

Part acknowledgement

Part Approval Sheet

Customer name:	HANKAI ELECTRONICS.,LTD
Product Model:	A21
Risuntek P/N:	108.01.00501
Version:	A
Prodcut Name:	FPC antenna
Description:	2.45G Bluetooth headset antenna R
Date:	2022/11/3

(Customer Signatures)

(PM)	(ME)	(QE)

(Inner Signatures)

(QE)	(ME)	(RF)
Aston	Cindy	James

Address: room 211-212, floor 2, Kushi science and technology innovation center, 4006 Wuhe Avenue, Longgang District, Shenzhen

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www.honant.com.cn

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1. Preparation / revision of change record

edition	Revision page	Change time:	Changed by:	Reason and content of change	remarks
A0	—	2022/11/3	Cindy	First issue	
A1					
A2					
A3					
A4					
A5					
A6					

1		2		3		4		5		6		7		8																																																	
Black ink + printing white bright font Half cutting process positive the other side NOTES: 1. The green part is made of copper; Blank is base material; The yellow part is the gold-plated area; Blue is the adhesive backed area; 2. The knife and die shall not damage the line, and the gold plating area shall be connected with the line; 3. The surface shall be free of dirt, scratch, black spot, fracture and falling off after gold plating; 4. Material: FPC single panel [PI (ED) one half substrate + glue (3M 9471 0.05mm) + surface black ink (kaiyao) (> 0.01mm)]; 5. The back adhesive is 3M 9471; 6. The surface of the gold finger shall be plated with gold (thickness: ≥ 1U ") without oxidation (salt spray test is required); After 48 ± 1 hours of salt spray test, the surface shall be free of corrosion spots and coating falling off; 7. The marked * is the key dimension. If the tolerance is not marked, please check according to the class B tolerance. 8. Meet our ROHS, Reach, halogen-free requirements Note: this drawing is issued internally by Hongji wireless communication (Shenzhen) Co., Ltd No one is allowed to copy, change or take away from the company without permission <table><tr><td>Date</td><td>Modification:</td><td>edition</td><td>Revision</td></tr></table> One stop RF solution provider RF PA <table><tr><td>0~10</td><td>±0.10</td><td>○</td><td>0.02</td></tr><tr><td>10~20</td><td>±0.12</td><td>◎</td><td>∅0.03</td></tr><tr><td>20~40</td><td>±0.15</td><td>⊥</td><td>0.02</td></tr><tr><td>40~50</td><td>±0.20</td><td>∠</td><td>0.04</td></tr><tr><td></td><td></td><td>∠</td><td>0.02</td></tr></table> <table><tr><td>Model</td><td>A21-R</td><td>Date</td><td>2022.11.04</td></tr><tr><td>Product Name</td><td>FPC antenna</td><td>Design</td><td>Cindy</td></tr><tr><td>Item No</td><td></td><td>to examine</td><td>ME Cindy</td></tr><tr><td>texture of material</td><td>A pair of half electrolytic copper</td><td>RF</td><td></td></tr><tr><td>Die surface treatment</td><td></td><td>confirm</td><td>Tony</td></tr><tr><td>Appearance treatment</td><td></td><td>Company</td><td>mm proportion FIT edition V1.5</td></tr></table>																Date	Modification:	edition	Revision	0~10	±0.10	○	0.02	10~20	±0.12	◎	∅0.03	20~40	±0.15	⊥	0.02	40~50	±0.20	∠	0.04			∠	0.02	Model	A21-R	Date	2022.11.04	Product Name	FPC antenna	Design	Cindy	Item No		to examine	ME Cindy	texture of material	A pair of half electrolytic copper	RF		Die surface treatment		confirm	Tony	Appearance treatment		Company	mm proportion FIT edition V1.5
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Half cutting process

positive

 8.77 ± 0.15 31.32 ± 0.15

A21-R-V1.5

R

the other side

NOTES:

1.  The green part is made of copper;  Blank is base material;  The yellow part is the gold-plated area;  Blue is the adhesive backed area;
2. The knife and die shall not damage the line, and the gold plating area shall be connected with the line;
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4. Material: FPC single panel [PI (ED) one half substrate + glue (3M 9471 0.05mm) + surface black ink (kaiyao) (> 0.01nm)];
5. The back adhesive is 3M 9471;
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- After 48 ± 1 hours of salt spray test, the surface shall be free of corrosion spots and coating falling off;
7. The marked * is the key dimension. If the tolerance is not marked, please check according to the class B tolerance.
8. Meet our ROHS, Reach, halogen-free requirements
- Hongji** **wi**

One stop RF solution
provider

RF PA



Note: this drawing is issued internally by Hongji wireless communication (Shenzhen) Co., Ltd

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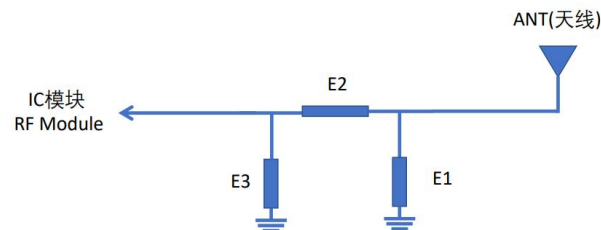
Date	Modification:	edition	Revision
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Hongji wireless communication (Shenzhen) Co., Ltd											
One stop RF solution provider											
RF PA			Model	A21-R		Date	2022.11.04				
0~10	±0.10		Product Name	FPC antenna		Design	Cindy				
10~20	±0.12		Item No	A pair of half electrolytic copper		to examine	ME	Cindy			
20~40	±0.15		texture of material				RF				
40~50	±0.20		Die surface treatment			confirm	Tony				
			Appearance treatment			Company	mm	proportion	FIT	edition	V1.5

3. Electrical and mechanical properties

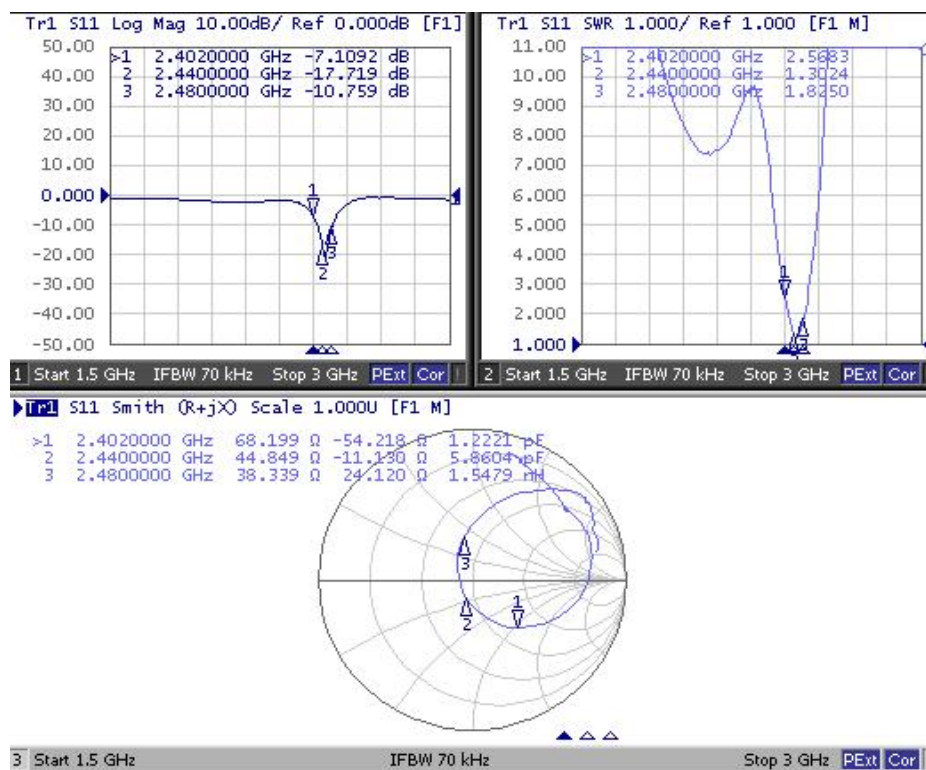
1、Match the circuit diagram

天线匹配电路说明Antenna circuit matching description



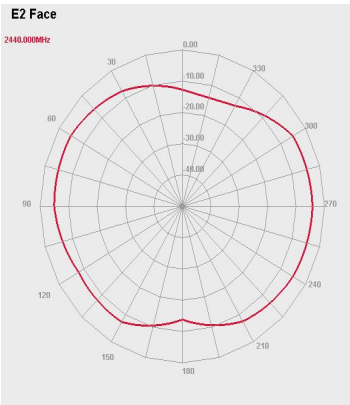
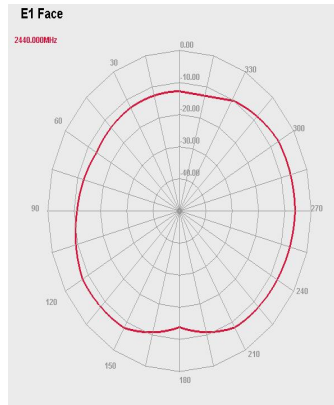
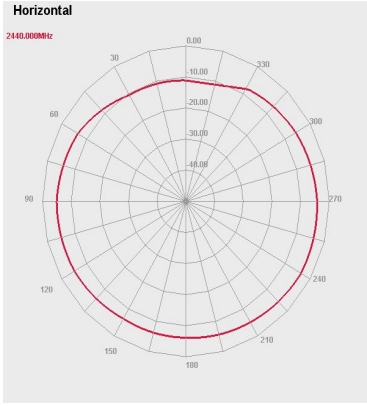
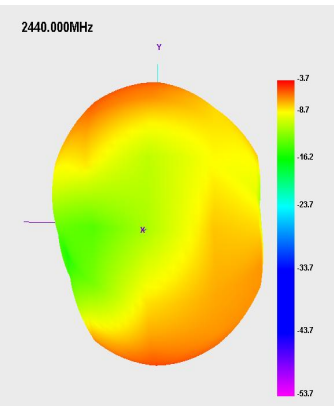
Element	Value
E1	1.0pF
E2	0Ω
E3	N/A

2、S11 parameter



3、The efficiency of passive

Freq[MHz]	Efficiency(%)	Gain(dBi)
	Free space	Free space
2400	20.98	-2.5
2410	21.76	-2.15
2420	21.5	-2.28
2430	21.04	-2.33
2440	22.79	-1.98
2450	21.59	-2.1
2460	20.56	-2.21
2470	18.47	-2.81
2480	17.79	-2.82
2490	17.15	-2.78
2500	17.37	-2.47



4、 Active OTA data

R	channel	TRP (dbm)	TRP (dBm)
Free space	0	4.29	-86.32
	39	5.29	-89.68
	78	5.16	-87.22
Human head model	0	3.39	-85.15
	39	4.17	-87.80
	78	3.85	-86.53

4. Full size measurement report

[illegible]

Tabulation: Cindy	to examine:James	Date:2022/11/4
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Tabulation: Cindy	to examine:James	Date:2022/11/4
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Tabulation: Cindy	to examine:James	Date:2022/11/4
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5. CPK Report

Hongji wireless communication (Shenzhen) Co., Ltd

Project name	A21-R				Customer	HANKAI ELECTRONICS.,LTD			
Description	antenna				Inspected	Cindy			
Material	One half electrolytic copper				Inches/MM	mm			
Revision	A				Date	2022/11/4			
Dim. Designator	31.32	8.77							
Upper Limit	31.47	8.92							
Lower Limit	31.17	8.62							
1	31.28	8.77							
2	31.33	8.78							
3	31.32	8.79							
4	31.36	8.79							
5	31.36	8.74							
6	31.29	8.81							
7	31.29	8.78							
8	31.32	8.75							
9	31.28	8.77							
10	31.32	8.80							
11	31.30	8.74							
12	31.30	8.77							
13	31.31	8.79							
14	31.31	8.80							
15	31.33	8.73							
16	31.31	8.79							
17	31.32	8.73							
18	31.28	8.76							
19	31.36	8.76							
20	31.31	8.80							
21	31.30	8.80							
22	31.28	8.78							
23	31.33	8.79							
24	31.35	8.74							
25	31.29	8.73							
26	31.29	8.74							
27	31.34	8.81							
28	31.35	8.79							
29	31.37	8.75							
30	31.36	8.81							
31	31.35	8.82							
32	31.36	8.78							
MAX.	31.37	8.82							
MIN.	31.28	8.73							
AVERAGE	31.32	8.77							
STDEV	0.03	0.03							
CP	1.74	1.91							
Cpk	1.73	1.85							
TOOLING	calipers	calipers							

Prepared by : Aston Checked by : cindy Approved by : James

6. Expanded list of environmental management substance parts

The Parts List of Enviromental Management Substances

Product Information		Supplier Contact Information	
Part name	FPC antenna	Compony Name	Hongji wireless communication (Shenzhen) Co., Ltd
Risuntek P/N	108.01.00501	Contact Name/Title	Aston
Supplier's P/N	A21-R	Date:YY/MM/DD	2022/11/3
Manufacurering site	Dongguan	E-mail address	
Total weight (g)		Tel. No.	13714345069

Report type		Confirmation results		remarks
☒	RoHS 2.0	☐		Metal provides 4 RoHS items and other 10 items
☒	HF	☐		CL & br for non-metallic parts
☒	CP65	/		Parts in contact with skin
☒	REACH	/		According to the latest SVHC list
☒	other ()	/		Such as be, pops, PFOS / PFOA, etc
☒	MSDS	☐		Article 17, seal, validity

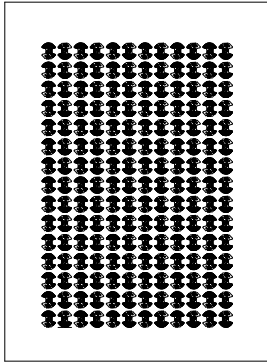
No.	Customer item number	Part name	Homogeneo us material	Test Report No.	Test Date (YY/MM/DD)	Test result (ppm)													Test report	MSDS
						Pb	Cd	Hg	Cr6 +	PBB	PBD E	Cl	Br	DEH P	DBP	BBP	DIB P			
1	108.01.00501	Base material	fubon	A2220120187103001E	2022/4/1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	 A222012018710 3001E REACH检测	 基材MSDS.pdf	
2		ink	High interest black oil	ETR21805831A02	2022/7/7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	 20220707(REACH)ETR21805831A	 MSDS_PS-800黑色油墨.pdf	
3		Gummed paper	3M	CANEC2208359801	2022/5/9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	 CANEC2208359 801 9471-REACH	 MSDS_3M9471 白色.pdf
4		Gold plated	Gen da	A2220428312101003E	2022/10/9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	 A222042831210 1003E 电镍金 RC	 镀金 MSDS报告.pdf
5		White ink	Chuan yu	ETR22A01347M01	2022/10/17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	 ETR22A01347M 01 ZSR-150白色油墨	 MSDS_ZSR-150 白色文字油墨.pdf

7. Reliability test report					
customer		HANKAI ELECTRONICS.,LTD		entry name	A21-R FPC antenna
Test time:		2022/11/1---2022/11/3		Number of tests	5pcs for each test item
Serial number	Test items	Test instrument	test method	Criteria:	determine
1	Salt spray experiment	Salt spray test machine	Put the tested product into a salt spray test machine containing 5% ± 1% NaCl solution for testing. The laboratory temperature is 35 ° , the pressure barrel temperature is 47 ° , the pressure is 1kgf / cm2, and the test is 48 hours. The product is required to be placed at 45 ° , after the test, take out the product, wash it and dry it for inspection	Appearance after test: the appearance is intact without obvious change. Plating: no peeling and rust. Surface spraying and screen printing: it is qualified if there is no falling off and bubble	PASS
2	Thermal Shock	Constant temperature and humidity box	Place the test product flat in the test machine and set the test conditions. The high temperature is 85 °C, and one cycle test is conducted for 24 hours; The low temperature is - 30 °C, the test is conducted for 2 cycles, and the test is started after setting. After the test, recover for 2 hours and take out the product for inspection.	There is no change in color, luster, surface appearance, hardness, scratch, crack, warping and electrical property damage Judged as qualified	PASS
备注:					
Tabulation: Aston		to examine: Cindy		Approved by: Mao Luping	

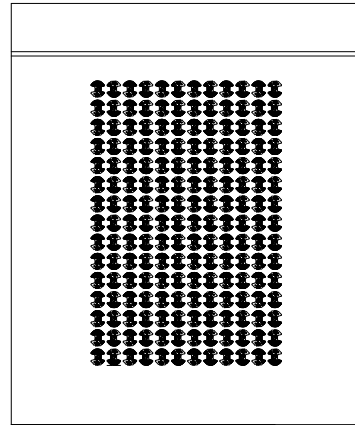
8. Packing

Item No:	108.01.00501	Product Name:	FPC antenna
Product specification:	A21-R FPC antenna	packaging:	Seal pockets and cartons
Packing quantity:	5000PCS/package	Packing method::	5000pcs / pack, 1-16 packs per box
Packing quantity:	80000PCS		

1、Small package

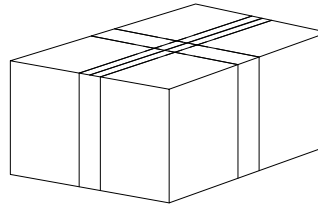
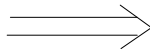
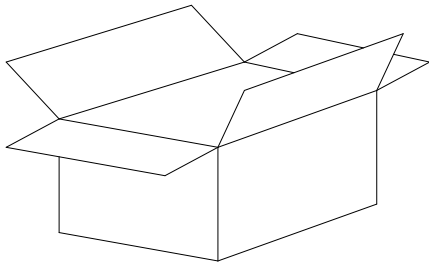


FPC antenna (full plate half cut shipment): 250*200



PE bag 5000PCS antenna

2、Large package



一箱 1-8袋 (5000-80000PCS天线)

3、Note: FPC products are manufactured by half cutting,

Small package quantity: 5000pcs / bag;

Large package quantity: 5000-80000pcs / box

4. Precautions:

4.1 the storage of products shall ensure that the ambient temperature is between $-10^{\circ}\text{C} \sim +24^{\circ}\text{C}$, the humidity is less than 90%, the warehouse is free of rain leakage, the ground is moisture-proof, and the surrounding of the warehouse is protected from acid fog and salt fog. The storage period of the product is 180 days;

4.2 the products can be transported by land, water and air, and shall be protected from rain during transportation;

4.3 stacking requirements: XXX;

(other requirements, such as: no throwing from height, etc.)

draw up: Aston

to examine: Cindy

approval: James