

## IDW18 Project Antenna Material Requirements Specification

Customer name: Shenzhen Aidu Technology Co., LTD

Customer name: IDW 18


Product name: Bluetooth RF antenna

size of product: FPC antenna 22.00\*5.35\*0.11MM black gilt

### Change Content CV:

NO	edition	state	Start and end date	person liable	page number	remarks
1	T:a	T:a	2023-03-23	Yuan Shujun	13	

### The Supplier acknowledges the signature of the following documents:

Responsible person / date		IQC/ date	Review / Date	Approval / Date
MD	Feng Jiwu	Yi guan fa	Chen Ke hong	
RF	Zeng Xiang Hao			

### The Demander acknowledges the signature (please send it back after the confirmation):

The demander's judgment result: <input type="checkbox"/> qualified <input type="checkbox"/> unqualified			
Development & Design	SQE Engineer / Date	Purchasing Leader /	Development Manager
Engineer / Date		Date	approval / date

# catalogue

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# 1. Overview

## 1.1 Scope of application

This requirement, provided\_Antenna technical requirements and material requirements specifications for IDW 18 products.

This requirement applies to\_IDW18 Antenna selection, testing and acceptance of the products.

## 1.2 Project basic information

Antenna name:	<b>IDW18</b>
Antenna band:	BT: 2400-2500MHZ
Antenna material:	FPC antenna
Antenna version:	V2

## 2. Technical index requirements

### 2.1 Introduction of test items and equipment

inventory	test item	equipment
S11 parameter	Standing wave ratio, echo loss	network analyzer
Active test	TRP,TIS	Integrated tester, microwave darkroom
Passive test	Gain, efficiency	network analyzer

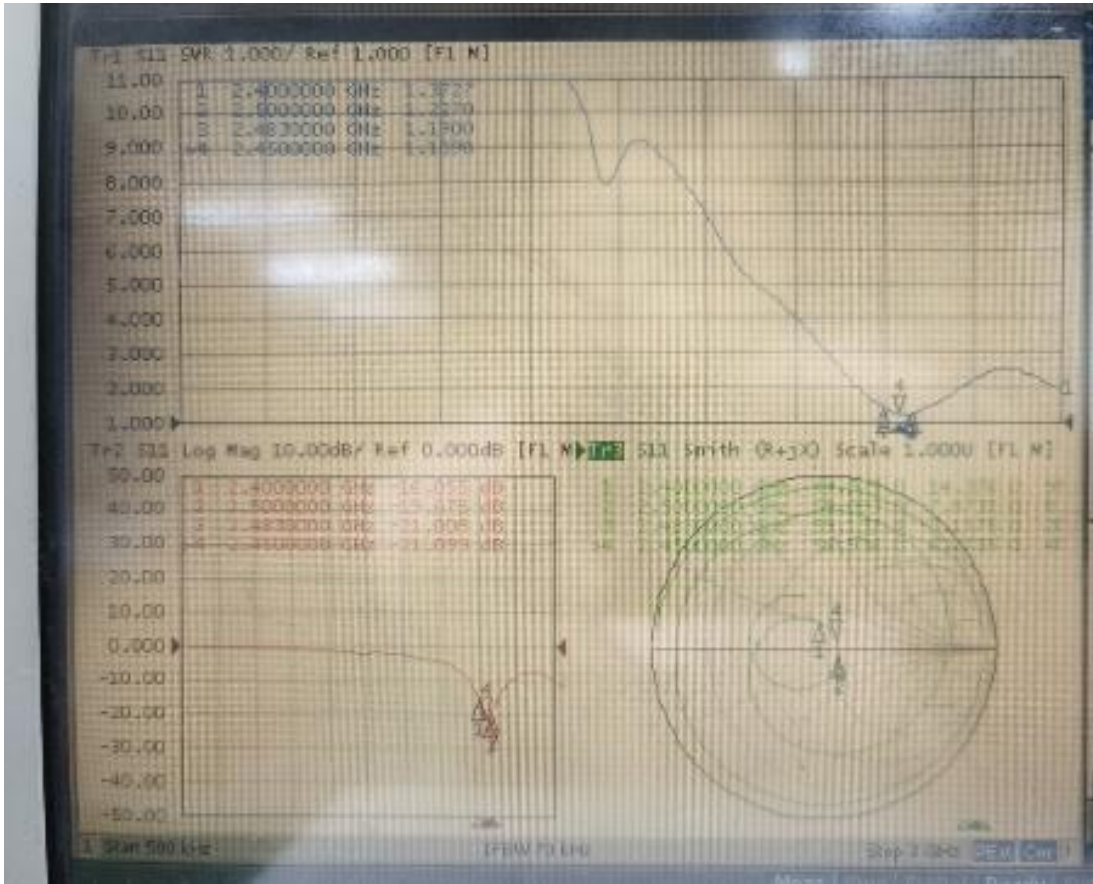
### 2.2.1 Test instructions

Test tools: Agilent8960 instrument, R & S CMW500, full wave far field ETS dark room, 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  $50\% \pm 15\%$

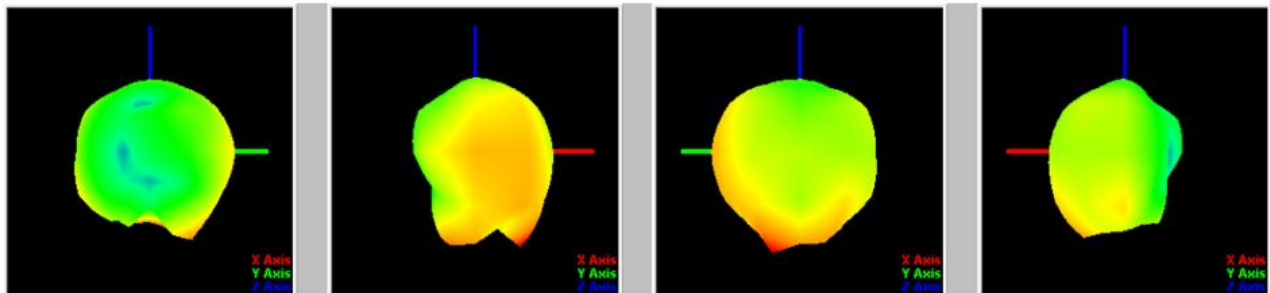
Test method: DUT is fixed in the center of the turntable on the same horizontal line as the center of the horn antenna. The positioning system enables the DUT to rotate in the whole sphere to satisfy the high-precision 3 D positioning. Each RF instrument and turntable controller communicate with the PC with automatic test software through the GPIB interface

### 2.2.2 Antenna passive parameters

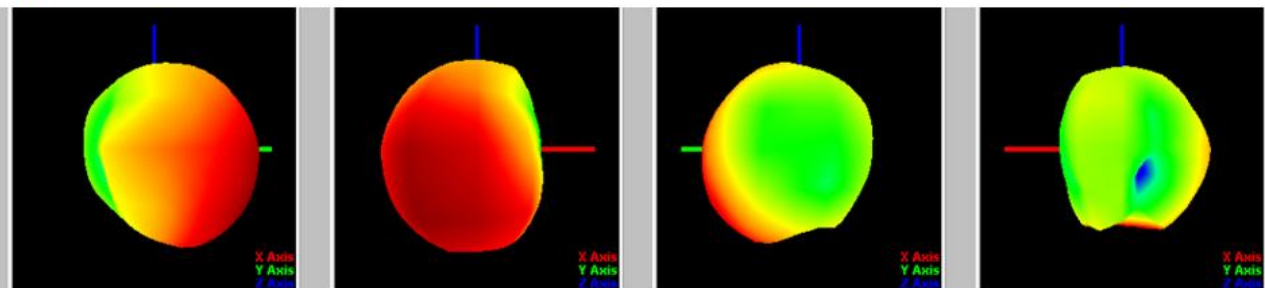


### 2.2.3 Apple graph of the antenna

FS

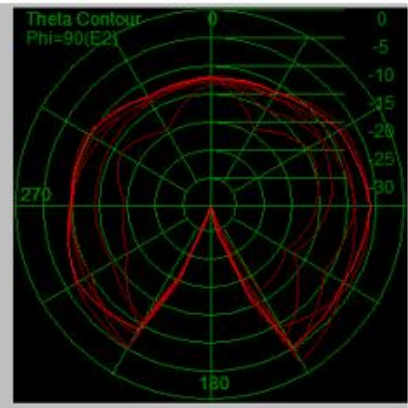
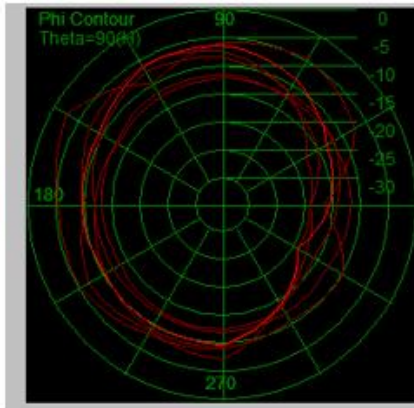
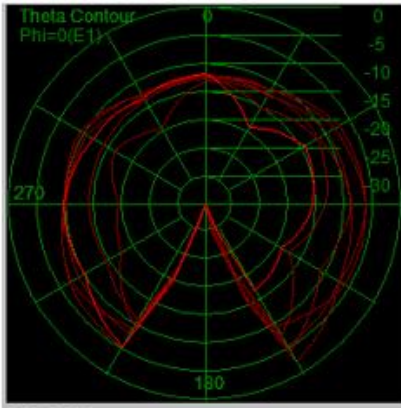


ARM

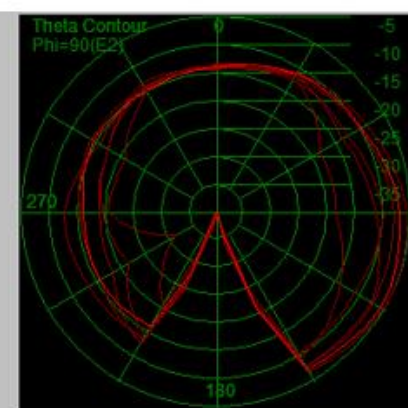
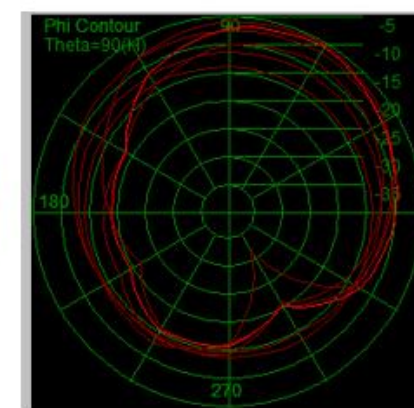
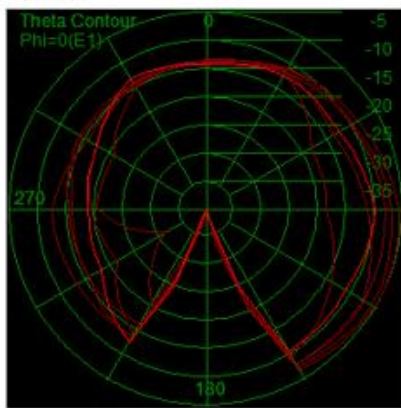


2.2.4, the antenna orientation diagram

FS



ARM



**2.3 The antenna has no passive 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 (%)	26.2	27.3	28.2	29.1	29.6	29.2	29.0	28.4	27.9
productivene ss (dB)	-5.8	-5.6	-5.5	-5.4	-5.3	-5.4	-5.4	-5.5	-5.5
gain (dBi)	-1.6	-1.3	-0.9	-0.7	-0.2	-0.5	-0.8	-1.1	-1.4

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 (%)	11.4	11.6	11.8	12.1	12.3	12.6	12.4	11.9	11.5
productivene ss (dB)	-9.4	-9.4	-9.3	-9.2	-9.1	-9.0	-9.1	-9.2	-9.4
gain (dBi)	-6.1	-5.8	-5.7	-5.5	-5.3	-4.7	-4.9	-5.2	-5.9

**2.4 Antenna active parameters-1 #**

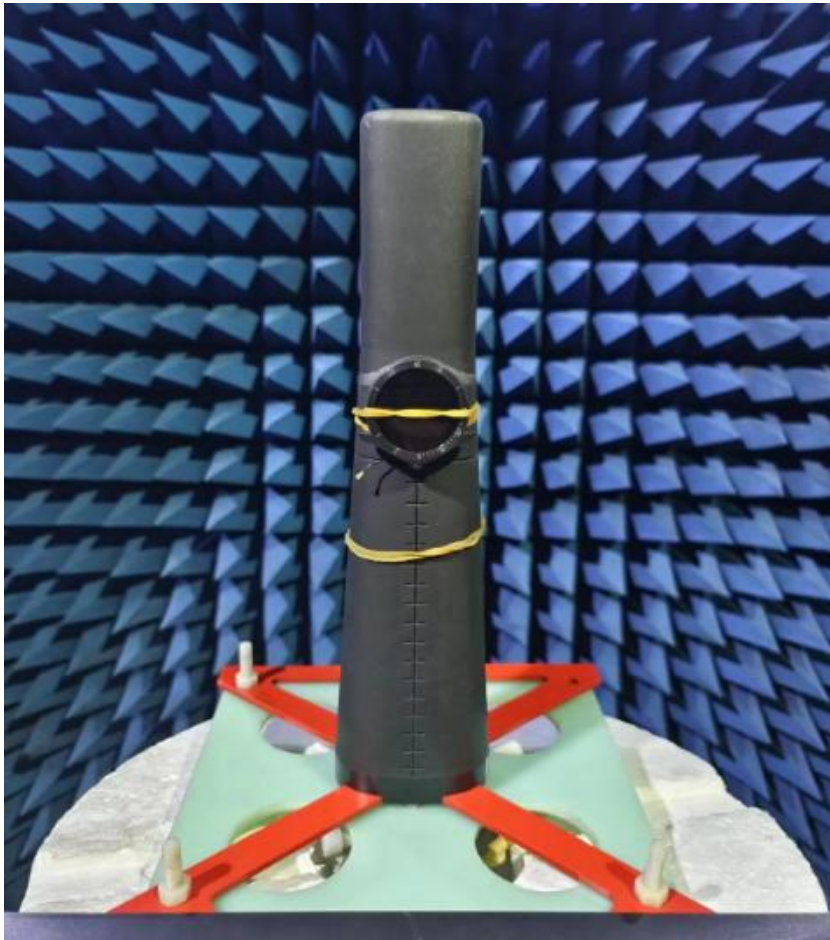
Test	Main board conduction data		
Channel	0	39	78
TRP(dBm)	8.4	8.6	8.6
TIS(dBm)	-90.2	-90.2	-91.1
Test	antenna OTA-FS		
Channel	0	39	78
TRP(dBm)	2.7	2.7	2.6
TIS(dBm)	-84.8	-84.6	-84.7
Test	Antenna OTA-ARM		
Channel	0	39	78
TRP(dBm)	-2.6	-2.7	-2.6
TIS(dBm)	-80.2	-80.3	-80.1



## 2.5 Antenna active parameters-2 #

Test	Main board conduction data		
Channel	0	39	78
TRP(dBm)	8.5	8.6	8.6
TIS(dBm)	-90.5	-90.7	-90.8
Test	antenna OTA-FS		
Channel	0	39	78
TRP(dBm)	2.4	2.6	2.5
TIS(dBm)	-85.2	-85.5	-85.3
Test	Antenna OTA-ARM		
Channel	0	39	78
TRP(dBm)	-2.4	-2.4	-2.5
TIS(dBm)	-80.2	-80.3	-80.2

**2.6 The antenna test environment**



**2.7 Picture of the antenna prototype**



### 3. engineering drawing

A	由 Autodesk 教育版产品制作																																																																	
<p>skills requirement:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>1. PCB substrate specifications:</td> <td>PI substrate:</td> <td>Electrolytic copper (1 to half)</td> </tr> <tr> <td></td> <td>Electrolytic copper:</td> <td>0.5oz(80)</td> </tr> <tr> <td></td> <td>Double-sided tape:</td> <td>TESA 68832</td> </tr> <tr> <td>2. Electroplating specifications:</td> <td>Nickel plated:</td> <td>3~8um</td> </tr> <tr> <td></td> <td>Surface ink color:</td> <td>GI:dark, 0.025um</td> </tr> <tr> <td>3. Surface ink requirements:</td> <td>Printing font color:</td> <td>White Cool Gray</td> </tr> <tr> <td></td> <td>Printing font height:</td> <td>According to drawings</td> </tr> </table> <p>4. Reliability requirements:</p> <ol style="list-style-type: none"> <li>1. Reliability test: salt spray test\ultra friction test\alcohol resistance test\100 grid test.</li> <li>2. The front ink, the surface of the ink is required to be folded in half without cracking, scratching, etc.</li> </ol> <p>5. Tolerance requirements:</p> <ol style="list-style-type: none"> <li>1. Shape tolerance <math>\pm 0.10</math>;</li> <li>2. Copper foil circuit tolerance <math>\pm 0.05</math>;</li> <li>3. The position of the copper foil to the shape is <math>\pm 0.15</math>;</li> <li>4. Hole-to-hole position tolerance <math>\pm 0.10</math>; hole-to-shape position tolerance <math>\pm 0.15</math>;</li> <li>5. The size tolerance of gold finger is <math>\pm 0.20</math>;</li> <li>6. For other unmarked dimensions, refer to 2D drawings.</li> </ol>					1. PCB substrate specifications:	PI substrate:	Electrolytic copper (1 to half)		Electrolytic copper:	0.5oz(80)		Double-sided tape:	TESA 68832	2. Electroplating specifications:	Nickel plated:	3~8um		Surface ink color:	GI:dark, 0.025um	3. Surface ink requirements:	Printing font color:	White Cool Gray		Printing font height:	According to drawings	<p>The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings</p>																																								
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<p>6. Key control size:</p> <p>7. Environmental requirements:</p> <p>8. Packaging requirements:</p>					<p>Parts meet ROHS2.0/REACH/CP environmental protection requirements</p> <p>Packed in PE bags, the quantity of each bag is 100PCS, there is a mark on the outside of the bag</p>																																																													
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;">DATE</td> <td style="width:25%;">Modify the content</td> <td style="width:25%;">Version</td> <td style="width:25%;">Revise</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </table>					DATE	Modify the content	Version	Revise	1	2	3	4	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align: center;">5</td> <td style="width:10%; text-align: center;">位置</td> <td style="width:10%; text-align: center;">公差</td> <td style="width:10%; text-align: center;">表面</td> <td style="width:10%; text-align: center;">材料</td> <td style="width:10%; text-align: center;">数量</td> <td style="width:10%; text-align: center;">备注</td> </tr> <tr> <td style="text-align: center;">0.10</td> <td style="text-align: center;"><math>\pm 0.10</math></td> <td style="text-align: center;">○</td> <td style="text-align: center;">0.02</td> <td style="text-align: center;">Model</td> <td style="text-align: center;">IDW18</td> <td style="text-align: center;">DATE</td> </tr> <tr> <td style="text-align: center;">0.20</td> <td style="text-align: center;"><math>\pm 0.12</math></td> <td style="text-align: center;">◎</td> <td style="text-align: center;">0.03</td> <td style="text-align: center;">Name</td> <td style="text-align: center;">BT antenna</td> <td style="text-align: center;">Design</td> </tr> <tr> <td style="text-align: center;">20_40</td> <td style="text-align: center;"><math>\pm 0.15</math></td> <td style="text-align: center;">┴</td> <td style="text-align: center;">0.02</td> <td style="text-align: center;">Part NO</td> <td style="text-align: center;">063010-1A</td> <td style="text-align: center;">Review</td> </tr> <tr> <td style="text-align: center;">40_50</td> <td style="text-align: center;"><math>\pm 0.20</math></td> <td style="text-align: center;">∇</td> <td style="text-align: center;">0.04</td> <td style="text-align: center;">Material quality</td> <td style="text-align: center;">Electrolytic copper (1 to half)</td> <td style="text-align: center;">MD</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">∨</td> <td style="text-align: center;">0.02</td> <td style="text-align: center;">Weld surface treatment</td> <td></td> <td style="text-align: center;">RF</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">Appearance treatment</td> <td></td> <td style="text-align: center;">CHK</td> </tr> </table>					5	位置	公差	表面	材料	数量	备注	0.10	$\pm 0.10$	○	0.02	Model	IDW18	DATE	0.20	$\pm 0.12$	◎	0.03	Name	BT antenna	Design	20_40	$\pm 0.15$	┴	0.02	Part NO	063010-1A	Review	40_50	$\pm 0.20$	∇	0.04	Material quality	Electrolytic copper (1 to half)	MD			∨	0.02	Weld surface treatment		RF					Appearance treatment		CHK
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<p>8. Environmental requirements:</p>					<p>9. Packaging requirements:</p>																																																													

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**YUSHENG COMMUNICATION TECHNOLOGY CO.,LTD.**

**063010(IDW18) - BOM**

Edition: R,A

client:063

Model: 063010

date: 20230322

Item	Part No	Name	Types of	version	specification	Material quality	colour	surface treatment	unit	Quantity
1	063010-1A	BT-FPC	Z	R,A	22.00*5.35*0.11MM	Electrolytic copper (1 to half)	black	Gold plated	PCS	1
1.1	063010-1A-01	BT-FPC	Z	R,A	22.00*5.35*0.11MM	Electrolytic copper (1 to half)	black	Gold plated	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:

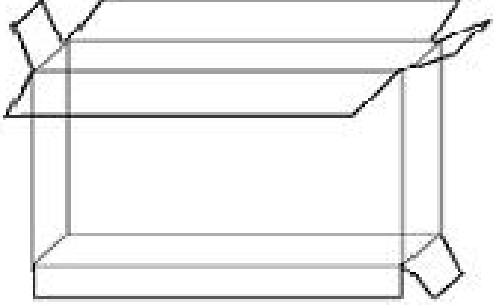
Review:

Production: FW



**4. List of materials**

## 5. Package schematic diagram

Packaging method diagram		
product name	Antenna components	
File details	Carton Size 1: 35 * 25 * 24.5 cm Carton Size 2: Depends on order quantity / quantity	
	Boating method	Packaging by order quantity
	Total number of binning	Packaging by order quantity
Things need to be noticed		
1. Due to the limitation of order quantity, the packing method of each material is the box size according to the total quantity of order or the physical volume		
2. Storage temperature: room temperature		
3. Storage conditions: store them in a cool and dry place		

(This figure is the packaging diagram of this project, subject to the mass production object)