

Yuxin IoT - built-in FPC Antenna Specification

Confirmation Letter

Customer Name: **Yuxin IoT**

Antenna frequency band: 2400-2500MHz

Version: A0

Production date: 2023-11-07

Number: FS-649

Research and development of Feisheng Electronics Co., Ltd.

Structures:

Xu Long

RF:

Guo Xi

Auditing:

Gu Zhifei

Appraisal:

Gu Zhifei

Customer confirmation

Customer review:

Customer
approval:

Feisheng Electronics Co., Ltd.

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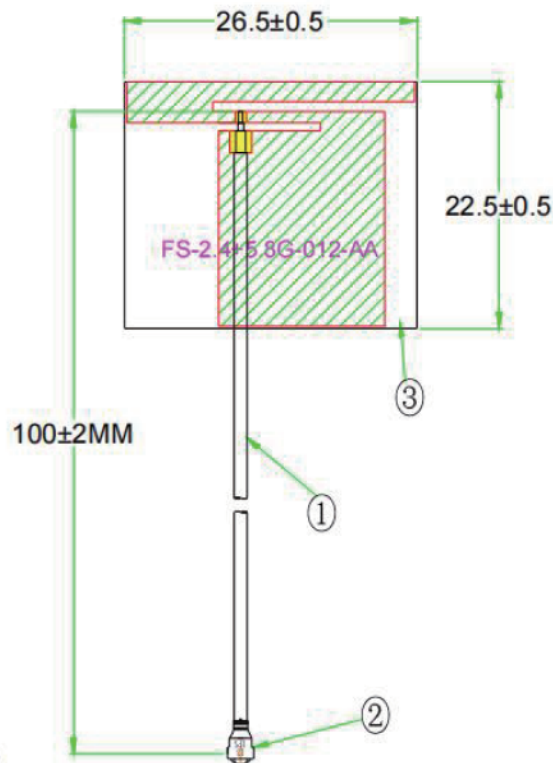
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Modify the record

Versions	Dates	RF	Modify the content
A0	2023-11-07	XuLong	

REV	PRODUCT NO.	DATE	NAME	DESCRIPTION
A0	FS-649	2023.11.07		Initial Issuance



Ask

1. There is no broken skin or damage to the wire sheath.
2. The finished product must be 100% tested for continuity OK.
3. 100% inspection of finished products is required.
4. Adopt environmental protection process. The finished product meets ROHS requirements.

Test conditions

rated voltage: AC 60V
 Contact impedance: 20-0hm
 voltage withstand: AC200V
 Insulation impedance: 500m-0hm
 characteristic impedance: 50 0hm

Frequency Range	2400-2500MHz
Gain	1.91 dBi
VSWR	Comparing Waveforms
Polarization	vertical
Impedance	50 Ω



GENERAL TOLERANCE

100~200 :	± 3.00
50~100 :	± 2.00
25~50 :	± 0.20
10~25 :	± 0.15
~10 :	± 0.1

PRODUCT NAME

FPC antenna - WIFI-1.13IPEX first generation terminal
 -1.13 wire - black - double tin - L=100MM

PRODUCT NO.	UNIT	M M	SIZE	1:3
FS-649	PAGE	1 OF 1	FORMT	A4
 深圳市飞胜电子有限公司 SHENZHEN FEISHENG ELECTRONIC CO.,LTD.				

NO	Name	Description	Q'ty
3	FPC	Black oil black screen printing FS-2 4*5.8G-012-AA	1
2	IPEX	1.13 First generation terminals	1
1	wire rod	1.13 wire double tin black L=100MM	1

operation temperature: -45°C~85°C
 storage temperature: -45°C~85°C

Product Features Specification Table

一、 Basic characteristics of the product:

Product type : Copper tube WIFI-1.13IPEX first generation terminal 1.13 wire double silver wire gray L=132MM	
DESCRIPTION	VALUE
Frequency Range	2400-2500MHz
Impedance	50 Ω
VSWR	Compare the waveforms of samples
Gain	1.91DBi
Radiation	Omni-directional
Polarization	linear Vertical
Powers	1W
Connector model	IPEX
Operating temperature	-45℃~+85℃
Storage temperature	-45℃~+85℃

1. Summary:

This report to account for the measurement setup and result of the Antenna. The measurement setup includes s-parameter, The measured data for Antenna are presented and analysis.

2. S-Parameter Measurement S:

A. Reflection coefficient :

(a) Instrument: Network Analyzer

(b) Setup:

(1) Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.

(2) Connect the antenna under test to the Network Analyzer.

(3) Measure the S11(reflection coefficient) shown in Fig. 1.

(4) Generally, the S11 is less than -10dB to ensure the 90% VSWR 2.0:1 power into antenna and only less than 10% power back to system.

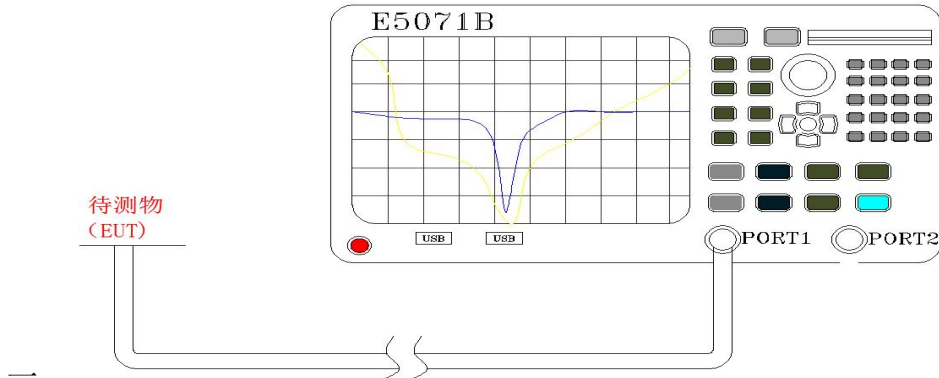


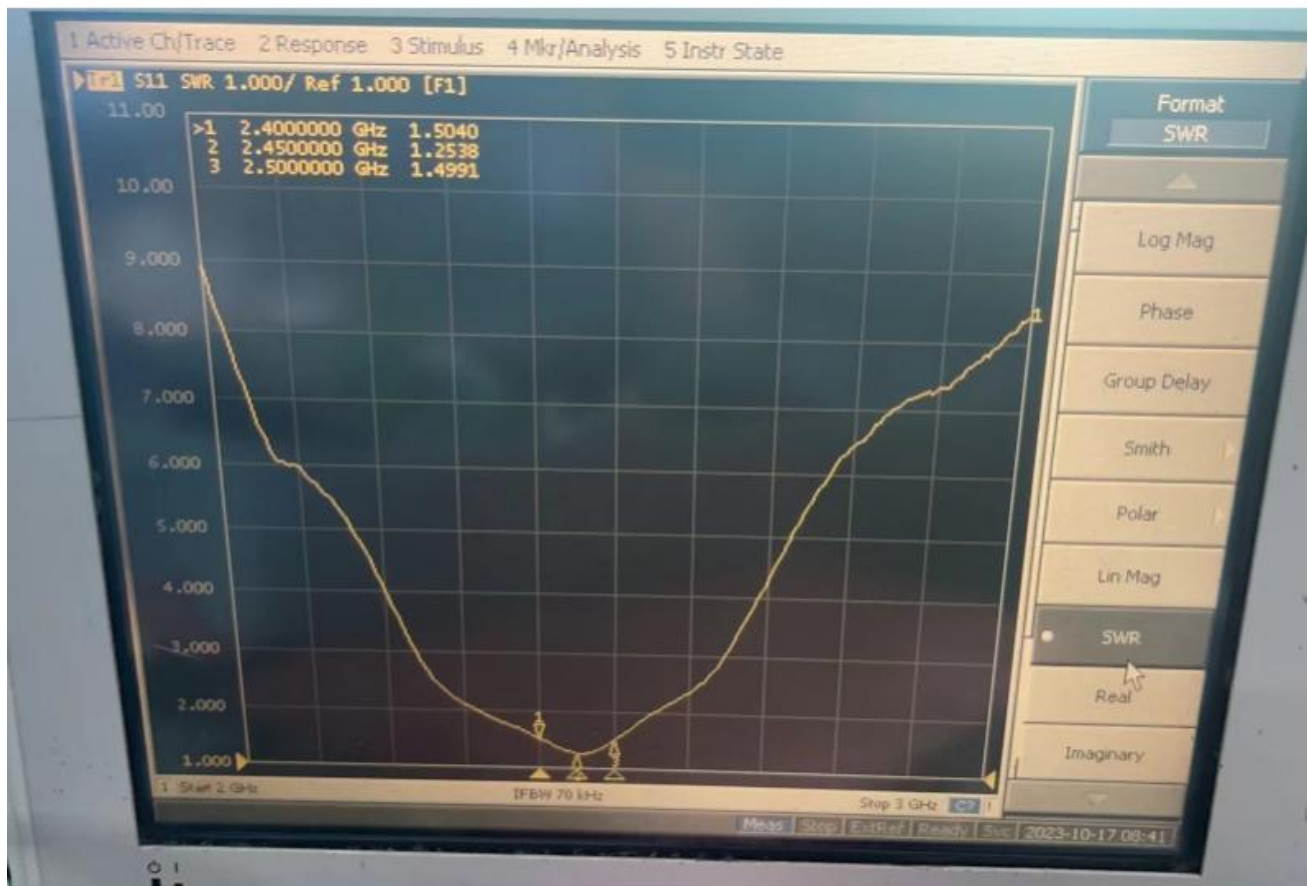
Fig.1 Antenna measured in Network Analyzer

3. S-Parameter Measurement Result S:

S-Parameter test data :

Frequency MHz	2400	2450	2500
V.S.W.R	1.50	1.25	1.49

S-Parameter test image :



Machine appearance :

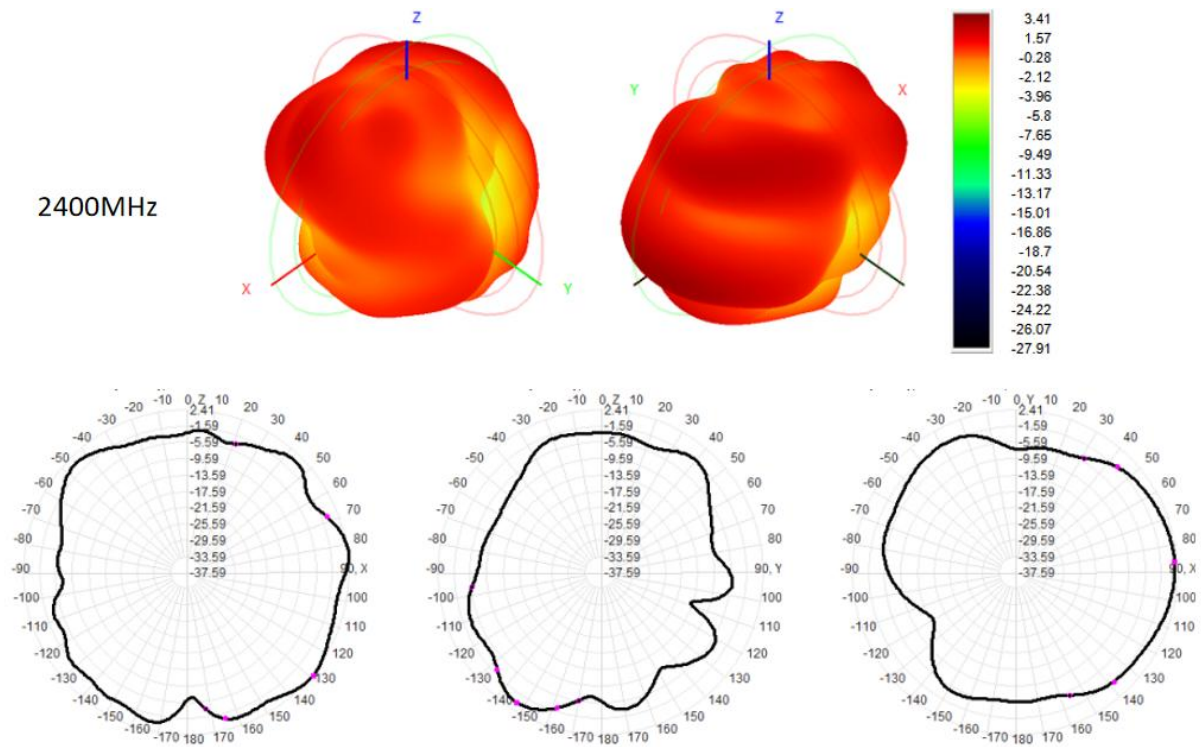


Passive value:

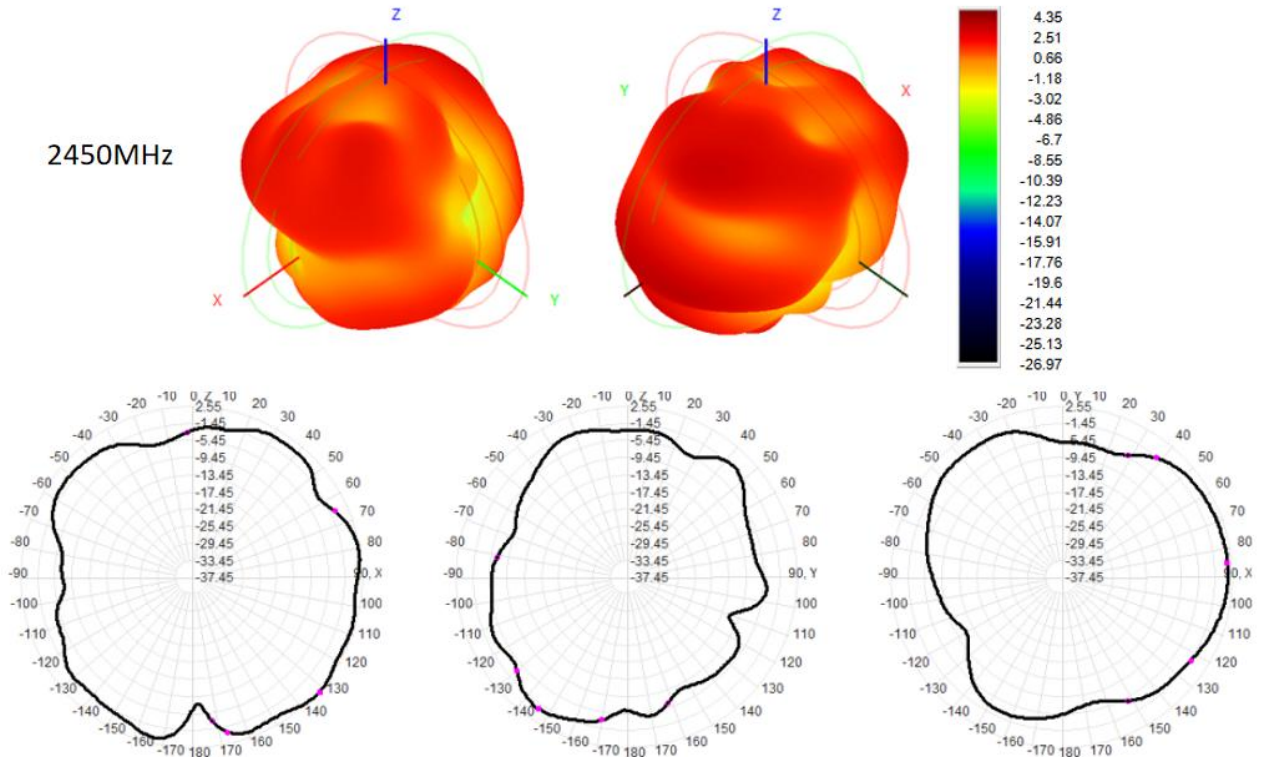
Frequency (MHz) (工作频段)	Efficiency (%) (效率)	Peak GAIN (dBi) (增益)
2400	57.28	1.56
2450	62.25	1.72
2500	64.12	1.91

2D、3D:

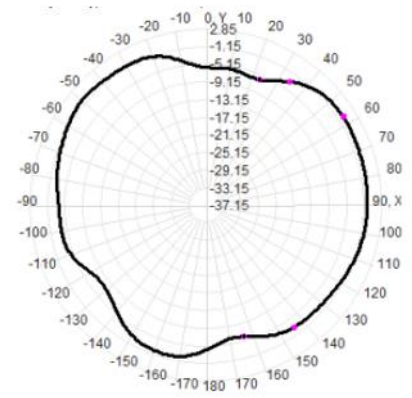
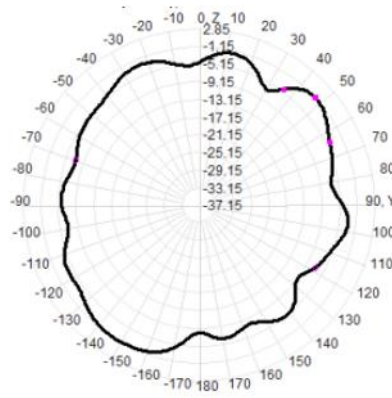
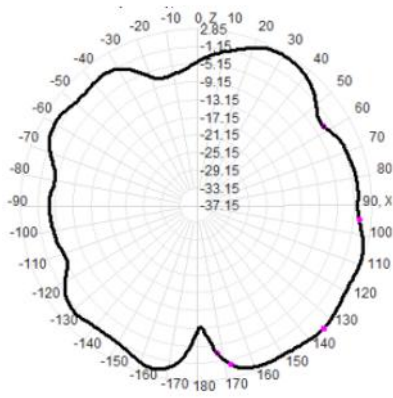
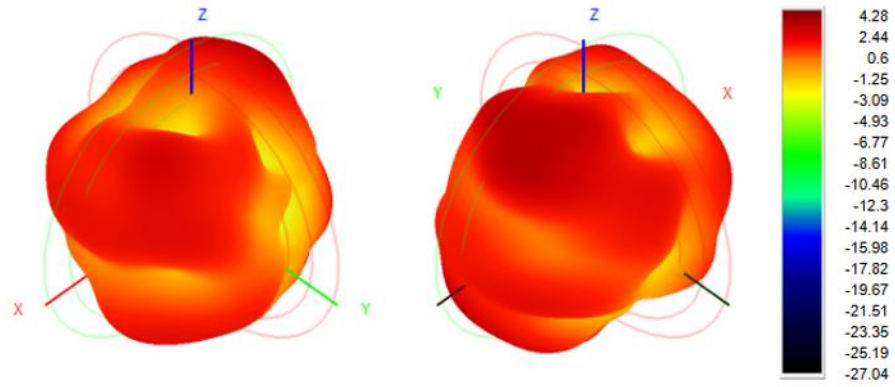
2400MHz



2450MHz



2500MHz



Environmental test requirements

Preface	Test items	Test methods and conditions	Test equipment	Test results
1	Temperature and humidity test	<p>Reference EIA 364-31 Method Three, Test Condition A</p> <p>The purpose of this test process is to conduct detailed standard tests. The products used are affected by high humidity and heat. Influence the performance of the material for evaluation.</p> <p>Requirements:</p> <p>Temperature: 85℃</p> <p>Humidity: 90~95% (R.H)</p> <p>Time : 72 hours</p>	K. SON INS THS-A4L-150	Qualified
2	Low temperature test	<p>Refer to Feisheng Electronic Test Specification</p> <p>The measured sample should be traveled in a temperature-balanced environment, and its temperature setting</p> <p>Set at -45° C</p> <p>Requirements :</p> <p>Time : 24 hours</p>	K. SON INS THS-A4L-150	Qualified
3	High temperature test	<p>Refer to Feisheng Electronic Test Specification:</p> <p>The measured sample should be placed in a constant temperature environment, and the gas temperature should be set at 70℃.</p> <p>Requirements :</p> <p>Time : 24 hours</p>	K. SON INS THS-A4L-150	Qualified

Environmental test requirements

Preface	Test items	Test methods and conditions	Test equipment	Test results
4	Hot and cold tests	<p>Refer to Feisheng Electronic Test Specification: The measured sample should be placed in a fixed environment, and the temperature should be set at -45~85°C.</p> <p>Requirements : More than 8 hours. (30 minutes/time, 12 cycles)</p>	K. SON INS THS-A4L-150	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Qualified</div>
5	Salt spray test	<p>Refer to Feisheng Electronic Test Specification: The tested sample should be placed in a fixed environment: NaCL Concentration: 40-60g/1Kg PH value: 6.5-7.2 Test time: 24 hours</p> <p>1. Gold-plated products are not allowed to peel with rust spots. 2. Other nickel-plated, tinned and galvanized products shall not have more than two rust points on the same shaft or surface.</p>	Salt spray tester	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Qualified</div>

Mechanical test requirements

Preface	Test items	Test methods and conditions	Test equipment	Test results
1	Vibration test	Test condition A The purpose of this test process is to evaluate the products used in the detailed standard test methods, which are moved or moved to affect the performance of the material.	Vibration tester	Qualified
		Requirements : Vibration range: 10-55HZ Displacement amplitude value: 0.35mm Acceleration amplitude: 50.0M/S Number of frequency sweeping cycles: 30Times		
2	DROP TESTS	Refer to Feisheng Electronic Test Specification: The measured sample should be placed at a certain height, and its height should be set to 1 meter, and it should fall freely 3 times in the direction of 6 surfaces.	Drop test fixtures	Qualified
		Requirements : The mechanical characteristics of the product are normal after the drop test.		

Mechanical test requirements

3	Tula test	Refer to Feisheng Electronic Test Specification: Fix the object under test through the fixture, and after applying a certain force in the opposite direction, the product assembly shall not fall off.	Tile tester	<div style="border: 1px solid black; padding: 2px;">Qualified</div>
		Requirements: 1. The product assembly cannot fall off. 2. Minimum tensile force: 1.2KG		

Note: Feisheng Electronics performs the above mechanical and environmental parameter tests before R&D and trial delivery.