

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

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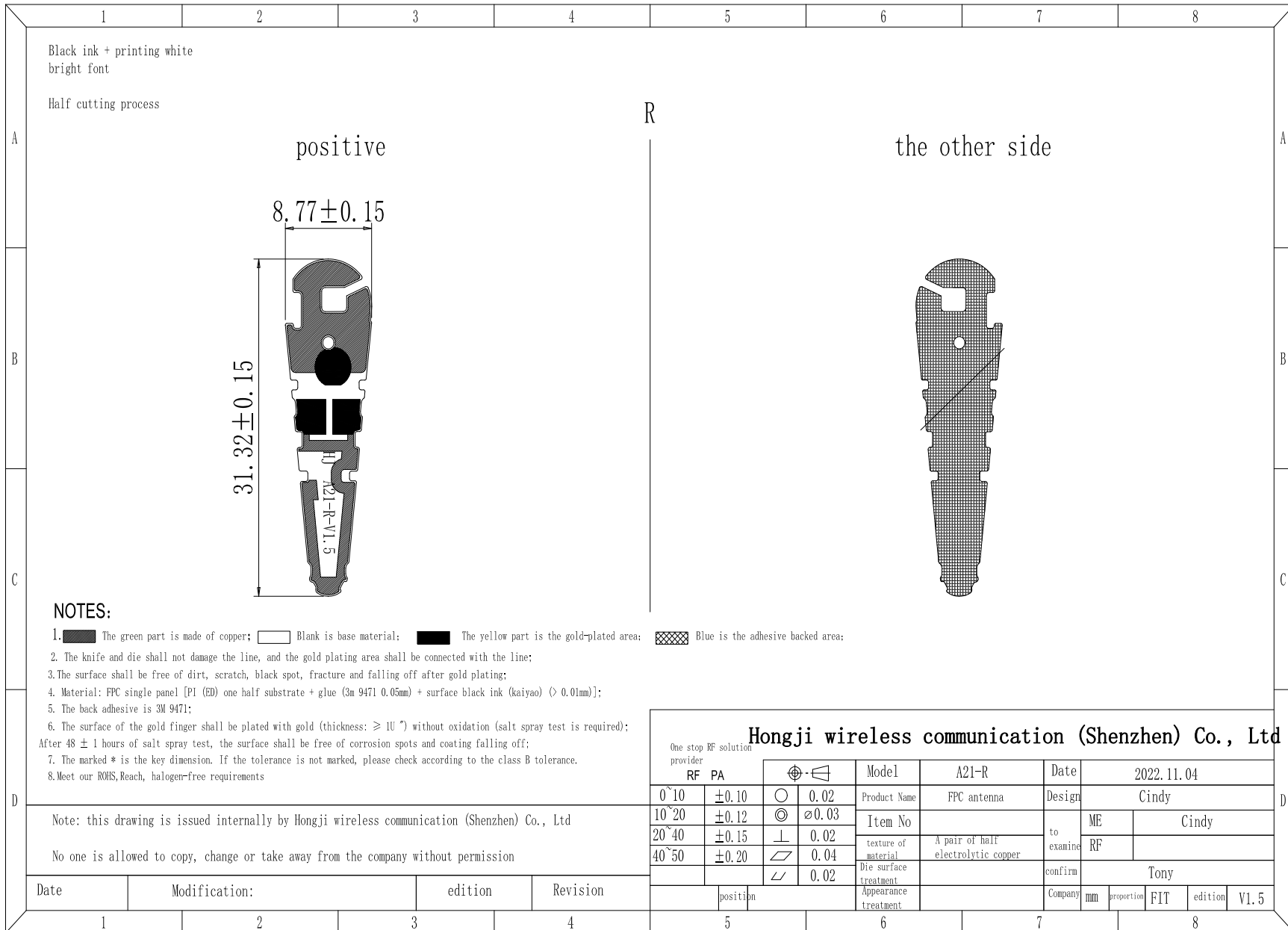
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1. Preparation / revision of change record

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					

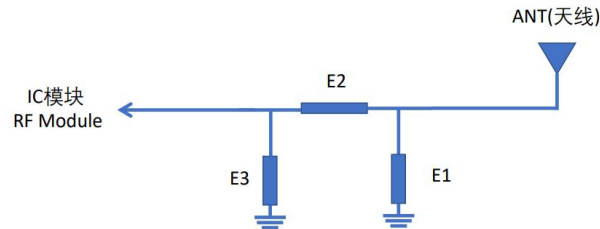
2. Product drawings



3. Electrical and mechanical properties

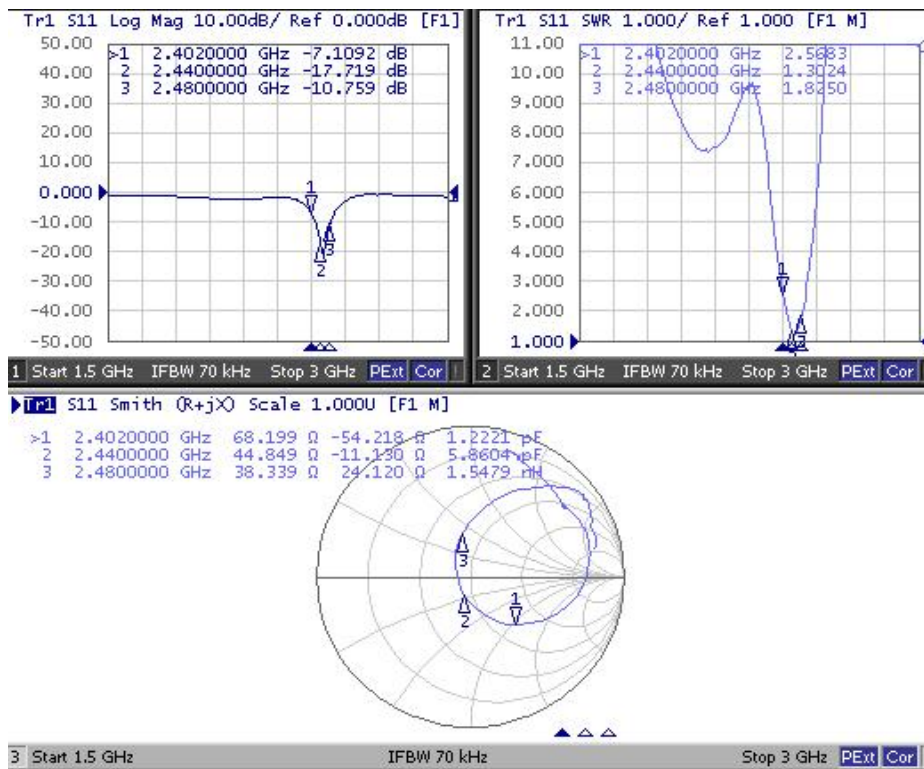
1. Match the circuit diagram

天线匹配电路说明Antenna circuit matching description



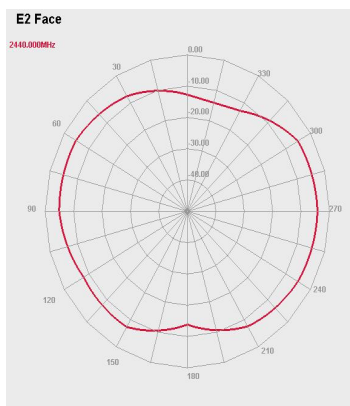
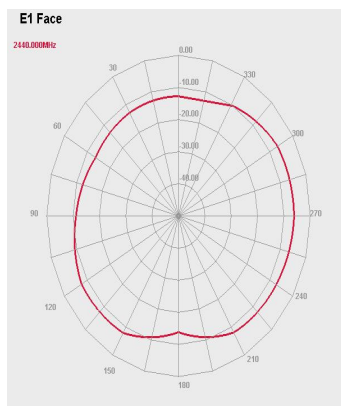
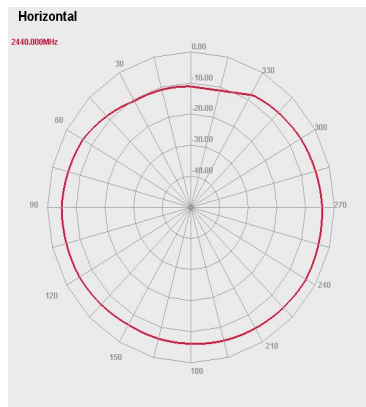
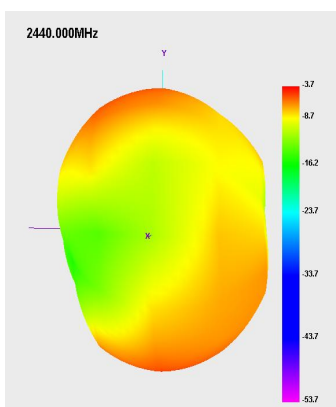
Element	Value
E1	1.0pF
E2	0Ω
E3	N/A

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

	code	108.01.00501		Part name		FPC antenna		Specifica tions	A21 -R FPC antenna				Material Science	FPC (1 half)
	supplier	Hung Kai wireless		Measurin g tools		Two dimensional element		Unit of measureme		MM			Measurement date:	2022.11.4
NO.	尺寸 (DIMENSIO N)	upper limit	+ TOL.	- TOL.	Lower limit	Measured 1	Measured 2	Measured 3	Measured 4	Measured 5	Measured 6	Measured 7	UPPER ≅ 100%	LOWER ≅ 100%
A21-R	31.32	31.47	0.15	0.15	31.17	31.335	31.329	31.309	31.302	31.336	31.342	31.348	19%	12%
	8.77	8.92	0.15	0.15	8.62	8.769	8.772	8.796	8.759	8.759	8.748	8.792	17%	15%

Tabulation: Cindy

to examine: James

Date: 2022/11/4

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		Report type		Confirmation results		remarks	
Part name	FPC antenna	Compony Name	Hongji wireless communication (Shenzhen) Co., Ltd	<input checked="" type="checkbox"/>	RoHS 2.0	<input type="checkbox"/>		Metal provides 4 RoHS items and other 10 items	
Risuntek P/N	108.01.00501	Contact Name/Title	Aston	<input checked="" type="checkbox"/>	HF	<input type="checkbox"/>		CL & br for non-metallic parts	
Supplier's P/N	A21-R	Date:YY/MM/DD	2022/11/3	<input checked="" type="checkbox"/>	CP65	/		Parts in contact with skin	
Manufacturering site	Dongguan	E-mail address		<input checked="" type="checkbox"/>	REACH	/		According to the latest SVHC list	
Total weight (g)		Tel. No.	13714345069	<input checked="" type="checkbox"/>	other ()	/		Such as be, pops, PFOS / PFOA, etc	
				<input checked="" type="checkbox"/>	MSDS	<input type="checkbox"/>		Article 17, seal, validity	

No.	Customer item number	Part name	Homogeneous material	Test Report No.	Test Date (YY/MM/DD)	Test result (ppm)												Test report	MSDS
						Pb	Cd	Hg	Cr6 +	PBB	PBD E	Cl	Br	DEHP	DBP	BBP	DIBP		
1	108.01.00501	Base material	fubon	A2220120187103001E	2022/4/1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	 A2220120187103001E 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	 CANEC2208359801 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	 A2220428312101003E 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	 ETR22A01347M01 ZSR-150白色	 MSDS_ZSR-150白色油墨.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 / cm ² , 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

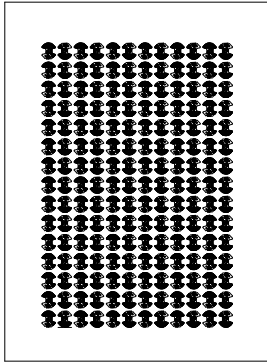
to examine: Cindy

Approved by: Mao Luping

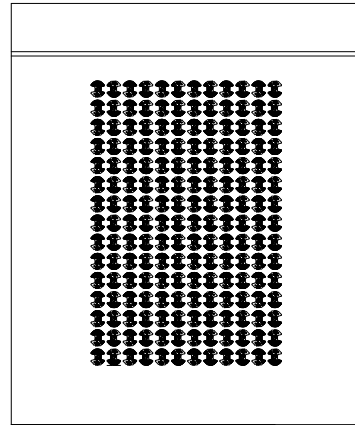
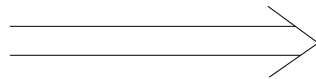
8. Packing

Item No:	108.01.00501	Product Name:	FPC antenna
Product specificati	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

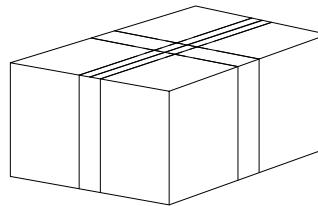
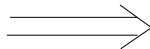
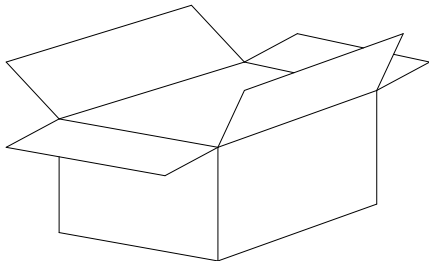


FPC antenna (full plate half cut shipment): 250*200



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 $-10\text{ }^{\circ}\text{C} \sim +24\text{ }^{\circ}\text{C}$, 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