AESEB1S Antenna material requirements specification

Customer name: Concord Intelligent Technology (Huizhou) Ltd.

Project model: AESEB1S

Product Name: Right earphone antenna

Product Specification: ANT 2.4GHz FPC/ R ANTENNA14.5x4.6xT0.15mm 336022-1B

Material code: 107-0701404B2

Supplier Model number: 336022-1B, 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: ☐ Passed ☐ failed			
Development and Design Engineer/Date	SQE Engineer/date	Purchasing Leader/date	Development Manager approval/date

Catalogue

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℃±3℃, humidity 50%±15%

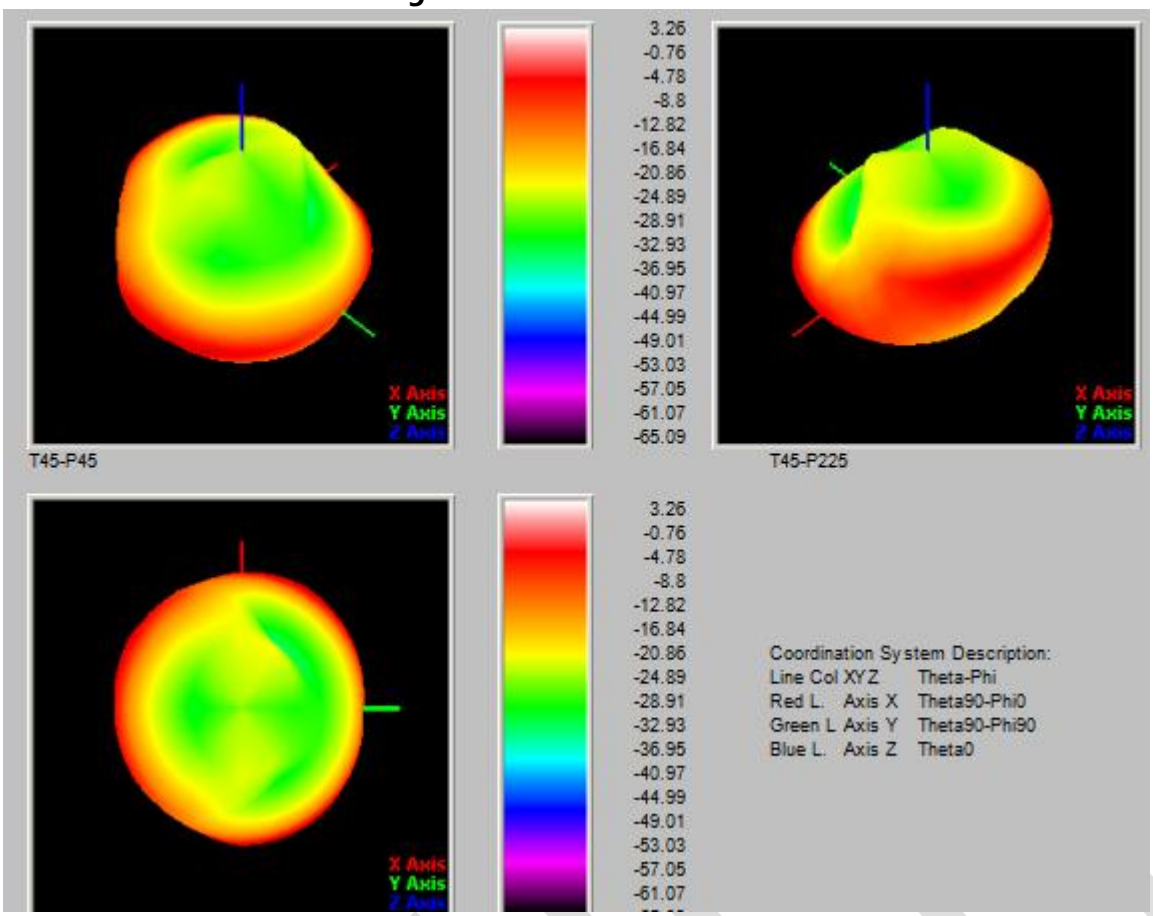
Test method: The DUT is fixed on the center position of the turntable with the H plane, an d the center position of the horn antenna is on the same horizontal line.

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.

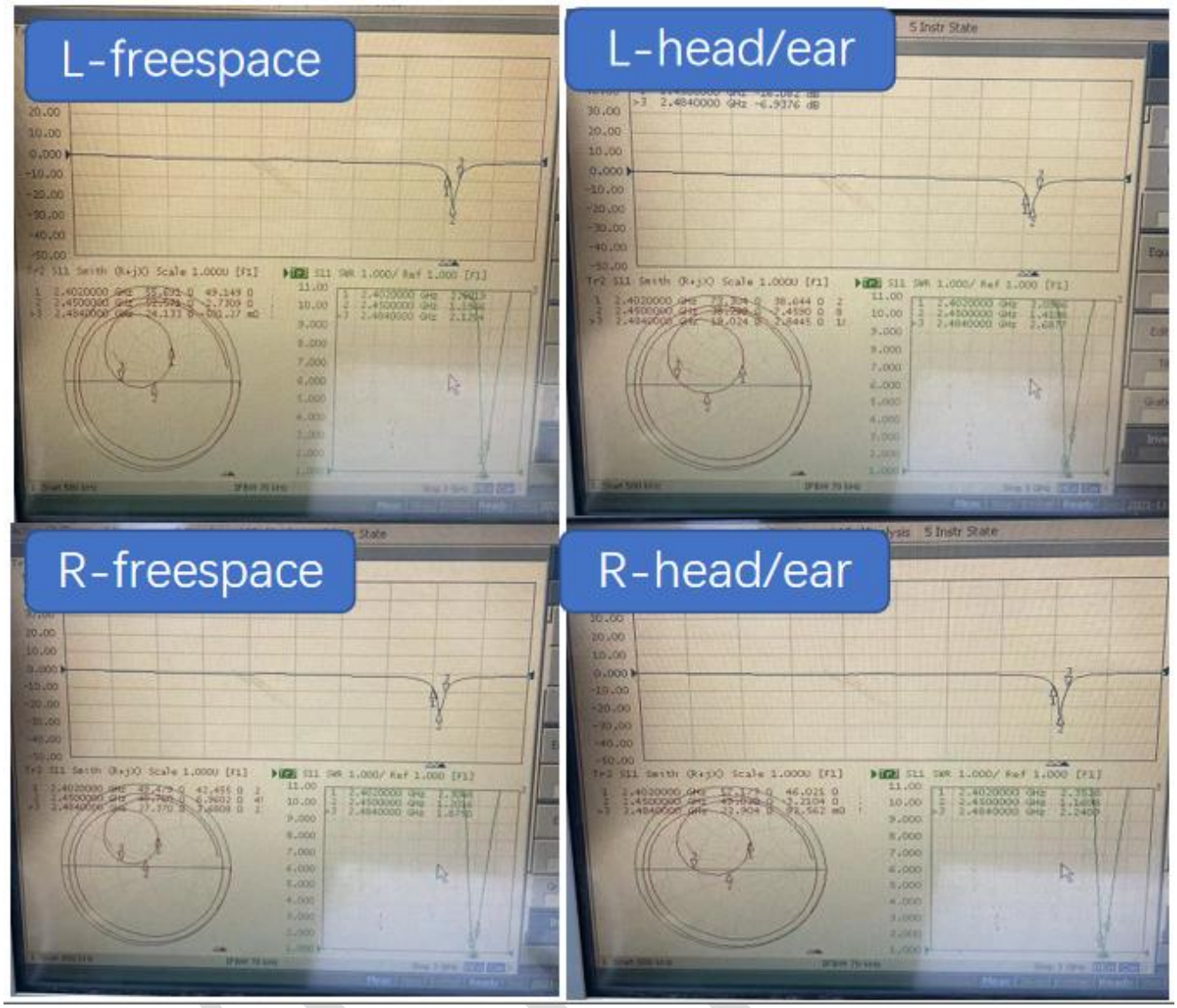
2.2.2 Electrical performance parameters

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 ± 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 ℃ to + 80 ℃
Storage temperature	-40 ℃ to + 80 ℃

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

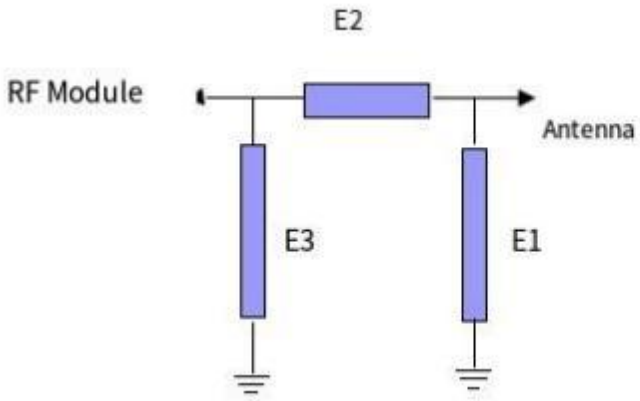
Test	L			R		
CHANNEL	0	39	78	0	39	78
TRP(dBm)	10.1	10.2	10.1	10.11	10.3	9.8
TIS(dBm)	-93	-93	-93	-92	-93	-92

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

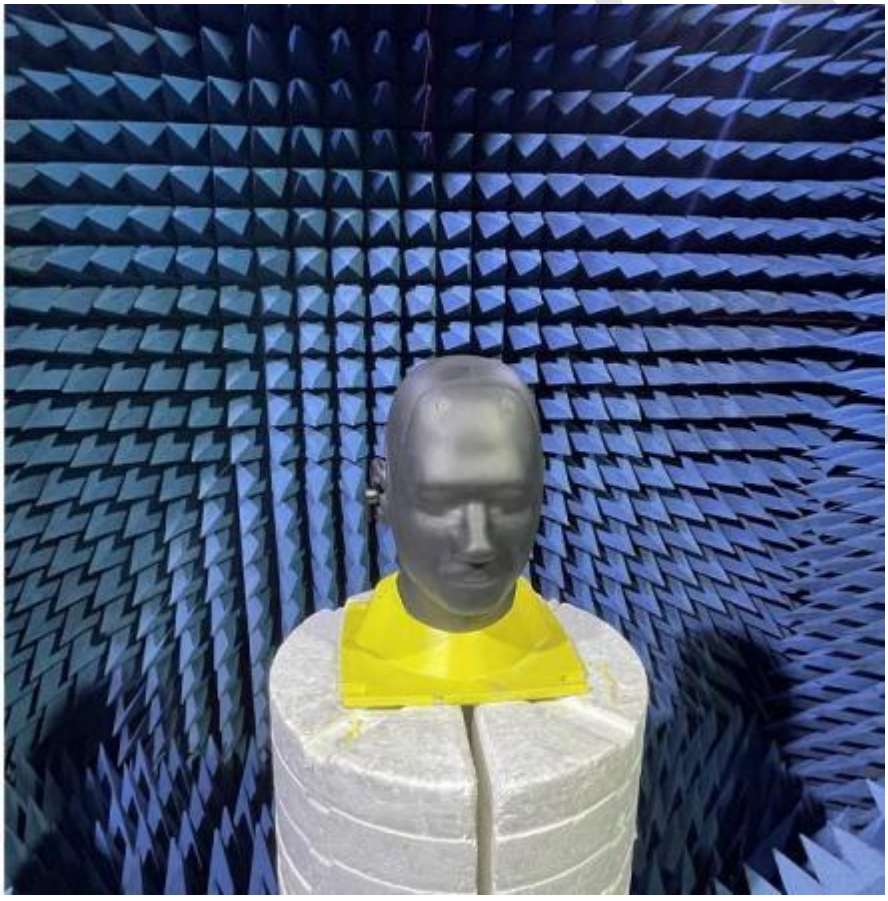
头耳 Head and ear	L			R		
CHANNEL	0	39	78	0	39	78
TRP(dBm)	0.45	0.36	0.50	0.15	0.33	0.41
TIS(dBm)	-83.15	-83.02	-83.1	-82.68	-83.14	-83.44

2.5 Antenna Matching



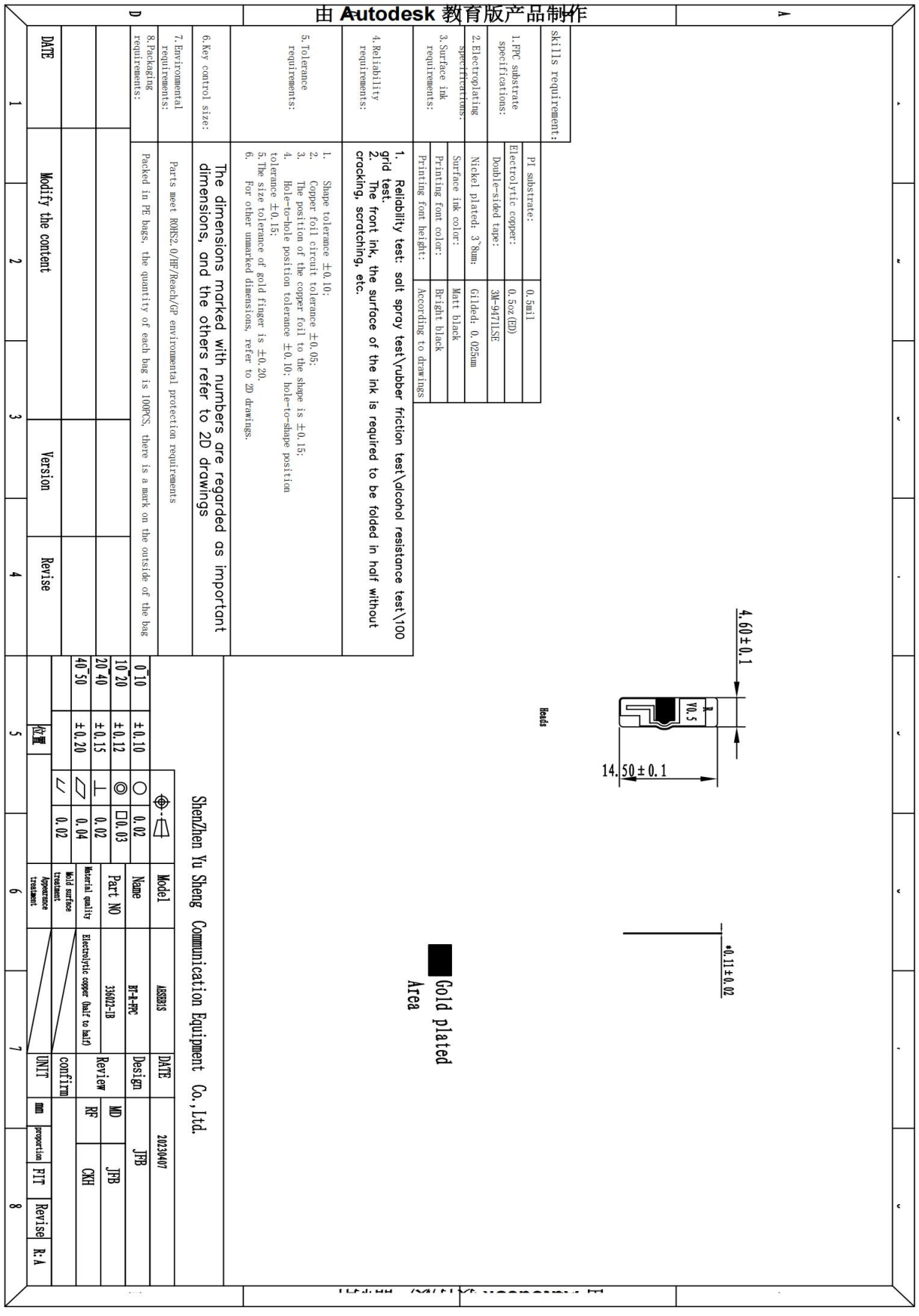
E1:NC
E2:0
E3:NC

2.6 Human Head simulation te

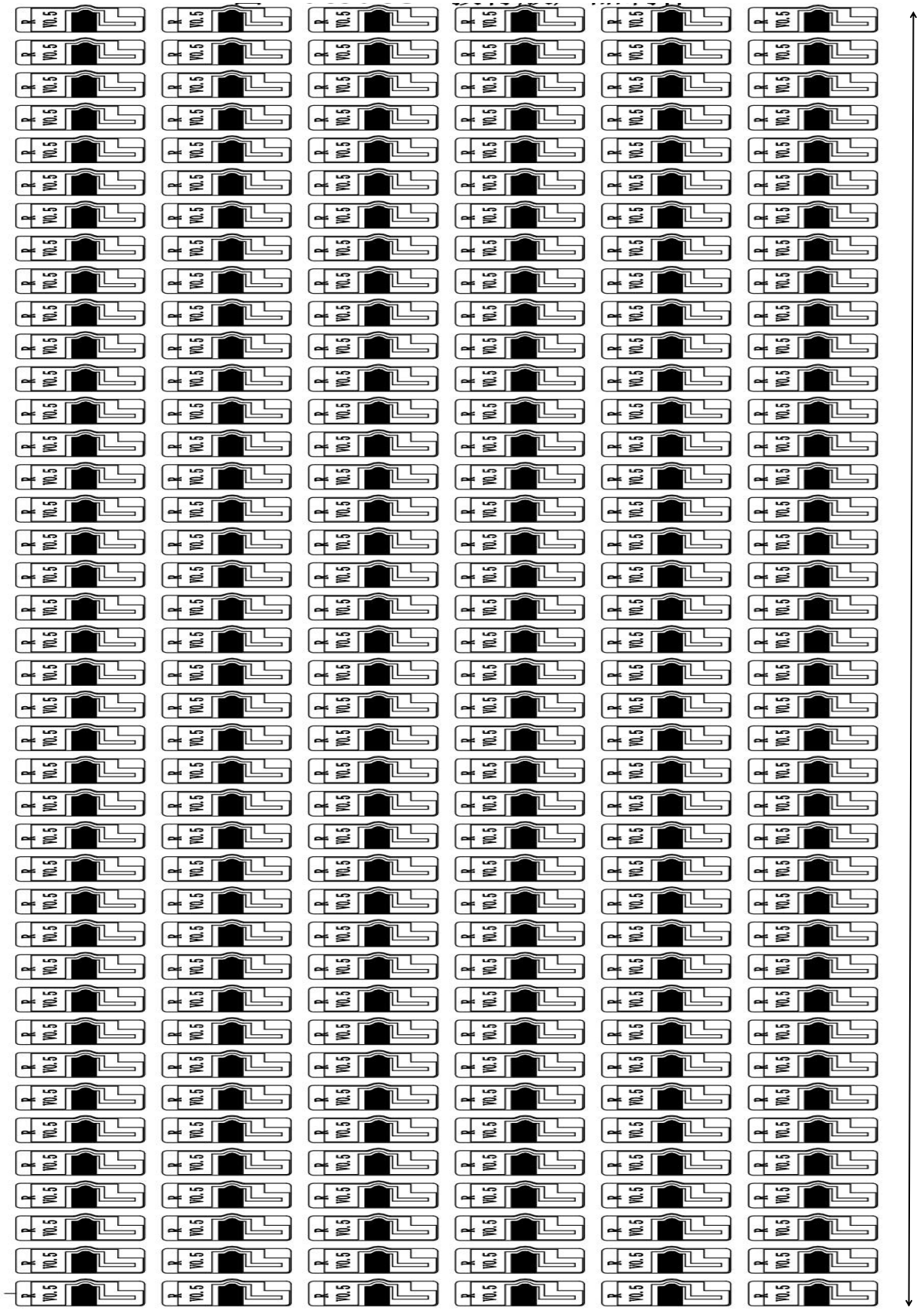


3.Structural drawings

Right headphone antenna drawing



4.Layout map-R (6 * 40 = 240 pcs / sheet)



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*0.11 MM	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*0.11 MM	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*0.11 MM	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*0.11 MM	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-R Full-size report

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

Product type: ☐Stampings ☐Plastic parts ■Assembly piece

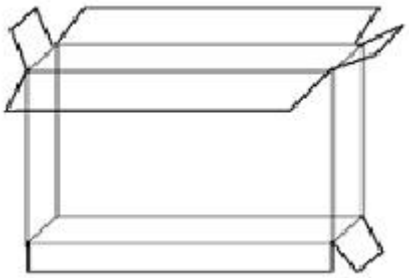
NO	Inspection Specification	Sample:1	Sample:2	Sample:3	Sample:4	Sample:5	As a result	Inspection tool	Notes
1	4.60±0.15	4.65	4.58	4.55	4.61	4.62	OK	Second dimension	
2	14.50±0.15	14.52	14.53	14.55	14.55	14.56	OK	Second dimension	
3	0.11±0.02	0.11	0.12	0.12	0.12	0.11	OK	Second dimension	
4									
5									
Performance test	Salt spray test	√	√	√	√	√	OK		
	Open circuit	√	√	√	√	√	OK		
	Hundred Bar test	√	√	√	√	√	OK		
	Ant	√	√	√	√	√	OK		
Appearance	Product appearance	√	√	√	√	√	OK		
	Package identification	√	√	√	√	√	OK		
	Production date								
Hazardous Substances Control		√	√	√	√	√	OK		
The end result		■Accept ☐ Rejected ☐ Rework ☐ Special Mining							

Approved: jyb Making: zyh

7 Way of packaging

<table>
<tr><td colspan="3">Packing pattern drawing</td></tr>
<tr><td>Product name</td><td colspan="2">Antenna module</td></tr>
<tr><td>Material number</td><td colspan="2"></td></tr>
<tr><td>Project model</td><td colspan="2"></td></tr>
<tr><td rowspan="3">Packing details</td><td>Carton Size 1:
270*260*200MM

Carton Size 2:
260*200*200MM

Carton Size 3:
Subject to order quantity/volume</td><td>  </td></tr>
<tr><td>Packing method</td><td>Packing as per order quantity</td></tr>
<tr><td>Total number of cases</td><td>Packing as per order quantity</td></tr>
<tr><td>Label requirement</td><td>Label Size 1:
Universal 100*100mm

Label Size 2:
According to customer requirements</td><td>
<table>
<tr><td colspan="2">深圳市昱晟通讯设备有限公司</td></tr>
<tr><td colspan="2">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">Address：407-411, Floor 4, Building 2, Yuntai Chuanggu Park, southeast of the intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen</td></tr>
</table>
</td></tr>
<tr><td colspan="3">Matters needing attention</td></tr>
<tr><td colspan="3">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</td></tr>
<tr><td colspan="3">2. Storage temperature: normal temperature</td></tr>
<tr><td colspan="3">3. Storage condition: Store in a cool and dry place</td></tr>
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