

AESEB1S Antenna material requirements specification

Customer name: Concord Intelligent Technology (Huizhou) Ltd.
 Project model: AESEB1S
 Product Name: Left earphone Antenna
 Product specification: ANT 2.4GHz FPC/ L ANTENNA14.5x4.6xT0.15mm 336022-1A
 Material code: 107-0701404A2
 Supplier Model number: 336022-1A, Yu Sheng


Changed Contents Resume:

NO	Version	Status	Effective date	Responsible person	Page number	Notes
1	R:A	First edition	2023-03-29	YuenShujun	15	

Manufacturer name: SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD

Manufacturer address: 407-411, Floor 4, Building 2, Yuntai Chuanggu Park, southeast of the intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen

Supplier acknowledges signature:

Responsible person/date		IQC/ date -	Audit/date	Approval/date
MD	Feng Jiwu	Zhong	Zeng	
RF	Chen Kehong			

Demander's signature (please return it after confirmation) :

Judgment result of the demander: <input type="checkbox"/> Passed <input type="checkbox"/> failed			
Development and Design Engineer/Date	SQE Engineer/date	Purchasing Leader/date	Development Manager approval/date

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Step 1: Overview

1.1 Scope of Application

This requirement specifies the antenna technical requirements and material requirements specification for

AESEB1S products.

This requirement applies to the selection, testing and acceptance of **AESEB1S** antennas.

1.2 Basic information of the project

Antenna name:	AESEB1S
Antenna band:	BT:2402-2484MHZ
Antenna material:	FPC antenna
Antenna version:	V0.5

2. Requirements for technical indicators

2.1 Introduction of test items and equipment

List	Test items	equipment
Active testing	TRP,TIS	General tester,microwave darkroom

2.2 Active Reporting

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 $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

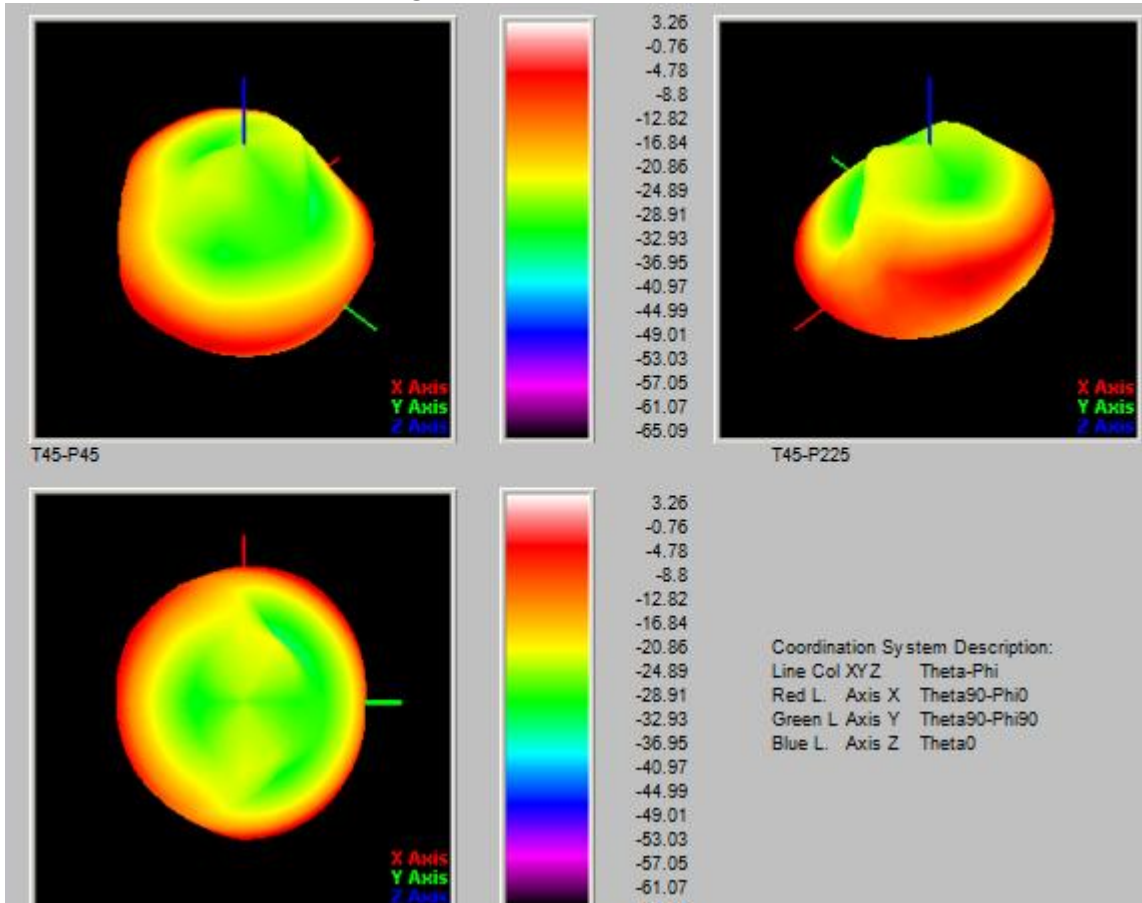
Test method: The DUT is fixed on the center position of the turntable with the H plane, and the center position of the horn antenna is on the same horizontal line.

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.

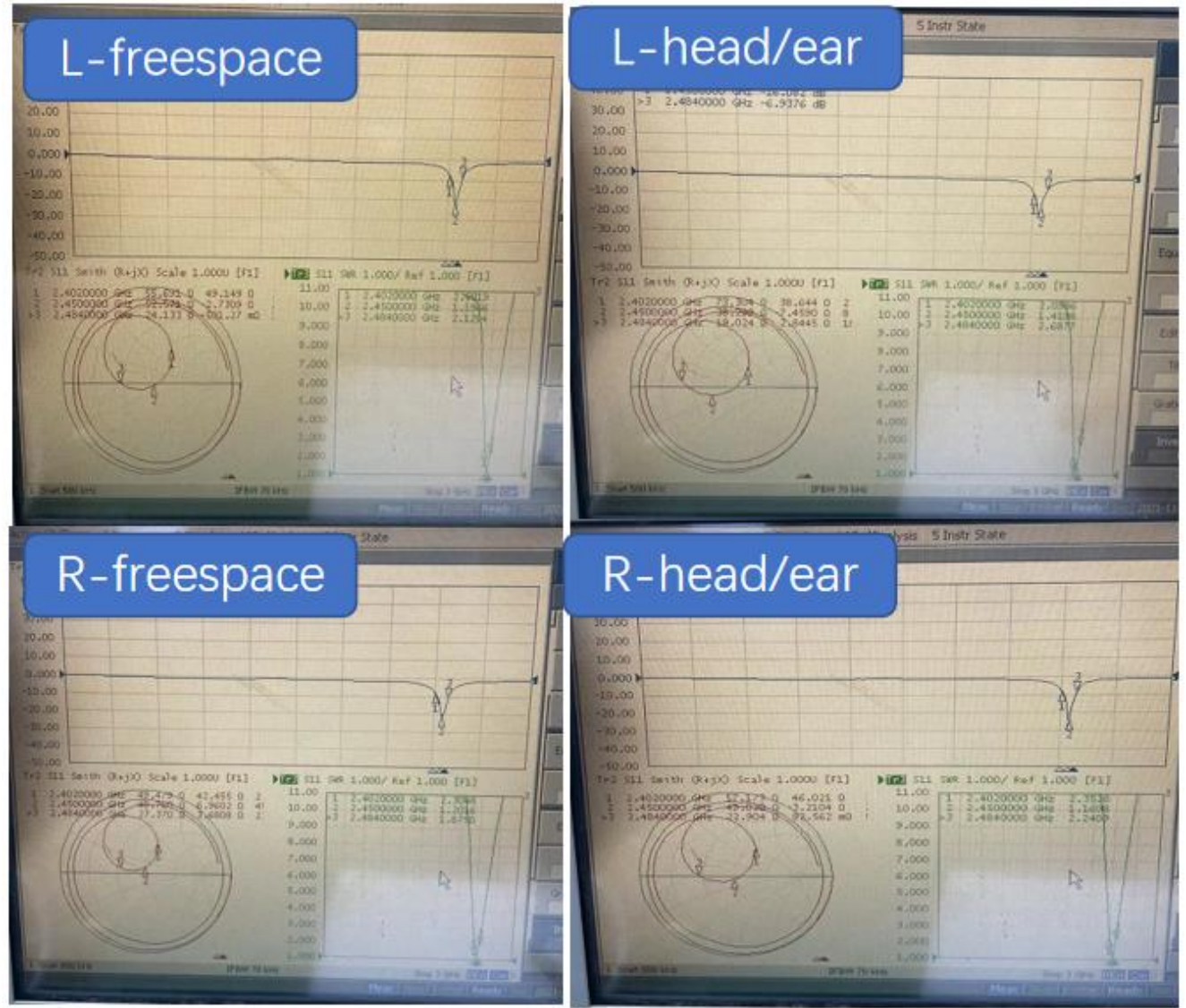
2.2.2 Electrical performance parameters

Electrical performance indicators of the product	
Operating frequency range	2402MHz-2484MHz:
Standing wave ratio	2402MHz-2484MHz: < 2.0
Antenna gain	2402MHz-2484MHz: -2.0 dBi \pm 1dBi
Radiation efficiency	2402MHz-2484MHz: > 20 %
Impedance	50 ohm
Product material description	
FPC	Electrolytic copper half and half gold plated
Product environment description	
Operating temperature	-40 °C to + 80 °C
Storage temperature	-40 °C to + 80 °C

2.2.3 Antenna orientation diagram



2.2.4 Antenna passive parameters



2.2.5 Antenna Passive Parameter -Free space

Test	L								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	25%	26%	25%	26%	26%	27%	25%	25%	24%
efficiency效率(dB)	-6.3	-6.1	-6.2	-5.9	-5.8	-5.7	-6.1	-6.2	-6.2
transmission gain增益(dBi)	-2.1	-2.2	-2.1	-1.9	-1.7	-2.0	-2.1	-2.0	-2.2

Test	R								
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%	25%	26%	25%	27%	27%	25%	24%	23%
efficiency效率(dB)	-6.5	-6.2	-6.1	-6.1	-5.9	-5.8	-6.2	-6.2	-6.6
transmission gain增益(dBi)	-2.2	-2.1	-2.2	-2.1	-2.0	-2.1	-2.4	-2.5	-2.6

2.2.6 Antenna Passive parameters -Head/ear

Test	L								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	8%	10%	10%	12%	12%	11%	9%	9%	7%
efficiency效率(dB)	-9.4	-9.5	-9.3	-9.1	-9.1	-9.2	-9.3	-9.4	-9.5
transmission gain增益(dBi)	-6.4	-6.2	-6.3	-5.7	-6.5	-6.1	-6.4	-6.4	-6.3

Test	R								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	7%	8%	10%	12%	12%	10%	9%	8%	7%
efficiency效率(dB)	-9.2	-9.1	-9.2	-9.3	-9.3	-9.5	-9.4	-9.2	-9.3
transmission gain增益(dBi)	-6.4	-6.3	-6.3	-6.3	-6.5	-6.4	-6.3	-6.3	-6.5

2.3 Motherboard conducts data

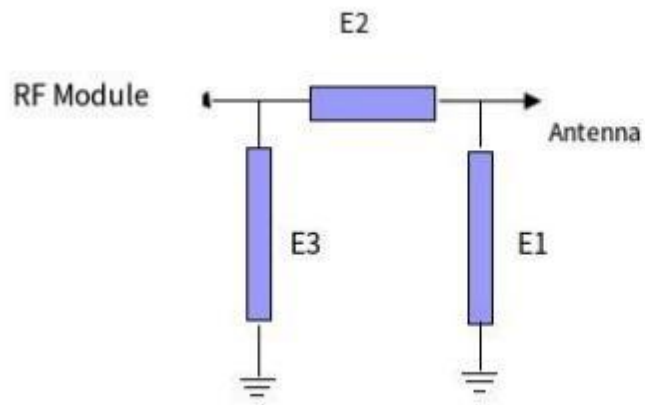
Test	L			R		
	0	39	78	0	39	78
CHANNEL	0	39	78	0	39	78
TRP (dBm)	10.1	10.2	10.1	10.11	10.3	9.8
TIS (dBm)	-93	-93	-93	-92	-93	-92

2.4 Antenna OTA

自由 free	L			R		
CHANNEL	0	39	78	0	39	78
TRP (dBm)	3.85	4.12	4.32	4.35	4.02	4.11
TIS (dBm)	-88.65	-88.75	-87.85	-88.3	-88.02	-89.14

头耳Head and ear	L			R		
CHANNEL	0	39	78	0	39	78
TRP (dBm)	0.45	0.36	0.50	0.15	0.33	0.41
TIS (dBm)	-83.15	-83.02	-83.1	-82.68	-83.14	-83.44

2.5 Antenna Matching



E1:NC
E2:0
E3:NC

2.6 Human Head simulation test

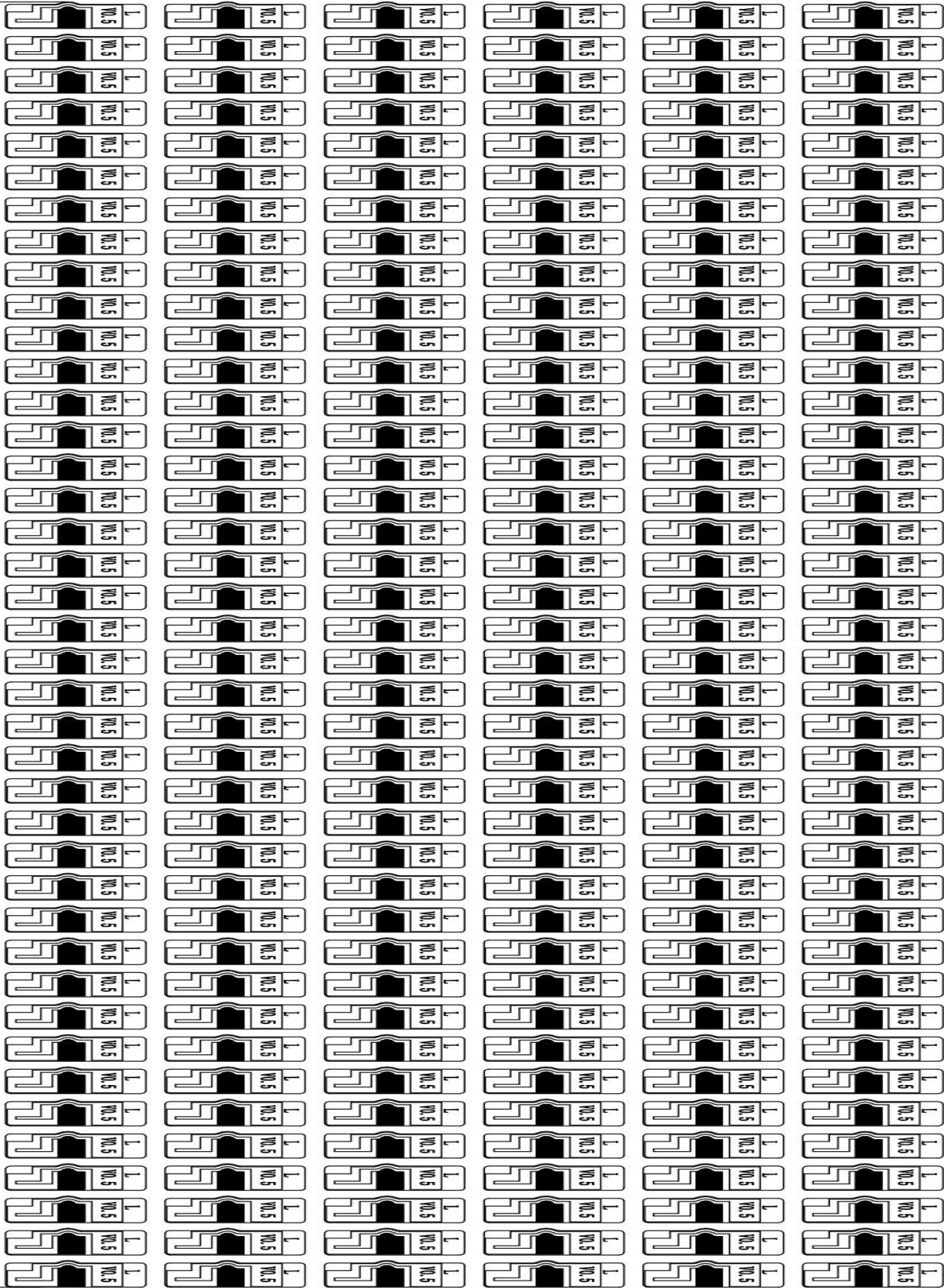


3.Structural drawings

3.1 Left earphone antenna drawing

由 Autodesk 教育版产品制作		A																																	
skills requirement:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>PI substrate:</td><td>0.5mm1</td></tr> <tr><td>Electrolytic copper:</td><td>0.5oz (ED)</td></tr> <tr><td>Double-sided tape:</td><td>3M-9471LSE</td></tr> <tr><td>Nickel plated:</td><td>3-8um</td></tr> <tr><td>Glided:</td><td>0.025um</td></tr> <tr><td>Surface ink color:</td><td>Matt black</td></tr> <tr><td>Printing font color:</td><td>Bright black</td></tr> <tr><td>Printing font height:</td><td>According to drawings</td></tr> </table>	PI substrate:	0.5mm1	Electrolytic copper:	0.5oz (ED)	Double-sided tape:	3M-9471LSE	Nickel plated:	3-8um	Glided:	0.025um	Surface ink color:	Matt black	Printing font color:	Bright black	Printing font height:	According to drawings																		
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Surface ink color:	Matt black																																		
Printing font color:	Bright black																																		
Printing font height:	According to drawings																																		
1.FPC substrate specifications: 2.Electroplating specifications: 3.Surface ink requirements:	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.																																		
4.Reliability requirements: 5.Tolerance requirements:	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.	Shenzhen Yu Sheng Communication Equipment Co., Ltd.																																	
6.Key control size: 7.Environmental requirements: 8.Packaging requirements:	The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings Parts meet ROHS2.0/REACH/CP environmental protection requirements Packed in PE bags, the quantity of each bag is 100PCS, there is a mark on the outside of the bag	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Model</th> <td>JSSBMS</td> <th>DATE</th> <td>2023/04/07</td> </tr> <tr> <th>Name</th> <td>RF-FPC</td> <th>Design</th> <td>JFB</td> </tr> <tr> <th>Part NO</th> <td>33402-1A</td> <th>Review</th> <td>MD JFB</td> </tr> <tr> <th>Material quality</th> <td>Electrolytic copper (half to half)</td> <th>RF</th> <td>CKH</td> </tr> <tr> <th>Hold surface treatment:</th> <td></td> <th>UNIT</th> <td>confirm</td> </tr> <tr> <th>Appearance treatment:</th> <td></td> <th>mm</th> <td></td> </tr> <tr> <th>位置</th> <td></td> <th>proportion</th> <td>PTT</td> </tr> <tr> <th>位置</th> <td></td> <th>Revise</th> <td>R: A</td> </tr> </table>		Model	JSSBMS	DATE	2023/04/07	Name	RF-FPC	Design	JFB	Part NO	33402-1A	Review	MD JFB	Material quality	Electrolytic copper (half to half)	RF	CKH	Hold surface treatment:		UNIT	confirm	Appearance treatment:		mm		位置		proportion	PTT	位置		Revise	R: A
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1	2	3	4																																
由 Autodesk 教育版产品制作		5	6																																
由 Autodesk 教育版产品制作		7	8																																

4.Layout drawing -L
(6*40=240pcs/ sheet)



242.95±0.15

103.42±0.15

5.Bill of Materials
YUSHENG COMMUNICATION TECHNOLOGY CO.,LTD.
336022(AESEB1S)-BOM

Edition/版本: R:A

client/机种:336

Model/项目: 0336022

date/日期: 20230407

Item	Part No项次	Name名称	Types of类型	version版本	specification规格	Material quality材质	colour颜色	Craft表面处理	unit单位	Quantity数量
1	336022-IA	L-FPC	Z	R:A	14.50*4.60*0.11MM	Electrolytic copper (half to half)电解铜半对半	black黑色	Gold plated镀金	PCS	1
1.1	336022-IA-01	L-FPC	Z	R:A	14.50*4.60*0.11MM	Electrolytic copper (half to half)电解铜半对半	black黑色	Gold plated镀金	PCS	1
2	336022-IB	R-FPC	Z	R:A	14.50*4.60*0.11MM	Electrolytic copper (half to half)电解铜半对半	black黑色	Gold plated镀金	PCS	1
2.1	336022-IB-01	R-FPC	Z	R:A	14.50*4.60*0.11MM	Electrolytic copper (half to half)电解铜半对半	black黑色	Gold plated镀金	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

Confirmation:

Review:

Production: FJW

6. Full-size report
6.1 Left earphone size report

FPC-L Full-size report

Customer name: Material number 336022-IA Project : AESEB1S date: 20230407

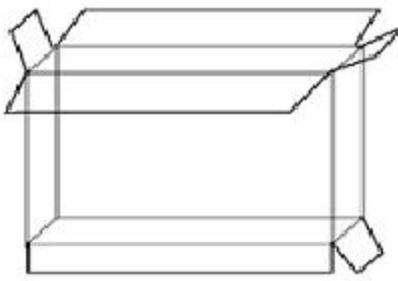
 Product type: Stampings Plastic parts Assembly piece

NO	Inspection Specification	Sample:1	Sample:2	Sample :3	Sample:4	Sample:5	As a result	Inspection tool	Notes
1	4.60±0.15	4.65	4.58	4.55	4.61	4.62	OK	Second dimension	
2	14.50±0.15	14.52	14.53	14.55	14.55	14.56	OK	Second dimension	
3	0.11±0.02	0.11	0.12	0.12	0.12	0.11	OK	Second dimension	
4									
5									
Perform ance test	Salt spray test	√	√	√	√	√	OK		
	Open circuit	√	√	√	√	√	OK		
	Hundred Bar test	√	√	√	√	√	OK		
	Ant	√	√	√	√	√	OK		
Appear ance	Product appearance	√	√	√	√	√	OK		
	Package identification	√	√	√	√	√	OK		
	Production date								
Hazardous Substances Control		√	√	√	√	√	OK		
The end result		<input checked="" type="checkbox"/> Accept <input type="checkbox"/> Rejected <input type="checkbox"/> Rework <input type="checkbox"/> Special Mining							

Approved: jyb

Making: zyh

7 Way of packaging

Packing pattern drawing																			
Product name	Antenna module																		
Material number																			
Project model																			
Packing details	Carton Size 1: 270*260*200MM Carton Size 2: 260*200*200MM Carton Size 3: Subject to order quantity/volume																		
																			
	Packing method: Packing as per order quantity Total number of cases: Packing as per order quantity																		
Label requirement	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">深圳市昱晟通讯设备有限公司</td> </tr> <tr> <td colspan="2" style="text-align: center;">SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD</td> </tr> <tr> <td>Customer name 客户名称</td> <td>*****</td> </tr> <tr> <td>Order reference 订单编号</td> <td>*****</td> </tr> <tr> <td>Project name 项目名称</td> <td>*****</td> </tr> <tr> <td>Material code 物料编码</td> <td>*****</td> </tr> <tr> <td>Quantity 出货数量</td> <td>****PCS</td> </tr> <tr> <td>Date 出货日期</td> <td>*****</td> </tr> <tr> <td colspan="2"> <small>Address: 407-411, Floor 4, Building 2, Yuntai Chuanggu Park, southeast of the intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen</small> </td> </tr> </table> Label Size 1: Universal 100*100mm Label Size 2: According to customer requirements	深圳市昱晟通讯设备有限公司		SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD		Customer name 客户名称	*****	Order reference 订单编号	*****	Project name 项目名称	*****	Material code 物料编码	*****	Quantity 出货数量	****PCS	Date 出货日期	*****	<small>Address: 407-411, Floor 4, Building 2, Yuntai Chuanggu Park, southeast of the intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen</small>	
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Matters needing attention																			
1. Due to the quantity limitation of the order, the packing method of each item shall be based on the total quantity of the order or the physical volume																			
2. Storage temperature: normal temperature																			
3. Storage condition: Store in a cool and dry place																			