

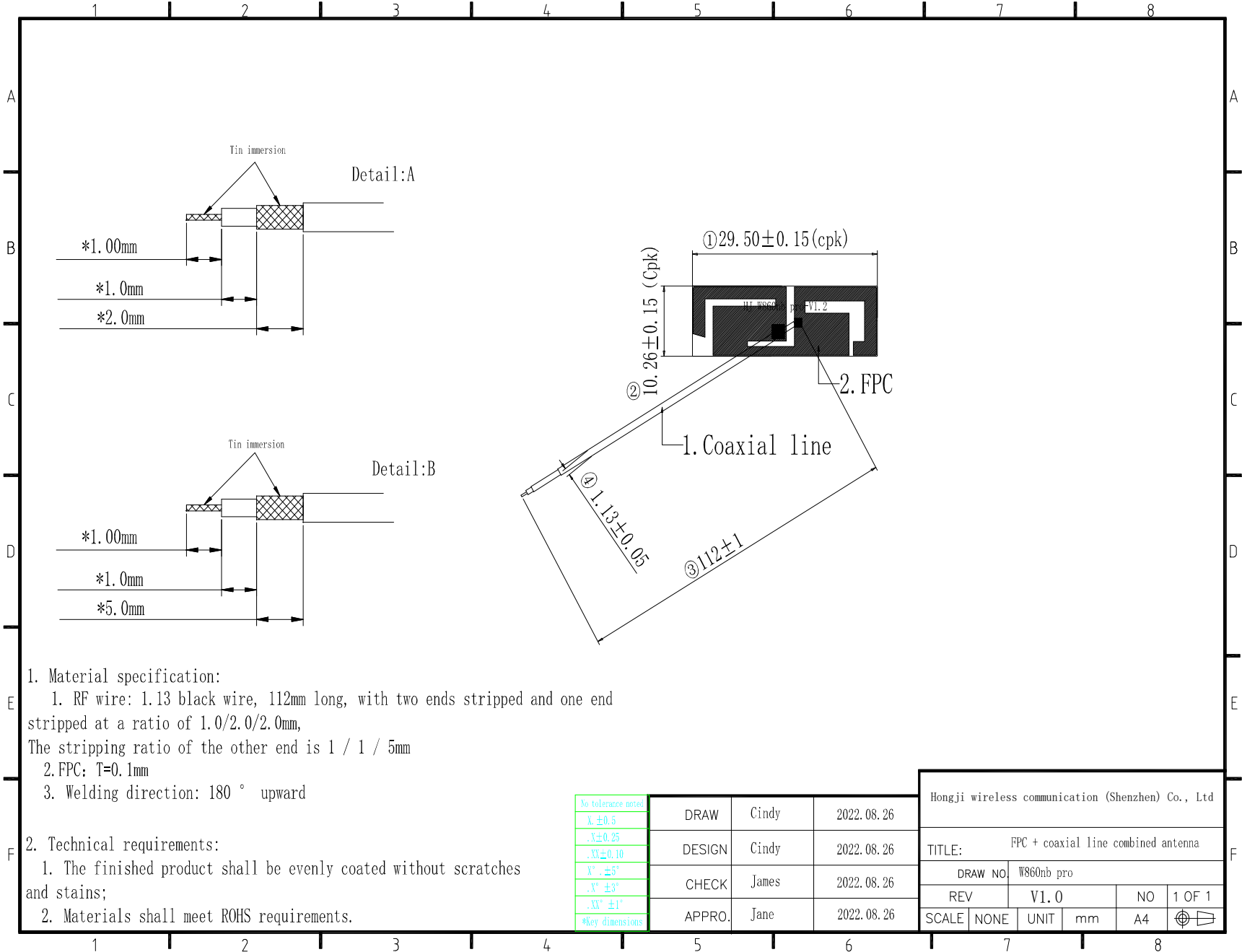
catalogue

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一、Preparation / revision of change record

editi on	Revision page	Change time:	Changed by:	Reason and content of change	remarks
A0	—	2022/8/26	Cindy	First issue	A
A1					
A2					
A3					
A4					
A5					
A6					

二、产品图纸



1. Material specification:

1. RF wire: 1.13 black wire, 112mm long, with two ends stripped and one end stripped at a ratio of 1.0/2.0/2.0mm,
The stripping ratio of the other end is 1 / 1 / 5mm

2. FPC: T=0.1mm

3. Welding direction: 180 ° upward

2. Technical requirements:

1. The finished product shall be evenly coated without scratches and stains;

2. Materials shall meet ROHS requirements.

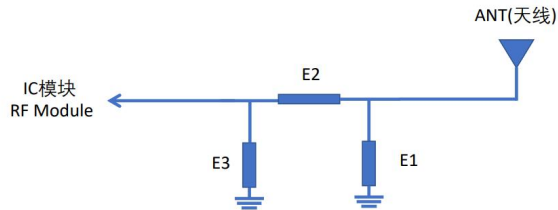
No tolerance noted	DRAW	Cindy	2022.08.26
.X ± 0.5	DESIGN	Cindy	2022.08.26
.X ± 0.25	CHECK	James	2022.08.26
.XY ± 0.10	APPRO.	Jane	2022.08.26
.X° ± 5°			
.X° ± 3°			
.XY° ± 1°			
*Key dimensions			

Hongji wireless communication (Shenzhen) Co., Ltd			
TITLE: FPC + coaxial line combined antenna			
DRAW NO: W860nb pro		NO: 1 OF 1	
REV: V1.0	UNIT: mm	SCALE: NONE	NO: A4

Description of electrical and mechanical properties

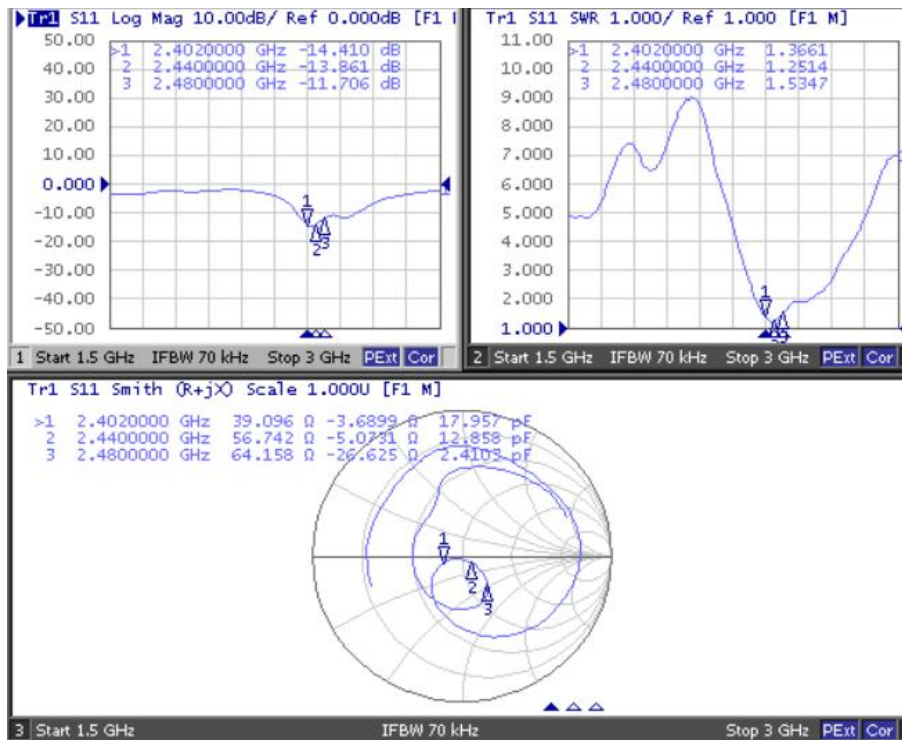
1、Matching circuit diagram

天线匹配电路说明Antenna circuit matching description



Element	Value
E1	N/C
E2	1.2nH
E3	N/C

2、S11 parameters



3、Passive efficiency

Freq[MHz]	Efficiency(%)	Gain(dBi)
	free space	free space
2400	40.5	1.2
2410	41.9	1.2
2420	42.6	1.3
2430	43.8	1.6
2440	44.0	1.4
2450	43.5	1.5
2460	42.8	1.5
2470	42.6	1.3
2480	40.2	1.1
2490	38.4	0.9
2500	38.6	0.8

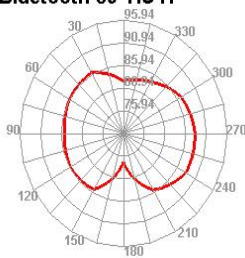
4、Active OTA data

	channel	TRP (dBm)	TIS (dBm)
free space	0	8.0	-88.1
	39	8.8	-88.4
	78	8.6	-88.5
	channel	TRP (dBm)	TIS (dBm)
Die	0	7.1	-87.3
	39	7.2	-87.4
	78	7.0	-87.1

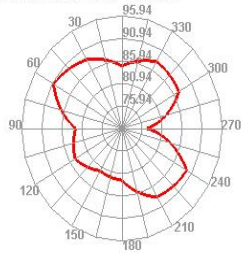
2D pattern

Free space pattern

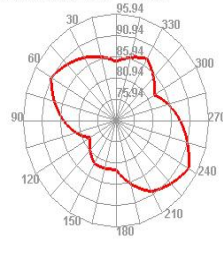
Bluetooth 39 TIS H



Bluetooth 39 TIS E1

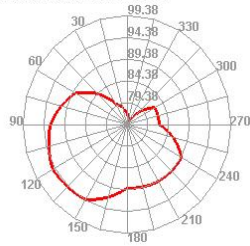


Bluetooth 39 TIS E2

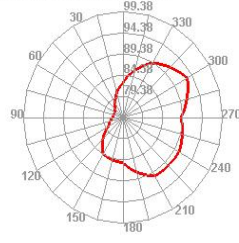


Head mold orientation

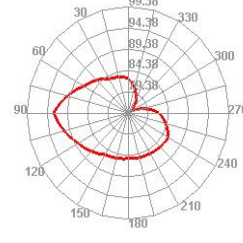
Bluetooth 0 TIS H



Bluetooth 0 TIS E1



Bluetooth 0 TIS E2



四、Full size measurement report

	code	W860nb pro		Part name:		Antenna assembly Specification			W860nb pro Antenna assembly				Material Science	FPC (Half and half)
	supplier	Hongji wireless		Measuring tools		Secondary element, micrometer		Unit of measurement		MM			Measurement date:	2022.08.26
NO.	尺寸 (DIMENSION)	upper limit	+ TOL.	- TOL.	Lower limit	Measured 1	Measured 2	Measured 3	Measured 4	Measured 5	Measured 6	Measured 7	UPPER \leq 100%	LOWER \leq 100%
FPC	29.50	29.65	0.15	0.15	29.35	29.552	29.486	29.534	29.489	29.564	29.474	29.524	43%	17%
	10.26	10.41	0.15	0.15	10.11	10.236	10.231	10.287	10.237	10.295	10.248	10.284	23%	19%
Coaxial line	112.00	113.00	1.00	1.00	111.00	112.050	111.950	112.070	111.970	112.080	111.960	112.060	8%	5%
	1.13	1.18	0.05	0.05	1.08	1.160	1.090	1.150	1.110	1.140	1.120	1.140	60%	80%

Prepared by: Zhang Qinghua

Reviewed by: Mao Luping

Date:2022/08/26

五、CPK Report

Hongji wireless communication (Shenzhen) Co., Ltd

Project name	W860nb pro			Customer	Dongguan manbu Technology Co., Ltd			
Description	Antenna assembly			Inspected	Cindy			
Material	One half electrolytic copper			Inches/MM	mm			
Revision	A			Date	2022/08/26			
Dim. Designator	29.50	10.26						
Upper Limit	29.65	10.41						
Lower Limit	29.35	10.11						
1	29.48	10.31						
2	29.54	10.29						
3	29.50	10.26						
4	29.51	10.29						
5	29.48	10.30						
6	29.55	10.26						
7	29.49	10.30						
8	29.54	10.32						
9	29.47	10.31						
10	29.53	10.24						
11	29.50	10.29						
12	29.49	10.24						
13	29.50	10.27						
14	29.56	10.28						
15	29.47	10.31						
16	29.53	10.28						
17	29.48	10.27						
18	29.49	10.23						
19	29.55	10.29						
20	29.50	10.24						
21	29.53	10.25						
22	29.53	10.29						
23	29.53	10.30						
24	29.48	10.28						
25	29.47	10.31						
26	29.50	10.25						
27	29.53	10.31						
28	29.49	10.29						
29	29.51	10.24						
30	29.49	10.29						
31	29.55	10.24						
32	29.53	10.27						
MAX.	29.56	10.32						
MIN.	29.47	10.23						
AVERAGE	29.51	10.28						
STDEV	0.03	0.03						
CP	1.87	1.92						
Cpk	1.76	1.69						
TOOLING	calipers	calipers						

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

七、Reliability test report

customer		Dongguan manbu Technology Co., Ltd		entry name	Antenna assembly
Test time:		2022/08/23---2022/08/25		Number of tests	5pcs for each test item
Serial number:	Test items	Test instrument	test method	Criteria:	determine
1	Salt spray experiment	Salt spray testing machine	Put the tested product into the salt spray test machine containing 5% ± 1% NaCl solution for testing. The laboratory temperature is 35 ° , the pressure barrel temperature is 47 ° , and the pressure is 1kgf / cm ² . The test is conducted for 48 hours. Products are required to be placed at 45 ° . After the test, take out the products, wash them and dry them for inspection	Appearance after test: the appearance is intact without obvious change. Coating: no peeling and rust. Surface spraying and silk 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 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, and the test is conducted for 2 cycles. After setting, the test is started. After the test, recover for 2 hours and take out the product for inspection.	No change in color, gloss, surface appearance, hardness, scratch, crack, warpage and damage to electrical performance Judged as qualified	PASS
3	Adhesion strength	Acrylic plate, 3m600 tape	The FPC is pasted on the acrylic surface and pressed tightly. The 600pa3m966 adhesive tape is pasted on the surface of the FPC and pressed tightly. The FPC is completely covered on the surface of the FPC and pulled up quickly at 45 degrees (about 0.5s)	1. The pulled up area of FPC ≤ 1 / 2 of its total area 2. The adhesive backing layer of FPC has no obvious peeling	PASS
remarks:					

Prepared by: Yang Jin

to examine: Cindy

Approved by: Mao Luping

八、Packing

Item No:		Product Name:	W860nb pro Antenna assembly
Product specification:	W860nb pro Antenna assembly	packaging:	Seal pockets and cartons
Number of packages:	200PCS/袋	Packaging:::	Subject to the actual situation
Packing quantity:	Subject to the actual situation		

1、小包装



Fig. 1: PE self sealing bag with 200pcs antenna
(tie up the stripped end with pearl cotton)



Fig. 2: the bottom of the cartoon box shall be placed with
partition plate, and PE bags shall be wrapped and put into the car



Figure 3: outline of outer packing box



Figure 4: label and indicate the number of packages

3. Remarks: the whole board of antenna assembly products is shipped
Quantity of small package: 200pcs / bag;
Large package quantity: subject to the actual quantity / box.

4、matters needing attention

4.1 the storage of products shall ensure that the ambient temperature is $-10\text{ }^{\circ}\text{C} \sim +24\text{ }^{\circ}\text{C}$, and the humidity is less than 90%. The warehouse shall be free of rain, the ground shall be moisture-proof, and the warehouse shall be 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: it is strictly prohibited to throw, throw, etc.)

Prepared by: Yang Jin

Reviewed by: Zhang Qinghua

Approved by: Mao Luping