

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
WIFI2 Antenna	SZ26072IB75	0224010021533

Revision history			
Date of preparation/change	Change content	Altered person	Edition
2026.07.17	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

Sunnyway Technology(CHINA)

Add: 1F, Building 4, No.215-99, GaoGuang Road, QingPu District, Shanghai, China

Tel: +86-021-6083 5368 Fax: +86-021-6484 2328

Email: sales@sunnyway-iot.com Web: www.sunnyway-iot.com

Catalogue

一、 Project information	3
1.1 Mockup picture	3
1.2 Antenna product picture	3
二、 Behaviour of electricity	4
三、 Mechanical property	4
四、 Matching circuit	5
五、 Antenna passive testing data	5
5.1 S11 Description of the test method	5
5.2 Antenna active testing data	6
5.3 S11 Test parameters	6
5.4 Antenna efficiency and gain	7
5.5 Antenna pattern	7
六、 Environmental treatment methods	8
七、 The installation position of the ceiling cable	8
八、 Standard for mass production antennas	9
九、 Engineering drawings	10
十、 Reliability test report	11
十一、 Packaging method	12

一、Project information

1.1Mockup picture



1.2Antenna product picture



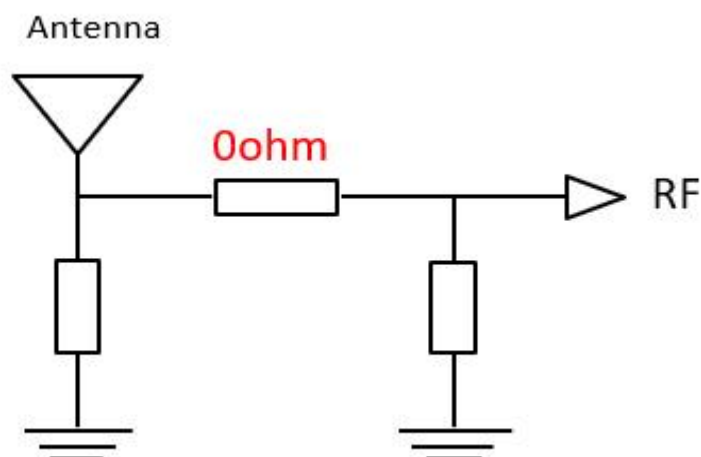
二、 Behaviour of electricity

Model type	WIFI ANT
Frequency range (MHZ)	2400MHZ-2500MHZ, 5150MHZ-5850MHZ
Gain (dBi)	≥-1.2
Voltage standing wave ratio	< 3.0 (Inside the equipment)
Efficiency (%)	≥26.18%
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)	43.7*7.9mm
Texture	FPC+IPEX
Operating temperature (°C)	- 40 °C ~ + 85 °C
Storage temperature (°C)	- 40 °C ~ + 85 °C

四、 Matching circuit



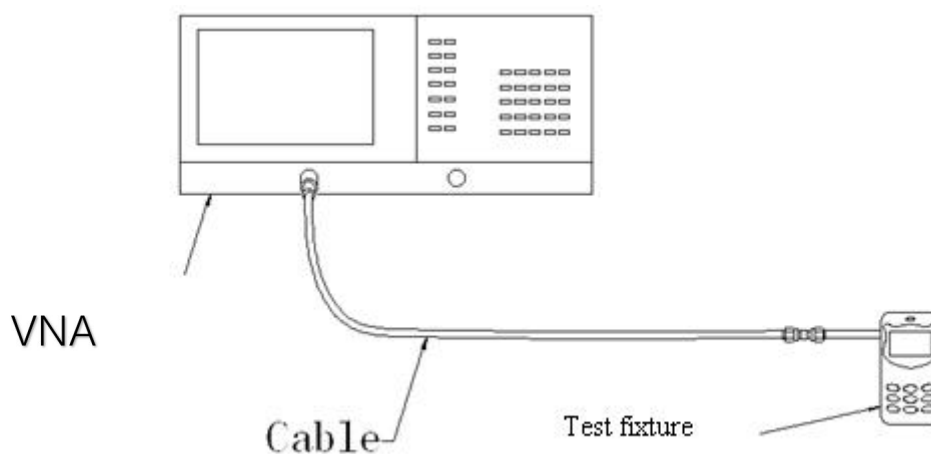
五、 Antenna passive testing data

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

5.2 Antenna active testing data

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

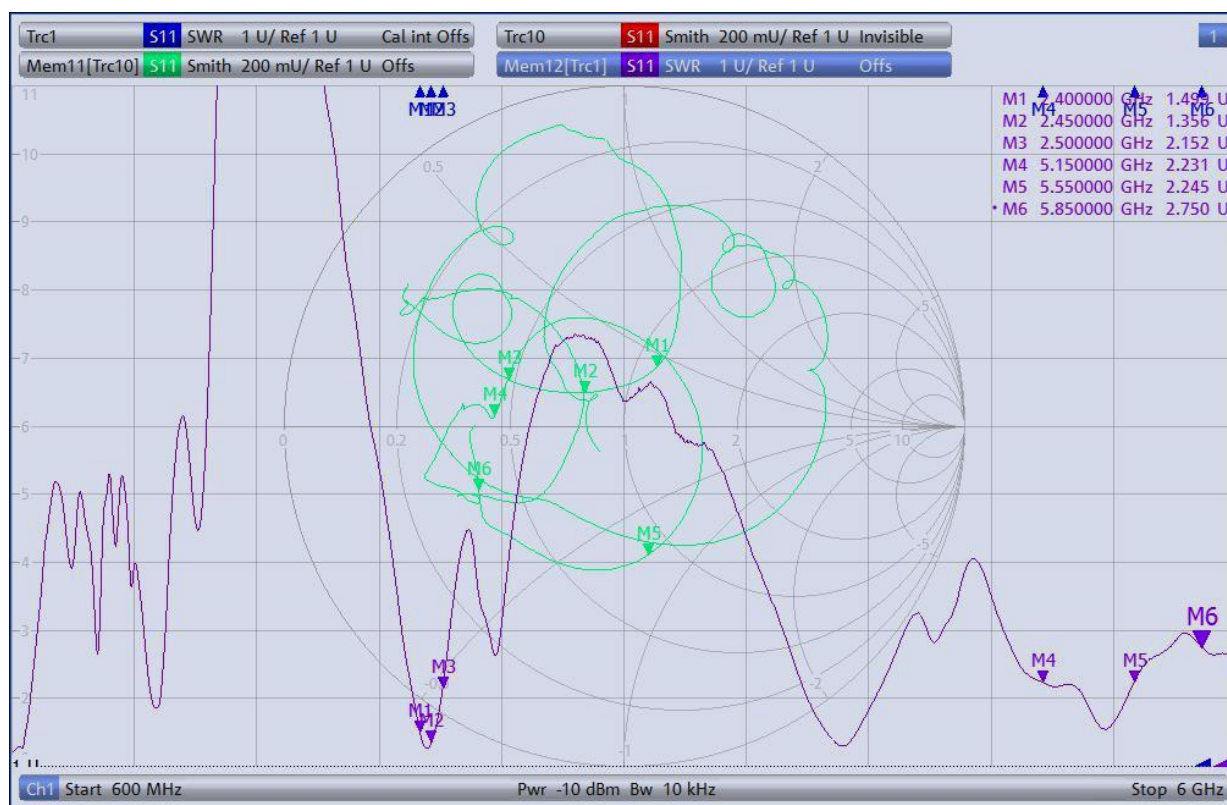
When testing active data, use the Agilent 8960/CMW500/SP9500E/SP8315



5.3 S11 Test parameters

Freq MHz	2400	2450	2500	5150	5800
VSWR	1.4	1.3	2.1	2.2	2.7

VSWR

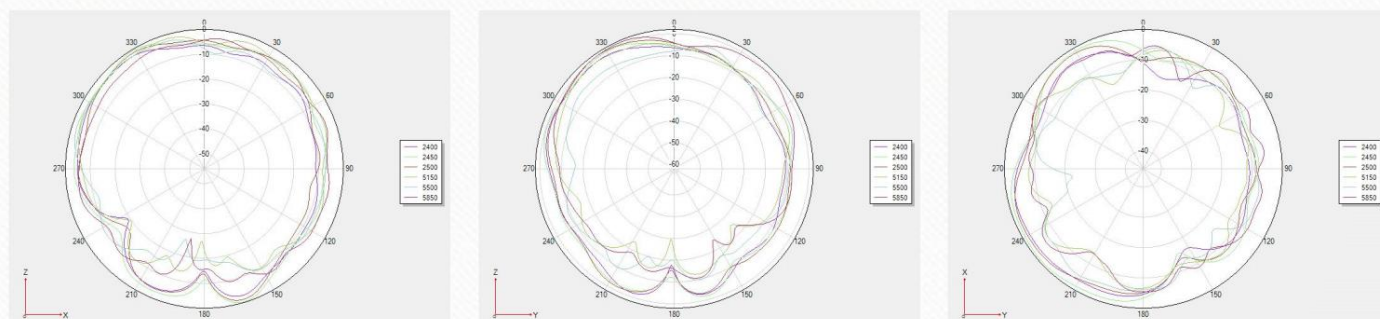


5.4 Antenna efficiency and gain

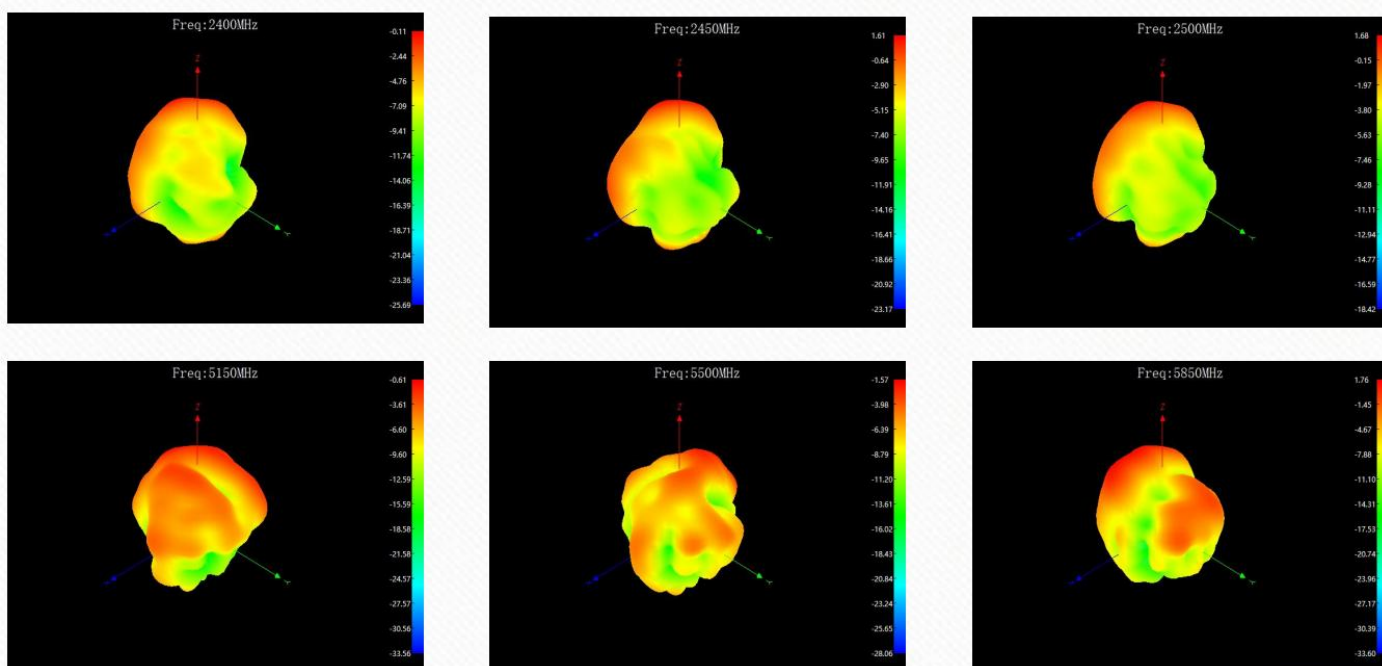
Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	36.92	-0.18
2410	38.36	-0.09
2420	36.84	-0.81
2430	37.96	-0.51
2440	39.2	-0.42
2450	38.64	0.22
2460	38.55	0.36
2470	39.08	-0.06
2480	40.16	0.86
2490	42.85	0.21
2500	40.39	0.59
5150	27.58	-1.07
5200	26.18	-1.83
5250	26.33	-1.2
5300	28.21	1.05
5350	37.41	1.96
5400	40.21	2.68
5450	40.64	2.61
5500	38.99	2.25
5550	40.18	3.08
5600	35.73	3.09
5650	33.81	3.71
5700	29.24	2.79
5750	26.85	2.2
5800	36.56	3.26
5850	37.58	2.9

5.5 Antenna 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



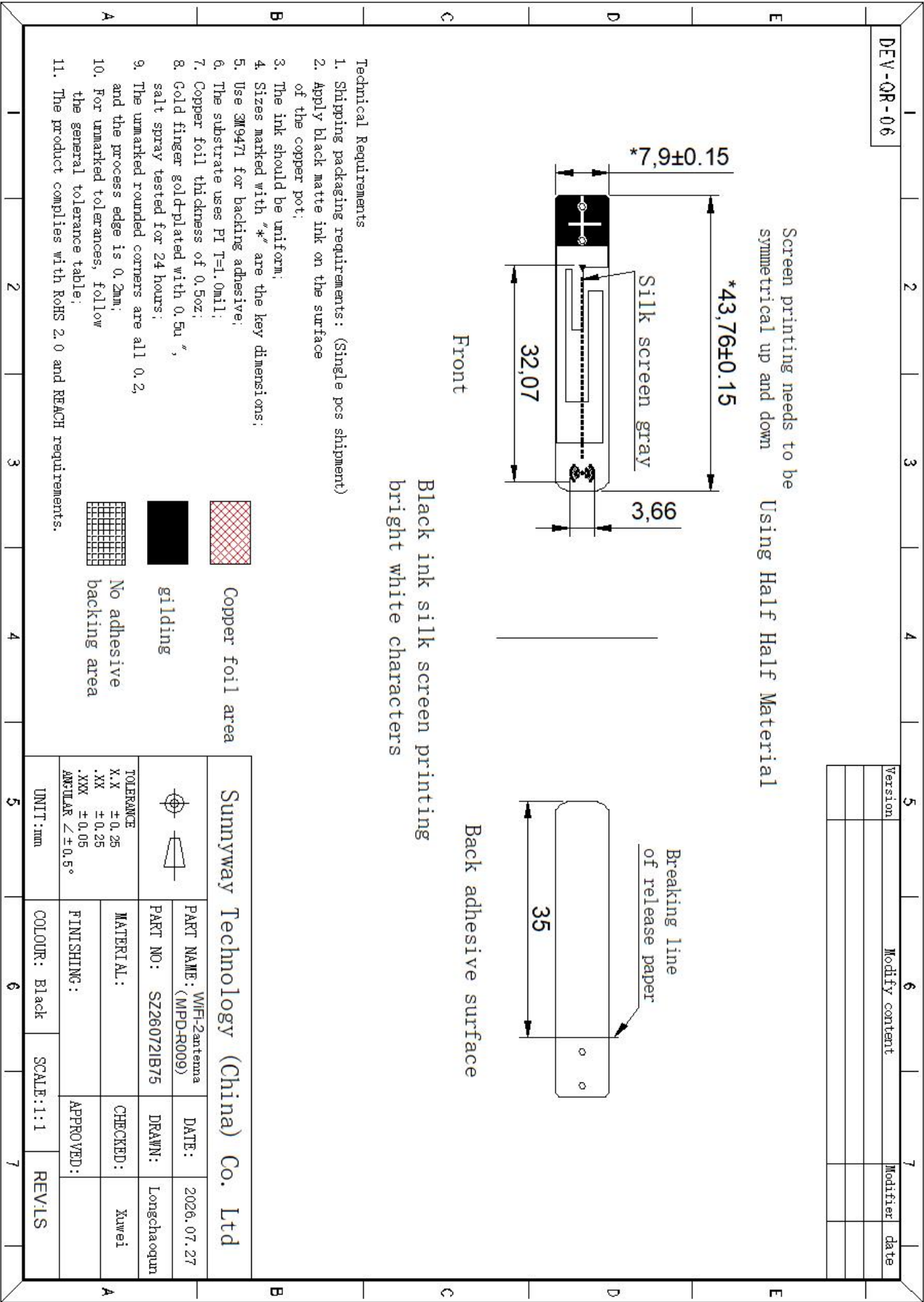
八、 Standard for mass production antennas

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 (Production performance)<VSWR(Confirmed performance) ± 0.5
5150MHz-5850MHz	

九、 Engineering drawings





SUNNYWAY

Sunnyway Technology (China) Co., Ltd.

Antenna Environment Test Report

Customer Name: MPD-R009

entry name: MPD-R009 WIFI2 Antenna

sunnyway NO: SZ260721B75

Number of samples: 5PCS

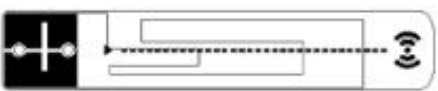
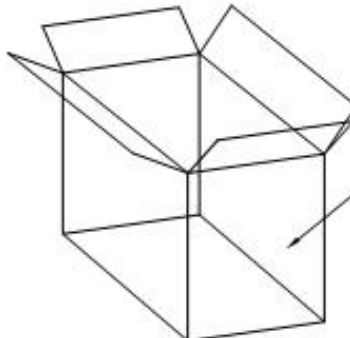
Test time	Test items	Test conditions and requirements	Test equipment	test result				
2026.7.15-2026.7.16	low temperature storage	Store in a incubator (-40 °C ± 5) for 24 hours, and then let it dry at room temperature for 2 hours before testing. The electrical performance (VSWR) and structural appearance are good	Standard temperature and humidity box	1	2	3	4	5
				-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
				RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
				1	2	3	4	5
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	+85 °C	+85 °C	+85 °C	+85 °C	+85 °C
				RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
				1	2	3	4	5
				60 °C/95%	60 °C/95%	60 °C/95%	60 °C/95%	60 °C/95%
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	RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
				1	2	3	4	5
				60 °C/95%	60 °C/95%	60 °C/95%	60 °C/95%	60 °C/95%
				RF	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 dry it. The surface of the antenna should be free of rust, discoloration, and peeling of the coating.	Salt mist machine	RF	OK	OK	OK	OK
				外观	OK	OK	OK	OK
				1	2	3	4	5
				35 °C/5%	35 °C/5%	35 °C/5%	35 °C/5%	35 °C/5%
				RF	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-2 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
 eq is subject to the cpquy					
Approved		Review		Production	
				Date	
				2026-07-27	