



Shenzhen Xingtong Wireless Technology Co., Ltd.

Shenzhen Xingtong Wieress Technology Co.,Ltd

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Address: 3rd Floor, Building A1, Qiangrongdong Industrial Zone, Jiuyiwei, Xixiang, Bao'an District, Shenzhen City

Specification

Project name :

Product Name: 2.4G Copper Tube-Antenna

Product Code:

Producer	Examine and verify	Date
Huang Jiajun	Zhu Yongjian	2026-1-13

Customer Confirmation:

Customer Name: Cash Account
Ratify :
Time :
Explanatory note :

Please return one copy to our company for archiving after signing and stamping it. Thank you for your cooperation!

 Shenzhen Xingtong Wireless Technology Co., Ltd. Shenzhen Xingtong Wieress Technology Co., Ltd		Date	2026-1-13
		Edition	A0
		Document number	XT-YF-004
Product name	2.4G Copper Tube Antenna	Identification of product	XT086-APP-RA

1. Product Structure

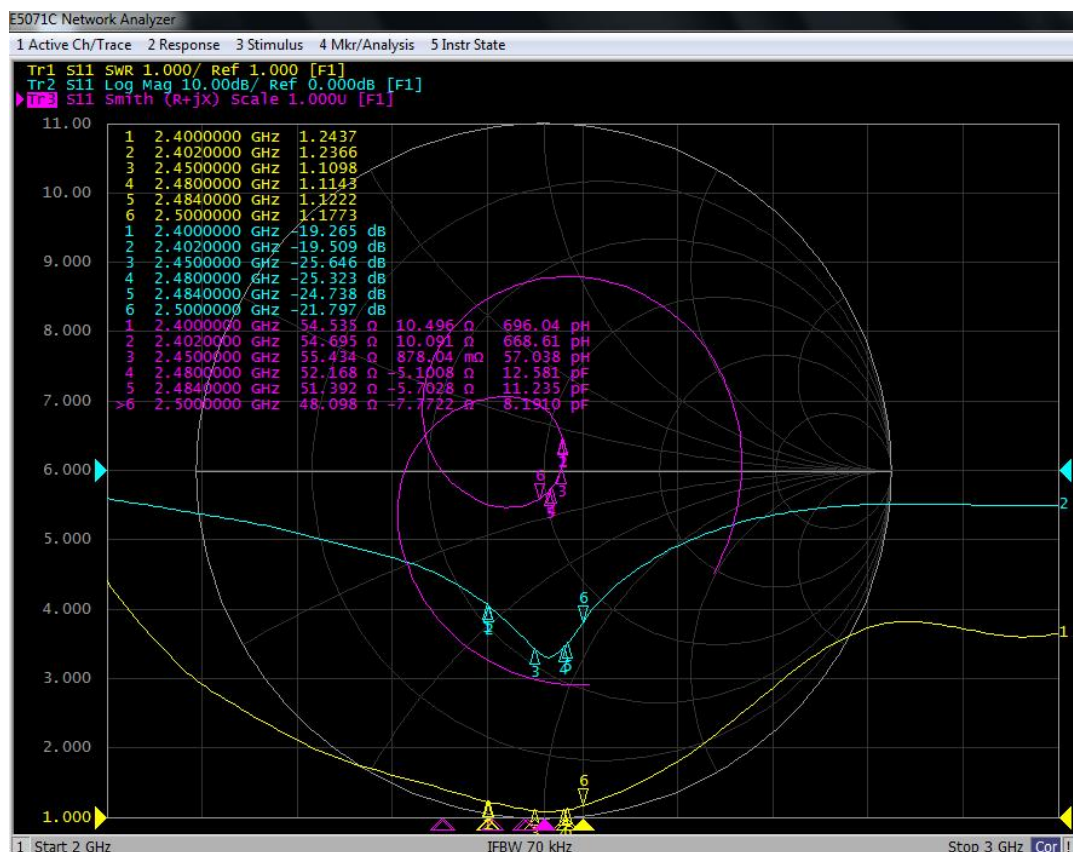
- 1. Antenna Material: copper pipe
- 2. Adhesive Type: not have
- 3. Antenna Dimensions: 30/25 mm (tolerance ± 1 mm)
- 4. Coaxial line dimensions: 72.00 Φ 1.13 – Generation I IPEX (tolerance ± 2 mm)

2. Parameter Index (Parameter Index)

- range of application: Passenger Service Equipment
- Antenna Frequency: 2400-2500Mhz
- antenna impedance: 50 Ω
- Antenna Standing Wave: <1.3DBM
- Antenna average gain: ≥ 3 dBi
- return loss: <-10
- Polarization Method: Vertical/Horizontal
- power capacity: 5W
- way to install: IPEX/Terminal Cable Connecting to the Main Board

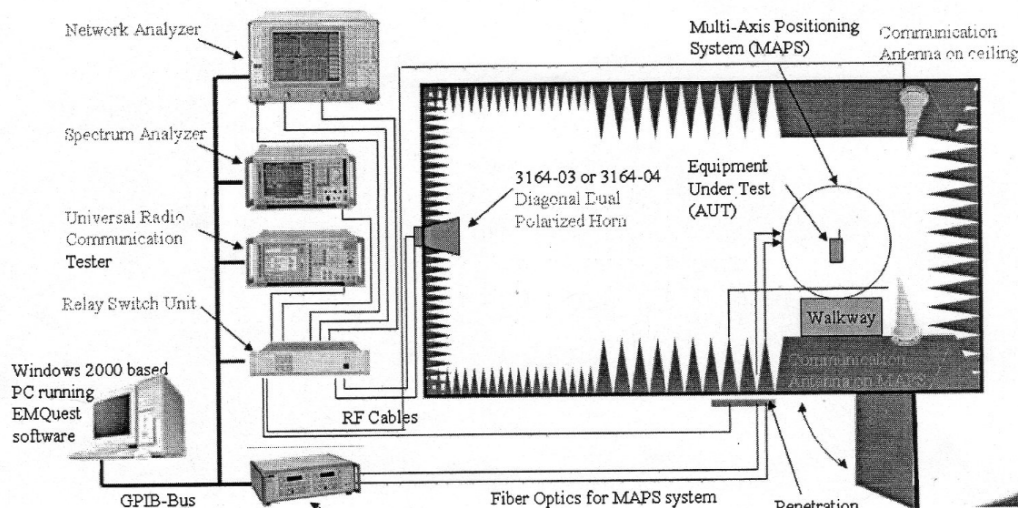
3. Antenna S11 Value (S11)

- 3.1: Antenna Standing Wave Ratio / Antenna Return Loss Value / Smith Diagram



4. Antenna (OTA) Testing Environment

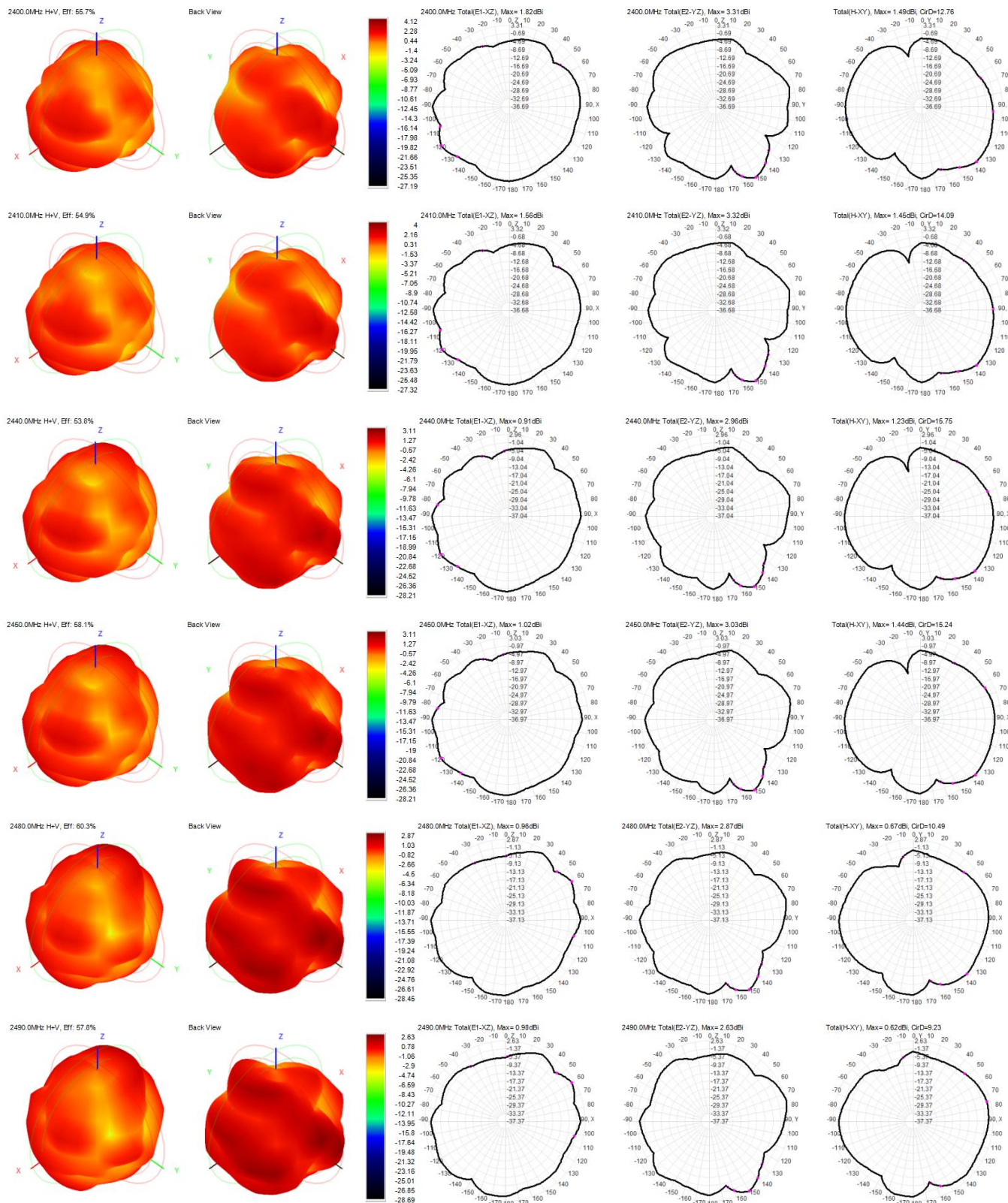
- 4.1: Testing Environment and Instruments: 3D microwave anechoic chamber, network analyzer, PC-based testing software, engineering samples, 10 dB attenuator, etc.



- 4.2: Antenna Efficiency/Gain

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)	-2.54	-2.60	-2.40	-2.46	-2.69	-2.35	-2.40	-2.54	-2.20	-2.38	-2.50
Gain (dBi)	4.12	4.00	3.97	3.68	3.11	3.11	2.79	2.60	2.87	2.63	2.50
Efficiency (%)	55.70	54.94	57.56	56.80	53.84	58.15	57.60	55.74	60.27	57.76	56.21
Directivity (dB)	6.67	6.60	6.37	6.14	5.80	5.46	5.19	5.13	5.07	5.01	5.00
Peak Gain Position (Theta)	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00
Peak Gain Position (Phi)	255.00	255.00	255.00	255.00	255.00	255.00	270.00	270.00	270.00	270.00	270.00
Efficiency ThetaPol (%)	27.33	26.72	28.35	28.03	26.57	28.14	27.70	27.06	29.02	27.82	26.95
Efficiency PhiPol (%)	28.38	28.22	29.21	28.76	27.27	30.01	29.89	28.68	31.26	29.94	29.25
Upper Hem. Efficiency (%)	25.88	25.72	27.19	26.87	25.57	27.77	27.82	27.17	29.76	28.89	28.52
Lower Hem. Efficiency (%)	29.82	29.22	30.37	29.93	28.27	30.38	29.78	28.57	30.51	28.87	27.68

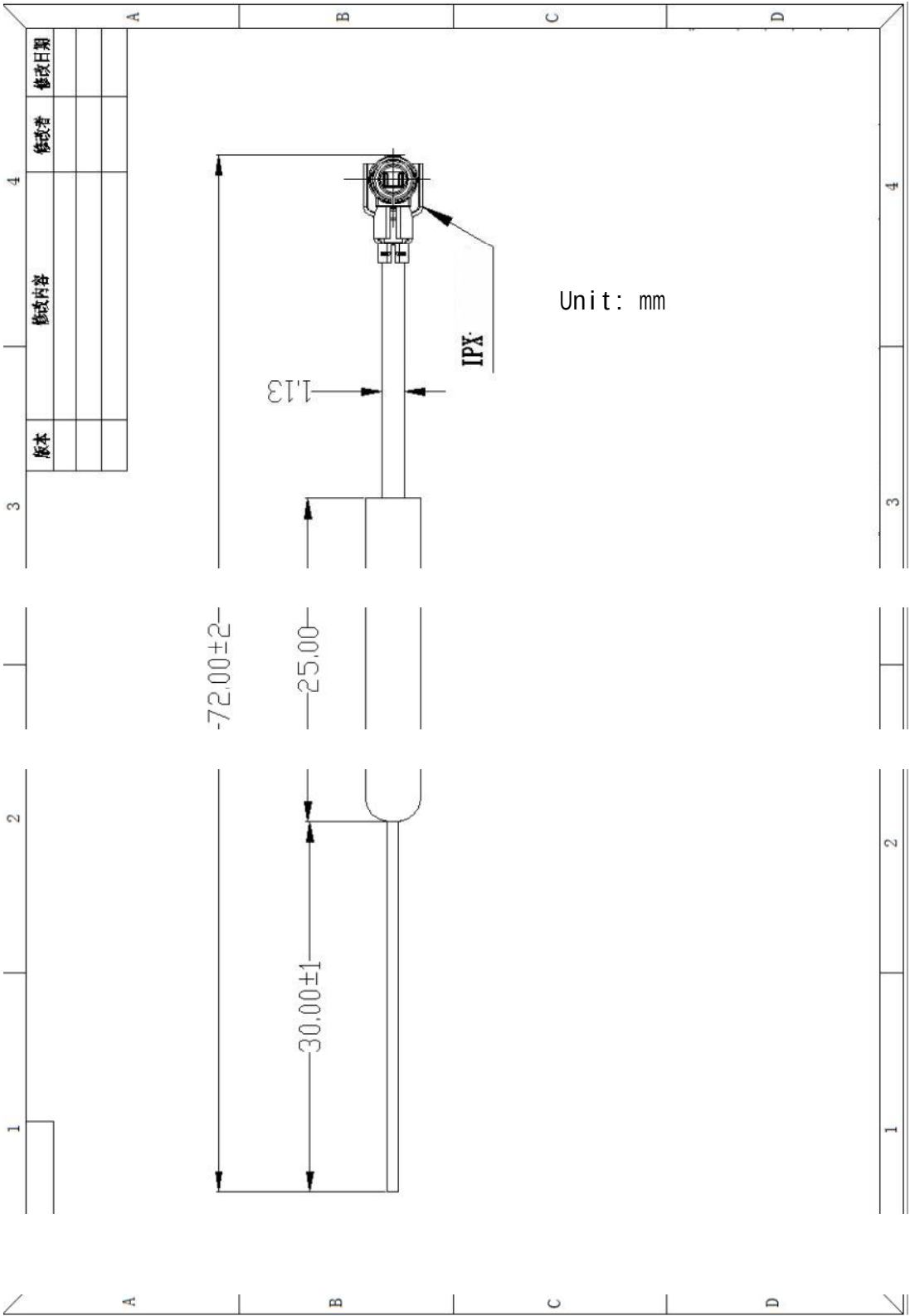
4.3: Antenna – 3D Direction Pattern



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5. Attached Map :

■ 5.1: Final Design Diagram of the Antenna



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6. Durability Verification:

Test/Test Item	Maintenance energy	Inspection Number
Product Name/Specification	External copper tube antenna	Number of Units: 5 PCS
Submission Date: 2026-1-13		Completion Date: 2026-1-13

Testing Equipment:

1. The tensile test was performed five times. (The testing device is shown in the figure.)



Note: Test at a constant speed; do not test at high speed.

Project Conditions 0.6 kgf	The holding force between the terminal and the cable is $\geq$				
Number of Tests	1	2	3	4	5
Test result	0.6	0.7	0.7	0.9	0.7

Test/inspection result: Pass

Test/Inspection Conclusion: ☒ Qualified ☐ Unqualified ☐ Do not make a judgment

Test: Zhu Yongjian

Review: Wu Yanlong

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7. Reliability Test :

Order number	Test item	Test Requirements	Test tools	Test result
1	Tin melting point	288°C, 10 seconds; no stratification or bubbling observed	Copper stove	Ok
2	Solderability	245°C, 5s: the solder surface is smooth, and the solder coverage area $\geq 95\%$.	Copper stove	Ok
3	Traction force	N/A	Tensimeter	Ok
4	Reverse Traction Force	N/A	Tensimeter	Ok
5	Stripping strength (coating film)	$\geq 0.35\text{kg/cm}$	Stripping Strength Test Instrument	Ok
6	Stripping strength (copper foil)	$\geq 0.8\text{kg/cm}$	Stripping Strength Test Instrument	Ok
7	Flowability of hot melt adhesive	0.1~0.15	/	Ok

8. Matters Need Attention :

After opening, carefully check if the items are intact. If any damage is found, contact us immediately.