

SUNNYWAY TECHNOLOGY(CHINA)

ANTENNA SPEC

Customer name: Wanlida		Entry name: MPD-R009
Working band: WIFI2.4/5.8G		
Motherboard version:		
Sunnyway Material specification		
Specification type	Sunnyway number	Customer number
WIFI1 Antenna	SZ26072IB77-1	0224010021532

Revision history			
Date of preparation/change	Change content	Altered person	Edition
2026.07.27	New issue	Longchaoqun	A

Sunnyway Countersign column				
R&D	ME:	To examine:	QE:	Approval:
	RF:	To examine:		

Customer will sign the column			
Electronic Engineer	Project manager	Structural Engineer	Quality Engineer

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一、 Project information

1.1 Mockup picture



1.2 Antenna product picture



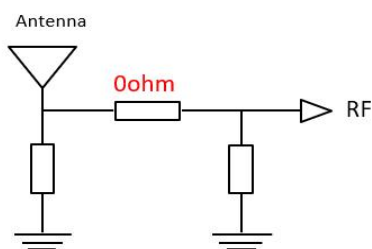
二、 Behaviour of electricity

Model type	WIFI ANT
Frequency range (MHZ)	2400MHz-2500MHz
Gain (dBi)	≥ 1.38
Voltage standing wave ratio	< 3.0 (Inside the equipment)
Efficiency (%)	$\geq 31\%$
Polarization mode	Linearly polarized
Radiation pattern	Omnibearing
Output impedance (Ω)	50

三、 Mechanical property

Way to install	Stick
Connection type	Coaxial line
Antenna size (mm)	29.8*22.3mm
Texture	FPC+IPEX
Operating temperature ($^{\circ}\text{C}$)	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
Storage temperature ($^{\circ}\text{C}$)	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$

四、 Matching circuit



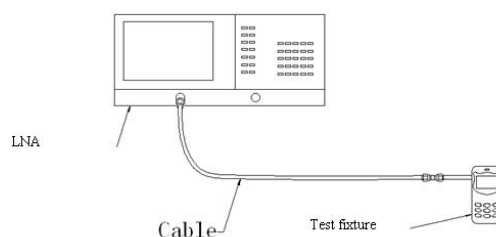
五、 Antenna passive testing data

5.1 S11 Description of the test method

Test the equipment: Vector network analyzer (Agilent E5071C)

Test methodology: Use a 50 ohm CABLE cable to export from the instrument test port, use the calibration piece to calibrate and connect the SMA connector of the test fixture, and record the return loss and standing wave ratio corresponding to the relevant frequency point.

Below is a schematic picture of the test:



Test schematic diagram

Test the environment

Test the system: Multi-probe OTA measurement system (XH-IoT)

Test the environment: Temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

Test the equipment: When testing passive data, use the network analyzer R&S ZND/ Agilent E5071C

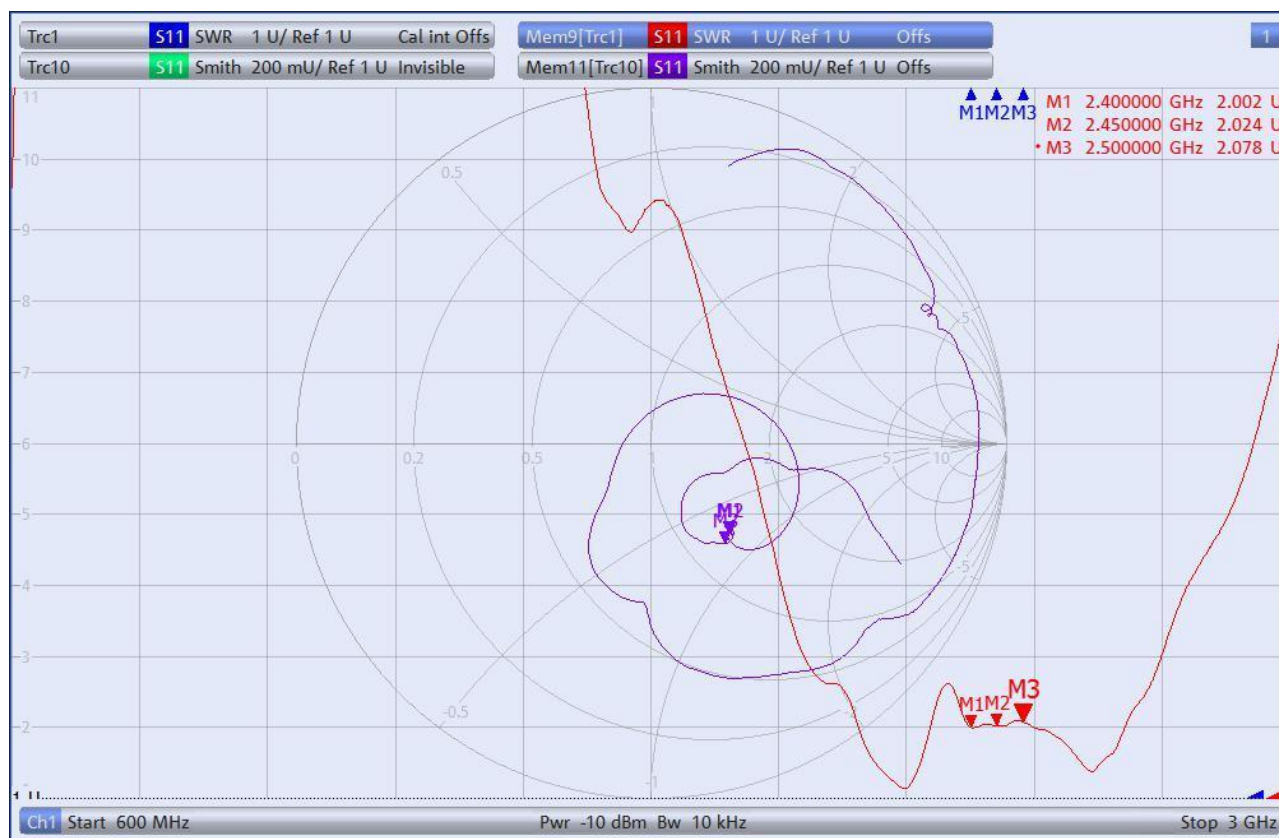
When testing active data, use the Agilent 8960/CMW500/SP9500E/SP8315



5.2 S11 Test parameters

Freq MHz	2400	2450	2500
VSWR	2.0	2.0	2.1

VSWR

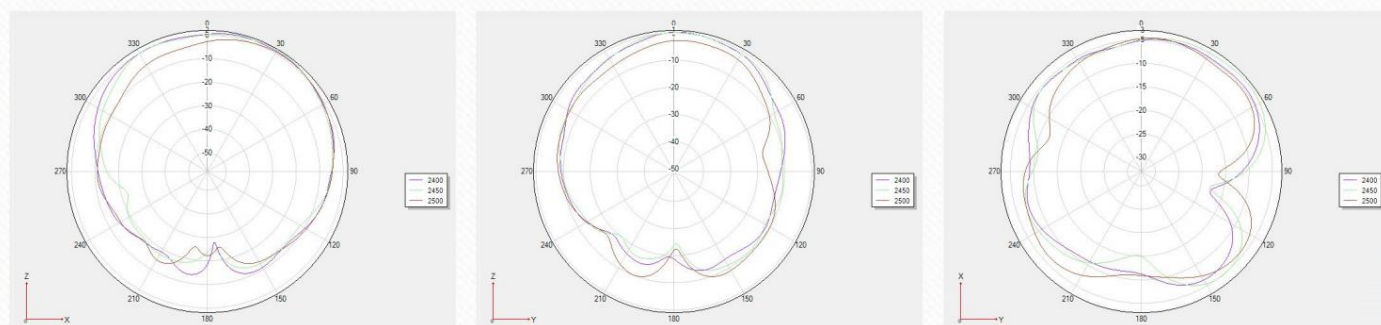


5.3 Antenna efficiency and gain

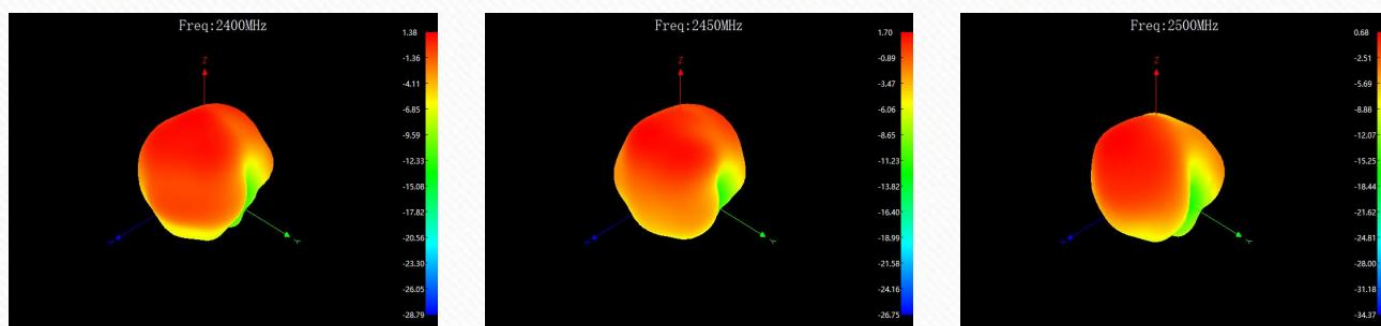
Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	32.73	1.38
2410	34.26	2.36
2420	34.15	1.78
2430	33.73	2.37
2440	33.81	1.94
2450	34.17	2.58
2460	33.31	1.73
2470	30.81	1.89
2480	33.56	1.7
2490	31.91	1.78
2500	34.07	1.52

5.4Antenna pattern

天线2D方向图:



天线3D方向图:



六、 Environmental treatment methods

NONE

七、 The installation position of the ceiling cable



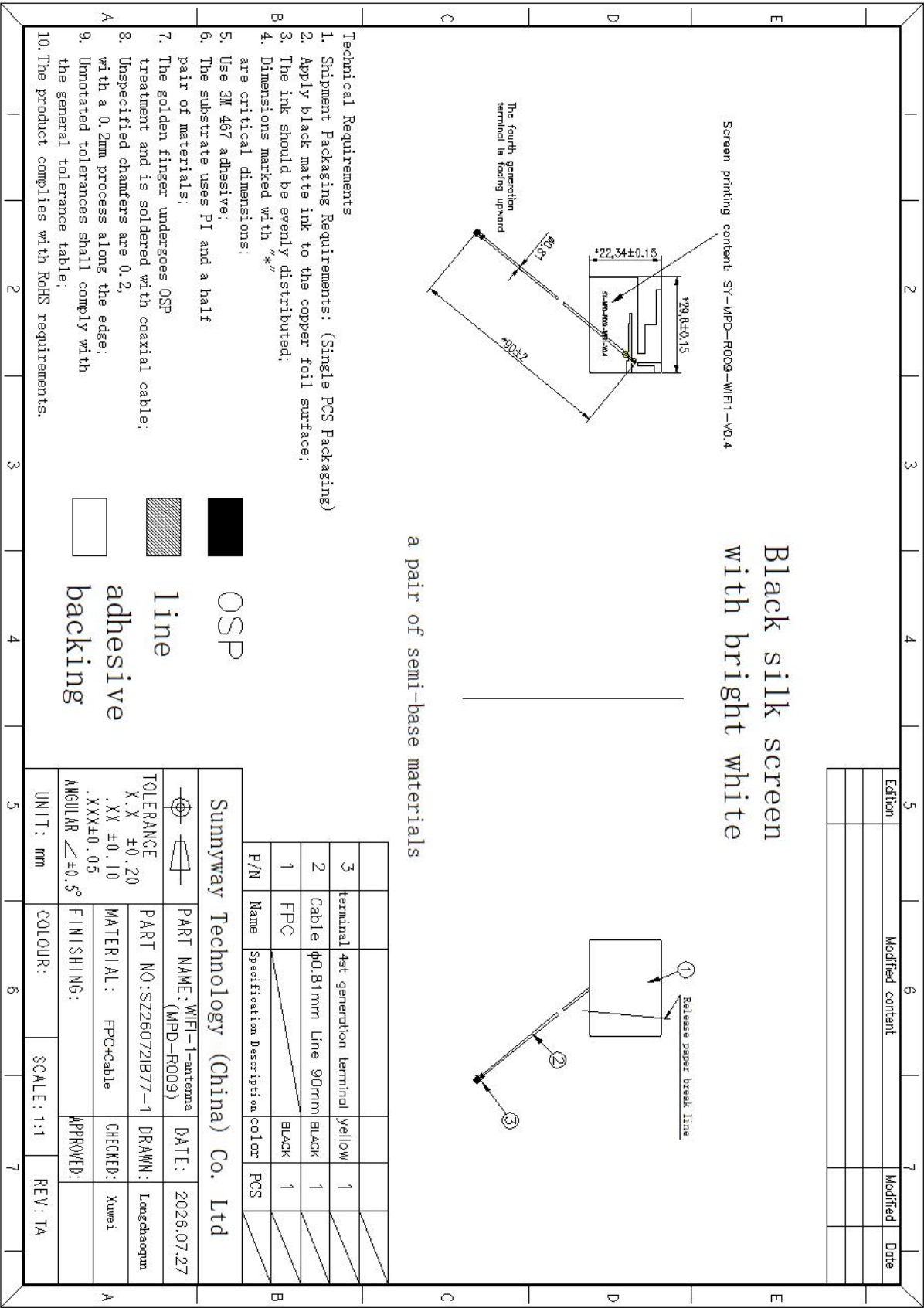
八、 Standard for mass production antennas

When the antenna is mass-produced, the VSWR is used as the mass production test standard.

According to the differences in the project itself, the following criteria are given:

Freq (MHZ)	Mass production standards
2400MHz-2500MHz	$VSWR(\text{Production performance}) < VSWR(\text{Confirmed performance}) \pm 0.5$

九、 Engineering drawings





SUNNYWAY

Sunnyway Technology (China) Co., Ltd.

Antenna Environment Test Report

Customer Name: MPD-R009

entry name: MPD-R009 WIFI Antenna

sunnyway NO: SZ260721B77-1

Number of samples: 5PCS

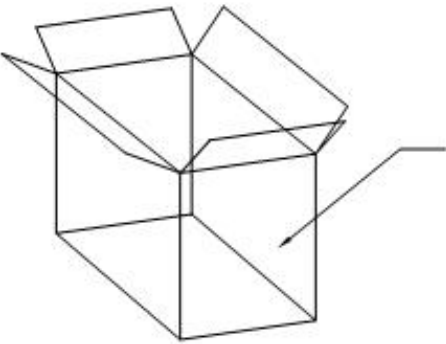
Test time	Test items	Test conditions and requirements	Test equipment	test result				
				1	2	3	4	5
2026.7.15-2026.7.16	low temperature storage	Store in a incubator (-40 °C ± 5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance are good	Standard temperature and humidity box	1 -40 °C	2 -40 °C	3 -40 °C	4 -40 °C	5 -40 °C
				RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
2026.7.15-2026.7.16	high temperature storage	Store in a temperature box (80 °C ± 5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance are good	Standard temperature and humidity box	1 +85 °C	2 +85 °C	3 +85 °C	4 +85 °C	5 +85 °C
				RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
2026.7.15-2026.7.16	Constant temperature and humidity test	The temperature is 60 °C ± 5, the humidity is 90%~95% RH, and after 24 hours, it is required that the structure is undamaged and the electrical performance remains unchanged.	Standard temperature and humidity box	1 60 °C /95%	2 60 °C /95%	3 60 °C /95%	4 60 °C /95%	5 60 °C /95%
				RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
2026.7.15-2026.7.16	Salt spray resistance experiment	NaCl solution with salt spray concentration of 5%, spray the antenna for 24 hours continuously at 35 °C, then remove it for cleaning and drying. The surface of the antenna should be free of rust, discoloration, and peeling of the coating.	Salt mist machine	1 35 °C /5%	2 35 °C /5%	3 35 °C /5%	4 35 °C /5%	5 35 °C /5%
				RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK

to examine: Linchangqin

confirm: Chenxiaoping

test: Weiyueli

十一、 Packaging method

SunnyWay (China) Technology Co., Ltd					
Product Packaging Operation					
Specification					
Customer: Wanlida		P/N: MPD-R009-WIFI-1 antenna		Number: SYC-BZ-001	
version: TEST: A					
serial number	P/N	Specification	dosage		
	PE				
SYC-BZ-01	carton				
1. Prepare the necessary packaging materials and place them in a favorable location for work. 2. According to the packaging specifications of SYC-BZ01, use cardboard boxes (SYC-01) , PE bag packaging 3. After filling the box, seal it with transparent tape				1. Operators must wear gloves when operating 2. Pay attention to the packing quantity, do not pack too much or too little The tail box must be indicated 3. The cardboard boxes should not be stacked too high to prevent excessive pressure and glue overflow	
 Note: The quantity is subject to the quantity					
Approved		Review		Production	
				Date	
				2026-07-27	