

# SPECIFICATION

Daxian Communication Technology Limited

**Shenzhen Daxian Technology Co., Ltd.**

lchse TW241 Right ear  
Bluetooth headset antenna

## Material Recognition Letter

Guest households	lchse	frequency band	2400MHz~2500MHz
Project name	TW241	version	V1.1
Material No.	2T-W241X-075	color	Black
R F design	Qiang.Wang	structure design	YeZhi.Bi
Quality Manager	Ziyin.Hu	R & D director	Lei.Zhang
Date	2023-09-21		

client confirmation:

Whether the assembly meets your requirements: ☐OK ☐NG**Shenzhen Topant Technology Co., Ltd.**

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## Confidential requirement

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## — Project description

<b>Customer name:</b>	lchse
<b>Whole machine type:</b>	Bluetooth headset
<b>Antenna band:</b>	2400 ~ 2500MHz
<b>Antenna form:</b>	FPC
<b>Feed form:</b>	welding
<b>Number of feed feet:</b>	2 left and right ears
<b>Hardware version:</b>	<b>motherboard:</b>

## 一、BT antenna

This report provides a variety of measurements of the electrical performance of the TW241 antenna. Figure 1 shows the antenna designed by the display.



Whole machine appearance chart

antenna appearing diagram

Figure 1

### 1.1 Electrical specification standard

The frequency range of the antenna is 2400 ~ 2500 MHz. The following table indicates the electrical performance specifications of the antenna. The antenna is designed and manufactured by a large display.

Frequency Range	Frequency (MHz)	VSWR
Right ear BT	2400 ~ 2500	$\leq 2$

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## 1.2 Antenna composition

The antenna is mainly composed of FPC.

## 2、 The Equipment of Active Test

Satimo 3D Chamber  $6 \times 4 \times 4$  ( m )

Agilent 8960 E5515c

Network analyzer-R&S ZVL



Figure 2

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### 3 test

#### 3.1 The Test of standing Wave (VSWR)

**3.1.1 The Test of standing Wave (VSWR):** In turn, the connection of the VSWR testing device is as follows: RES ZVL Network Analyzer / testing Line / testing tool

**Actual measurement (with diagram)**

#### 3.2 Measurement of Efficiency, Power (TRP) and Sensitivity (TIS)

##### 3.2.1 Test site:

Large-scale microwave darkroom. The test frequency range is 400MHz / 6GHz, the static range is 50cm circumferential and the reflectivity is less than-50 dB..

##### 3.2.2 Test instrument:

Rs ZVL Network Analyzer, Agilent8960 E5515C, Standard Horn Antenna, French SATIMO-SG24SYSTEM system, Printer, etc.

**3.2.3 test data :** In microwave anechoic chambers, the power and sensitivity values measured are shown in the following table:

OTA free space active test:

R-Free space			
BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	6.75	-87.01
	39	6.44	-88.87
	78	6.40	-87.94

Passive Test:

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	35.6	-4.49	-0.72
2410	34.94	-4.57	-0.71
2420	36.04	-4.43	-0.71
2430	38	-4.2	-0.24
2440	38.76	-4.12	0
2450	39.47	-4.04	-0.84
2460	38.68	-4.13	-0.94
2470	35.76	-4.47	-1.34
2480	34.78	-4.59	-1.23
2490	32.54	-4.88	-1.37
2500	30.38	-5.17	-1.53

#### OTA head mold active test

R-headform			
BAND	CH	TRP (dBm)	TIS (dBm)
BT	0	1.06	-82.05
	39	1.25	-82.35
	78	1.11	-82.26

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## 4、 conclusion:

This antenna is designed on the basis of the prototype provided by the customer, electrical parameters and structural performance have reached the technical requirements, please confirm!

## 5、 Attachment chart

### 5.1 VSWR parameter diagram

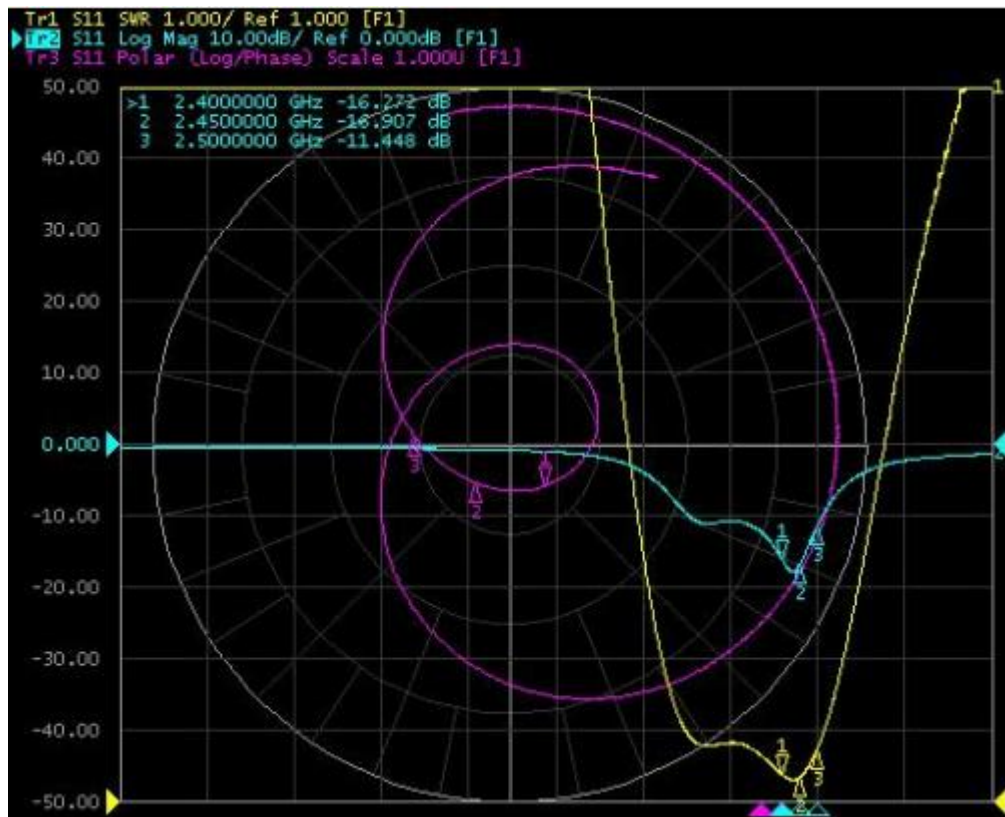


Figure 3

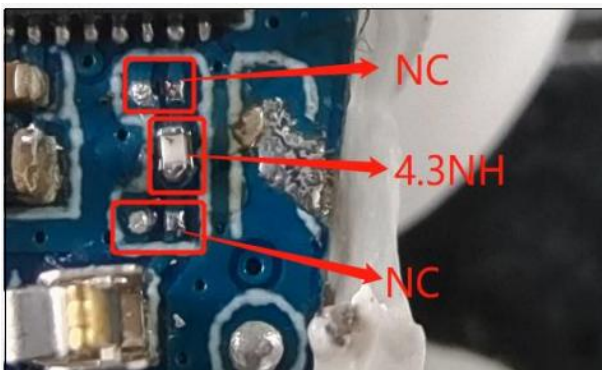
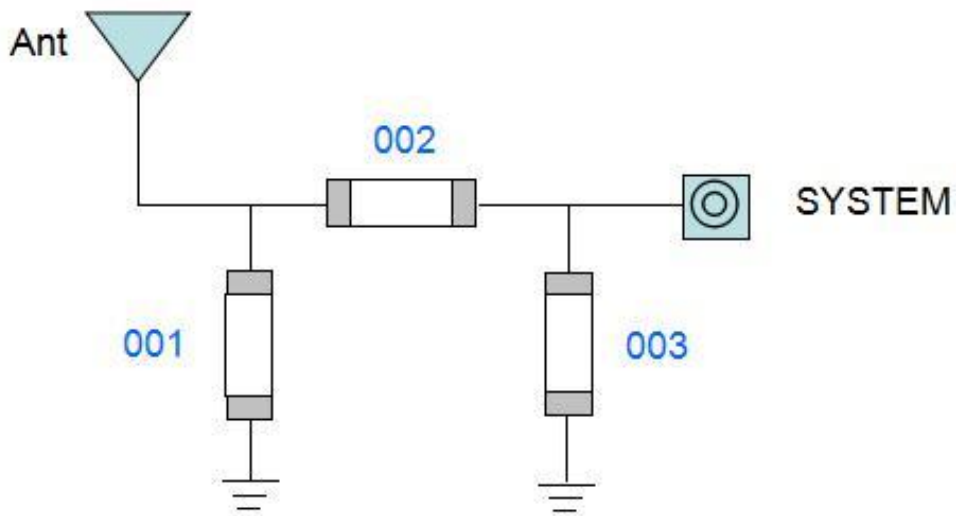
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## 5.2 Matching circuit



Element	Left	Right
001	N/C	N/C
002	1PF	4.3NH
003	0.5PF	N/C

注意：匹配电路有变更

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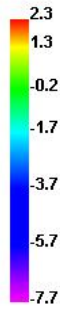
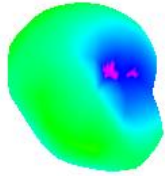
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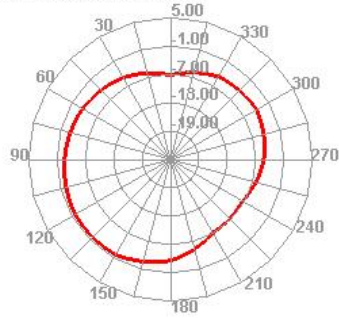


## 6、Passive field pattern diagram-R:

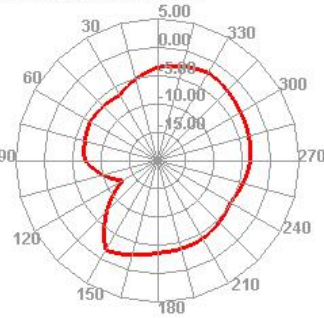
2400.000MHz



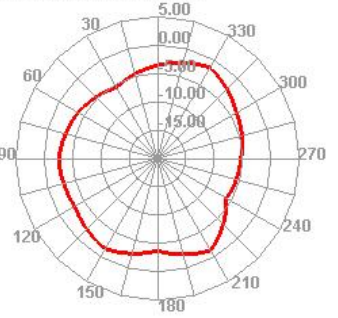
2400.000MHz H



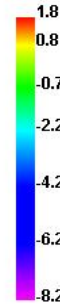
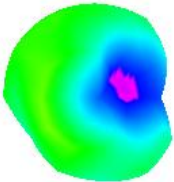
2400.000MHz E1



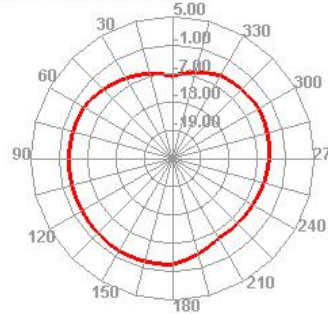
2400.000MHz E2



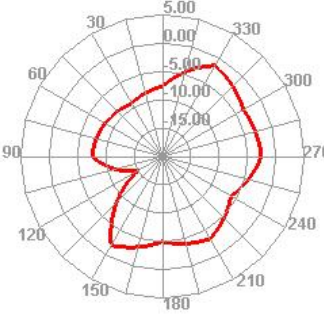
2450.000MHz



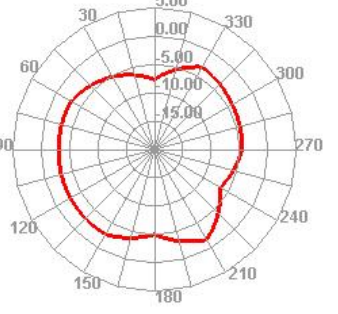
2450.000MHz H



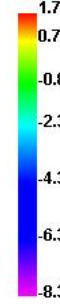
2450.000MHz E1



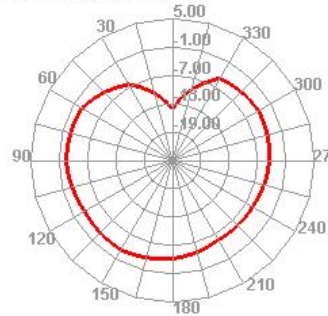
2450.000MHz E2



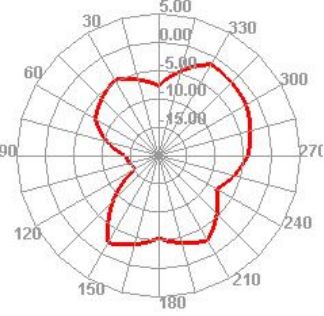
2500.000MHz



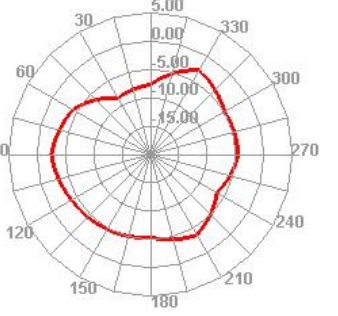
2500.000MHz H



2500.000MHz E1



2500.000MHz E2



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## 7、Environmental treatment

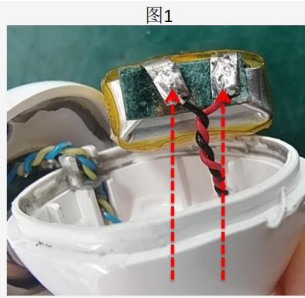


图1

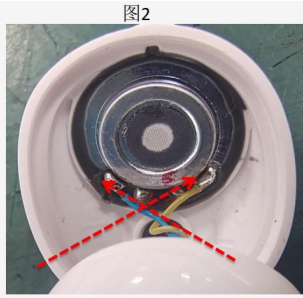


图2

如图1示，电池线焊接在电池极耳末端，平行相交焊接（左右耳共用）；  
如图2示，喇叭线左右交叉焊接在喇叭焊盘（左右耳共用）。



图3



图4

如图3示，电池线压在电池下方，注意电池线不要超出极耳（左右耳共用）；  
如图4示，电池线、喇叭线正负极做缠绕动作（缠到缠不动），  
电池正负极线长：20mm  
喇叭正负极线长：23mm  
（左右耳共用）

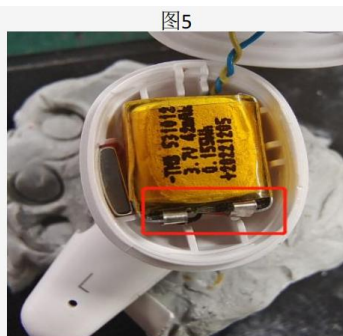


图5

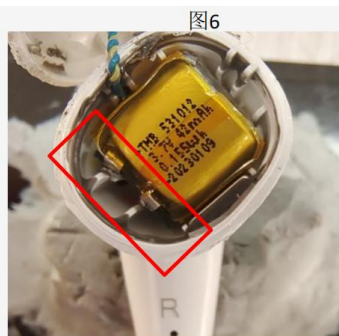


图6

左耳电池极耳按图5示意位置摆放，右耳电池极耳朝图6示意位置摆放

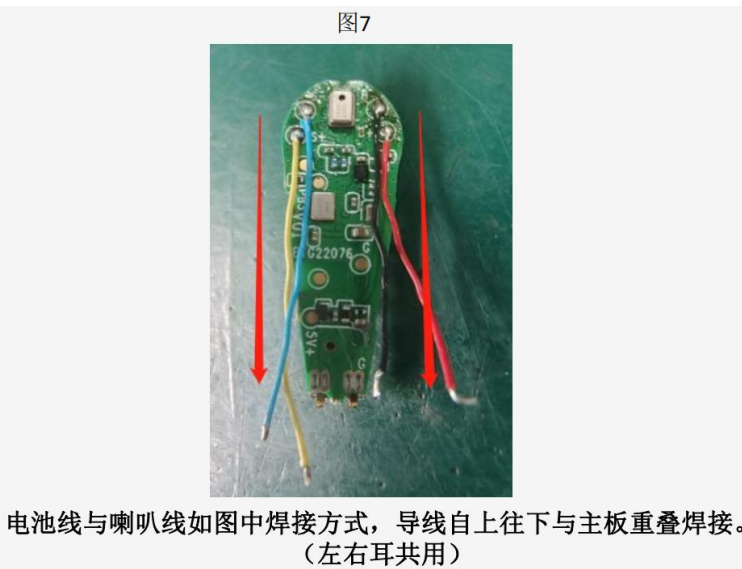


图7

电池线与喇叭线如图中焊接方式，导线自上往下与主板重叠焊接。  
（左右耳共用）

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