

acknowledgement

Product Description: Manufacturer: Shenzhen Yusheng Communication Equipment Co., LTD
 Project Model: IDW13 Custom /FPC Bluetooth RF antenna /YS

Material name: Bluetooth RF antenna
 Spec/Color: White

Material code: 3.01. IDW13F1001
 Date of signature: 2022-12-08

Version No. : R:a
 Remarks :(This cover needs to be stamped with supplier's seal)

Attachment: Instructions for electrical and mechanic manufacturing flowchart
 Lay down QC engineer p sample
 CPK report full size survey report
 Reliability test report packing method
 Raw Materials List /RoHS report /HF/REACH

Supplier sign Proposed: _____ Review: _____ Approved: _____
 (All of the above require a hand signature, printing is not allowed) (Everything that needs to be provided needs to be filled in color)

The above is to be filled out by the vendor and the following by Aidu

	Department	Confirm content				Confirm results	Confirm the person/date
Technical confirmation field	Supplier quality	<input type="checkbox"/> RoHS materials <input type="checkbox"/> Non-Rohs materials	<input type="checkbox"/> Meet the REACH requirements	<input type="checkbox"/> It meets the halogen free requirements	<input type="checkbox"/> Other environmental protection requirements		
	ID of Design Department:	<input type="checkbox"/> ID required by customer	<input type="checkbox"/> Color confirmation	<input type="checkbox"/> Surface workmanship is confirmed	<input type="checkbox"/> Shell, hardware, key material		
	Structural Engineer	<input type="checkbox"/> 2D drawing file size confirmation <input type="checkbox"/> Specifications technical	<input type="checkbox"/> Focus on size marking <input type="checkbox"/> Electrical performance	<input type="checkbox"/> Adaptation verification <input type="checkbox"/> Functions	<input type="checkbox"/> Shell, hardware, key material <input type="checkbox"/> Effect		
	Hardware Engineer	<input type="checkbox"/> 2D drawing file size confirmation <input type="checkbox"/> Specifications technical	<input type="checkbox"/> Focus on size marking <input type="checkbox"/> Electrical performance	<input type="checkbox"/> Adaptation verification <input type="checkbox"/> Functions	<input type="checkbox"/> Shell, hardware, key material <input type="checkbox"/> Effect		
	Research and development quality:	<input type="checkbox"/> Test standards confirmed <input type="checkbox"/> Appearance	<input type="checkbox"/> Specification of dimensions (key dimensions)	<input type="checkbox"/> Reliability verification <input type="checkbox"/> Adaptation Verification	<input type="checkbox"/> Function <input type="checkbox"/> Effect		

Final confirmation Project Manager: Acknowledge the Specifications a Electrical per Function effect

- Conditions of rec Formal recognition
 Limited recognition
 Denial of recognition

Distribution dep: IQC Suppliers Customers After sales SQE/ Document Control
 Others _____

Catalogue

1. Cover
2. Contents
3. Electrical, mechanical properties description (sp
4. Bill of materials.RoHS.REACH.HF report
5. Full scale measurement report
6. Cpk report
7. CPK Reliability test report
8. QC engineering drawing
9. Packaging Information
10. Material list MSDS(required to meet REACH, no halogen and other environmental requirements provided)
11. Environmental substance questionnaire (provided when the requirements meet REACH, halogen free and other environmental requirements)

1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specification for IDW13 products. This requirement applies to antenna selection, testing and acceptance of IDW13 products.

1.2 Basic information of the

Antenna name:	IDW13
Antenna band:	BT: 2400-2500MHZ
Antenna material:	Electrolytic copper +PI gold plating
Antenna version:	V3

2. Technical specification:

2.1 Introduction of test item

List	Test items	Equipment
S11 parameters	Standing wave ratio, return loss	Network analyzer
Active testing	TRP,TIS	General tester, microwave darkroom
Passive testing	Gain, efficiency	Network analyzer

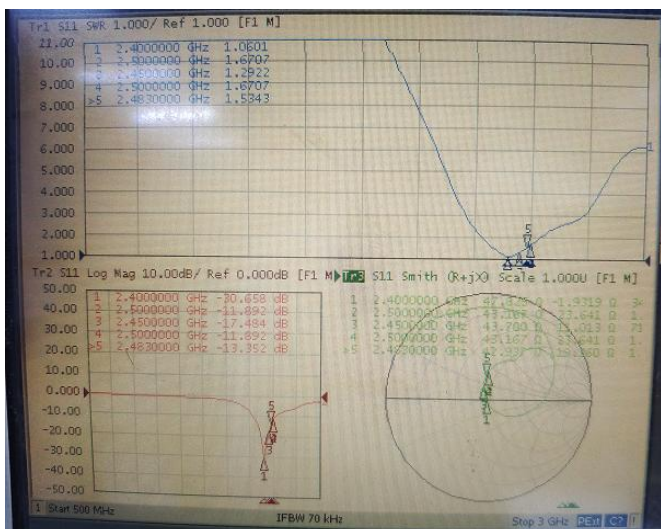
2.2.1 Test instructions

Test tools: Agilent8960 integrometer, R&SCMW500, all-wave far-field ETS darkroom, high precision positioning system and its controller and computer with automatic test program

Test environment: temperature 22°C±3°C, humidity 50%±15%

Test method: The DUT is fixed on the center position of the turntable with the H plane, and the center position of the horn antenna is on the same horizontal line. The positioning system makes the DUT rotate on the whole sphere to meet the high precision three-dimensional positioning. Each RF instrument, turntable controller and PC with automatic test software communicate through the GPIB interface

2.2.2 Antenna passive paran



2.2.3 Antenna Passive Paran

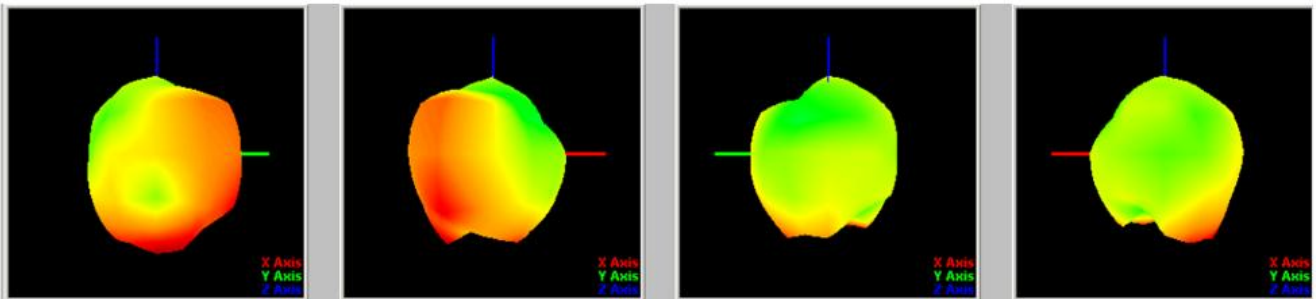
Test	Free-space								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	24.6	25.7	26.1	26.4	27.2	26.4	26.1	25.5	24.8
效率(dB)	-6.1	-5.9	-5.8	-5.8	-5.6	-5.8	-5.8	-5.9	-6.1
增益(dBi)	-1.82	-1.57	-1.34	-1.19	-1.02	-1.36	-1.47	-1.74	-1.86

Test	ARM								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	9.6	10.2	10.4	10.7	11.3	11.0	10.6	10.3	9.7
效率(dB)	-10.1	-9.9	-9.8	-9.7	-9.5	-9.5	-9.7	-9.8	-10.1
增益(dBi)	-5.56	-4.67	-4.36	-4.26	-3.87	-4.25	-4.56	-4.84	-5.39

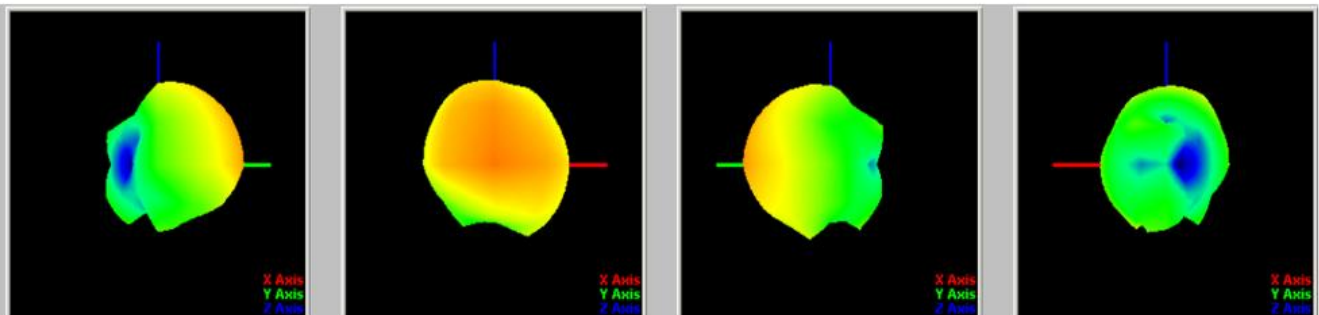
2.2.4 Antenna direction

Diagram -BT

FS



ARM



2.3 Motherboard Conductio

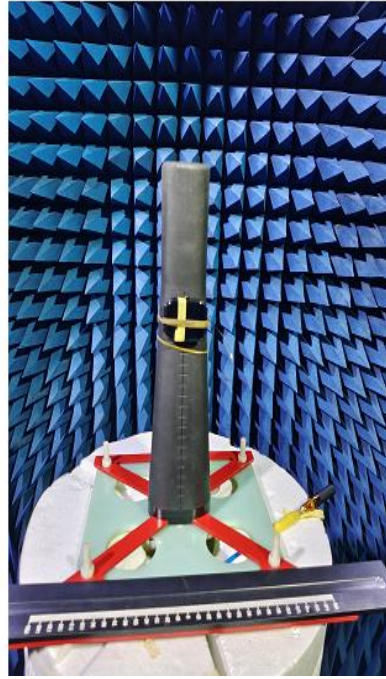
Test	BT		
	0	39	78
TRP (dBm)	8.27	8.55	8.34
TIS (dBm)	-93	-93	-93

2.4 Active antenna paramet

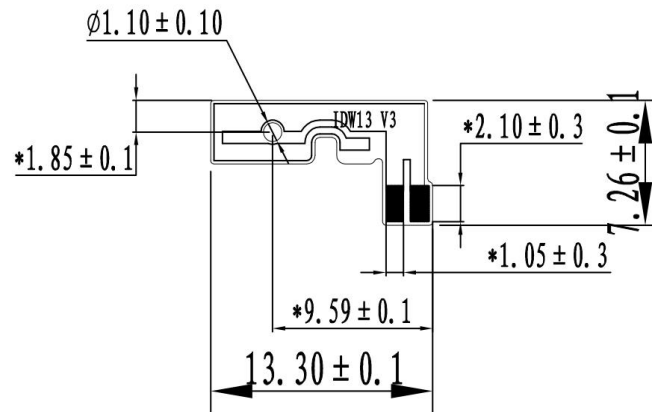
Test	OTA-FS		
	0	19	38
TRP(dBm)	2.57	2.71	2.65
TIS(dBm)	-87.52	-87.19	-87.33

Test	OTA-Hand		
	0	19	38
TRP(dBm)	-2.41	-2.13	-2.32
TIS(dBm)	-82.14	-82.26	-82.41

2.5 Antenna test environment



3. 2D diagram file



skills requirement:	PI substrate:	Electrolytic copper 4 half to half
1.FPC substrate specifications:	Electrolytic copper:	0.5oz(OD)
	Double-sided tape:	TESA 68532
2.Electroplating specifications:	Nickel plated: 3~8um:	Gilded: 0.025um
3.Surface ink requirements:	Surface ink color:	White
	Printing font color:	Cool Gray
	Printing font height:	According to drawings

4.Reliability requirements:	<ol style="list-style-type: none"> 1. Reliability test: salt spray test\rubber friction test\alcohol resistance test\100 grid test. 2. The front ink, the surface of the ink is required to be folded in half without cracking, scratching, etc.
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5.Tolerance requirements:	<ol style="list-style-type: none"> 1. Shape tolerance ± 0.10; 2. Copper foil circuit tolerance ± 0.05; 3. The position of the copper foil to the shape is ± 0.15; 4. Hole-to-hole position tolerance ± 0.10; hole-to-shape position tolerance ± 0.15; 5.The size tolerance of gold finger is ± 0.20. 6. For other unmarked dimensions, refer to 2D drawings.
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6.Key control size:	The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings
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7.Environmental requirements:	Parts meet ROHS2.0/HF/Reach/GP environmental protection requirements
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8.Packaging requirements:	Packed in PE bags, the quantity of each bag is 100PCS, there is a mark on the outside of the bag
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DATE	Modify the content	Version	Revise
1	2	3	4

■ Double-sided printing black oil












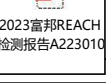


ShenZhen Yu Sheng Communication Equipment Co.,Ltd.

		Model		IDW13	DATE	20230516	
		Name		BT antenna	Design	JFB	
		Part NO		063007-IA	Review	MD	JFB
		Material quality		Electrolytic copper (half to half)		RF	CKH
		Mold surface treatment		confirm			
		Appearance treatment		UNIT	mm	proportion	FIT
		位置		Revise	R: A		
5	6	7	8				

3.1. BOM list

YUSHENG COMMUNICATION TECHNOLOGY CO.,LTD.											
063007(IDW13) -BOM											
											File number
Edition: R:A Customer :063 Model: Date: 2022-12-01											
Item	Material number	Item name	Type	Version	Specifications	Material	Finish	Color	Units	Quantity	Craft
1	063007-IA	BT-FPC	Z	R:A	13.30 * 7.26 * 0.12 MM	Electrolytic Copper half and half /TESA 68532	Gilding	White	PCS	1	Pressing film
1.1	063007-IA-01	BT-FPC	Z	R:A	13.30 * 7.26 * 0.12 MM	Electrolytic Copper half and half /TESA 68532	Gilding	White	PCS	1	Pressing film
parts meet the environmental protection requirements of ROHS2.0/HF/Reach/GP, and comply with the company's harmful substances limit standard and m											
Type: W. outsourcing B. Semi-finished products Z. Finished products C. Customer supply											
Confirmation: Audit: Production: Feng Jiwu											

Bill of Materials /RoHS report

Material name:													
Material No. :													
Product Composition information													
Material No.	Material name	Raw material specifications	Material supplier	RoHS/REACH/HF			Test facility Test Lab	Report No.	Date of report	Notes	Electronic test report		
				Compliance with RoHS	Whether it complies with REACH	Whether it complies with HF							
1	PI-CCL electrolytic flexible copper-clad plate	Halogen-free epoxy resin adhesives	CAI Lungerti	is	is	is	SGS	SHAEC23001049106 SHAEC23001049108	2023-02-15 2023-02-15	 电解 ROHS 卤素(3).pdf			
		Halogen-free epoxy resin adhesives								copper foil		 电解SVHC(3).pdf	
		PI membrane								PI membrane		 MSDS_无卤聚酰亚胺铜箔基板.pdf	
4	TESA 68532 Back glue	Polyester film	TESA	is	is	is	SGS	REACH:SHAEC221756903	REACH:2023-01-04	 SHAEC221756903 3M背胶 REACH			
		Acrylic Adhesive								卤素: SHAEC2217569207		卤素: 2023-01-04	 SHAEC2217569207 3M背胶 卤素
		Aliphatic Hydrocarbon Resin								ROHS:SHAEC2217569205		ROHS:2023-01-04	 SHAEC2217569205 3M背胶 ROHS
		Paper laminated with Polyethylene											 MSDS_3M背胶 9471.pdf
5	Nickel Gold Plating	Ni nickel	Dried saint	is	is	is	NTEK North Test	ROHS:A2220283397101001C HF:A2220283397101002C REACH:A2220448917101003E	2022/07/06 2022/07/06 2022/10/10	 欧盟MSDS中文版 2019070210070	 A222028339710 1001C.pdf		
gold Gold		 A222028339710 1002C.pdf											
Brightener		 A222044891710 1001C(1).pdf											
8	White covering film	Epoxy resin	Fubon	is	is	is	CTI	REACH: A2230108006102001E ROHS: A2230108006101003E	2023/3/25 2023/3/21	 2023富邦REACH检测报告A223010			
9		Flame retardants								 富邦 白膜 ROHS+卤素.pdf			
10		Rubber								 富邦覆盖膜MSDS (2023中英互译版)			
11		Curing agent											
Notes		All materials must be filled in and stated "RoHS report /REACH/HF meets requirements, confirm OK"											

Note: The third party report should be inserted into the form or sent together with the acknowledgement package (named by material name + report number + report date). The report must be valid within one year;

at report One paper file report is required for each material.

Shenzhen Yusheng Communication Equipment Co., LTD

IDW13-FPC full-scale test report

Customer name	Aidu	Product name	IDW13		Ingredient number	063007
Mold hole number		The 1st inspection			Date	2022.1209

Inspection of appearance

Item number	Standard values		Measured value						Decision		Notes
			1	2	3	4	5	6	OK	NG	
1	13.30	+0.15 -0.15	13.35	13.4	13.36	13.37	13.38	13.36	OK		
2	7.26	+0.15 -0.15	7.29	7.29	7.28	7.32	7.31	7.31	OK		
3	2.10	+0.30 -0.30	2.23	2.3	2.04	2.06	2.19	2.29	OK		
4	1.05	+0.30 -0.30	1.05	1.06	1.04	1.09	1.06	1.08	OK		
5	9.59	+0.15 -0.15	9.65	9.63	9.65	9.68	9.67	9.68	OK		
6	1.85	+0.15 -0.15	1.88	1.80	1.89	1.87	1.86	1.89	OK		
7	1.10	+0.10 -0.10	1.09	1.08	1.09	1.12	1.12	1.12	OK		
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											

Double couplet

The first one: Quality Department

Second: Project Department

Judgment result: Qualified

Surveyor: Chung Qiu-hung

Confirmed: Feng Jiwu

Process Capability Calculation Worksheet

Part Number:
 Part Description:
 Part Revision:

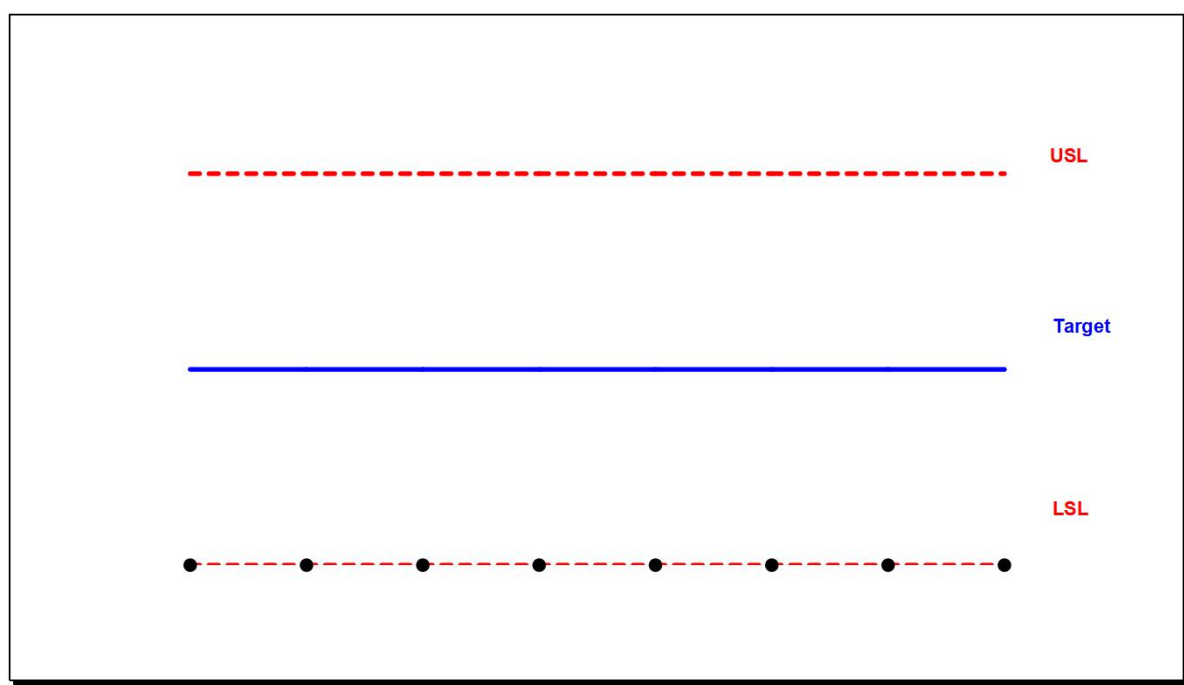
Supplier:
 Submission Date:

Cavity / Tool # : #REF!
 Inspector:

Cpk Data

DRAWING SPECIFICATIONS								
	Cpk1 - #	Cpk2 - #	Cpk3 - #	Cpk4 - #	Cpk5 - #	Cpk6 - #	Cpk7 - #	Cpk8 - #
Nominal	7.260	13.300	2.100	1.050				
Upper Tol.	0.150	0.150	0.300	0.300				
Lower Tol.	0.150	0.150	0.300	0.300				
USL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LSL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Total Tol	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Xbar	0.000	0.000	0.000	0.000				
Stdv	0.000	0.000	0.000	0.000				
Zu	0.000	0.000	0.000	0.000				
Zl	0.000	0.000	0.000	0.000				
Cp	0.000	0.000	0.000	0.000				
Cpk	0.000	0.000	1.419	1.349				
Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



DIMENSIONAL DATA

Sample								
1	7.26	13.27	2.20	1.050				
2	7.24	13.29	2.32	1.105				
3	7.16	13.28	2.07	0.960				
4	7.25	13.29	2.05	0.980				
5	7.27	13.31	2.06	1.020				
6	7.28	13.32	2.06	1.050				
7	7.22	13.32	2.06	1.060				
8	7.26	13.32	2.05	1.019				
9	7.28	13.34	2.32	1.150				
10	7.24	13.36	2.11	1.160				
11	7.25	13.35	2.13	1.160				
12	7.22	13.33	2.15	1.150				
13	7.26	13.33	2.13	1.050				
14	7.28	13.32	2.05	1.060				
15	7.27	13.27	2.09	0.960				
16	7.19	13.29	2.07	0.980				
17	7.26	13.28	2.05	1.020				
18	7.26	13.29	2.06	1.050				
19	7.26	13.31	2.06	1.060				
20	7.27	13.32	2.06	1.019				
21	7.27	13.32	2.05	1.150				
22	7.26	13.32	2.04	1.160				
23	7.27	13.34	2.11	1.160				
24	7.26	13.36	2.13	1.160				
25	7.29	13.35	2.15	1.020				
26	7.25	13.33	2.13	1.050				
27	7.23	13.33	2.12	1.060				
28	7.21	13.32	2.13	1.019				
29	7.26	13.31	2.12	1.150				
30	7.23	13.31	2.12	1.160				
31	7.23	13.31	2.13	1.140				
32	7.25	13.30	2.13	1.140				

Reliability test report

Cold and heat shock test report								
Customer	Aidu		Date	2022-12-05		In-plant number	THOT-063007-001	
Ingredient number	IDW13		Quantity	5PCS each		Testing time	48H	
Material specification	Single side half and half electrolytic copper		Suppliers	Yu Sheng		Reference standard	MIL-SDT-202Method017IEC60749-25 JEDEC JESD22-A104-B IEC68-2-1MIL-STD-2168-85	
Test purpose: To test the reliability of the product and the binding force of the coating, the oxidation resistance and corrosion resistance of the coating.								
Name of equipment: high and low temperature test box								
Laboratory environment								
Temperature	22 to 26 °C		Relative humidity	65-75%		Atmospheric pressure	1MPA	
Test parameters								
Temperature	High temperature		80 °C	Low temperature	-40C		Temperature tolerance	2 °C
Time	Constant temperature	High temperature	0.30 H.	High temperature warming	10min		Notes	2. Low temperature cooling refers to falling from the set high temperature to the set low temperature
		Low temperature	0.30 H.	Low temperature cooling	10min			
Number of cycles	32 cycles		Other	Relative humidity	95%			
Inspection of appearance	Layering	ACC	Oxidation	ACC	Blistering	ACC	Peeling ink	ACC
Testing	Peel resistance	Acuity 0.8 KGF/cm2	Spot welding	ACC	Hundred-cell test	ACC	Wear resistance	ACC
Test record:								
Product No.		Product test results				Decision		
		After the end of the experiment, the product has no warping, no rubber overflow.				ACC		
Producer: Chung Qiu-hung				Confirmed: Feng Jiwu				

Shenzhen Yusheng Communication Equipment Co., LTD

Salt spray test report

Client:	Aidu	Model number: IDW13
Sample condition	Number of samples: 5PCS	
	Material: single side half and half electrolytic copper	Coating: Gold plating
The start time of the experiment: a total of 48 hours from 09/25 on December 05, 2022 to 09/25 on December 07, 2022		
Types of experiments	<input checked="" type="checkbox"/> NSS <input type="checkbox"/> ASS <input type="checkbox"/> CASS	
Experimental conditions	Salt solution: 5%	PH: 7.0
	Temperature in box 35-C	Relative humidity: 85%°C
	Spray method: <input checked="" type="checkbox"/> Continuous <input type="checkbox"/> intermittent	Compressed air pressure: 1kg/ square meter
	Salt spray settlement rate:	Mist collection: PH7.0anc
	Experiment period: 1-- cycle	Spray time: 48H
		Placement time: 2H
Observe results every 16 hours	The test temperature was: 36°C	The pressure barrel temperature is: 47.5°C
Experimental results	Appearance after experiment: appearance intact and undamaged, no obvious changes	
	Coating: No peeling, no rust	
	Surface spraying, screen printing: no shedding, no bubbles	
Producer:	Chung Qiu-hung	Confirmed: Feng Jiwu

Packing

Aidu Material Number:		Product Name:	
Product Specifications:		Packing material:	Cardboard boxes/waterproof bags
Number of packages:	Subject to actual conditions	Packing method:	Semi-sticky process shipping
Packing quantity:	Maximum quantity in a box: 10000PCS		

Figure 1: Single package (semi-sticky process full plate shipment)

Figure 2: Packing method (2000/ pack label in small package)



Figure 3: View of packing box (front, side, top)

Figure 4: Outer box label 100*100mm



深圳市昱晟通讯设备有限公司	
客户名称	深圳市爱都科技有限公司
订单编号	PO2022*****
项目名称	IDW13
物料代码	3.01.IDW13F1001
规格型号	IDW13定制/FPC蓝牙RF天线/YS
数 量	2000PCS
出货日期	2022-12-09
地址：深圳市光明新区光明大道南太云创谷园区2栋4楼4A	

Remarks: (Fill in the name and quantity of materials used in packing in the remarks column)
 Materials used: covering mold/waterproof bag/carton
 Quantity: The quantity used depends on the order quantity