

# Part admission Part Approval Sheet

Customer Name Customer name: Dongguan HANK Electronics.,LTD

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Product model Product Model: A 22-L

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Customer material number 108.01.00568

Risuntek P / N: A 0

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Version Version: FPC antenna

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Part Name Prodcut Name: The BT 2400-FPCB has a built-in

Product Description Description: Bluetooth headset antenna L

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date Date: 2023/9/4

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**The customer signed  
(Customer Signatures )**

**Our company signed  
(Inner Signatures )**

Character (QE)	Structure (ME )	Radio frequency (RF)

Address: 12th floor, West Block B, Building 8, Huaqiang Creative Industry Park, Sightseeing Road, Guangming District, Shenzhen

Tel.: 0755-28700082

[www.honant.com.cn](http://www.honant.com.cn)

# catalogue

1. Make / revise the change resume

II. Product drawings

3. Electrical and mechanical properties  
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4. Full-size measurement report

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expansion table

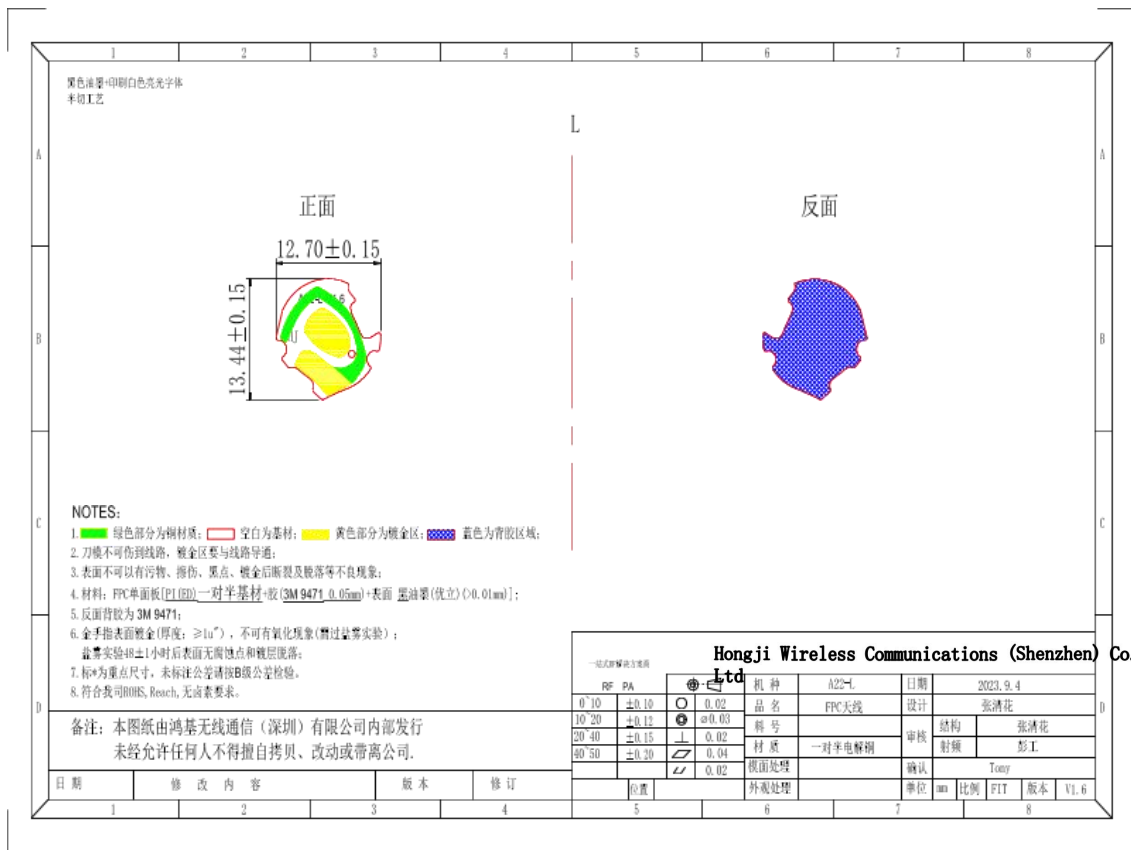
7. Reliability test report

VIII. Packaging specifications

## I. Make / revise the change resume

edition	Revision page	Change time	Change the person	Reason and content of the change	remarks
A 0	—	2023/9/4	Zhang Qinghua	Initial version of the antenna form	
A 1					
A 2					
A 3					
A 4					
A 5					
A 6					

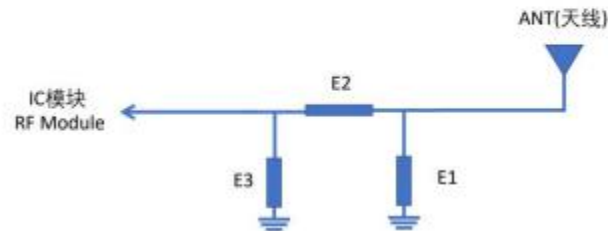
## II. Product drawings



### 3. Electrical and mechanical

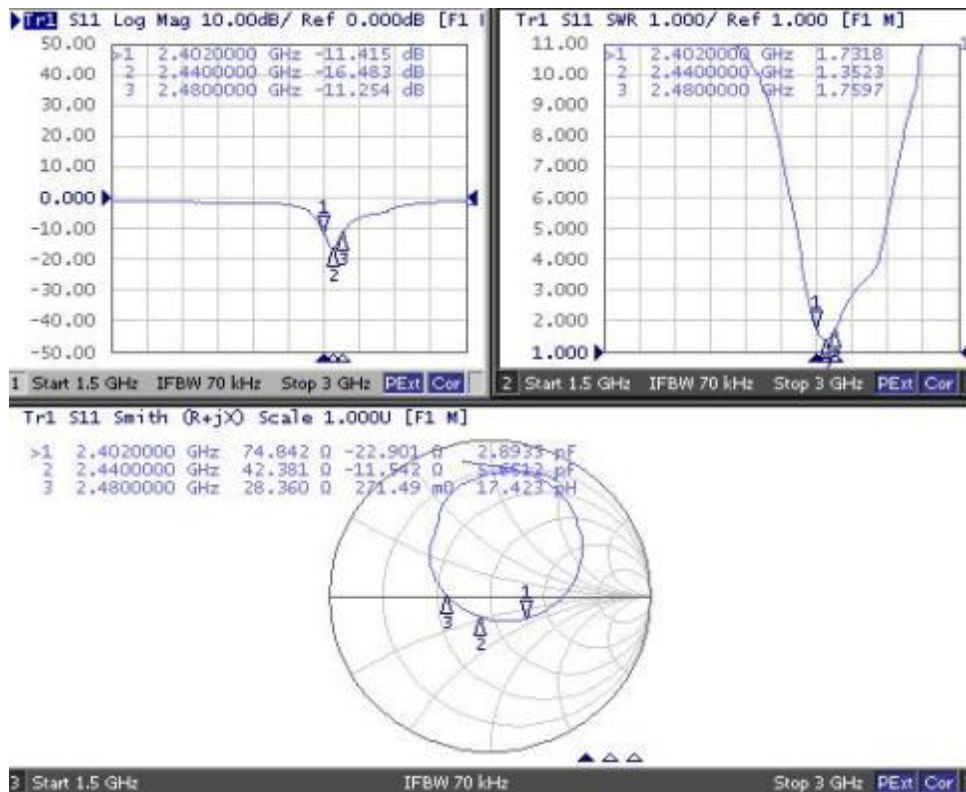
#### 1. Matching the circuit diagram

天线匹配电路说明 Antenna circuit matching description



E lement	Valu e
E 1	N /C
E 2	0Ω
E 3	N /C

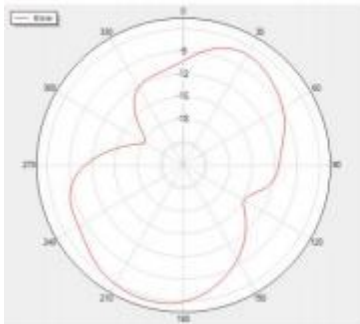
#### 2, and S 11 parameters



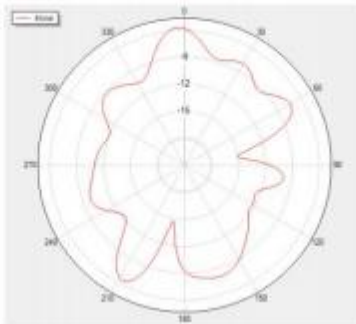
### 3. Passive efficiency

Freq [MHz ]	Gain (dBi )	Efficiency (%)
	free space	free space
2400	1.12	30.14
2410	1.32	31.28
2420	1.59	32.06
2430	1.88	32.28
2440	1.12	31.69
2450	1.21	30.27
2460	1.25	31.05
2470	1.13	32.11
2480	0.9	31.78
2490	0.65	31.05
2500	0.51	30.16

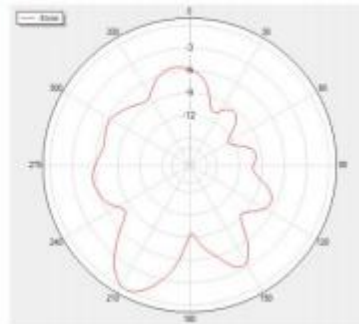
Theta=90 Freq=2400MHz



Phi=90 Freq=2400MHz



Phi=0 Freq=2400MHz



4, with the active OTA data

L	channel	TRP (dBm)	TIS (dBm)
free space	0	6.59	-88.80
	39	6.43	-88.28
	78	6.14	-87.75
L	channel	TRP (dBm)	TIS (dBm)
headform	0	-0.75	-81.51
	39	-1.50	-81.27
	78	-0.42	-81.41

### 4. Full-size measurement report

NO .	code	108.01.00568		part name	FPC antenna			specific ations	The A 22-L FPC antenna				material	FPC (12 / 50)
	supplier	Hon Gai		survey tools	Two dimension, micrometer			measurement unit	M M				The date of measurement	2023/9/4
	size ( DIMENSION )	superior limit	+ TOL .	- TOL .	lower limit	Measure d 1	Measure d 2	Measure d 3	Measure d 4	Measure d 5	Measure d 6	Measure d 7	UPPER $\cong$ 100%	LOWER $\cong$ 100%
A 22-L	12.70	12.85	0.15	0.15	12.55	12.711	12.709	12.689	12.694	12.716	12.721	12.705	14%	7%
	13.44	13.59	0.15	0.15	13.29	13.436	13.458	13.442	13.428	13.419	13.452	13.441	12%	14%

Table making:  
Zhang Qinghua

Review: Peng Jianfeng

Date: 2023 / 9 / 4



# 5. CPK Report

## Hongji Wireless Communications (Shenzhen), Ltd

Project name (Project)	A 22-L				Customer (Customer)	Dongguan Hankai Electronics Co., LTD				
Description (Part Name)	antenna				Inspected (Valer)	Zhang Qinghua				
Material (Material)	A pair of semi-electrolytic copper				Inches / MM (inch / mm)	mm				
Revision (Version)	A 0				Date (Date)	2023/9/4				
m . Designator (Size No.)	12. 70	13. 44								
Upper Limit (Upper specification limit)	12. 85	13. 59								
Lower Limit (Lower specification limit)	12. 55	13. 29								
1	12. 70	13. 47								
2	12. 74	13. 45								
3	12. 76	13. 49								
4	12. 71	13. 44								
5	12. 75	13. 42								
6	12. 74	13. 47								
7	12. 69	13. 48								
8	12. 73	13. 50								
9	12. 70	13. 46								
10	12. 73	13. 46								
1 1	12. 75	13. 42								
12	12. 76	13. 43								
13	12. 73	13. 46								
14	12. 71	13. 48								
15	12. 68	13. 44								
16	12. 69	13. 49								
17	12. 68	13. 44								
18	12. 75	13. 43								
19	12. 76	13. 50								
20	12. 74	13. 45								
21	12. 75	13. 43								
22	12. 73	13. 49								
23	12. 77	13. 47								
24	12. 77	13. 43								
25	12. 74	13. 44								
26	12. 75	13. 48								
27	12. 75	13. 45								
28	12. 70	13. 44								
29	12. 75	13. 46								
30	12. 71	13. 42								
31	12. 72	13. 43								
32	12. 72	13. 42								
MAX .	12. 77	13. 50								
MIN .	12.68	13.42								
A VERAGE	12.73	13.45								
S TDEV	0.03	0.02								
C P	1.90	2.05								
Cp k	1.52	1.86								
TOOLING (Measurement tool)	callipers	callipers								

Prepared by \_\_\_\_\_ Checked by \_\_\_\_\_ Approved by \_\_\_\_\_

Formulate: Wei-qiang Chen (Examine and verify): Zhang Qinghua

approval: Peng Jianfeng



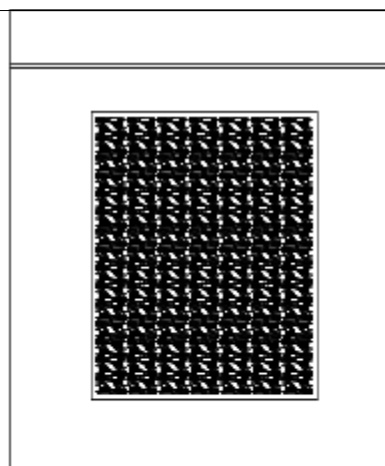
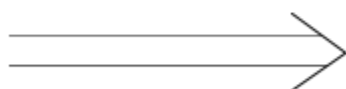
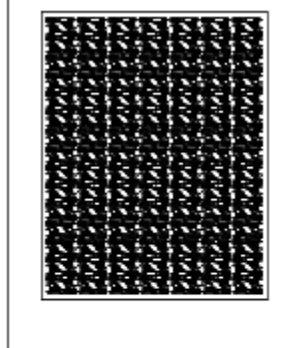
## 7. Reliability test report

client		Dongguan Hankai Electronics Co., LTD		project name	The A 22-L FPC antenna
testing time		2023/9/2-2023/9/4		Test the number	5 PCS per test item
order number	test item	measuring and test instruments	test method	requirement	judge
1	Salt fog experiment	Salt fog experimental machine	The tested product was tested in a salt spray tester containing 5% ± 1% Nacl solution, laboratory temperature 35° , pressure barrel temperature 47° , pressure 1 kgf / cm 2, test 48. The product should be placed 45° . After the test, remove the product, wash and dry for inspection	Appearance after test: appearance is intact and intact with no obvious change. Plating: no peeling, no corrosion. Surface spraying, screen printing: no fall off, no bubbles are judged as qualified	P ASS
2	Hot and cold impact	Constant temperature and humidity box	Place the test product flat in the test machine, set the test conditions, high temperature is 85℃, one cycle test for 24 hours; low temperature is -30℃, test for 2 cycles, and start the test after setting. After the test, recover for 2 hours and remove the product for inspection.	Color, gloss, surface appearance, no change in hardness, no scratching, no cracks, no warping and electrical performance damage. It is judged to be qualified	P ASS
remarks:					
TAB: Chen Weiqiang		Audit: Zhang Qinghua		Approval: Peng Jianfeng	

## VIII. Packaging (Packing)

P / N:	108.01.00568	product name:	FPC antenna
size of product:	The A 22-L FPC antenna	packing material:	Seal the pockets and cartons
package quantity:	5,000 PCS / package	manner of packing:	5000 pcs / pack, one case 1-16 pack
packing quantity:	80000PCS		

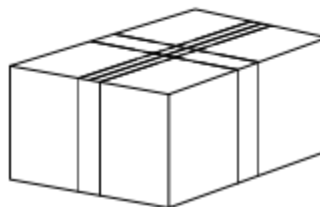
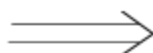
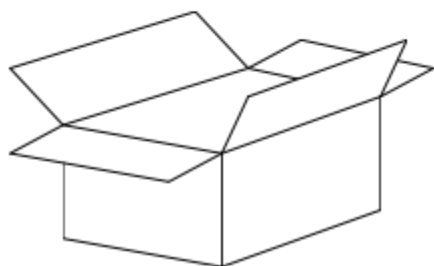
### 1. Small packaging



FPC antenna (full plate half cut shipment)? 250\*203

PE bag 5000PCS antenna

### 2. Large packaging



一箱 1-8袋 (5000-80000PCS天线)

3. Note: FPC products are shipped in half cut,  
 Quantity of small packages: 5000 PCS / bag;  
 Quantity of large packages: 5000-80000 PCS / box.

### 4. Precautions

4.1 The storage of products shall ensure that the ambient temperature is  $-10^{\circ}\text{C} \sim +24^{\circ}\text{C}$ , the humidity is less than 90%, no leakage in the warehouse, the ground shall be moisture-proof, avoid acid fog and salt fog erosion around the warehouse. The storage period of the product is 180 days;

4.2 The transportation of products can be land, water, air, transportation should be rain proof;

4.3 Stack requirements: XXX;

(Other example: strictly prohibited to throw, throw, etc...ask)

Formulation:  
Chen Weiqiang

Audit:  
Zhang Qinghua

Approval:  
Peng Jianfeng