

Tianpin Intelligent IoT Technology (Shenzhen) Co., Ltd.

Acknowledgement Letter

Customer Name: Shenzhen Zhimu Technology Co., Ltd.

Customer Model: T2 Feeder

Customer Part Number: _____

Specification Description: Built-in antenna/2.4G-WiFi/3dBi/50ohm/FPC
43.40.1*12.00mm/RF1.13mm black coaxial cableL=130mm+IpeX1

Confirmation Signature and Seal

Tianpin Intelligent Confirmation			Customer Confirmation		
Sample Making	Audit	Approval	Validation	Audit	Approval
Tianpin Intelligent Signature and Seal			Customer Signature and Seal		
Date	2022-11-23		Date	2022- -	

Tianpin Intelligent IoT Technology (Shenzhen) Co., Ltd.

Contact Person: Wang Jianguo Mobile: 13424341872

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(Shenzhen) Co., Ltd.**

2. Document Establishment/Revision/Obsolete Record Table

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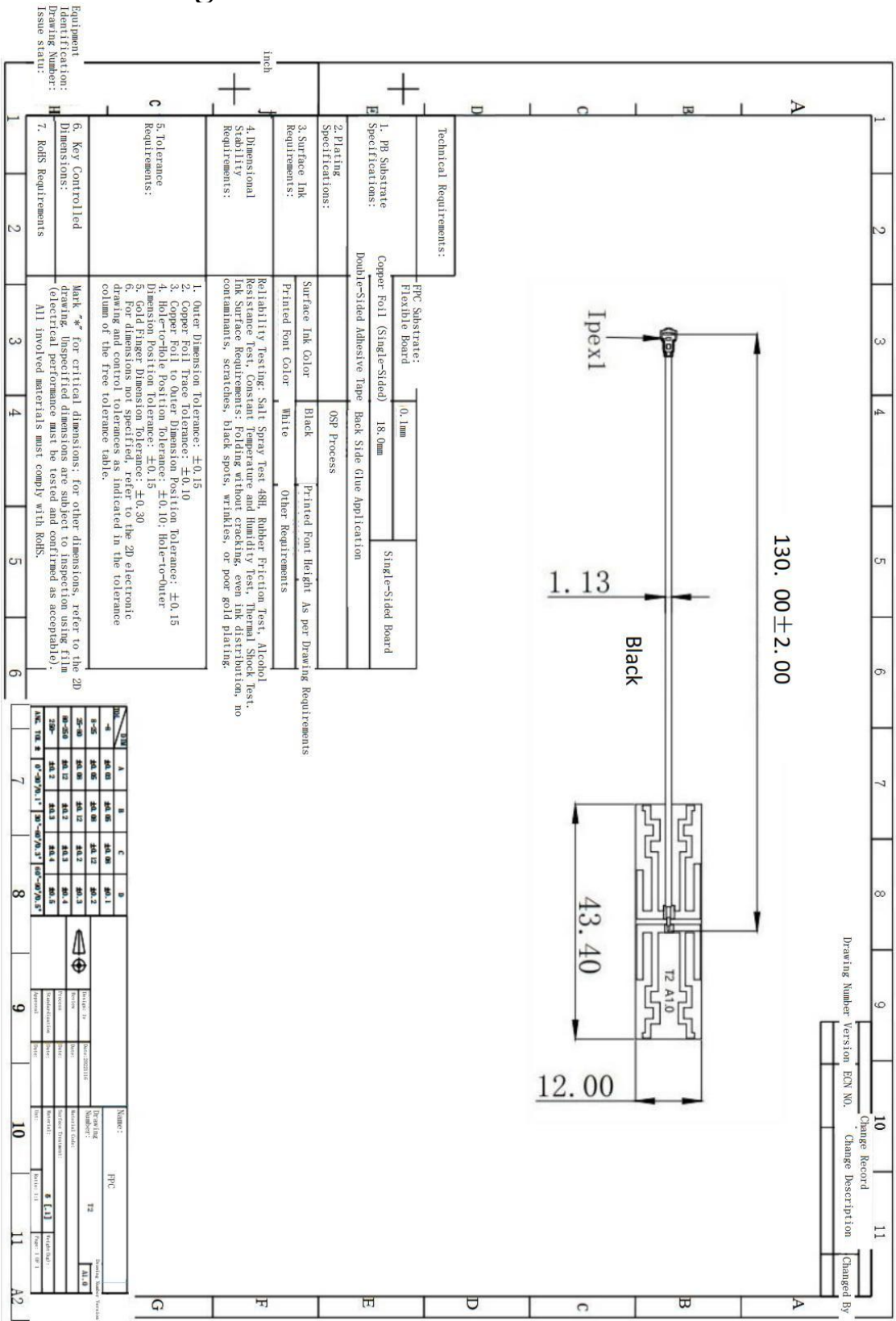
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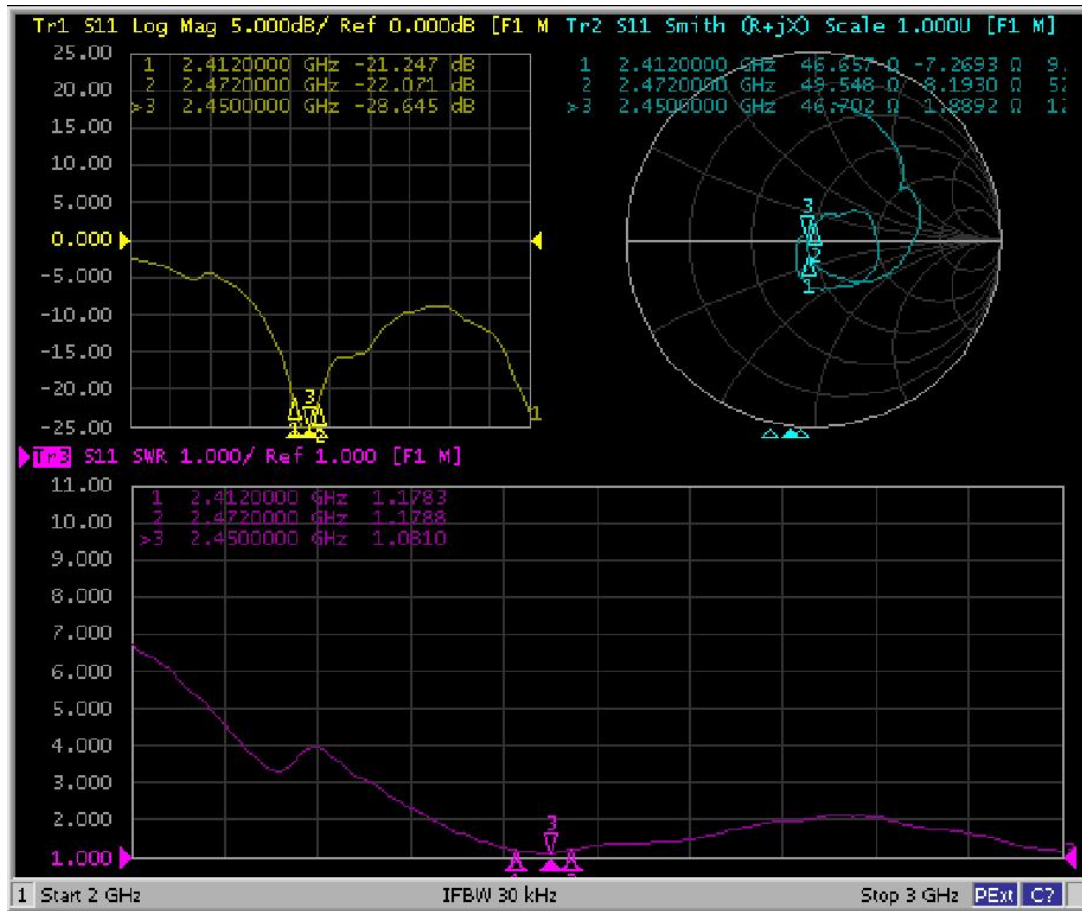
4. Product Drawings



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5. Passive Performance Test Parameters

S11



Fre(GHz)	2.412	2.45	2.472
Reeturn Loss	-21.24	-28.64	-22.07
VSWR	1.17	1.08	1.17

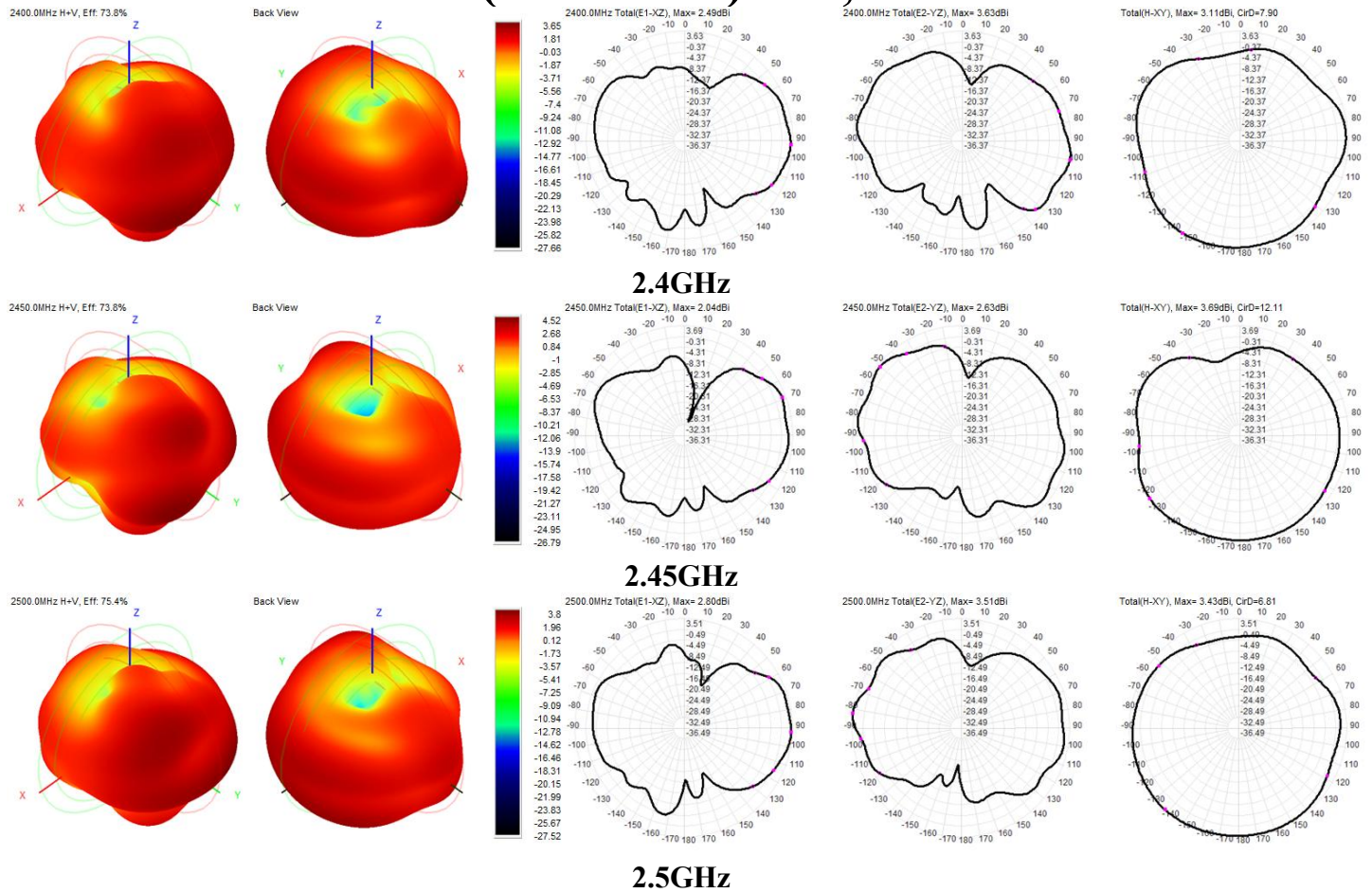
Efficiency, Gain, Directivity

											
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-1.32	-1.26	-1.03	-1.10	-1.15	-1.32	-1.40	-1.54	-1.43	-1.43	-1.23
Gain (dBi)	3.65	3.87	4.39	4.54	4.64	4.52	4.36	4.23	4.26	3.99	3.80
Efficiency (%)	73.78	74.75	78.96	77.63	76.67	73.78	72.52	70.13	71.95	71.94	75.41
Directivity (dB)	4.98	5.14	5.41	5.64	5.79	5.84	5.76	5.77	5.69	5.42	5.03
Peak Gain Position (Theta)	100.00	84.00	83.00	83.00	83.00	82.00	82.00	81.00	81.00	81.00	82.00
Peak Gain Position (Phi)	272.00	69.00	70.00	69.00	67.00	66.00	119.00	115.00	112.00	108.00	105.00
Efficiency ThetaPol (%)	66.44	67.26	71.29	70.50	69.87	67.45	66.54	64.57	66.62	66.93	70.06
Efficiency PhiPol (%)	7.34	7.50	7.67	7.13	6.80	6.33	5.98	5.56	5.33	5.01	5.35
Upper Hem. Efficiency (%)	41.50	42.62	45.47	44.95	44.56	42.98	42.19	40.73	41.65	41.44	43.26
Lower Hem. Efficiency (%)	32.28	32.13	33.50	32.69	32.11	30.80	30.33	29.40	30.30	30.50	32.14

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6. Electrical Performance Parameters

Electrical Parameters		
Frequency Range		2.412-2.472 GHz
Input Impedance		50Ω
VSWR (Voltage Standing Wave Ratio)		<2.0
Gain	2.4GHz	4.64dBi
Polarization		Cross Polarization
Radiation Pattern		Omni-directional
Connector Type		Ipex1
Mechanical Parameters		
Cable Length		130mm
Retention Force		/
Coaxial Cable		Black 1.13mm
Salt Spray Test		
Environmental Parameters		
Operating Temperature		-40~85°C

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7. Reliability Test Report

7.1. Constant Temperature and Humidity Test

Test/Experiment	Constant Temperature and Humidity Test	Inspection Report Number
Product Name/Specification	2.4G-FPC RF1.13mmcable,Cable Length: 130mm,Connector: Ipex1	Number of Samples Tested: 5PCS
Date of Inspection: 2022-11-9		Date of Completion: 2022-11-10
Test/Inspection Equipment: 1. Programmable Constant Temperature and Humidity Test Chamber 2. 8753ES Network Analyzer		
Test/Inspection Conditions: 1. Test at constant temperature of -40°C for 12 hours. 2. Test at +65°C and 65-70%RH for 12 hours, totaling 24 hours.		
Test Results		
Criteria for Evaluation: 1. Metal surfaces should not exhibit cracks, wrinkles, separation, etc. Non-metal parts should not show discoloration, cracking, deformation, delamination, or other defects. 2. Electrical tests should meet the standard requirements. Voltage Standing Wave Ratio test should pass.		
Test/Inspection Determination:	☒ Qualified ☐ Not Qualified ☐ Indeterminate	
Tester:		Reviewer:

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7.2. High-Low Temperature Thermal Shock Test

Test/Experiment	High-Low Temperature Thermal Shock Test	Inspection Report Number
Product Name/Specification	2.4G-FPC RF1.13mm cable, Cable Length: 130mm,Ipex1	Number of Samples Tested: 5PCS
Date of Inspection: 2022-11-9		Date of Completion: 2022-11-10
Test/Inspection Equipment: 1. High-Low Temperature Alternating Humidity Chamber 2. 8753ES Network Analyzer		
Test/Inspection Conditions: -40°C (2 hours) - Interval - 80°C (2 hours), 6 cycles, totaling 24 hours.		
Test Results		
Criteria for Evaluation: 1. Metal surface plating should not exhibit peeling, cracks, wrinkles, separation, etc. Non-metal parts should not show discoloration, cracking, deformation, delamination, or other defects. 2. Electrical tests should meet the standard requirements. Voltage Standing Wave Ratio test should pass.		
Test/Inspection Determination:	☒ Qualified ☐ Not Qualified ☐ Indeterminate	
Tester:		Reviewer:

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8. Packaging Specifications

Product Part Number:												
Product Specification: Built-in Antenna/2.4G-WiFi/3dBi/50ohm/FPC 43.40*12.00mm/ RF1.13mm black coaxial cable L=130mm+IpeX1												
1. Labeling Requirements												
Inner Label (Length: 45, Width: 70)							Outer Label (Length: 45, Width: 70)					
Buyer's Name							Buyer's Name					
Supplier		Tianpin Intelligent IoT Technology (Shenzhen) Co., Ltd.					Supplier		Tianpin Intelligent IoT Technology (Shenzhen) Co., Ltd.			
Customer Order Number							Customer Order					
Customer Part Number							Customer Part Number					
Material Code							Material Code					
Product Name & Specification			Inspector					Product Name & Specification			Inspector	
Quantity/Unit			Production Date					Quantity/Unit			Production Date	
Notes							Notes					
2. Packing Requirements												
1. Inner Packing												
Product												
50PCS												
5000PCS												
2. Outer Packing												
Important Notes:												

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