



赣州市江元电子有限公司

GANZHOU JOYAR ELECTRONICS CO.,LTD

SPECIFICATION FOR APPROVAL

PROVIDER : All things connected Communications Xiangyang Limited

PART NO : WWXL6009002

PART NO :

DESCRIPTION : 2.4-5.85GHZ/L=150mm

DESCRIPTION : Network antenna

DATE : 2025-06-16

Please return to us one copy of "SPECIFICATION FOR APPROVAL"

With your approved signatures

APPROVED SIGNATURES			
CUSTOMER		PROVIDER	
Ganzhou Jiangyuan Electronics Co. , Ltd.		Shenzhen all things connected Communication Co.,Ltd.	
CHOP&SIGNATURES		CHOP&SIGNATURES	Tong Xiaoyan
DATE		DATE	2026.06.06

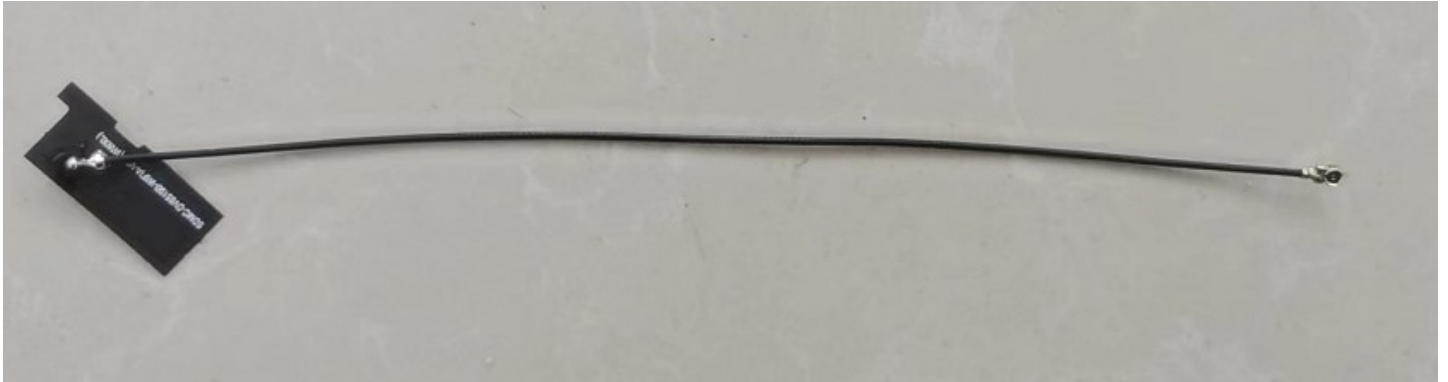
Ganzhou Jiangyuan Electronics Co. , Ltd

69 Golden Avenue, North District, Ganzhou Ganzhou Economic and Technological Development Zones

Tel: 86-755-26737355 26737352

Specification for Antenna

Product pictures

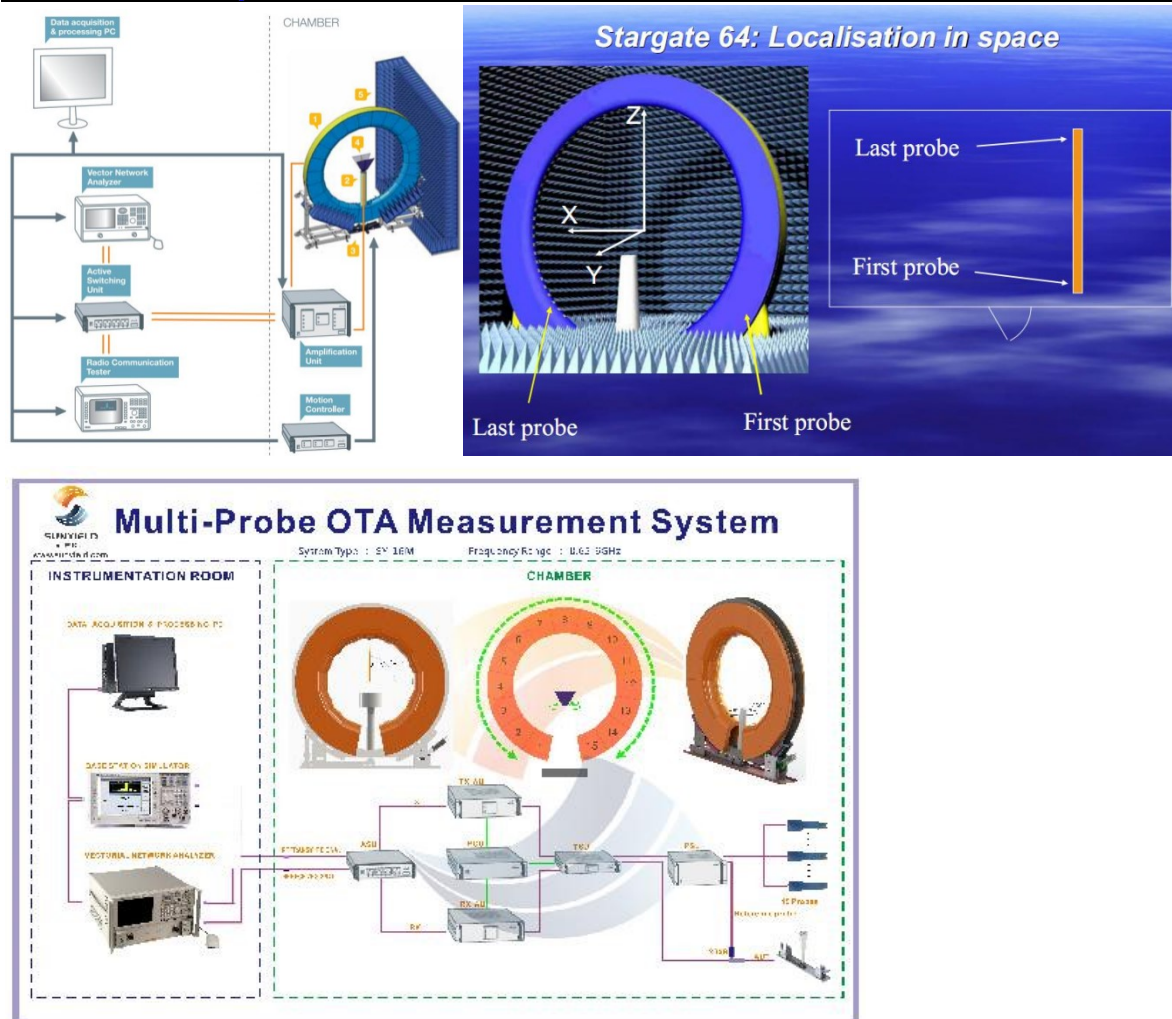


Test parameters

Name Built-in antenna (WWXL6009002)		ModelType	
ELECTRICAL SPECTFICATIONS		MECHANICAL SPECTFICATIONS	
FrenquencyRange 2400-2500/5150-5850MHz		Dimensions	27.5*12*0.2
Impedance	50 Ω	Connector	IPEX
VSWR	≤ 3.5	linelength	1.13 Black Low Loss 150 $\pm$ 3mm
Gain		WorkingTemperature	-45 $^{\circ}$ C - +85 $^{\circ}$ C
Polarization	linear Vertical	Limit Temperature	-45 $^{\circ}$ C - +85 $^{\circ}$ C
Radiation	Omnidirectional		

Antenna test environment

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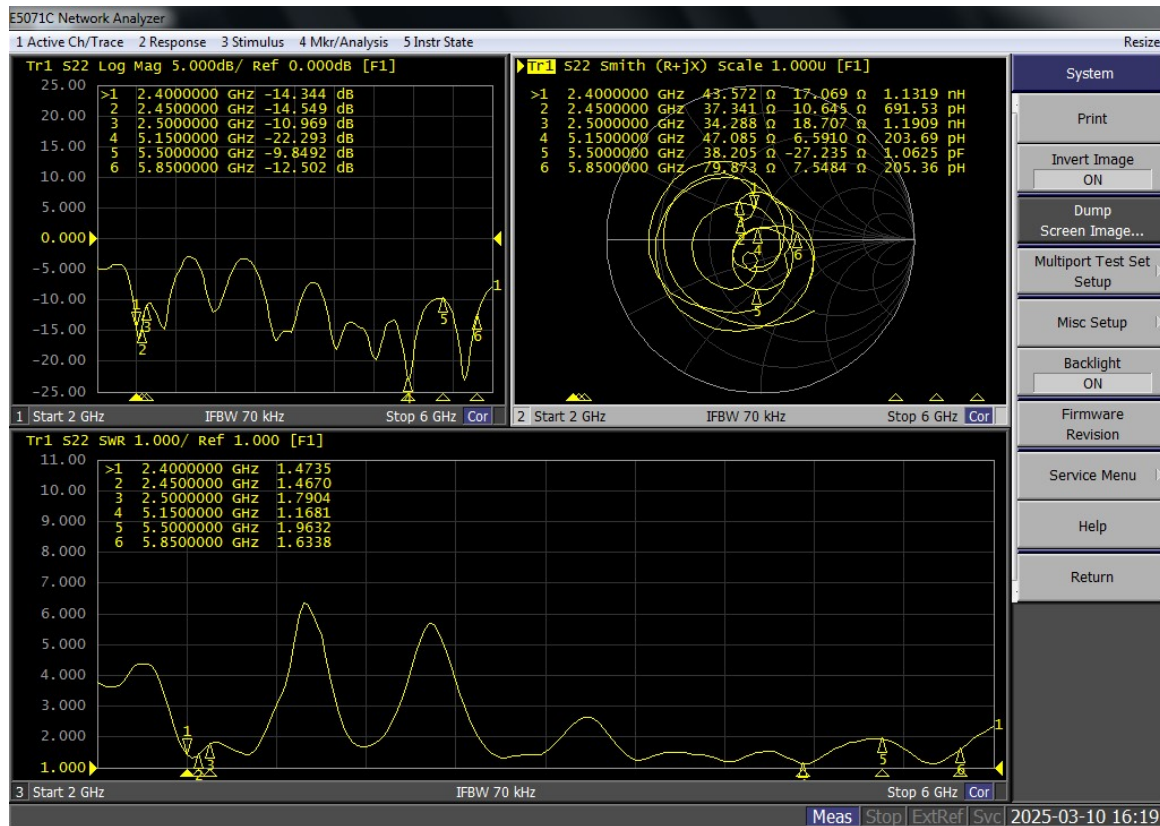


test macro:	SY-16M /MPS4843 Antenna measurement system
testing environment:	temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$
testing equipment:	Agilent 5071C Agilent 8960 Comprehensive measuring instrument Agilent CMW500 4G Comprehensive measuring instrument

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Antenna Passive Parameters:

VSWR:



Product characteristics

1. Choose high-quality RF cable with small attenuation;
2. Stable performance;
3. Stable performance.

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Passive efficiency

ANT-1 BT

Gain&Efficiency&PhaseCenter 增益、效率和相位中心						
Frequency 频率(MHz)	Gain 增益(dBi)	MinGain 最小增益 (dBi)	CO Gain 主极化最 大增益 (dBi)	CP Gain 交叉极化 最大增益 (dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
2400.00	3.82	-22.21	3.79	0.29	-3.42	45.53
2410.00	3.96	-22.46	3.94	0.28	-3.62	43.47
2420.00	3.97	-23.08	3.95	0.90	-3.44	45.32
2430.00	3.64	-22.76	3.63	0.66	-3.75	42.18
2440.00	3.37	-21.79	3.36	1.05	-3.86	41.08
2450.00	3.66	-24.29	3.65	1.32	-3.67	42.98
2460.00	3.08	-23.11	3.06	0.64	-4.27	37.39
2470.00	3.55	-20.55	3.51	0.71	-3.88	40.90
2480.00	4.09	-18.48	4.05	0.80	-3.74	42.26
2490.00	4.00	-19.83	3.95	0.37	-3.84	41.32
2500.00	3.79	-20.19	3.74	-0.13	-4.00	39.78

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Frequency 频率(MHz)	Gain 增益(dBi)	MinGain 最小增益 (dBi)	CO Gain 主极化最 大增益 (dBi)	CP Gain 交叉极化 最大增益 (dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
5150.00	5.54	-30.82	3.65	2.45	-2.28	59.20
5200.00	5.81	-22.40	3.75	2.71	-2.36	58.13
5250.00	7.09	-25.07	4.85	3.22	-1.80	66.08
5300.00	7.10	-30.89	4.56	3.77	-2.51	56.15
5350.00	7.77	-26.79	5.17	4.85	-2.67	54.14
5400.00	8.41	-25.03	6.12	5.53	-2.93	50.99
5450.00	9.32	-28.66	7.51	5.88	-2.80	52.49
5500.00	10.31	-37.11	8.69	6.61	-2.01	62.90
5550.00	9.65	-25.02	8.22	5.99	-2.17	60.65
5600.00	8.68	-26.82	7.53	4.90	-2.58	55.21

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5650.00	9.46	-34.11	8.70	5.23	-1.74	67.06
5700.00	9.58	-27.41	9.21	4.45	-1.68	67.96
5750.00	9.78	-42.98	9.53	4.58	-1.57	69.67
5800.00	9.76	-41.65	9.58	4.85	-1.58	69.51
5850.00	9.53	-24.48	9.30	4.81	-1.93	64.09

ANT-2 WIFI

Gain&Efficiency&PhaseCenter 增益、效率和相位中心						
Frequency 频率(MHz)	Gain 增益(dBi)	MinGain 最小增益 (dBi)	CO Gain 主极化最 大增益 (dBi)	CP Gain 交叉极化 最大增益 (dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
2400.00	3.78	-17.15	2.53	1.75	-3.05	49.58
2410.00	3.83	-17.39	2.60	1.82	-3.25	47.28
2420.00	4.04	-16.86	2.73	2.15	-2.99	50.22
2430.00	3.73	-16.65	2.32	1.87	-3.28	46.97
2440.00	3.75	-16.30	2.10	2.02	-3.33	46.49
2450.00	4.16	-16.28	2.37	2.20	-3.13	48.68
2460.00	3.48	-17.01	1.72	1.42	-3.88	40.94
2470.00	3.76	-17.12	1.87	1.74	-3.54	44.30
2480.00	3.83	-16.21	1.92	1.82	-3.67	42.92
2490.00	3.51	-15.63	1.55	1.51	-3.85	41.21
2500.00	2.90	-15.39	1.00	0.89	-4.28	37.33

Gain&Efficiency&PhaseCenter 增益、效率和相位中心						
Frequency 频率(MHz)	Gain 增益(dBi)	MinGain 最小增益 (dBi)	CO Gain 主极化最 大增益 (dBi)	CP Gain 交叉极化 最大增益 (dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
5150.00	6.50	-28.67	6.24	2.03	-2.43	57.15
5200.00	7.20	-33.59	7.02	1.97	-2.59	55.07
5250.00	8.99	-28.81	8.79	2.74	-2.06	62.21
5300.00	9.24	-25.10	9.01	2.05	-2.59	55.02

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5350.00	9.57	-32.96	9.32	1.96	-2.44	56.97
5400.00	9.51	-34.10	9.20	2.26	-2.53	55.84
5450.00	9.92	-27.55	9.62	2.33	-2.43	57.19
5500.00	10.89	-31.02	10.66	3.01	-2.08	62.01
5550.00	10.54	-32.42	10.31	3.36	-2.59	55.14
5600.00	10.05	-41.41	9.80	3.39	-3.19	47.97
5650.00	11.15	-31.76	10.82	4.46	-2.27	59.34
5700.00	11.16	-31.99	10.75	5.55	-2.25	59.56
5750.00	11.30	-29.27	10.91	6.59	-2.15	61.02
5800.00	11.03	-25.57	10.74	7.30	-2.08	61.97
5850.00	9.86	-24.65	9.50	7.25	-2.67	54.05

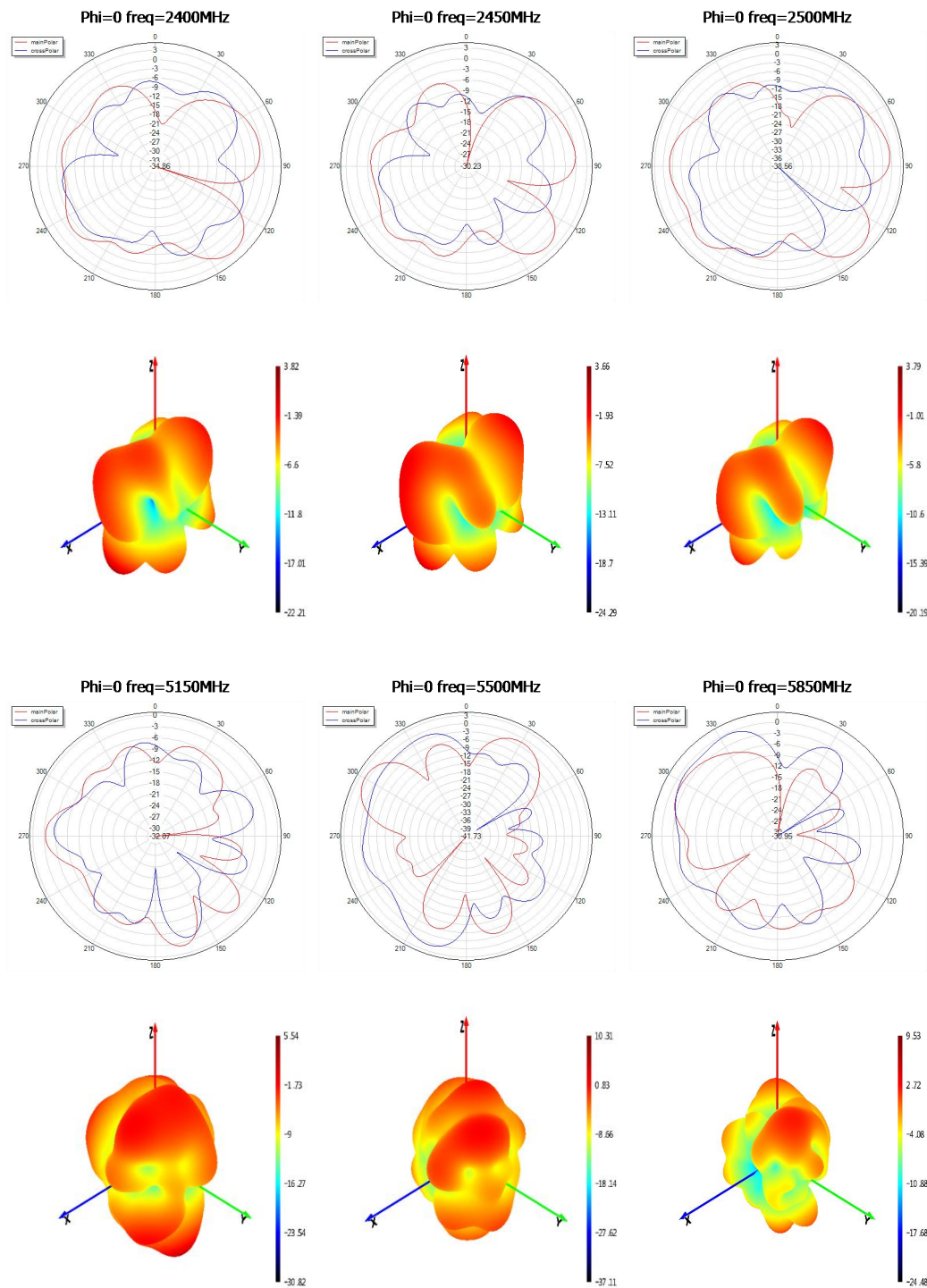
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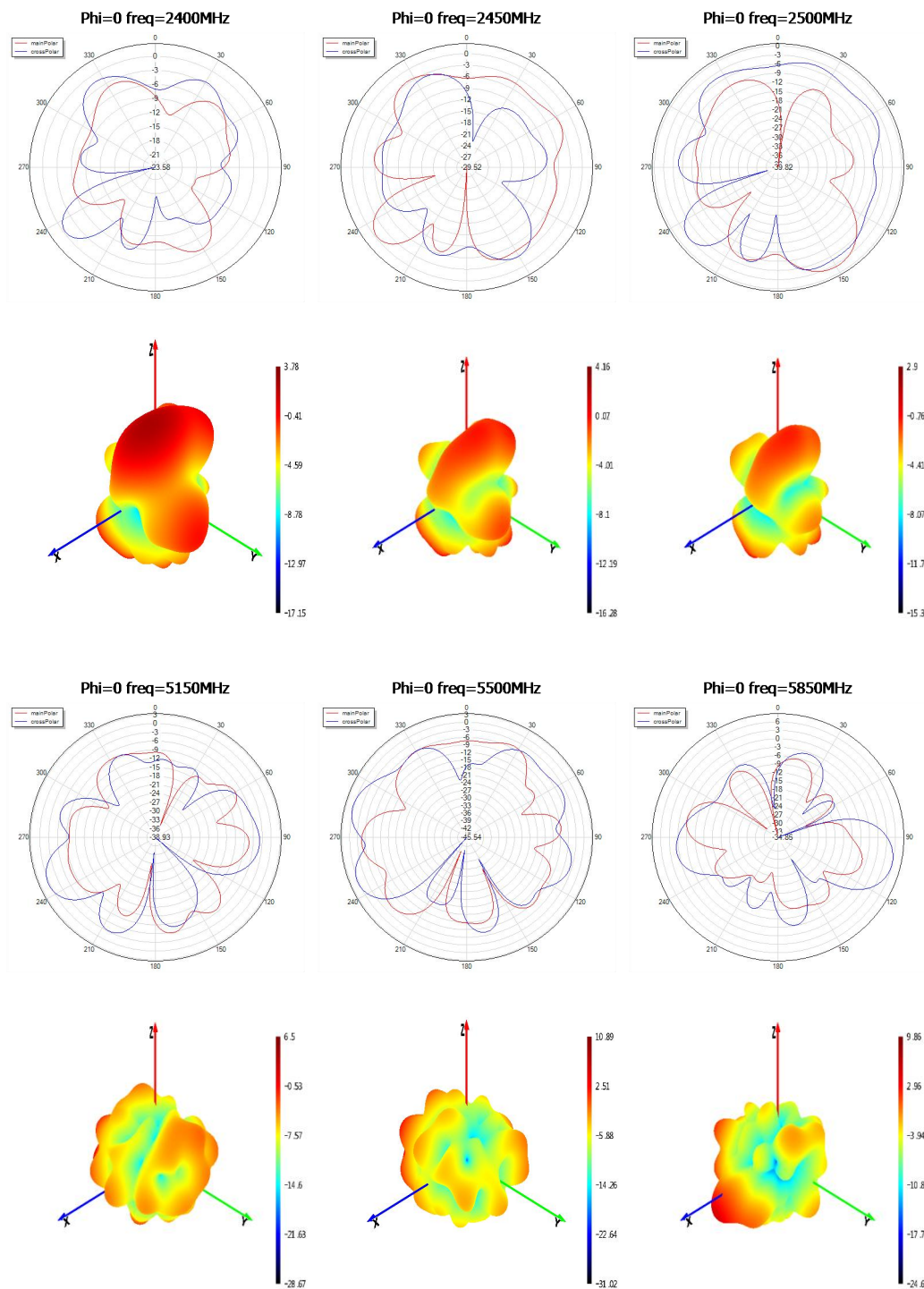
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2D3D Direction map ANT-1



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ANT-2



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Active data

Test mode: 802.11b 11Mbps BW 20M

Test	Wifi 2G TRP				Test	Wifi 2G TIS		
CH	1	6	11		CH	1	6	11
Frequency (MHz)	2412	2437	2472		Frequency (MHz)	2412	2437	2472
TRP(dBm)	11.45	10.27	10.75		TIS(dBm)	-75.64	-74.65	-72.13

Test mode: 802.11a 54Mbps BW 20M

Test	Wifi 5G TRP				Test	Wifi 5G TIS		
CH	36	100	161		CH	36	100	161
Frequency (MHz)	5180	5500	5825		Frequency (MHz)	5180	5500	5825
TRP(dBm)	13.16	14.15	12.14		TIS(dBm)	-72.9	-71.69	-70.83

Throughput test

	2.4G	5.8G
TCP client	55.5	98.2
UDP client	72.9	93.1
	2.4G	5.8G
STCP sever	76.3	133.6
UDP sever	90.7	142.5

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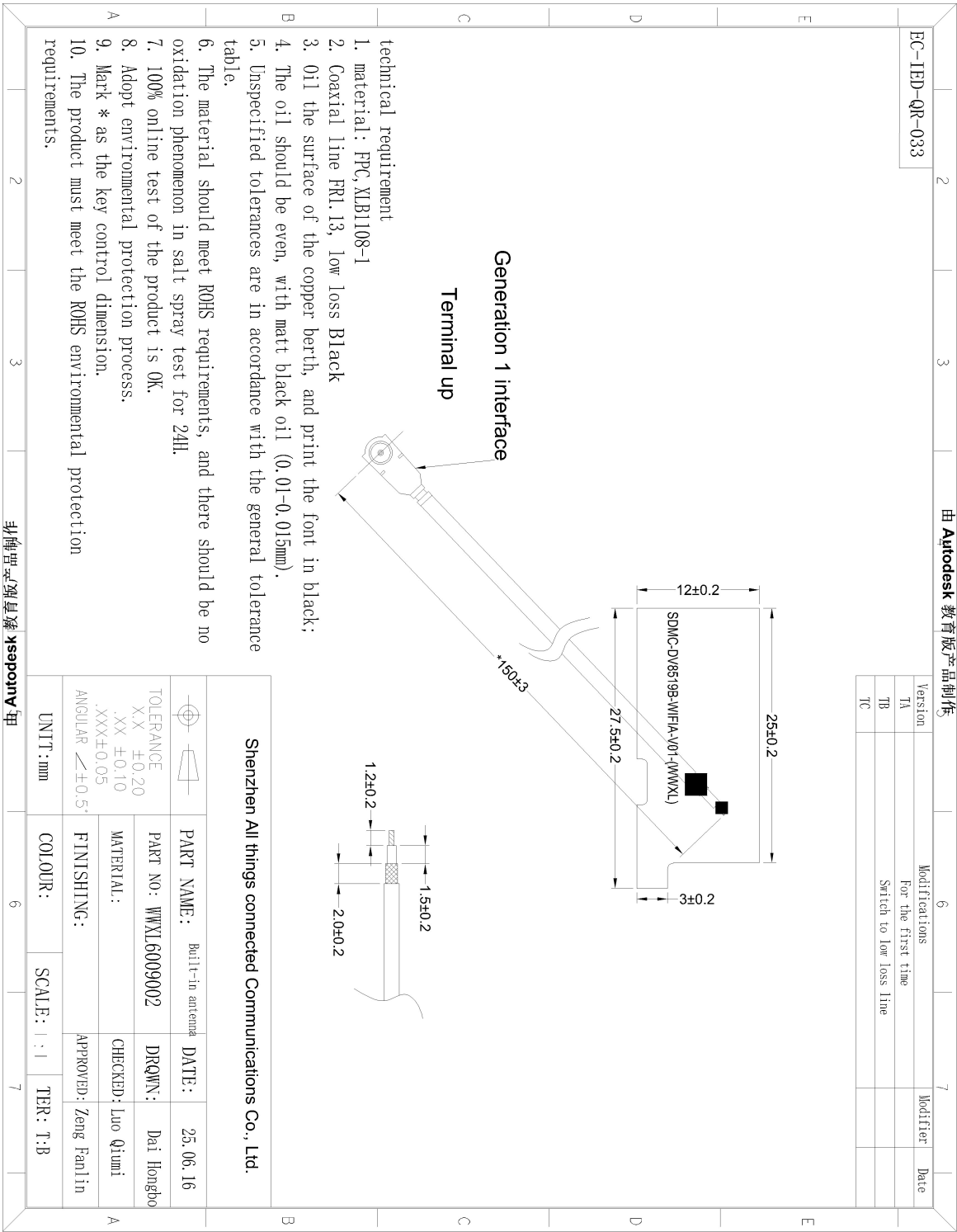
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Reliability testing

Environmental experiment

High and low temperature and humidity test report						
test project	High temperature, low temperature and constant humidity test					
name	Built-in antenna (WWXL6009002)			date	2025.06.16	
device	Constant temperature and humidity test box network analyzer			Quantity	5PCS	
Inspectin standards	1. There are no defects such as peeling off, cracks, wrinkles, etc. on the metal surface; non-metal parts must not have defects such as discoloration, cracking, deformation, degumming. 2. The electrical test meets the design requirements; the voltage standing wave ratio test is satisfactory.					
Test name		request	experiment method	Actual test data	result	
					sample	Assessm ent result
	Pilot projects					
High temperature test	Temperature (℃)		9		1	qualified
	Test sample		according		2	qualified
	temperature stabilization time (H)	+85±3	to GB2423. 1-89	+87 1.2	3	qualified
	Test duration (h)	1	Method	2.3	4	qualified
	Recovery time (h)	2		1	5	qualified
Low temperature test	Temperature (℃)		8th in		1	qualified
	Test sample		accordanc		2	qualified
	temperature stabilization time (h)	-45±3	e with	-46 1.2	3	qualified
	Test duration (h)	1	GB2423. 1-89	2.4	4	qualified
	Recovery time (h)	2	Method	1.1	5	qualified

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Constant Damp Heat Test	Temperature (°C)	+40±2 90-95 21 1	According to GB2423.3-93 Section 5 Method	+42 92 22 1.1	1	qualified
	Relative humidity (%)				2	qualified
	Test duration (h)				3	qualified
	Recovery time (h)				4	qualified
					5	qualified

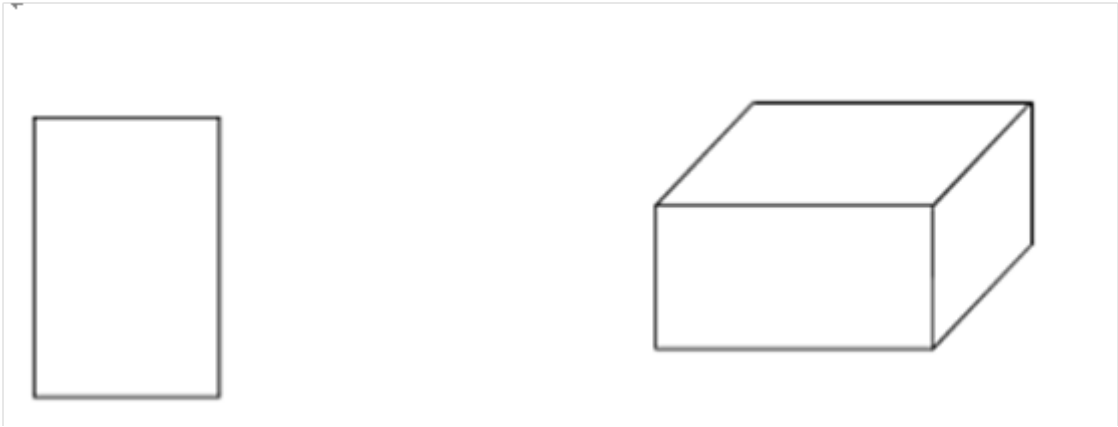
Salt spray test

Salt fog test report				
Test item	Salt spray test			
Name	Built-in antenna (WWXL6009002)	date of observation	2025.06.16	
Device name	Salt spray corrosion test box	Test quantity	5 PCS	
Test method	The test samples were put into the modulated salt solution test chamber and salt spray corrosion chamber for continuous spray test			
Salt solution concentration	52g/L	PH Value of Salt Solution: 6.5-7.2	Test cycle: 24h	
Actual test data	55g/L	PH Value of Salt Solution: 6.8	Test cycle: 26h	
Test standard	Tests were carried out according to GB/T10125 "Artificial Atmosphere Corrosion Test and Salt Spray Test"; Results According to GB/T6461-2002 "Metal and other inorganic coatings on metal substrates after corrosion test are samples and specimens			
Test result				
NO	Corrosion resistance grade	Actual test data	Assessment result	Remarks

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1	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
2	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
3	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
4	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
5	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	

Packing instructions:



100PCS/Pouch

30Pouch/1Caron