

# Shenzhen Baijinlian Wireless Technology Co., LTD

## Specification for Approval

customer name: \_\_\_\_\_

Customer: Specification description: NB IOT Rubberstick waterproof integrated antenna

Partname

BJL Material number: \_\_\_\_\_ BJL -FJ 8505- 165B-2500L

Part No . Customer No.: \_\_\_\_\_

Customer Part No .

Customer acknowledged printing CUSTOMER APPROVED BY		
APPROVAL	CHIE F	S U Pervisor

CHIE F	S ALES	CHIE F	D ESIGN
Ni Xiang	Li Jin	Jiang Xinping	Yang-hui Chen
Date :2023-0616		Date :2023-0616	
Thank you for the opportunity to present the samples. If Simon admits it, please sign this form back to our company. OWE GRATITUDE TO GIVE US THE OPPORTUNITY OF SAMPLE APPROVAL .PLEASE RETURN THIS FROM TO US AFTER YOURS ACCEPT .			

## Shenzhen Baijinlian Wireless Technology Co., LTD

**Factory address: No. 70, Baotong South Road, Yungu Street, Xikeng Industrial Zone, Yuanshan Street, Shenzhen City**

**Contact person: Li Zhifei mobile phone: 15361043828**

**Xi'an Baijinlian Electronic Technology Co., LTD**

**Contact person: Room worker mobile phone: 15114805156**

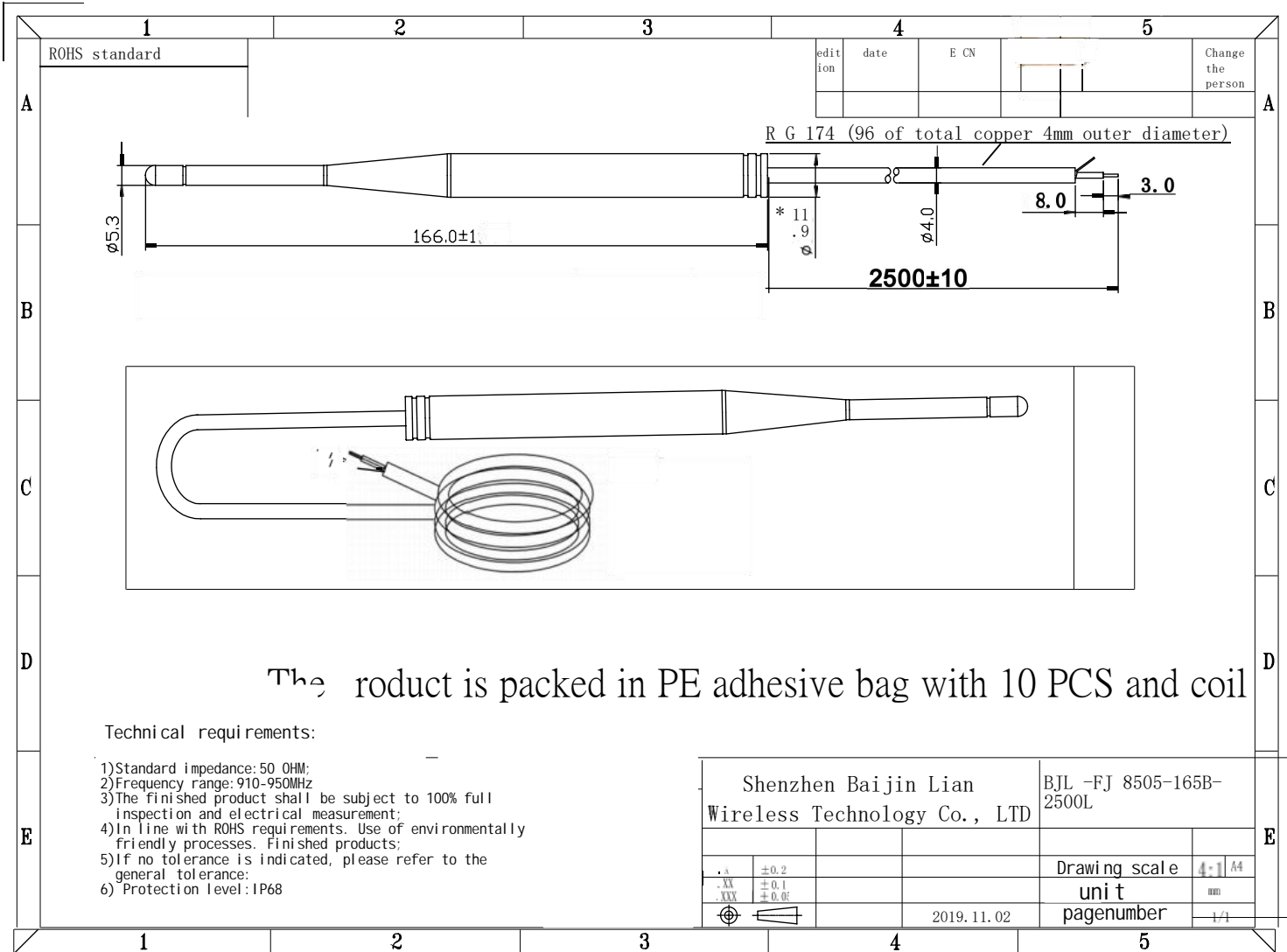
**Address: 15th floor, Building 7, Ziwei Garden Apartment, Xifeng Road, High-tech Zone, Xi'an city**

**Shenzhen Baijinlian Wireless Technology Co., LTD.,  
Beijing Office**

**Contact person: Zhao Gong Mobile phone: 13228095995 Address:**

**Building 3, Greentown Yayuan, Baishan Town, Changping District, Beijing**





---

5, the antenna index parameters

<b>Product type: NB _ IOT external rubber rod waterproof integrated antenna</b>	
<b>D ESCRIPTION</b>	<b>V ALUE</b>
<b>Frequency range (Working frequency band)</b>	910-950MHz
<b>Impedance (Characteristic impedance)</b>	50Ω
<b>V . S . W . R (voltage wave ratio)</b>	<=2.0
<b>Gain (Gain)</b>	4 . 0 7 dBi
<b>Radiation (Directionality)</b>	Omni -directional
<b>Polarization (Liner mode)</b>	linear Vertical
<b>Admitted power (Power)</b>	10 W
<b>Connector (Joint model)</b>	beading
<b>Operating temp (Operating temperature)</b>	-40°C~+70°C
<b>Storage temp (Storage temperature)</b>	-40°C~+70°C

---

## 1. Summary Summary:

This report to account for the measurement setup and result of the Antenna .The measurement setup includes s -parameter , The measured data for Antenna are presented and analysis .

This report is used to illustrate the results of the measured antenna, which includes the voltage standing wave ratio and reflection coefficient of the S parameter, as the data representation and analysis of the measured antenna

## 2. Measurement of the S-Parameter Measurement S parameters:

A . Reflection coefficient Reflectance factor:

✕Instrument (Discussion): Network Analyzer (network analysis).

✕ Setup Establishment:

(1) Calibrate the Network Analyzer by one port calibration using O.S.L.calibrati o n kits .

One port correction occurs through the OSL calibration kit.

(2) Connect the antenna under test to the Network Analyzer . Discussion on connecting the reception and test antenna to the network analysis.

(3) Measure the S<sub>11</sub>(reflection coefficient ) shown in Fig .1. Measurement S<sub>11</sub> is shown in Figure 1.

(4) Generally, the S<sub>11</sub> is less than - 10dB to ensure the 90% VSWR 2.0:1 power into antenna and only less than 10% power back to system .

Generally, the S<sub>11</sub> is less than-10dB VSWR and less than 2.0:1 to ensure 90% power conversion to antennas and less than 10% power reflection back to the system.

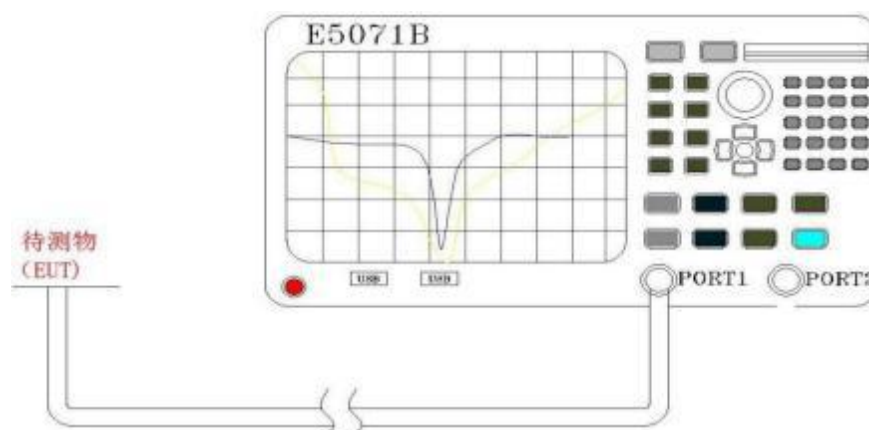


Fig .1 Antenna measured in Network Analyzer

Figure 1. Antenna measurement network analyzer

S-Parameter test data S-Reference quantity measurement data:

Test data for the spring antenna

project		
Frequency MHz, Working frequency band	850MHz	920 MHz
V . S . W . R standing-wave ratio	1.45	1.30

S-Parameter test image S-Reference quantity picture:

Antenna standing ratio test diagram



---

## The Test Information Anechoic Chamber All-electric microwave dark room test report

### A: Summary Summary

This statement of work defines the requirements of a far-field antenna measurement range, which includes measurement defines a measurement range of a far-field antenna and includes the requirements of:

One 400 cm (W ) x 300 cm (H ) x 500 cm

(L ) Antenna Measurement Anechoic

Chamber, 1400 cm (width) x 300 cm

(H) 500 cm (L) full-electric microwave dark chamber

(1) Testing Equipment : Agilent 5071B

Testing equipment: Agilent 5071B

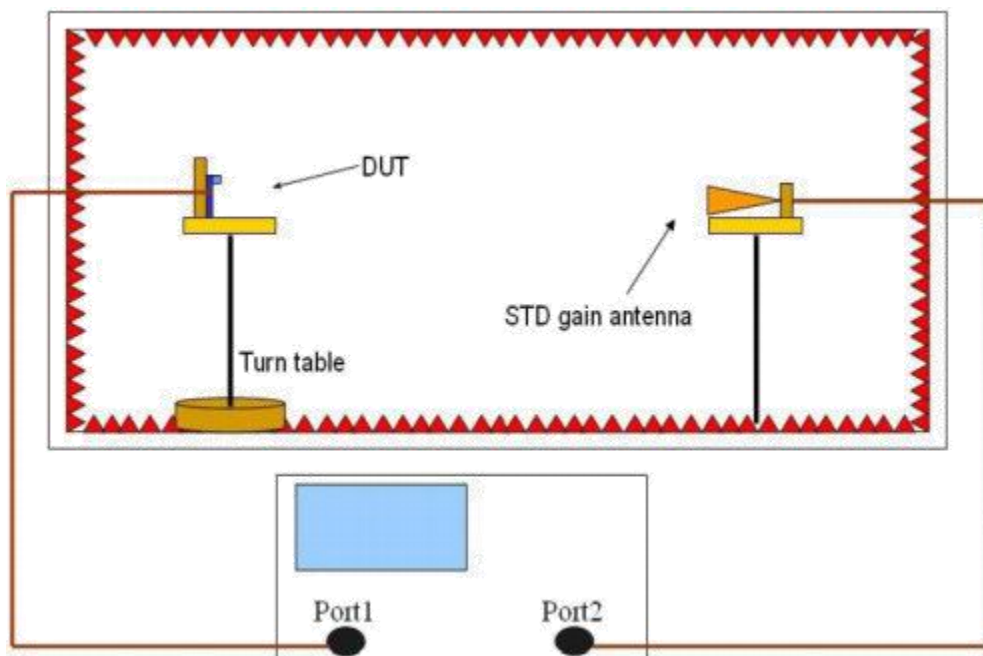


Fig .1 Antenna measured in Network Analyzer

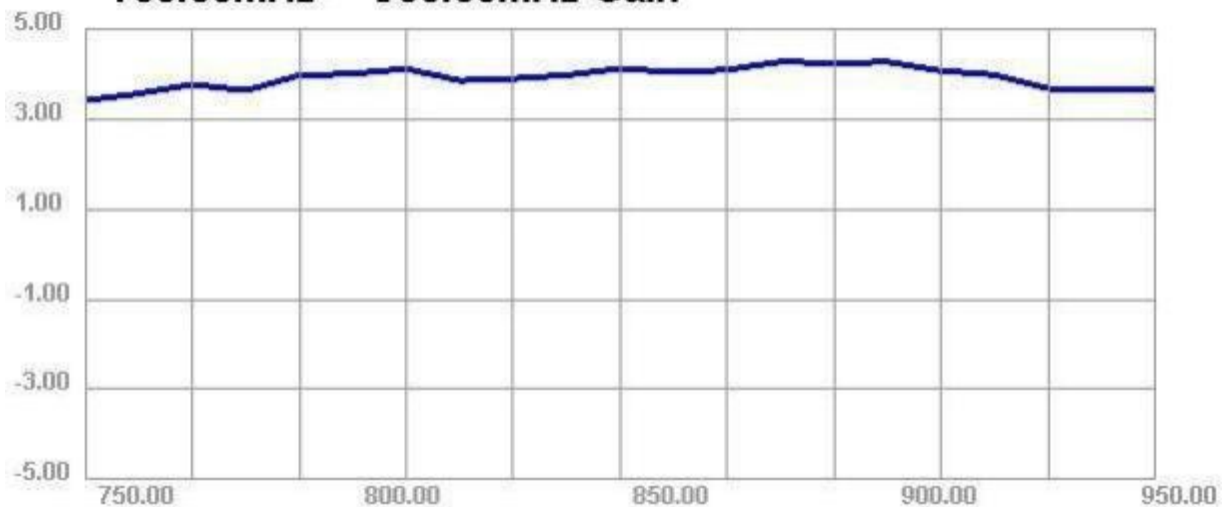
Figure 1. Antenna measurement network analyzer

## 2. Measurement result of Antenna Measurement Result antenna:

Antenna gain and efficiency data:

Freq (MHz)	Effi (%)	Bffi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
750	55.71	-2.54	3.41	1.26	26.064	29.646	3.41	-19.86	46.57	46
760	56.26	-2.5	3.56	1.41	26.307	29.952	3.56	-19.92	46.65	45.97
770	56.72	-2.46	3.76	1.61	26.441	30.282	3.76	-19.22	46.72	46.13
780	55.55	-2.55	3.63	1.48	25.93	29.616	3.63	-17.91	47.05	46.21
790	59.39	-2.26	3.97	1.82	27.685	31.704	3.97	-15.91	47.18	46.59
800	60.65	-2.17	4	1.85	28.307	32.343	4	-15.21	47.29	46.56
810	62.28	-2.06	4.11	1.96	29.068	33.21	4.11	-14.99	47.4	46.83
820	60.64	-2.17	3.85	1.7	28.395	32.248	3.85	-16.28	47.63	46.84
830	62.02	-2.07	3.89	1.74	29.071	32.951	3.89	-16.71	47.56	46.87
840	63.6	-1.97	3.97	1.82	29.875	33.723	3.97	-16.44	47.69	46.98
850	64.84	-1.88	4.12	1.97	30.397	34.446	4.12	-15.74	47.81	47.22
860	62.84	-2.02	4.04	1.89	29.51	33.334	4.04	-15.02	47.92	47.23
870	63.76	-1.95	4.09	1.94	29.916	33.849	4.09	-14.25	47.86	47.25
880	66.78	-1.75	4.27	2.12	31.305	35.471	4.27	-13.95	47.91	47.39
890	68.43	-1.65	4.24	2.09	32.099	36.336	4.24	-13.1	48.09	47.57
900	70.35	-1.53	4.26	2.11	33.059	37.295	4.26	-13.01	48.13	47.7
910	68.72	-1.63	4.07	1.92	32.346	36.37	4.07	-14.07	48	47.49
920	68.94	-1.62	3.98	1.83	32.543	36.402	3.98	-14.93	47.88	47.47
930	66.09	-1.8	3.68	1.53	31.282	34.809	3.68	-16.26	47.91	47.44
940	67.21	-1.73	3.64	1.49	31.824	35.389	3.64	-16.96	47.82	47.39
950	69	-1.61	3.67	1.52	32.644	36.354	3.67	-17.49	47.92	47.51

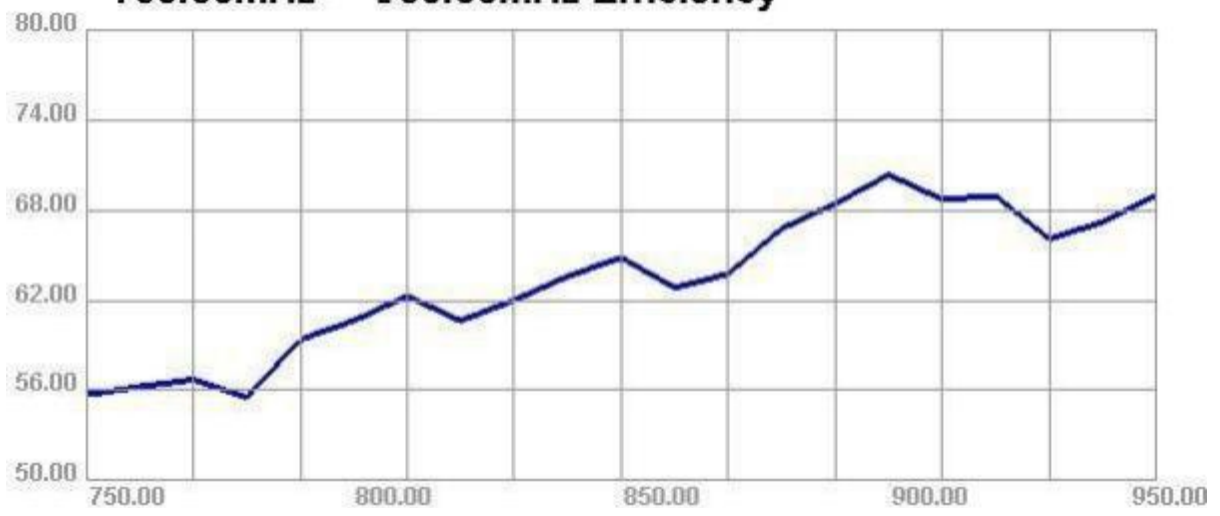
**750.00MHz - 950.00MHz Gain**





---

### 750.00MHz - 950.00MHz Efficiency



## Environmental test requirements

order	test item	Test methods and conditions	testing facility	test result
1	Temperature and humidity test	<p>Refer to EIA 364-31 Method 3, test condition A</p> <p>The purpose of this test procedure is to evaluate the products used in the detailed standard test method by the high humidity and heat affecting the performance of the material.</p> <p>ask:                      temperature:70°C                      Humidity: 90~95% (R.H )                      Time: 72 hours</p>	K .SON INS  THS -A 4L - 150	<u>qualified</u>
2	Low temperature test	<p>Refer to the Electronic Test Specification:</p> <p>The measured sample shall be placed in a temperature environment with a temperature set at -20°C</p> <p>ask:                      Time: 24 hours</p>	K .SON INS  THS -A 4L - 150	<u>qualified</u>
3	High temperature test	<p>Refer to the Electronic Test Specification:</p> <p>The measured sample shall be placed in a temperature environment with a temperature set at 70°C.</p> <p>ask:                      Time: 24 hours</p>	K .SON INS  THS -A 4L - 150	<u>qual</u>
4	Hot and cold impact	<p>Refer to the Electronic Test Specification:</p> <p>The measured samples shall be placed in a fixed environment with a temperature set from -20 to 70°C.</p> <p>ask:                      Over 8 hours. (30 minutes / time, 12 cycles)</p>	K .SON INS  THS -A 4L - 150	<u>qual</u>

5	Salt Spray Test	<p>Refer to the Electronic Test Specification:</p> <p>The sample samples shall be placed in a fixed environment under the requirements of: NaCL concentration: 40-60g / 1 Kg  PH value: 6.5-7.2  Test time: 24H</p>	Salt mist test machine	<u>qualified</u>
		<ol style="list-style-type: none"> <li>1. Gold-plated products are not allowed to have rust spot peeling</li> <li>2. Other nickel-plated galvanized products shall not have more than two rust points on the same shaft or surface.</li> </ol>		

## Mechanical test requirements

order	test item	Test methods and conditions	testing facility	test result
1	Vibration test	<p>test condition A</p> <p>The purpose of this test procedure is to make the detailed standard test methods of the products, which are moving or moving, affecting the material</p> <p>Performance is evaluated.</p> <p>ask:</p> <p>Vibration range: 10-55 HZ</p> <p>Displacement amplitude: 0.35mm</p> <p>Acceleration amplitude: 50.0M / S</p> <p>Number of sweep cycles: 30 times</p>	Vibration test machine	<input type="checkbox"/> qual
2	drop test	<p>Refer to the Electronic Test Specification:</p> <p>The measured sample shall be placed at a certain height with a height set at 1M, free fall 3 times in the direction of 6 faces</p> <p>ask:</p> <p>Product mechanical characteristics are normal after the drop test</p>	Drop test treatment gear	<input type="checkbox"/> qual
3	strain relief	<p>Refer to the Electronic Test Specification:</p> <p>Fixed the measured object by the treatment device and use a certain force to the opposite side</p>	Pull test machine	<input type="checkbox"/> qual

	test	After force application, the product assembly shall not fall off.		
		ask:  1. Product assembly should not fall off.  2. Minimum tension: 1.2 KG		

Note: To perform the above mechanical and environmental parameters tests before the development and trial production.