



Shenzhen unity wireless technology co., ltd

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acknowledgement

customer name: Shenzhen Guxian Technology Co., Ltd.

Customer Part Number: _____

Customer Project: JT022 PLUS

Zhongcheng Material Code: 01.02.0323

product description: FPC WIFI Antenna, L=55mm, 0.81mm, Black, IPEX2

date : 2026.9.24

R&D Confirmati on	SE:	signature:
	RF:	
Quality Confirmati on	QE:	

Customer Re-sign

department	Project Engineering Department:	signature:
	purchase department:	

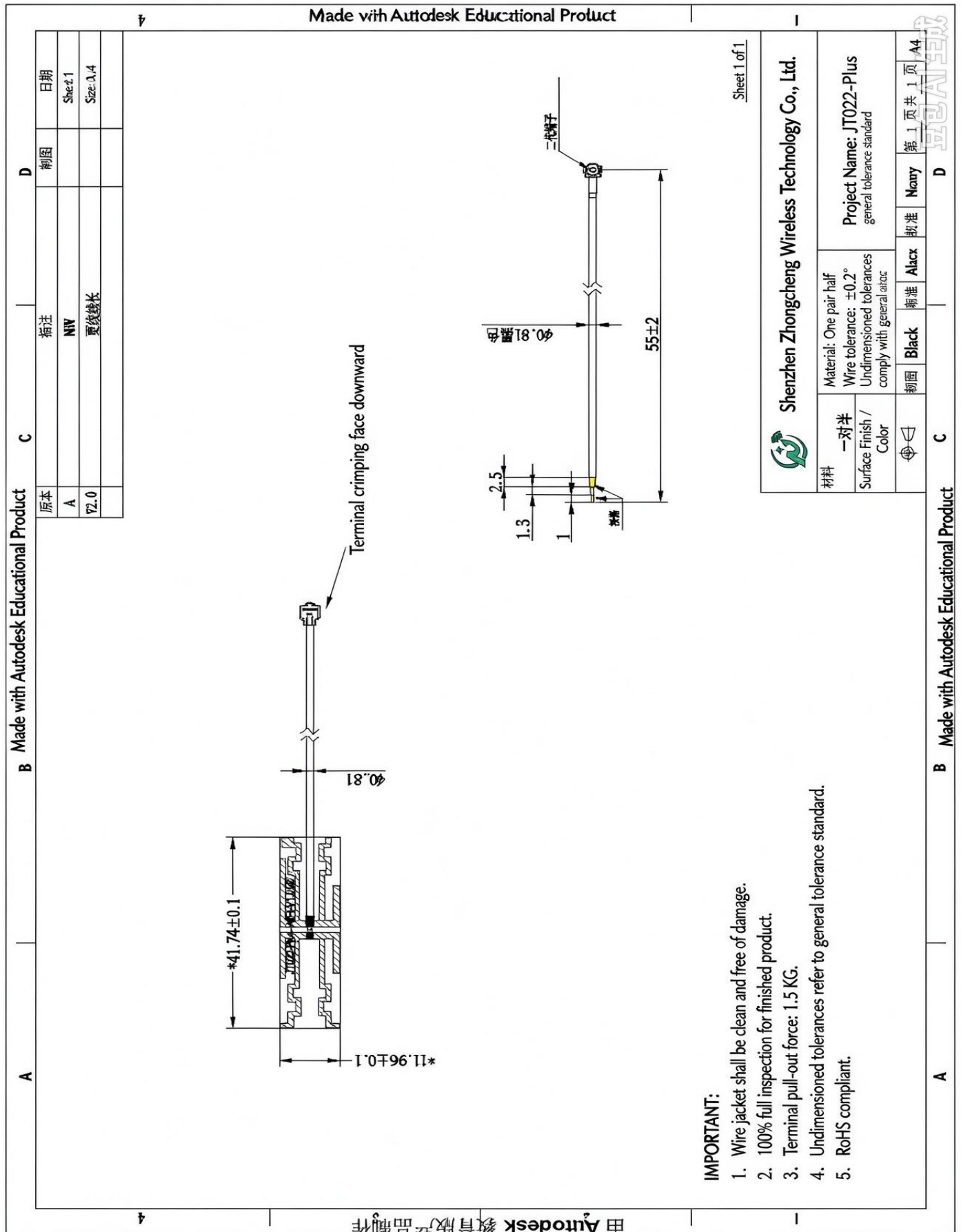
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Creation/revision/cancellation of the resume form:

editio n:	date	date Formulation/revision content	formulate	approval
V1.0	2025.12.4	First formulation	First formulation	

工程图纸:

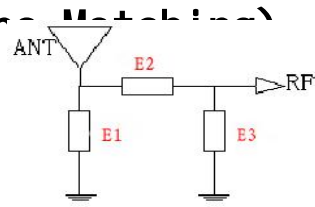


产品参数:

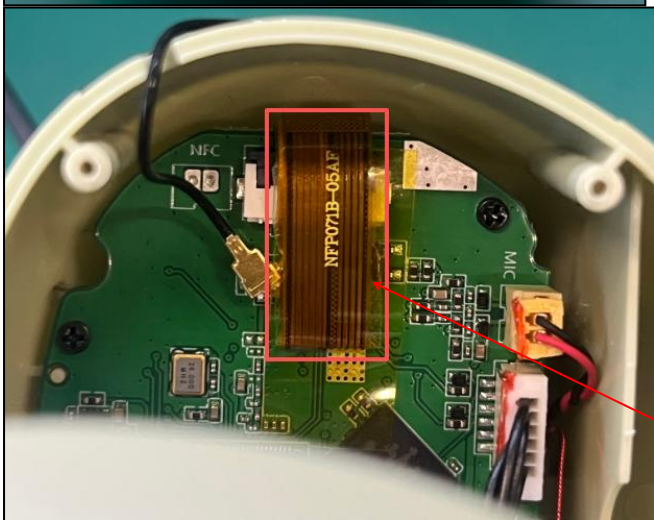
Model	FPC Antenna
Frequency	2400-2500
Polarization Type	线极化
Gain (dBi)	2.41
VSWR	以实物样机为准
Input Impedance (Ω)	50
Cable length (mm)	55mm
Cable Colour	black
Connector Type	IPEX2
Operation temperature ($^{\circ}\text{C}$)	-40~+85
Store temperat ($^{\circ}\text{C}$)	-40~+85

1. Antenna Matching (Original Antenna)

	E1	E2	E3
	N/A	0 欧姆	N/A



2. antenna position



The FPC ribbon cable, positioned directly above the antenna, can significantly affect the antenna; it is recommended that the bent end of the FPC facing the motherboard be positioned away from the antenna.

3. Active WIFI test data:

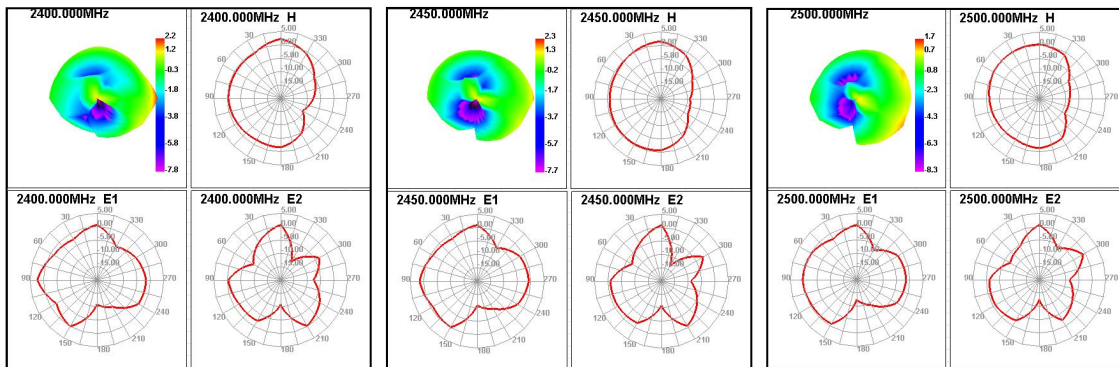
信道 CH 测试值		802.11b : 11Mbps			802.11n : MCS7		
		1	6	11	1	6	11
	TRP	17.54	18.36	18.91	16.17	16.9	17.14
	TIS			-87.65			-70.38

信道 CH 测试值		802.11g : 54Mbps					
		1	6	11			
	TRP	16.17	16.9	17.2			
	TIS			-71.68			

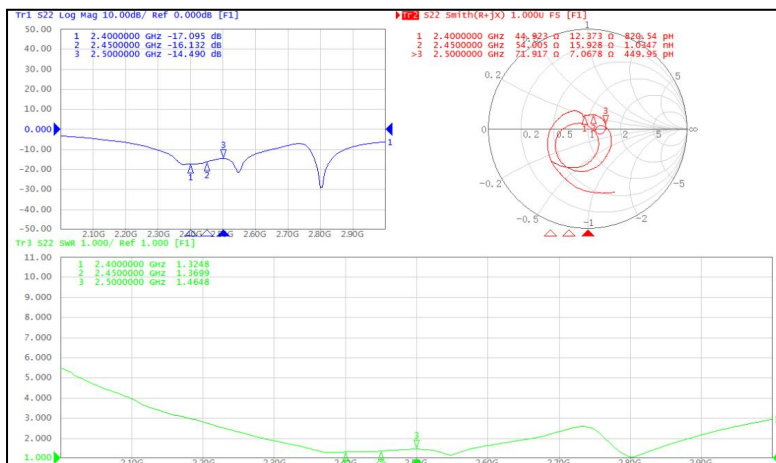
4.2.4G Antenna Passive Efficiency

Freq (MHz)	Effi (%)	Gain (dBi)
2400	53.96	2.23
2410	55.55	2.16
2420	55.37	1.95
2430	58.45	1.91
2440	58.08	1.98
2450	59.86	2.29
2460	58.68	2.24
2470	58.66	2.41
2480	58.19	2.21
2490	59.65	2.24
2500	58.38	1.71

5. Antenna Apple Diagram:



6. S11 Standing wave pattern



ROHS Restricted Substance Composition Survey

Product information provided

customer name	Material name/model	project name	manufacturer
Fixed display	01.02.0323	JT022 PLUS	Shenzhen Zhongcheng Wireless Technology Co., LTD

产品构成信息

order number	Part Name	Third-party Inspection Report		Content of restricted substancesPPM						remarks
		date	number	Pb	Cd	Hg	hexavalent chromium	Polybrominated biphenyl	Polybrominated diphenyl ethers	
1	3M9471 (Back-coated)	2024/12/6	SHAEC24027480901	○	○	○	○	○	○	
2	base material(copper foil)	2024/12/20	SHAEC24028809006	○	○	○	○	○	○	
3	pad (OSP)	2024/3/14	CANEC24004013302	○	○	○	○	○	○	
4	pad (gilding)	2024/3/30	A2240158803101001E	○	○	○	○	○	○	
5	printing ink(Bonding Mask)	2024/6/14	ETR24600712	○	○	○	○	○	○	
6	printing ink(character)	2024/9/23	ETR24902229M01	○	○	○	○	○	○	
7	wire stock	2024/1/12	XMP24-000173	○	○	○	○	○	○	
8	TPEX	2024/4/25	27322E20188R1M	○	○	○	○	○	○	

Note:

1.Use ○ and × to indicate whether the content of the six restricted substances complies with regulations: ○ for compliant, × for non-compliant.

testing facility

- Measuring instrument: microwave anechoic chamber, network analyzer, standard antenna.
- Micro-wave anechoic chamber description:

This is the microwave anechoic chamber set up in Shenzhen by our company. This microwave anechoic chamber belongs to a far-field measurement system. The size of the anechoic chamber is 7.0m x4.0m x3.0m, and the quiet zone size is 15cm x15cm x15cm.

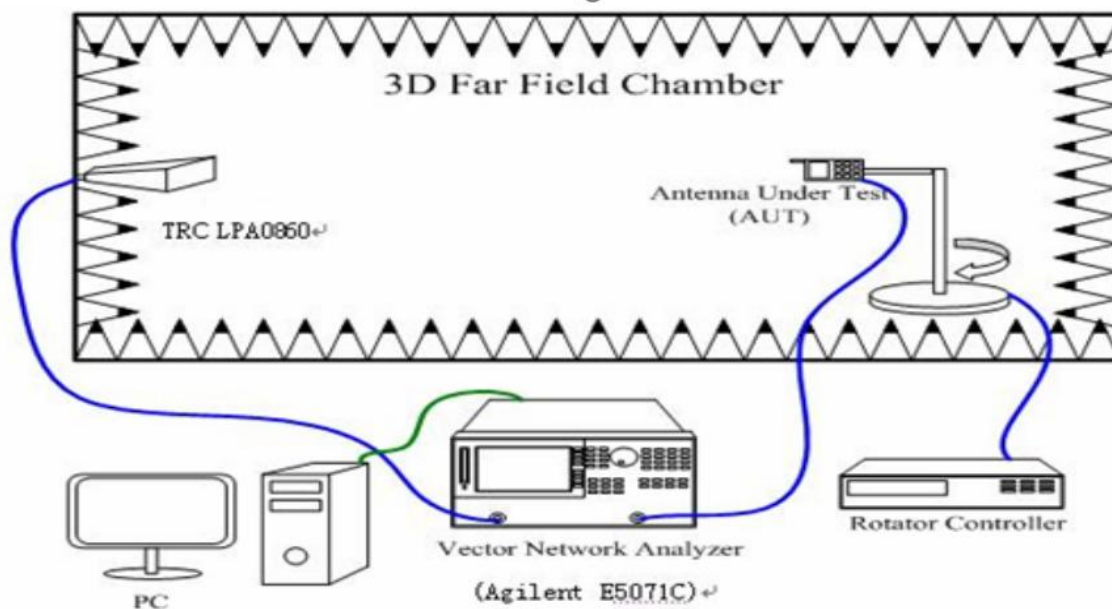


图. 1. 微波暗室内仪器设置

图. 1. Configuration diagram for instruments in the microwave anechoic chamber and network analyzer connection: The transmitting antenna (TRC LPA0860 800MHz-6GHz model used in this chamber) is positioned 1.35 meters from the test antenna (AUT), which is mounted on a rotating platform. By adjusting the rotation angle of the platform, both preliminary and precise measurements can be performed on the test antenna.

The antenna under test is mounted on a rotating platform to collect 360-degree field strength data across its two planes (ZY and ZX). The antenna is then reconfigured as a standard dipole antenna (specifically the TRC AD series dipole antenna operating in the 800MHz-2500MHz frequency range used in this anechoic chamber) to measure its 360-degree field strength data. These measurements serve as the reference for calculating conversion gain values. Through Equation 1, the antenna's gain value and radiation pattern can be determined

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

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 / 50mm2 * 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

Packaging specifications

Product material number: 01.02.0323

size of product, specifications of the products: FPC WIFI Antenna, L=55mm, 0.81mm, Black, IPEX2

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 UNITY WIRELESS 深圳众城无线技术有限公司			
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

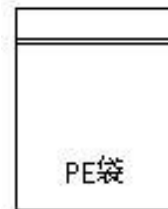
 众城无线 UNITY WIRELESS 深圳众城无线技术有限公司			
SHENZHEN UNITY WIRELESS TECHNOLOGY., LTD			
客户		规格型号	
订单号		送货数量	
客户料号		众城无线料号	
日期		生产批次	
TEL:0755-23285621		FAX:0755-23285621	

二、The packing requirements

job description:

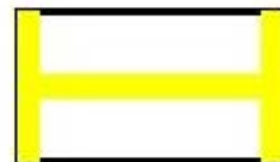
1. inner packing:

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.;

