

acknowledgement

Product Description:

Manufacturer: Shenzhen Yusheng Communication Equipment Co., LTD

Material name: Bluetooth RF antenna

Material code: 3.01.A200F00000

Version No.: R:a

Project Model: A200/FPC Bluetooth RF antenna

Spec/Color: White

Date of signature: 2023-08-17

Remarks : (This cover needs to be stamped with supplier's seal)

Attachment: Instructions for electrical and mechanical manufacturing flowchart

CPK report

full size survey report

Raw Materials List /RoHS report /HF/REACH

Lay down QC engineer's sample

Reliability test report

packing method

Supplier:

Proposed: (All of the above require a hand signature, printing is not allowed)

Review:

Approved:

(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	☐ RoHS materials ☐ Non-Rohs materials	☐ Meet the REACH requirements	☐ It meets the halogen free requirements	☐ Other environmental protection requirements		
	ID of Design Department:	☐ ID required by customer	☐ Color confirmation	☐ Surface workmanship is confirmed	☐ Shell, hardware, key material		
	Structural Engineer	☐ 2D drawing file size confirmation ☐ Specifications technical requirements	☐ Focus on size marking ☐ Electrical performance parameters	☐ Adaptation verification ☐ Functions	☐ Shell, hardware, key material ☐ Effect		
	Hardware Engineer	☐ 2D drawing file size confirmation ☐ Specifications technical requirements	☐ Focus on size marking ☐ Electrical performance parameters	☐ Adaptation verification ☐ Functions	☐ Shell, hardware, key material ☐ Effect		
	Research and development quality:	☐ Test standards confirmed ☐ Appearance	☐ Specification of dimensions (key dimensions)	☐ Reliability verification ☐ Adaptation Verification	☐ Function ☐ Effect		

Project Manager: ☐ Acknowledge the ☐ Specifications a ☐ Electrical p ☐ Function ☐ effect

Conditions (☐ Formal recognition

☐ Limited recognition

☐ Denial of recognition

Distribution ☐ 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 specification (provided when the~~
requirements meet REACH, halogen free and other environmental requirements)

1. Brief account

1.1 Scope of applicati

This requirement specifies the antenna technical requirements and material requirements specifications for A200 products.
This requirement applies to antenna selection, testing and acceptance of A200 products.

1.2 Project basic info

Antenna name:	A200
Antenna band:	BT: 2400-2500MHZ
Antenna material:	Electrolytic copper + PI gold-plated
Antenna version:	V2

2. Technical Metric

2.1 Introduction to te

Detailed list	Test items	Equipment
S11 parameters	Standing wave ratio, echo loss	Network analyzer
Active testing	TRP,TIS	Comprehensive tester, microwave dark room
Passive testing	Gain and efficiency	Network analyzer

2.2.1 Test Instruction

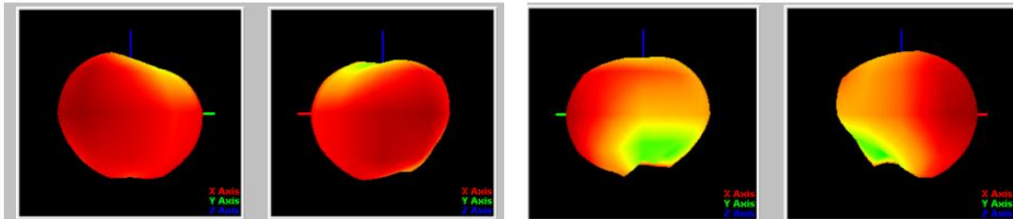
Test tools: Agilent8960 comprehensive tester, R&SCMW500, full-wave far field ETS dark room, high-precision positioning system, its controller and computer with automatic test program
Test environment: temperature 22°C±3°C, humidity 50%±15%
Test method: The DUT is fixed on the center of the turntable with the H side, on the same horizontal line as the center of the speaker antenna. The positioning system enables the DUT to rotate on the whole sphere to meet high-precision three-dimensional positioning. RF instruments, turntable controllers communicate with PCs with automatic test software through the GPIB interface.

2.2.2 Antenna passive parameters

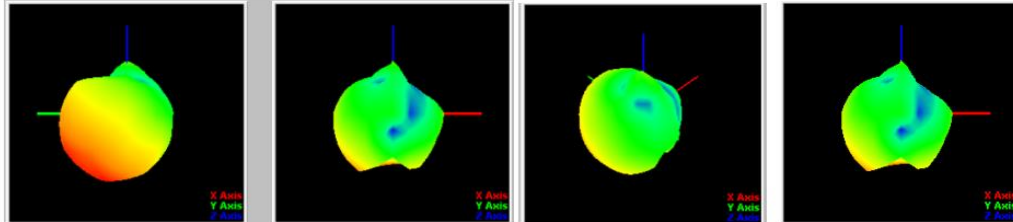


2.2.3 Antenna Apple Diagram

FS

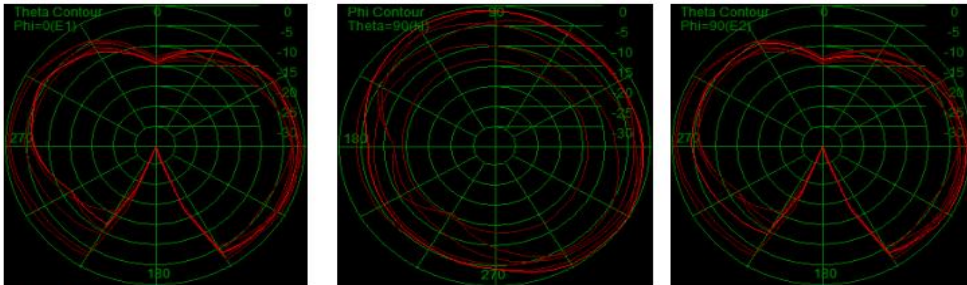


ARM

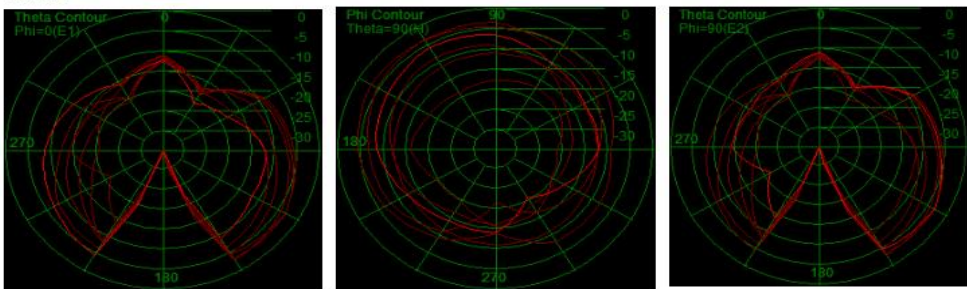


2.2.4 Antenna Direction Diagram

FS



ARM



2.2.5 Antenna active parameters

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 (%)	36.7	37.8	38.2	39.1	40.2	40.6	39.8	38.7	37.6
Efficiency(dB)	-4.3	-4.2	-4.2	-4.1	-4.0	-3.9	-4.0	-4.1	-4.3
Gain(dBi)	-0.21	-0.12	0.24	0.35	0.41	0.54	0.47	-0.34	-0.24

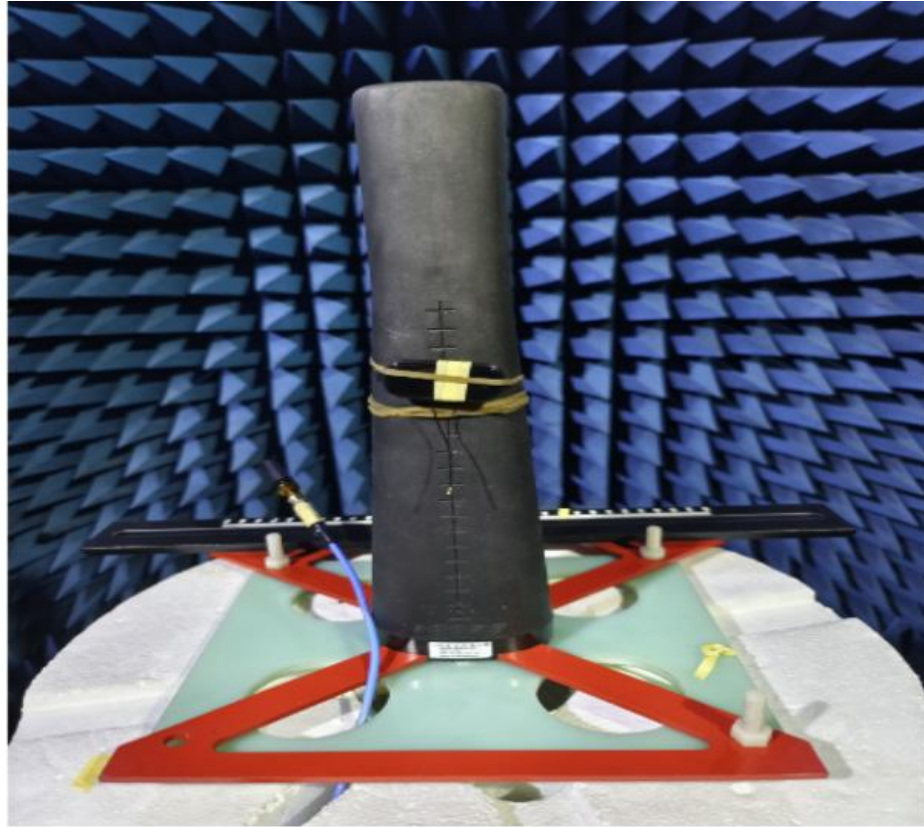
Test	ARM								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	13.5	13.7	13.8	14.2	14.7	14.5	14.3	14.1	13.6
Efficiency(dB)	-8.7	-8.6	-8.6	-8.5	-8.3	-8.4	-8.5	-8.5	-8.6
Gain(dBi)	-4.12	-4.31	-4.52	-4.71	-4.92	-4.74	-4.55	-4.30	-4.07

2.2.7 Antenna Match Changes



For example, the day area, the match is as shown

2.2.8 Antenna Test Environment



1	2	3	4	5	6	7	8
A				A			
B				B			
C				C			
D				D			
skills requirement:							
1. FPC substrate specifications:				PI substrate: 74.12mm			
2. Electroplating specifications:				Electrolytic copper: 1oz (ED)			
3. Surface ink requirements:				Double-sided tape: 3M-9471LSE			
4. Reliability requirements:				Nickel plated: 3~8um			
5. Tolerance requirements:				Gilded: 0.025um			
6. Key control size:				Surface ink color: White			
7. Environmental requirements:				Printing font color: Bright White			
8. Packaging requirements:				Printing font height: According to drawings			
DATE				Modify the content			
Version				Revise			
1				2			
3				4			
5				6			
7				8			
17.05±0.15				2.91±0.15			
2.70±0.3				5.00±0.15			
0.11±0.02							
TH01-1200-V2							
Double-sided printing black oil							
Shenzhen Yu Sheng Communication Equipment Co., Ltd.							
Model				A200			
Name				RF antenna			
Part NO				063016-1A			
Material quality				Electrolytic copper (1 to 1)			
Solid surface treatment							
Appearance treatment							
DATE				20230801			
Design				JFB			
Review				MD			
RF				JFB			
confirm				CKH			
UNIT				mm			
proportion				FIT			
Revise				R:A			
1				2			
3				4			
5				6			
7				8			

Confirmation: Review: Production: FJW

aterials/R	Material name:						Bluetooth RF antenna			
munica	Material number:						3.01. A200F00000			
A200 custom/FPC Bluetooth RF antenna										
ial num	Material name	terial specif	Material Suppliers			RoHS/REACH /HF	Test Institution Test Lab	Report number	Report Date	Remarks
1	PI-CCL electrolytic flexible copper	Halogen-free epoxy resin adhesives Halogen-free epoxy resin additive	Zelengerty	Yes	Yes	Yes	SGS	SHAEC23001049106 SHAEC23001049108		
	Note: Third-party reports should be inserted into the form or packaged with the									
	Copper foil copper foil									
4	TESA 68532 backing glue	Polyester film	TESA	Yes	Yes	Yes	SGS	REACH: SHAEC221756903		Note: The third party report is inserted into the form or packaged together with the report (named according to the material name + report number + report date), and the report must be valid within one year
	REACH:2023-01-04						Acrylic Adhesive	Halogen: SHAEC2217569207		
	Halogen: 2023-01-04						Aliphatic Hydrocarbon Resin	ROHS: SHAEC2217569205		
	ROHS:2023-01-04									
5	Nickel Gold Plating Nickel Plating	Ni nickel	Qian Sheng	Yes	Yes	Yes	CTI China Test	ROHS: A2230153997101001E		
	2023/04/07									
	6									
7	Brightener brightener	8	White covering film	Epoxy	Fubon	Yes	Yes	Yes		
	REACH: A2230108006102001E ROHS: A2230108006101003E									
	9									
	Ten									
11										

3. 2D file

Shenzhen Yusheng Communication Equipment Co., Ltd.

YUSHENG COMMUNICATION TECHNOLOGY CO., LTD.

063016 (A200) - BOM Table

Item	Part No Item	Name name	Types of Type	Version Edition	Specification specification	Material quality material	Colour color	Surface treatment surface treatment	Unit Unit
1	063016-IA	BT-FPC	Z	R:A	17. 05*5. 00*0. 12 mm	Electrolytic copper one-on-one	White White	Gold plated gold plating	PCS
1.1	063016-IA-01	BT-FPC	Z	R:A	17. 05*5. 00*0. 12 mm	Electrolytic copper one-on-one	White White	Gold plated gold plating	PCS
1									
The above parts meet the environmental requirements of ROHS2.0 HF Reach GP									

Type: W. Outsourcing B. Semi-finished products Z. Finished products C. Customer supply

Shenzhen Yusheng Communication Equipment Co., LTD

A200-FPC full-scale test report

Customer name		Aidu		Product name		A200				Ingredient number		063016	
Mold hole number				The 1st inspection						Date		2023.08.04	
Inspection of appearance													
Serial numb	Standard values		Measured value						Decision		Notes		
			1	2	3	4	5	6	OK	NG			
1	2.91	+0.15 -0.15	2.96	2.88	2.94	2.87	2.91	2.93	OK				
2	5.00	+0.15 -0.15	5.02	4.96	5.04	4.98	5.01	5.04	OK				
3	17.15	+0.15 -0.15	17.22	17.19	17.21	17.09	17.15	17.11	OK				
4	2.70	+0.30 -0.30	2.75	2.66	2.79	2.68	2.71	2.81	OK				
5	0.11	+0.02 -0.02	0.12	0.11	0.12	0.10	0.11	0.12	OK				
6													
7													
8													
9													
10													
11													
12													
13													
Judgment result: Qualified													

Surveyor:

Chung Qiu-hung

Confirmed: Feng Jiwu

Process Capability Calculation Worksheet

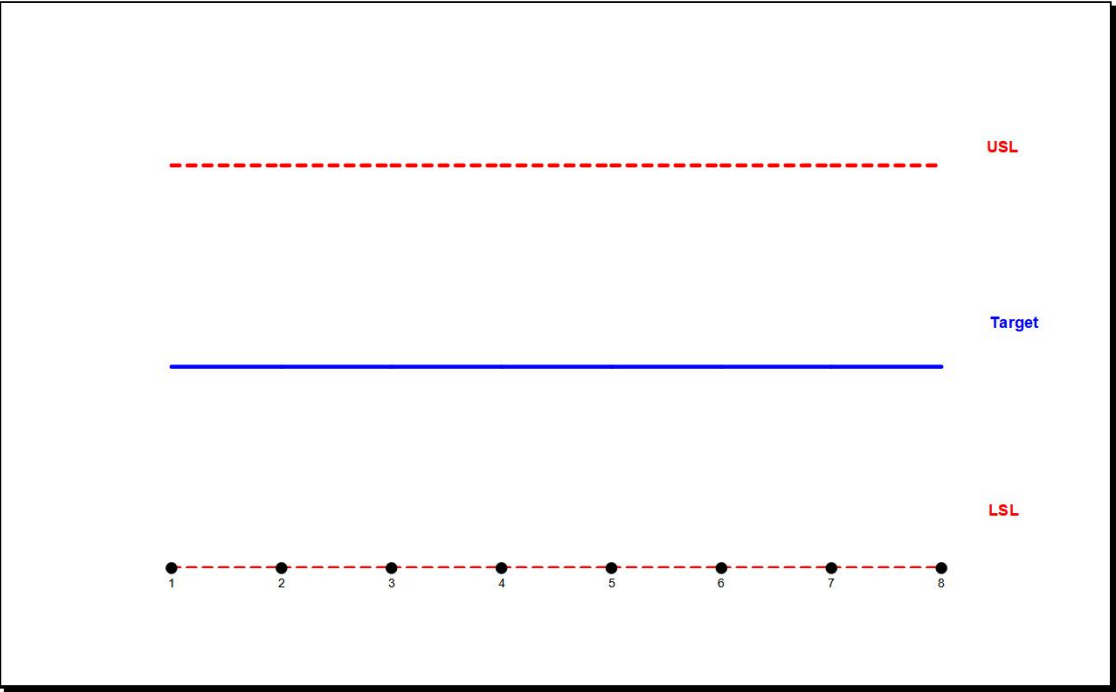
Part Number: BT
Part Description: A200
Part Revision: FPC

Supplier : YUSHENG COMMUNICATION TECHNOLOGY CO., LTD.
Submission Date: 27/Jul/23
Cavity / Tool # :
Inspector: #REF!

Cpk Data

DRAWING SPECIFICATIONS

	Cpk1 - #	Cpk2 - #	Cpk3 - #	Cpk4 - #	Cpk5 - #	Cpk6 - #	Cpk7 - #	Cpk8 - #	
Nominal	2.910	5.000	2.700	17.150					
Upper Tol.	0.150	0.150	0.300	0.150					
Lower Tol.	0.150	0.150	0.300	0.150					
USL	3.060	5.150	3.000	17.300					
LSL	2.760	4.850	2.400	17.000					
Total Tol	0.300	0.300	0.600	0.300					
Xbar	2.912	5.023	2.828	17.112					
Stdv	0.027	0.024	0.029	0.017					
Zu	1.852	1.788	1.951	3.723					
Zl	1.907	2.426	4.873	2.204					
Cp	1.879	2.107	3.412	2.964					
Cpk	1.852	1.788	1.951	2.204					
Max	2.960	5.060	2.900	17.140					
Min	2.880	4.980	2.760	17.090					



DIMENSIONAL DATA

Sample	Cpk1 - #	Cpk2 - #	Cpk3 - #	Cpk4 - #	Cpk5 - #	Cpk6 - #	Cpk7 - #	Cpk8 - #
1	2.96	5.03	2.81	17.130				
2	2.88	4.99	2.79	17.100				
3	2.91	5.05	2.83	17.110				
4	2.89	5.03	2.86	17.140				
5	2.93	4.98	2.81	17.110				
6	2.96	5.03	2.77	17.090				
7	2.88	5.06	2.83	17.110				
8	2.91	5.04	2.80	17.090				
9	2.89	5.02	2.82	17.130				
10	2.91	5.05	2.81	17.110				
11	2.89	5.01	2.83	17.090				
12	2.93	4.98	2.84	17.110				
13	2.89	5.03	2.81	17.090				
14	2.93	5.04	2.88	17.120				
15	2.96	5.02	2.83	17.140				
16	2.88	5.02	2.81	17.110				
17	2.91	4.99	2.84	17.130				
18	2.89	5.03	2.85	17.110				
19	2.91	5.02	2.81	17.090				
20	2.89	4.99	2.83	17.110				
21	2.93	5.05	2.86	17.130				
22	2.89	5.03	2.81	17.140				
23	2.93	4.99	2.86	17.090				
24	2.96	5.02	2.90	17.100				
25	2.88	4.99	2.76	17.130				
26	2.91	5.05	2.85	17.120				
27	2.89	5.03	2.81	17.090				
28	2.93	5.06	2.83	17.110				
29	2.95	5.02	2.86	17.130				
30	2.93	5.00	2.83	17.090				
31	2.91	5.05	2.85	17.120				
32	2.88	5.03	2.83	17.100				

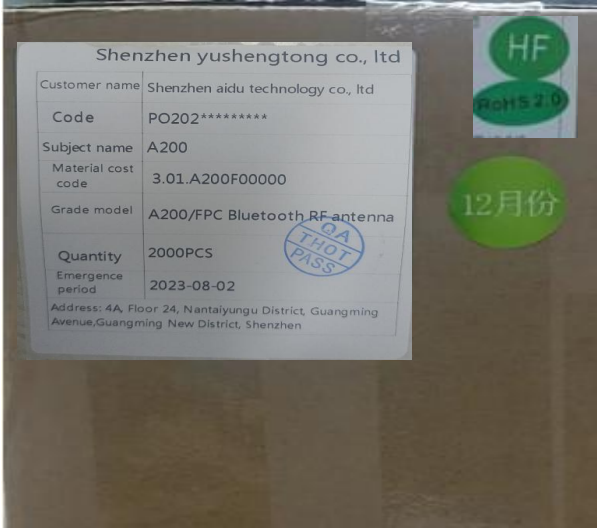
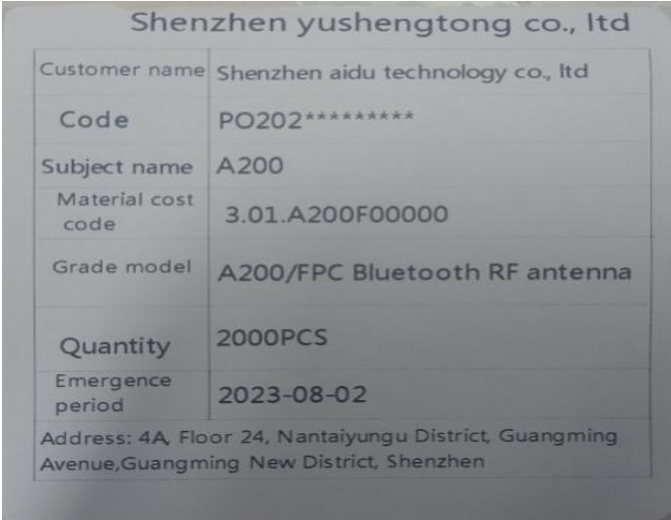
Reliability test report

Cold and heat shock test report									
Customer	Aidu		Date	2023/08/04		In-plant number	THOT-063016-001		
Ingredient number	A200		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: A200	
Sample condition	Number of samples: 5PCS		
	Material: single side half and half electrolytic copper	Coating: Gold plating	
Manufacturer address: 407-411,4th Floor, Building 2, South Taiyun Chuanggu Park, Guangming Avenue, Guangming New District, Shenzhen			
Types of experiments	☒ NSS ☐ ASS ☐ CASS		
Experimental conditions	Salt solution: 5%	PH: 7.0	
	Temperature in box 35°C	Relative humidity: 85%℃	
	Spray method: ☒ Continuous ☐ 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℃	The pressure barrel temperature is: 47.5℃	
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:	3.01. A200F00000	Product Name:	Bluetooth RF antenna
Product Specifications:	A200/FPC Bluetooth RF antenna	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	
			
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			

Zhong Qiu'hong

Review: Feng Jiwu
QF-QMP-QA01-01