance meets the specification range.	10/0	Temperature and humidity cycle test box
salt spray test	The gb / t 2423.18-2000 test kb places the test in a salt spray chamber with saline injection concentration (5 ± 1)%, 35°C± 1°C, sedimentation rate (1-2) ml / 50mm ² * h, 48 hours, check the appearance.	No rust phenomenon, mechanical performance and electrical performance to meet the range of specification.	5/0	Saline spray machine

Product material number :01.06.0007

size of product: FPC BT Antenna L=40MM 0.81

1. Labeling requirements (according to the customer name reference corresponding finished product label production requirements, no requirements, according to the ordinary label requirements)

2. The inner label is about 8cm long and 5.5cm wide

 众城无线 SHENZHEN UNITY WIRELESS TECHNOLOGY., LTD			
客户		规格型号	
订单号		送货数量	
客户料号		众城无线料号	
日期		生产批次	
TEL:0755-23285621		FAX:0755-23285621	

The outer label is about 8cm long and 5.5cm wide

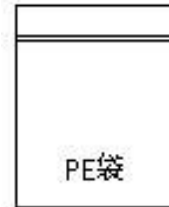
 众城无线 SHENZHEN UNITY WIRELESS TECHNOLOGY., LTD			
客户		规格型号	
订单号		送货数量	
客户料号		众城无线料号	
日期		生产批次	
TEL:0755-23285621		FAX:0755-23285621	

二、The packing requirements

job description:

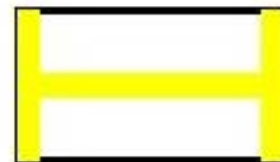
1. inner packing:

Product according to actual packaging quantity pcs / pouch,
Quantity of pcs / large bag according to the actual package

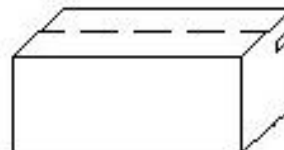


2. Packaging:

Quantity / box according to the actual packing



纸箱



matters need attention:

- Whether to add a partition board, pearl cotton;
- Label, such as rohs, etc.;