

Shenzhen Kaipushen Communication Technology Co., Ltd

Sample approve sheet

Customer: Zhouhai intelligence

Item name: W015C

Sample name: GPS/BT aerial

Description/color: Yellow covering film

Release Date: 2022-08-26

Supplier confirmed	Make	R&D	Structure	Quality

Supplier confirmed	Item	Appearance	Structure	Quality

Conclusion	<input type="checkbox"/> MP use <input type="checkbox"/> Limited use () K
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ROHS

Supplier name: Shenzhen Kaipushen Communication Technology Co., Ltd

Supplier address: 2nd Floor, Building 1, Yulong Building, Longcheng Industrial Zone, No. 440, Longguan Avenue, Longhua District, Shenzhen

Tel: 0755-29351613

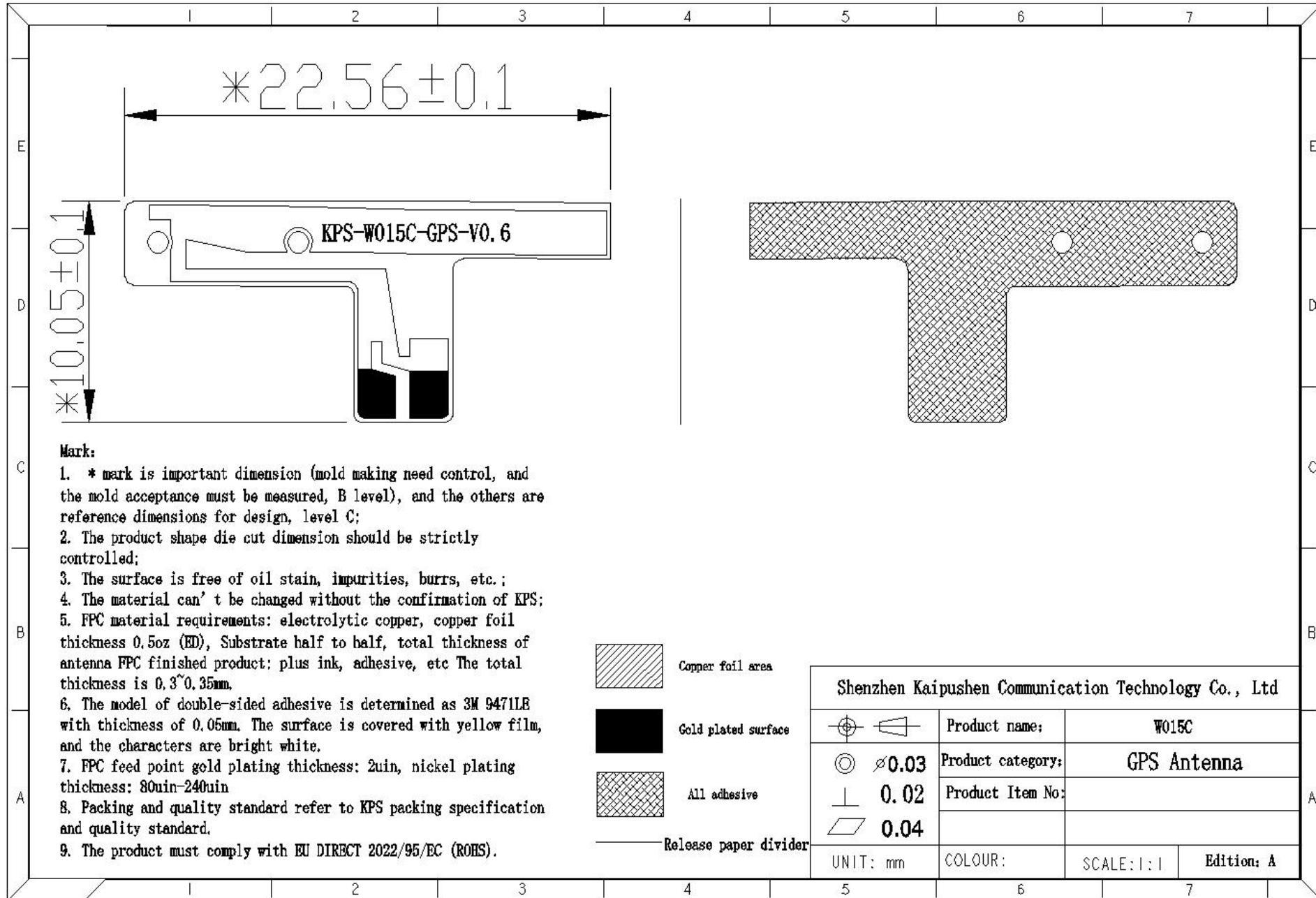
Fax: 0755-29351510

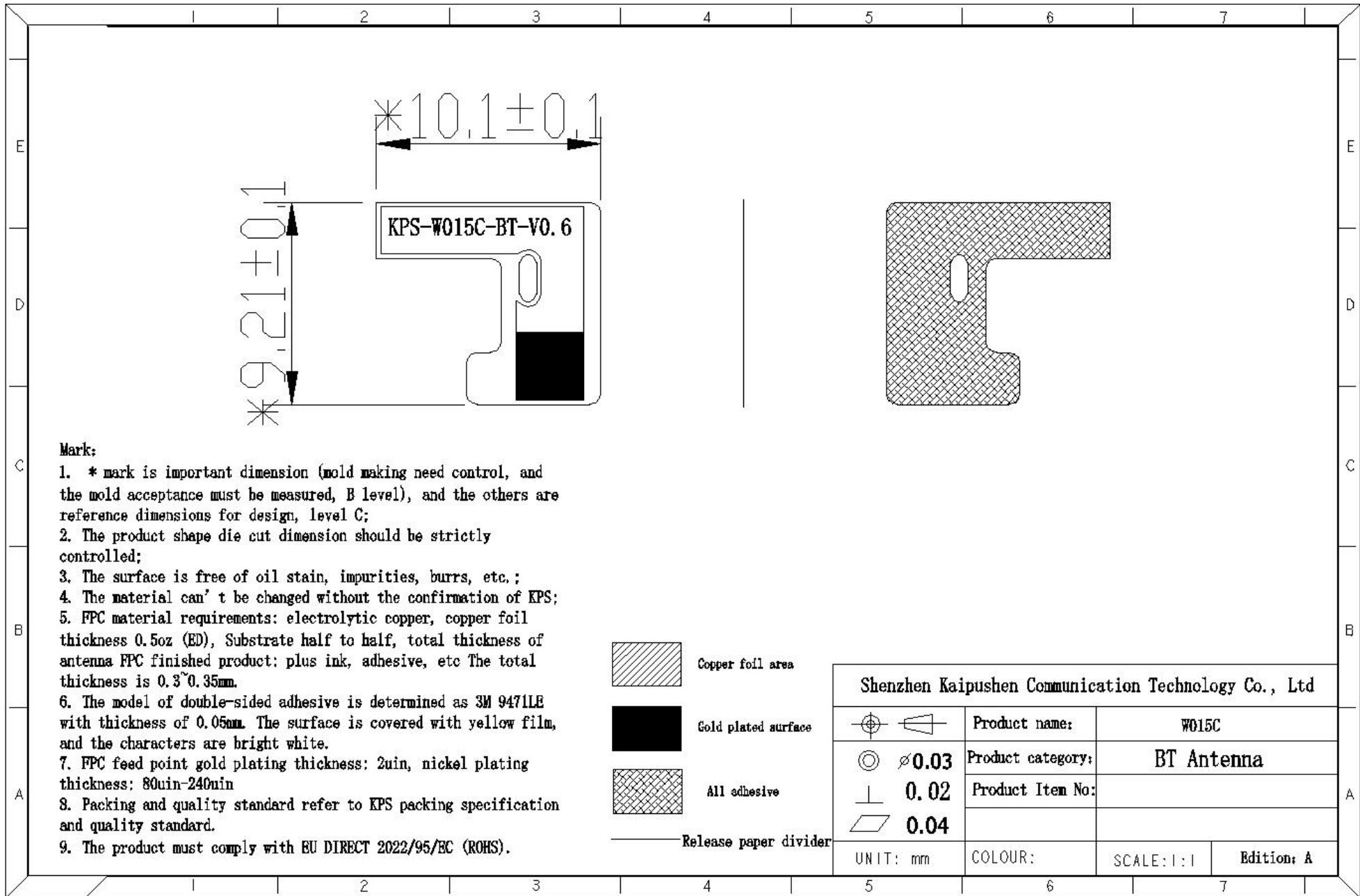
E-mail: szkpstx@szkpstx.com

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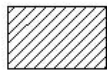



3.1: antenna icd diagram










Mark:

1. * mark is important dimension (mold making need control, and the mold acceptance must be measured, B level), and the others are reference dimensions for design, level C;
2. The product shape die cut dimension should be strictly controlled;
3. The surface is free of oil stain, impurities, burrs, etc.;
4. The material can't be changed without the confirmation of KPS;
5. FPC material requirements: electrolytic copper, copper foil thickness 0.5oz (ED), Substrate half to half, total thickness of antenna FPC finished product: plus ink, adhesive, etc The total thickness is 0.3~0.35mm.
6. The model of double-sided adhesive is determined as 3M 9471LE with thickness of 0.05mm. The surface is covered with yellow film, and the characters are bright white.
7. FPC feed point gold plating thickness: 2uin, nickel plating thickness: 80uin-240uin
8. Packing and quality standard refer to KPS packing specification and quality standard.
9. The product must comply with EU DIRECT 2022/95/EC (ROHS).

-  Copper foil area
-  Gold plated surface
-  All adhesive
-  Release paper divider

Shenzhen Kaipushen Communication Technology Co., Ltd			
		Product name:	W015C
	∅0.03	Product category:	BT Antenna
	0.02	Product Item No:	
	0.04		
UNIT: mm	COLOUR:	SCALE: 1:1	Edition: A

4.1 Aerial function


4.1-1 Specificatin standard

The working frequency band of gps is 1575.42m

Wifi operating frequency band 2400m-2500m


4.1-2 Aerial matching circuit.

GPSMatching circuit as follows:




GPS antenna matching circuit

	Element	Value	
GPS	E1		Original matching of mainboard
	E2		
	E3		
	E4		



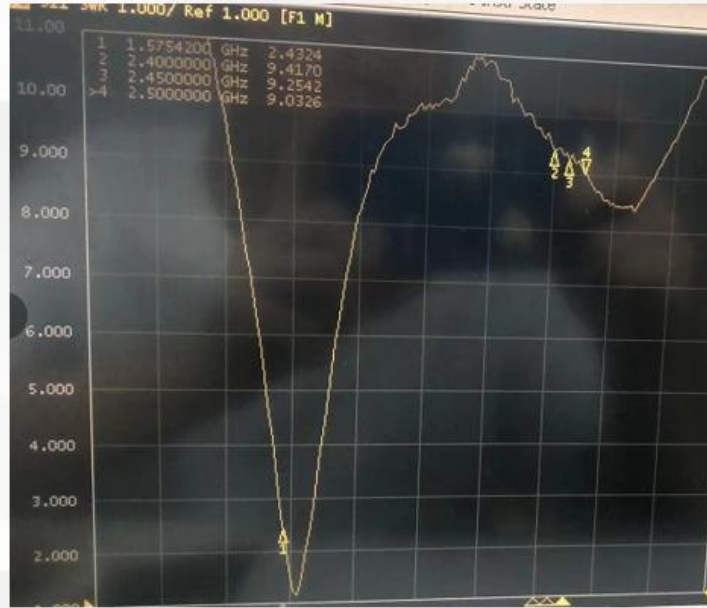
BT antenna matching circuit

	Element	Value	
BT	E1	1.2NH	
	E2	0Ω	
	E3	NC	
	E4		

4.1-3 Passive test results



antenna standing wave diagram



GPS



antenna standing wave diagram



BT

Efficiency test results



Passive efficiency of antenna

free space

GPS

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1540	14.21	-8.47	-64.05
1545	15.79	-8.02	-5.64
1550	17.96	-7.46	-5.15
1555	23.96	-6.2	-4.93
1560	25.01	-6.02	-4.78
1565	25.44	-5.95	-4.74
1570	26.4	-5.78	-4.5
1575	28.49	-5.45	-3.56
1580	28.92	-5.39	-3.25
1585	27.19	-5.66	-3.59
1590	26.12	-5.83	-4.75
1595	24.57	-6.1	-4.86
1600	24.06	-6.19	-4.75

BT

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	30.28	-5.19	-1.54
2440	30.57	-5.15	-0.2
2450	32.76	-4.85	0.15
2460	32.1	-4.94	0.21
2470	32.67	-4.86	0.44
2450	32.93	-4.82	0.9
2460	32.4	-4.89	0.96
2470	32.98	-4.82	0.94
2480	32.38	-4.9	-1.17
2490	33.63	-4.73	-0.99
2500	33.21	-4.79	-0.99



Passive efficiency of antenna

fingerprint

GPS

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1550	8.47	-10.72	-7.02
1555	9.57	-10.19	-6.61
1560	9.46	-10.24	-6.55
1565	9.42	-10.26	-6.45
1570	8.97	-10.47	-6.61
1575	8.53	-10.69	-6.84
1580	9.01	-10.45	-6.7
1585	9.76	-10.11	-6.3
1590	8.76	-10.55	-6.3
1595	8.46	-10.72	-6.55
1600	8.42	-10.73	-6.45

BT

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	5.26	-12.79	-7.54
2410	5.55	-12.55	-7.33
2420	6.33	-11.98	-6.84
2430	6.9	-11.61	-6.54
2440	7.13	-11.47	-8.41
2450	7.54	-11.23	-7.59
2460	7.71	-11.13	-7.29
2470	7.82	-11.07	-7.95
2480	7.75	-11.1	-7.95
2490	7.71	-11.13	-6.76
2500	7.24	-11.4	-8.25

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Environmental manipulation



Environmental treatment of the whole machine

The whole machine shall be treated
according to your original environment

Full dimensional measurement report

	Customer	Zhouhai intelligence		Item name		W015C							Material	Electrolytic copper
	Supplier	Kaipushen		Measure tools		Quadratic		Measure unit		MM			Measure date	2022/8/22
NO.	Size	Upper	+ TOL.	- TOL.	Lower	Act mea 1	Act mea 2	Act mea 3	Act mea 4	Act mea 5	Act mea 6	Act mea 7	UPPER \leq 100%	LOWER \leq 100%
1	22.56	22.66	0.10	0.10	22.46	22.61	22.48	22.46	22.48	22.46	22.48	22.60	50%	100%
2	10.05	10.15	0.10	0.10	9.95	9.98	10.10	9.95	9.96	10.10	9.98	9.98	50%	100%
3	10.10	10.20	0.10	0.10	10.00	10.15	10.03	10.13	10.13	10.08	10.00	10.00	50%	100%
4	9.21	9.31	0.10	0.10	9.11	9.21	9.11	9.20	9.26	9.23	9.18	9.17	50%	100%
5														
6														
7														
8														
9														
10														
11														

Trad: Jian Chen

auditing: Wu Xingtuo

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Salt spray test report

Date: 2022 年 05月 16日

Item	E18-FPC aerial	Customer	Zhouhai intelligence
Supplier	Shenzhen Kaipushen Communication Technology Co., Ltd	National Test standard	GB/T 2423.2-2008
Sample situation	Sample qty: 5PCS		
	Base material: Half to one-third electrolytic copper with glue		Coating: Gold plated
Test time	Total 24H		
Test type	<input checked="" type="checkbox"/> NSS	<input type="checkbox"/> ASS	<input type="checkbox"/> CASS
Test condition	Salt solution: 5%		PH:7.0
	Chamber temp: 35° C		Relative humidity: 85%
	Spray way: <input checked="" type="checkbox"/> Continuous <input type="checkbox"/> intermittent		Compressed air pressure: 1kg/cm ²
	Salt spray sedimentation rate: 1- 2ml/80cm ² /h		Fog fluid collection: 1.4ml/80cm ² /h
	Test cycle: __1__ cycle		Spray time: 24 h
Test results	Appearance after test: appearance intact, without obvious change		
	Coating: no spalling, no rust		
	Surface spraying, silk screen: no falling off, no bubbles.		
Explanation:			
1、Salt spray test operating standards in accordance with the People's Republic of China national standard GB/T2423.17-2008 implementation.			
2、The test piece results are determined according to the national standard GB/ T6451-02 of the People's Republic of China.			
Operator by/date: Jian Chen Approved by/date: Wu Xingtuo			

High-low temperature test record

Product name	W015C	Customer name	Zhouhai intelligence	
Test qtu	5 pcs	Test date	2022年8月22日	
Cycle number	1	Time	48H	
TestCondition:				
High temp: + 65 °C Humidity: 90 % RH				
Low temp: - 28 °C				
Test time: high temp: 48 H low temp: 48 H				
Test item	Uncycled test		Cycled test	
No	After high temp	After low temp	After high temp	After low temp
1	OK	OK		
2	OK	OK		
3	OK	OK		
4	OK	OK		
5	OK	OK		
6	OK	OK		
After test deficiency:				
Reason analysis:				
Improvement measures:				
Test results: √ Pass Fail				

auditing: WUxingtuo

record: Chenjian

Packing

Customer:	Zhouhai intelligence	Material name	W015C-FPCaerial
packing qty:	one carton	Packing material	纸箱Carton
Qty/carton		Packing way	Ziplock bag



Picture 1: Single package



Picture 2: Packing way



Picture 3: Packing view (front, side, top)



Picture 4: packing label

Fiction: Liminghui

auditing: Wuxingtuo