



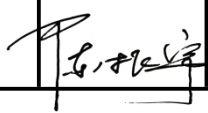
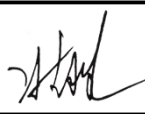
Antenna Sample Confirmation From

Guangdong Jianbo Tong
Stock Code: 831958

Shenzhen Jianhaitong Antenna Technology Co., Ltd.

Antenna Acknowledgment Letter

Antenna Sample Confirmation From

Vendor Name	Shenzhen kenhaitong antenna technology co,ltd				
Customer Name	Shenzhen Lancheng Technology Co., Ltd.				
Sample Name	KIT-N15DPL-WF-A-V01 KIT-N15DPL-WF-M-V01				
Part Number	Laptop				
Customer ID	1. 27. N15DPL. 00002 1. 27. N15DPL. 00001				
Specification	Dual-band WIFI BT antenna with 4th generation terminal, gray, auxiliary antenna, cable length 270mm Dual-band WIFI BT antenna with 4th generation terminal, black, main antenna, cable length 436mm				
Inspection Item	Performance	Total Appearance	structure	Audit	Inspection Result
	OK	OK		OK	OK
Remark					
QA Audit		Engineer Audit		Sales Confirm	
The following are filled by Customer					
Customer Evaluation					
Signation/ Chapter by Customer	date:				



Antenna Test Report

Test by: Shenzhen kenhaitong antenna technology co, ltd			
Material	FPC coaxial IPEX		
Antenna Type	PIFA	Polarization method Polarization mode	Linear
Application scenario Application			
Operating frequency Band	Master2.4G/ WIFI	VSWR	≤1.4
	Master5.8G/ WIFI		≤1.4
	Vice2.4G/ WIF		≤1.4
	Vice5.8G/ WIFI		≤1.4
Power	Max: 2W	Impedance	50Ω
Gain dBi	Master2.4G: ≥1.83dBi		
	Master5.8G: ≥3.75dBi		
	Vice2.4G: ≥4.06dBi		
	Vice5.8G: ≥3.12dBi		
Test Equipment	HPE5071C、Shielding Room、3D automatic turntable		



- 1. Project pictures**
- 2. Test fixtures**
- 3. Antenna matching circuit**
- 4. S11 testing**
 - 4.0 S11 testing method description**
 - 4.1 S11 parameter pictures**
- 5. Anechoic chamber testing equipment and data**
 - 5.0 Testing equipment**
 - 5.1 Testing data**
- 6. Antenna throughput testing data**
- 7. Antenna assembly diagram and environmental handling**
- 8. Structural drawings**
- 9. Sample dimension inspection report**
- 10. Reliability test report**
- 11. Packaging method**



Antenna Sample Confirmation From

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1、Project Images

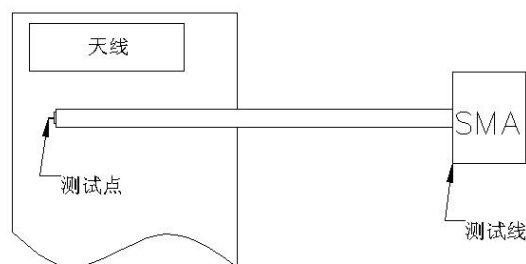


Note: The customer's final verification antenna prototype will be kept at our company for at least one year, in order to facilitate analysis and resolution of any anomalies during antenna mass production, ensuring the quality of shipped antennas.

2、Test Fixture

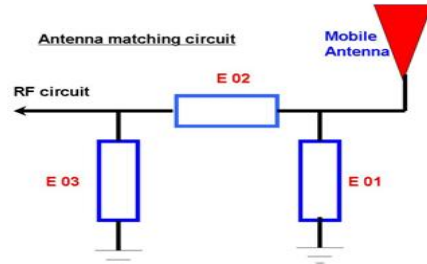
Purpose: To test the passive parameters of the antenna as accurately as possible.

Method of fabrication: The mobile phone fixture uses a 50-ohm coaxial cable, with one end connected to the test point at the back end of the matching circuit on the phone's motherboard (in front of the RF test hole), and the other end connected to an SMA connector. The schematic diagram is as follows:





3、Antenna matching circuit



Modification point/Modify

E01	E02	E03
No	No	No

Note: Match without modification.

4. S11 Test

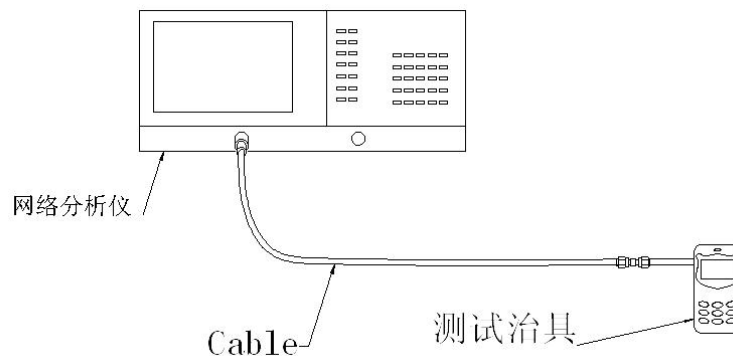
4.0 S11 Test Method Description

Test Equipment: Network Analyzer (E5071C)

Test Method: Use a 50-ohm CABLE to output from the instrument's test port, calibrate with a calibration device, then connect to the SMA connector of the mobile phone fixture, and record the return loss and VSWR corresponding to the relevant frequency points. .

The test diagram is as follows:

测试示意图





Antenna Sample Confirmation From

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Shenzhen Jianhaitong Antenna Technology Co., Ltd.

4.1 S11 Parameter Image

WIFI main antenna standing wave ratio



Frequency (MHz)	2400	2450	2500	5200		5800
Standing wave ratio	1.2	1.1	1.4	1.1		1.3

4.1 S11 Parameter Image

WIFI Main Antenna VSWR



Frequency (MHz)	2400	2450	2500	5200		5800
Standing wave ratio	1.3	1.2	1.3	1.4		1.0



Antenna Sample Confirmation From

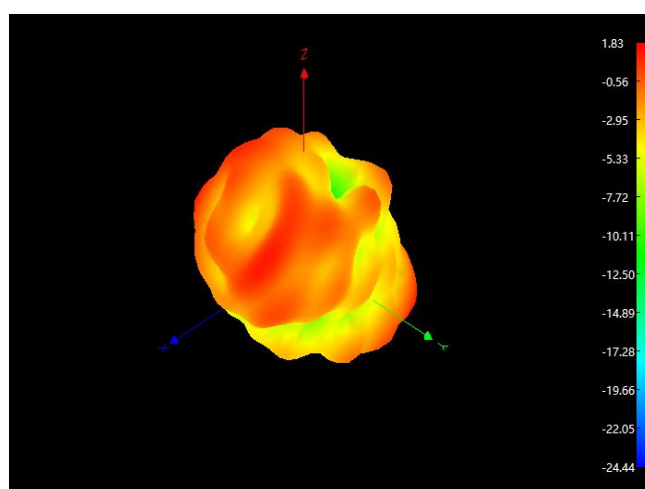
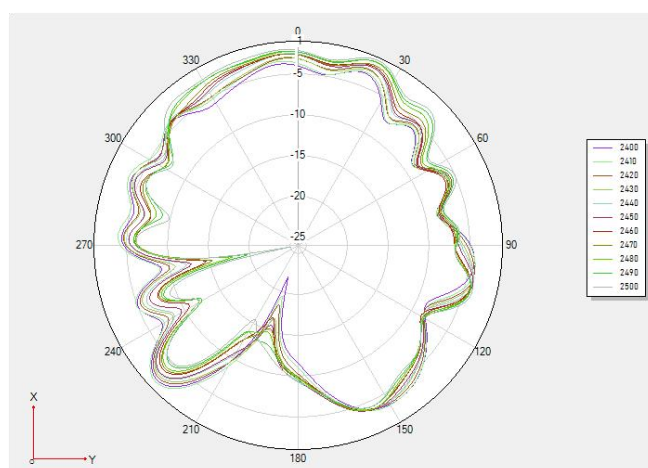
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Guangdong Jianbo Tong
Stock Code: 831958

Main antenna passive parameters

2.4G

Frequency / MHz	Efficiency / %	Gain/ dB
2400	40.09	1.26
2410	41.4	1.71
2420	42.85	1.75
2430	40.18	1.67
2440	43.05	1.83
2450	41.88	1.83
2460	40.36	1.42
2470	40.36	1.47
2480	41.78	1.48
2490	40.64	1.58
2500	41.11	1.67





Antenna Sample Confirmation From

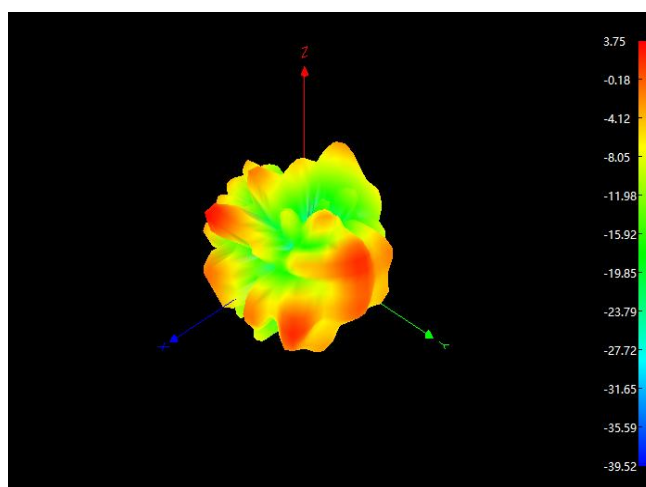
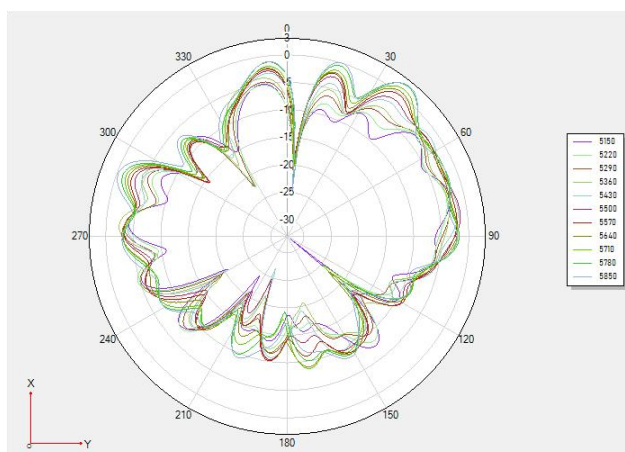
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Guangdong Jianbo Tong
Stock Code: 831958

Main antenna passive parameters

5.8G

Frequency / MHz	Efficiency / %	Gain/ dB
5000	29.54	3.38
5100	29.77	3.16
5200	28.75	3.13
5300	30.23	3.32
5400	30.75	2.4
5500	30.49	2.14
5600	31.32	2.3
5700	32.18	2.94
5800	33.49	3.2
5900	34.73	3.31
6000	33.44	3.75





Antenna Sample Confirmation From

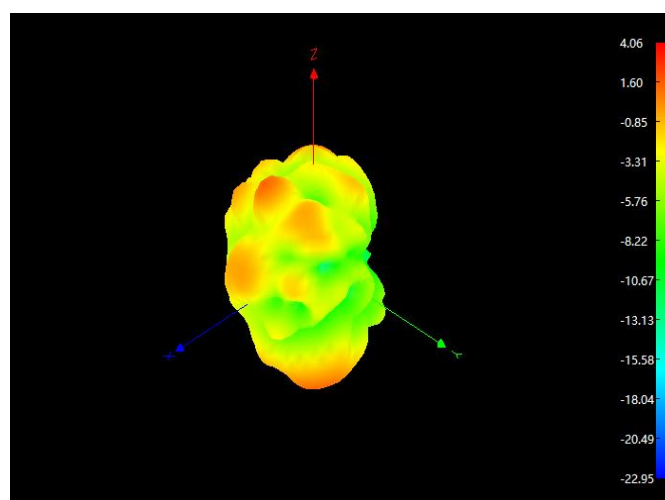
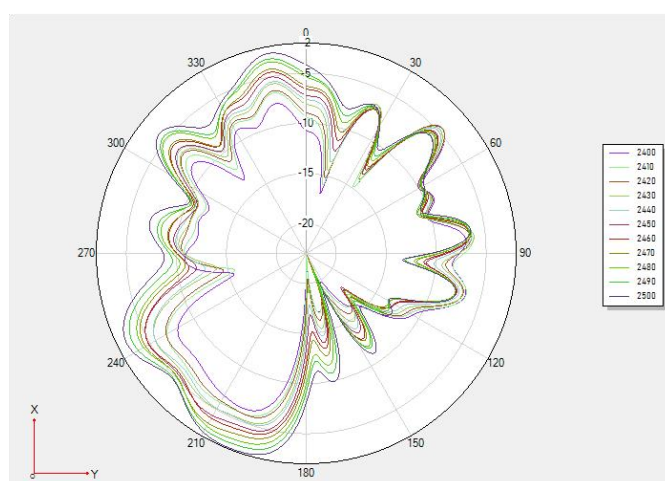
Shenzhen Jianhaitong Antenna Technology Co., Ltd.

Guangdong Jianbo Tong
Stock Code: 831958

Secondary Antenna Passive Parameters

2.4G

Frequency / MHz	Efficiency / %	Gain/ dB
2400	39.12	2.24
2410	40.06	2.78
2420	40.96	3.09
2430	40.81	3.21
2440	41.83	3.29
2450	40.65	3.49
2460	41.33	3.57
2470	41.84	3.68
2480	42.36	3.81
2490	40.27	4.06
2500	40.64	3.95





Antenna Sample Confirmation From

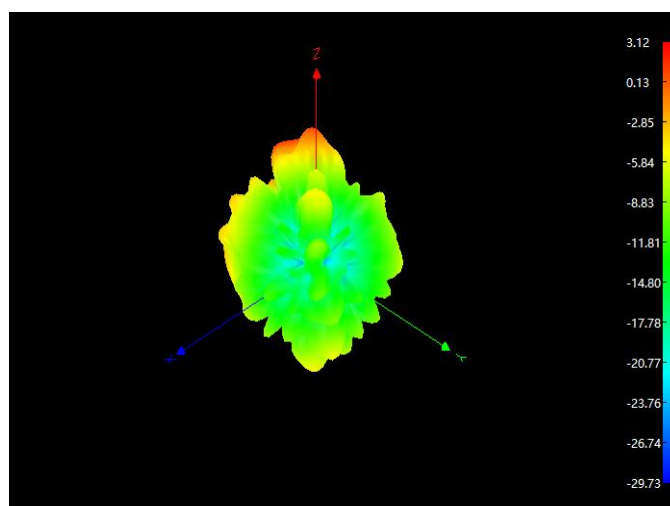
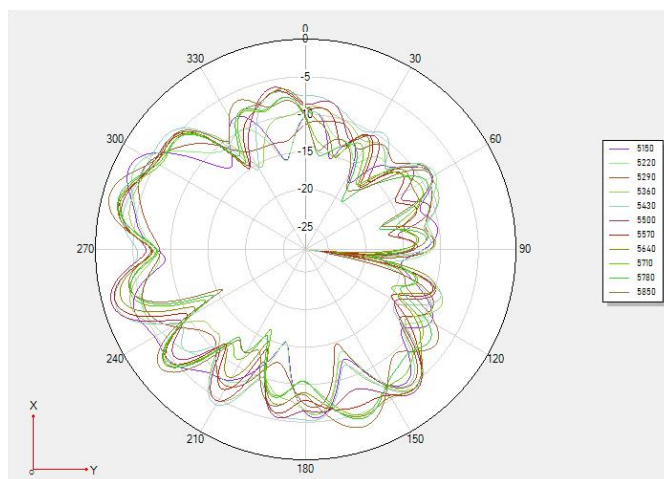
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Guangdong Jianbo Tong
Stock Code: 831958

Secondary Antenna Passive Parameters

5.8G

Frequency / MHz	Efficiency / %	Gain/ dB
5150	30.04	3.12
5220	29.14	2.01
5290	28.03	1.74
5360	30.13	1.5
5430	30.27	2.52
5500	30.43	2.44
5570	30.65	1.67
5640	31.86	1.54
5710	30.54	1.1
5780	30.18	1.69
5850	29.5	2.58





Antenna Sample Confirmation From

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5、Darkroom testing equipment and data

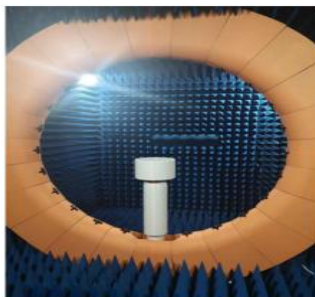
5.0 Test Equipment

Test System: Shielded Chamber

Test Environment: Temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, Humidity $50\% \pm 15\%$

Test Equipment: For testing passive data, use Network Analyzer Agilent E5071C

For testing active data, use Comprehensive Tester CMW5000





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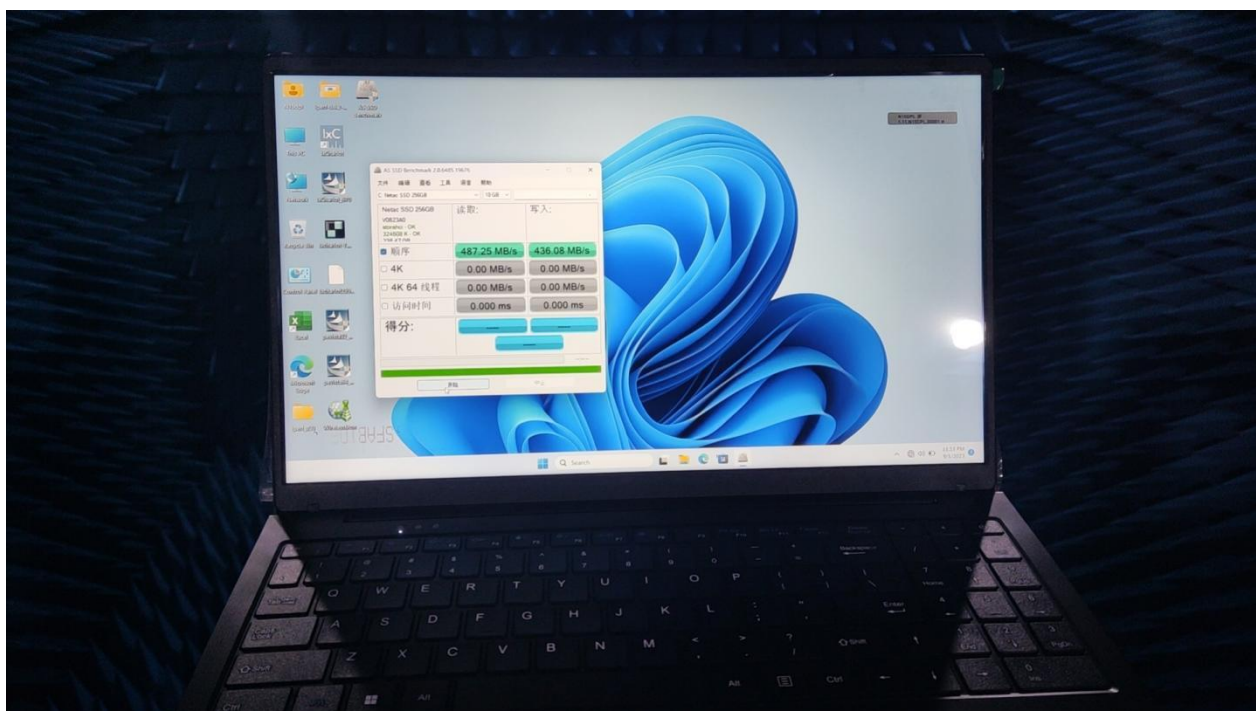
5.1 Active testing OTA

Band	Channel	TRP	TIS
802.11b (11Mbps)	L	15.14	-83.55
	M	16.19	-83.15
	H	15	-82.91
802.11g (54Mbps)	L	13.67	-70.72
	M	13.61	-70.77
	H	12.56	-70.21
802.11n (MCS7-65Mbps)	L	15.04	-66.57
	M	14.57	-66.86
	H	13.42	-65.91
802.11a (54Mbps)	L	12.21	-70.13
	M	12.05	-70.64
	H	12.32	-70.83



Antenna Sample Confirmation From
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Guangdong Jianbo Tong
Stock Code: 831958



Address: 3rd Floor, West Side, Building 1, Hezhou Zhongke Nuo Industrial Park, Hangcheng Street, Bao'an District, Shenzhen City TEL: 0755-85274764 FAX: 0755-85274764



Antenna Sample Confirmation From

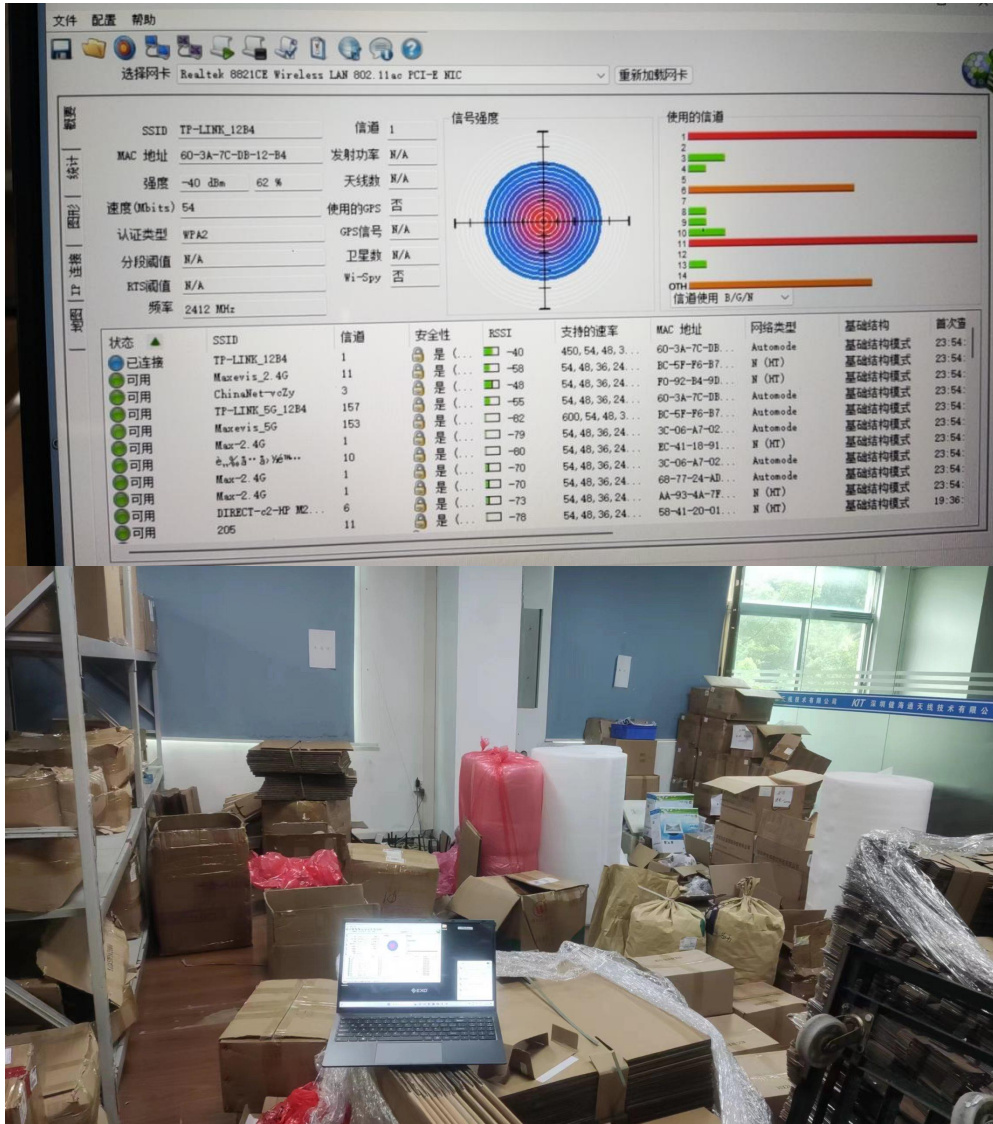
Shenzhen Jianhaitong Antenna Technology Co., Ltd.

Guangdong Jianbo Tong
Stock Code: 831958

WiFi Signal Strength Test Actual Measurement Diagram

(Office 5 meters)

2.4G



The initial pictures show our company's office environment and the test results of router placement. In the pictures, the laptop and router are 5 meters apart in the test environment. Since each router is different, there are errors in the tests.



Antenna Sample Confirmation From

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Shenzhen Jianhaitong Antenna Technology Co., Ltd.

(Office 10 meters)



The initial pictures show our company's office environment and the test results of router placement. In the pictures, the laptop and router are 10 meters apart in the test environment. Since each router is different, there are errors in the tests.



Antenna Sample Confirmation From

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(Office 15 meters)



The initial pictures show our company's office environment and the test results of router placement. In the pictures, the laptop and router are 15 meters apart in the test environment. Since each router is different, there are errors in the tests. .



Antenna Sample Confirmation From

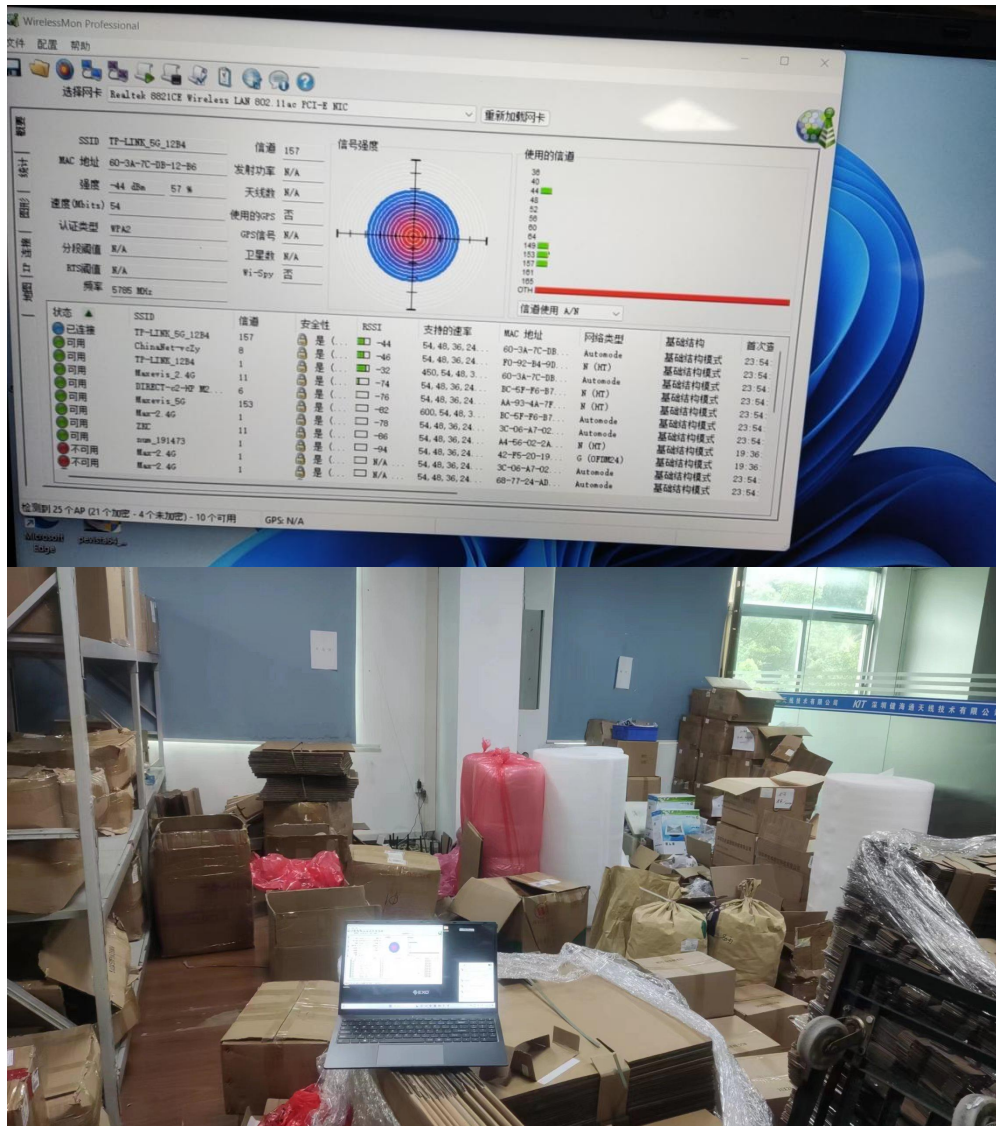
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Guangdong Jianbo Tong
Stock Code: 831958

WIFISignal Strength Test Actual Measurement Diagram

(Office 5 meters)

5.8G



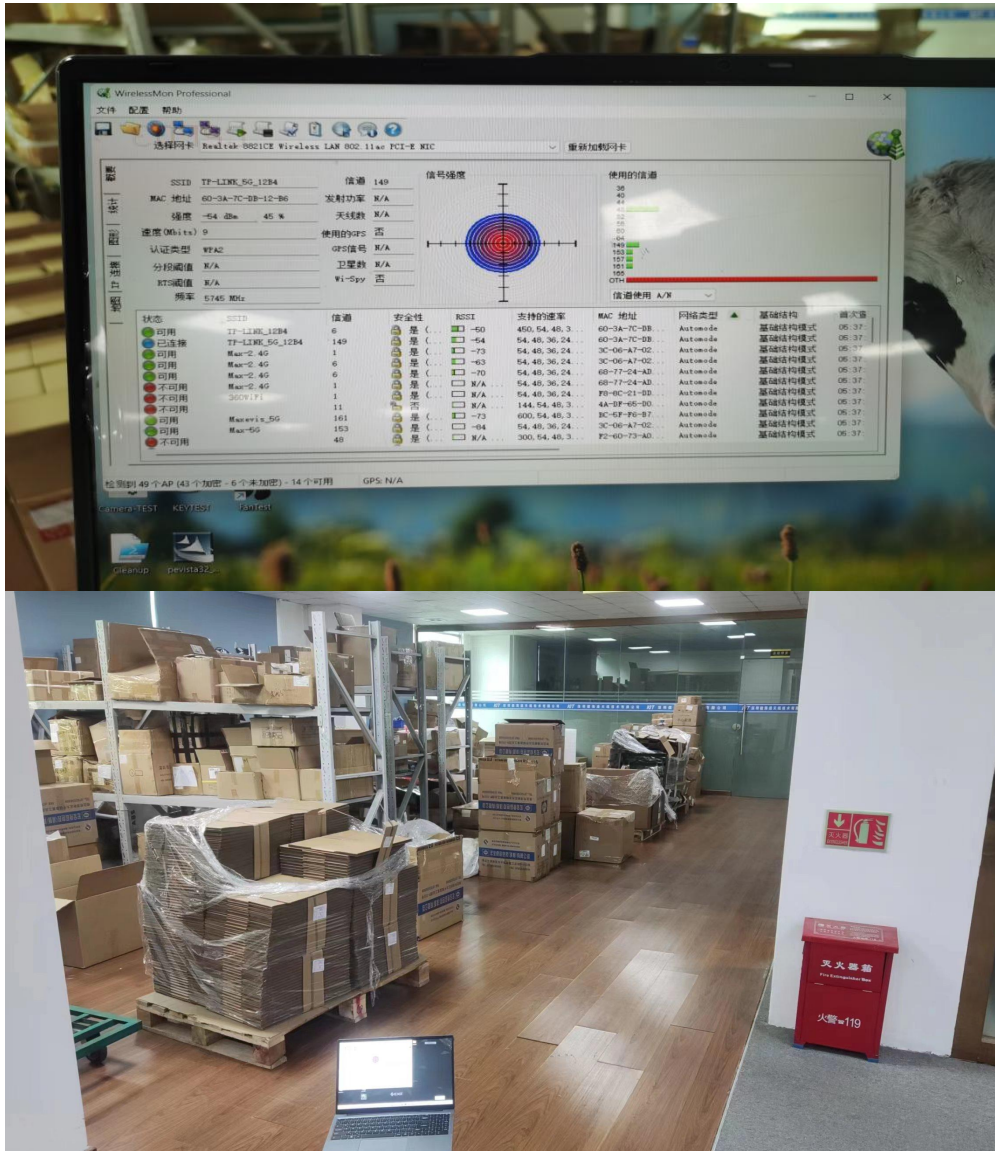
The initial pictures show our company's office environment and the test results of router placement. In the pictures, the laptop and router are 5 meters apart in the test environment. Since each router is different, there are errors in the tests.。



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(Office 10 meters)



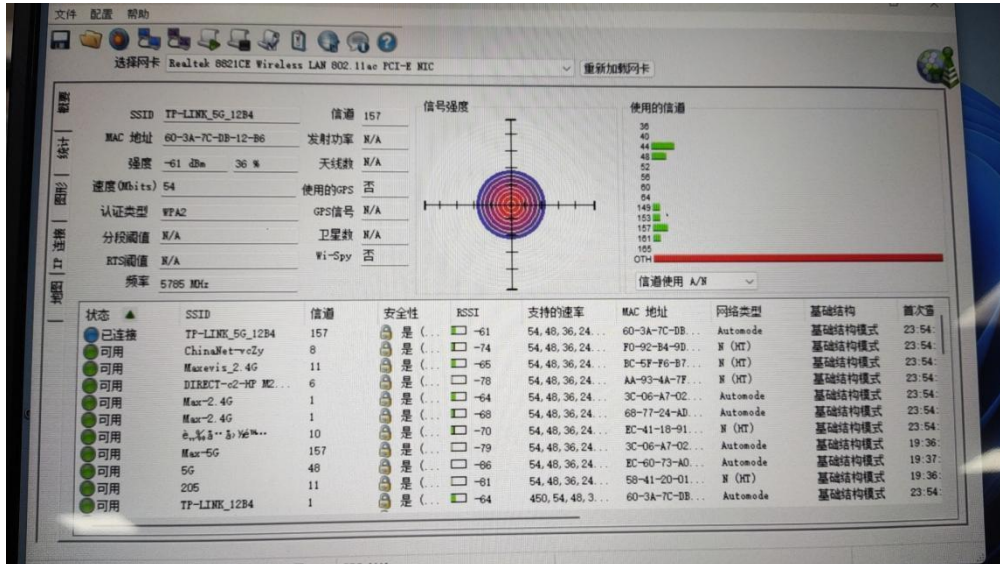
The initial pictures show our company's office environment and the test results of router placement. In the pictures, the laptop and router are 10 meters apart in the test environment. Since each router is different, there are errors in the tests.。



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(Office 15 meters)



The initial pictures show our company's office environment and the test results of router placement. In the pictures, the laptop and router are 15 meters apart in the test environment. Since each router is different, there are errors in the tests. .

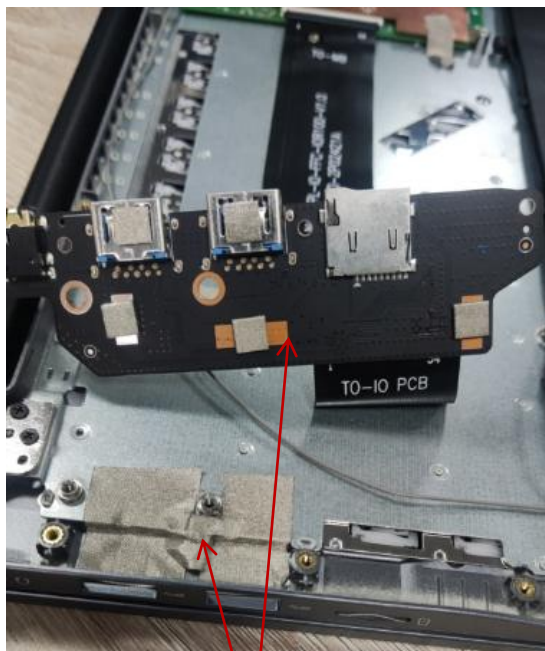


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6、 Antenna Installation Position and Environmental Handling



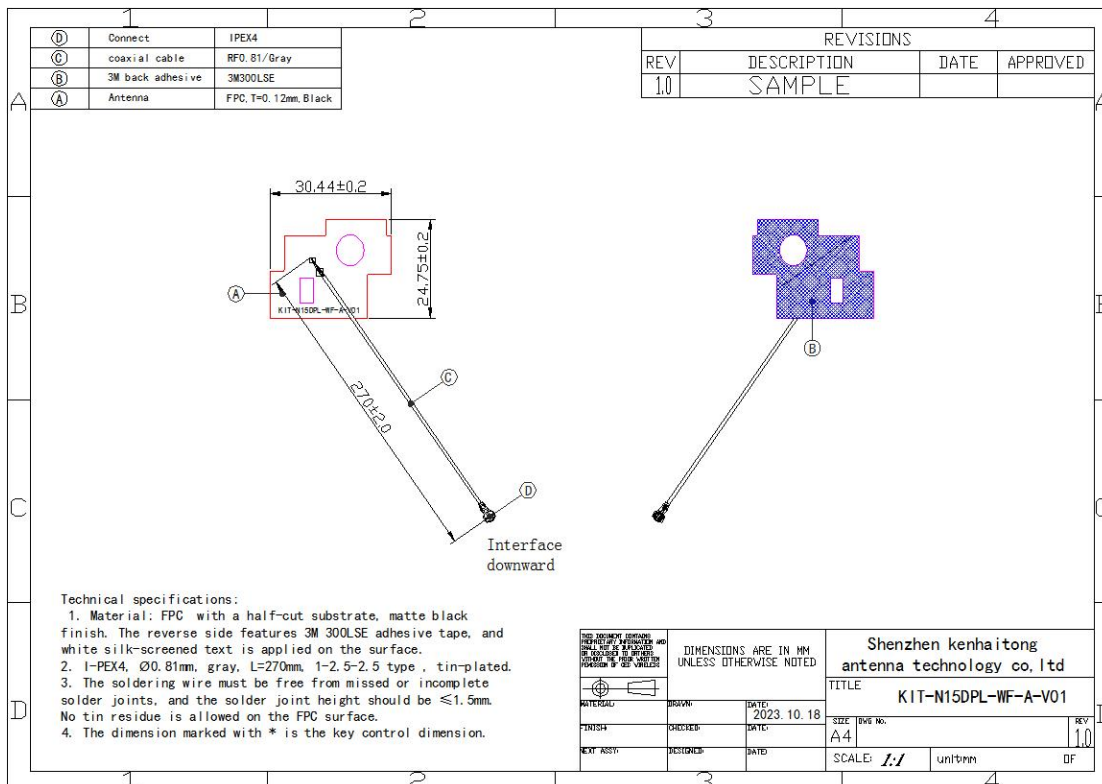
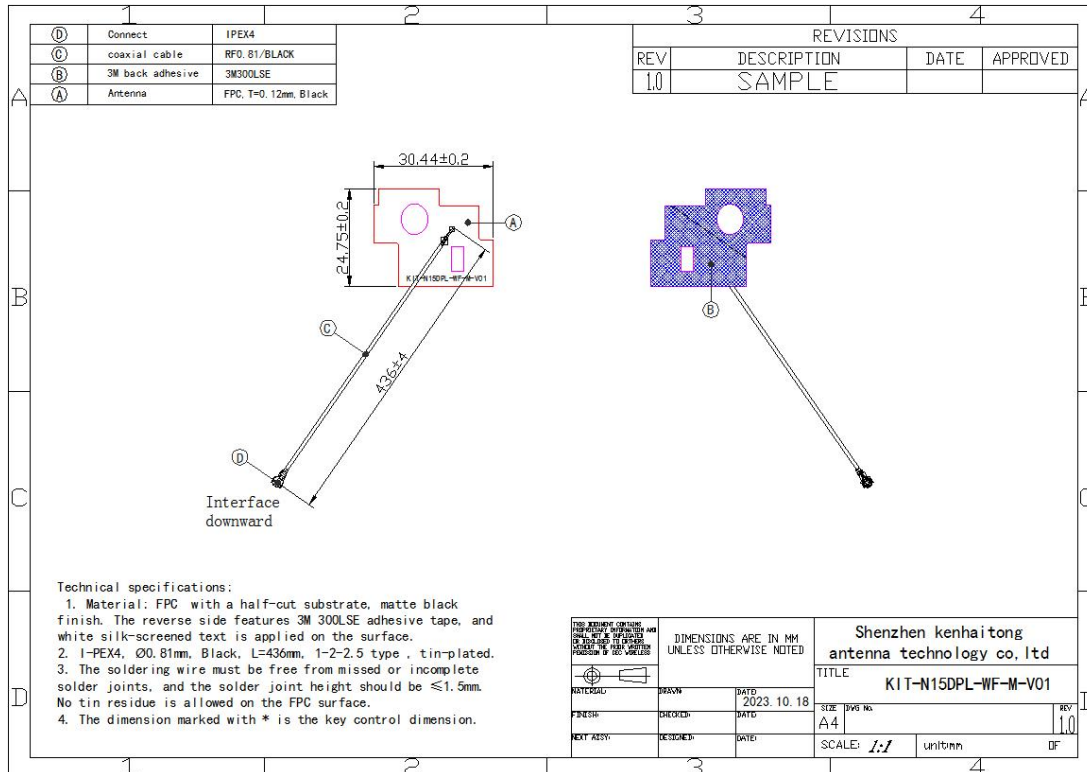
As shown in the figure, the thin board is fully grounded using a conductive fabric and adhesive conductive foam.



Antenna Sample Confirmation From
Shenzhen Jianhaitong Antenna Technology Co., Ltd

Guangdong Jianbo Tong
Stock Code: 831958

8、Structural drawing





9、Sample Size Inspection Report

Sample Size Inspection Report

Model: KIT-N15DPL-WF-A-V01 KIT-N15DPL-WF-M-V01

Date: 2023/10/21

Test items		standard	Sample Inspection Status (Value)					Judgment	Remarks
			1	2	3	4	5		
Antenna structure dimensions	A1	30.44±0.2mm	30.43	30.45	30.45	30.47	30.43	Qualified	
	A2	24.75±0.2mm	24.73	24.73	24.75	24.77	24.75	Qualified	
	A3	270±2.0mm	270.12	270.05	270.08	270.12	270.11	Qualified	
	A4								
	A5								
	A1								
	A2								
	A3								
	A4								
	A5								
	A6								

Approve: CZY

Review: CXM

Test: JXB



10、Reliability Test Report

Salt Spray Test Report

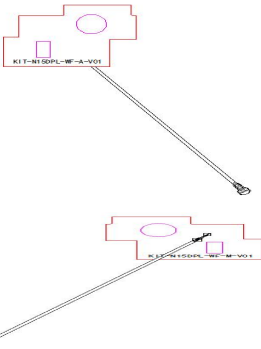
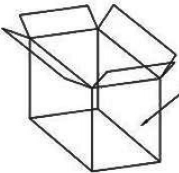
Product Name	KIT-N15DPL-WF-A-V01 KIT-N15DPL-WF-M-V01		Test quantity	5set			
Product Part Number			Test standard	GB2423.17			
Inspection Date	2023.10.21		Product materials	FPCcoaxial cableIPEX			
Test time: 2023.10.19-2023.10.21							
Test Project	Requirements and Standards	Actual value	Judgment	Test Project	Requirements and Standards	Actual value	Judgment
TestInstrument Specifications	KD-60	KD-60	OK	Test time	48H	48H	OK
Typesofsaltspray tests	NSSNeutral	NSSNeutral	OK	Salt spray chamber temperature	35℃	35℃	OK
Saline pH value	6.5-7.2	6.5-7.2	OK	Salt spray deposition (H. 80C)	1-2ml	1.8ml	OK
Spray method	Continuous spray	Continuous spray	OK	Product Material	FPC	FPC	OK
Saline composition	5%NaCl	5%NaCl	OK	Compressed air pressure regulation	1±0.1KG/CM²	1	OK
Saturation temperature	47℃	47℃	OK	Sample placement angle	45°	45°	OK
Test Observation Time	Observe phenomena						
4H	No abnormalities						
8H	No abnormalities						
12H	No abnormalities						
16H	No abnormalities						
20H	No abnormalities						
24H	No abnormalities						
Judgment criteria: Determined according to the GB 5944-86 rating method, a score of 9 or above is considered qualified.							
Final determination result	Qualified				Unqualified		
Tester	CGL		Review	CXM		Approval	JXB
Note: Commonly used salt spray test methods include: NSS neutral salt spray test, AASS acetic acid salt spray test, CASS copper-accelerated acetic acid test.							

Number: 20231021001



Antenna Sample Confirmation From

Guangdong Jianbo Tong
Stock Code: 831958**Shenzhen Jianhaitong Antenna Technology Co., Ltd.****11、Packaging method**

Guangdong Jianbotong Technology Co., Ltd.						
Product Packaging Operation Standards						
Client: Lan Chen		Packaging Name: KIT-N15DPL-WF-A-V01 KIT-N15DPL-WF-M-V01		Packaging Number:		Packaging version: TEST: A
Packaging Material Details	Number	Product Name	Specification	Dosage	Packaging Product Illustration	
	PE	Sealing bag	120*85*0.12	1/100		
	SYC-BZ-01	Cardboard box	280*230*170	1/10000		
Home work steps	1. Prepare the required packaging materials and place them in a position convenient for operation. 2. According to the product packaging operation specifications, use cartons/PE bags for packaging. 100PCS per bag, 100 bags per carton, a total of 10,000PCS. 3. Place 100 bags in each carton, a total of 10,000PCS, and seal the carton with transparent tape after it is filled.				Precautions	1. Operators must wear gloves when working. 2. Pay attention to the packing quantity; do not overfill or underfill. The last digit must be indicated. 3. Cartons must not be stacked too high to prevent excess adhesive from overflowing due to heavy pressure.
Illustration Description	 每箱放100包, 共10000PCS 备注: 数量以实际包装为准, 此为参考数量。					
Remarks						
Approval		Review		Make		Date
JSB		DS		LSY		2023/10/21