

**Shenzhen Yunding Communication Electronics Co., LTD**

TEL: +86 0755-23073599

FAX: +86 0755-23097189

E-mail:wht0809@163.com

**APPROVAL SHEET**

**ZHONG YI XIN**

**CUSTOMER:**

**PND-2.4G-0.81-L150MM-IPEX 1**

**DESCRIPTION:**

**PART NO.:**

**CUS PART NO.:**

**2024.8.20**

**D A T E:**

Yunding signature

ENGINEERING DEPARTMENT	Q C DEPARTMENT	SALES DEPARTMENT

Customer signature

ENGINEERING DEPARTMENT	Q C DEPARTMENT	PURCHASING DEPARTMENT

**TEL: 0755 23073599**

**✂ Approval in duplicate, please signed by your company.**

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## 1.Test items and equipment

	Test items	Equipment
1. S11-parameter	1. Return Loss 2. VSWR	network analyzer: Agilent E5071B HP 8753D
2.Active test	1. Transmitting power 2. Receiving sensitivity	1. Darkroom: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2.general-purpose tester : Agilent 8960 E5515B ×2 StarPoint SP6011 Cmw500
3.Passive test	1.Gain 2.Efficiency	1. Darkroom: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. network analyzer: Agilent E5071B HP 8753D



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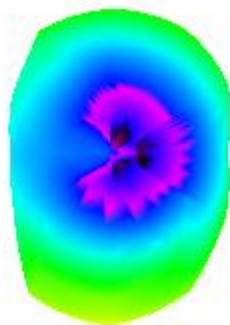
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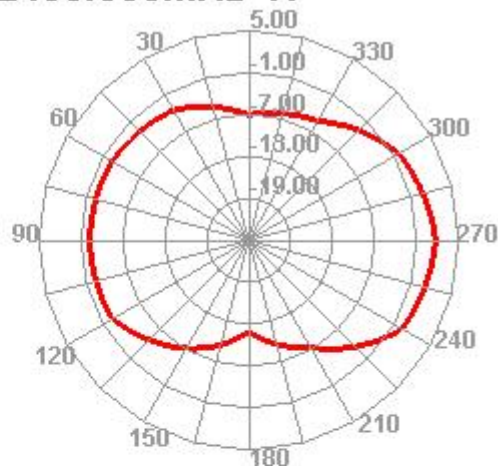
## 2. Antenna efficiency and gain

Passive Test For WIFI2.4		
Freq (MHz)	Effi (%)	Gain (dBi)
2400	63.24	4.2
2410	61.47	4.08
2420	59.87	4.02
2430	59.54	3.88
2440	61.67	3.94
2450	63.02	3.93
2460	63.84	3.96
2470	59.66	3.72
2480	60.33	3.81
2490	59.28	3.78
2500	52.81	3.29

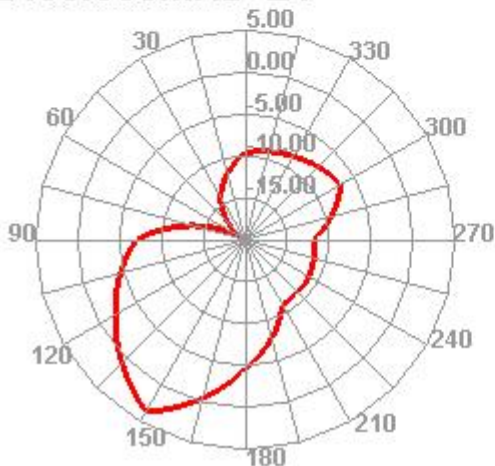
2400.000MHz



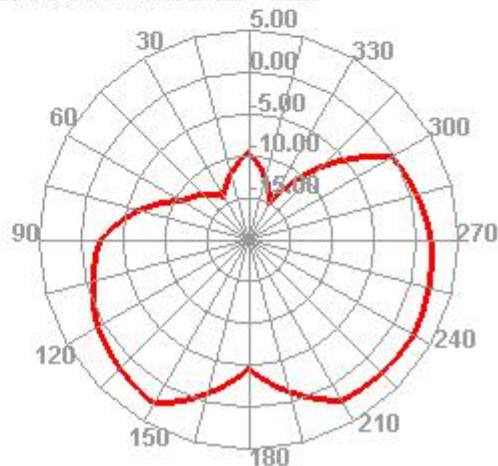
2400.000MHz H



2400.000MHz E1



2400.000MHz E2



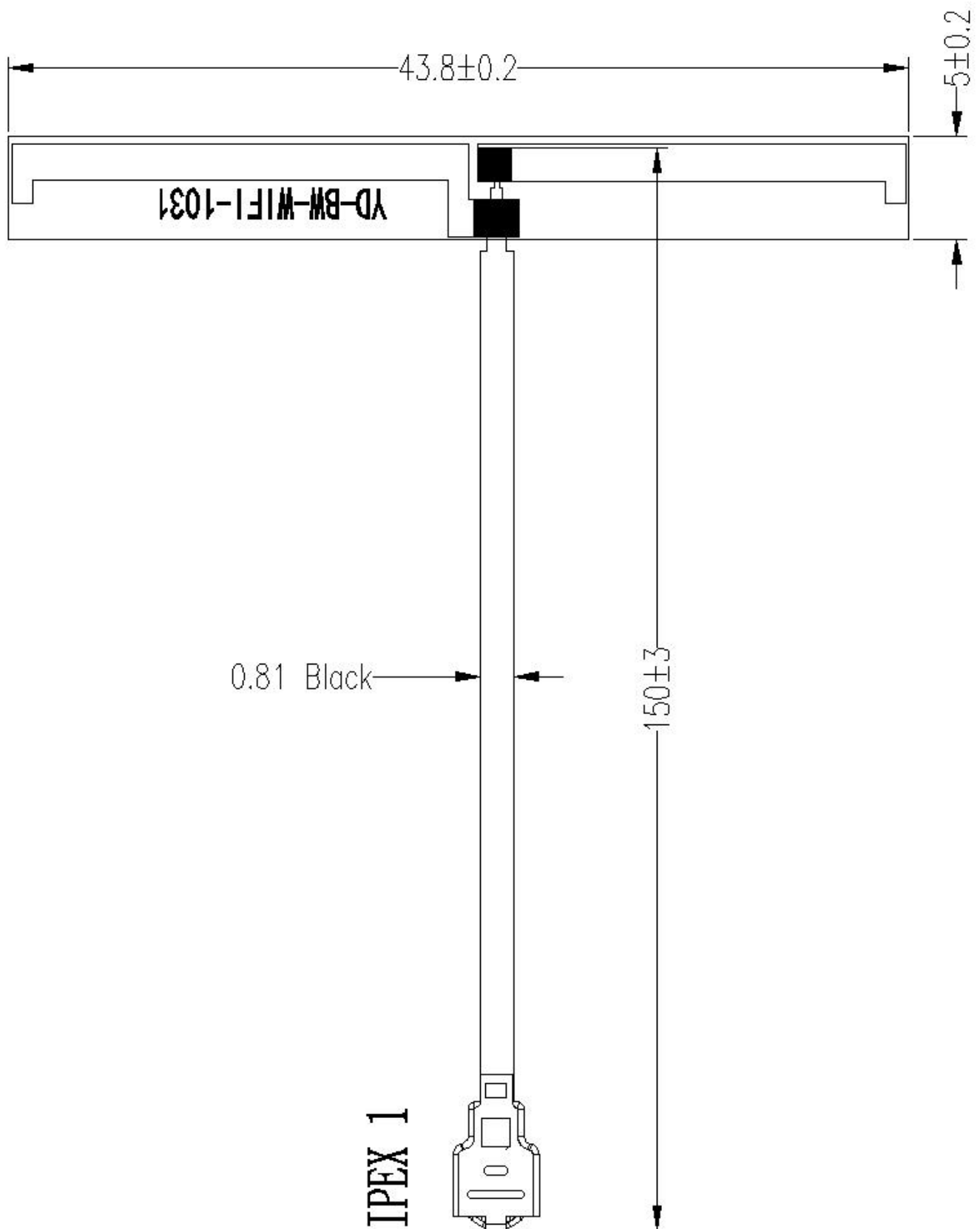
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## 3. Antenna structure diagram:



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## Technical parameters of electrical apparatus

### Electrical Specifications

Frequency Range	2400~2500MHz
VSWR	$\leq 2.0$
Input Impedance	50 $\Omega$
Gain	4.2 DBI

### Mechanical Specifications

Antenna Color	Black
Input connector	IPEX
Cable length	150mm
Working Temperature	-40°C~+85°C
Working Humidity	20~80%

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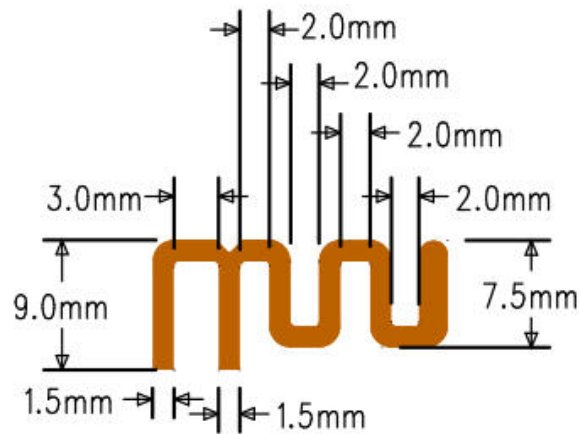
## Environment performance test:

Project	Test condition	Test results
Storage environment	Test temperature, humidity, pressure without stated condition as follwings :1.Temperature: -30 °C ~ +80 °C ;2.Relative humidity: 45%-85%;3,Pressure: 86kpa-106kpa	Electrical and mechanical performance normal
High and low temperature test	Having 5 times cycle between -40°C to 70°C,Then in common condition 1-2 hours test exterior quality.	Measurement satisfied with electrical and mechanical performance normal.
Resistance constant hot and humid test	Relative humidity:95±3%,Test temperature: 40°C,last 2 hours ,put it after 5 min test the electrical function . Test products during common condition 1-2 hours ,Then test exterior quality.	Measurement satisfied with electrical and mechanical performance normal.
Vibration test	Vibrate Frequency:10-55HZ; Distance :0.35mm;Acceleration :50.0m/s;Sweep frequency cycle:30 times	Electrical and mechanical performance normal
Fall test	From 1 mheight fall down 3 times freely (vertical direction)	Electrical and mechanical performance normal

# Antenna Specification

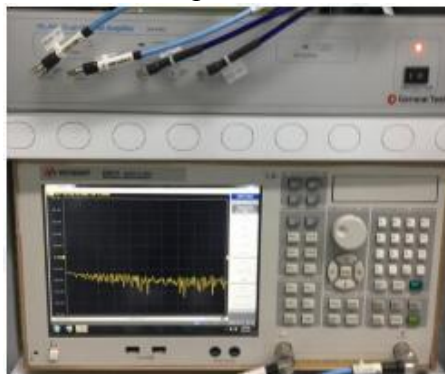
## Summary

ITEM	ANT SPEC		
Model Name	2.4G ANT		
Antenna plate	PCB antenna		
Center Frequency	2400MHz	2450MHz	2500MHz
MAX. Gain	4.2dBi		
Polarization	Horizontal and Vertical		
Impedance	50Ohm		
Manufacture	Anghui Electronic Technology CO.,LTD		



## Testing site and equipment:

Microwave darkroom, PC, spectrometer, amplifier, etc , Quiet zone range 1m;



## Test method:

When testing the efficiency of bare board PCB antennas, solder the Cable to the bare board, and then connect it to the OTA device. The testing frequency range is 2400MHZ-2500MHZ;

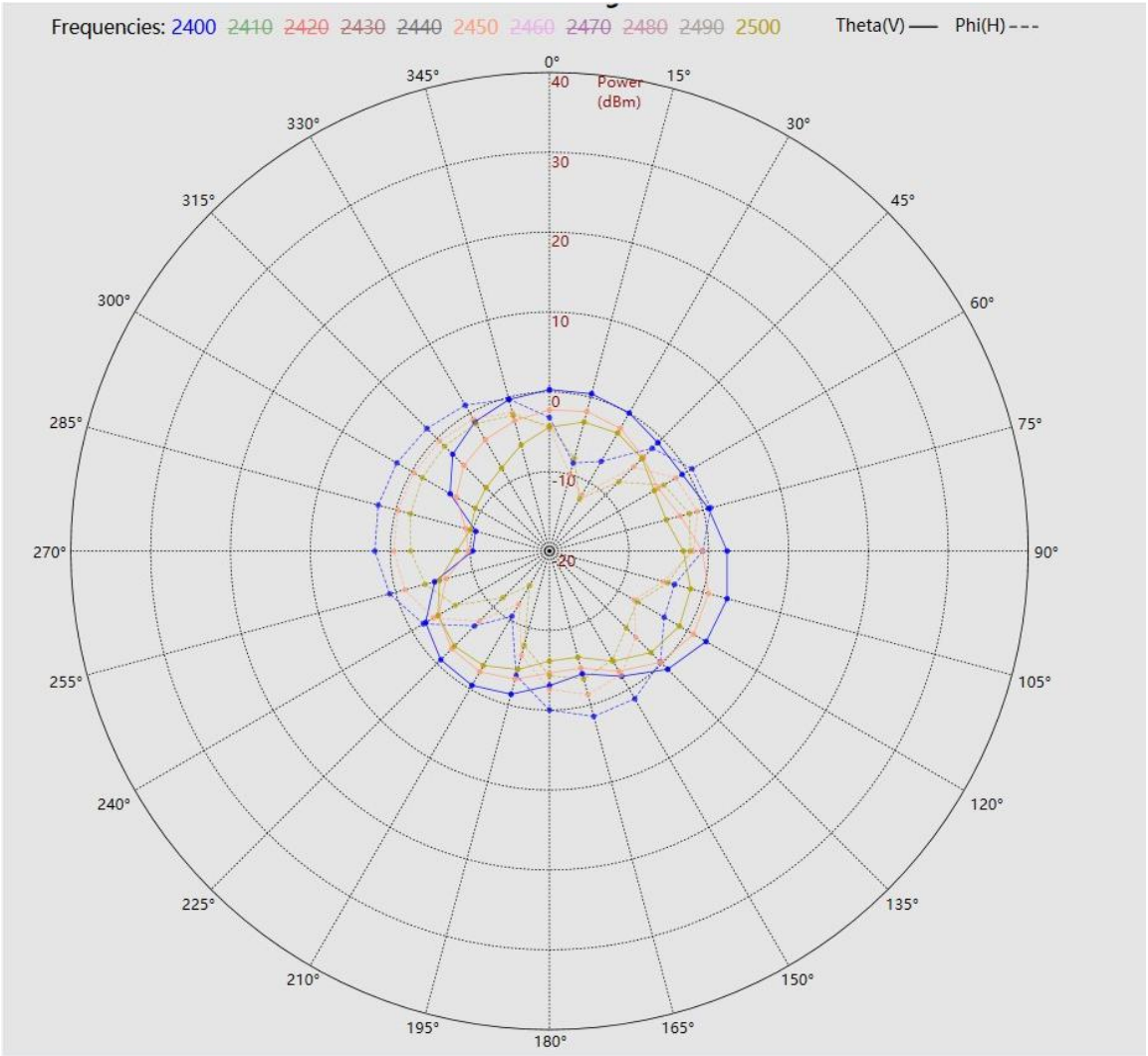
Antenna Radiation Pattern

Gain and Efficiency

A	B	C	D
Freq(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
2400	4.236568906	0.930478444	123.8933067
2410	4.105434623	0.775300058	119.5446117
2420	3.746617675	0.382505012	109.2070061
2430	2.827792007	-0.561881323	87.86418149
2440	2.346998903	-0.939164985	80.55333056
2450	2.577001254	-1.087669264	77.84542134
2460	2.179066298	-1.692569241	67.72407406
2470	1.874555671	-2.046116392	62.42928497
2480	1.597462445	-2.368081684	57.96846916
2490	1.205835272	-2.764098514	52.91638269
2500	1.42031938	-2.716116044	53.50426415

Radiation Pattern

2D Plan





3D Stereogram

