

## Disrupter Project antenna material requirements specification

Customer name: Guoheng Intelligent Technology (Huizhou) Co., LTD

Customer product name: Disrupter

Product name: Right headphone antenna

Product specification: injection molding bracket + LDS antenna-R edge


Material code: 119-DSRP008A2

Supplier model: 336021-IB (R) right headphone antenna

### Change Content CV:

order number	edition	state	availability date	person liable	page number	remarks
1	R:A	editio princeps	2023-02-28	Yuan Shujun	14	

### The Supplier acknowledges the signature that:

Responsible person / date		IQC / Date-	Review / Date	Approval / Date
MD	<i>Feng Jiwu</i>	<i>Zhong Qihong</i>	<i>Zeng Xiang good</i>	
RF	<i>Chen Kehong</i>			

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

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

## catalogue

<b>1. OVERVIEW</b> .....	<b>3</b>
1.1 SCOPE OF APPLICATION.....	3
1.2 PROJECT BASIC INFORMATION.....	3
<b>2. TECHNICAL INDEX REQUIREMENTS</b> .....	<b>3</b>
2.1 INTRODUCTION OF TEST ITEMS AND EQUIPMENT.....	3
2.2 ACTIVE REPORTING.....	3
2.2.1 TEST INSTRUCTIONS.....	3
2.2.2, ELECTRICAL PERFORMANCE PARAMETERS.....	4
2.2.3 PASSIVE ANTENNA PARAMETERS.....	5
2.2.4 ANTENNA PASSIVE PARAMETER-FREE SPACE.....	5
2.2.5 ANTENNA PASSIVE PARAMETERS-HEAD / EAR.....	6
2.2.6 MAIN BOARD CONDUCTION.....	6
2.3 ACTIVE PARAMETERS OF THE ANTENNA.....	7
2.4 ANTENNA MATCHING.....	8
2.5 THE ANTENNA TEST ENVIRONMENT.....	8
2.6 ANTENNA DIRECTION DIAGRAM.....	9
2.7 FIELD MEASUREMENT DATA.....	10
<b>3. STRUCTURAL DRAWINGS</b> .....	<b>11</b>
3.1 DRAWING OF THE RIGHT HEADSET ANTENNA.....	11
<b>4. BILL OF MATERIALS</b> .....	<b>12</b>
<b>5. FULL-SIZE REPORT</b> .....	<b>13</b>
5.1 RIGHT HEADPHONE SIZE REPORT.....	13
<b>6 PACKAGING SPECIFICATION (PACKAGING DIAGRAM)</b> .....	<b>14</b>

# 1. Overview

## 1.1 Scope of application

**This requirement specifies the antenna technical requirements and material requirements specifications for Disrupter products.**

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

## 1.2 Project basic information

Antenna name:	Disrupter
Antenna frequency:	BT : 2400-2500MHZ
Antenna material:	LDS antenna
Antenna version:	R:A

# 2. Technical index requirements

## 2.1 Introduction of test items and equipment

inventory	test item	equipment
Active test	TRP,TIS	Integrated tester, microwave darkroom

## 2.2 Active Reporting

### 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  $50\% \pm 15\%$

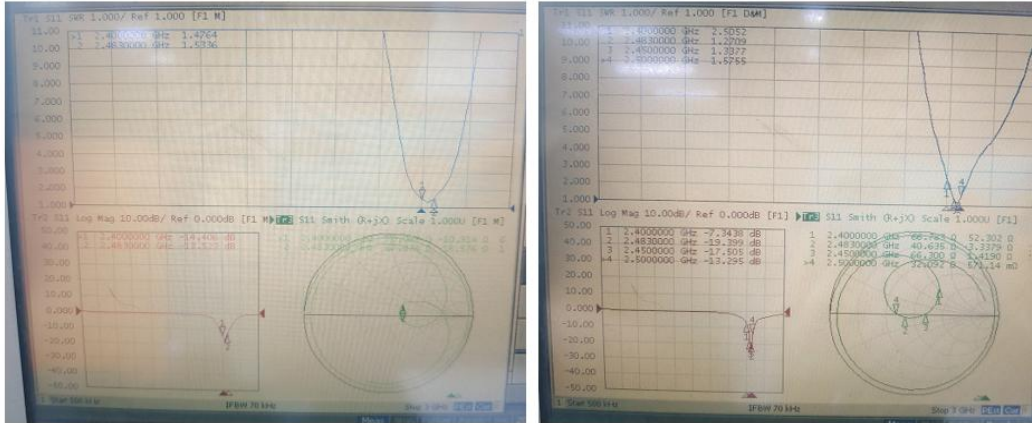
Test method: DUT is fixed in the center of the turntable on the same horizontal line as the center of the horn antenna.

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, electrical performance parameters**

<b>Product electrical performance index</b>	
Operating frequency range	2400MHz-2500MHz:
standing-wave ratio	2400MHz-2500MHz: < 2.0
antenna gain	.02400MHz-2500MHz: - 2 dBi ± 1dBi
radiation efficiency	2400MHz-2500MHz: > 20 %
impedance	50 ohm
<b>Product material description</b>	
<b>LDS</b>	<b>Sabic</b>
<b>Product environment description</b>	
working temperature	- 40°C ~ + 80 °C
Storage temperature	- 40°C ~ + 80 °C

### 2.2.3 passive antenna parameters



### 2.2.4 Antenna passive parameter-free space

Test	R								
	1	2	3	4	5	6	7	8	9
Test Point ID	1	2	3	4	5	6	7	8	9
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	24.2	24.7	25.2	27.6	29.3	28.1	27.4	26.5	25.1
efficiency(dB)	-6.16	-6.07	-5.99	-5.59	-5.33	-5.51	-5.62	-5.77	-6.00
transmission gain (dBi)	-0.82	-0.74	-0.59	-0.36	-0.29	-0.36	-0.53	-0.71	-0.82

**2.2.5 Antenna passive parameters-Head / ear**

Test	R								
	1	2	3	4	5	6	7	8	9
Test Point ID									
Freq. (MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	7.8%	8.2%	8.6%	9.1%	9.3%	9.3%	9.1%	8.5%	8.3%
efficiency(dB)	-11.08	-10.86	-10.67	-10.42	-10.31	-10.39	-10.71	-10.82	-11.14
transmission gain (dBi)	-5.42	-4.95	-4.51	-4.59	-4.12	-4.57	-4.72	-5.19	-5.48

**2.2.6 Main board conduction**

Test	R		
	0	39	78
channel			
power (dBm)	11.3	11.5	11.4
sensitivity (dBm)	-93	-93	-93

### 2.3 Active parameters of the antenna

<b>Free- space</b>	<b>R</b>		
<b>CHANNEL</b>	<b>0</b>	<b>39</b>	<b>78</b>
<b>TRP (dBm)</b>	5.84	5.79	5.53
<b>TIS (dBm)</b>	-88.14	-88.31	-88.19

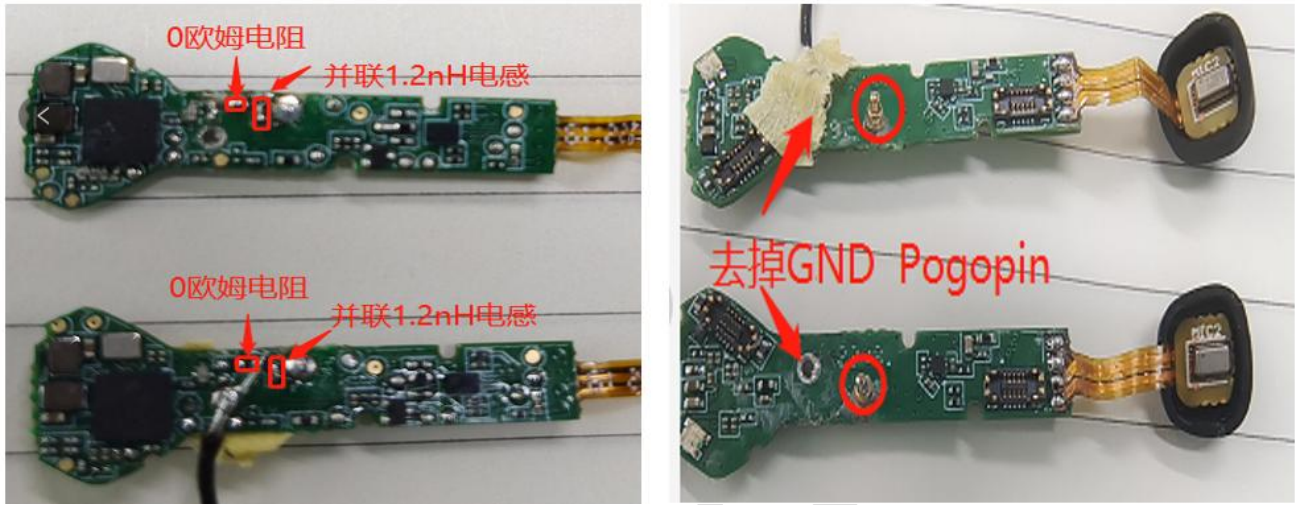
  

<b>Head/ear</b>	<b>R</b>		
<b>CHANNEL</b>	<b>0</b>	<b>39</b>	<b>78</b>
<b>TRP (dBm)</b>	1.16	1.31	1.22
<b>TIS (dBm)</b>	-82.31	-82.51	-82.19

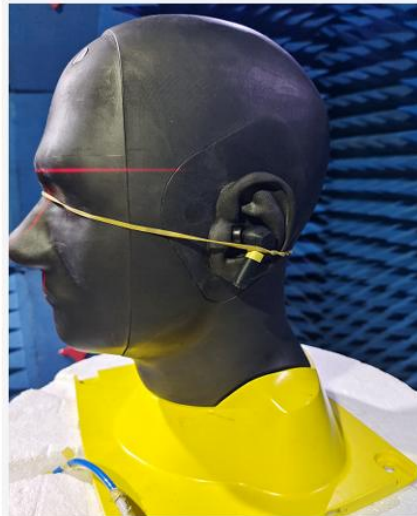




## 2.4 Antenna matching

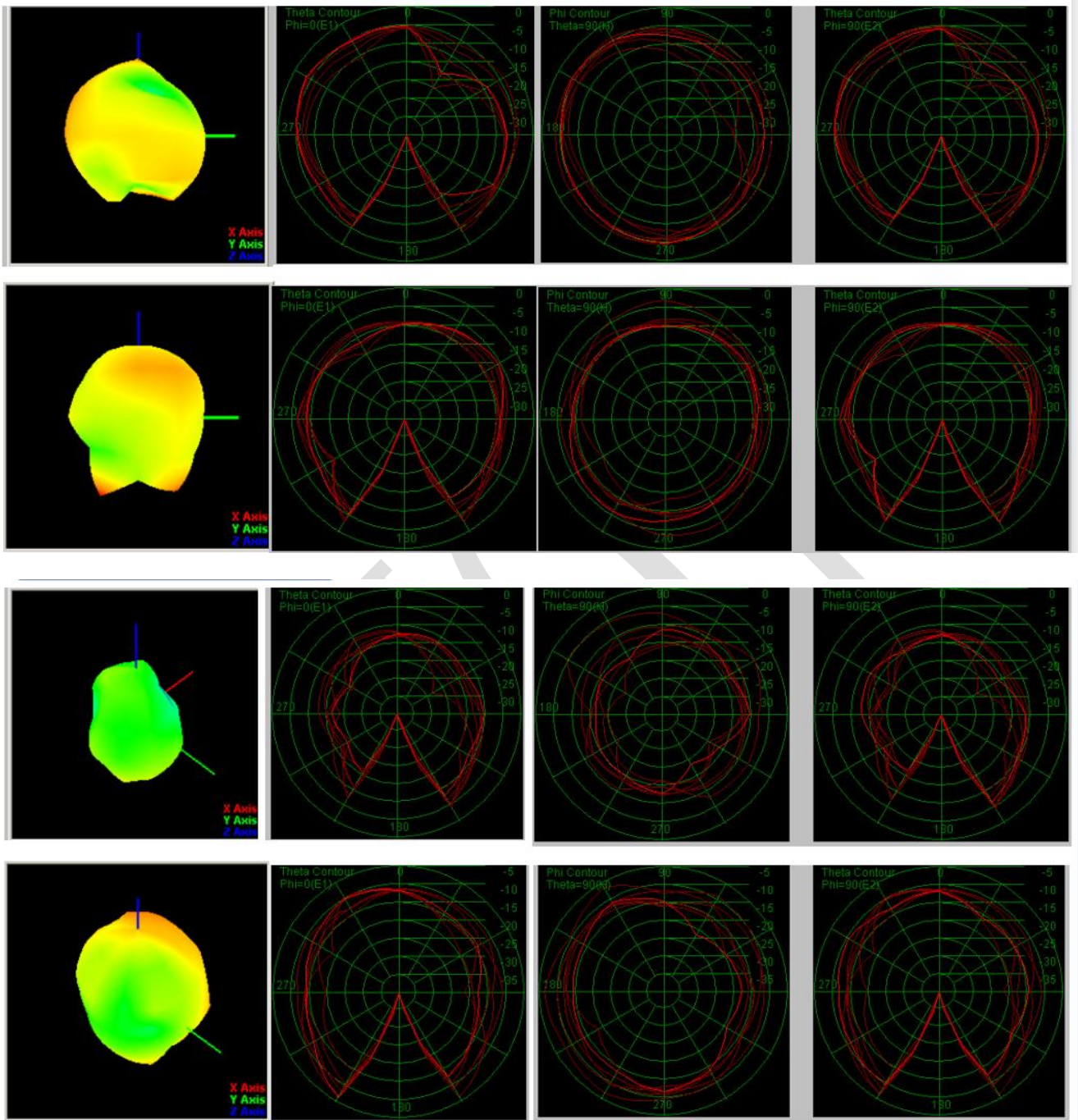


## 2.5 The antenna test environment





### 2.6 Antenna direction diagram



### 2.7 Field measurement data



Test method:	1. Distance test: the mobile phone is connected to the Bluetooth headset, and the mobile phone is placed on the non-metallic bracket with a height of 60cm. The tester wears the headset and walks far away, while the tester rotates 360 degrees. The limit distance between the call sound and the music sound in the headset without breaking is measured.	
	2. Close-in test: Testers carry mobile phones with them (preferably in the back pocket of pants with the main ear of the bluetooth headset opposite) for human rotation test.	
	3. Hands covering test: testers wear headphones and connect them with mobile phones to play music, and test in two states: 1) fingertip up test to test whether the music is broken; 2) Fingertip back test to test whether the music is broken.	
Test location:	In the outdoor space downstairs of our company (see test environment), the outdoor lawn downstairs of our company (see test environment), our engineering personnel.	
Test equipment:	Iphone 6。	
Test results:	Test item	Iphone 6
	Listen to music	1. When the left and right ears are each other's dominant ears, test 360 degrees within 13M without stuck break and squat without stuck
		2. There is no stuck phenomenon in close test.
		3, hands cover test: fingertip up test has broken; Fingertip back test is stuck.

### 3.structural drawings

#### 3.1 Right headphone antenna drawing

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Skills requirement:

- The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings
- MATERIAL: Black LDS PC DX11355-BKNAT  
(With 100% pure ingredients)
- Parameter requirement: CU: 8-12 UM  
NI: 2-4UM
- Flatness of the finished product is less than or equal to 0.50;
- Ds Antenna can not crack and fall off after electroless plating. Obvious scratch, overflow plating, such as lack of plating, bad phenomenon.
- LDS antenna products require 100% test conduction.
- Parts meet ROHS2.0/HP/Reach/GP environmental protection requirements

DATE	Modify the content	Version	Revise

Shenzhen Yu Sheng Communication Equipment Co., Ltd

Model	G3	DATE	20230328
Name	BT-R-ANT	Design	JFB
Part NO	336021-1B	MD	JFB
Material quality	CU 8-12 um NI 2-4um	Reviewer	CKH
Material quality	CU 8-12 um NI 2-4um	RF	CKH
Weld surface treatment		confirm	
Appearance treatment		INIT	

位置	0.02	mm	projection	FIT	Revised	R: A
±0.10	○	0.02				
±0.12	◎	0.03				
±0.15	⊖	0.02				
±0.20	⊖	0.04				

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## 4. Bill Of Material

**YUSHENG COMMUNICATION TECHNOLOGY CO.,LTD.**  
**336021(G3)-BOM**

Edition/版本: RA

client/机种:336

Model/项目: 336015

date/日期: 20220511

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	surface treatment 表面处理	unit单位	Quantity数量
1	336021-IA	BT-L-ANT	Z	RA	14.92*10.59*2.30mm				PCS	1
1.1	336021-IA-01	L-Trestle	W	RA	14.92*10.59*2.30mm	SABIC DX11355	black	V#18	PCS	1
1.2	336021-IA-02	L-Pattern	W	RA	Cu 8-12 Ni 2-4	CU NI	Gray	Chemistry NI	PCS	1
2	336021-IB	BT-R-ANT	Z	RA	14.92*10.59*2.30mm				PCS	1
2.1	336021-IB-01	R-Trestle	W	RA	14.92*10.59*2.30mm	SABIC DX11355	black	V#18	PCS	1
2.2	336021-IB-02	R-Pattern	W	RA	Cu 8-12 Ni 2-4	CU NI	Gray	Chemistry NI	PCS	1

Confirmation:

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

Review:

Production: FW





## 5. Full-size report

### 5.1 Right Headphone Size Report

#### LDS Product appearance and size report


Customer name: Guoheng    P / N    336021-IB(R)    project name    G3    Test date: 2023-02-23  
 product type:     stamping     plastic parts     assembly parts

NO	Inspection specifications	Sample:1	Sample:2	Sample:3	Sample:4	Sample:5	result	inspection tool	rema rks
1	10.59±0.10	10.62	10.63	10.65	10.63	10.64	OK	Secondary element projector	
2	2.00±0.10	1.99	1.98	1.98	1.99	2.02	OK	Secondary element projector	
3	14.92±0.10	14.95	14.96	14.93	14.92	14.95	OK	Secondary element projector	
4	2.30±0.10	2.32	2.31	2.35	2.32	2.32	OK	Secondary element projector	
5	0.80±0.10	0.78	0.77	0.78	0.77	0.76	OK	Secondary element projector	
6	2.40±0.10	2.45	2.43	2.42	2.43	2.43	OK	Secondary element projector	
7	2.50±0.10	2.52	2.52	2.53	2.53	2.51	OK	Secondary element projector	
nature ability survey try	salt spray test	√	√	√	√	√	OK	Salt mist test machine	
	broken circuit	√	√	√	√	√	OK	universal electric meter	
	Bige test	√	√	√	√	√	OK	Beige glue, Beige knife	
	antenna performance	√	√	√	√	√	OK	Microwave dark room	
outside observe	product appearance	√	√	√	√	√	OK	microscope	
	Packaging identification	√	√	√	√	√	OK	visual	
	date of manufacture							visual	
Control of harmful substances		√	√	√	√	√	OK	EDX	
Final judgment result		<input type="checkbox"/> Accept <input type="checkbox"/> rejected <input type="checkbox"/> heavy industry <input type="checkbox"/> special production							
rema rks	1. Performance, reliability, electrical, appearance inspection qualified, play "V". 2. Check the measured data and only record 5 groups. The samples selected for the size and function part should be different from the shipment batch LOT No.be as the criterion. 3. Comprehensive output: initial 4N, dial 20								

Approval: Jiang Fangbai

Production: Lu Tingying

### 6 Packaging specification (packaging diagram)

<p>1. Individual product packaging photo or 2D diagram</p> 	<p>2. Picture or 2D picture of the minimum package in the box</p> 	<p>Product material number</p>	<p>LDS antenna</p>	
		<p>product name</p>	<p>LDS antenna</p>	
		<p>Product version</p>	<p>T:A</p>	
		<p>manner of packing</p>	<p>The whole disk packaging</p>	
<p>3. Label photos or 2D drawings on the rear surface of the whole box sealing box</p>	<p>4. Schematic diagram of the labels</p>	<p>In-box packing</p>	<p>The plate</p>	<p>Depending on the project situation</p>
			<p>Each box quantity</p>	<p>Depending on the project situation</p>
		<p>remarks</p>		
		<p>Confirmconfirmation, Zhong QiuHong</p>		
		<p>date</p>	<p>2022-1-5</p>	
		<p>Confirmation of the person</p>	<p>Zhong QiuHong</p>	

**深圳市昱晟通讯设备有限公司**

客户名称	*****
订单编号	*****
项目名称	*****
物料编码	*****
数量	****pcs
出货日期	****年**月**日

