



Shenzhen Xingtong Wireless Technology Co., Ltd
Telephone: +86-755- 27850514 Fax: +86- 0755-27850514
Address: 3/F, Building A1, Qiangrongdong Industrial Zone,
Jiuwei, Xixiang, Baoan District, Shenzhen

Product specification

Project Name: E163 WLIMGD

Product Name: E163 WLIMGD WiFi/BT Antenna

Product part number:

Producer	Audit	Date
Huangjiajun	Wu Yanlong	2023-09-16

Customer confirmation:

Customer name: Shenzhen Xinruizhi Industrial Co., Ltd
Approval :
Date :
Notes :

Please accept your signature and seal and return one copy to our company for filing. Thank you for your cooperation!



Shenzhen Xingtong Wieress Technology Co., Ltd

Date

2023-09-16

Version

A0

File number

XT-YF-004

Product model

E163 WLIMGD

Product
number

E163 WLIMGD-APP-RA

1.Product Constrution

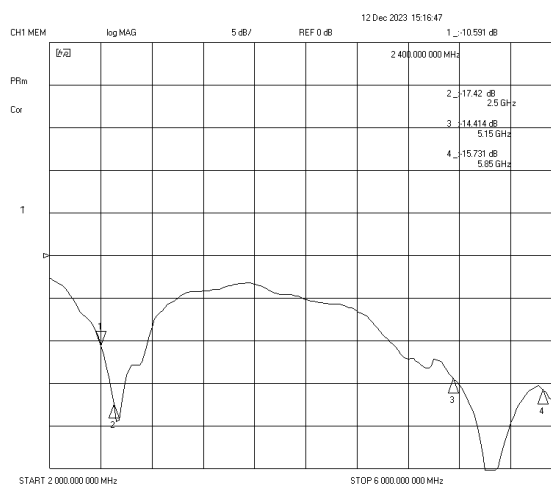
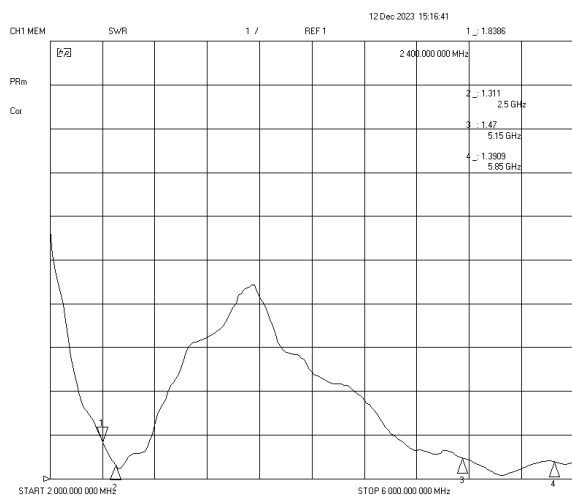
- 1. Antenna material: FPC
- 2. Adhesive model: 3M300LE
- 3. Antenna size: 28.5 * 20 (tolerance $\pm 0.2\text{mm}$)
- 4. Antenna form: FPC+IPEX (RF coaxial line $\varnothing 1.13 \varnothing 1.70\text{mm}$ -1 generation)

2. Parameter index

- Scope of use: Customer supplied machines
- Antenna frequency: 2400-2484MHz 5150-5850MHz
- Antenna type: Unipolar coupling
- Free space average gain of antenna tablet end: 2.4G $\geq 4.4\text{dbi}$ 5.8G $\geq 1.87\text{dbi}$
- Antenna standing wave: $< 1.47\text{DBm}$
- Return loss: $< -12.5\text{DB}$
- Antenna polarization mode: vertical/horizontal
- Power capacity: 5W
- Installation method: Connect the IPEX terminal wire to the motherboard

3.Antenna S11 value

- 3.1: Antenna standing wave ratio/return loss value



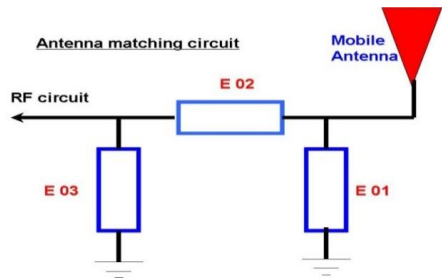
- 3.2: Antenna parameters:

Frequency point	2400mhz	2500mhz	5150Mhz	5850Mhz
SWR(dbm)	1.42	1.3	1.47	1.39
LOG (db)	-12.5	-17.42	-14.41	-15.73

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4.Antenna performance (OTA)

4.1: Antenna matching suggestions



WiFi/BT Antenna	
Element	Value
E1 (0201)	
E2 (0201)	
E3 (0201)	
E4 (0201)	
匹配无修改	

4.2: Antenna efficiency gain (testing instruments: network analyzer, oscilloscope, customer supplied engineering prototype, various standard cards, etc.)

4.2.1-2.4G-TEST-2D(Flat board end)

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-3.96	-3.95	-3.73	-3.73	-3.94	-3.61	-3.66	-3.84	-3.47	-3.64	-3.72
Gain (dBi)	4.44	4.37	4.48	4.37	4.13	4.41	4.28	4.03	4.36	4.13	4.01
Efficiency (%)	40.20	40.23	42.34	42.38	40.41	43.58	43.06	41.30	44.94	43.21	42.47
Directivity (dB)	8.40	8.33	8.22	8.09	8.06	8.02	7.94	7.87	7.84	7.78	7.73
Peak Gain Position (Theta)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
Peak Gain Position (Phi)	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Efficiency ThetaPol (%)	21.57	21.39	22.52	22.48	21.14	22.25	21.83	21.05	22.78	21.84	21.55
Efficiency PhiPol (%)	18.63	18.84	19.82	19.90	19.26	21.33	21.23	20.25	22.16	21.36	20.92
Upper Hem. Efficiency (%)	14.63	14.75	15.63	15.73	15.08	16.44	16.42	15.83	17.29	16.67	16.31
Lower Hem. Efficiency (%)	25.57	25.48	26.71	26.66	25.33	27.14	26.64	25.47	27.66	26.54	26.16

4.2.2-5G-TEST-2D(Flat board end)

Frequency ID	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Frequency (MHz)	5150.0	5200.0	5250.0	5300.0	5350.0	5400.0	5450.0	5500.0	5550.0	5600.0	5650.0	5700.0	5750.0	5800.0	5850.0
Efficiency (dBi)	-2.21	-2.11	-2.38	-2.33	-2.53	-2.62	-2.36	-2.71	-2.04	-2.40	-3.07	-2.03	-2.39	-3.43	-1.65
Gain (dBi)	3.02	4.02	3.26	3.10	2.87	2.56	2.97	2.56	2.96	2.62	2.04	3.20	2.75	1.87	3.08
Efficiency (%)	60.08	61.45	57.85	58.42	55.81	54.65	58.08	53.57	62.49	57.52	49.33	62.67	57.74	45.42	68.35
Directivity (dB)	5.23	6.13	5.64	5.44	5.41	5.18	5.33	5.27	5.00	5.02	5.11	5.23	5.14	5.30	4.73
Peak Gain Position (Theta)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	45.00
Peak Gain Position (Phi)	75.00	90.00	105.00	105.00	105.00	105.00	105.00	0.00	30.00	0.00	345.00	345.00	30.00	0.00	315.00
Efficiency ThetaPol (%)	47.08	48.66	47.24	47.87	45.43	44.73	47.83	43.06	50.51	46.54	40.11	51.63	47.04	37.26	55.13
Efficiency PhiPol (%)	13.00	12.79	10.61	10.55	10.38	9.92	10.25	10.51	11.97	10.98	9.22	11.05	10.70	8.16	13.22
Upper Hem. Efficiency (%)	38.64	40.29	38.33	39.65	38.17	38.27	40.74	37.95	44.79	41.67	35.72	45.59	41.98	32.80	49.34
Lower Hem. Efficiency (%)	21.43	21.16	19.53	18.77	17.64	16.38	17.34	15.62	17.69	15.85	13.61	17.09	15.75	12.63	19.01



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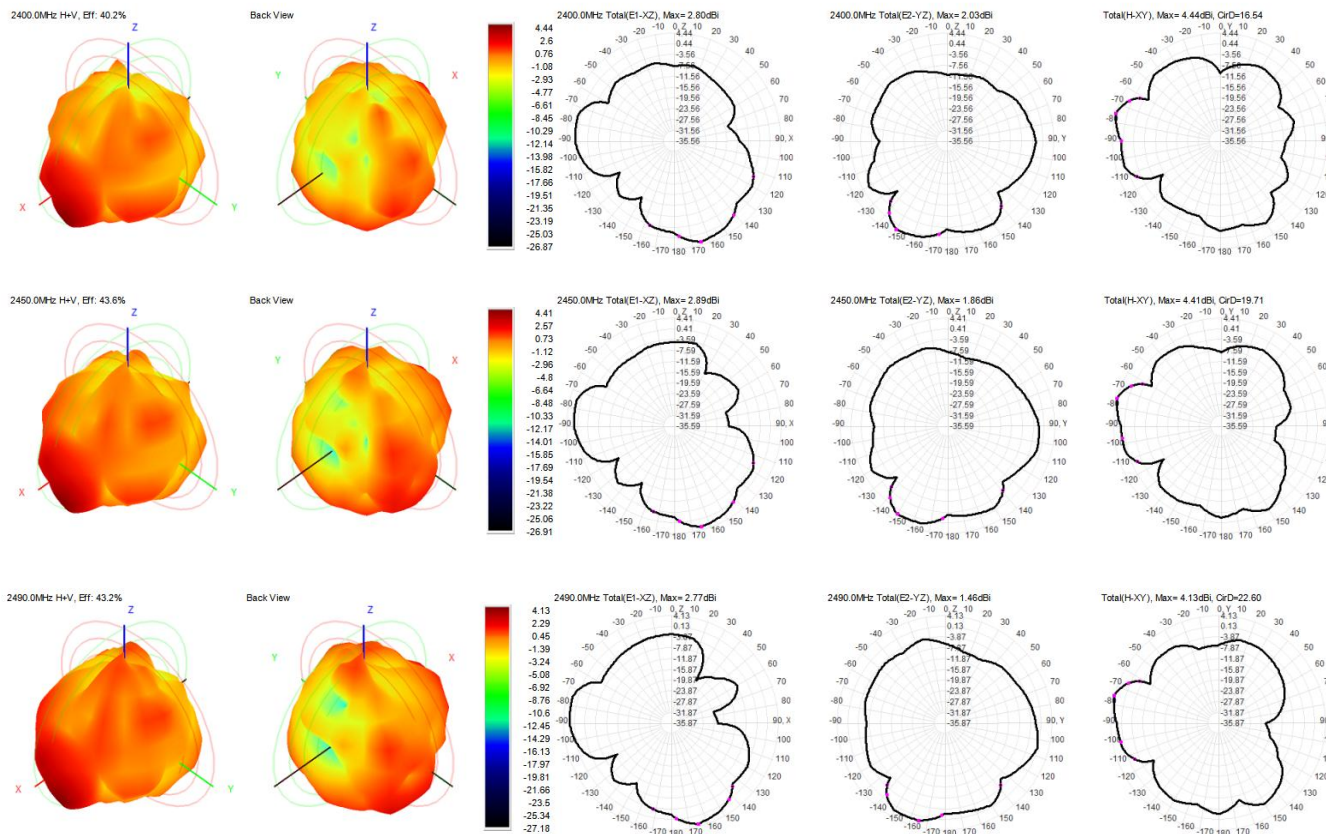
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4.2.3-2. 4G-3D(Antenna radiation pattern)





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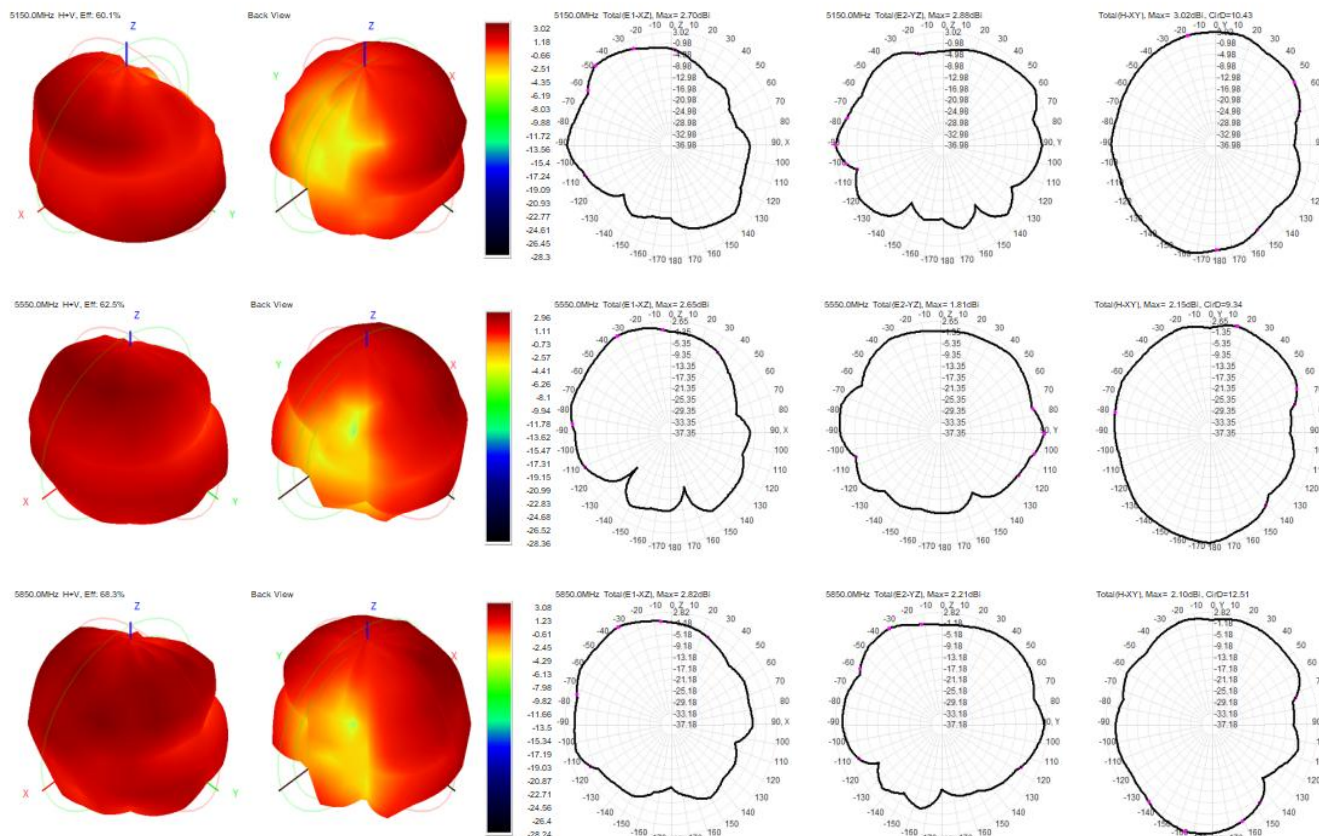
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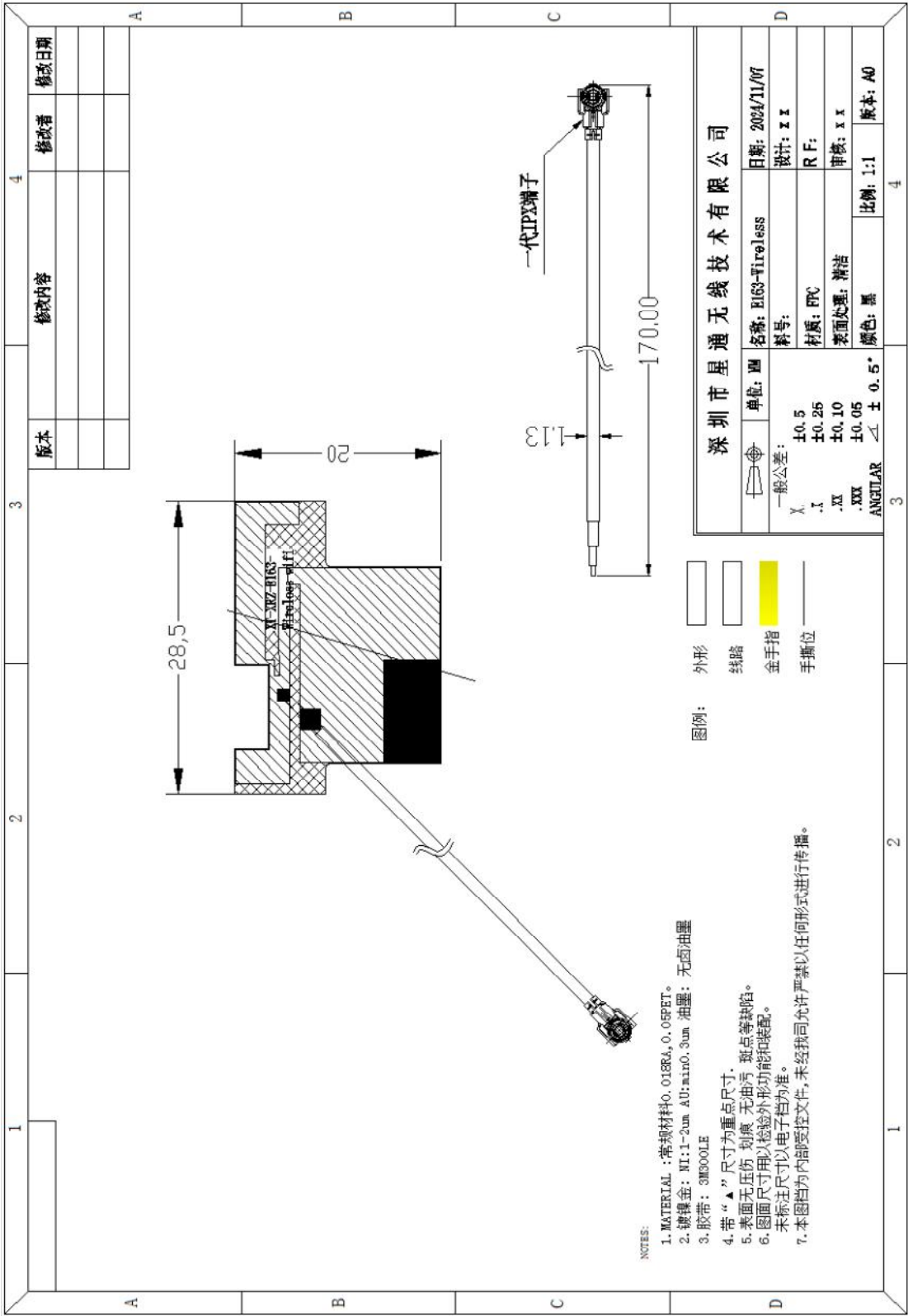
4.2.4-5G-3D(Antenna radiation pattern)



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5. Attached image:

■ 5.1: Antenna finished product diagram



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6. 维 Maintenance verification:

Tests/test items	Maintainability	Inspection order number
Product name/specification	E163-FPC antenna	Test quantity: 5PCS
Submission date: 2023-09-16		Completion date: 2023-09-16

Test/inspection equipment:
1. The tensile tester tests 5 times. (The tester is shown in the figure)



Note: Uniform speed test is required, not extreme speed test.

Projects Condition	Maintaining force between terminal and cable ≥ 0.6kgf.				
Test times	1	2	3	4	5
test result	0.6	0.7	0.7	0.9	0.7

Test/inspection result: acceptable

Test/inspection judgment: ☒ Qualified ☐ Unqualified ☐ Make no judgment

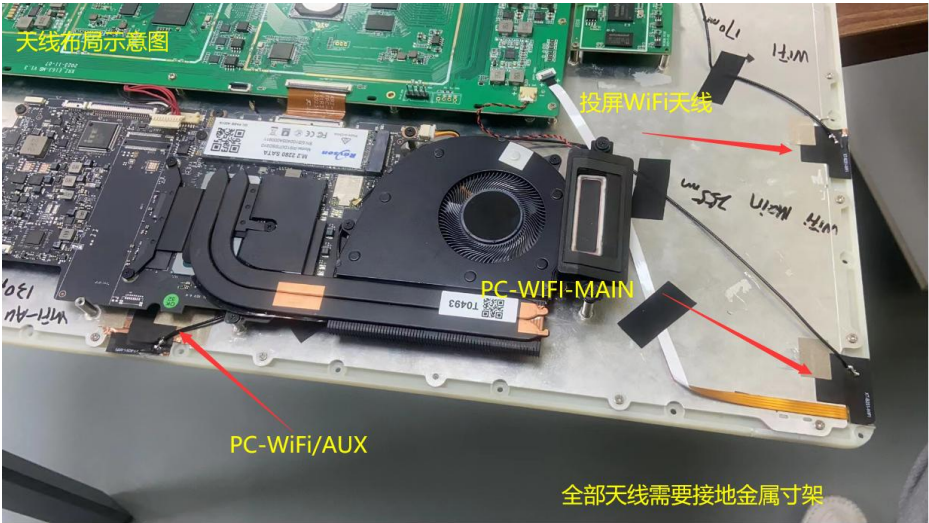
Test: Zhu Yongjian Audit: Wu Yanlong

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7. Reliability test:

Serialnumbe	test item	Test requirements	testing tool	test result
1	Resistance to tin melting	288℃, 10S, no delamination, no foaming	Tin furnace	0k
2	weldability	245℃, 5s, smooth tin surface, solder	Tin furnace	0k
3	Pulling force	N/A	tautness meter	0k
4	Reverse pulling	N/A	tautness meter	0k
5	Peel strength	≥0. 35kg/cm	peel	0k
6	Peel strength (conner foil)	≥0. 8kg/cm	peel strength	0k
7	Hot melt	0. 1~0. 15	/	0k

8. Precautions:



After opening, please carefully check if the item is intact. If there is any damage, please contact us immediately.