Shenzhen JianHaitong Antenna Technology Co., LTD

Antenna test repo-
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Test report

On March 28,2024

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Guangdong Jianbot-
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Volume code 831958

Directory (catalogue):

1、 Project Information (Model Information)

Manufacturer	MP3	**RF**	**fengguoqing**
Model Name	N15JPL	**Email**	
Antenna Type		**Band**	2.4/ 5.8 / wifi dual antenna
Model pictures :			

Shenzhen JianHaitong Antenna Technology Co., Ltd. - specializing in antenna research and development, manufacturing, sales

2. Company Introduction (companyprofile) - -About Kintem

The company was founded in 1995. After 23 years of development, it has grown into a company with about 500 employees and a registered capital of 67.65 million yuan. The company covers an area of 60 mu, construction area of 55,000 square meters, workshop area of 36,000 square meters, warehouse area of 13,000 square meters, annual production capacity of 24 million pairs of / year antenna, product models of more than 4000.

- Famous trademark of Guangdong Province
- National high-tech enterprise
- For 20 consecutive years, Guangdong Province, the contract and credit enterprises
- The top 10 antenna production enterprises in China
- Guangdong Provincial Engineering and Technology Research Center
- Listed on the New Third Board in 2015, stock code 831958

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Foshan Headquarters: No.2, Chanxiu Road, Nanzhuang Town, Chancheng District, Foshan City

Shenzhen R & D Center: 3rd floor, west of No.1 Building, Hezhou Zhongnuo Industrial Park, Hangcheng Street, Bao'an District, Shenzhen

Guangdong Jianbotong

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3、 Passive ripple matching (Passive and Matching)

3.1A Schematic diagram of the passive testing

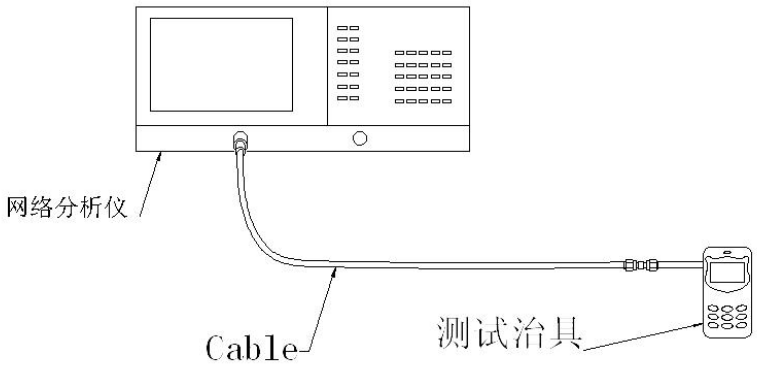
S11 Description of the test method

testing facility:

Network Analyzer (E 5071C 30k-8.5 Ghz)

test method:

Using a 50-ohm CABLE cable, record the SMA connector of the calibration device, and the standing wave ratio of the relevant frequency point.



3.2A Schematic representation of the active testing procedure

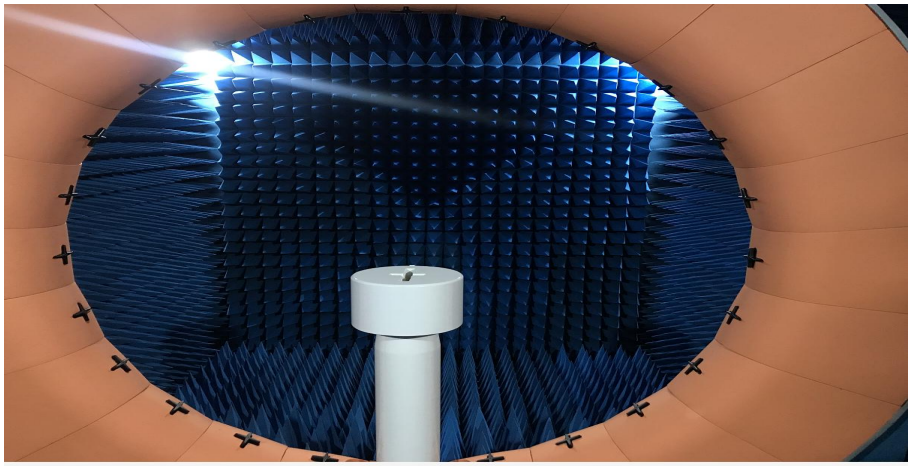
3 D test system: shield the dark room
Test environment: temperature 22℃± 3℃, humidity 50% ± 15%
Test equipment: Use the network analyzer Agilent E 5071C when testing the passive data
When testing active data, use the comprehensive meter 8960 / CMW500

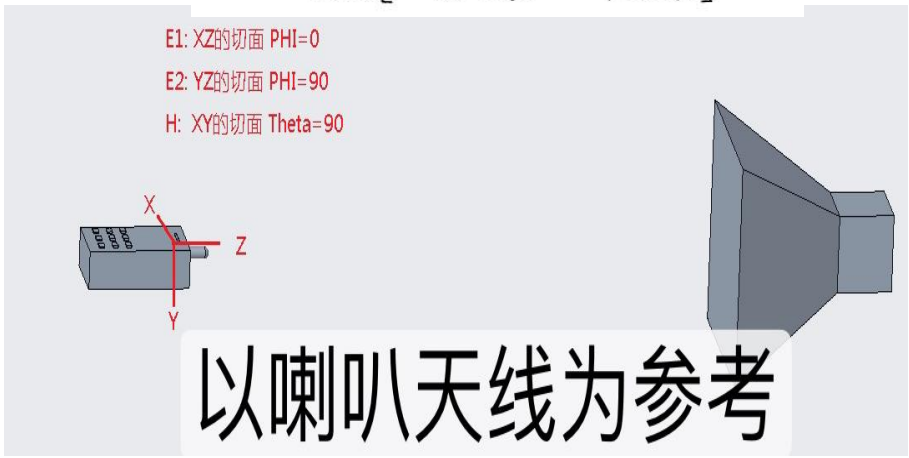
总全向辐射功率（TIRP）

$$TIRP \cong \frac{\pi}{2NM}\sum_{i=1}^{N-1}\sum_{j=0}^{M-1}\left[Eirp_{\theta}(\theta_i,\phi_j)+Eirp_{\phi}(\theta_i,\phi_j)\right]\sin(\theta_i)$$

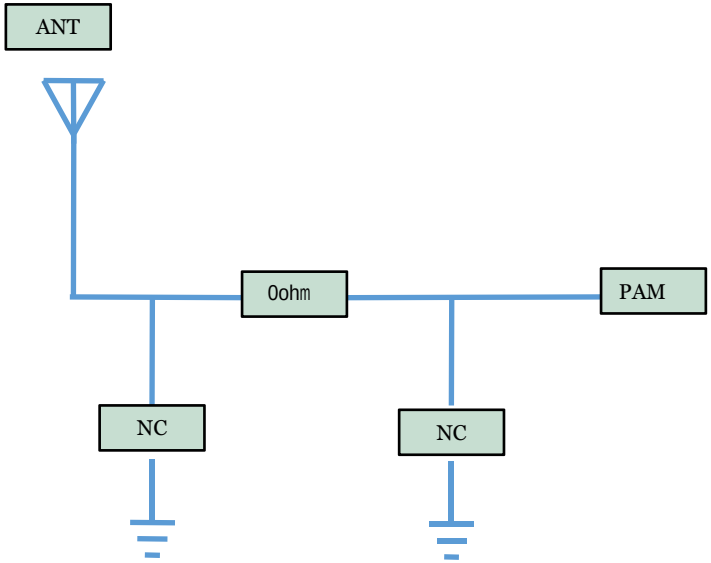
总全向辐射灵敏度（TIRS）

$$TIRS \cong \frac{2NM}{\pi\sum_{i=1}^{N-1}\sum_{j=0}^{M-1}\left[\frac{1}{EIS_{\theta}(\theta_i,\phi_j)}+\frac{1}{EIS_{\phi}(\theta_i,\phi_j)}\right]\sin(\theta_i)}$$





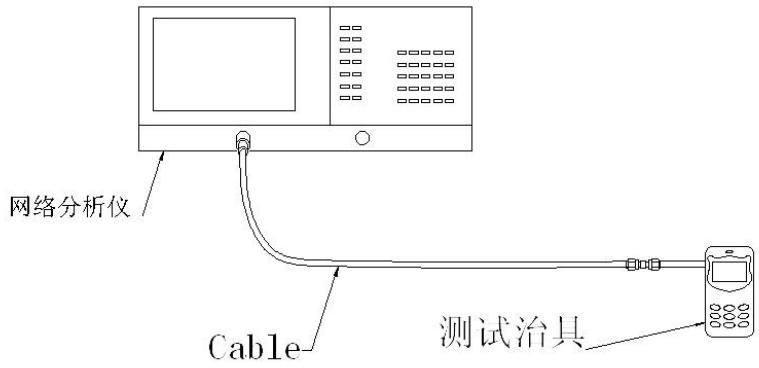
3.3Antenna matching (Matching Circuit)



No changes were made to the motherboard match.

pour:The original string 0 ohm, from the antenna- - - - -string 0 ohm resistance- - - - -PA

S11 parameter



S11 Description of the test method

Testing facility:

Network Analyzer (E 5071C 30k -8.5 Ghz)

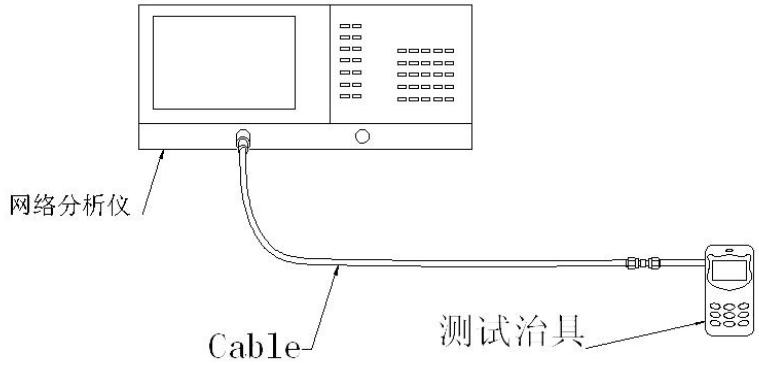
Test method:

Export from the instrument test port with a 50 Ohm CABLE cable and connect the prototype after calibration using the calibration piece

The SMA connector of the device to record the echo loss and standing wave ratio corresponding to the relevant frequency point.

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

S11 parameter



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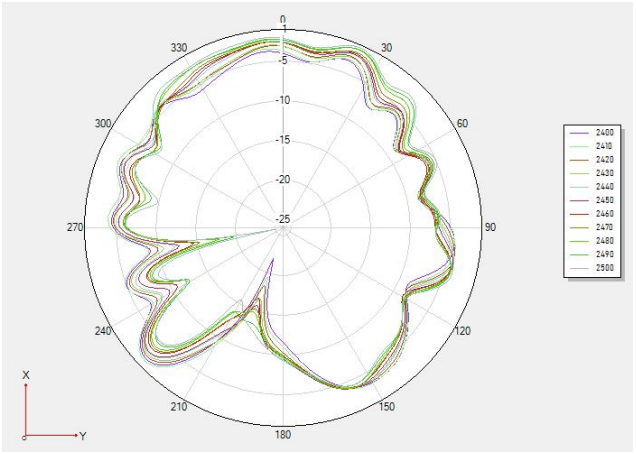
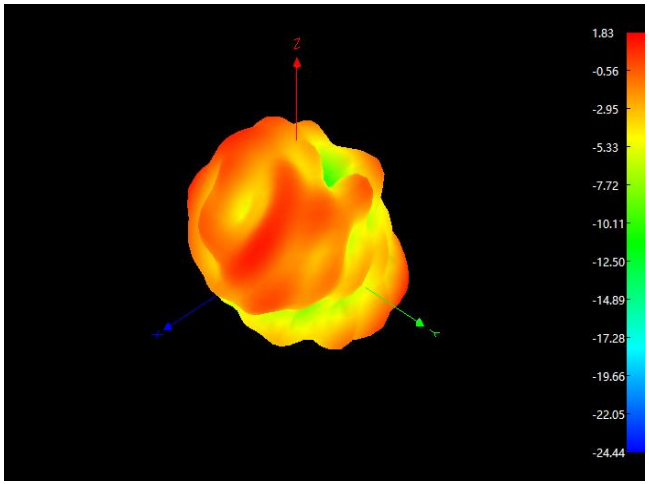
The SMA connector of the device to record the echo loss and standing wave ratio corresponding to the relevant frequency point.

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

WIFI antenna passive parameters.

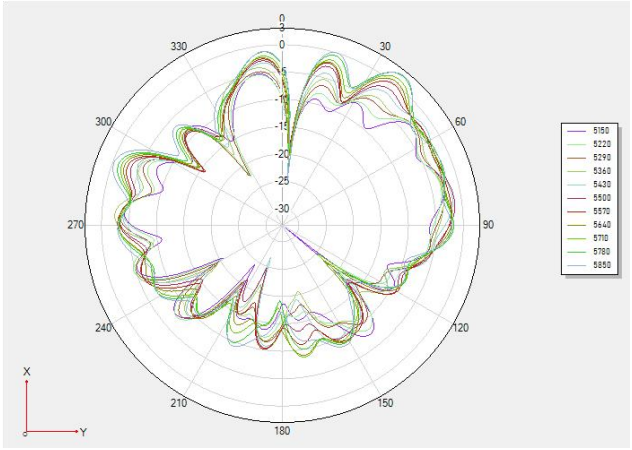
Frequency / MHz	Efficiency / %	Gain/ dB
2400	40.09	1.26
2410	41.4	1.71
2420	42.85	1.75
2430	40.18	1.67
2440	43.05	1.83
2450	41.88	1.83
2460	40.36	1.42
2470	40.36	1.47
2480	41.78	1.48
2490	40.64	1.58
2500	41.11	1.67

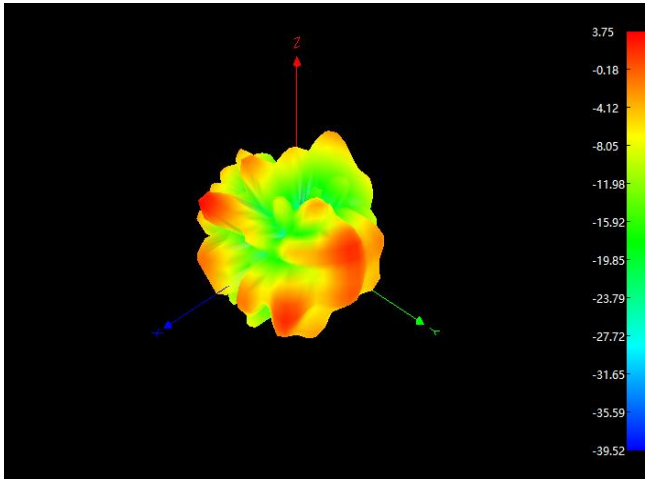




WIFI antenna passive parameters.

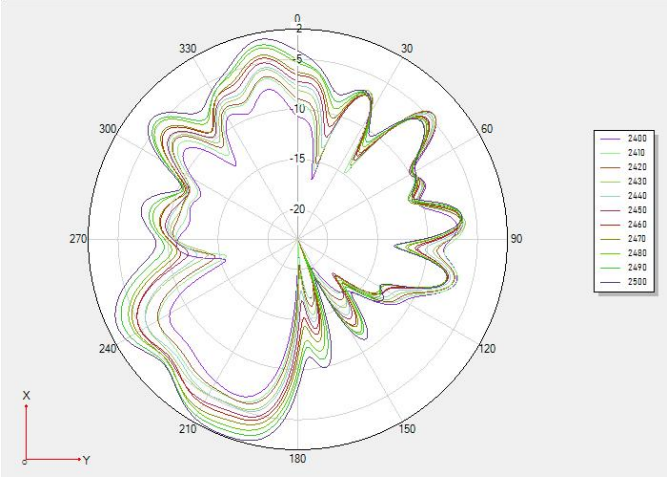
Frequency / MHz	Efficiency / %	Gain/ dB
5150	29.54	3.38
5220	29.77	3.16
5290	28.75	3.13
5360	30.23	3.32
5430	30.75	2.4
5500	30.49	2.14
5570	31.32	2.3
5640	32.18	2.94
5710	33.49	3.2
5780	34.73	3.31
5850	33.44	3.75

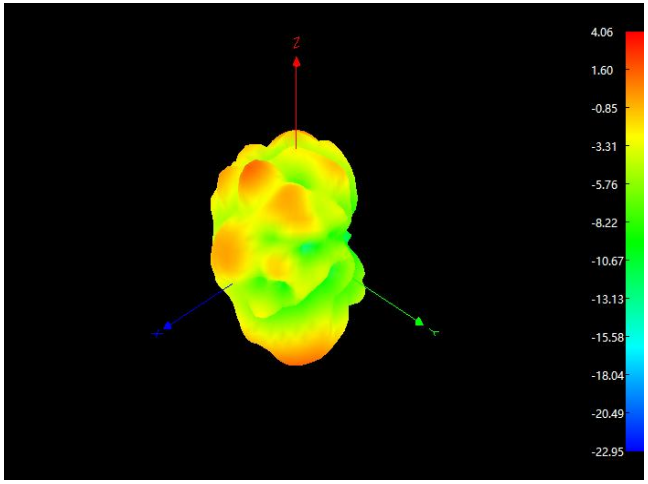




WIFI antenna passive parameters.

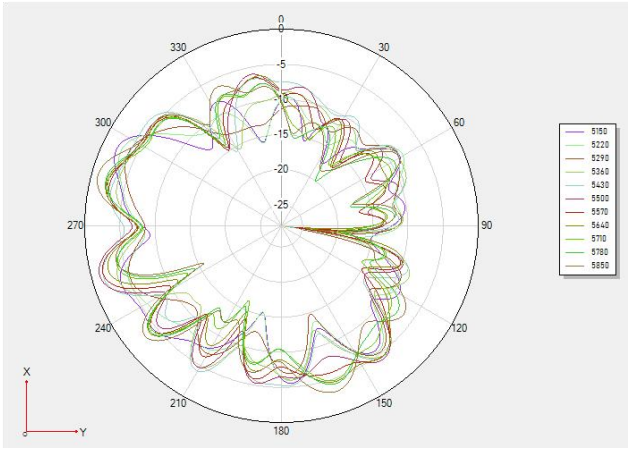
Frequency / MHz	Efficiency / %	Gain/ dB
2400	39.12	2.24
2410	40.06	2.78
2420	40.96	3.09
2430	40.81	3.21
2440	41.83	3.29
2450	40.65	3.49
2460	41.33	3.57
2470	41.84	3.68
2480	42.36	3.81
2490	40.27	4.06
2500	40.64	3.95

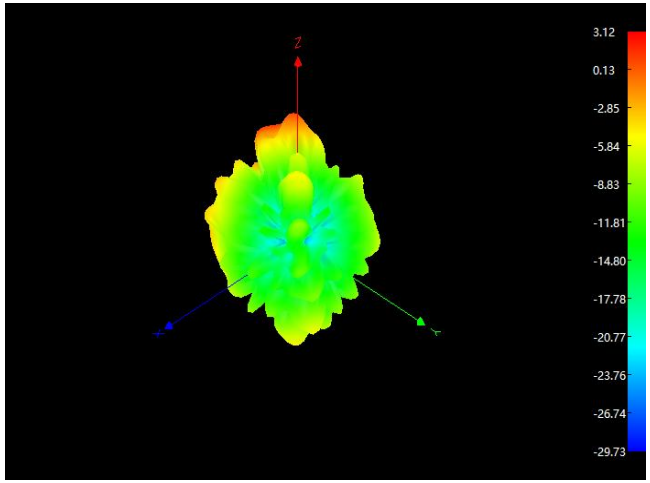




WIFI antenna passive parameters.

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





Band	Channel	TRP	TIS
802.11b (11Mbps)	L	11.59	-81.51
	M	11.88	-83.88
	H	11.59	-83.47
802.11g (54Mbps)	L	10.63	-69.66
	M	11.91	-71.14
	H	10.36	-69.81
802.11n (MCS7-65Mbps)	L	10.23	-65.38
	M	10.2	-67.03
	H	10.75	-65.87
802.11a (54Mbps)	L	-9.54	-73.6
	M	-10	-74.98
	H	-7.29	-73.51

throughput test

2.4G

Rx(Mbps)

Item	A imuth( )	Atten(dB)	Result	RSSI
1	0	0	118.51	118.51
2	45	0	1117.15	117.15
3	90	0	117.6	117.6
4	135	0	110.1	110.1
5	180	0	119.4	119.4
6	225	0	113.89	113.89
7	270	0	119.07	119.07
8	315	0	112.98	112.98

Tx(Mbps)

Item	A imuth( )	Atten(dB)	Result	RSSI
1	0	0	130.17	130.17
2	45	0	136.93	136.93
3	90	0	142.35	142.35
4	135	0	151.72	151.72
5	180	0	165.87	165.87
6	225	0	165.52	165.52
7	270	0	132.72	132.72
8	315	0	142.33	142.33

throughput test

5.8G

Rx(Mbps)

Item	A imuth( )	Atten(dB)	Result	RSSI
1	0	0	344.98	344.98
2	45	0	345.38	345.38
3	90	0	341.73	341.73
4	135	0	345.2	345.2
5	180	0	345.08	345.08
6	225	0	345.33	345.33
7	270	0	343.99	343.99
8	315	0	344.09	344.09

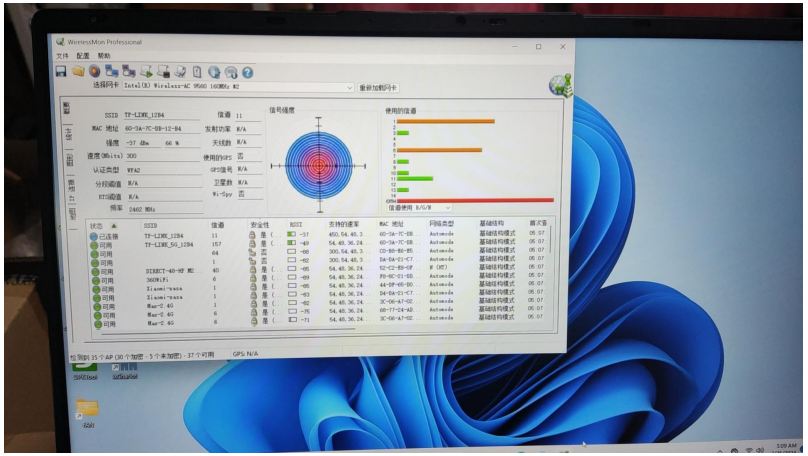
Tx(Mbps)

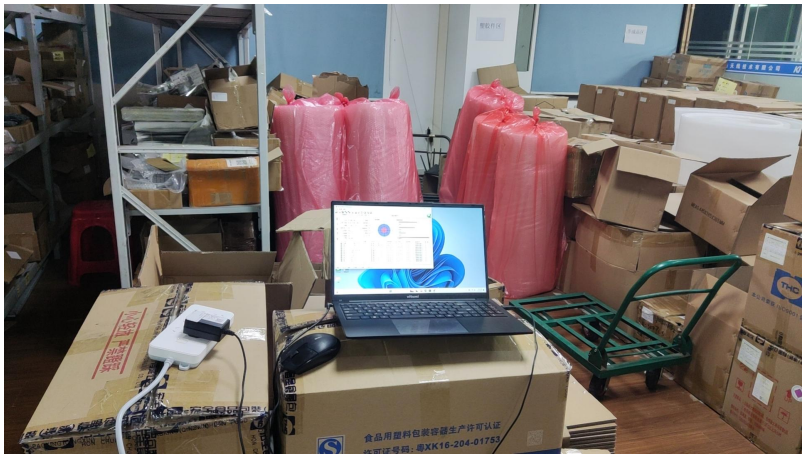
Item	A imuth( )	Atten(dB)	Result	RSSI
1	0	0	279.9	279.9
2	45	0	285.23	285.23
3	90	0	292.8	292.8
4	135	0	305.45	305.45
5	180	0	302.43	302.43
6	225	0	290.9	290.9
7	270	0	270.2	270.2
8	315	0	282.04	282.04


Lesen
Schreiben
Score:
vitumi

2.4G

Office environment test of 5 meters



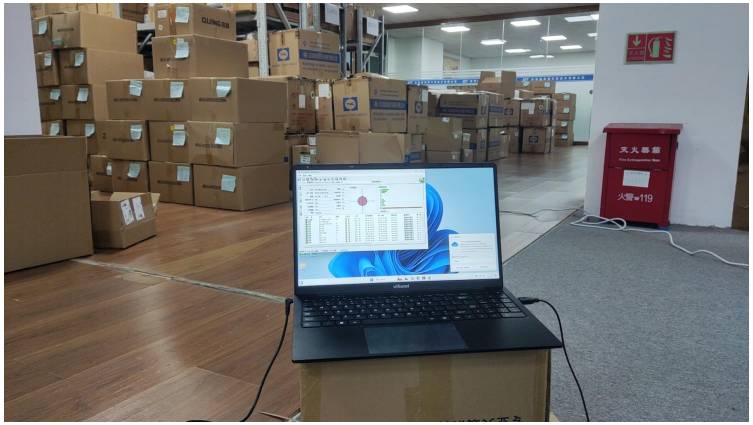


1. The first picture shows the results of our office environment and router placement position test
2. In the picture is the laptop and the router is 5 meters away from the test environment

3. Because each router is different, the test has errors

2.4G

Office environment test at 10 meters



1.The first picture shows the results of our office environment and router placement posi-

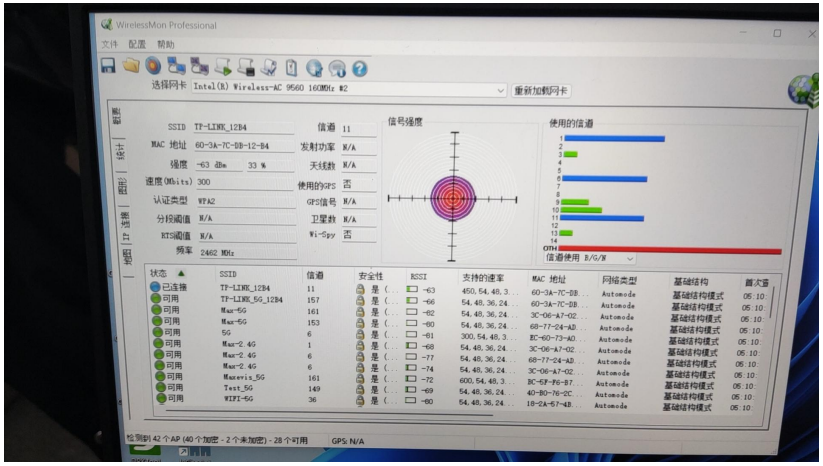
tion test
2. Inside the picture is the laptop test

environment 10 meters away from the router
3. Because each router is different, the test

has errors

2.4G

Office environment test at 15 meters

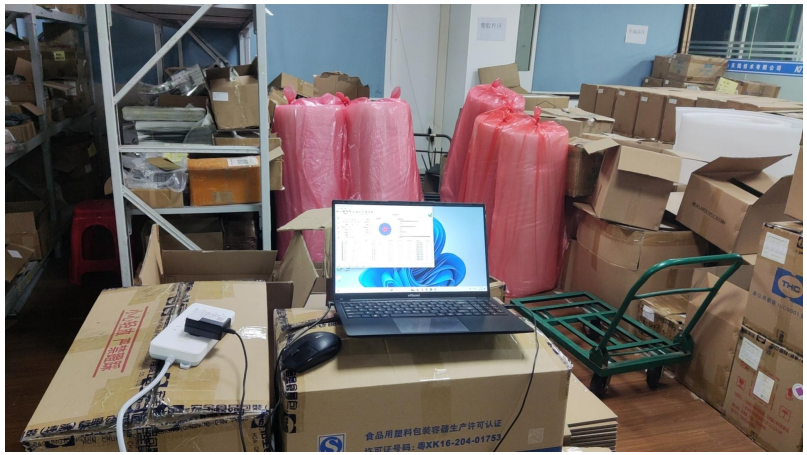


1. The first picture shows the results of our office environment and router placement position test
2. Inside the picture is the laptop is 15

meters away from the router
3. Because each router is different, the test has errors

5G

Office environment test of 5 meters



1.The first picture shows the results of our office environment and router placement position test

2. In the picture is the laptop and the router is 5 meters away from the test environment
3. Because each router is different, the test has errors

5G

Office environment test at 10 meters

1. The first picture shows the results of our office environment and router placement position test
2. Inside the picture is the laptop test environment 10 meters away from the router

3. Because each router is different, the test has errors

5G

Office environment test at 15 meters

1. The first picture shows the results of our office environment and router placement position test
2. Inside the picture is the laptop is 15

meters away from the router
3. Because each router is different, the test has errors

5、 Environmental Handling and Assembly instructions (Environmental handling and assembly instructions)

The way to buckle the line is shown in Fig

The main antenna is equipped with the antenna and the outlet line as shown in the figure

slave antenna

Debug record

March 26 received prototype for antenna test March 27 antenna test completed. Shared with N15DPL antenna other original environment remains unchanged N15JPL module model [9560]

Note: 1. This report is based on the actual debugging and testing situation of the commissioning prototype, in which the environmental treatment, the antenna location and the assembly position of each device cannot be changed at will;

2. If the material used in the prototype changes, timely feedback to our company for reverification;

3.List of sensitive devices:

TP (material, coating, routing, etc.)

Screen (amplification circuit, LED, wiring design, etc.)

Shell material (antenna assembly mode, structural interference, shell material material, antenna position height and area, etc.)

Motherboard (motherboard conduction, RF circuit matching, PA, dual power device, filter, LNA, power circuit, etc.) camera, battery, motor, MIC, fingerprint identification module, etc.

4. Due to the small number of debugging prototypes or only one, some probabilistic problems cannot be fully found. It is suggested to check the problems in small batches of trial production before mass production (such as flash screen, horn noise, TP jump point, black screen crash, signal diving, etc.)

Thank you